

THE MONOPOLIES AND MERGERS COMMISSION

**Bristol Omnibus Company Limited
Cheltenham District Traction Company
City of Cardiff District Council
Trent Motor Traction Company Limited
and
West Midlands Passenger Transport
Executive**

A Report on Stage Carriage Services
supplied by the Undertakings

*Presented to Parliament in pursuance of
Section 17 of the Competition Act 1980*

*Ordered by The House of Commons to be printed
28 July 1982*

LONDON
HER MAJESTY'S STATIONERY OFFICE

HC 442

VOL 1/2

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GLOSSARY

CIPFA	Chartered Institute of Public Finance and Accountancy.
COBS	Continuous on-bus survey—a survey undertaken by WMPTE to gather passenger information on a sample basis.
Cross-subsidisation	In the bus industry this consists of using the profits from profitable operations, eg entire services or operations on particular days of the week or at particular times to keep in existence operations which are loss-making and might otherwise be reduced or withdrawn.
DD	Double-deck vehicle.
Dead mileage	Mileage not directly connected with revenue earning.
DP	Dual-purpose vehicle—one which can be used for stage carriage services or other purposes (eg express services or private hire).
EFL	External financing limit.
EPPS	Engineering premium payment scheme operated by WMPTE.
GRF	General Rate Fund.
Load factor	This is a measure of the occupancy of a bus; two measures are used in the report: <ul style="list-style-type: none">(i) the percentage of seats occupied on a bus at a particular point on the route, and(ii) passenger miles per bus mile for a route as a whole.
Lost mileage	The difference between scheduled mileage and mileage operated.
MAP	Market analysis project: a management information system used by NBC to identify passenger demand and secure the optimum deployment of resources, ie staff, vehicles and infrastructure commensurate with available finance on a local basis.
OMO	One-man operation.

Operating ratio	The revenue from a route expressed as a percentage of the total costs incurred.
PTP	Public Transport Plan—a statutory document prepared annually by non-metropolitan county councils in England and Wales setting out their needs, objectives, policies and proposals with regard to public transport.
Public service vehicle (PSV)	A vehicle used for carrying passengers for hire or reward which is either adapted to carry more than eight passengers or if not so adapted is carrying them at separate fares in the course of a business of carrying passengers.
PVR	Peak vehicle requirement—the maximum number of vehicles scheduled to be in service at the busiest period
RSG	Rate support grant.
Revenue support	Payments rendered by local authorities to sustain continued operation of loss making services (or journeys on services) within a network which are considered by these local authorities to be socially necessary.
Rosters	Comprise a varying number of lines of duty—each line of duty covers the activities of one driver or crew for one shift and may entail operating on one service or two or more services in the course of a shift.
SD	Single-deck vehicle.
Scheduled mileage	Total vehicle miles planned as shown in published timetables.
Stage carriage service	A service on which separate fares are paid and the minimum distance which a passenger can be carried between picking-up and setting down points is less than 30 miles measured in a straight line.
TPP	Transport Policies and Programme—a document prepared annually by all counties setting out their transport policies and a costed programme for giving effect to them. TPPs form the basis for bids by counties in England and Wales for Transport Supplementary Grant.
TSG	Transport Supplementary Grant—a supplementary grant in aid of local authority expenditure on transport services.

CHAPTER 1

Introduction

1.1. On 8 September 1981 the Department of Trade sent to the Commission the following reference:

The Secretary of State, in exercise of his powers under section 11(1)(a) and (c) of the Competition Act 1980, hereby refers to the Monopolies and Mergers Commission the questions set out below relating to the efficiency and costs of, and possible abuse of a monopoly situation by, each of the bodies mentioned below in supplying stage carriage services, the said bodies being:

Bristol Omnibus Company Limited
Cheltenham District Traction Company
City of Cardiff District Council
Trent Motor Traction Company Limited
West Midlands Passenger Transport Executive.

The Commission shall upon these references investigate and report on the following questions:

- (i) Whether, in supplying the said services, each of the said bodies could improve its efficiency and thereby reduce its costs without significantly affecting the level of services provided, with particular reference to:
 - (a) the flexibility of working practices and the efficiency with which manpower and vehicles are used;
 - (b) procedures for maintenance of vehicles;
 - (c) methods for determining the nature, amount and timing of capital expenditure and the extent (if any) to which decisions thereon have increased efficiency or reduced costs;
 - (d) the way in which efficiency is affected by local authority policy (other than those aspects of policy which the Commission must exclude from their investigation and report by virtue of section 11(8) of the Competition Act 1980) and the manner in which such policy is communicated to and within and is implemented by each of the said bodies;
 - (e) the relevance for the efficiency of each of the said bodies of its size;
 - (f) in the case of Bristol Omnibus Company Limited, Cheltenham District Traction Company and Trent Motor Traction Company Limited, the relevance for the efficiency of each of those bodies of its position as a subsidiary of the National Bus Company;
- (ii) whether any significant conclusions can be drawn from the differences between the efficiency and costs of each of the said bodies and those of each of the others;

- (iii) whether any of the said bodies is abusing any monopoly situation existing in its favour in the supply of stage carriage services, with particular reference to the way in which each body responds to competition and uses public funds; and
- (iv) whether, in relation to any matter falling within the questions set out above, the body to which the matter relates is pursuing a course of conduct which operates against the public interest.

In these references, 'stage carriage service' shall have the meaning given in section 44(1) of the Transport Act 1980.¹

The Commission shall report on these references within a period of six months beginning with the date hereof.

(Signed) S G LINSTEAD
An Assistant Secretary
Department of Trade

8 September 1981

1.2. On the same day the Chairman of the Commission, acting under section 4 of the Fair Trading Act 1973 and paragraph 10 of Schedule 3 thereto, directed that the functions of the Commission in relation to the reference should be discharged through a group consisting of six members of the Commission and appointed himself, being a member of the group, to act as Chairman of the group. The composition of the group is indicated in the list of members which prefaces this report.

1.3. On 9 February 1982 the Commission requested an extension of the time within which the report had to be completed. The Secretary of State for Trade, being satisfied that there were special reasons why the report could not be made in the period specified in the reference, and having regard to the provisions of section 11(9) of the Competition Act 1980 and section 70(2) of the Fair Trading Act 1973, granted an extension of three months.

Scope of the inquiry

1.4. Under the terms of the reference the Commission are required to investigate the operations of the named bodies in supplying stage carriage services. In general the term 'stage carriage service' (a 'stage carriage' is a public service vehicle being used in the operation of a local service) can be defined as a service on which separate fares are paid and the minimum distance which a passenger can be carried between picking-up and setting-down points is less than 30 miles measured in a straight line. Other types of services—express carriage and contract carriage—have been dealt with in our inquiries only where they had some particular relevance to stage carriage operations.

1.5. Although five bodies are named in the terms of reference, the operations of Cheltenham District Traction Company (CDT) have been unified

¹ The meaning of 'stage carriage service' is now set out in section 82(1) of the Public Passenger Vehicles Act 1981 in the same terms as in the Transport Act 1980.

with those of Bristol Omnibus Company Ltd (BOC). All references in this report to BOC should therefore be regarded as including both companies unless otherwise stated.

Evidence received

1.6. A press notice was issued by the Department of Trade on 8 September 1981 setting out the formal terms of reference and inviting persons wishing to give evidence to write to the Secretary of the Commission. In addition specific invitations to submit evidence were sent to the TUC and individual unions concerned, the CBI and a number of other organisations thought to be interested in the reference. The views of county and district councils within the areas of operation of each of the undertakings were also sought and ten major customers of each of the undertakings were invited to comment. The views of a random sample of independent bus and coach operators in each of the four undertakings' areas were sought by means of a single page questionnaire.

1.7. Bodies who submitted evidence include the Confederation of British Road Passenger Transport, the Association of Metropolitan Authorities, the Association of County Councils, the National Consumer Council, the Welsh Consumer Council, Transport 2000, the National Federation of Old Age Pension Associations, the Birmingham Retirement Council, Coventry Home Advisory Committee, Chambers of Commerce and Industry and Chambers of Trade, the Bristol Public Transport Users' Committee. Evidence was submitted by the principal county councils and a number of district councils wholly or partly within the areas served by the four undertakings and the Shadow Chairman of the City of Bristol Planning and Traffic Committee. Over 90 members of the public also sent letters; these were mainly about the changes in services introduced by BOC in October 1981 (see Chapter 3).

1.8. We received written evidence from the TUC, the General and Municipal Workers' Union (GMWU), the National and Local Government Officers Association (NALGO), and the Transport and General Workers' Union (TGWU) as well as from the Association of Managerial Staff of the NBC and Subsidiary Companies (AMS).

1.9. members of the Commission visited each of the undertakings' headquarters, as well as a number of garages, depots, workshops, bus stations and other facilities operated by them. During these visits members were able to meet trade union representatives informally at local level and also members of county and district councils. Members subsequently met full-time officers representing engineering employees of WMPTE and CCT and officers of the Association of Managerial Staff of the NBC and subsidiary companies. Officials made extensive visits to the four undertakings both to see problems at first hand and to collect data and other evidence.

1.10. The Chairman of the Commission and officials made visits to a number of county councils and district councils and also met the Chairman of Traffic Commissioners of the East Midlands, West Midlands, South Wales and Western Traffic Areas in which the undertakings principally operate.

1.11. C K Coaches (Cardiff) Limited was visited by members while officials visited a number of other independent operators in the undertakings' operational areas.

1.12. Each of the undertakings gave evidence at two hearings; in the case of CCT, members of Cardiff City Council and officials attended. NBC, the holding company for BOC and TMT, gave separate evidence at a hearing. Hearings were held with the TUC's Transport Committee (at which the TGWU was also represented) and with NALGO. Evidence was also given by the Association of Metropolitan Authorities, the West Midlands County Council and the Conservative Group of the Cardiff City Council at hearings.

1.13. We were assisted by consultants in our examination of the costs and efficiency of platform staff and of maintenance operations, in our studies of the effects of the conversion to one-man operation (OMO) on costs and revenue (see Appendix 2.6) and in the development of a computer time series model of bus operations.

Statutory framework

1.14. The provision and financing of public passenger transport by both central and local government is governed by various Acts of Parliament; the principal effects regarding bus undertakings are summarised briefly below.

Central government

1.15. So far as central government is concerned, the Secretary of State may under section 8 of the Local Government Act 1974 make a specific grant to local authorities for purposes not covered by the Rate Support Grant. In England the Transport Supplementary Grant (TSG) includes an element towards accepted local authority expenditure on bus services, and is made under this provision. In Wales TSG is, with effect from 1 April 1982, limited to capital expenditure only. An element for local authority expenditure on revenue support for bus services is included in the Rate Support Grant.

1.16. Under section 32 of the Transport Act 1968 the Government may give operators grants towards accepted capital costs of buying new buses to be used wholly or mainly on eligible stage carriage services. The object was to encourage conversion to OMO. The rate was 50 per cent until 31 August 1980; the grant is being phased out in stages and will end completely by 31 March 1984.

1.17. Under section 92 of the Finance Act 1965 and subsequent amending legislation the Secretary of State may make grants to bus operators towards the duty charged on fuel used in the operation of eligible stage carriage services: since 1974, this duty has in effect been rebated in full.

Public service vehicle licensing

1.18. Public service vehicles are those used for carrying passengers for hire or reward which are either adapted to carry more than eight passengers, or

if not so adapted are carrying them at separate fares in the course of a business of carrying passengers. Public service vehicles and their operators are subject to various licensing controls which are set out principally in the Public Passenger Vehicles Act 1981; the controls are administered by the Traffic Commissioners and the Department of Transport. A detailed explanation of the licensing system is given in Appendix 1.1.

Local authorities' responsibilities

1.19. Under section 1 of the Transport Act 1978 each non-metropolitan county has a duty to promote the provision of a co-ordinated and efficient system of public passenger transport to meet the county's needs. (The relevant sections of the Act relating to county transport planning in England and Wales are reproduced in Appendix 1.2.) In metropolitan counties, such as the West Midlands, the county council acting as the Passenger Transport Authority shares a similar responsibility with the Passenger Transport Executive under section 9 of the Transport Act 1968.

1.20. Section 3 of the 1978 Act empowers non-metropolitan counties to make agreements with operators, whether privately or publicly owned, in connection with the provision and financing of public transport services which would otherwise not be operated. Any money made available for this purpose is given under section 1(5) of the 1978 Act.

Counties' Transport Policies and Programmes (TPPs) and Public Transport Plans (PTPs)

1.21. As a basis for applications for TSG, county councils prepare each year a document known as the Transport Policies and Programme (TPP). It sets out the council's objectives and plans for transport in the medium-term of five to ten years. It also contains descriptive matter on the nature of the county and its transportation problems together with the county's plans for dealing with those problems. A vital part of the TPP is a detailed analysis of proposed expenditure over a three year period of which the grant year is the first.

1.22. The Transport Act 1978 placed the duty upon each non-metropolitan county to prepare and publish each year a further document known as the Public Transport Plan (PTP) covering a five year period. It is designed to be a considered statement of the county's problems, objectives, policies and proposals with regard to public transport. It looks at these aspects in more detail than the TPP. The document considers the county's available resources, operators' expected revenue and the amounts which county and district councils are expected to contribute for school transport services, revenue support and concessionary fares. The PTP also includes details of agreements which the county has entered into with transport operators, of concessionary fares schemes and of consultations which have taken place with interested bodies in the preparation of the plan.

The bus undertakings

West Midlands Passenger Transport Executive (WMPTE)

1.23. The West Midlands is one of the six English passenger transport areas; passenger transport areas were originally set up under section 9 of the Transport Act 1968. The Passenger Transport Authority in the West Midlands has since 1 April 1974 been the West Midlands County Council (WMCC) which appoints the directors of WMPTE and has budgetary and policy control.

1.24. WMPTE is responsible for planning and running bus services, either directly or under agreements with other operators, and also for entering into agreements, subject to approval of the WMCC, with British Rail for the provision of such rail services as WMCC deem to be necessary. It is to a great extent an arm of local government. Although it is responsible for day-to-day transport operations within its area, powers over general policies rest with the county council. A more detailed description of the responsibilities of WMPTE is given at Appendix 1.3.

1.25. WMPTE serves the West Midlands County Council area which includes the cities of Birmingham, Coventry and the metropolitan districts of Dudley, Sandwell, Solihull, Walsall and Wolverhampton with a combined population of about 2.7 million. WMPTE also provides bus services for a further 200,000 people in parts of the adjacent counties of Staffordshire, Warwickshire and Hereford and Worcester. Figure 1.1 shows the extent of WMPTE's operating area and the boundaries of its three bus operating divisions.

1.26. In character the area served can be divided into three distinct areas, Birmingham and Solihull, the Northern and Western Boroughs and Coventry. Birmingham with a population of over one million, gives rise to heavy commuter flows from its suburbs. Solihull acts largely as a dormitory area for Birmingham. The industrial area to the north-west of Birmingham, known as the Black Country, contains towns of considerable size which resulted from the concentration of manufacturing industry into specific districts. Coventry is a self-contained city separated from the rest of the conurbation by a green belt. There are some significant commuter flows into Coventry from neighbouring Warwickshire.

1.27. WMPTE employs some 8,400 staff and has a fleet of approximately 2,400 buses. In addition it has operating agreements with Midland Red Omnibus Company for the operation of certain cross-boundary bus services and with two independent operators who serve parts of the county area. In 1981-82 the Executive operated 68.1 million vehicle miles and carried 500 million passengers as shown in Table 1.1 which provides basic data for the undertaking over recent years.

TABLE 1.1 WMPTE: trends in vehicle operating indicators

	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
Year ending 31 March							
Passenger journeys—stage carriage (millions)	560.0	577.0	551.3	528.6	528.1	494.7	500.0
Vehicle miles—stage carriage (millions)	76.1	76.2	75.7	74.5	73.8	72.6	68.1
Scheduled miles (millions)	77.3	77.8	77.5	76.3	76.7	74.0	70.3
Percentage of scheduled miles lost	1.5	2.0	2.3	2.4	3.8	1.9	3.1
Total number of vehicles at year end	2,680	2,695	2,671	2,636	2,560	2,478	2,426*
Peak vehicle requirement (average)	2,161	2,163	2,147	2,137	2,113	2,060	1,888

Source: WMPTE.

* Includes 53 vehicles awaiting disposal, 131 reserve and 24 de-licensed.

Note:

The figures show that patronage was growing until 1976-77 when it began slowly to decline. The decline was particularly severe in 1980-81 when passenger journeys fell by 6 per cent because of real fare increases and the recession. The decline was temporarily halted in 1981-82 due to the September 1981 fares reduction. The numbers of vehicles required at peak times of the day has been declining since 1977-78. The steepest decline was in 1981-82 when the requirement fell by over 8 per cent. There was a 10 per cent cut in services in December 1980, of which about 1 per cent was later restored, resulting in a fall of about 2 per cent in vehicle miles for the year 1980-81.

City of Cardiff District Council—Transport Department (CCT)

1.28. Cardiff, the capital city of Wales, is in the county of South Glamorgan. It is one of the 49 district councils in England and Wales which still runs its own local bus services under powers taken in local Acts. It has a population of about 275,000 and covers an area of 46.3 square miles; its urban area is contained within a five mile radius of the city centre. Three rivers, the Ely, Taff and Rhymney, run through the city and these have influenced the pattern of residential and industrial development and consequently the structure of the city's bus route network. The principal routes within the City of Cardiff are shown in Figure 1.2.

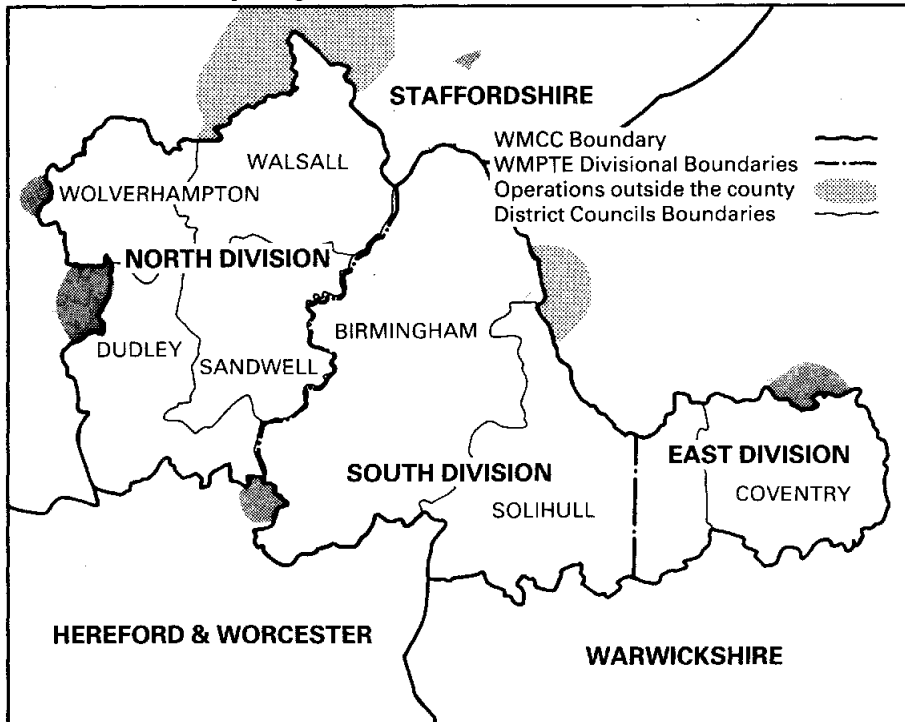
1.29. The basic legislative provisions governing bus operations in Cardiff are contained in section 64 to 90 of the Cardiff Corporation Act 1920. The day-to-day running of the city's bus service is undertaken by the council's Transport Department (see Appendix 1.4).

1.30. CCT operates a fleet of some 200 buses with a staff of about 780. Its services are run almost entirely within the city boundaries. During 1981-82 it operated 6.0 million vehicle miles and carried 33.5 million passengers. Table 1.2 provides basic data over the years ending 31 March 1976-82.

Bristol Omnibus Company Ltd (BOC) and Trent Motor Traction Company (TMT)

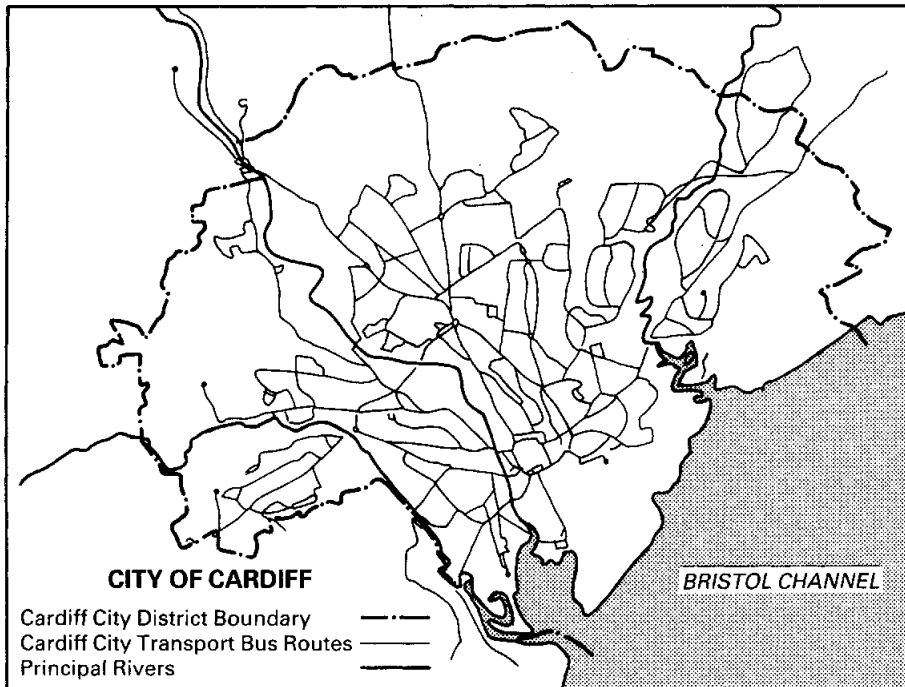
1.31. These companies are wholly-owned subsidiaries of the National Bus Company (NBC) which was formed as a result of the Transport Act 1968. NBC is a holding company with overall responsibility for the policy and financial control of 34 local operating companies (see Appendix 1.5). BOC and TMT are both incorporated under the Companies Acts. BOC is part of NBC's Midland and West region and TMT part of the Northern region.

FIGURE 1.1 WMPTE operating area



Source: MMC.

FIGURE 1.2 CCT operating area



Source: MMC.

TABLE 1.2 CCT: trends in bus operating indicators

Year ending 31 March	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
Passenger journeys—stage carriage (millions)	35.6	37.4	37.4	36.6	36.2	35.2	33.5
Vehicle miles—stage carriage (millions)*	not available	6.0	5.9	5.8	5.8	6.2	6.0
Scheduled miles (millions)*	not available	6.3	6.2	6.4	6.4	6.4	6.1
Percentage of scheduled miles lost	not available	4.4	4.2	9.7	9.7	1.6	1.1
Total number of vehicles at year end	210	211	217	224	222	218	209
Peak vehicle requirement at year end	174	164	161	161	161	160	162

Source: CCT.

* The figures of vehicle miles and scheduled miles for year from 1976-77 have been adjusted to take account of a comprehensive route measurement completed by CCT in January 1982.

Note:

Patronage in Cardiff has been falling since 1977-78; the reduction between 1980-81 and 1981-82 was of the order of 5 per cent. Scheduled miles lost increased sharply in 1978-79 and 1979-80, but were reduced substantially in 1980-81 and 1981-82.

BOC

1.32. BOC provides bus services in Avon and Gloucestershire, in parts of Wiltshire and Somerset and also provides some cross-boundary services into Hereford and Worcester, Oxfordshire, Gwent and South Glamorgan. It operates services within the urban areas of Bristol, Gloucester, Cheltenham, Bath, Swindon and Weston-super-Mare as well as inter-urban and rural services. BOC also engages in private hire, contract and excursion work. The area covered is shown in Figure 1.3.

1.33. BOC employs about 3,100 people and operates some 770 buses. In 1981 the company operated 28.4 million vehicle miles and carried 76.6 million passengers as shown in Table 1.3.

TABLE 1.3 BOC: trends in vehicle operating indicators

Year ending 31 December	1975	1976	1977	1978	1979	1980	1981*
Passenger journeys—stage carriage (millions)	119.1	102.3	98.4	96.6	96.9	86.7	76.6
Vehicle miles—stage carriage (millions)	37.8	36.0	34.1	33.1	31.9	31.3	28.4
Scheduled miles	38.2	36.3	34.2	33.5	32.8	32.0	29.0
Percentage of scheduled miles lost	1.1	0.8	0.3	1.3	2.8	2.3	2.0
Total number of vehicles at year end†	1,186	1,119	1,075	1,025	1,012	1,053	929‡
Peak vehicle requirement at year end	1,096	861	835	819	800	760	632

Source: BOC.

* The data for 1981 makes no allowance for the effect of the strike by company employees on Bristol City services during February 1981.

† Includes dual-purpose vehicles but excludes coaches.

‡ Includes 156 vehicles awaiting disposal.

Note:

Between 1975 and 1981 the number of stage carriage passengers fell by about 36 per cent whilst vehicle miles declined by 25 per cent. The overall fleet size fell by 22 per cent and the peak vehicle requirements fell by 42 per cent during the same period. The implementation of major service reviews in 1980 and 1981 gave rise to reductions in vehicle requirements.

TMT

1.34. TMT operates primarily in Derbyshire, western Nottinghamshire, the Loughborough area of Leicestershire and East Staffordshire; it also has some services in the Greater Manchester and South Yorkshire Metropolitan Counties. The company's operating area had been expanded in 1972 as a result of the transfer to its control of the Midland General Omnibus Company Limited. The practical effects of the amalgamation took place over a number of years with the linking of previously separate services, reduced journey times and rationalisation of fares. The area covered is principally from Buxton in the north west to Loughborough in the south east (45 miles) and Mansfield in the north east to Burton-on-Trent in the south west (30 miles). Most of the company's activity, however, is centred on the Derby-Belper-Alfreton-Mansfield-Nottingham quadrilateral, in which services are predominantly urban (see shaded area in Figure 1.4). Elsewhere, except town services in Buxton, Matlock and Loughborough, services cover mainly rural areas. The company has some services in Derby and Nottingham and to and from Burton-on-Trent, Leicester and Chesterfield but the principal services within these towns are provided by their municipal undertakings. TMT also operates seasonal services to cater for tourists in the Peak Park area and engages in private hire, contract and excursion work.

1.35. TMT currently employs some 1,400 staff and operates a fleet of around 360 vehicles. In 1981 it operated 14.7 million vehicle miles and carried 36.7 million passengers—see Table 1.4.

Performance indicators for the undertakings

1.36. The Secretary of State has issued a Code of Practice calling for the publication by undertakings of nine performance indicators. Table 1.5. shows these indicators for 1981 for the four undertakings. We look into the undertakings' comparative performance in some detail in Chapter 13.

TABLE 1.4 TMT: trends in vehicle operating indicators

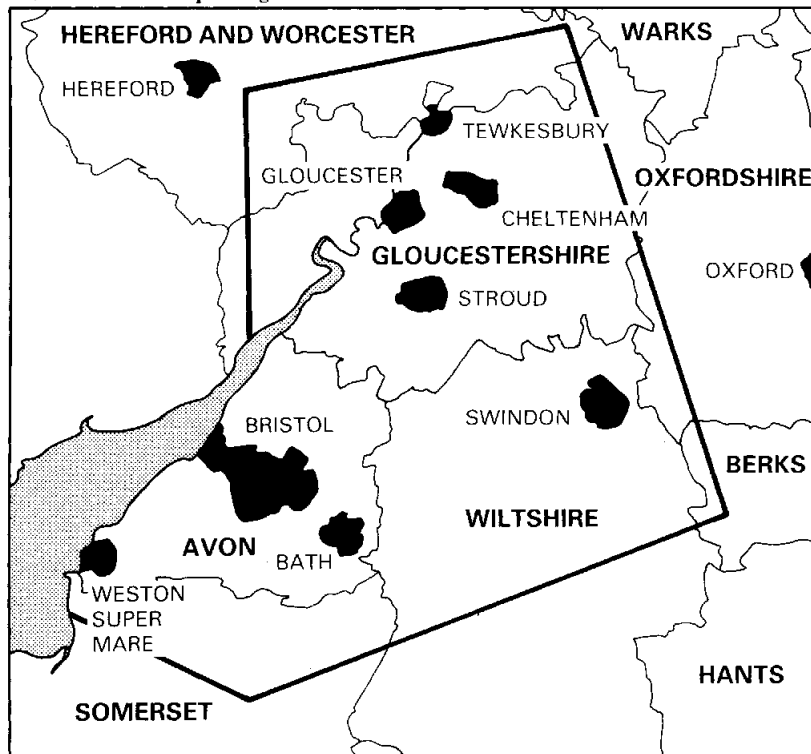
Year ending 31 December	1975	1976	1977	1978	1979	1980	1981
Passenger journeys—stage carriage (millions)	66.8	62.3	55.7	54.9	51.4	44.7	36.7
Vehicle miles—stage carriage (millions)	19.0	18.5	18.0	17.3	16.3	15.6	14.7
Scheduled miles (millions)	19.1	18.6	18.4	17.6	16.8	15.7	14.8
Percentage of scheduled miles lost	0.2	0.3	2.1	1.4	3.3	0.5	0.4
Total number of vehicles at year end*	548	531	492	445	430	371	384
Peak vehicle requirement at year end	478	467	404	364	356	292	286

Source: TMT.

- * i. Excluding coaches.
- ii. Including vehicles awaiting disposal (1981-29 vehicles).

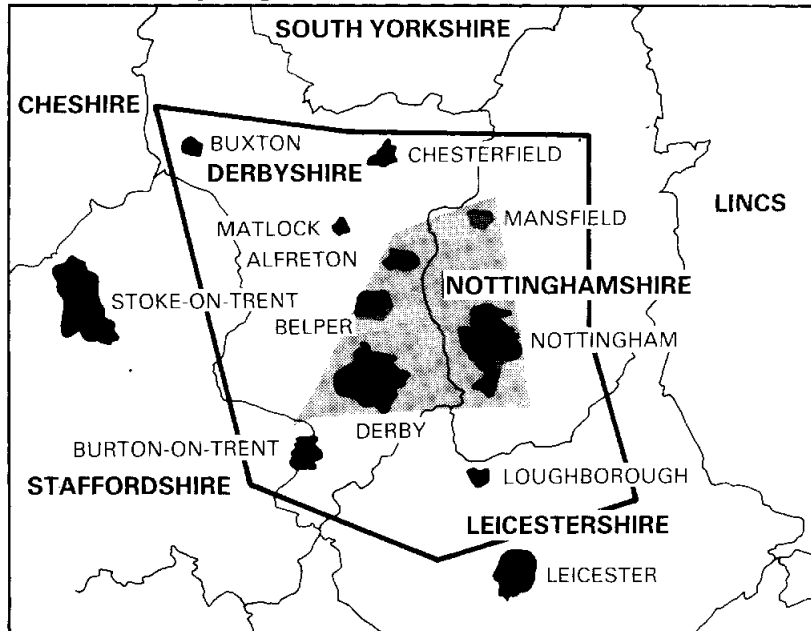
Note:
The passenger journey figures are difficult to interpret because throughout the period TMT was engaged in rationalisation and linking of its routes with those of Midland General which was taken over in 1972 (see paragraph 1.34). This meant that a trip counting as two passenger journeys in 1975 because the passenger had to change buses might have counted as one trip in later years because the routes had been linked. However, it seems probable that passenger travel has fallen sharply since 1978.

FIGURE 1.3 BOC operating area



Source: MMC.

FIGURE 1.4 TMT operating area



Source: MMC.

TABLE 1.5 Performance indicators for 1981

		<i>Year ended</i>		<i>Year ended</i>	
		<i>31 March 1981</i>	<i>31 March 1981</i>	<i>31 December 1981</i>	<i>31 December 1981</i>
		<i>WMPTE</i>	<i>CCT</i>	<i>BOC</i>	<i>TMT</i>
1. Operating costs per vehicle mile	(pence)	134.1	133.1	108.6	93.0
2. Vehicle miles per employee	(000s)	8.6	8.0	9.6	12.0
3. Vehicle miles per vehicle	(000s)	29.3	28.4	34.4	45.7
4. Passenger journeys per employee	(000s)	58.8	45.0	24.9	25.7
5. Passenger journeys per vehicle	(000s)	199.6	160.7	89.2	98.1
6. Passenger receipts as % of turnover		86.9	89.6	91.8	93.8
7. Local authority support as % of turnover		13.1	10.4	8.2	6.2
8. Average fare per passenger journey	(pence)	16.8	18.5	33.2	36.8
9. Lost mileage as a % of total mileage		1.9	1.6	2.0	0.4

Source: —WMPTE, CCT, BOC and TMT.
—MMC study.

1.37. In the following chapters we examine in depth various aspects of the structure, operations and policies of the undertakings and consider the effects of external factors (particularly the policies of county councils) on the undertakings. In each chapter of the report wherever appropriate, we discuss the undertakings in the sequence—WMPTE, CCT, BOC, TMT.

1.38. We should like to thank all those who have helped us in this inquiry, both organisations and individuals. We are particularly grateful to the representatives of the four undertakings concerned and NBC. Some of the evidence we received during the inquiry was confidential; our report contains only the information we consider necessary for understanding our conclusions.

CHAPTER 2

Financial framework

Introduction

2.1. In this chapter we consider the financial framework within which each of the undertakings operates, their financial objectives, the financial constraints upon them and the manner in which they seek to achieve their financial objectives.

2.2. Each of the undertakings operates a system of budgetary control and prepares accounts and route costing statements broadly in accordance with recommendations by the Chartered Institute of Public Finance and Accountancy (CIPFA) on the accounts of passenger transport operations, although there are differences of detail in their accounting and costing procedures.

2.3. In the following paragraphs we describe the accounting policies, management accounts, costs and budgets of the four undertakings and consider how the ways in which they control their costs may affect the efficiency with which they discharge their duty to provide stage carriage services; make certain comparisons of their unit costs as calculated on different bases; and consider in particular the effects of the widespread conversion to the one-man operation (OMO) of buses that has taken place during recent years.

WMPTE

Financial targets and policies

2.4. The annual financial target of the Executive on revenue account arises from its statutory duty under section 11(1) of the Transport Act 1968. This provides that, in carrying out its duties, the Executive must ensure that, so far as practicable, the cumulative net balance on its consolidated revenue account does not show a deficit at the end of any accounting period after taking into account any revenue grants which WMCC is bound to make to the Executive when it specifies a level of service which does not cover the costs of operating that service.

2.5. This means that WMCC can specify the level of service throughout the area for which it is responsible and can also specify the fare levels for that service. In doing so, it must notify the Executive and undertake to provide a revenue grant which will cover the gap between operating costs and revenues. The Executive then arranges its finances taking account of these constraints. Its annual budget is therefore aimed at breaking even after taking into account revenue support from WMCC.

2.6. In the eight years during which WMCC has been the PTA for the West Midlands, revenue support policy has changed according to the political climate and the Executive has had to frame its budget to take account of

such changes. At certain times during the period, substantial financial support has been forthcoming to passenger transport services. At other times, for example, between 1977 and 1981, a policy of retrenchment has operated.

2.7. For 1980-81 the difference between the cost of providing services and the charges made for services produced a revenue shortfall of £18.6 million which was met by a revenue support grant of £18.2 million from WMCC, a grant of £0.2 million from Staffordshire County Council for certain cross-boundary operations, and £0.2 million from the Executive's reserves.

2.8. Prior to 1981-82 the Executive had two major sources of capital finance. These were capital grants from WMCC and cash resources generated from its own operations. Annual targets were related either to the amount of capital that WMCC allocated to the Executive or to what the Executive could afford to spend from its own resources.

2.9. Since 1981-82 total capital spending by the Executive has been directly controlled by the amount of money allocated by WMCC which in turn is constrained by the capital controls now exercised by central government. WMPTE's capital expenditure counts as WMCC capital expenditure for these purposes.

2.10. The revenue budget for 1981-82, submitted in January 1981, forecast a deficit before revenue support of £26.9 million in respect of the Executive's bus operations, as shown in Table 2.1. It included a provision of £6.1 million for pay awards and general price increases. General inflation was included at 11 per cent and a provision was also made for 15 per cent increases in the cost of fuel, rates and the use of public utilities.

TABLE 2.1 WMPTE revenue budget 1981-82

	<i>Buses</i>	<i>Rail</i>	<i>(£ million)</i> <i>Total</i>
Expenditure	108.6	13.7	122.3
Income	87.8	7.6	95.4
Budgeted deficit	20.8	6.1	26.9

Source: WMPTE.

- 2.11. This budget was based on the assumptions that there would be:
- no further change in the level of operations in 1981-82 following the implementation of certain service reductions in 1980-81;
 - a small reduction in manning levels;
 - a carry forward effect of the service reductions implemented during 1980-81; and
 - a continuation of the policy of leasing buses instead of acquiring them by outright purchase.

2.12. At that time the following possible courses of action were suggested by the Executive to reduce the deficit.

Further efficiency savings. However, the Executive considered the scope for short-term improvements to be marginal as 100 per cent one-man operation had already been achieved.

Increases in fares. The Executive pointed out that if these exceeded the general rate of inflation further losses of passengers would result which would lead to a further loss of revenue and WMCC accepted that it could not recommend an increase that would produce more than £4.5 to £5 million.

Reductions in service. These would have had major implications for public transport policy and the Executive thought that severe measures would be required if significant financial savings were to be achieved in 1981-82 so soon after the 10.5 per cent reduction which had been made in December 1980.

An increase in revenue support. Having regard to the foregoing factors WMCC decided at that time to provide revenue support of £22.1 million for the Executive's operations. This was £3.9 million more than the £18.2 million provided for the previous year.

2.13. The assumptions underlying this budget were changed when Labour gained control of the WMCC in May 1981. The new administration announced a policy of cheap fares and service improvements which involved:

- a reduction in bus (and rail) fares by an average of 23 per cent from September 1981, the full year cost of which would have been £12.6 million;
- a 2p flat fare for children on buses, the full year cost of which would have been £5.3 million;
- free travel for registered unemployed outside the Monday to Friday peak period at an estimated full year cost of £7.8 million;
- holding fares at their September 1981 level, which would have meant a continuing reduction of fares in real terms; and
- the restoration of service levels at a cost of £3.5 million.

2.14. The total revenue support required in 1982-83, taking account of the above changes and allowing for inflation, was forecast at £56.8 million at 1982-83 outturn prices.

2.15. However, in the light of the House of Lords' decision against the legality of the Greater London Council's cheap fares policy and the institution of two similar legal actions against WMCC, the latter decided in January 1982 not to continue with its own cheap fares policy and quashed its supplementary precept which would have provided the necessary funds.

2.16. The Executive's revenue budget for 1982-83 therefore now indicates a requirement for county grants of £28.3 million, as shown in Table 2.2. This budget as amended now allows for 4 per cent pay increases and 9 per cent general inflation, in line with central government assumptions.

TABLE 2.2 WMPTE revenue budget 1982-83

	(£ million)		
	<i>Buses</i>	<i>Rail</i>	<i>Total</i>
Expenditure	122.5	15.6	138.1
Income	101.3	8.5	109.8
Revenue support required	21.2	7.1	28.3

Source: WMPTE.

2.17. The 1981-82 budget for bus operations and the estimated outturn for that year are compared with the 1982-83 budget in Table 2.3. The fall in income for 1981-82 compared with the budgeted figure shows the effect of the cheap fares policy which was in operation for part of the year.

TABLE 2.3 WMPTE bus operations: 1981-82 budget and estimated outturn compared with 1982-83 budget

	(£ million)		
	1981-82	1982-83	
	<i>Budget</i>	<i>Estimated outturn</i>	<i>Budget</i>
Expenditure	108.6	110.2	122.5
Income	87.8	81.1	101.3
Revenue support required	20.8	29.1	21.2

Source: WMPTE.

Budgetary control procedures¹

2.18. The Executive's budgetary control procedures are as follows. First, prior to each financial year, no later than January, a budget (referred to as the global budget) for that year is submitted to the County Council for approval. This global budget is prepared using a computerised financial model to forecast all major income and expenditure heads. It is built up from a base budget (that is, before allowance for inflation and volume changes) for the current year adjusted, first, for a full year's effect of inflation (pay awards and price changes) and volume changes in the current year and, secondly, for the anticipated effect of these factors in the coming year.

2.19. The report to WMCC accompanying the global budget for the coming year also revises the current year's budget in the light of changes (for example, in inflation assumptions and volume) since the original budget for the current year was prepared, identifies major variances between the original and revised budgets and reports on the action being taken in the light of these variances.

¹ See also Chapter 12 for further comment on WMPTE's budgeting and planning procedures.

2.20. The main purpose of the global budget is to enable the Executive to comply with its duty to obtain WMCC's approval of its budget and advise on the implications for revenue support in the ensuing year. It is also the basis for the agreement with WMCC of the financial implications of WMPTE's and WMCC's transport policies.

2.21. A budget framed for these purposes is not necessarily an appropriate instrument for the detailed monitoring of income and expenditure. It is also not allocated between individual budget holders at cost centres to facilitate the exercise of operational control. The Executive therefore prepares another budget, referred to as the detailed monitoring budget. This is used for control purposes. It aggregates the budgets of the various cost centres. There are about 30 major centres of which 24 are in operating garages and three are central repair works. There are also a number of smaller cost centres, bringing the total up to about 100.

2.22. There are, as would be expected, minor differences between the global and detailed monitoring budgets. A more detailed scrutiny of likely levels of income and expenditure is possible when preparing the latter. Also, the cost centre budgets from which it is built up exclude provisions for inflation and contingencies. These are initially held centrally and allocated to cost centres during the year as the need arises. In order to reconcile the monitoring budget with the global budget it is therefore necessary to exclude inflation assumptions from the latter. Table 2.4 compares expenditure and income included in the global budget for bus operations for 1981-82 with the equivalent figures in the monitoring budget. It will be seen that although there were differences on individual items, the net difference is insignificant.

TABLE 2.4 WMPTE: Reconciliation of 1981-82 global and monitoring budgets

	Global budget		Detailed monitoring budget	Differences
	Incorporating inflation assumptions etc	Segregating inflation assumptions etc		
				(£ million)
<i>Expenditure</i>				
Employee costs	71.6	69.0	69.7	(0.7)
Materials (including fuel)	16.2	14.3	14.0	0.3
Other running expenses	9.9	8.7	8.4	0.3
Depreciation and leasing	6.3	5.9	5.9	—
Other items	4.6	4.1	4.0	0.1
	108.6	102.0	102.0	—
Central budget provisions:				
Inflation	—	6.1	6.1	—
Contingencies	—	0.5	0.5	—
	108.6	108.6	108.6	—
<i>Income</i>				
Fares	67.8	67.8	67.8	—
Concessionary travel contributions	15.9	15.9	15.9	—
Other items	4.1	4.1	4.5	0.4
	87.8	87.8	88.2	0.4
Central budget items	—	—	0.1	0.1
	87.8	87.8	88.3	0.5

Source: WMPTE.

2.23. In 1979 the Executive formulated a programme of budgetary development aimed at budget holders assuming responsibility for their cost centres and for the setting and achieving of their budgets by 1983–84. In 1981–82 not all budget holders participated fully in the preparation of the budgets for which they were accountable. This was because the management re-organisation which devolved responsibility down the line was not by then complete. The 1981–82 monitoring budget was therefore to some extent centrally imposed, but WMPTE told us that budget holders were involved in setting their budgets for 1982–83.

2.24. About 35 per cent of budgeted expenditure represents the labour cost of bus crews. This is calculated by garage managers in conjunction with divisional managers by scheduling the number of service miles to be operated, with appropriate allowances for overtime, and also for absences etc having regard to conditions of employment negotiated with Trade Unions and statutory requirements. We comment elsewhere in this report on the various scheduling constraints that exist.

2.25. General expense items such as lighting and heating were estimated by budget holders by reference to the previous year's actual expenditure, and to expenditure for seven periods of the current year. Budget holders were required to assess the expenditure for the remaining six periods of the year based on their view of likely demand during those periods. The estimates were made on a 'no growth' basis and inflation was budgeted centrally.

2.26. Every four weeks a computer printout for each cost centre compares expenditure, both for the period and cumulatively for the year to date, with the budget. Variances outside certain specified tolerances carry indicators for corrective action. We were told that at present these indicators are set centrally but that it is intended to involve budget holders in setting them in future. Copies of these printouts are sent to each budget holder and his line manager. Divisional managers' administration officers have a watching brief to see that appropriate action is taken on variances at all garages in their division. Also, management accountants from headquarters make frequent visits to locations to monitor the action taken on variances. Nevertheless, primary responsibility for compliance with the budget rests with the budget holder and not with divisional or headquarters staff.

Management accounts and costings

2.27. The financial reports submitted to the Executive's Management Committee for each of the 13 four-weekly accounting periods in the year include trading statements and route costing statements. (The trading statements do not include accrued expenses, but WMPTE told us that this has little effect on the results shown. Moreover, the budgets are phased to allow for payments as they fall due.) The trading statements classify expenditure in accordance with CIPFA recommendations between operating costs and fixed cost allocations. Operating costs comprise direct operating costs, semi-variable costs and garage overhead costs. Fixed cost allocations comprise divisional, central, works and plant overheads and bus capital costs, namely leasing and depreciation. Income is classified between traffic receipts, interest and other income.

Traffic receipts consist of on-bus fares, travel cards, concessionary fares, scholars' travel and private hire. In all cases budget, actual and variance figures are given both for the current period and for periods to date. Statistical data are also provided on budgeted and actual mileage for each of the three divisions (South, North and East); on driver strengths, sickness and holidays; and on scheduled duties for each garage.

2.28. Unit costs per vehicle mile or per passenger mile are not stated in the route costing statements although the data necessary to calculate these indices are given in the Executive's Annual Report. The Executive told us that it did not consider these statistics to be of practical value at detailed service level.

2.29. Three costing statements (a total costing statement, a route performance statement and a route costing statement) are prepared for each garage. The information given in these statements overlaps to some extent but collectively they show, in respect of each route operated by that garage, its costs, revenue and gross profit or loss for each four-weekly period. Costs are classified as between costs directly attributable to the garage, namely direct operating costs, semi-variable costs, garage overhead costs and bus utilisation costs; and central overhead costs. The operating contribution (revenue less direct operating costs), the contribution to central overheads (revenue less garage costs) and the route profit or loss (revenue compared with total costs including central overheads) are stated. Certain indices and other statistical data such as the load factor (the number of passenger kilometres divided by the number of bus kilometres on the service), the variable costs per hour, bus miles per bus hour, revenue per bus mile and the ratio of crew hours to bus hours are also given.

2.30. Capital charges are allocated to services on the basis of peak vehicle requirements and overheads are allocated *pro rata* to variable and semi-variable costs. The route costing statements do not, however, distinguish between contributions at peak and off-peak periods. The question of peak and off-peak costs is considered in more detail in Chapter 8—Supply and Demand.

2.31. Standard costing techniques, whereby the operating variances arising on operating the network are analysed to causes, are not used in the presentation of route costing information. WMPTE told us that this is for the following reasons.

- (i) A wide range of standards would need to be developed to allow for the different conditions under which the various services are operated.
- (ii) It regards its present budgetary control system and variance analysis as already providing a sound basis of control.

The Executive added, however, that refinements on the lines of standard costing might be of use when its present systems have bedded down and more fine tuning is required.

2.32. Examination of the route costings shown to us disclosed substantial variations in the profitability and unprofitability of different routes and thus

a considerable degree of cross-subsidisation, whereby the profits of profitable routes are used to offset the losses of unprofitable routes. These questions are also considered in greater detail in Chapter 8 of this report.

2.33. The Executive does not operate any form of regular standard or job costing system for engineering repair jobs. It does, however, cost specific jobs, such as accident repairs, on an *ad hoc* basis and is currently developing a system of work production and job costing.

Control of capital expenditure

2.34. The Executive's capital programme is divided between schemes financed by the Executive itself and schemes financed by WMCC. Executive financed capital expenditure relates mainly to that which it requires for its own undertaking and the largest item is the purchase of buses, towards which new bus grants are available from central government, although, as already explained, these grants are being phased out by 1984. The Executive also finances expenditure on ancillary vehicles and equipment, and most works on its own garages, depots and other premises. WMCC financed capital expenditure is related more to the provision of public facilities such as rail projects, bus stations and shelters etc.

2.35. A report on progress on Executive-financed capital expenditure is submitted to the Executive's management committee in August each year covering the remainder of the current year and a programme for the ensuing three years. Specific approval by WMCC is required for expenditure exceeding £100,000 on any one item or any increase of more than 10 per cent in the WMCC approved estimate for any one item. Projects are shown in the programme at the price levels prevailing the previous November, affording direct comparison with the capital budget and programme approved by WMCC for the current year.

2.36. Since July 1980 the Executive has on the instruction of WMCC been obtaining its buses on a leasing basis. The Executive provided us with a statement comparing the discounted cost of leasing a bus with outright purchase. This is summarised in Table 2.5.

2.37. For WMCC-financed expenditure, the TPP submitted to the Secretary of State at the end of July each year contains a phased programme of capital schemes for bus and rail operations. For bus operations these mainly comprise improvements of bus stations and shelters. WMCC may, however, occasionally contribute to works on the Executive's own premises such as the major reconstruction of a garage, but not normally to mere refurbishments.

2.38. The two programmes (for Executive and WMCC-financed expenditure respectively) therefore form the basis of the following year's capital budget, which in turn forms part of the Executive's budget report to WMCC. However, although capital expenditure beyond the following year is included, approval of the budgets does not imply approval of expenditure beyond that year other than for preliminary works. Table 2.6 summarises the Executive's capital programme as at December 1981.

TABLE 2.5 Comparison of discounted cost of leasing a bus with outright purchase

Cost if purchased outright: £63,000

Discounted present cost of leasing:

Year	Leasing charge	Discounted at	
	£	12% per annum	
1	8,820	8,820	
2	8,820	7,876	
3	8,820	7,030	
4	8,820	6,280	
5	8,820	5,610	
6	8,820	5,001	
7	8,820	4,472	
8	8,820	3,987	
9	8,820	3,563	
10	8,820	3,184	
11	315	101	
12	315	90	
13	315	81	
14	315	72	
15	315	65	56,232

Saving on leasing

£6,768

Source: WMPTE.

Notes:

1. The above calculations assume that the leasing charge for the first ten years is £140 per annum per £1,000 of capital cost, with an option for a further five years at 0.5 per cent of capital cost.

2. The breakeven discount rate, at which the present cost of leasing equals the outright purchase cost, is 8.68 per cent. This is well below current borrowing rates.

TABLE 2.6 WMPTE: Capital expenditure programme as at December 1981 (in November 1981 prices)

	(£ million)				
	Total 1981-82 1984-85	1981-82	Budget 1982-83	Programme 1983-84 1984-85	
<i>PTE-financed:</i>					
Buses	43.1	10.1	10.9	11.0	11.1
Ancillary vehicles and equipment	7.6	0.4	1.2	3.6	2.4
Premises	10.1	1.4	2.9	3.1	2.7
	<u>60.8</u>	<u>11.9</u>	<u>15.0</u>	<u>17.7</u>	<u>16.2</u>
<i>WMCC-financed:</i>					
Rail	7.1	0.4	0.9	2.7	3.1
Bus garages	4.8	—	1.0	1.6	2.2
Bus stations and shelters	3.6	0.4	0.9	1.2	1.1
	<u>15.5</u>	<u>0.8</u>	<u>2.8</u>	<u>5.5</u>	<u>6.4</u>
Total	76.3	12.7	17.8	23.2	22.6

Source: WMPTE.

2.39. The monitoring of capital expenditure is by means of the following reports which are submitted to the Executive's management committee.

<i>May/June</i>	Report on outturn for the last financial year and its implications.
<i>August/September</i>	Report reviewing the implementation of the capital programme at the halfway stage in the current financial year and dealing with any corrective action necessary to minimise delays and the implications of any delays which cannot be corrected, including the substitution of alternative schemes.
<i>January</i>	Estimates of outturn capital expenditure for the financial year, identifying any deviation from the revised budget to enable corrective action to be taken before the end of the year and any likely problems in implementing the programme during the next three years so that corrective action can be taken in good time.

2.40. We were told that delay in deliveries rather than excess expenditure is the main problem in controlling capital budgets. There have been particular difficulties with the purchase of buses in earlier years but the Executive told us that this is not now a problem. We discuss this more fully in Chapter 9—Investment.

2.41. In the case of building works, progress meetings are held on larger schemes and expenditure is carefully monitored against measured work. Reports are submitted to these meetings outlining the physical progress made and itemising contract or price variations. The Executive normally uses the County Surveyor or a professional project manager to manage the larger schemes. Only the smaller schemes are managed in-house.

2.42. Before inclusion in the capital budget each project requires individual appraisal and approval. We comment more fully in Chapter 9 on the Executive's investment appraisal and capital expenditure monitoring procedures.

Cash control and management

2.43. The Executive's traffic receipts comprise fares collected on buses, off-bus sales of travel cards and concessionary travel receipts. In addition, the Executive collects money for agency bookings which, after satisfying its cash reconciliation procedures, is paid over (less commission) to the principal. The Executive is also concerned with the revenue collected by other operators with which it has agreements, such as British Rail, Midland Red and Mid-Warwickshire Motors. Other income of the Executive consists mainly of fuel duty rebates, revenue support payments and miscellaneous receipts, principally advertising income. For 1980–81 the amounts collected under each of these headings were as set out in Table 2.7. It will be seen that traffic receipts from fare-paying passengers represent the major part of the Executive's income. Appendix 2.1 describes the fare collection and control procedures used by the Executive and by the other undertakings which are the subject of this inquiry.

TABLE 2.7 WMPTE receipts 1980-81

	(£ million)
Traffic receipts—on bus	51.4
off bus	32.6
	84.0
Fuel duty rebates	4.7
Local authority revenue support	18.4
Miscellaneous	1.0
	108.1

Source: WMPTE.

2.44. Payments, other than wages and salaries, are made by cheque. Wages and salaries payments, including the supplementary pensions payroll, cover some 9,000 personnel, of whom some 6,400 are paid in cash, including over 6,000 wages payments each week.

2.45. The balances on Executive bank accounts at the close of business on the previous day, together with an estimate of the cheques likely to be presented for payment, are ascertained daily. Surplus funds are then invested through WMCC either in local authority seven day deposits or, in appropriate cases, in longer term, higher-yielding investments. The Executive also has the use of overdraft facilities in order to meet major items of expenditure from time to time. The current facility is £750,000 with Midland Bank Ltd, although the Executive has approval from WMCC to borrow up to £5 million on a temporary basis.

External audit

2.46. The external audit of WMPTE is undertaken under the provisions of the Local Government Act 1972 although we are told that the legal requirement for this is still open to some doubt. However, the Local Government Finance (No. 2) Bill 1981 makes it clear that in future the audit provisions of the Local Government Act 1972 will apply to PTEs. The 1972 Act allows Local Authorities to choose either the District Audit Service (DAS) or approved firms of professional accountants for such work. WMCC has chosen Binder Hamlyn.

2.47. The audit provisions of the 1972 Act are more wide ranging than those of the Companies Acts in that the auditors are required to report, *inter alia*, that the Accounts do not disclose any significant loss arising from waste, extravagance, inefficient financial administration, poor value for money, mistake or other cause. In recent years value for money has been defined as covering economy, efficiency and effectiveness. The auditors have submitted a number of formal reports and also exercise an influence through management letters which follow the completion of the annual audit. Interim management letters are also submitted, if appropriate. Copies of such reports and management letters are sent to the Audit Inspectorate of DoE.

2.48. Binder Hamlyn told us that they considered themselves well fitted to undertake this type of public sector audit. They regard the private sector work in which they are primarily engaged as providing a broad base which is valuable in enabling them to undertake the value-for-money aspect of the work.

2.49. There appears to be a close and continuing relationship between Binder Hamlyn and WMPTE's internal audit division. There are regular meetings, the programmes of work for internal and external audit are being increasingly co-ordinated and each feel that they can rely on the reports produced by the other. The only material difficulty that arises is when the internal audit division is required to depart from its regular programme to investigate any major irregularities that come to light.

Internal audit

2.50. There is no statutory requirement for an internal audit of WMPTE. However, there is an internal audit division and the Executive has conferred the responsibility for the internal audit function on the director of finance. He in turn has delegated to the internal audit controller the responsibility for day-to-day management of the internal audit function.

2.51. The external auditors urged some years ago, in one of their management control memoranda, that WMPTE's internal audit should be reorganised. Following this, steps were taken in 1977 to establish it on an effective basis. It now comprises 12 staff dealing with general internal audit matters, computer audit and contract audit. The internal audit controller reports on such activities to the director of finance. Internal audit staff are encouraged to acquire a professional qualification, those of CIPFA or ICMA being preferred.

2.52. The internal audit objective is to cover all WMPTE's activities every five years, the time span of the audit structure plans. As an indication of the planned level of coverage, there are to be spot cash audits of each location between two and four times a year, full audits every three years and systems audits at least once every five years. Directorate activities are to be covered at intervals ranging between 18 months and five years, depending on the level of financial risk attributed to each activity.

2.53. The internal audit controller now reports every four months to the WMPTE management committee, drawing attention to any material events which have occurred and summarising the activities undertaken by internal audit during the period.

2.54. The internal and external auditors have collaborated in exercises aimed at improving the cost effectiveness of certain Executive activities. These include garage catering functions and contract control procedures. The internal audit unit is also consulted on any proposed modifications to the Executive's computer procedures. A recent example is the development of a new computerised waybill procedure for the control of traffic receipts. In addition, it carries out fraud, theft and other special investigations. In the latest period for which we have seen a report (January to March 1981) these absorbed some 20 per cent of its time. The principal cause was a major travel cards fraud which diverted effort from the planned work programme of internal audit, particularly in the area of systems audit.

Financial information

2.55. WMPTE prepares its accounts to 31 March each year. It has not yet adopted the principles of SSAP 16 on current cost accounting but it has adopted two measures to make allowance for inflation. First, from 1 April 1976 it made a supplementary depreciation provision to cover the increased costs of replacing fixed assets. Secondly, since 1 April 1980 it has charged stores issues at latest invoice prices instead of average prices. The measure on depreciation has, however, been affected by the County Council's instruction to the Executive on 16 July 1980 that the acquisition of new buses should henceforth be financed by means of leasing. Replacement depreciation on buses already owned by the Executive has not been provided in its accounts since that date.

2.56. Table 2.8 sets out the Executive's expenditure and costs per vehicle mile for the five years 1976-77 to 1980-81 both in actual figures and in 1981 prices. Figure 2.1 shows in graphic form the trend of the main elements of those costs per vehicle mile for the same period expressed in 1981 prices. It will be seen that both total costs and servicing, repairs and maintenance costs have increased faster than the general level of inflation as measured by the RPI. Appendix 2.2 compares the Executive's income and expenditure over the period with its budgets and comments on any significant variances.

CCT

Financial targets and policies

2.57. No general financial targets are set for CCT other than those involved in the approval of its annual budget by the City Council. Deficits on its operations are met partly by Transport Supplementary Grant (TSG) received through the South Glamorgan County Council (SGCC) and the balance from the City of Cardiff General Rate Fund (GRF). Local authorities are not allowed to finance revenue deficits from borrowings.

TABLE 2.8 WMPTE expenditure and costs per vehicle mile for the five years 1976-77 to 1980-81 in actual figures and in 1981 prices

Number of vehicle miles operated (millions)	1976-77		1977-78		1978-79		1979-80		1980-81		Percentage increase in costs pvm 1976-77 to 1980-81
	£m	pence pvm	£m	pence pvm	£m	pence pvm	£m	pence pvm	£m	pence pvm	
<i>Actual Expenditure and Costs</i>											
Bus crews	21.4	27.7	23.0	30.0	24.7	32.6	27.9	37.2	30.3	41.0	48.0
Other operating expenses	11.0	14.2	12.9	16.8	12.5	16.5	15.8	21.1	19.7	26.7	88.0
Servicing, repairs and maintenance	15.2	19.6	17.1	22.2	20.9	27.6	25.0	33.3	33.1	44.8	128.6
Depreciation and leasing charges	1.7	2.1	1.9	2.5	2.1	2.8	2.3	3.1	2.6	3.5	66.7
Other expenses	6.1	8.1	7.3	9.4	8.4	11.0	10.3	13.7	10.7	14.5	79.0
Additional (replacement) depreciation	55.4	71.7	62.2	80.9	68.6	90.5	81.3	108.4	96.4	130.5	82.0
Total costs	3.3	4.2	4.3	5.6	4.7	6.2	4.7	6.3	2.6	3.6	(14.3)
<i>Expenditure and costs refated to 1981 prices</i>											
Bus crews	38.7	50.0	36.4	47.5	36.1	47.7	35.2	47.0	32.9	44.5	(11.0)
Other operating expenses	19.9	25.7	20.4	26.6	18.3	24.1	20.0	26.7	21.4	29.0	12.8
Servicing, repairs and maintenance	27.4	35.4	27.1	35.2	30.6	40.4	31.6	42.1	36.0	48.7	37.6
Depreciation and leasing charges	3.1	3.8	3.0	4.0	3.1	4.1	2.9	3.9	2.8	3.8	7.5
Other expenses	11.0	14.6	11.6	14.9	12.3	16.1	13.0	17.3	11.6	15.7	7.5
Additional (replacement) depreciation	100.1	129.5	98.5	128.2	100.4	132.4	102.7	137.0	104.7	141.7	9.4
Total costs	5.9	7.6	6.8	8.8	6.9	9.1	5.9	7.9	2.8	3.9	(48.7)
Source: MMC study											

Notes: (1) Due to a change in the basis of the allocation of expenditure in 1980-81 the figures for that year may not be strictly comparable with those for previous years.

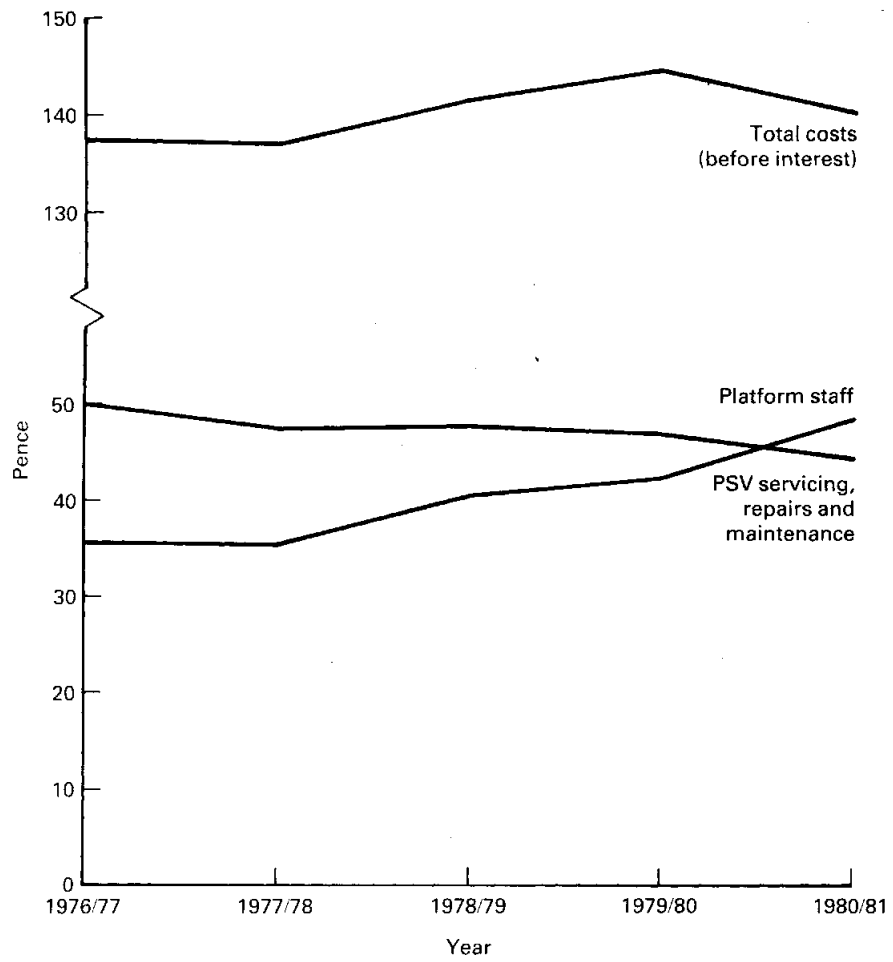
(2) The above cost figures per vehicle mile exclude interest.

(3) In order to show how costs have moved relative to general inflation, past years figures have been refated to 1981 prices by reference to the Retail Price Index, the average indices used being:

Year to 31 March	1977	1978	1979	1980	1981
	163.3	186.2	201.6	233.5	271.6
Year to 31 December	1981	295.0			

(4) Depreciation includes both historical cost depreciation and (shown separately) the additional provision for replacement of fixed assets. Replacement depreciation has not been provided on buses since July 1980.

FIGURE 2.1 WMPTE: costs per vehicle mile in 1981 prices



Source: MMC Study.

Note: This graph has been prepared from figures contained in Table 2.8 and should be read in conjunction with the notes to that Table, including the note explaining how costs have been reflat to 1981 prices.

2.58. The Passenger Transport Plan (PTP) for 1981–82 prepared by SGCC (whose area includes the City of Cardiff) confirmed its two public transport objectives as the retention, support and promotion of the existing public transport network; and the maintenance of existing levels of patronage while minimising revenue support. It also stated SGCC's policy as being to meet the deficits of bus undertakings, including CCT, within South Glamorgan for certain specified services provided that:

- SGCC's policy on fares was accepted;
- its objectives on co-ordination and reliability were observed;
- unit costs of operation were minimised;
- specified ineligible items of cost were excluded; and
- appropriate government support was forthcoming.

2.59. CCT's 1981–82 revenue budget and the estimated outturn for that year are compared with its 1982–83 revenue budget in Table 2.9.

TABLE 2.9 CCT comparison of 1982–83 revenue budget with budget and estimated outturn for 1981–82

	1981–82		(£ million)
	Budget	Estimated outturn	1982–83 Budget
Expenditure	9·851	9·605	10·858
Revenue	9·349	8·794	9·659
Deficit	0·502	0·811	1·199
<i>Expenditure</i>			
Estimated outturn 1981–82			9·605
Add: Pay awards—			
Salaried staff—July 1982		0·073	
Platform staff—January 1982 (full year)		0·532	
—January 1983 (part year)		0·342	
Other items		0·306	1·253
Budget for 1982–83			10·858
<i>Income</i>			
Estimated outturn 1981–82			8·794
Add: Fare increases less reduced patronage due to recession and competition			0·865
Budget for 1982–83			9·659

Source: CCT.

Budgetary control procedures¹

2.60. Local Authority budgets have their origins in the need to set the level of rates. Their use as a tool of management is a more recent development. They are not subject to central government approval but central government exerts considerable influence on them through the grants system and by the issue of guidelines. CCT's budgets form part of the City Council's budgets. The City Treasurer has overall responsibility for the preparation of the latter,

¹ See also Chapter 12 for further comment on CCT's budgeting and planning procedures.

although the detailed work takes place mainly in each of the departments concerned, including CCT. These departments collate the necessary data. For example, wages figures are built up from establishment and manpower budgets approved by the City Council's Personnel Committee. The City Treasurer's department, however, retains responsibility for debt charges and the apportionment of central establishment and administrative charges.

2.61. The method of preparing the revenue estimates is mainly incremental. The City Treasurer's department takes the view that the best guide to the level of expenditure likely to be required to maintain existing services is that which has been incurred in the past. The starting point for budget preparation is therefore last year's expenditure. This is reviewed in the light of expenditure to date in the current year, and adjusted for known or anticipated changes in volume levels etc. In addition, the City Council as part of its efforts to control expenditure from time to time applies a general squeeze on costs, thus throwing the onus on to the departments concerned to examine existing methods of working and to see whether a given output of services can be achieved with a consumption of fewer resources.

2.62. Inflation and anticipated wage awards are incorporated into the budgets submitted to the City Council for approval by means of a contingency provision. This provision is then allocated to expense heads for control and monitoring purposes.

2.63. The City Treasurer's department operates a computerised accounting system within which separate accounts are maintained for departments, including CCT. The computer produces periodically a budgetary control summary showing for each expense head the expenditure incurred to date compared with budget estimates, which are shown both for the year as a whole and *pro rata* for the period to date. The actual expenditure is also stated as a percentage of the appropriate proportion of the annual budget estimate. The excess of actual expenditure over that proportion is also shown.

2.64. The summary does not, however, include accrued expenditure. Reports including accrued expenditure are therefore prepared manually by CCT staff from the computer summary for the use of the CCT general manager and his chief officers for control purposes. These reports include a weekly manpower and payroll report. This shows the numbers employed, hours worked, days lost and actual employee costs to date in comparison with estimates.

2.65. A trading analysis and projection report is also prepared manually at four-weekly intervals. CCT told us that the form of this report is undergoing development. It contains statistical information on income, passengers carried, mileage run and percentage of lost mileage, week by week for the current period with equivalent weeks for the previous year. It does not, however, state costs per vehicle mile or per passenger mile.

2.66. While the budget shows actual expenditure and income to date compared with budget estimates, and anticipated annual outturn, it is not phased for seasonal influences on costs such as heating and lighting. CCT told us

that in practice its officers were able to rely on their knowledge of seasonal trends and other factors to interpret any fluctuations. We observed substantial variances between budget and actual expenditure in the specimen shown to us (for the first four-weekly period in 1981-82) for which no explanation was given in the report itself. Thus, total expenditure was £620,701 compared with a budget of £751,228; expenditure on the repair and maintenance of passenger vehicles was £86,901 compared with a budget of £159,795; and expenditure on heating, lighting and cleaning was £6,039 compared with a budget of £12,319.

2.67. Although CCT told us that these reports were helpful to management in monitoring progress, it also said that the existing computerised accounting system needed to be updated to take advantage of recent technological advances in the computer field and to provide better access to costing data for operational departments. Various proposals for upgrading the existing costing system have in fact been under consideration for some years.

2.68. There are six senior officers in the engineering division of CCT who are regarded as budget holders. These are the chief engineer, the assistant engineer, the technical engineer, the garage superintendent at Sloper Road, the works superintendent at Roath Works and the stores superintendent. There is also one main budget holder in the Traffic division, the traffic superintendent, with an assistant responsible for bus shelter cleaning etc. However, there does not appear to be any formal delegation of budget responsibility to budget holders at cost centres.

2.69. Fortnightly expenditure summaries are issued to these senior officers in respect of the categories of expenditure for which they are responsible. These show for each expense head the annual budget and expenditure to date. They are prepared mainly from computer printouts but as the latter include only expenditure invoiced at the date of the computer run (and not accrued expenditure or other outstanding items) they are supplemented manually to include accruals. The specimen shown to us (covering the period to the end of week 22 of 1981-82) consisted of four separate sheets, each dealing with certain expense heads and showing aggregate expenditure for the year to date compared with the annual estimate (but not the proportion of the annual estimate which related to the period covered by the report). Thus, repairs and maintenance to passenger vehicles showed expenditure of £341,277 against an annual budget or estimate of £941,232. If 22/52nds of the latter figure is taken it comes to £398,214. Bus shelter cleaning showed expenditure of £14,630 against a budget of £36,009. 22/52nds of the latter figure is £15,235. The budget figures gave an approximate indication of the figure with which actual expenditure should be compared but left the recipient of the summary to calculate the proportion applicable to the period under review and to make whatever allowances were necessary for seasonal variations.

Management accounts and costings

2.70. The City Council produces on microfiche at two-weekly intervals an analysis of every transaction with its source reference and a cumulative position on each account heading. This information is used as the basis of

manuscript accounting records to which manual adjustments for accruals etc are made to provide the accounts figures.

2.71. CCT told us that its intention was to produce route costing statements for the half year April to September, for the December quarter and for the March quarter in each year and that, following the year end, a route costing statement should also be produced for the year as a whole. However, it appears that in recent years CCT has been able to produce route costing statements only intermittently. (CCT told us that this was because it regarded the development of computerisation generally as a first priority in obtaining more detailed and frequent route costing analyses.) The last available statement produced to us was for the nine months to 31 December 1980. The basis of preparation conformed generally to the formula recommended by CIPFA and showed the results of individual routes. It also showed for each route average weekly scheduled mileage; average standard weekly hours; peak vehicle demand; revenue; variable, semi-variable and fixed costs, interest and total costs; and the route profit or loss. In addition, the figures of revenue, total cost, and profit or loss were expressed per vehicle mile and the operating ratio (total costs as a percentage of revenue) was shown. As with WMPTE, however, it did not distinguish between revenue, costs and contributions at peak and off-peak periods respectively, neither did it make use of standard costing techniques of the type described in paragraph 2.31 in the presentation of route costing information. This route costing statement also disclosed substantial variations in the profitability of different routes.

2.72. CCT also does not operate any form of regular standard or job costing for its engineering works but costs specific jobs, such as accident repairs, on an *ad hoc* basis. It told us that a more comprehensive management information system, which it is currently developing, was needed to provide the history of the cost of running a vehicle throughout its life, including the cost of maintaining various assemblies, such as gear boxes, and also job costs to show, for example, the cost of changing a gear box. This would probably be similar to the NBC VMC system referred to later in this chapter.

Control of capital expenditure

2.73. CCT's capital budget includes all expenditure for which a loan sanction is likely to be obtained and also any expenditure which produces a lasting impact on to CCT's services, whatever the source of finance. The only exceptions are comparatively minor items which are financed from revenue. In practice, capital expenditure is mainly on the purchase of buses. This is met partly by central government grants and partly by borrowings. The capital budget for 1981-82 is set out in Table 2.10.

TABLE 2.10 CCT capital budget 1981-82

	<i>(£ million)</i>	
Buses:		
Financed by—capital grants	0.243	
—loans	0.638	0.881
Building works		
Financed from revenue		0.034
		<u>0.915</u>

Source: CCT.

2.74. Leasing has so far been used for seven buses only. Since the Finance Act 1980 it is a considerably less advantageous method of procurement for CCT than for the other three undertakings under inquiry.

2.75. Annual and medium term capital programmes are prepared. The period covered by the latter varies in accordance with the number of years forecast in the Government's Public Expenditure White Paper. It is based on constant prices and no allowance is made for inflation. Inclusion of a project within a capital programme, whilst indicating a decision in principle to proceed with the scheme, does not authorise the incurring of the expenditure. This will require the approval of the Transport Committee and also of the Policy (Finance) sub-committee, which approval has then to be ratified by the City Council as a whole. We comment more fully in Chapter 9 on CCT's investment appraisal and capital expenditure monitoring procedures.

Cash control and management

2.76. CCT's income consists mainly of revenue from passengers, the concessionary fares contribution from the City Council's GRF, and TSG from SGCC. Its other income includes fuel duty rebates. For 1980-81 the amounts collected under each main heading were as set out in Table 2.11.

TABLE 2.11 CCT receipts 1980-81

	<i>(£ million)</i>
Revenue from passengers	6.5
Concessionary fares	1.2
	<hr/> 7.7
TSG	0.5
Fuel duty rebates	0.4
Miscellaneous income	0.2
	<hr/> 8.8

Source: CCT.

2.77. Revenue from fare-paying passengers is further divided into on-bus and off-bus revenue, of which off-bus revenue, principally the sale of multi-ride tickets, accounts for some 25 per cent of the whole. On-bus revenue is itself further divided between 'fast fare' and conventional fare collection, of which the 'fast fare' element at January 1982 comprised some 40 per cent. CCT's programme is to complete the conversion to 'fast fare' collection by July of 1982, when a 39 hour week for platform staff, the terms and conditions of which are related to 'fast fare' conversion, is introduced. Fare collection and control procedures are described in more detail in Appendix 2.1.

2.78. TSG is received direct by the City Treasurer's Department and credited by it to CCT. The concessionary fares contributions from the GRF are also credited to CCT by the City Treasurer. Fuel duty rebates are, however, claimed and received direct by CCT.

2.79. CCT payments are normally dealt with by the City Treasurer's Department. Those in respect of vehicle materials and spare parts ordered by the engineering department are authorised for payment when the goods

are received and checked, in accordance with a list of delegated authorities as to type and amount of payment. These are then paid by the City Treasurer's Department on behalf of CCT. Such payments are debited to stock accounts and recharged to CCT's departmental revenue accounts when they are issued for use. Payments for general administration expenses are ordered and authorised as above by the appropriate member of the administrative staff, but are generally debited direct to CCT's departmental revenue accounts.

2.80. Salaries and wages payments are all effected by the City Treasurer's Department. The payroll is divided by interval and type of payment as shown in Table 2.12.

TABLE 2.12 CCT's payroll divided by interval and type of payment

	<i>Total</i>	<i>Cheque</i>	<i>Credit transfer</i>	<i>Cash</i>
Monthly	54	9	45	—
Fortnightly	72	18	54	—
Weekly	642	322	—	320
	<u>768</u>	<u>349</u>	<u>99</u>	<u>320</u>

Source: CCT.

2.81. There are no formal cash management procedures for CCT as there are for WMPTE or the two NBC subsidiary companies. CCT has no separate banking facilities as all payments and receipts are dealt with as part of the City Council's banking arrangements, which are under the control of the City Treasurer's Department. Any cash surpluses or deficits arising from CCT's operations are therefore dealt with as part of the City Council's finances and CCT receives no interest on surplus funds. 'Loans' in respect of capital expenditure on, for example, buses are dealt with by charging CCT a composite rate of interest based on the borrowing activities of the City Council as a whole. This interest is allocated to departments on the basis of loans outstanding, together with repayment of the appropriate amount of principal.

External audit

2.82. The external audit of CCT is undertaken as part of the overall audit of the City Council by the DAS. The choices available are the same as for WMPTE. In this case Cardiff City Council has chosen DAS rather than a firm of practising accountants because it considers that DAS provides a specialised audit more suited to the needs and requirements of local authorities.

2.83. DAS normally undertakes the audit of Cardiff City Council in two stages. A visit in January and February covers the interim audit for the current financial year to 31 March, and a further visit in October and November deals with the completion of the accounts for the previous financial year. There have been no references under the 1972 Act in relation to CCT during the last few years in respect of losses, poor value for money etc.

2.84. There appears to be considerable co-ordination of the DAS audit with the internal audit undertaken by Cardiff City Council staff. The District Auditor feels able to place considerable reliance on the latter's work both

in relation to the City Council in general and CCT in particular. DAS therefore undertakes only token checks on CCT's Revenue items, as the bulk of such work is covered by internal audit. DAS and internal audit both appear to be closely involved in the computer system developments which are taking place within the City Council and specifically in planning the possible use of mini-computers for CCT.

2.85. The District Auditor regards value for money and waste investigations as an integral part of his audit tasks. While there is considerable emphasis in the audit on both the validity and the legal standing of City Council transactions, there is also examination of variances between the budget and the previous year's results, and detailed scrutiny of specific items where the sums involved are material. As the District Auditor also audits 8 County Councils, 36 District Councils and the Welsh Water Authority, he has available considerable data on comparative costs to assist him in deciding whether better value for money could be obtained. Examples which have come to light in recent years have been tyres, advertising revenue and the productivity of engineering services.

2.86. The Deputy District Auditor told us, however, that he is currently subject to manpower restrictions due to central government policy on the reduction of public sector expenditure and is concerned that aspects of his future audit programmes relating to project and value for money investigations and other tasks undertaken on a cyclical basis may be affected if those restrictions continue.

Internal audit

2.87. Internal audit for Cardiff City Council (and thus for CCT) is established, as for WMPTE, under the Accounts and Audit Regulations 1974. In the case of the City Council the responsible financial officer is the City Treasurer and he in turn delegates responsibility to a chief internal auditor. The City Council's internal audit section consists of 23 staff. In addition to the chief and deputy chief internal auditors, there are two teams (five and three) of general audit staff, two stores auditors, one house mortgage account auditor, one contract auditor and one computer auditor. There is also a special team of eight staff allocated to internal audit which is permanently employed in the payments section of the City Treasurer's Department. Of the 23 staff, five posts (that of chief and deputy chief internal auditor, the two team leaders and the computer auditor) are filled by staff with CIPFA qualifications. Of the remaining staff, one is a qualified accounting technician and two are studying for the CIPFA examinations.

2.88. The internal audit of CCT is carried out three times each year by one of the general internal audit teams, with support from the computer auditor and stores auditors as required. The main thrust of the work is concerned with CCT's revenue, together with some work on stores accounting, salaries and wages. The audit programme is continuously monitored to take account of any delays that may occur in the work. Detailed audit reports on each visit are prepared for the City Treasurer, who takes up any matters of substance with the departmental head concerned.

Financial information

2.89. As CCT is part of the City Council, its accounts are a section of the Abstract of Accounts prepared for each year to 31 March by the City Treasurer. They are, however, prepared on an income and expenditure basis rather than on a cash basis and follow CIPFA recommendations. They differ from the accounts of the other undertakings subject to this inquiry mainly in the treatment of asset utilisation costs. CCT follows the local authority practice of charging to revenue the cost of repaying and servicing borrowings raised to finance capital expenditure. As local authority borrowings are repaid over a period estimated to equate to the lives of the relevant assets, the result is that the debt repayment charge is approximately equivalent to historical cost depreciation. Current cost accounts are not yet prepared.

2.90. Table 2.13 sets out CCT's expenditure and costs per vehicle mile for the five years 1976-77 to 1980-81 both in actual figures and in 1981 prices. Figure 2.2 shows in graphic form the trend of the main elements of those costs per vehicle mile for the same period expressed in 1981 prices. Appendix 2.3 compares CCT's income and expenditure over the period with its budgets and comments on any significant variances.

TABLE 2.13 CCT: Expenditure and costs per vehicle mile for the five years 1976-77—1980-81 in actual figures and in 1981 prices

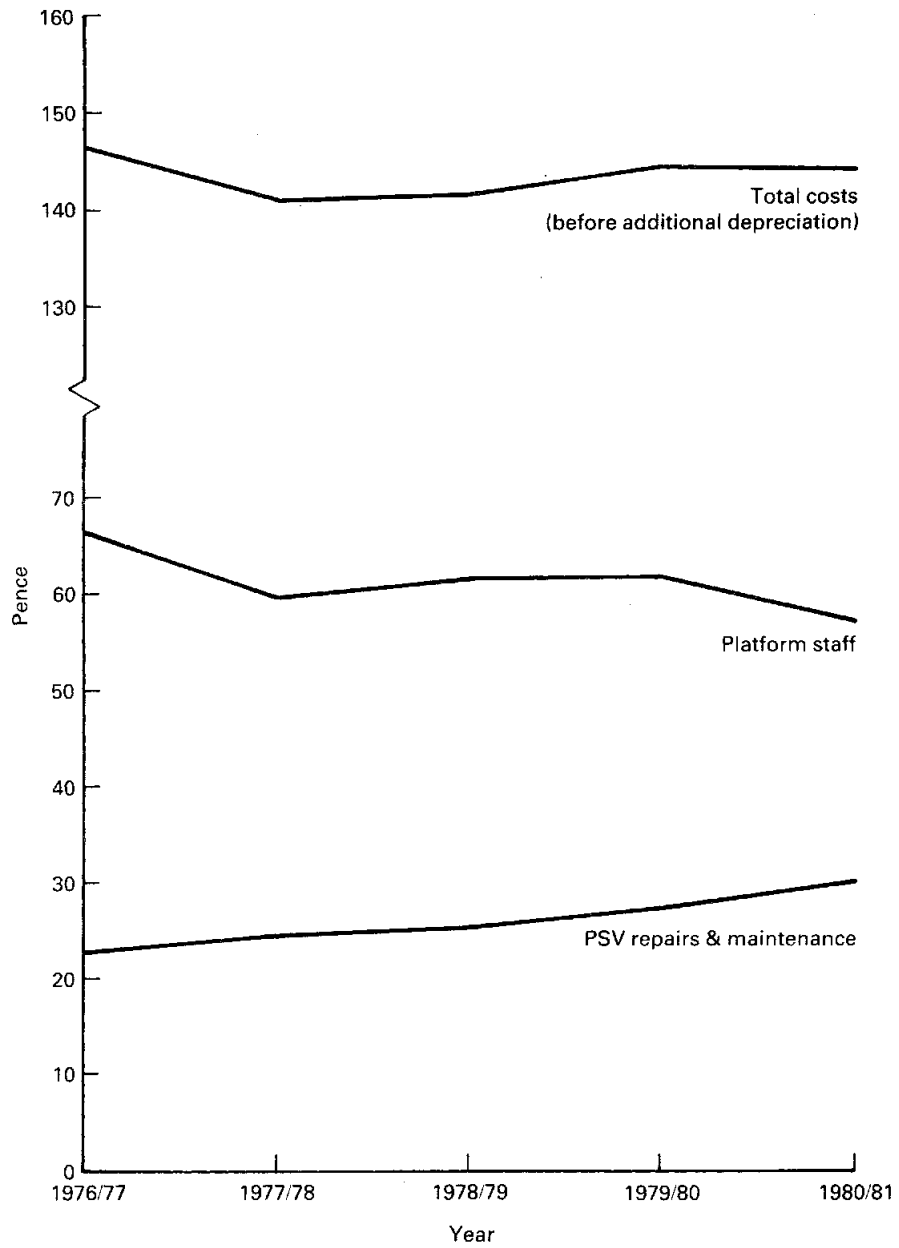
Number of vehicle miles operated (millions)	1976-77		1977-78		1978-79		1979-80		1980-81		Percentage increase in costs pvm 1976-77 to 1980-81
	£m	pence pvm	£m	pence pvm	£m	pence pvm	£m	pence pvm	£m	pence pvm	
<i>Actual expenditure and costs</i>											
Bus crews	2.34	36.8	2.38	37.7	2.56	42.2	2.98	49.1	3.32	52.7	43.2
Repairs and maintenance PSV	0.81	12.7	0.97	15.4	1.05	17.3	1.31	21.6	1.75	27.8	118.9
Other working expenses	1.88	29.5	2.11	33.5	2.11	34.7	2.44	40.2	3.10	49.2	66.8
Principal debt repayments and leasing	0.12	1.9	0.15	2.4	0.16	2.6	0.22	3.6	0.21	3.4	78.9
Total costs	5.15	80.9	5.61	89.0	5.88	96.8	6.95	114.5	8.38	133.1	64.5
<i>Expenditure and costs reflatd to 1981 prices</i>											
Bus crews	4.23	66.5	3.77	59.8	3.75	61.7	3.76	61.9	3.60	57.2	(14.0)
Repairs and maintenance PSV	1.46	22.9	1.54	24.4	1.54	25.3	1.66	27.4	1.90	30.2	31.9
Other working expenses	3.40	53.4	3.34	53.0	3.09	50.9	3.08	50.7	3.37	53.5	0.2
Principal debt repayments and leasing	0.22	3.5	0.24	3.8	0.23	3.8	0.28	4.6	0.23	3.6	2.9
Total costs	9.31	146.3	8.89	141.0	8.61	141.7	8.78	144.6	9.10	144.5	(11.2)

Source: MMC Study.

Notes:

- (1) The above figures of costs per vehicle mile exclude interest.
- (2) No depreciation is provided but the repayments of principal debt are made over the estimated life of the related asset and thus approximate to historical cost depreciation.
- (3) Past years figures have been reflatd to 1981 prices as described in note 3 to Table 2.8.
- (4) Mileage figures for 1976-77 to 1979-80 have been estimated for us by CCT and differ from those published in the City Treasurer's Accounts for those years.

FIGURE 2.2 CCT: costs per vehicle mile in 1981 prices



Source: MMC study.

Note: This graph has been prepared from figures contained in Table 2.13 and should be read in conjunction with the notes to that table, including the note explaining how costs have been reflat to 1981 prices.

NBC Subsidiaries: BOC and TMT

NBC's financial targets and policies

2.91. NBC has a statutory financial duty to break even, taking one year with another, after meeting interest charges and providing for replacement depreciation and an allocation to general reserve. In addition the Secretary of State has set NBC a target of achieving a current cost operating surplus, before interest, of £18.5 million at 1980 prices by 1985 in accordance with the programme shown in Table 2.14. He has also set NBC a performance aim for 1981 in terms of a reduction in operating costs per vehicle mile of 3 per cent in real terms. This performance aim was subject to agreed definitions of terms, namely that operating costs are to include historical cost depreciation but to exclude interest and redundancy payments. (NBC told us that it achieved a reduction of 4.4 per cent in 1981 and that the performance aim set for 1982 is a further reduction of 1.5 per cent.)

TABLE 2.14 NBC's financial target

	% of target	Current cost operating profit (at 1980 prices) (£ million)
1982	0	0
1983	25	4.6
1984	60	11.1
1985	100	18.5

Source: NBC.

2.92. NBC is, in addition, subject to EFLs. For 1979-80, 1980-81 and 1981-82 these were as shown in Table 2.15. NBC told us that it kept within its EFLs for each of those years. It deals with EFL arrangements centrally as part of its central planning procedures. It does not delegate to subsidiary companies responsibility for keeping to EFLs, other than to the extent that they are expected to operate within their approved budgets.

TABLE 2.15 NBC external financing limits

	1979-80	1980-81	(£ million) 1981-82
New bus grant and local authority revenue support	58	66	60
Net borrowing	24	19	15
	82	85	75

Source: NBC.

2.93. A further constraint upon NBC is that when it was set up it assumed, on the transfer of certain property, rights and liabilities of its predecessors, a capital liability to the Secretary of State which is designated 'Capital Debt'. The terms of the commencing Capital Debt prescribed that it should be repaid over the period 2 January 1975 to 2 January 1984.

2.94. The principal of the Capital Debt remaining outstanding at 31 December 1980, and the maturity pattern were as set out in Table 2.16. The rate of interest was 4.92 per cent.

TABLE 2.16 NBC Capital Debt at 31 December 1980

<i>Date repayable</i>	<i>(£ million)</i>
2 January 1981	10·000
2 January 1982	10·000
2 January 1983	9·800
2 January 1984	7·925
	37·725

Source: NBC Annual Report 1980.

2.95. Six instalments had by then been repaid and replaced by further loans as shown in Table 2.17.

TABLE 2.17 Instalments of NBC Capital Debt repaid

<i>Date repaid</i>	<i>Date replaced</i>	<i>Amount (£ million)</i>	<i>Rate of interest %</i>	<i>Date repayable</i>
2 January 1975	2 January 1975	9·900	16·25	2 April 1985
2 January 1976	2 January 1976	10·000	13·75	2 April 1986
2 January 1977	21 March 1977	10·000	12·50	2 April 1987
3 January 1978	3 January 1978	10·000	10·875	2 April 1988
2 January 1979	2 January 1979	10·000	12·875	2 April 1984
2 January 1980	2 January 1980	10·000	15·625	2 April 1990
		59·900		

Source: NBC Annual Report 1980.

2.96. Additionally, further loans had been made by the Secretary of State as shown in Table 2.18.

TABLE 2.18 Further loans to NBC

<i>Date</i>	<i>Amount of Loan (£ million)</i>	<i>Rate of interest %</i>	<i>Date repayable</i>
21 January 1971	2·000	9·00	2 October 1981
31 January 1975	10·000	15·875	2 April 1985
5 August 1975	5·000	12·625	2 October 1985
12 December 1975	7·000	13·75	2 October 1985
23 March 1976	7·000	12·75	2 April 1986
21 March 1977	4·400	12·50	2 April 1987
23 March 1979	5·000	11·875	2 April 1984
16 January 1980	12·000	15·125	2 April 1990
	52·400		

Source: NBC Annual Report 1980.

2.97. The total liability to the Secretary of State at 31 December 1980 was therefore £150·025 million and the combined interest on this Capital Debt and further loans has grown substantially in recent years. However, since 1976 it has not increased significantly in relation to turnover, as will be seen from Table 2.19.

TABLE 2.19 Interest on NBC Capital Debt and further loans as a percentage of Turnover

	<i>Interest (£ million)</i>	<i>Turnover (£ million)</i>	<i>Interest as a percentage of turnover</i>
1976	13·9	358·4	3·0
1977	12·0	391·7	3·1
1978	13·0	437·4	3·0
1979	14·2	497·5	2·9
1980	17·2	581·9	3·0
1981 (estimated)	19·9	618·8	3·2

Source: MMC study.

2.98. NBC said in its 1980 Annual Report that the need for a large part of the further loans arose from the fact that many local authorities had been unwilling to bear in full either the interest charges relating to the Capital Debt or full replacement depreciation when supporting its bus networks. It referred in particular to the sum of £22 million borrowed in 1975 to maintain services at the request of the then Minister of Transport while counties reviewed the level of financial support and to a further £12 million which related to the transfer of London Country Bus Services to NBC without funds to meet its net losses or to finance essential capital expenditure without borrowing. It also told us that interest payments on capital debt over a period of five years were equivalent to a dividend of 64.9 per cent of its profits for that period.

Budgets and budgetary control procedures¹

2.99. NBC's budgetary control procedures form part of its corporate planning process. At present this looks four years ahead. The first year of the period covered by the plan is the budget for that year. The most recent plan covers the period 1982 to 1985 and includes the 1982 budget. It is built up from the individual plans of NBC's subsidiary companies. Each company is required to submit to NBC early in November each year, as part of its own corporate plan, a revenue and expenditure budget in a prescribed form showing forecast revenue and expenditure for each of the 13 four-weekly periods throughout the year. These forecasts are phased to allow for changes in the levels of revenue and expenditure throughout the year. Thus, each period is not merely 1/13th of the forecast for the year as a whole. Provision for inflation is included under the appropriate headings on the basis advised by NBC's central planning department. For 1982 a 6 per cent wage increase has been assumed.

2.100. The revenue budgets of BOC and TMT for 1982, which form part of their corporate plans for 1982 to 1985, are summarised in Tables 2.20 and 2.21 and reconciled with the results of the two companies for 1981, as shown by their management accounts, in Tables 2.22 and 2.23.

TABLE 2.20 BOC revenue budget 1982

	(£ million)
Revenue	29.629
Expenditure	31.350
Deficit	1.721
<i>Source: BOC.</i>	

TABLE 2.21 TMT revenue budget 1982

	(£ million)
Revenue	17.105
Expenditure	17.292
Deficit	0.187
<i>Source: TMT.</i>	

¹ See also Chapter 12 for further comment on BOC's and TMT's budgeting and planning procedures.

TABLE 2.22 BOC reconciliation of 1982 revenue budget with 1981 results

	(£ million)	
Surplus/(Deficit) according to 1981 management accounts		(4.6)
<i>Add:</i>		
Increases in revenue—		
Stage carriage	0.1	
Section 1 grants	0.6	
National Express	0.2	
Reductions in expenditure—		
Bus crews	1.2	
Traffic operations staff	0.4	
PSV maintenance	0.2	
Redundancy	0.5	
Sundry items	0.3	3.5
		(1.1)
<i>Deduct:</i>		
Reduction in private hire revenue	0.1	
Increases in expenditure—		
PSV depreciation	0.2	
Interest	0.3	0.6
Surplus/(Deficit) forecast in 1982 revenue budget		(1.7)

Source: MMC study.

TABLE 2.23 TMT reconciliation of 1982 revenue budget with 1981 results

	(£ million)	
Surplus/(Deficit) according to 1981 management accounts		---
<i>Add:</i>		
Increases in revenue—		
Stage carriage	0.8	
Section 1 grants	0.1	0.9
<i>Deduct:</i>		
Increases in expenditure—		
Bus crews	0.2	
Fuel	0.2	
PSV maintenance	0.3	
PSV depreciation	0.3	
Sundry items	0.1	1.1
Surplus/(Deficit) forecast in 1982 revenue budget		(0.2)

Source: MMC Study.

2.101. BOC is moving towards the greater involvement of line management in budgeting. For 1982 separate budgets were prepared for each operating unit (depot) and each non-operational unit (central repair works, area offices etc). The budgeted costs for the non-operational units were allocated to operational units in accordance with CIPFA recommendations. The budgets for the operating units were then aggregated to form the company's overall budget. Data such as estimated mileage, number of employees required and overtime were provided by line management to the company secretary's department for evaluation. Items such as heating, telephones and building maintenance expenditure were, however, regarded as outside the control of line management and were therefore calculated centrally on the basis of past experience.

2.102. TMT's budget, on the other hand, was in accordance with its usual practice prepared centrally by the company secretary's department in conjunction with the company's chief officers. TMT regards itself as a 'single cost centre' company and has no immediate plans at present to delegate full budget responsibility to line management, although it told us that there is accountability through engineering stewardship meetings and traffic department weekly reports.

2.103. Nearly 40 per cent of budgeted expenditure of both companies is for the labour cost of bus crews and this is calculated from the duty schedules which indicate the number of standard hours to be worked. In other respects, both companies' budgets appeared to us to be prepared partly on an incremental basis, by reference to previous results adjusted for known changes and incorporating a provision for inflation. (However, both companies were at pains to emphasise to us that they regarded their budgets as being generally derived from an objective analysis of the resources required to produce the planned output of services and that they were used as measuring rods for ensuring efficient performance.)

2.104. The responsibility for monitoring each company's performance against its budget lies with its general manager and chief officers. In addition, both companies hold quarterly board meetings at which their performance is monitored against their budgets by the Board as a whole including the regional director in his capacity as chairman. BOC also involves area managers, traffic superintendents and engineering superintendents in the monitoring process, but neither company formally delegates budget responsibility to budget holders at cost centres.

Management accounts and costings

2.105. Management accounts, in the form of four-weekly returns of revenue and expenditure, are submitted to company management, to the regional director (who, as already explained, is also chairman of the company), to other directors and to NBC headquarters two weeks after the end of each period. These returns also include other accounting and statistical information, such as mileage operated, lost mileage, passengers carried, vehicles operated, staff employed and required, cash flow and capital expenditure. They record actual revenue and expenditure and variances from budget for the four-weekly period under review and for the year to date. Classifications of expense heads are in accordance with CIPFA recommendations. Expenditure sub-totals are given of variable, semi-variable and fixed costs. Items of income and expenditure are also expressed in terms of pence per vehicle mile. Depreciation is provided on a replacement basis. Special items include a levy by NBC equal to the company's share of NBC's interest on its opening Capital Debt. A contingency provision of 1.5 per cent of total expenditure is stated at the foot of the statement but this is not deducted in arriving at the profit or loss for the period. Supporting analyses together with details and quantified explanations of variances from budget are provided.

2.106. No statements of cost per passenger mile are given. Both BOC and TMT told us that it was not possible to calculate passenger miles with reasonable accuracy. We did, however, observe that the ratios of passengers to vehicle

miles operated were stated in the returns and that these have fallen in recent years for both companies, as will be seen from Table 2.24. If average passenger journey lengths have remained constant throughout the period, this indicates that costs per passenger mile for each company have increased to a greater extent than the cost per vehicle mile. (TMT told us that in its case average single journey lengths had tended to increase due to the amalgamation of a number of routes, and also that it had reduced certain well-loaded peak period services which were expensive to operate. These factors had both tended to reduce the passenger to vehicle mile ratio. BOC told us that for the March 1982 quarter the ratio in its case had increased to 2.94, reflecting the mileage cuts which were made in late 1981 and early 1982.)

TABLE 2.24 BOC and TMT: Ratios of passengers to vehicle miles

	<i>BOC</i>	<i>TMT</i>
1977	2.88	3.10
1978	2.91	3.17
1979	3.03	3.16
1980	2.76	2.86
1981	2.69	2.50

Source: BOC and TMT.

2.107. Route costing statements are prepared in accordance with CIPFA recommendations in respect of each four-weekly period for each route, showing the route costs, revenue, contribution to fixed cost and profit or loss. When a route covers more than one county its results are allocated between those counties for revenue support purposes. BOC treats depots as cost centres for cost allocation purposes. It allocates expenditure first to depots and then to routes. As some routes are operated from two or more depots, the route costing may have to be built up by amalgamating cost figures from a number of depots. TMT, on the other hand, being a 'single cost centre' company, allocates costs directly to routes. There are other minor differences in the accounting methods used by BOC and TMT to allocate revenue and costs to routes but none of these appear to us likely materially to affect the accuracy or utility of the figures produced.

2.108. As with WMPTE and CCT, the route costing statements do not distinguish between revenues, costs and contributions at peak and off-peak periods, neither do they use standard costing techniques of the type described in paragraph 2.31 in the presentation of route costing information. There are also, as would be expected, variations in the profitability of different routes, a matter which we consider in more detail in Chapter 8—Supply and Demand.

2.109. Neither BOC nor TMT operate any form of regular standard or job costing system for their engineering repair work, although they cost specific jobs such as accident repairs. TMT, however, is one of the companies which provides data for the NBC computerised vehicle maintenance costing system (VMC). This analyses direct labour, materials and bought-in engineering services so as to measure the maintenance costs of vehicle types and assemblies. The information obtained under this system from eight companies in the NBC group is then circulated throughout the group, thus providing

useful data on the maintenance costs of different types of vehicles, and enabling individual companies to compare their own performance with the maintenance performance of the group as a whole.

Control of capital expenditure

2.110. Capital expenditure forecasting for NBC companies is, like revenue budgeting, carried out as part of the corporate planning process. Capital forecasts for the coming four years form part of the corporate plan submitted to NBC in November each year. The forecast capital expenditure for the first year is used as the capital budget for that year. The forecasts for the subsequent three years are more indicative in character. BOC's and TMT's budgeted capital expenditure figures for 1982 appear in the cash flow forecasts for that year, which are part of their corporate plans for the period 1982 to 1985. These cash flow forecasts are summarised, for each of the two companies, in Tables 2.25 and 2.26 respectively.

TABLE 2.25 **BOC cash flow forecast showing budgeted capital expenditure 1982**

		(£ million)
<i>Requirements</i>		
Vehicles		1·966
Property		·117
Plant, machinery and cars		·140
Leasing: net repayments		·308
Increase in working capital		·080
		2·611
<i>Source of funds</i>		
Capital grants		·389
Sales of fixed assets		·386
Replacement depreciation	2·204	
Leasing charges	·212	
Revenue deficit	(1·721)	·695
		1·470
Adverse cash flow		1·141

Source: BOC.

TABLE 2.26 **TMT cash flow forecast showing budgeted capital expenditure 1982**

		(£ million)
<i>Requirements</i>		
Property		·075
Plant, machinery and cars		·090
Leasing: net repayments		·374
Increase in working capital		(·112)
		·427
<i>Source of funds</i>		
Sales of fixed assets		·008
Replacement depreciation	1·517	
Leasing charges	·065	
Revenue deficit	(·187)	1·395
		1·403
Positive cash flow		·976

Source: TMT.

2.111. The purchase of buses is normally settled in conjunction with the regional director, who allocates new buses to individual companies having regard to those made available to his region and the condition of each company's fleet. Some new vehicles are now being leased rather than purchased outright. We were told that this was primarily to ease cash flow problems. Capital budgets are, however, prepared on the assumption that all vehicles will be purchased outright because the decision whether to buy or lease is not usually made until after the corporate plan has been prepared.

2.112. The progress of building works contracts is monitored regularly at management meetings. In effect, the chief engineer is the budget holder for capital expenditure of this nature although larger contracts may be supervised by the regional architect's department. We comment in more detail in Chapter 9 on the procedures used by the two NBC companies for appraising capital expenditure.

Cash control and management

2.113. Cash control and cash management for both BOC and TMT are effected on broadly similar lines within the overall procedures laid down by NBC. Cash receipts for each company arise principally from on-bus fares, season tickets and old age pensioners' and scholars' tickets, County Council support payments, agency sales in respect of express coach bookings, holiday and private hire, contract work and other income, including commission in respect of other operators' services and advertising income. For 1981 the amounts are shown in Table 2.27.

TABLE 2.27 BOC and TMT receipts 1981

	<i>(£ million)</i>	
	<i>BOC</i>	<i>TMT</i>
On-bus fares	19.7	11.6
Off-bus fares (season tickets etc)	3.1	0.1
OAP's and scholars' tickets	2.6	1.7
Total traffic receipts	25.4	13.4
County Council support payments	2.4	1.0
Express coach, holiday and private hire	0.3	0.8
Contract work	0.3	0.8
Other	0.4	0.2
	28.8	16.2

Source: BOC and TMT.

2.114. Traffic receipts for BOC and TMT (including old age pensioners' and scholars' tickets) therefore equal some 88 per cent and 83 per cent respectively of total revenue. The proportions of on-bus fares to total revenue collected in each company are 68 per cent and 72 per cent respectively with off-bus fares (season tickets etc) equalling some 11 per cent of BOC's revenue but a negligible proportion of TMT's revenue. Fare collection and control procedures are described in more detail in Appendix 2.1.

2.115. BOC and TMT each have slightly different arrangements for banking and payments. BOC operates entirely through the National Giro system. All

11 of its depots pay their cash receipts into National Giro and it operates the following accounts:

- (1) *Cash paid in.* This is a 'receipts only' account, the balance on which is automatically transferred every three days to NBC's bank in London.
- (2) *Cheques paid in.* The balance on this account is automatically transferred to NBC's London bank every fourth day.
- (3) *Wages, petty cash and PAYE.* Amounts drawn from this account are reimbursed by NBC's London bank, the relevant amounts being transferred to the Post Offices from where the cash is drawn.
- (4) *Drawings account.* This includes all other payments made by the company. It is automatically reimbursed from NBC's London bank.

2.116. BOC's payroll consists of approximately 2,080 weekly cash payments, 937 weekly credit transfers and 90 monthly credit transfers. Cash wages are paid out weekly at 14 pay points, the amount varying between £2,200 and £32,000 and amounting in total to some £135,000 cash wages each week. Wages cash is drawn by a private security service and made up at each pay point for payment.

2.117. By contrast, TMT has not developed the use of Giro banking to the same extent as BOC. It operates two Giro accounts, one for traffic receipts and for wages withdrawals. These are netted after crediting Thursday's receipts and a transfer to NBC's London bank takes place on Fridays. A Midland Bank account is used for all other payments by TMT, including purchases etc. and weekly and monthly salary and wages credit transfers. It is reimbursed by NBC as required, after taking account of receipts of local authority support payments and fuel duty rebates, which in the case of TMT (unlike BOC, where they are received by NBC in London and credited to the company through the inter-company current account) are received direct by the company.

2.118 Wages cash for TMT is dealt with as for BOC. The TMT payroll consists of approximately 1,200 weekly cash payments, 150 weekly credit transfers and 50 monthly credit transfers. Cash wages are paid out weekly at 10 depots, the amount varying between £1,000 and £32,000, amounting in total to some £95,000 cash wages each week.

2.119. Cash management is dealt with on a group basis by NBC. All subsidiary companies are required to report daily to headquarters balances in excess of those required to meet payments likely to fall due on that day and remittances to NBC's London bank are made as described above. Surplus funds are then invested by NBC through the money market and net requirements are met out of the group's borrowing facility. Weekly cash forecasts are prepared by each subsidiary company for internal cash control purposes. These are also supplied to NBC so that the short-term forward cash position may be kept under review on a group basis. Subsidiary companies are credited or charged with interest on the balances on their current account with NBC.

External audit

2.120. The external audit of NBC is carried out under terms of reference issued by the Secretary of State. In broad terms, the audit requirements are the same as those for private sector companies audited under the Companies Acts and include a requirement to report upon the supplementary current cost accounts of the group.

2.121. The group auditors are Ernst and Whinney, who are also either sole or joint auditors of about half the NBC subsidiary companies. At group level, there is continuing contact between the group auditors and the senior management of the company, at which material aspects of accounting standards and systems and internal control are discussed, and the appropriate action agreed. At a more specialised level, there is also contact between the NBC computer services company and the computer audit staff of Ernst and Whinney on matters such as the computer system reorganisation which is now taking place.

2.122. There is also direct contact between Ernst and Whinney and the NBC group internal audit unit. Ernst and Whinney recognise the work done by internal audit when compiling their audit plan. The NBC group internal audit unit reports directly to NBC's chief financial officer, and NBC considers that any significant matters affecting the relationship between internal and external audit can be dealt with satisfactorily in the exchanges between management and the group auditors. We were told, for example, of a particular joint exercise between the external and internal auditors and the management of a subsidiary company to strengthen the application of the internal control procedures of NBC.

2.123. We asked the group auditors for their views on the relevance of, first, 'value for money' audits and, secondly, Companies Acts audits, to NBC. They said that they did not regard value for money investigations, which involved the expression of an opinion about the effectiveness and efficiency of management, as part of their statutory audit. Unless such work was necessary for the purpose of their statutory audit, to enable them to express an opinion as to whether the financial statements showed a true and fair view, they would only undertake it at the specific request of their client. They considered the present form of audit to be both effective and suitable for NBC, because while the latter is organised and managed as if it is a private sector company and its objectives are essentially commercial, it is also subject to various types of continuous public scrutiny and conducts its affairs in a sufficiently open manner to meet any test of public accountability.

2.124. As regards the two NBC companies with which we are concerned, BOC is audited jointly by Solomon Hare & Co and the Bristol office of Ernst and Whinney. Solomon Hare told us that in their view the conduct of BOC's affairs complies with the audit requirements of the Companies Acts and any matters that are raised with the management in the course of the annual audit, or referred to in the annual management letter, are dealt with both properly and promptly. There appears to be continuing contact between the external auditors and the internal audit staff of BOC. All internal audit reports

are copied to Solomon Hare. Subject to normal test checks, the external auditors rely on the work of BOC's internal audit staff, which is largely concentrated upon traffic receipts and wages. However, Solomon Hare have no regular contact with NBC's group internal audit unit and are not consulted about any proposed accounting system changes that would affect BOC, in particular the computer systems reorganisation that is currently being undertaken.

2.125. We asked Solomon Hare whether in their view a Companies Acts audit was appropriate for BOC. They said that it was, as it provided for an impartial examination of the accounts of the company. They also said that to superimpose upon it a value for money type of examination would involve altogether different considerations and might affect the quality of their Companies Acts audit, if only because it might cause management to be less willing to co-operate with them if it was aware that they had, in the course of a value for money report, made comments which were critical of management's performance.

2.126. TMT is audited by the Sheffield office of Peat, Marwick, Mitchell & Co (PMM). Like BOC, TMT operates accounting systems which are largely laid down by NBC. PMM did not make any special comments on these systems except to observe that their audit was conducted in accordance with approved auditing standards and in this context the systems were adequate in their opinion. They pointed out that a systems based audit approach was used and that in placing reliance on any internal controls they ascertained and evaluated those controls and tested their operation. The Auditing Guideline 'Internal Controls' states that 'internal audit is an element of internal control . . . the extent to which the external auditor is able to take account of the work of the internal auditor will depend on his assessment of the effectiveness of the internal audit function'. In this respect whilst PMM would have preferred the internal audit unit to do more detailed checking in respect of stores, PMM considered that the contact made on an annual basis at the planning stage and during the review of the internal audit coverage was in accordance with approved auditing standards. There is no auditing requirement for the client to notify the auditors of proposed systems changes, although it can be sensible for consultation on proposed new systems to take place for practical reasons. As with BOC there appear to have been no such prior consultation about proposed systems changes including changes in NBC's computer systems.

2.127. We also asked PMM the question that we put to BOC's auditors about the appropriateness of a Companies Act audit. PMM told us that as TMT is a limited company they carried out their duties to enable the report to be made within the relevant statutory and regulatory requirements. In accordance with the approved auditing guidelines the auditors report, by way of management letter, any significant weaknesses in internal controls which come to their attention during the course of the audit. PMM pointed out that their statutory responsibility was to give an opinion as required by the Companies Acts (ie whether or not the accounts showed a true and fair view); they had not been instructed to carry out a management performance audit.

Internal audit

2.128. Internal audit within NBC operates at two levels. In the operating companies, internal audit staff carry out detailed checks on the operating systems and transactions of the companies, reporting to the general manager and company secretary. At group level, a small central internal audit unit, based in Birmingham, reports to the chief financial officer. It consists of a chief auditor and four other staff, three being in post at present. This unit has two functions. The first is to examine and report upon the adequacy of operating systems within the various subsidiary companies (TMT has been reviewed recently and BOC is due for review this year), and to develop and revise the internal audit manual used generally within the group. The second function is that of computer audit, where the efforts of the staff are directed largely towards liaison with the NBC computer services company, which is undertaking a comprehensive redevelopment of NBC computer systems which will take about three years to complete.

2.129. NBC's group internal audit unit sees a general need to improve the qualifications and experience of internal audit staff so that their role can be made more effective, both by internal training and by some recruitment of qualified staff. It considers that the internal audit function within NBC should act as a training ground from which appropriate staff should progress to at least assistant company secretary level in the operating companies.

2.130. Internal audit in BOC is carried out by two continuous stock checkers, three ticket check auditors, one wages auditor, and two general audit staff. The continuous stock checkers carry out their duties primarily within the central repair works, with depot imprest stocks being independently checked by staff from the central repair works. Ticket check audit is concerned with the checking of all off-bus ticket sales and express bookings, which are handled through BOC travel offices and by one agent. Wages audit covers the calculation and payment of all weekly paid cash employees and operates continuously at head office. General internal audit covers the activities and procedures at 11 garages, and to a lesser extent at head office. Such audits are conducted about once a year and are primarily concerned with petty cash, ticket machines, ticket books, lost property and waybill reconciliations, and also ensuring that any irregularities in procedures previously discovered are rectified. The audit of purchases, sales, salaries and any other areas where there is no involvement by the internal audit unit is undertaken by the external auditors as part of their duties. On completion of an internal audit visit, and following discussion with the staff concerned, an audit report is submitted to the general manager, the appropriate chief officer and the company secretary. Any necessary action is taken by the department concerned and followed up on his next visit by the internal auditor. The external auditors review the internal audit work which has taken place since their previous visit and take this into account in deciding how much detailed checking by them is necessary.

2.131. Internal audit in TMT is undertaken by two full-time staff based at the Derby headquarters. There is infrequent liaison with the group internal audit unit and with PMM. The aim is to visit each of the 18 audit locations

up to four times a year. Monthly audit work programmes are prepared from an updated continuous work programme, which ensures that all departments and activities are subject to regular audit. Not every procedure is covered on every audit visit, but the intention is to ensure that all procedures are covered at least once a year. The arrangements for reports following each visit are as described for BOC.

Financial information

2.132. BOC and TMT both prepare their accounts to 31 December each year. Their main accounts are prepared under the historical cost convention as modified by the revaluation of certain assets. These are accompanied by supplementary current cost accounts. Summaries of the results shown by the supplementary current cost profit and loss accounts of BOC and TMT for the years 1978 to 1980 are shown in Tables 2.28 and 2.29 respectively.

TABLE 2.28 BOC current cost profit and loss accounts 1978-80

	(<i>£ million</i>)		
	1978	1979	1980
Turnover	19.3	23.7	27.1
Historical profit/(loss) per audited accounts before interest	1.2	0.1	(2.5)
Adjustments—Depreciation	(0.5)	(0.9)	(1.1)
—Cost of sales	(0.1)	(0.1)	(0.2)
Operating profit/(loss)	0.6	(0.9)	(3.8)
Interest receivable/(payable)	(0.2)	(0.1)	(0.3)
Profits less losses on disposals	0.1	0.1	—
Retained current cost profit/(loss)	0.5	(0.9)	(4.1)

Source: BOC.

TABLE 2.29 TMT current cost profit and loss accounts 1978-80

	(<i>£ million</i>)		
	1978	1979	1980
Turnover	12.2	13.1	15.4
Historical profit/(loss) per audited accounts before interest	0.5	0.1	(0.1)
Adjustments—Depreciation	(0.5)	(0.5)	(0.5)
—Cost of sales	—	(0.1)	(0.1)
—Monetary working capital	—	—	0.1
Operating/(loss)	—	(0.5)	(0.6)
Profit less losses on disposals	0.1	—	—
Retained current cost profit/(loss)	0.1	(0.5)	(0.6)

Source: TMT.

TABLE 2.30 BOC: Expenditure and costs per vehicle mile for the five years 1977-81 in actual figures and in 1981 prices

Number of scheduled miles operated (millions)	1977		1978		1979		1980		1981		Percentage increase in costs pvm 1977 to 1981
	£m	pence pvm	£m	pence pvm	£m	pence pvm	£m	pence pvm	£m	pence pvm	
<i>Actual expenditure and costs</i>											
Variable costs											
Bus crews	9.4	25.5	9.7	27.3	10.4	30.9	12.8	39.0	12.8	43.2	69.4
Other variable costs	2.3	6.3	2.5	6.8	3.0	8.9	3.8	11.6	4.0	13.4	112.7
	11.7	31.8	12.2	34.1	13.4	39.8	16.6	50.6	16.8	56.6	78.0
Semi-variable costs											
PSV maintenance	4.2	11.4	4.6	13.0	5.6	16.6	6.1	18.8	6.0	20.2	77.2
PSV depreciation and leasing	1.4	3.8	1.4	3.8	1.2	3.6	1.5	4.5	1.6	5.4	42.1
Other semi-variable costs	1.9	5.2	2.1	6.0	2.6	7.7	3.4	10.2	3.3	11.1	113.5
	7.5	20.4	8.1	22.8	9.4	27.9	11.0	33.5	10.9	36.7	79.9
Net fixed costs	2.5	9.3	2.8	7.8	3.5	10.4	4.1	12.5	4.5	15.3	64.5
Total costs	21.7	61.5	23.1	64.7	26.3	78.1	31.7	96.6	32.2	108.6	76.6
<i>Expenditure and costs reflat to 1981 prices</i>											
Variable costs											
Bus crews	15.2	41.3	14.5	40.8	13.7	40.8	14.3	43.6	12.8	43.2	4.6
Other variable costs	3.7	10.2	3.7	10.2	4.0	11.7	4.3	13.0	4.0	13.4	31.4
	18.9	51.5	18.2	51.0	17.7	52.5	18.6	56.6	16.8	56.6	9.9
Semi-variable costs											
PSV maintenance	6.8	18.5	6.9	19.4	7.4	21.9	6.8	21.1	6.0	20.2	9.2
PSV depreciation and leasing	2.3	6.2	2.1	5.7	1.6	4.8	1.7	5.0	1.6	5.4	(12.9)
Other semi-variable costs	3.1	8.4	3.1	9.0	3.4	10.2	3.8	11.4	3.3	11.1	32.1
	12.2	33.1	12.1	34.1	12.4	36.9	12.3	37.5	10.9	36.7	10.9
Net fixed costs	4.1	15.1	4.2	11.7	4.6	13.7	4.6	14.0	4.5	15.3	1.3
Total costs	35.2	99.7	34.5	96.8	34.7	103.1	35.5	108.1	32.2	108.6	8.9

Source: MMC study.

Notes:

- (1) The above figures exclude interest.
- (2) Depreciation has been provided on a replacement cost basis.
- (3) In order to show how costs have moved relative to general inflation, past years' figures have been related to 1982 prices by reference to the Retail Price Index the average indices used being:

1977	182.0	1980	263.7
1978	197.1	1981	295.0
1979	221.5		

TABLE 2.31 TMT: Expenditure and costs per vehicle mile for the five years 1977-81 in actual figures and in 1981 prices

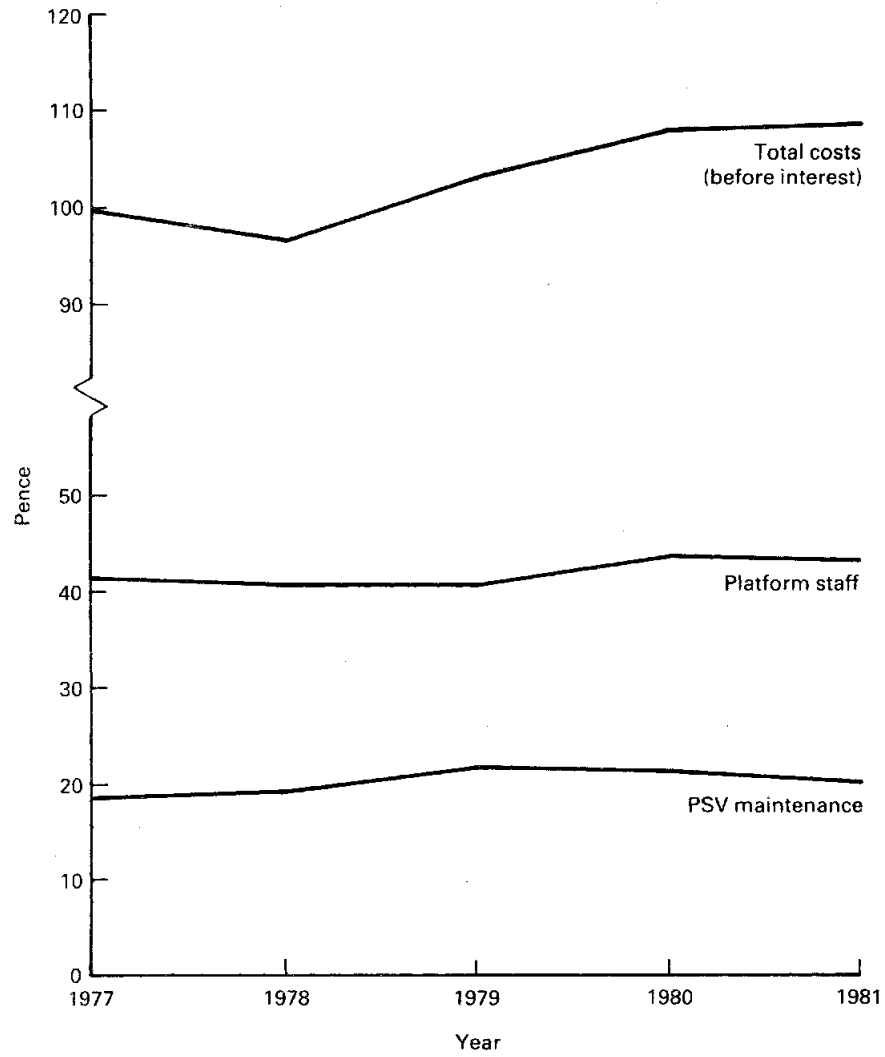
Number of scheduled miles operated (millions)	1977		1978		1979		1980		1981		Percentage increase in costs pvm 1977 to 1981
	£m	pence pvm	£m	pence pvm	£m	pence pvm	£m	pence pvm	£m	pence pvm	
<i>Actual expenditure and costs</i>											
Variable costs											
Bus crews	5.5	26.3	5.7	28.0	5.9	31.0	6.6	36.4	6.1	35.9	36.5
Other variable costs	1.4	6.7	1.4	6.9	1.8	9.4	2.4	13.2	2.6	14.8	120.9
	6.9	33.0	7.1	34.9	7.7	40.4	9.0	49.6	8.7	50.7	53.6
Semi-variable costs											
PSV maintenance	1.7	8.2	1.9	9.3	2.2	11.4	2.6	14.3	2.6	15.4	87.8
PSV depreciation and leasing	1.2	5.7	1.0	5.0	0.8	4.5	0.7	4.1	1.0	5.3	(7.0)
Other semi-variable costs	0.7	3.4	0.8	3.9	0.9	4.6	1.0	5.1	1.0	6.0	76.5
	3.6	17.3	3.7	18.2	3.9	20.5	4.3	23.5	4.6	26.7	54.3
Net fixed costs	1.3	6.6	1.6	8.3	1.9	10.0	2.3	12.9	2.6	15.6	136.4
Total costs	11.8	56.9	12.4	61.4	13.5	70.9	15.6	86.0	15.9	93.0	63.4
<i>Expenditure and costs related to 1981 prices</i>											
Variable costs											
Bus crews	8.9	42.6	8.5	41.9	7.8	40.9	7.4	40.7	6.1	35.9	(15.7)
Other variable costs	2.3	10.9	2.1	10.3	2.4	12.4	2.7	14.8	2.6	14.8	35.8
	11.2	53.5	10.6	52.2	10.2	53.3	10.1	55.5	8.7	50.7	(5.2)
Semi-variable costs											
PSV maintenance	2.8	13.3	2.8	13.9	2.9	15.0	2.9	16.0	2.6	15.4	15.8
PSV depreciation and leasing	1.9	9.2	1.5	7.5	1.0	5.9	0.8	4.6	1.0	5.3	(42.4)
Other semi-variable costs	1.1	5.5	1.2	5.9	1.2	6.1	1.1	5.7	1.0	6.0	9.1
	5.8	28.0	5.5	27.3	5.1	27.0	4.8	26.3	4.6	26.7	(4.6)
Net fixed costs	2.1	10.7	2.4	12.4	2.5	13.2	2.6	14.4	2.6	15.6	45.8
Total costs	19.1	92.2	18.5	91.9	17.8	93.5	17.5	96.2	15.9	93.0	0.9

Source: MMC study.

Notes:

- (1) The above figures exclude interest.
- (2) Depreciation has been provided on a replacement cost basis.
- (3) Past years' figures have been related to 1981 prices as described in Note (3) to Table 2.30.

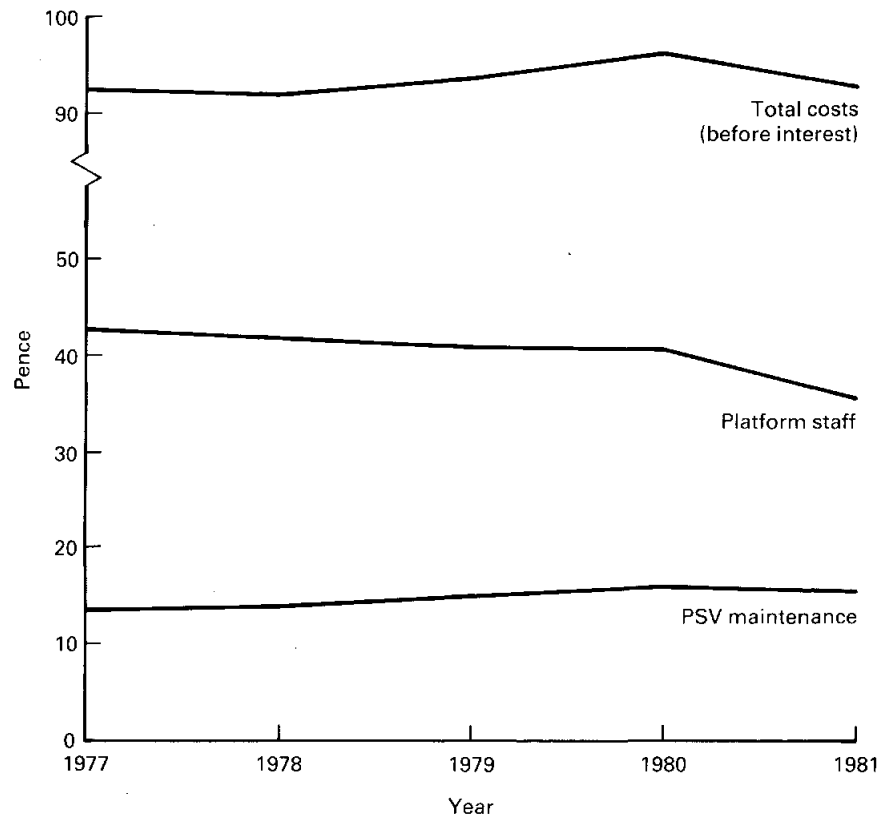
FIGURE 2.3 BOC: costs per vehicle mile in 1981 prices



Source: MMC study.

Note: This graph has been prepared from figures contained in Table 2.30 and should be read in conjunction with the notes to that table, including the note explaining how costs have been related to 1981 prices.

FIGURE 2.4 TMT: costs per vehicle mile in 1981 prices



Source: MMC study.

Note: This graph has been prepared from figures contained in Table 2.31 and should be read in conjunction with the notes to that table, including the note explaining how costs have been related to 1981 prices.

2.133. Tables 2.30 and 2.31 set out the expenditure and costs per vehicle mile of BOC and TMT respectively for the five years 1977 to 1981 both in actual figures and in 1981 prices. Figures 2.3 and 2.4 show in graphic form the trends of the main elements of those costs for the same period expressed in 1981 prices. Appendices 2.4 and 2.5 compare the two companies' income and expenditure over the period with their budgets and comment on any significant variances.

2.134. Tables 2.32 and 2.33 show the extent to which BOC and TMT have each contributed to NBC's achievement of the performance aim (referred to in paragraph 2.91) of a 3 per cent reduction in real terms in operating costs in 1981 compared with 1980.

TABLE 2.32 BOC contribution to NBC's 1981 performance aim

	<i>(£ million)</i>	
	<i>1980</i>	<i>1981</i>
Total costs	32·508	33·364
Redundancy	(0·111)	(0·727)
Interest	(0·713)	(1·212)
Additional replacement depreciation	(1·751)	(1·910)
Adjusted costs	29·933	29·515
Mileage (millions)	32·864	29·635
Adjusted cost (pence per vehicle mile):		
In actual figures	91·08	99·60
In 1981 prices	101·89	99·60
Percentage reduction in costs in real terms — 2·25%		

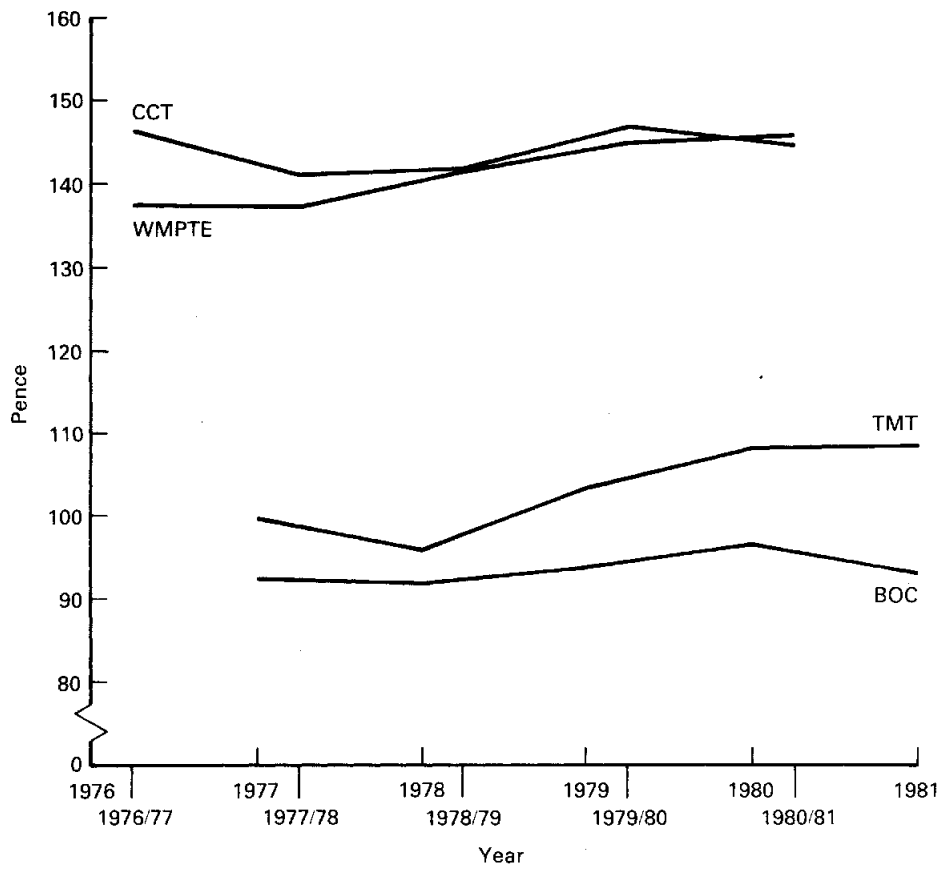
Source: BOC.

TABLE 2.33 TMT contribution to NBC's 1981 performance aim

	<i>(£ million)</i>	
	<i>1980</i>	<i>1981</i>
Total costs	15·557	15·509
Redundancy	(0·062)	(0·236)
Interest	(0·268)	(0·283)
Additional replacement depreciation	(0·472)	(0·615)
Adjusted costs	14·755	14·375
Mileage (millions)	18·167	17·102
Adjusted cost (pence per vehicle mile):		
In actual figures	81·22	84·05
In 1981 prices	88·82	84·05
Percentage reduction in costs in real terms — 5·37%		

Source: TMT.

FIGURE 2.5 Comparison of total costs per vehicle mile in 1981 prices



Source: Derived from Figures 2.1, 2.2, 2.3, and 2.4.

Comparisons of costs

2.135. We have already shown in Tables 2.8, 2.13, 2.30 and 2.31 our calculations of the costs per vehicle mile of the four undertakings for their last five accounting years expressed in 1981 prices. Table 2.34 sets out the relevant figures for each undertaking for its latest available year and Figure 2.5 shows the trends over the last five years. (For the reasons stated in the notes to Tables 2.8, 2.13, 2.30 and 2.31 the costs shown for each undertaking are not strictly comparable with each other.)

TABLE 2.34 Comparative costs per vehicle mile in 1981 prices

	<i>Pence</i>
WMPTE	145.6
CCT	144.5
BOC	108.6
TMT	93.0

Source: Tables 2.8, 2.13, 2.30 and 2.31.

2.136. It is also of interest to consider Tables 2.35 and 2.36 which show how WMPTE compares with other PTEs and how CCT compares with other municipal operators respectively.

TABLE 2.35 Comparison of WMPTE's total costs per vehicle mile with other PTEs

	<i>(pence)</i>		
	1978-79	1979-80	1980-81
WMPTE	98.56	117.10	134.65
London Transport	142.64	177.55	200.34
Greater Manchester	99.53	121.44	137.26
Greater Glasgow	119.18	134.38	156.47
Merseyside	102.41	128.01	148.09
Tyne and Wear	103.48	119.30	145.49
South Yorkshire	96.68	116.77	139.67
West Yorkshire	110.84	129.93	154.79

Source: WMPTE.

Notes:

1. London Transport is not a PTE designated under the 1968 Act but has analogous functions and is therefore included for the purpose of these comparisons.
2. The above figures were provided to us by WMPTE and were based on comparative statistics compiled on behalf of the PTE's and London Transport by Tyne and Wear. They do not agree precisely with the equivalent figures in Table 2.8.

TABLE 2.36 CCT's costs per vehicle mile for 1980-81 compared with other municipal operators

CCT	<i>Bus crews</i>		<i>Servicing, repairs and maintenance of PSVs</i>		<i>Total operating costs</i>	
	53.34p		28.03p		131.11p	
	<i>Number</i>		<i>Number</i>		<i>Number</i>	
<i>Other</i>	Under 45p	7	Under 15p	7	Under 100p	4
<i>municipal operators</i>	45 to 50p	8	15 to 17.5p	6	100 to 110p	9
	50 to 55p	8	17.5 to 20p	10	110 to 120p	7
	55 to 60p	7	20 to 22.5p	8	120 to 130p	14
	60 to 65p	5	22.5 to 25p	5	130 to 140p	5
	Over 65p	8	Over 25p	6	Over 140p	4

Source: MMC study.

Note:

The data for the above table were provided to us by CCT and exclude debt repayment charges. The CCT costs per vehicle mile do not therefore agree precisely with the equivalent figures in Table 2.13.

2.137. It has been put to us by certain operators that a mere comparison of costs per vehicle mile may be misleading because most costs are incurred on a time basis. The extent to which an operator's routes are, for example, in congested urban areas rather than in rural areas is likely to affect the average speed at which it is able to run its buses. To take a simple example, if the cost of employing a bus driver is £3 per hour, then if in one hour his bus travels 15 miles the cost per mile will be 20p. But if in that hour his bus travels only 10 miles, the cost per mile will be 30p. We see merit in this argument (although we accept that caution must still be exercised in making comparisons on this basis because in urban areas vehicle hour costs will be proportionately higher than the proportionate difference in running speeds due to more frequent stopping and starting). We have therefore converted the figures of costs per vehicle mile in Table 2.34 to costs per vehicle hour using for the purpose statistics provided by the undertakings. The results of doing so (set out in Table 2.37) show a different ranking of the four operators in terms of economy of operation. The two 'municipal' operators, WMPTE and CCT, continue to show the highest unit costs. The two NBC companies show lower unit costs, but whereas on a vehicle mile basis TMT's were lower than BOC, on a vehicle hour basis their positions were reversed.

TABLE 2.37 Comparative costs per vehicle hour in 1981 prices

		<i>Operating expenses at 1981 prices (£ million)</i>	<i>Number of bus hours (millions)</i>	<i>Cost per bus hour (£)</i>
WMPTE	1980-81	107.5	7.083	15.18
CCT	1980-81	9.1	0.621	14.65
BOC	1981	32.2	2.868	11.23
TMT	1981	15.9	1.260	12.62

Source: MMC study.

Note:

The above figures of operating expenses are as shown in Tables 2.8, 2.13, 2.30 and 2.31 respectively. The figures of bus hours have been provided by the operators concerned.

2.138. It is also important when comparing costs to remember that the service provided by bus operators is the carriage of passengers rather than simply the movement of vehicles. Of the four undertakings under inquiry, only WMPTE publishes statistics of passenger miles. CCT, BOC and TMT were sceptical of the value of such figures and doubted whether they could be calculated with sufficient accuracy to justify the trouble and expense of collecting them; and the two NBC companies also drew attention to the way in which passenger traffic could be influenced by concessionary travel, revenue support and such like factors. However, after further consultation with the undertakings we were able to obtain estimates (in the case of CCT, a wide range) of passenger miles from them on the basis of which we have calculated comparative costs per passenger mile in 1981 prices, as shown in Table 2.38. It will be seen that these figures give a very different ranking of the undertakings from those shown in Tables 2.34 and 2.37. They must, however, be treated with considerable reservations, partly for the reasons stated in the notes to Table 2.38 and partly because, as indicated above, passenger mileage figures are influenced by the extent to which concessionary travel and revenue support are provided.

TABLE 2.38 Comparative costs per passenger mile in 1981 prices

		Operating expenses at 1981 prices (£ million)	Number of passenger miles (millions)	Cost per passenger mile (pence)
WMPTE	1980-81	107.3	1,366.5	7.9
CCT	1980-81	{ 9.1	39.0	23.3
		{ 9.1	102.0	8.9
BOC	1981	32.2	180.6	17.8
TMT	1981	15.9	110.0	14.5

Source: MMC study.

Notes:

- The figures of operating expenses are as shown in Tables 2.8, 2.13, 2.30 and 2.31 respectively.
- The figures of passenger miles have been calculated or estimated as follows:
WMPTE. The Executive's 1980-81 Annual Report published a figure of 2,204.1 million passenger kilometres. This converts to 1,366.5 million passenger miles.
CCT. CCT estimated a very wide range of passenger miles for 1980-81 of 39-102 million. We have calculated costs per passenger mile on both the upper and the lower figures.
BOC. BOC estimated a figure of 182 million passenger miles for 1980, and that there were 5.81 passenger miles per vehicle mile. For 1981 it anticipated a fall in passenger mileage (reflecting the fall in vehicle mileage from 32.8 to 29.6 million) partly offset by an increase in passenger miles per vehicle mile due to the abandonment of certain lightly loaded journeys. We have therefore estimated for 1981 that the passenger miles/vehicle miles ratio would increase by 5 per cent to 6.1 and applied this to the figure of 29.6 million vehicle miles to arrive at 180.6 million passenger miles.
TMT. TMT estimated its passenger mileage for 1981 at 110 million. It has, however, used a method which produces a somewhat higher result than the method used by BOC.

Effect of conversion to OMO

2.139. One of the most significant factors affecting the costs of all operators during recent years has been the conversion from crew operation (that is, with a driver and conductor) to OMO. With OMO fares are collected by (or season tickets or other passes shown to) the driver as passengers board the bus. The conversion to OMO has been greatly encouraged by the Department of Transport as a means of saving labour. Indeed, the system of new bus grants referred to earlier in this report has been used largely to provide positive incentives to OMO conversion. A number of studies¹ have suggested that savings in operating costs in the region of 15 per cent have been achieved as a result of OMO.

2.140. Although OMO conversion saves the cost of conductors' wages, there are a number of countervailing factors, the principal of which are:

The tendency for drivers' pay to increase to reflect the additional duties (collecting fares) which they undertake.

The possible need for additional inspectors to check on fare evasion in the absence of conductors.

The effect of slower running speeds due to the additional boarding times resulting from passengers queuing to pay the driver at the time of boarding.

¹ See, for example:
 Quarmby D. A. Effect of alternative fares systems on operational efficiency: British experience. *Proceedings of Symposium on Public Transport Fare Structure*. Department of the Environment TRRL Report SR37.
 Boyd C. W. Cost savings from one-man operation of buses. *Journal of Transport Economics and Policy* 15(1) January 1981.

Higher repair and maintenance costs. These are likely to arise for two reasons. First, OMO has been a significant factor in the tendency of bus design to become more complex; it is unlikely, for example, that but for OMO there would have been such widespread change to rear-engined vehicles, a matter which is the subject of more detailed comment in Chapter 9 of this report. Second, buses are likely to suffer increased wear and tear due to pressure on drivers to make up for lost time following boarding delays.

2.141. Apart from these factors, there is the likely effect of OMO on the capital expenditure required on new buses. This arises in a number of ways. First, OMO buses, being of more complex design, are likely to be more expensive. Secondly, the slower running speeds referred to above will increase the number of vehicles needed at peak times. Thirdly, the increased time that buses are out of service for repair and maintenance (due to their greater complexity) will increase the number of reserve buses required. In short, the effect of OMO is likely to be that additional and more costly buses will be needed to provide a given level of service. This means higher capital expenditure and higher costs due either to increased replacement depreciation provisions or increased leasing charges, depending on whether buses are bought outright or leased.

2.142. In view of our concern that the effect of these factors should be fully understood, we commissioned a comprehensive study of all the likely benefits and disbenefits of OMO conversion. This is reproduced in Appendix 2.6. We do not, however, feel able to base any definite conclusions on this study, which depends very largely on subjective judgments. It demonstrates how difficult it is to form a conclusion about the overall effects of OMO.

Conclusions

2.143. In the remaining paragraphs of this chapter we set out our conclusions on the financial and accounting practices of the four undertakings under inquiry. Each of them operates a system of budgetary control, management accounting and route costings which generally follow the lines recommended by CIPFA. Although there are, as would be expected, differences in the scale, quality and complexity of their systems they all appear to be generally satisfactory except for those aspects of CCT's methods to which we refer more specifically below.

2.144. We recommend that the undertakings should review the manner in which their budgets are prepared. We accept that past performance is a useful starting point for setting budgets for the future but this should be accompanied, particularly in the case of CCT, by a more rigorous examination in quantitative terms of the resources required to achieve a planned level of service.

2.145. CCT and TMT should investigate the possibility of a more formal delegation to budget holders at cost centres of responsibility for both the setting of and compliance with budgets. In the case of WMPTE and, to a lesser extent, BOC delegation already takes place but we recommend, particularly in the case of BOC, the greatest practicable participation by their budget holders in the setting of the budgets for which they are responsible.

2.146. CCT's methods of presenting accounting and statistical information for management purposes fall short of best practice and should be reviewed as a matter of urgency with a view to making such information more readily understandable to recipients. CCT should also make greater efforts to produce route costing statements regularly, at least once a quarter. The Cardiff City Treasurer's Department should take steps to expedite the changes in its computerised accounting system which have been under consideration for some considerable time.

2.147. It is possible to express the unit costs of bus operations in a number of ways. The three methods to which we have referred in this chapter, namely by reference to vehicle miles (the method commonly adopted throughout the industry), to vehicle hours and to passenger miles, are all defective in one or more respects. Costs per vehicle mile do not reflect the extent to which vehicles are economically used in the carriage of passengers. Neither do they allow for the effect of different operating conditions on running speeds, and thus of costs, in relation to vehicle mileage. Costs per vehicle hour do not reflect the degree of success achieved by the operator in maintaining the highest practicable running speeds in what may be difficult operating conditions. Costs per passenger mile do not reflect the extent to which load factors may be increased by the subsidisation of fares. We consider, however, that each of these statistics can provide useful management information and that all the undertakings should know their unit costs per vehicle mile, per vehicle hour and per passenger mile. We recommend that, to the extent that they are not already doing so, they should take steps to collect the necessary statistics to enable these unit costs to be measured.

2.148. The costs of making up and paying out cash wages each week, together with the attendant costs of security, are a significant expense. CCT has made good progress in converting its salaries and wages payments to non-cash methods, with nearly 60 per cent of payments made either by cheque or credit transfer. We recommend that the other three undertakings should aim to make similar progress in this direction.

2.149. Appendix 2.1 describes the cash collection and control procedures used by each undertaking for cash collected on the bus. WMPTE, with its Autofare system, and CCT, to the extent that it has converted some of its routes to the Almex system, hold cash on-bus in a secure vault until it is delivered to the depot for counting and banking. These systems, however, give rise to some loss of individual driver accountability for the cash that he has collected. CCT, on its non-fast fare routes, and BOC and TMT do not use a vault system for holding cash on the bus but are better able to maintain driver accountability. We consider that both systems are generally effective for controlling cash but note that no system has been devised which combines the merits of a secure cash vault with those of individual driver accountability for cash collected.

2.150. WMPTE and CCT have both made significant efforts to collect more of their revenue off the bus, to the extent that this now provides over 50 per cent and 40 per cent respectively of their total traffic receipts. This not

only improves the security of traffic receipts but, also of importance, helps to reduce fare collection delays at bus stops. For these reasons we consider it important that all the undertakings should endeavour to increase the proportion of traffic revenue collected off the bus. (We return to this matter in Chapter 8: Supply and demand.)

2.151. In the cases of WMPTE and CCT, where the auditors accept that they have a duty to examine the economy, effectiveness and efficiency with which the undertakings conduct their business, we welcome the assurances given to us that value-for-money work receives the maximum attention possible within the resources that can properly be made available for the audit.

2.152. Because the statutory auditors of the two NBC companies, which are companies incorporated under the Companies Acts, have no duty to involve themselves in value-for-money investigations except to the extent that these affect their statutory responsibilities, we recommend that NBC include 'value-for-money' investigations within the terms of reference of their group internal auditors.

2.153. We have also considered the question of the value-for-money of the management accounting systems. In the case of CCT and the two NBC companies we consider that these operate economically. These operators rely for management accounting information primarily on information that would in any event be produced in the ordinary course of business. WMPTE, however, has established a considerably more complex and elaborate system with provision for a large number of cost centres. This may be justified by its larger size compared with the other three undertakings but we recommend that it should ensure that its management accounting and costing systems are not further refined at a cost exceeding the additional benefits to be obtained.

2.154. It will be apparent from the data given earlier in this chapter that, depending on the assumptions made as to the basis of evaluating and comparing costs, the ranking of the four undertakings in terms of their unit costs of operation can vary widely. Although we find the various comparisons useful in establishing profiles of the undertakings we do not think it possible to draw firm conclusions from comparisons of unit costs about the undertakings' relative efficiency in general (as distinct from their relative efficiency in carrying out particular functions). Neither do we think it possible to draw from comparisons of unit costs general conclusions about the relative efficiency of PTEs, municipal transport departments and NBC companies. Even if consistent trends or patterns could be identified, unit costs are not the only criteria by which efficiency should be assessed. Any comparison of efficiency would involve consideration of other factors, such as the level of service provided.

CHAPTER 3

Quality of service

3.1. Quality of service is very important both to operators of buses and to users. It is important for the operators because their purpose is the provision of service in the form of transport. It is important for users because many people are strongly influenced by bus services in their habits and activities and derive from bus services much convenience or inconvenience. Because of this importance, various aspects of quality of service are the subject of current debate. In part this debate relates to the tension, or even conflict, between level of service and commercial viability; and there is an important area of technical discussion concerning the attempt to define measures of quality and set standards.

3.2. In spite of this, our discussion of quality of service in this chapter is brief. We have to consider quality of service only to the extent that it is relevant to our terms of reference. The terms of reference touch upon quality of service only in requiring us to consider whether each of the undertakings referred

'could improve its efficiency and thereby reduce its costs without significantly affecting the level of services provided'.

For this purpose it is necessary to establish the present level of service and its trend. This chapter sets out our findings in this restricted area.

3.3. For an individual user the level of service provided is represented by the convenience and cost of his particular bus journeys, for which train, private car, taxi, bicycle or walking may present alternatives and with this convenience also associate the cost. There is not, however, any single measure of quality, by which the level of service can be assessed from the individual user's point of view or aggregated to represent the level achieved by an operator comprehensively. In the absence of such a measure, service is commonly judged by reference to the structure of the network, the schedules, the efficiency of operations and fares. We have used these measures, but in interpreting them and the trends which they reveal it is necessary to remember that they are only indications of the quality of service which the operator provides.

3.4. The quality of service experienced by the traveller is a combination of many factors, the most important of which are travel time, reliability, comfort and cleanliness. Travel time comprises walking to the bus stop, waiting time, the time on bus and the walking time to the final destination. Reducing any of these elements incurs increased costs, and there will always be significant variations in service level from route to route and from hour to hour.

3.5. Reliability is determined by a combination of service cancellations ('lost mileage'), and the extent to which buses run to their schedule time. Whilst a shortage of buses or men can account for a large part of variations in

reliability, some are caused by weather or traffic congestion for which managements are not responsible. Comfort and cleanliness depend mostly upon vehicle design and the frequency and efficiency of cleaning but in part upon actions of travellers themselves. Vandalism is an extreme example.

3.6. With these elements of service one should also link the dissemination of information. A lack of detailed information about bus times itself reduces the value of the service provided.

Quality standards and quality control

3.7. In general the network structures of the four undertakings have been stable over a long period of time, although there have been some extensions to cater for new housing developments and some cutting out of routes where demand has fallen significantly. However, in all four undertakings, over the past five years, as demand has fallen steps have been taken to reduce service levels to prevent large deficits. The actual rate of reduction has often depended upon the amount of revenue support provided by local authorities for routes or for whole networks which have been incurring losses. This process has inhibited the setting of standards by the undertakings themselves.

3.8. None of the four undertakings has formal standards for any of the components of travel time. However, CCT is required by South Glamorgan CC to maintain the 1976 level of service and WMPTE is developing a procedure for setting its own standards for accessibility (eg distance from home to bus stop and service frequency). At present it uses informal guidelines such as:

- in the peak passengers should have, as far as possible, first bus availability;
- except in locations of very low demand the frequency should not be less than one per hour;
- no one should be more than 400 metres or 5–10 minutes walk from a bus route.

Moreover some non-metropolitan counties also have such standards (see Appendix 10.1).

3.9. All undertakings monitor lost mileage on a routine basis against a standard of losing none. Control is exercised by inspectors but the level of mileage actually lost depends upon the number of spare vehicles and crews, the quality of vehicles and maintenance and some other factors beyond the control of management such as traffic congestion. The causes of lost mileage are discussed in Appendix 3.3.

3.10. All scheduled services are planned to operate to time, but no analysis of the cost of this 100 per cent reliability has been undertaken. Operational control over timekeeping is undertaken by inspectors. Services can be re-routed or terminated before reaching their destinations in order to return running to schedule. Punctuality depends mostly upon the degree of time allowance built into the schedules for variations in road and traffic conditions, but partly on the extent to which the same bus serves more than one route.

Where routes are thus 'linked' across a city centre, such as in Bristol, great difficulty is experienced in maintaining timings primarily due to traffic congestion. None of the undertakings monitor punctuality regularly, although special exercises are often undertaken on receipt of complaints. In CCT for example there is a bus delays working group involving CCT and SGCC. Radio control in Bristol, Cardiff and the West Midlands does, however, help to provide closer control.

3.11. All the undertakings have formal standards for bus cleaning in three broad categories—daily sweeping of the interior, rather less frequent external washing and periodic cleaning of the interior panels and furnishings. These are set out in Appendix 3.1. All cleaning is monitored in WMPTE. Of the others BOC does not monitor at all, CCT and TMT monitor partially while all three carry out some spot checks of quality.

3.12. Each undertaking puts considerable effort into public relations and communicating with its customers including the use of local radio stations to inform the public of any disruptions. This is not entirely successful, because some passengers find timetables difficult to understand and late changes to services are particularly difficult to disseminate. Late or incorrect information can cause considerable difficulties for travellers.

3.13. However, all undertakings have a formal system for investigating the causes of complaints on any topic. All take disciplinary action over staff negligence or discourtesy and whenever practical try to take into account complaints on services when planning changes to them.

Performance trends

3.14. It is extremely difficult to establish absolute or objective standards against which the quality of service provided by the undertakings can be measured. The only way to judge them therefore is comparatively, either comparing one undertaking with another, or one undertaking with itself over a period of time. Both methods have been used in the following paragraphs which summarise the detailed discussion in Appendices 3.2–3.4.

3.15. Passengers appear to be offered a higher level of service in WMPTE and CCT than in BOC and TMT in terms of the average distance from a bus route and the average frequency of buses (Table 3.1). However, this is only to be expected since the former two operate in urban and the latter two in largely rural areas. Whilst the structure and size of bus networks have remained fairly stable over the past five years, the level of service in terms of average frequency has been slowly declining. When we looked at particular routes we found that times of first and last buses had hardly changed over the last ten years and journey times have been virtually constant too.

3.16. Table 3.1 also shows that the average fare per journey has been increasing in real terms in all undertakings against a background of a reducing number of journeys.

TABLE 3.1 Trends in quality, real fares and passenger usage in the four undertakings (1975-76-1980-81)

Bus Undertakings	Quality of service			Fares		Passenger usage		
	Accessibility Average Distance to Bus Route in 1981	Frequency		Real Fares Paid per Journey % Annual Trend	Journeys per unit population		Journeys per unit non- car-owning population	
		Buses/Day in 1981	Trend % Annual Change		Journeys in 1981	% Annual Trend		Journeys in 1981
WMPTE	0.28 miles	82.1	-0.3% (1978-79 -1980-81)	+8.43% (1976-77 -1980/81)	169	-1.7%	231	-1.5%
CCT	0.32 miles	61.4	-4.6%	+6.58%	125	0.0%	170	+1.1%
BOC	1.30 miles	23.2	-3.8%	+1.15% (1977-81)	50	-5.5%	75	-4.7%
TMT	0.66 miles	14.3	-3.9%	+9.42% (1977-81)	34	-7.3%	54	-5.9%

Source MMC study.

Note: Caution should be exercised in interpreting changes in passenger journeys when there have been changes in the number of linked services. This is particularly so in TMT where the number of linked services has been increasing.

3.17. Each of the undertakings has been able to stabilise the worsening trend of reliability in terms of lost miles. TMT and CCT have made particularly good improvements. This is discussed further in Appendix 3.3.

3.18. Appendix 3.4 discusses punctuality. The data cannot be regarded as representative since the only source available was sample surveys and these were conducted in only two of the undertakings. However, even on this basis, some punctuality is not up to standard. Table 3.2 shows the available detail, the source of which is discussed in the appendix.

TABLE 3.2 Percentage of buses in sample early or late at a terminal or timing point

	% late			% on time	% early			% within 5 mins
	Over 5 mins	1-5 mins	0-1 mins		0-1 mins	1-5 mins	Over 5 mins	
WMPTE*								
Depart	1.2	10.6	8.2	79.6	0.2	0.2	—	98.8
Arrive	4.8	21.2	7.0	32.3	11.3	21.0	2.4	92.6
BOC (city)								
Depart	32	28	12.5	11.1	4.7	7.4	1.6	66.4
Arrive	38	32	9.6	6.6	9.1	3.8	—	62.0

Source: WMPTE and MMC study.

* WMPTE running agreement allows early arrival at terminal provided that time is maintained at penultimate timing point.

Safety

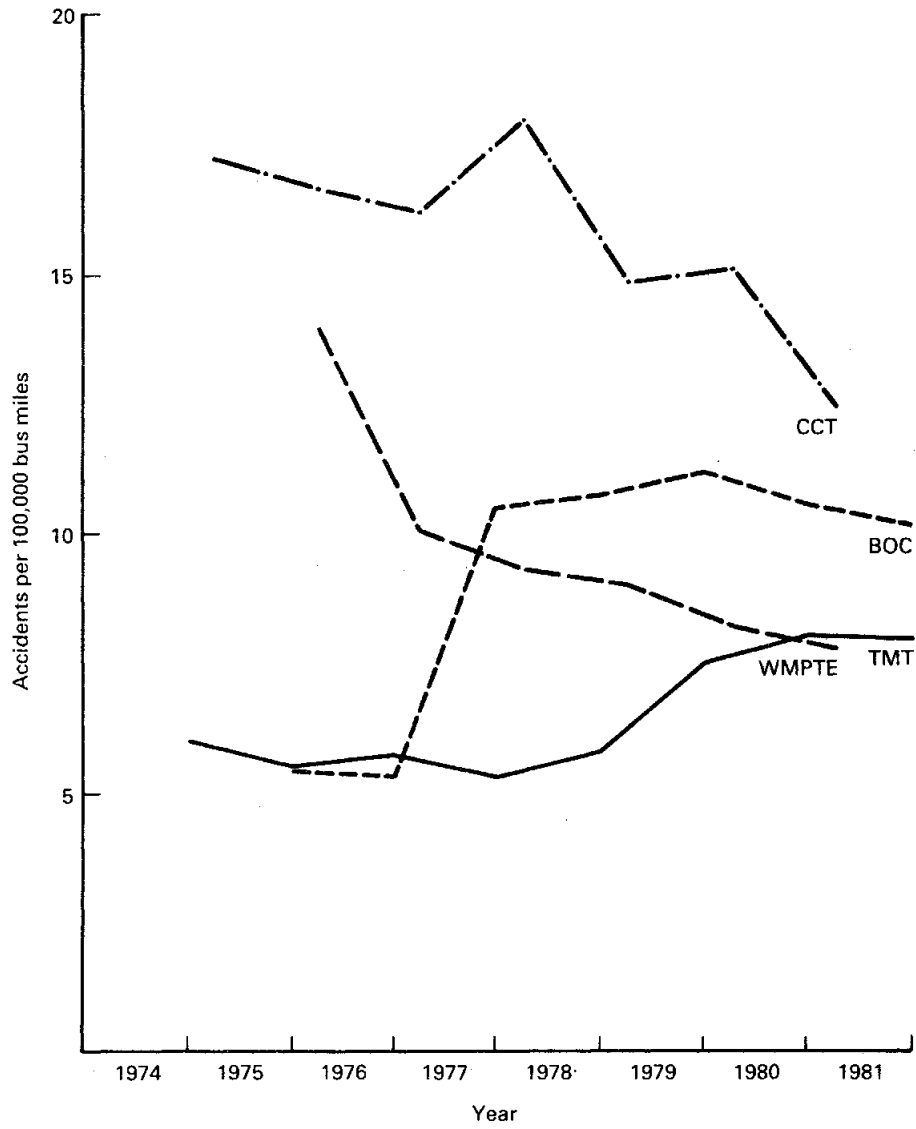
3.19. Figure 3.1 shows the accident trends for the undertakings. In 1980-81 the number of accidents of all kinds for all the undertakings lay between 7.5 and 12 per 100 thousand bus miles. In Cardiff in 1975-76 the number of accidents was three times greater than in two of the other undertakings. Since then it has improved significantly. This shows the effect of a determined safety campaign. The reason for the worsening position in BOC and TMT is not known but may be due to withdrawal of mileage in the more rural areas where accidents are less frequent. These accidents result in a fatality rate of between one and two deaths per year per ten million bus miles including fatalities to other road users.

Cleaning performance

3.20. Table 3.3 shows the performance of the four undertakings in the proportion of target cleaning schedules achieved, for a summer and winter period in 1981-82.

3.21. The indications are that the level of achievement of targets for the daily internal sweep of buses is high, but that performance for external wash and special internal cleans are variable and often low in all undertakings.

FIGURE 3.1. Numbers of accidents per one hundred thousand bus miles for each of the bus undertakings, 1974-81



Source: MMC study.

TABLE 3.3 Bus cleaning performance for a summer and winter period in 1981 in terms of proportion of target schedule achieved

	<i>Exterior wash</i>		<i>Interior sweep</i>		<i>Interior special clean</i>	
	<i>Summer</i>	<i>Winter</i>	<i>Summer</i>	<i>Winter</i>	<i>Summer</i>	<i>Winter</i>
WMPTE					four	four
South Division	58%	80%	98%	100%	wkly	wkly
North Division	67%	71%	81%	89%	20%	86%
East Division	over 100% (Sept)	over 100% (Jan)	over 100% (Sept)	over 100% (Jan)	63%	58%
					71%	40%
CCT	69% a week in Sept	61% a week in Feb	100% a week in Sept	100% a week in Feb	51% month of Sept	90% month of Feb
BOC						
North Eng Div (for two depots)	NA	NA	NA	NA	91% (July)	90% (April)
TMT	87% (June)	76% (Jan)	100% (June)	100% (Jan)	month 60% of June	month 81% of Jan

Source: MMC study.

Views of bus users

3.22. Three sources have provided an indication of users' views:

- (a) evidence submitted to the Commission;
- (b) surveys undertaken by the undertakings;
- (c) an analysis of complaints received by the undertakings. An analysis of complaints and of the general attitudes expressed in the evidence submitted to the Commission cannot be regarded as being very precise and some caution is necessary in any interpretation placed upon them.

Evidence submitted to the Commission

3.23 The Commission have received evidence from a number of individuals and organisations (Table 3.4). The response rate has been fairly low for all organisations about each undertaking. The Commission did receive a number of letters from private individuals about BOC mostly concerned with the recent service restructuring resulting from the MAP¹ exercise.

3.24. Table 3.5 summarises the nature of the comments contained in the submissions. With the rather poor response rates, the only conclusion to be drawn concerns the widespread dissatisfaction with the restructured services in BOC. It would appear from reading the individual letters that where major structural changes are made in a very short timescale with cost as a major criterion a significant level of discontent may result. Slower changes may allow time for assimilation and adjustment.

¹ Market Analysis Project.

TABLE 3.4 Volume of evidence submitted to the Commission by local Chambers of Commerce, major customers, user associations, private individuals

	<i>Chambers of Commerce</i>		<i>Major customers</i>		<i>User associations</i>		<i>Private individuals</i> <i>Number received</i>
	<i>Number of invitations</i>	<i>Number of replies</i>	<i>Number of invitations</i>	<i>Number of replies</i>	<i>Number of invitations</i>	<i>Number of replies</i>	
WMPTE	10	3	10	2	19	2	1
CCT	2	1	10	4		1	1
BOC	16	3	10	5		1	81
TMT	9	2	10	6		1	

Source: MMC study.

TABLE 3.5 Nature of comments in evidence submitted by individuals and organisations

<i>Area of comment</i>	<i>WMPTE</i>	<i>BOC*</i>		<i>TMT</i>	<i>CCT</i>
		<i>Organisations</i>	<i>Private individuals</i>		
Level of fares	1	2	12	2	
Level of service	1 [†]	5	53	6 [‡]	3 [†]
Equipment			2		
Cleanliness					
Cost efficiency	3	1	3	1	
Courtesy			6		
Commercial/Social policy	2		6		1
Competition	1	2	3	2	1
Information		1	6		

Source: MMC study.

* Includes two petitions counted as one communication each.

[†] Expressed satisfaction.

[‡] Major customer expressed satisfaction.

Surveys conducted by the undertakings

3.25. The undertakings have all conducted attitude surveys to help match services and policies to the priorities of the user. In the case of WMPTE, BOC and TMT, these were conducted in association with a survey of travel patterns—area studies (household survey) and the COBS¹ system in WMPTE and the MAP² procedure in BOC and TMT. In each undertaking an attempt was made to pose questions in an unbiased way. The results of the attitude surveys are given in Appendix 3.5.

3.26. There is no strong evidence that passengers are generally dissatisfied with the service they are offered except in BOC where dissatisfaction was expressed with the new Bristol City services. It would appear that users accept that fares may have to rise but are concerned that they should be moderate. Their preferred alternative for reducing shortfall would be increased car park charges. They are concerned about maintaining the levels of service in preference to stable fares. Many passengers feel that timetables are difficult to understand.

¹ Continuous On-Bus Survey.

² Market Analysis Project.

Complaints

3.27. Appendix 3.6 sets out the available data on written customer complaints. In 1981 most complaints concerned staff behaviour. In BOC complaints have been rising steadily.

Consultation with the consumer

3.28. There is no Consumer Consultative Council for the bus industry. PTEs including WMPTE are required to set up a 'Transport Users' Advisory Committee' which comprises representatives nominated by district councils and civic organisations. A similar system, County Passenger Advisory Committees, for the non-metropolitan counties proposed in Cmnd 7131 in 1978 has not been established. WMPTE did not feel that the TUAC contributed significantly to the debate on various 'Value for Money' options, nor to the planning process. It considered that a reconstructed TUAC could make a more active contribution. In its view the TUAC currently tended to represent the views of pressure groups or activists rather than the consumer. None of the other undertakings saw merit in the establishment of consultative consumer bodies for the bus industry. They felt that the consultative process through the elected representatives of the local authorities and through the role of the Traffic Commissioners was adequate.

3.29. In 1981 the Department of Trade published a consultative document 'Consumers' interests and the nationalised industries' in which one of the proposed options was the establishment of sectoral councils to represent the interests of consumers. One of these, the 'Transport Council', would cover rail, ferries and the National Bus Company. The proposed organisation would include 'A National Council', regional councils and a third tier local representation. The form of local representation is not suggested in the report.

3.30. Quite small changes to the service on a particular route, can cause hardship and inconvenience to specific travellers. The hardship is greatest for those who have no access to a car or cannot drive, such as old people and school children. In planning routes or networks, the operator makes a judgment between social and commercial objectives and an acceptable degree of cross-subsidisation. It is during this process that the needs of such people should be identified and taken into account.

3.31. We think that this latter task properly belongs to elected members of local authorities. There is no need in our view to set up a special organisation which would represent public transport users.

Conclusions

3.32. There has been a tendency among non-metropolitan counties and in WMPTE to adopt standards of accessibility as a basis upon which revenue support is given. BOC and TMT have also paid attention to similar matters in the course of MAP studies. If more counties and operators were to use such an approach, generally accepted standards for support might eventually emerge.

3.33. We should like to see improved and continuous monitoring of cleaning schedules at management level. However, we recognise that this may have significant cost implications. We recommend, therefore, that each undertaking should devise a system of periodic sampling which forms part of the monthly management information received by the responsible manager, and that minimum operational achievement levels should be set.

3.34. The extent to which punctuality is monitored varies considerably between the undertakings. They should all consider whether some more regular check on punctuality could be maintained for a modest cost, at the very least for less frequent services in rural areas, where keeping to time at intermediate points is just as important as timely arrival at the final destination. We acknowledge that to a great extent the punctuality of urban services depends on traffic congestion and for that reason it is beyond the control of operators.

3.35. It is clearly necessary for the needs of the travelling public and especially those who do not have access to a private motor vehicle, to be taken into account when bus routes are being planned. We believe that it is the duty of elected members of local authorities to perform this task, and that there is no need for additional consultative machinery to assist the process.

CHAPTER 4

Manpower and industrial relations

Manpower

Introduction

4.1. The bus industry, despite the significant move to OMO which has taken place over the last few years, is highly labour intensive. In each of the four undertakings that were the subject of our inquiry manpower costs ranged between 70 and 75 per cent of total costs which we understand is a reflection of the situation throughout the industry; costs for platform staff varied between 40 per cent and 45 per cent.

4.2. The comparatively rapid move to OMO was mainly the result of the shortage of platform staff during the late 1960s and early 1970s which was due to the inability of the industry at that time to offer competitive rates of pay in a period of full employment.

4.3. The introduction of OMO, which has been achieved with co-operation from the trade unions at both national and local levels, has had two significant consequences in respect of manual staff. First, a marked change has taken place in the job requirements of a bus driver. The OMO driver has now continual face-to-face contact and dealings with bus passengers. He has responsibility for the collection of fares and for cash reconciliation. He has become the main point of contact with the public. Whilst it can be claimed that OMO offers more job satisfaction to a driver, there is little doubt that the job is now considerably more stressful, particularly in urban areas, than when the driver was physically shielded from the public and his duties were confined to driving his vehicle. Secondly, with the changes in bus design and the introduction of more sophisticated equipment, bus maintenance activities and the related skills have increased.

Manning levels, labour turnover and absence

4.4. The total number of full-time employees in each of the four undertakings in December 1981, divided into broad occupational categories, is set out in Table 4.1.

TABLE 4.1 Total numbers of full-time employees in each of the undertakings, broken down into broad occupational categories, as at 31 December 1981

	<i>Traffic manual</i>		<i>Engineering manual</i>		<i>Non-manual*</i>		<i>Others</i>		<i>Total</i>
	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	
WMPTE	4,113	50.4	2,399	29.4	1,448	17.8	194	2.4	8,154
CCT	435	56.9	190	24.8	126	16.5	14	1.8	765
BOC	1,772	57.6	735	23.9	498	16.2	69	2.2	3,074
TMT	794	56.4	322	22.9	278	19.8	13	0.9	1,407
Total	7,114	53.1	3,646	27.2	2,350	17.5	290	2.2	13,400

Source: Undertakings.

* Including Inspectors and Engineering Foremen.

4.5. The main changes in manning levels between 1977 and 1981 are shown in Table 4.2. The reduction in the numbers of traffic manual employees stemmed principally from the introduction of OMO and, to a lesser extent, from the provision of fewer bus services.

TABLE 4.2 Main changes in manning levels 1977-81

	1977	1978	1979	1980	1981	% change 1977-81
<i>WMPTE</i>						
Traffic manual	5,075	4,915	4,753	4,418	4,113	-19.0
Engineering manual	2,246	2,319	2,340	2,391	2,399	+ 6.8
Non-manual	1,472	1,497	1,504	1,476	1,448	- 1.6
Others	184	187	191	199	194	+ 5.4
Total	8,977	8,918	8,788	8,484	8,154	- 9.2
<i>CCT</i>						
Traffic manual	539	503	443	449	435	-19.3
Engineering manual	200	171	164	179	190	- 5.0
Non-manual	139	136	136	127	126	- 9.4
Others	15	14	11	12	14	- 6.7
Total	893	824	754	767	765	-14.3
<i>BOC</i>						
Traffic manual	2,456	2,267	2,177	2,131	1,772	-27.9
Engineering manual	904	857	855	875	735	-18.7
Non-manual	638	622	627	599	498	-21.9
Others	98	93	91	90	69	-29.6
Total	4,098	3,839	3,750	3,695	3,074	-25.0
<i>TMT</i>						
Traffic manual	1,257	1,135	1,077	980	794	-36.8
Engineering manual	354	347	353	334	322	- 9.0
Non-manual	314	299	305	289	278	-11.5
Others	29	14	14	12	13	-55.2
Total	1,954	1,795	1,749	1,615	1,407	-28.0

Source: Undertakings.

4.6. The total number of staff leaving the undertakings, for all reasons, during 1981 ranged between 7.5 and 16 per cent of the total numbers employed in December 1980. Voluntary leaving in the undertakings is currently at a lower level than for many years and the economic climate has undoubtedly been a major influence on this situation. For platform staff, other factors include the progress to OMO and its consequent improved financial rewards, the general improvement of the drivers' work environment by the introduction of automatic, power-assisted vehicles and simplified fare collection systems. The problem of unsocial hours remains and may well account for a higher rate of turnover than in non-shiftwork occupations when there is less unemployment.

4.7. Figures for man-days lost through sickness in 1980 and 1981 are given in Table 4.3. The absence figures for manual workers in CCT are noticeably higher than in the other undertakings. Whilst we are aware of the limitations in making comparisons for sickness absence we recommend a closer monitoring of the reasons for absence of those categories of manual employees in CCT whose rates of sickness absence are significantly greater than those in the other three undertakings.

TABLE 4.3 Percentages of total man-days lost through sickness 1980 and 1981*

	1980				1981			
	WMPTE	CCT	BOC	TMT	WMPTE	CCT	BOC	TMT
Inspectors	3.27	7.8	4.66	5.65	3.20	6.96	4.67	5.54
Driver—OMO	6.90	9.0	4.63	6.87	4.86	9.98	2.35	6.57
Crew drivers		7.3	3.58	7.01	—	—	3.42	6.55
Conductors	4.85	7.1	6.71	7.14	—	1.67	6.94	6.61
Other traffic manuals		9.1	1.91	7.05	4.95	7.22	1.13	7.10
Foremen	4.28	3.1	1.52	1.00	4.20	3.78	2.77	0.87
Craftsmen and working chargehands	5.19	6.3	4.49	4.07	4.86	5.80	4.06	3.94
Semi-skilled, unskilled and other engineering manuals including storemen	6.55	12.2	6.60	6.23	6.98	10.89	5.15	5.61
Managers, professional officers, administrative and supervisory staff	3.99	1.1	na	1.60	3.74	.87	na	1.21
Clerks, typists, secretaries and other office staff not included elsewhere		4.0	5.46	7.23		3.57	3.66	7.03

Source: Undertakings.

na= Figures not available.

* (1) The figures show absences for which payment was made under a sick pay scheme plus other certificated absences for which payment was not made. For TMT the figures also include authorised uncertificated absence due to sickness.

(2) From statistics published by the Department of Health, and Social Security and the Department of Employment we estimate the national average for man-days lost through certificated sickness to be between 5 and 6 per cent although this estimate is based only upon days for which sickness benefit was claimed.

4.8. Each of the undertakings uses its disciplinary procedures to control unauthorised absence and this has the full support of the trade unions concerned. Current levels of absenteeism are negligible. Drivers who turn up too late to take out the bus for which they have been scheduled are normally sent home or await relief duties with consequent loss of pay but the overall incidence of such lateness is estimated by the undertakings to be less than one quarter of 1 per cent of scheduled duties.

Hours of work

4.9. During the major part of the inquiry the industry's manual workers were subject to a basic working week of 40 hours. In order to provide the bus services required by the public from early morning until late at night the platform staff are usually scheduled for a variety of shifts including split duties covering the morning and evening peaks. The roster procedures which operate in all the undertakings ensure a fair distribution of the less popular shifts. In addition it has been a tradition in the industry that bus drivers work a consistent level of overtime not only to meet certain scheduling requirements, but also to cover annual holidays, sickness and other absences. While there are other disadvantages of relying upon overtime to meet scheduling requirements, in terms of total employment costs it has been no more expensive for bus operators to use overtime than to employ additional staff. It is generally accepted that overtime has been used to enhance earnings to make the rewards of the job more attractive. When services were reduced in BOC the platform staff, in order to maximise job opportunities in a period of redundancy, agreed to eliminate scheduled overtime in view of the high level of local unemployment. This policy has continued.

4.10. Overtime worked in engineering departments is considerably less than in traffic departments. Early and late shift working is mainly restricted to cleaning and semi-skilled staff.

4.11. Office workers in WMPTE and CCT have a standard working week of 37 hours; in the NBC subsidiaries the staff are conditioned to a week of 38 hours. Non-manual staff in supervisory grades work similar hours to the groups of workers whom they supervise.

Manpower planning

4.12. Each undertaking forecasts traffic demands and consequently the number and frequency of bus services to be run. The forecast also includes an estimate of the required numbers of drivers, maintenance workers and other staff needed to meet the operational requirements. These figures form the basis of a manpower budget sub-divided into occupational categories. In practice, in each of the undertakings, it has been necessary to bring about fairly rapid changes in levels of operation as a result of either a need to reduce costs or, in the case of WMPTE, a political decision to make a significant reduction in fares. Actual levels of employment are closely monitored.

Health and safety

4.13. Each of the undertakings has a comprehensive written Health and Safety Policy in accordance with the Health and Safety at Work Act 1974. In addition the Traffic Commissioners, under regulations covered by the Road Traffic Act 1960, require a certificate of fitness to drive a public service vehicle, signed by a Registered Medical Practitioner, to be produced by applicants for a first PSV licence and for each renewal of a licence, ie at five yearly intervals, for drivers between the ages of 46 and 65. Annual medical examinations are required for drivers over the age of 65. WMPTE, however, proposes to require its drivers to have their first five yearly medical examination at the age of 40, and to undergo annual examinations from the age of 60. We recommend that all the undertakings adopt a practice at least as rigorous as this.

4.14. As was remarked earlier, there is a feeling in the industry that the move to OMO has increased the stress on bus drivers and we noted that at 31 December 1981 only 17 per cent of OMO drivers in the undertakings were aged 50 and over. The principal reason for this appears to be that older crew drivers and conductors accepted redundancy, alternative work or early retirement rather than be retrained as OMO drivers. There remains the possibility that a number may have taken early retirement or moved to alternative work on health grounds but we have been unable to obtain statistics from which to draw positive conclusions. Neither have we come across any recent studies on sickness or disability rates among PSV drivers that might offer pointers. The published work by London Transport medical staff¹ that we have seen concerns drivers in that undertaking where there was no large scale conversion to OMO.

¹ Raffle, P A B (1974) *British Journal of Industrial Medicine*, 31, 152-158. Disability rates of bus drivers.

Assaults on platform staff

4.15. All the undertakings have experienced the problem of assaults on their platform staff although to a much lesser extent in TMT than those with a higher rate of urban operation. Measures taken in an attempt to reduce assaults have included the installation of two-way radios in WMPTE, CCT and BOC (City operations) vehicles and experiments in the use of assault-proof screens for OMO drivers. In CCT it is the practice for a route on which an assault has taken place to be curtailed for a short period or until the assailant has been apprehended. Each undertaking trains its platform staff in methods of avoiding confrontation.

The personnel function

4.16. The degree of sophistication of the personnel function varies with the size and structure of the undertaking. We are satisfied that adequate resources are provided in each case.

Recruitment procedures

4.17. Recruitment procedures and standards of selection in the undertakings are appropriate and operate satisfactorily with one minor exception. This concerns the restricted circulation of non-manual vacancies in CCT, and we comment on this later in paragraph 4.65.

Training

4.18. All the undertakings have been subject to the training recommendations of the Road Transport Industry Training Board (RTITB) and in most years have been exempt from the training levy. The Passenger Road Transport Sector was administratively removed from the RTITB under the provisions of the Employment and Training Act 1981, from 31 March 1982. We hope that the satisfactory level of training arrangements for all groups of staff in the four undertakings will continue.

Pay and grading structures

Drivers

4.19. The introduction of OMO resulted in additional payment being made to drivers in two forms:

- (a) an enhanced basic rate—reflecting the additional duties involved (originally an increase of between 15 and 25 per cent over basic pay for crew drivers, depending on whether rural or urban, and single- or double-deck operations); and
- (b) a productivity bonus—calculated on the basis of 50 per cent of net savings from OMO introduction shared amongst all platform staff.

The productivity bonus is still calculated as above in WMPTE but the national agreements governing CCT and the NBC companies were amended in 1979 to give a sliding scale of 'OMO conversion bonus,' increasing as an undertaking moves towards 100 per cent conversion. These latter payments move in line with the OMO drivers' basic rate. Details of pay for OMO drivers in the undertakings are shown in Table 4.4.

TABLE 4.4 Details of pay OMO drivers (rates at January 1982)

	<i>WMPTE</i> £	<i>CCT</i> £	<i>BOC</i> £	<i>TMT</i> £
Basic rate	80.00	74.95	75.36*	71.84
OMO productivity payment	13.25	19.67	6.28‡	12.42
Shift payment	10.00	9.37	8.39	8.14
Outside factory hours payment	11.90	—	—	—
Local supplement	—	—	3.98	—
Deviation pay (attendance bonus)	—	3.02	—	—
Productivity bonus	—	.50	—	—
Total†	115.15	107.51	94.10	92.40

Source: Undertakings.

- * Double-deck urban operation.
- † Excludes overtime payments.
- ‡ Bristol City only—based on 79 per cent OMO.

4.20. Average weekly earnings and hours worked for OMO drivers in all the undertakings for the years 1977 to 1981 compared with other groups of workers are shown in Tables 4.5 and 4.6. Despite the nature of the job and the element of unsocial hours, the earnings level of OMO drivers in the undertakings is attracting and retaining adequate manpower in the current economic climate.

TABLE 4.5 Average weekly earnings in £s per week* OMO drivers in the undertakings with national comparators

	1977	1978	1979	1980	1981
<i>WMPTE</i>	91.90	103.20	109.40	131.80	134.50
<i>CCT</i>	77.40	79.30	93.50	118.00	127.10
<i>BOC</i>	68.40	76.60	80.10	100.80	114.00
<i>TMT</i>	73.80	92.30	97.70	111.30	132.20
All bus and coach drivers	77.30	87.30	93.10	117.40	131.60
HGV (over 3 tons)	73.90	84.20	100.80	120.10	127.80
Other goods drivers	59.60	67.50	78.30	94.10	102.30
All manual workers	71.50	80.70	93.00	117.70	121.90

Source: Undertakings.
New Earnings Surveys.

* For a specific week in April of each year.

TABLE 4.6 Average weekly hours* worked by OMO drivers in the undertakings with national comparators

	1977 <i>hours pw</i>	1978 <i>hours pw</i>	1979 <i>hours pw</i>	1980 <i>hours pw</i>	1981 <i>hours pw</i>
<i>WMPTE</i>	53.7	53.0	50.7	52.0	52.5
<i>CCT</i>	52.3	51.2	51.6	49.0	49.0
<i>BOC</i>	46.6	47.0	47.9	48.5	44.7
<i>TMT</i>	51.0	55.7	58.2	57.0	51.7
All bus and coach drivers	51.1	51.3	52.1	51.2	50.3
HGV (over 3 tons)	51.7	51.7	51.8	51.3	50.0
Other goods drivers	46.1	47.0	47.0	47.0	45.6
All manual workers	45.7	46.0	46.2	45.4	44.2

Source: Undertakings.
New Earnings Surveys.

* For a specific week in April of each year.

Maintenance workers

4.21. Terms and conditions for craftsmen, semi-skilled and unskilled workers in municipal transport undertakings and NBC companies are determined by national agreements which allow for locally negotiated variations to national rates of pay. In WMPTE, terms and conditions are determined locally as is the case for all PTE manual employees. We comment on the pay systems for engineering workers in Chapter 6. Details of the pay of craftsmen and non-craft operatives are shown in Table 4.7.

TABLE 4.7 Rates of pay* for engineering manual employees (Jan 1982)

	<i>Guaranteed week</i> £	<i>Premium payment</i> £	<i>Total for 39 hours</i> £
<i>WMPTE</i>			
Craftsmen	93.38	18.42	111.80
Semi-skilled 1	78.97	16.03	95.00
Semi-skilled 2	76.47	15.01	91.48
Unskilled	70.64	13.16	83.80
	<i>National rate</i> £	<i>Local supplement</i> £	<i>Total for 40 hours</i> £
<i>CCT</i>			
Craftsmen	86.35	30.97	117.32
Semi-skilled	64.42	19.77	84.19
Unskilled	63.14	19.61	82.75
	<i>National rate</i> £	<i>Local supplementary rate</i> £	<i>Total for 40 hours</i> £
<i>BOC</i>			
Craftsmen	92.91 [†]	7.92	100.83
Semi-skilled	76.76	6.60	83.36
Unskilled	67.73	5.43	73.16
	<i>National rate</i> £	<i>Average local supplementary rate</i> £	<i>Total for 40 weeks</i> £
<i>TMT</i>			
Craftsmen	90.30	10.15	100.45
Semi-skilled	76.76	12.58	89.34
Unskilled	67.73	15.73	83.46

Source: Undertakings.

* Excluding shift allowance; normally an increase of 12.5 per cent on basic, payable to a minority of engineering workers.
[†] Including local allowance.

Non-manual staff

4.22. Pay and grading structures for non-manual staff across the undertakings are broadly similar. Because of the variation in the size and structure of the undertakings we have not attempted to make detailed comparisons of salary levels for similar jobs.

4.23. In CCT and the NBC subsidiaries broad guidelines are published giving the salary points within which specific types of jobs should be placed. In WMPTE, until 1981 jobs were graded by a panel of managers, but formal agreement has now been reached on the establishment of a joint job grading panel consisting of up to five members of management and five trade union representatives, the latter being nominated by the staff side of the Local Staffs

JNC. In each of the undertakings the individual grievance procedure is open to use by any employee who is not satisfied with the grading of his job.

Other terms and conditions

4.24. The provisions for holidays, sick pay and pensions are broadly similar for equivalent occupational groups in the four undertakings.

4.25. We noted that there have been requests on the part of the manual workforces for payment for the first three days of sickness absence,¹ a provision that applies to non-manual employees. This has been pursued most positively in CCT because other manual workers in the local authority already have this entitlement but management has so far resisted the move to payment as it fears absence would increase substantially. The whole question of uncertificated sick leave is now under review in the light of the Social Security (Medical Evidence Claims and Payments) Amendment Regulations 1982 which will allow for self-certification for sickness benefit claims for periods of six days or less from June 1982.

Industrial relations

Introduction

4.26. Industrial relations within the undertakings are based on formal collective bargaining arrangements between the employers, either individually or as members of a group, and a number of recognised trade unions. These arrangements cover all categories of employees. The industry has traditionally had a high level of trade union membership. Major industrial disputes are rare, the only lengthy stoppages within the four undertakings during the past five years being in BOC when the Bristol City bus services were off the road for 14 days in 1981 and in the South and East Divisions of WMPTE when craftsmen struck for five days in 1978. In terms of working days lost per man employed, the average figure over the four undertakings for the period 1977-81 is the same as the published national average of 3.0 for all industries and services.² In WMPTE, the average figure is 3.7; in CCT—0.4; in BOC—3.1; and in TMT—1.5. Details of working days lost in the undertakings are shown in Table 4.8 and the number of working days lost per 1,000 employees in the undertakings compared with national rates for the road passenger transport industry are shown in Table 4.9.

TABLE 4.8 Working days lost due to industrial disputes 1977-81

	1977		1978		1979		1980		1981	
	A	B	A	B	A	B	A	B	A	B
WMPTE	3	564	4	14,421	1	5,410	5	6,631	1	5,169
CCT	0	0	0	0	1	24	2	32	1	264
BOC	0	0	3	160	4	511	2	3,217	3	7,396
TMT	15	1,713	8	205	6	167	5	225	2	272

Source: Undertakings.

A = Numbers of disputes.
B = Numbers of days lost.

¹ In the PTE these become payable if the period of sickness lasts for five days or more.

² In using a national comparator for industrial disputes it must be taken into account that some stoppages of short duration may not be recorded and many industries and services have a low level of trade union membership.

TABLE 4.9 Working days lost per 1,000 employees in the undertakings compared with national rates* for the road passenger transport industry 1977-80

	1977	1978	1979	1980
WMPTE	63	1,617	616	782
CCT	0	0	32	42
BOC	0	42	136	976
TMT	877	114	95	139
All the undertakings	143	962	406	714
All road passenger transport†	351	776	319	71

Source: Figures supplied by the undertakings and Department of Employment.

* Stoppages involving fewer than ten workers or lasting less than one day are excluded, except where the aggregate of working days lost exceeded 100. There are difficulties in ensuring complete recording of stoppages, in particular those near the margins of the definitions: for example, short disputes lasting only a day or so.

† Including private sector coach and taxi operators.

4.27. Each of the four undertakings maintains a policy of encouraging its employees to belong to trade unions and is fully unionised in respect of both manual and non-manual employees. Platform and canteen staff belong to the Transport and General Workers' Union (TGWU). Maintenance craftsmen and other manual workers belong mainly to the Amalgamated Union of Engineering Workers (AUEW), the Electrical, Electronic, Telecommunications and Plumbing Union (EETPU), the National Union of Sheet Metal Workers, Coppersmiths and Heating and Domestic Engineers (NUSMWCHDE), the General and Municipal Workers' Union (GMWU) and the TGWU. Middle and senior managers in BOC and TMT are represented by the Association of Managerial Staff of NBC and Subsidiary Companies (AMS); the directors and chief officers of WMPTE and the General Manager and his deputy in Cardiff are represented by the National and Local Government Officers' Association (NALGO) and the Association of Passenger Transport Executives and Managers (APTEM). All other non-manual employees belong either to NALGO or the staff association of the TGWU, the Association of Clerical, Technical and Supervisory Staffs (ACTSS) except for a small number of employees of BOC who belong to the National Union of Railwaymen.

4.28. Separate national negotiating structures cover manual employees in local authority transport undertakings, including CCT, and those employed in the NBC subsidiary companies. WMPTE, like other PTEs, conducts local negotiations for its manual staffs with separate machinery for different groups of employees. In respect of non-manual staff, other than those managerial grades represented by AMS and APTEM, there are three distinct national negotiating structures that affect the four undertakings; one for local authorities, one covering the NBC companies (that also includes the Scottish Bus Group Ltd and some independent companies) and one for the PTEs. This latter, however, excludes inspectors who are subject to local negotiating machinery. Each of the national agreements allows for additional local bargaining to take place.

Procedures

4.29. Each of the undertakings has in force detailed agreements covering both individual and collective grievance procedures. Comprehensive disciplinary procedures are similarly in operation. The procedures, covering all groups

of employees, appear to work well in every case. The undertakings each have arrangements for dealing with redundancy.

Time off

4.30. Adequate facilities are provided for trade union lay representatives in each of the undertakings and time off for trade union duties and activities is allowed in accordance with the guidelines in the appropriate ACAS code of practice. Arrangements exist for trade union subscriptions to be deducted from pay.

Communications

4.31. Staff newspapers are published in WMPTE and the NBC companies and occasional newsletters from the Director General of the PTE and the General Managers of the other undertakings are distributed to employees. In WMPTE copies of joint statements agreed at the end of each meeting of the Central Negotiating Committees are distributed to all employees within 24 hours. If no joint statement is possible, each party to the negotiations issues its own version of the current position through the same system. Overall communications between management and employees in the undertakings are good but we comment later on one aspect of communications between management and the trade unions in the engineering department of CCT which appears less than satisfactory.

WMPTE

4.32. The PTE at its inception had to integrate four undertakings previously run by its area's local authorities, each having different local industrial relations agreements and differing work practices in addition to varied management structures and attitudes to industrial relations. The Executive needed therefore to develop a consistent framework of policies, procedures and practices, common to all employees within the four main employee groups, ie traffic, inspectors, engineering and administration.

4.33. Discussion between the different PTEs to establish a single national negotiating body for the traffic and engineering groups proved unsuccessful. In consequence WMPTE agreed with the local trade unions that the most appropriate form of bargaining structure would be to introduce centralised negotiations covering the whole Executive but maintaining separation between traffic, engineering, inspectorate and canteen staffs.

4.34. National bargaining was maintained for non-manual staffs originally by following the terms and conditions of service for the administrative, professional, technical and clerical staffs of local authorities. A new national body for all PTEs, the Joint Negotiating Committee for Non-Manual Employees of Passenger Transport Executives, was later established.

4.35. With the establishment of the bargaining units, the Executive began a programme to harmonise the major terms and conditions of employment for all employees undertaking similar work within the various areas of the Executive and later to pursue the same aims of rationalisation for ancillary

matters between different employee groups. Some minor variations in working arrangements and practices between depots and divisions have, however, continued.

4.36. The transfer to the Executive at the end of 1973 of some 170 services plus physical and manpower resources from the Birmingham and Midland Motor Omnibus Co (Midland Red) and the subsequent transfer to WMPTE of the City of Coventry's Transport Department in 1974 due to local government reorganisation required that the bargaining and consultative arrangements covering the transferred workforces be changed to accord with the WMPTE structure. When this was achieved the Executive entered into detailed discussions with the trade unions to integrate and harmonise the major terms and conditions of employment of the ex-Midland Red and Coventry employees with those already standardised within WMPTE.

4.37. Collective bargaining arrangements cover all terms and conditions of employment with the exception of the superannuation scheme.

4.38. Six central committees for local negotiation and consultation between the Executive and the trade unions reflect the differing employee groups but embrace all employees within these discrete groups across the Executive. These are the Traffic Central Negotiating Committee, the Inspectors Negotiating Committee, the Craft Negotiating Committee, the Non-Craft Negotiating Committee, the Local Staff Joint Committee and the Canteens Negotiating Committee.

4.39. In addition to the central committees there are formal negotiating and consultative arrangements for all groups of employees covering matters connected with the day-to-day operation of the Executive.

4.40. Each bus depot, as is common throughout the industry, has its trade union schedules representatives who are authorised to negotiate the content of operating duties. As in each of the other undertakings lay officials of the various negotiating groups attend regular meetings with management to discuss local issues and matters affecting day-to-day working arrangements.

The trade unions

4.41. All traffic manual employees within WMPTE are represented by the TGWU.

4.42. Traffic inspectorate staffs are represented by NALGO and ACTSS. Both unions claim a membership of about 50 per cent.

4.43. The main trade unions representing engineering craft employees are the AUEW, TGWU, EETPU, NUSMCHDE, the GMWU, the Furniture Timber and Allied Trades Union (FTAT) and the National Society of Metal Mechanics (NSMM). The trade unions claim that within the engineering craft group AUEW accounts for 50 per cent of the total membership, TGWU 35 per cent and the other unions 15 per cent.

4.44. The main trade unions representing engineering non-craftsmen are: TGWU, GMWU, AUEW, NSMM and EETPU. Within the non-craft engineering group TGWU accounts for approximately 75 per cent of the total membership, GMWU 15 per cent, AUEW 5 per cent and the other unions 5 per cent.

4.45. NALGO claims a membership of about 97 per cent of the Executive's non-manual employees. ACTSS also has members in this group, and there is a small percentage estimated at approximately 5 per cent of employees holding dual membership.

4.46. Canteen manual employees are represented by TGWU.

Recognition and procedure agreements

4.47. In consultation with all negotiating groups within the Executive agreed procedural measures have been established. Each procedural agreement specifies general intent to create and maintain good industrial relations and differentiates between consultative and negotiating situations. The procedures are designed for the resolution of individual or collective grievances or disputes as near to their source as possible and appear to operate as intended.

Other local agreements

4.48. Detailed terms and conditions relating to the day-to-day activities of platform staff are contained in several jointly negotiated agreements. These conditions vary between depots and divisions where some local custom and practice has been allowed to continue. WMPTE told us that none of these is a major constraint on efficiency. A Union Membership Agreement (UMA) exists in respect of traffic manual employees.

4.49. An agreement covering the payment scheme for engineering employees, known as the Engineering Premium Payments Scheme, is described in Chapter 6.

4.50. The joint system of job evaluation which was referred to in paragraph 4.23 is the subject of an agreement between NALGO and the PTE.

Industrial disputes

4.51. The significant withdrawals of labour in recent years have been selective one day strikes by platform staff during annual pay negotiations, by engineering craftsmen in support of a separate negotiating body, and by other engineering workers who were seeking the introduction of a productivity scheme. The large number of man-days lost in 1978—see Table 4.8—were the consequence of two one-day strikes of platform staff in pursuit of their wage claim and the five day withdrawal of labour by certain craftsmen in support of their claim for a separate craftsmen's negotiating committee to which we referred in paragraph 4.26.

4.52. We noted that all the strikes during the period 1977–81 took place before the procedures agreed between the trade unions and the Executive

for the resolution of disputes had been exhausted. This we deplore. If the procedures are unsatisfactory, and in our opinion that is not so, they should be renegotiated; if not they should be observed.

General

4.53. Management reorganisation that has taken place during the last 12 months has decentralised the industrial relations function to some extent by transferring an industrial relations officer to each division. The mainstream of activity, however, remains centralised. We feel this decentralisation to be justified but see the need for care to be taken that local issues are not brought direct by the shop stewards to the Industrial Relations Officers, thus undermining the authority of line management. Grievance and disciplinary procedures are being renegotiated to bring them into line with the revised management structure.

4.54. The Executive has successfully developed a consistent framework of policies, procedures and practices. With the trade unions it has established workable bargaining and consultative structures covering all groups of employees and has largely been able to standardise terms and conditions of employment throughout WMPTE although some groups of employees retain protected conditions arising out of the employment practices of the absorbed undertakings. The overall industrial relations structure is satisfactory.

CCT

4.55. Terms and conditions of employment for employees of CCT are determined by a combination of national and local agreements. The national agreement for platform staff and non-craft engineering employees is that of the National Joint Industrial Council for the Road Passenger Transport Industry (NJIC). There is a separate National Joint Council for Craftsmen (NJC). Non-manual employees, including inspectors, are covered by the National Joint Council for Local Authorities' Administrative, Professional, Technical and Clerical Services. Terms and conditions for canteen workers and office cleaners are negotiated within the National Joint Council for Local Authority Manual Workers.

4.56. For the most part, locally based systems of consultation and negotiation follow established local authority procedures.

4.57. Meetings with shop stewards are convened by the divisional heads of the Traffic and Engineering Departments for both negotiating and consultative issues to be raised. These tend to take place at four to six weekly intervals or according to need. If issues arise which cannot be resolved within the Transport Department the full-time officials of the trade unions and the City Personnel Officer may become involved. The next stage of the local negotiating procedure brings in elected representatives of the city council, normally the chairmen of the Transport Committee and the Finance and Personnel sub-committees of the main Policy Committee. Agreed minutes of meetings are given to the management team and to the trade union representatives, but there is no agreed system for ensuring that they are seen by all members of the workforce.

4.58. At one time a Transport Department Consultative Committee operated and brought together lay representatives from all the manual trade unions and elected representatives from the local authority. For a variety of reasons the trade union side withdrew from the committee and joint consultation is now restricted to the works committee structure, described in the previous paragraph, which only enables issues which are within the competence of CCT management to deal with to be settled. We recommend that the Transport Department Consultative Committee be re-activated with the scope of its authority clearly established.

The trade unions

4.59. Traffic employees are represented by the TGWU as are the engineering semi-skilled and unskilled workers, the canteen workers and office cleaners. The engineering craftsmen belong to either the AUEW, EETPU, TGWU or UCATT. NALGO represents salaried staff.

Recognition and procedure agreements

4.60. A seemingly important factor adversely affecting relationships between the lay representatives of the engineering craft unions and management, and a brake upon attempts to unify the engineering workforce into a cohesive unit, has been the reluctance of the unions to agree to a convenor-style representation of their interests. In practice nine shop stewards insist on attending all meetings with management. The situation has been aggravated by a high frequency of change amongst the stewards.

4.61. We were told that there were a number of reasons why the engineering stewards had been unable to agree on a common approach to management. The organisation and the nature of the work differs considerably between the operating depot at Sloper Road and the works at Roath; the workforce is divided about the acceptance of work measurement, and there is an overall lack of trust both in management and between sections of the workforce. Full-time officers of the unions have recently been involved in discussions to persuade the lay representatives to appoint a spokesman or a small sub-committee to represent their joint interests but the result of these efforts is not known to us. If these discussions prove unsuccessful we recommend that management take the issue of the committee's size to the NJC whose national agreement for craftsmen provides for the election of 'one representative from each Craft Union to form a (local) Committee'.

Other local agreements

4.62. The two principal local traffic agreements relate to scheduling and rostering of bus crews and to the introduction of fare-box operation on stage carriage services.

4.63. The most significant local agreements for the engineering division are the 1974 Craft Agreement and the 1974 Semi-Skilled Agreement which relate to productivity and flexibility. These have become a source of difficulty between management and the engineering workforce and are described more fully in Chapter 6.

4.64. The engineering craftsmen in CCT agree to undertake certain duties normally appropriate to a trade other than their own but work involving hand tools cannot be devolved to semi-skilled workers. It is clearly necessary for any organisation to match its workforce to the work which is required to be done. In the engineering department of CCT this could be better achieved by either employing a greater proportion of craftsmen or by negotiating to allow semi-skilled workers to take on some of the less skilled tasks at present reserved for craftsmen.

4.65. There are two local agreements in respect of non-manual staff which are of interest. Salaried staff are covered by a New Technology Agreement, negotiated between NALGO and the city council, which specifies procedures to be adopted for the introduction and development of technological change. NALGO also has an agreement with the local authority that the majority of vacancies which arise for non-manual staff will not be advertised internally to manual employees. Whilst the agreement was introduced during the time of local authority reorganisation, when there was a justifiable fear of redundancy amongst the non-manual staffs, it continues to bar manual employees from applying for non-manual vacancies other than those which are accepted as a recognised route for promotion, such as from driver to inspector or those for which there has been prior agreement to advertise outside the local authority. We are of the opinion that the continuation of this agreement in present circumstances tends to be discriminatory and inequitable and recommend that it be reviewed to allow manual employees equal opportunity with their non-manual colleagues.

Industrial disputes

4.66. The 1974 agreements referred to in paragraph 4.63 contained a clause which was understood by the trade unions to give increases in the local rate proportionate to any increase in the national rate. In 1978 application of the national increase to the local rate was withheld by management. The resulting dispute was referred to an emergency committee of the NJC which ruled in favour of the unions. There has, however, been no significant industrial action during the past five years.

General

4.67. Industrial relations between management and the traffic and salaried staffs are good. It is a different story in the Engineering Department where mistrust between groups of staff and the lack of effective management authority has led to a situation which, whilst showing an improvement over the past two years, appears to us to be still far from satisfactory. We recommend that to improve the situation further management exercises more effective supervision of the engineering manual workforce and improves its direct communication to the shop floor, for example, by ensuring the early distribution of minutes or agreed notes of its meetings with the trade union representatives.

NBC companies

Bargaining arrangements

4.68. BOC and TMT are subject to the same national negotiating machinery in respect of their manual and non-manual staffs.

4.69. The wages, hours of work and working conditions of manual employees, both traffic operating staff and engineering maintenance staff, follow the recommendations of the National Council for the Omnibus Industry (NCOI).

4.70. The negotiation of rates of pay and conditions for non-manual staff is carried out by the National Joint Council (NJC) for Non-Manual Staffs Employed by Subsidiary Companies of NBC.

4.71. Negotiations on behalf of management staff are conducted in a Joint Standing Committee between the NBC and the AMS which is affiliated to NALGO.

4.72. Both the NCOI and the NJC set minimum terms and conditions which can be enhanced through local productivity bargaining.

4.73. We welcome the initiative of the NBC to encourage the establishment of a Central Policy Committee in each of its subsidiary companies to enable lay representatives from each locally recognised trade union to participate in forward planning within the company. The committees, which are consultative and informative, are chaired by General Managers. Full-time trade union officials are not involved.

4.74. The NBC subsidiaries differ from the other undertakings in that specialist industrial relations staff are not directly involved in negotiations at company level. This follows NBC's policy of keeping industrial relations within the responsibility of line managers which has been shown to work satisfactorily.

BOC

The trade unions

4.75. All manual staff, both platform and maintenance employees, are represented by the TGWU. Non-manual staff belong to ACTSS except management grades who are represented by AMS.

Company bargaining and consultative arrangements

4.76. At company level there is a Traffic Negotiating Committee and an Engineering Negotiating Committee which deal with matters arising on a fleet basis. A Clerical and Supervisory Negotiating Committee deals with problems related to non-manual staff. The committees are chaired by the General Manager and meet every three months with the appropriate full-time trade union officer present.

4.77. The TGWU has a UMA covering all manual workers.

Other local agreements

4.78. Productivity agreements were negotiated in 1980 to obtain greater flexibility and reduce the constraints on achieving higher productivity from platform staff through more efficient scheduling of duties. Comments on these agreements appears in Chapter 6.

4.79. Within the Engineering Department a flexibility agreement has been negotiated under which specific tasks can be undertaken by staff in another trade. The agreement also confirmed working arrangements which had already become custom and practice within the company.

Industrial disputes

4.80. There have been seven occasions in the last three years when industrial disputes have led to more than 1,000 scheduled stage carriage miles being lost, four being in the Bristol City area. In addition there have been a number of lesser disputes (overtime bans, etc) which have led to small amounts of mileage being lost.

4.81. The most serious dispute of recent years took place early in 1981. The traffic staff refused to collect increased fares, and this was related to a general fear of the consequences of MAP on Bristol City services and the feeling that there was a need for more Government financial support for bus services. Those of the Bristol City road staff who refused to collect the increased fares were suspended which led to the City bus services being off the road for 14 days.

General

4.82. The Central Policy Committee that we referred to in paragraph 4.73 meets monthly. We noted with interest the development of the manner in which financial and technical information is presented to the trade union representatives so that it is in a readily understandable form.

4.83. Industrial relations within the engineering and white collar areas are good. This is also largely true of the country services traffic department. The disturbed situation during 1980 and the first half of 1981 centred primarily on the Bristol City traffic services where there had clearly been a breakdown in trust between senior management and the union. As a result of action taken by the new General Manager indications are that relationships are on the mend.

TMT

Company bargaining and consultative arrangements

4.84. Local company negotiations are covered by two Joint Consultative Committees (whose name belies their major function). One committee covers operating and engineering matters, the other concerns the clerical, administrative and supervisory functions. The committees are chaired by the appropriate Chief Officer and meet quarterly with both full-time trade union officers and lay representatives present.

The trade unions

4.85. Platform staff and the majority of the engineering manual workforce are represented by the TGWU. Other maintenance workers are represented by the AUEW and EETPU. The company recognises NALGO, ACTSS and AMS in respect of non-manual staff.

4.86. There is a UMA with the TGWU, the AUEW and the EETPU.

Other local agreements

4.87. Agreements have been made allowing for 'wage equalisation' payments to drivers on specific routes which are operated jointly with local authority transport undertakings in the cities of Derby and Nottingham. A similar agreement covers all staff operating in the Greater Manchester area. These arrangements are in recognition that staff operate in circumstances akin to those of the more highly paid municipal and PTE staff.

4.88. Flexibility agreements operate in a number of depots which recognise the need for inspectors and engineering and clerical staff to undertake PSV driving duties at times of driver shortage. Conversely, by agreements with NALGO, platform staff may carry out duties in an emergency in which NALGO staff are not available to do their usual work.

4.89. One local agreement which we were told has been the cause of some dissatisfaction to sections of the maintenance workers involves the payment of a local supplementary rate (LSR) to engineering employees. The LSR is payable by depot and based upon bonus earnings under a scheme which was ended in 1979. It has no relationship to current productivity but results in pay differentials between depots of up to £10 per week. Furthermore it has been increased annually on the same percentage basis as the national agreement.

Industrial disputes

4.90. There has been no significant industrial action since 1977 when a number of short spasmodic stoppages of platform staff took place during a period of company reorganisation.

General

4.91. TMT has undergone a high degree of change over the past few years (see Chapter 1). This has required a high degree of management/union co-operation and has been effected with no significant issues arising between the parties. Because of the priority given to consultation and negotiation with the trade unions over these matters the Central Policy Committee has been rather neglected. It is, however, the intention of management to hold more frequent meetings and to involve the workforce earlier in the forward planning process than it has hitherto.

4.92. We consider overall industrial relations in TMT to be good but recommend a review by management and the trade unions of the local engineering pay agreement to stabilise payments in order to remove the anomalies resulting from the outdated basis of payment of the LSR.

Conclusions

4.93. Whilst we are aware of the limitations in making comparisons for sickness absence, we recommend a closer monitoring of the reasons for absence of those categories of manual employees in CCT whose rates of sickness absence are significantly above those in the other three undertakings.

4.94. WMPTE, proposes to require its drivers to have their first five yearly medical examination at the age of 40, and to undergo annual examinations from the age of 60. We recommend that all the undertakings adopt a practice at least as rigorous as this.

4.95. The degree of sophistication of the personnel function varies with the size and structure of the undertakings. We are satisfied that adequate resources are provided in each case.

4.96. We are satisfied with the level of provision of training in the undertakings and hope this will continue despite the removal of the Road Passenger Transport section from the RTITB.

4.97. Despite the nature of the job and the element of unsocial hours, the earnings of OMO drivers in the undertakings are attracting and retaining adequate manpower in the current economic climate.

4.98. We noted that strikes in WMPTE have taken place before the disputes procedures have been exhausted. If the procedures are unsatisfactory they should be renegotiated; if not they should be observed.

4.99. The decentralisation of part of the industrial relations function in WMPTE is justified but we see the need for care to be taken that the authority of line management is not undermined.

4.100. We consider that the overall industrial relations structure in WMPTE is satisfactory.

4.101. We recommend that the Transport Department Consultative Committee in CCT be re-activated with the scope of its authority clearly established.

4.102. If discussions with local full-time officials of the trade unions do not result in the election of a smaller committee of shop stewards to attend meetings with engineering management, we recommend that CCT takes the issue of the committee's size to the NJC whose national agreement for craftsmen provides for the election of one representative from each craft trade union to form a local committee.

4.103. In the engineering department of CCT work involving the use of hand tools cannot be devolved to semi-skilled workers. It is clearly necessary for any organisation to match its workforce to the work required to be done. In CCT this would be better achieved by either employing a greater proportion of craftsmen or by negotiating to allow semi-skilled workers to take on some of the less skilled tasks at present reserved for craftsmen.

4.104. The continuation of the agreement restricting the circulation of non-manual staff vacancies in CCT, in present circumstances, tends to be discriminatory and inequitable and we recommend that it be reviewed to allow manual employees equal opportunity with their non-manual colleagues.

4.105. Industrial relations between CCT management and the traffic and salaried staffs are good. Industrial relations within the engineering department, however, are in need of improvement. We recommend that management exercise more effective supervision of the engineering manual workforce and improve its direct communication with the shop floor.

4.106. Industrial relations within the engineering and white collar areas of BOC are good, and are largely so in the country traffic services. We are satisfied that the less satisfactory situation in the Bristol City traffic services is improving as a result of actions being taken by the newly appointed General Manager.

4.107. We consider industrial relations in TMT to be good but recommend that management and the trade unions review the local engineering pay agreement to remove the anomalies resulting from the outdated basis of payment of the Local Supplementary Rates.

CHAPTER 5

The efficiency of the use of manpower in traffic operations

Introduction

5.1. As might be expected the largest single category of staff in any of the four undertakings under review is the group generally known as platform staff, that is the bus drivers and conductors. These are the staff who in other industries would be termed 'direct' labour. In two of the four undertakings full one-man operation has been achieved with the driver also collecting fares and checking the variety of tickets issued off the bus. The other two undertakings also operate the great majority of their services—over 90 per cent—as a one-man system.

5.2. Although, as we have discussed earlier, there are considerable differences in the characteristics of the four undertakings, there are nevertheless marked similarities between them in the way in which they plan, manage and control their platform staff activities. All four follow very similar procedures and methods in preparing crew duty schedules and while there are differences of detail, all have generally similar working arrangements.

5.3. In the rest of this chapter we describe the practices of each undertaking in turn before making comparisons between them. We also deal with the immediate supervisors of the platform staff, namely the inspectors.

WMPTE

5.4 By far the largest of the four undertakings, WMPTE operates a total fleet of 2,223 buses on stage carriage services of which 1,894 are needed to meet peak service requirements and so will be out on the road at the same time during the morning weekday rush hours. At other times of the day and at weekends the number of buses in service is considerably reduced, the extent of this reduction varying across the PTE area. Nevertheless services are operated seven days a week and for up to 24 hours a day. However, night services are very limited and most services operate for around 16 to 18 hours a day.

5.5 WMPTE achieved 100 per cent one-man operation in 1980 so that each bus in service requires a driver only. This combined with the number of vehicles in service and the duration of services determines the number of platform staff required.

5.6. To take the simplest example, one bus in continuous service for 18 hours a day would require three drivers on straight 8-hour shifts, while to run the service seven days a week would require at least five drivers on a 40-hour week. Clearly such an arrangement would be uneconomic requiring payment for 200 man hours to provide 126 hours of bus service, that is only 63.0 per cent of paid time is productive.

5.7. An even more extreme example is the provision of peak services where a bus may be required for say two hours in each of the morning and evening peaks and require two drivers because of the elapsed time from start to evening finish. Thus payment would be required for 16 hours to achieve 4 hours productive time or 25 per cent of paid time.

5.8. In practice such extreme situations do not arise since a number of services and routes are grouped together for crew scheduling purposes. Thus in any one 8-hour shift or duty a driver may operate a number of different services thereby reducing the amount of unused time and the number of staff required. WMPTE currently employs 4,110 drivers to operate a peak service requirement of 1,894 buses, giving a ratio of 2.2 drivers per bus compared with our one bus example requiring five drivers.

5.9. Another factor included in the above total which affects the number of drivers required is the need to provide cover for absences such as holidays, sickness, training, and so on. Thus more drivers are required than the simple total of the duty schedules would indicate. In WMPTE this spare cover is provided by a mixture of additional staff and overtime working, including rest day working. The Executive policy is to limit the number of extra staff employed to 15 per cent of the minimum required to man the schedules. However, within this limit there is considerable variation across the operating garages depending upon the working arrangements and, to a lesser extent, the level of overtime working. The level of spares ranges from as low as 1.5 per cent up to a ceiling of 15 per cent.

5.10. Largely due to the differing practices of the constituent bodies absorbed into WMPTE between 1969 and 1974 (see Chapter 1) there were considerable variations within and between the three operating divisions of the Executive. In both garages of the East Division the working arrangements for platform staff were for any five days in seven so that Saturdays and Sundays were treated as normal working days and rest days could be any days from Monday to Sunday. Thirteen of the fourteen garages in South Division operated on the same basis while the other one worked on a five from five basis. The effect of a five from five arrangement is to require premium payment for Saturday and Sunday working.

5.11. Four of the eight garages in North Division also operated a five from five basis while the other four worked a five from six arrangement. In this case only Sunday working automatically qualified for premium payment.

5.12. For an undertaking operating a seven days a week service a five from seven working arrangement is clearly more convenient in that staff can be automatically rostered for duty on any day of the week or weekend, whereas under the other two arrangements one or both weekend days are subject to voluntary rest day working. There is little difference in cost between the various systems, however.

5.13. While WMPTE would prefer a five from seven working arrangement in all 24 garages, no positive action was being taken to encourage a change in this direction since the cost of achieving it in negotiations would outweigh

any benefits. However, the Executive was firmly resisting any attempt to move in the other direction, that is towards a five from five arrangement.

5.14. Such then are the basic factors determining the number of platform staff required; the number and duration of services, the duration of the working week, the working arrangements operated and the level of spare cover provided. However, the efficiency with which these staff can be used is affected by a number of other limitations, usually the result of Drivers Hours Regulations or formally negotiated agreements with the appropriate trade union, but sometimes the result of custom and practice at individual garages.

5.15. The additional limitations, which we refer to as scheduling constraints, basically determine the length of time in any one shift a driver can spend in charge of a bus. They cover such items as signing on and off times, meal and other rest breaks, maximum length of shift and maximum spreadover of split shifts. There is also some restriction on the number of split shifts which may be included in any crew duty schedule, although in WMPTE this is not considered a significant constraint. Split shifts are of great benefit when scheduling crews to cover morning and evening peak services and can significantly reduce the total manpower requirement.

5.16. Within WMPTE many of the scheduling constraints are standard throughout the Executive and as such are recorded formally in the Platform Staff Conditions of Employment. There are, however, a number of local variations, mainly in the East Division, and some unwritten constraints of the custom and practice variety. The most significant constraints are set out in the following paragraphs.

5.17. Generally the maximum length of duty from Monday to Friday is limited to 8 hours 30 minutes including a paid meal break. However, in the East Division the limit is 8 hours excluding an unpaid meal break. On Sundays where a five from seven arrangement is worked normal duties are limited to 5 hours 20 minutes for which 8 hours are paid in South Division and 8 hours for which 12 hours are paid in East Division. Some garages will work considerable overtime in excess of this. As indicated earlier, North Division does not have any garages on a five from seven arrangement.

5.18. Duties are averaged over the roster and the agreed maximum average work for a full standard day is limited to 7 hours 48 minutes although there is some local variation. This means that some duties will exceed 7 hours 48 minutes, subject to the maximum specified above, and some will be less, but in both cases payment will be for 8 hours. The daily average of 7 hours 48 minutes reflects an agreed allowance of one hour per week for the preparation of defect and other special reports by the driver.

5.19. Agreements provide for minimum payments for part duties as follows:

	<i>Monday to Saturday</i>	<i>Sunday</i>
1st part	2 hours 10 minutes	1 hour 27 minutes
2nd part	2 hours	1 hour 20 minutes

In East Division the minimum payment for the first part is 3 hours. The effect of these agreements is that the schedulers must endeavour not to schedule crews for part duties of shorter duration than the minimum payment time.

5.20. In general there are no formal limits on the number of split shifts which may be rostered in WMPTE, but the number is agreed by negotiation. The maximum compass of working time covered by a split shift is restricted to 12 hours 30 minutes. Overall the proportion of split shifts to total daily duties (Monday to Friday) is 37.2 per cent in WMPTE. However, this varies from as low as 19.2 per cent in East Division to as high as 52.8 per cent in South Division. This reflects the different pattern of services over the day between the divisions, South Division having the lowest level of off-peak services relative to the peaks.

5.21. Breaks between parts of a duty of less than one hour are paid as time worked. However, if the duty started before 5.45 am the break is paid as time worked regardless of its duration. In East Division where meal breaks are unpaid, the minimum break varies from 35 to 41 minutes depending on location and effectively includes travelling time. The break cannot normally exceed one hour.

5.22. In addition to these constraints there are various rules concerning earliest and latest starting and finishing times for different types of shift. There are also limitations on the number of trips which can be undertaken in a duty on certain routes.

5.23. Signing on and signing off allowances at the beginning and end of daily duties are generally 15 minutes each throughout the Executive. However, there are variations in some garages in North Division where 20 minutes is allowed for signing off and one where 30 minutes is allowed for signing on. The last mentioned is considered by management to be excessive and will be subject to negotiation.

5.24. Signing on allowances generally cover both the actual process of signing on when reporting for duty and a number of activities concerned with preparing a vehicle for service. These include the collection of keys and documentation, fitting the cash vault, checking the ticket machine, making initial entries on the waybill and ensuring that the vehicle is ready for service. The signing off allowances cover a similar range of activities and sometimes include refuelling and washing the vehicle. Reduced allowances are paid when reporting to a garage part way through a duty, either to collect or return a vehicle, and when taking or handing over a vehicle outside a garage.

5.25. Crew schedules, known as rosters, comprise a varying number of lines of duty. Each line of duty covers the activities of one driver for one shift and may entail operating on one service or two or more services in the course of a shift. In general the greater the number of lines of duty and services covered by a roster, the easier it is for the scheduler to minimise unproductive time. In WMPTE the rosters are nearly all large and do not present any significant constraints to the schedulers.

Scheduling efficiency

5.26. Given the constraints and allowances and other factors discussed in the preceding paragraphs, the objective of the schedulers is to produce crew duty rosters which contains the minimum amount of unproductive paid time for platform staff. In the case of most garages in WMPTE, taking an average 8-hour turn of duty per man, the notional maximum time available for operating buses is 6 hours 48 minutes or 85 per cent of paid time. This is the result of deducting signing on and off allowances of 15 minutes each, a paid meal break of 30 minutes and the average of 12 minutes a day allowed for defect and other special reports (see paragraph 5.18). In individual cases the maximum achievable productive time as a percentage of paid time will vary according to the length of shift worked, the use of split shifts and local variations in constraints and allowances.

5.27. The pattern of services operated in terms of timing, length of route, location and frequency, all varying by time of day and day of the week, clearly complicate the task of the scheduler. On the one hand services will not be run merely to occupy otherwise surplus crew time, and on the other the scheduler has to ensure that a driver is relieved before exceeding maximum agreed working time. This relief has to be undertaken at a convenient location which may result in a driver being relieved earlier than otherwise necessary. Taking these factors into account it is extremely difficult for schedulers to achieve the notional maximum utilisation of paid time referred to above.

5.28. In order to assess the efficiency of the crew schedules in WMPTE and the other undertakings, we have adopted a scheduling efficiency measure whereby scheduled bus hours are expressed as a percentage of scheduled attendance hours for platform staff, excluding any spare cover. In other words, the measure shows productive time as a percentage of total scheduled paid attendance time of those platform staff rostered for specific service duties. The paid attendance time of staff rostered as spares to provide cover for absences is not included. WMPTE in effect monitors scheduling efficiency in this way because the recently developed route costing statements show the reciprocal, that is scheduled attendance hours as a percentage of scheduled bus hours.

5.29. Using our adopted measure, WMPTE achieved an overall average scheduling efficiency of 81.6 per cent in the period of our study. There was some variation within the divisions as shown below:

Scheduling efficiency by division

	<i>Average</i>	<i>Lowest</i>	<i>Highest</i>
	<i>%</i>	<i>%</i>	<i>%</i>
North	79.8	78.1	82.4
South	82.9	80.2	84.7
East	80.9	79.8	81.9

The higher level of efficiency achieved in South Division reflects the greater number of options available to the scheduler. For example, the relatively short journey lengths and high frequency of services greatly ease the problem of reliefs and unutilised time. Both North and East Divisions are affected to

a greater degree than South Division by scheduling constraints and allowances. We were unable to obtain data in a suitable form to assess actual operating efficiency to compare with scheduling efficiency (see paragraphs 5.78 and 5.79).

Control systems and procedures

5.30. Operations in WMPTE are controlled by the three Divisional Managers, generally through operating managers based on the garages. There have been a number of organisational changes over the last two years which are still continuing. These are discussed in Chapter 12. Partly because of this there are a number of variations across WMPTE in the way in which the garages are organised. However, in every case the following activities are covered:

- Bus and driver turn out at the garage and return at the end of the duty.
- Control of services outside the garage, that is quality control on the road including control of important termini away from bus stations and on-bus inspections.
- Fleet maintenance engineering (see Chapter 6).

Generally the preparation of schedules is done on a divisional basis but the allocation of named staff to lines of duty on the roster and the provision of cover for absences are dealt with at garage level.

5.31. Performance is monitored by the Executive on a divisional basis with each Divisional Manager reporting to the Management Committee (see Chapter 12) regularly by means of Period Progress Reports.

5.32. The management control information included in the performance summary shows the actual figures for the previous period and previous year. The report also includes a number of control statements as appendices which cover staff strength, service performance, lost and extra mileage. While there are some variations in the format and presentation of these reports between the divisions, the content is standard.

5.33. The content of these reports effectively covers the essential matters in relation to the control of platform staff. However, the emphasis is placed on service levels with the aim of maintaining service and minimising lost mileage as far as possible. Apart from lost mileage the average number of buses taken out of service or late out on service at various times of day are also monitored giving useful additional indicators of problems arising.

5.34. Below the Divisional Managers considerable flexibility is allowed to the operating managers in the control information they keep; subject to providing that necessary for the Period Progress Reports. We did not examine the control information maintained at all 24 garages, but the following items are examples of the aspects monitored:

- Customer complaints;
- Lost and extra mileage;
- Weekly return on holidays, sickness, absenteeism, starters and leavers;
- On-bus revenue for the week and trends;

Average gross wages paid;
State of service morning and evening peaks;
Fraud survey statistics;
Operating contribution route by route;
Number of rest days worked and use of spare platform staff;
Weekly statistical return showing an analysis of the day by day staff position, the numbers available and how they were used.

5.35. While not all of this information would appear to be of immediate relevance at garage level, there is emphasis on manpower utilisation and control information. In particular the information enables management to monitor the two factors which can most be influenced at garage level, rest day working and effective utilisation of spares.

Inspectors

5.36. The first line supervisors for platform staff are the uniformed inspectors of which WMPTE has 457, a ratio of one inspector to nine platform staff overall. This ratio varies between the divisions due to differences in the nature of the areas and services operated, and in part to the range of duties performed. South Division has one inspector to 8.5 staff while East Division has one to 11.5 staff. North Division is at the WMPTE average of one to nine.

5.37. The role of the inspectors can be summarised as follows:

- checking and instructing drivers at the start of duties and allocating staff to fill vacant duties;
- pre-allocating duties two or more days in advance;
- controlling departures to timetable from key loading or unloading points;
- making on-bus inspections to check tickets, equipment and staff activity;
- dealing with customer enquiries and some local liaison—schools, police, etc;
- rearranging services to restore them to schedule after traffic congestion, delays or extraordinary events.

Inspectors engaged in the first two activities are known in WMPTE as inside inspectors while those on the other activities are termed outside or road inspectors.

5.38. The duties and titles of the different types of inspector vary between garages and divisions reflecting the practices of the former undertakings absorbed by WMPTE. Two garages in Wolverhampton, for example, use seven titles to cover inside and outside inspectors with a range of duties. In the other divisions there are significant variations from this, particularly in the way duties are assigned.

5.39. Apart from these variations there are also a number of special inspection practices in WMPTE. South Division has a separate Revenue Squad with the objective of carrying out intensive on-bus checks in selected areas

and at critical times. These checks are aimed at detecting passenger fraud and experience has shown a detection rate at twice the level for normal on-bus checks.

5.40. Plain clothes inspectors are used to check on suspected driver misdemeanours in all three divisions. All three divisions also use mobile inspectors working in pairs in radio cars. This system enables successive checks to be made on separated routes giving element of surprise and making the inspection more effective.

5.41. Inspectors responsible for making on-bus inspections make a daily report on the inspections carried out and defects or abnormalities found. Other inspectors report on an as required basis.

5.42. WMPTE operates extensive radio control facilities covering virtually all buses in operation and the outside inspectors. Co-ordination is dealt with on a divisional basis with control rooms in Birmingham, Walsall and Coventry. Different systems and frequencies are used for inspectors and drivers so that supervisory messages can be passed independently of the frequently congested bus system. Thus there is no direct radio link between the inspectors and buses.

5.43. The use of radio equipment in cases of assault or other emergencies, and in maintaining services in a dense urban area is clearly beneficial. Consideration is being given to extending the use of the radio network to direct driver reporting, thereby replacing some of the service monitoring at present undertaken by inspectors. A pilot scheme for service monitoring on 160 buses is currently being developed in South Division.

5.44. The present level of inspectorate manning at 457, is largely based on past experience rather than any objective criteria. During the 1979 restructuring of North Division (see Chapter 12) a logical basis for manning dispatch offices and bus stations was developed. However, when other factors such as terminal arrangements, geographic area and similar matters are taken into account, WMPTE does not consider that there is an optimum manning level for inspectors based simply on the numbers supervised.

CCT

5.45. In contrast to WMPTE, CCT is the smallest of the four undertakings with less than one-tenth the WMPTE bus fleet. It also operates in a more concentrated area with the majority of services confined to within a four-mile radius of the city centre. Nevertheless, the principles governing manning levels and crew scheduling are exactly the same as for WMPTE.

5.46. In October 1981 the total bus fleet comprised 213 vehicles of which 202 were normal stage carriage service vehicles to meet a peak service requirement of 163 vehicles. A seven-day-a-week service is operated, but no 24-hour service is provided. Most services operate at varying frequencies over a 16-to 18-hour day with some services running for up to 20 hours.

5.47. CCT also has 100 per cent one-man operation on stage carriage services, and was one of the first municipal undertakings to achieve this. The driver establishment is 424 with 411 actually on strength at the time of our study, a ratio of 2.5 drivers per peak vehicle requirement. The full establishment figure of 424 includes provision for spares set at 15 per cent of the minimum number required to man the rosters. Since the number employed is below establishment the shortfall is covered by overtime working. A five from seven working arrangement is operated for platform staff.

5.48. At the time of our study CCT was operating 11 separate rosters at the one garage now in use, covering a total of 275 Monday to Friday duties. The largest roster contained 79 lines of duty and the smallest 8. The rosters fall into five main categories, fast-fare routes, non-fastfare routes, split shift duties, high overtime content duties and separate rosters for men transferred from the Roath works when its use as a second operating garage was discontinued.

5.49. CCT is at present in the process of converting all on-bus fare equipment to the fastfare system which, among other things, considerably simplifies the end of duty cashing up process. The effect of this on signing off time allowances is the main reason for having separate rosters for fastfare routes. During our study there were three such rosters covering 68 lines of duty. On completion of the conversion CCT states that an agreement with the trade union provides for the number rosters to be reduced to six.

5.50. At present, during the transition to fastfare, the small size of some of the rosters (five have less than 10 lines of duty) reduces the flexibility of the crew scheduler in minimising unproductive time. By agreement with the trade union the number of split shifts allowed on weekdays is limited to 31, that is only 11.3 per cent of the total lines of duty for weekdays. Split shifts are not required at weekends and CCT does not regard the weekday limit as a constraint.

5.51. A number of scheduling constraints have been formally agreed with the trade union, most of them dating from a July 1975 agreement. Further restrictions on split shift working include a limit on the maximum compass of working time of 12 hours and on the maximum work content, including signing on and off and travelling time, of eight hours. The agreement also provides that staff volunteering to work split shifts shall not have to revert to normal duties and the maximum portion of a duty without a meal break shall be five hours (occasionally 5.5 hours).

5.52. Other agreed constraints are summarised below:

70 per cent of all duties on any day should not exceed 8 hours, 15 per cent should not exceed 8.5 hours and the remaining 15 per cent 9 hours.

No duty should have a work content of more than 8 hours including signing on and off and travelling time, but excluding a meal break.

Early duties on Saturdays should finish within one hour of Monday to Friday finishing time.

The maximum portion of a duty without a meal break to be 5 hours (occasionally 5.5 hours).

Duties on rosters to be arranged with alternate early and late weeks with all early duties finishing by 5 pm subject to a few minor exceptions.

On each roster the same duty will normally be worked from Monday to Friday.

Each roster to have on average consecutive Friday, Saturday, Sunday rest days every 8 weeks and consecutive Friday to Monday rest days every 16 weeks.

One duty in seven should attract overtime working and 15 per cent of all duties should be placed on special rosters with a high overtime content.

5.53. As can be seen the constraints placed on the scheduler are considerable, particularly given the small size of many of the rosters. With regard to the last constraint concerning opportunities for overtime, we noted that CCT had three special high overtime rosters, each with nine lines of duty. This gives a total of 27 duties out of 275 or 9.8 per cent. We were told by CCT that while these constraints may appear onerous, the 1975 Agreement represented a considerable improvement on the previous situation.

5.54. In addition to these agreed constraints the scheduler also has to take account of agreed time allowances for breaks, signing on and off, etc. All drivers are allowed a paid meal break of not less than 30 minutes which may be longer when taken at certain locations. Drivers not on fastfare routes get a fixed allowance of 40 minutes a day for signing on and off and other purposes, while those on fastfare routes whilst getting a minimum of 5 minutes a day, could have considerably longer in certain circumstances, but the present average is 22 minutes. The majority of drivers are now on fastfare routes and complete conversion is expected by the summer of 1982.

Scheduling efficiency

5.55. The combined effect of these allowances is that on non-fastfare routes a driver on an eight hour shift is available for duty 85 per cent of the time, that is 8 hours less 70 minutes. Fastfare drivers taking the average allowance of 52 minutes are available for nearly 90 per cent of the time paid, less if additional allowances are required. Some 33 per cent of fastfare drivers receive allowances above the average.

5.56. Using our adopted scheduling efficiency measure we found that CCT achieved an average of 79.3 per cent. The lowest level of efficiency at 75 per cent related to a special high overtime content roster with nine lines of duty while the highest, 88.1 per cent, was achieved on a combined fastfare, split shift roster with eight lines of duty. In all three rosters covering fastfare duties, scheduling efficiency was over 82 per cent and in the three split shift rosters over 84 per cent. The other rosters were all below 80 per cent. CCT did not monitor scheduling efficiency in this way, but indicated that it would do so in future. As with WMPTE we were unable to compare operating efficiency.

Control systems and procedures

5.57. As a relatively small undertaking CCT has only one operating garage plus a bus station in the centre of the city. The management lines of control from the Traffic Superintendent (see Chapter 12) are, therefore, quite short and simple. The Traffic Department produces a number of weekly returns which are used to monitor and control platform staff activities. These include a Traffic Staff Return and a Wages Report. The first identifies the number of lines of duty required to operate the scheduled services, the establishment (lines of duty plus spares), the actual number employed and resultant shortages or surplus. Staff movements by category including starters and leavers and a summary of absences and rest day working are also included.

5.58. The Wages Report sets out current information with comparative information for the previous year relating to numbers employed (actual and establishment), rest days worked, actual wages paid compared with the estimate for the week and year to date, hours worked and days lost.

Inspectorate

5.59. CCT currently employs 38 inspectors giving a ratio of about one to 11 platform staff. The duties of the inspectors are broadly similar to those in WMPTE and they are allocated as follows:

<i>Description</i>	<i>Number</i>	<i>Duties</i>
Chief Inspector	1	Overall control of inspectors.
Depot and chief office	4	Control bus and crew turnout.
Control and Point Inspectors	6	Operate from the control room, the Central Bus Station and adjacent street termini.
General duties	7	Arrange short notice cover for crew absences, cover street termini in peak periods and undertake on-bus inspections as required.
Allocations	2	Allocate staff to gaps in the duty rosters.
Operations	14	On-bus inspections and quality control of the service.
Radio	3	Central radio control room.
PSV training	1	Driver training.
Total	38	

5.60. All inspectors within the department operate flexibly as required to cover the various aspects of the work. Only in exceptional circumstances, however, will they drive a bus, such as when the regular driver is taken ill while driving and no spare driver is available.

5.61. The allocations inspectors when filling known gaps in the duty rosters must operate in accordance with a number of limitations agreed with the trade union. The most significant of these are the need to preserve a balance between morning and evening shifts, a man rostered as a morning spare cannot be used on the evening shift without his agreement; drivers working rest days cannot be allocated directly to split duties, but must first be rostered as spare and then requested to do the first part of a split while they can only be requested to do the second part with their agreement. In this case they must be paid for the full period including the middle break.

5.62. The most serious constraint is that drivers returning from sick leave are entitled to reclaim their originally rostered duties even though cover may already have been provided. Where this happens the driver providing the cover is placed on the spares list. In terms of cost this constraint is estimated to account for some 20 rest days at premium rates each week.

5.63. The radio control room in CCT is located in the chief office and is also equipped with closed circuit television with cameras located at a number of strategic points throughout the city. With this equipment the radio inspectors are able to monitor services and take appropriate action in the event of delays arising from traffic congestion or exceptionally heavy loadings. The radio equipment is also of benefit for emergency communication in the event of assaults, accidents, hooliganism or breakdowns and for summoning assistance in other circumstances, such as no relief driver being available.

5.64. The operations inspectors complete daily reports on their activities while the others provide written reports only as necessary.

BOC

5.65. The largest of the two NBC companies subject to our inquiries, BOC provides a mixture of urban, inter-urban and rural services. About 60 per cent of the services are urban, mainly in the city of Bristol. The company at the time of our detailed study had a total operating fleet of 768 vehicles and a peak service requirement of 630 vehicles. The fleet included 64 double-deck vehicles unsuitable for one-man operation.

5.66. Most services are operated for seven days a week and generally for 16 to 18 hours a day although with considerable variations in frequency. Off-peak services require 76 per cent of the peak vehicle requirement averaged over BOC as a whole. In the 12 garages operated the average ranged from 64.3 per cent to 92 per cent.

5.67. BOC employed a total of 1,704 drivers and 202 conductors in September 1981 of which 1,545 drivers were engaged in one-man operation. Overall BOC employs 2.7 drivers per peak vehicle required with a slightly higher ratio of crew drivers per bus at 2.9.

5.68. Both the number of vehicles operated and the number of platform staff employed have been reduced in recent months following the implementation of the results of various MAP exercises (see Chapter 8). It is expected that the total fleet will reduce to 709 vehicles by late 1982. The peak vehicle requirement will fall to below 600 with corresponding reductions in manpower. However, BOC does not anticipate any significant reduction in the proportion of two-man buses—which are mainly in the city of Bristol—for some time to come. About 92 per cent of services are at present one-man operated.

5.69. Following the quite substantial service and manpower reductions in BOC over the last year or so, company management has accepted trade union pressure to minimise the level of overtime working in order to preserve the greatest number of jobs possible. The per man effect of this has been that

BOC employs more staff as spare cover than the other three undertakings who all use overtime to a greater or lesser extent to cover absences. In BOC spares currently represent about 20 per cent of the minimum number required to man the schedules, the exact percentage varying between garages.

5.70. Platform staff in BOC are employed on a 40 hour, five day from seven day week basis, with a consolidated basic pay rate which includes premium elements for Saturday and Sunday working. The duty rosters are separate for city and country services and are subject to different constraints on scheduling. All country service rosters are now 100 per cent one-man operation.

City services

5.71. The city services are operated out of three large depots on a number of rosters averaging 40 lines of duty each, the smallest having about 30 lines of duty. The size of the roster does not therefore place a constraint on the scheduler. However, a March 1980 agreement with the trade union does contain a large number of conditions as listed below:

- (a) Any period of driving should not exceed 4.5 hours.
- (b) Up to 5.5 hours work is permitted provided driving time does not exceed 4.5 hours and a 15 minute paid break is included.
- (c) The maximum work in a daily straight duty is 8 hours.
- (d) The maximum spreadover on a daily straight duty is 8.5 hours.
- (e) The maximum work in a daily spreadover duty is 8 hours 24 minutes.
- (f) The maximum spreadover on a split duty is 12.5 hours.
- (g) Split duties should not start before 6 am nor finish after 7 pm.
- (h) One unpaid mealbreak of 30 minutes is allowed.
- (i) Mealbreaks should only occur after 7.15 am and before 8.40 pm.
- (j) Spares on the roster are subject to the same conditions as for working duties (a) to (e) above.
- (k) Mealbreaks for spares should be taken not less than 2½ hours nor more than 5½ hours after the commencement of duty.
- (l) Ten minutes waiting time will be allowed between buses when allocating spare or re-allocating work within a duty.
- (m) Comparisons with previous rosters in respect of spares coverages, duty make up and finishing times is not permitted.
- (n) Split duties which include a straight duty on Saturdays should finish by 6 pm.

5.72. Basically, items (a) to (g) and (l) constrain the scheduler, item (j) the staff detailer, while the balance constrain the staff. Although not specifically included in the agreement, acceptance was on the understanding that BOC would include an additional 10 minute signing off time before the 30 minute mealbreak and make a genuine attempt to reduce the number of split shifts worked. Prior to the agreement, split shifts were averaging 14 per cent of the total city service roster duties. This had been reduced to 9 per cent at the time of our study and was still falling.

5.73. In common with the other undertakings the constraints on crew schedulers in BOC are compounded by a number of time allowances for signing on and off and changing vehicles. In so far as the city depots are concerned, if signing on and off, including breaks in split shifts, coincide with the first and last use of the vehicle then the allowance is 20 minutes on each occasion. In most other cases where a vehicle is joined or left at some intermediate point in its day's use the allowance is 10 minutes whether starting or finishing a shift or part shift. However, when starting the second part of a shift or duty and joining the vehicle at a stand, there is no time allowance.

Country services

5.74. The country service rosters covering the other nine BOC depots are generally smaller than those in the city depots. However, the consequent loss of flexibility for the scheduler is largely offset by the greater flexibility accepted by the platform staff, particularly in the less onerous constraints imposed by agreements. Indeed, there are no formal scheduling agreements in respect of country services although there are a number of local restraints. An example of these is that straight duties generally should not exceed 8.5 hours work content. In one garage operating a round trip service of 2.5 hours duration, no more than two such trips should be included in any duty and be combined with work on other services. Any spreadover duty lasting more than 9.5 hours is treated as a split duty and, as with the city services, there is general trade union pressure to minimise the number of split shifts or duties.

5.75. The allowances on country services are broadly similar to those for the city services, except that for starting or finishing duties or part duties at an intermediate point in the vehicle's working day, the allowances range from five to 15 minutes. Weston-super-Mare town services are an exception to this; neither the start of a break in duty nor the start of the second part of a duty during an intermediate stage carry any time allowance.

5.76. In both city and country services the introduction of one-man operation has generally been achieved without any change in scheduled vehicle running times. In a few cases some change has proved necessary.

Scheduling efficiency

5.77. The combined effect of the allowances discussed above means that a minimum of 40 minutes is deducted from the time available for work in any duty. More often the deductions will be at least 60 minutes. Given these allowances we estimate that the notional maximum scheduling efficiency in BOC is about 80 per cent. In practice the scheduling efficiencies were as follows:

	<i>Average</i> %	<i>Lowest</i> %	<i>Highest</i> %
City services	72.3	70.6	75.0
Country services	76.1	67.1	81.3

Following negotiation of 39 hour week schedules in February and March 1982, average scheduling efficiency for city services was increased to 75.0 per cent and for country services to 77.8 per cent.

5.78. Unlike the other undertakings, BOC's management information system monitored actual attendance hours for platform staff against actual bus hours in such a way that it was possible to compare actual achievement against schedule. In this case the actual attendance hours include the spare cover hours necessary to ensure the scheduled service operated. Given these figures it is possible to measure 'operating' efficiency, in the same way as scheduling efficiency by expressing actual productive time (bus hours) as a percentage of actual attendance hours paid for.

5.79. With the inclusion of spare cover the operating efficiency percentage will inevitably be lower than that for scheduling efficiency. The schedulers and those responsible for staff allocations must aim to minimise this difference. Taking OMO services only BOC achieved the following levels of operating efficiency:

City services	65.7 per cent
Country services	71.4 per cent

Control procedures and systems

5.80. Due to the size of the geographical area covered, BOC has split traffic operations under the overall control of the Traffic Manager into three areas: North, South and Bristol City. The monitoring and control systems are standard throughout, broadly in line with NBC practice.

5.81. Three principal returns are produced by operating units, a lost mileage return and a budgeting control statement on a four weekly basis and a platform staff statistics report covering one week in four. Together these returns cover virtually all the information necessary to monitor and control platform staff activities effectively, including the operating efficiency measure discussed above.

Inspectorate

5.82. BOC employs a total of 133 inspectors giving an overall ratio of one inspector to 13 drivers (crew and OMO). The proportion of inspectors is higher in the city services than in the country, one to ten and one to 15 respectively, which reflects the more intensive nature of urban operations. Their duties are very similar to those in WMPTE and CCT. Daily reports are produced both in relation to on-bus inspections and service levels (staff failures, buses off service and lost mileage).

TMT

5.83. Also covering a large geographic area, TMT services are mainly inter-urban with some rural and urban services. The balance of TMT's operations is therefore very different from the other three undertakings, particularly in the relation of peak to off-peak services. Overall off-peak services require 89 per cent of the vehicles used at the peak but in some garages there is virtually no difference between peak and off-peak.

5.84. Operating a seven day a week service for less than the full 24 hours a day, TMT has a total operating fleet of 356 stage carriage vehicles including 120 double-deck and a peak requirement of 282 vehicles. In December 1981

the platform staff establishment was 825 including 75 conductors and 80 crew drivers. The number actually employed was 790 including 68 conductors and 64 crew drivers. With 722 drivers in post (750 establishment) TMT has a ratio of 2.6 drivers per peak vehicle required. Included in the driver establishment is a provision of 17.5 per cent spare cover against absences. The difference between the number of drivers in post and the establishment reflected the continuing move towards OMO with the associated retraining of crew drivers and conductors and a freeze on recruitment.

5.85. Some 94 per cent of TMT services are now OMO and the company is intending to move towards 100 per cent within the next year.

5.86. Terms and conditions of employment in TMT are broadly similar to BOC since both are party to the same National Agreement (see Chapter 4). However, scheduling constraints and allowances are determined locally and therefore differ somewhat from BOC. The constraints in TMT are generally less onerous and largely result from custom and practice rather than formal agreement. No split shifts apply on Saturdays and Sundays, but since they are not required on operating grounds this is not a constraint. Some garages limit the number of split shifts accepted. Furthermore, split shifts covering two separate periods of duty are generally only acceptable if they start between 6.30 am and 10.30 am and finish between 3 pm and 7 pm but TMT do not consider that this poses any operational or economic problems.

5.87. Apart from the constraints on split shifts certain town services may only be worked for a limited time without change, while some garages will not work shifts of over 9 hours duration. It is expected that on average one rest day per fortnight will be worked. Finally, as part of a National Agreement applying equally to BOC, no shift shall be paid for less than 7 hours 48 minutes.

5.88. Time allowance for signing on and off and other matters vary between the 15 garages operated by the company. Again these allowances are mostly the result of custom and practice rather than written agreements, but TMT policy is to reduce them all to standard times of 10 minutes each for first sign on and final sign off for OMO drivers. This has already been achieved at eight of the garages. Of the others, one has 20 minutes to sign on and 15 minutes to sign off, four have 15 minutes each, one 15 minutes to sign on and five minutes to sign off and the last 10 minutes to sign on and five minutes to sign off. All garages have allowances of from 5 to 20 minutes for restarting after an intermediate break while six have an allowance of from 5 to 10 minutes for finishing at an intermediate point. Allowances for crew drivers and conductors are restricted to five minutes for each event.

Scheduling efficiency

5.89. Taking account of these allowances we estimate the notional maximum scheduling efficiency in TMT to be about 87 per cent. In practice we found that the average for the company was 82 per cent with the average for individual garages ranging from 71.2 per cent to 91.7 per cent.

5.90. TMT did not monitor actual attendance hours and bus hours in the same way as BOC so that we did not assess operating efficiency. However, the data available at garage level for wage payment purposes could be readily adapted.

Control systems and procedures

5.91. TMT is organised in a similar way to BOC with two operating areas, Western and Eastern, and 15 garages six of which have 11 or fewer vehicles. Nine are controlled by District Traffic Superintendents while the others, being quite small, are treated as out-stations of one or other of the nine. The District Traffic Superintendents report weekly to their Area Managers covering a comprehensive list of traffic and staff matters.

5.92. Although there is some freedom at garage level to vary staffing levels in accordance with traffic requirements, tight control is exercised to ensure that agreed establishment levels are not exceeded. Normally the number actually employed is below establishment. The use made of platform staff is also closely controlled with careful monitoring of hours worked and, unusually, in the case of spares, hours not used. Wage costs are also closely controlled.

Inspectorate

5.93. The role of inspectors in TMT is again very similar to that in the other undertakings except that they do not deal with the pre-allocation of staff to gaps in the duty rosters. Because of the dispersed nature of the area some inspectors are equipped with small vans to facilitate on-bus inspections at the more remote points. TMT employs 42 inspectors giving a ratio of 1 inspector to 17 drivers.

Comparisons

5.94. As indicated at the beginning of this chapter, the four undertakings are very different in size and type of operation. However, in terms of the utilisation and control of platform staff, they have many similarities. Both WMPTE and CCT are now on 100 per cent OMO while TMT is moving rapidly towards this. BOC is about 92 per cent OMO and is likely to retain a small percentage of crew-operated services in Bristol for the foreseeable future.

5.95. In Table 5.1 below we set out some details relating to manning levels and the scale of operation in the four undertakings.

TABLE 5.1 Manning levels and scale of operation—October 1981

	<i>WMPTE</i>	<i>CCT</i>	<i>BOC</i>	<i>TMT</i>
Peak vehicle requirement	1,894	163	630	282
Off-peak as percentage of peak	58.4%	78.5%	76.2%	89.0%
Percentage OMO	100.0%	100.0%	92.0%	92.0+%
Drivers per peak vehicle	2.2	2.5	2.7	2.6
Spare drivers as percentage of minimum roster	15.0%	15.0%	20.0%	17.5%
Ratio of inspectors to drivers	1:9	1:11	1:13	1:17
Ratio of inspectors to peak vehicles	1:4.1	1:4.3	1:4.7	1:6.7

Source: MMC study.

5.96. WMPTE has the lowest level of driver manning at 2.2 per peak vehicle in spite of operating services over the longest duration, including a number of night services. To some extent this results from having a relatively low ratio of off-peak to peak services, but also from the low level spare drivers carried. The 15 per cent represents a maximum with some garages having a spares level as low as 1.5 per cent. The higher level of 2.7 drivers per peak vehicle in BOC reflects the high level of spare drivers at 20 per cent.

5.97. The variation in drivers and vehicles per inspector largely reflects the difference between urban and non-urban services. In TMT, however, inspectors also undertake a narrower range of duties.

5.98. Scheduling efficiency in all four undertakings is constrained to a greater or lesser extent by agreements on working arrangements, practices and allowances, and, in some cases, by the small size of rosters. In Table 5.2 we summarise the most significant features and compare the notional maximum and actual scheduling efficiencies.

5.99. As we explained earlier, the scheduling constraints are most onerous on the BOC city services and this is reflected in the much lower level of scheduling efficiency achieved compared with the other three undertakings. It is less apparent, however, why the scheduling efficiency for BOC country services should be so much lower than for similar services in TMT. Crew schedules are produced centrally in TMT rather than at area or garage level as in BOC.

5.100. The slightly lower level of scheduling efficiency in CCT than in WMPTE or TMT is, we believe, largely due to the small size of some of the rosters at the time of our study—five of the 11 in use had less than 10 lines of duty each. This limits the flexibility of the scheduler in making the best use of available time.

TABLE 5.2 Crew scheduling

Constraints	WMPTE	CCT	BOC		TMT
			City	Country	
Maximum work content in straight daily duty	7.8 hrs	8 hrs	8 hrs	8.5 hrs	8.5 hrs
Maximum overspread of straight duty including allowances	Average 8.5 hrs	70%—8.0 hrs 15%—8.5 hrs 15%—9.0 hrs	8.5 hrs	9.5 hrs	9.5 hrs
Maximum number of split duties as percentage of all duties	37.2%	11.3%	9.0%	Freely negotiable	Freely negotiable except 2 garages limited to 18% and 19%
Maximum overspread of split duties	12.5 hrs	12 hrs	12.5 hrs	—	12 to 13 hrs
Average allowances	72 mins	52 to 70 mins	80 mins	60 mins	60 mins
Notional maximum scheduling efficiency	85%	85% to 90%	80%	87%	87%
Actual scheduling efficiency	81.6%	79.3%	72.3%	76.1%	81.9%
Operating efficiency	N/A	N/A	65.7%	71.4%	N/A

Source: MMC study.

5.101. Only BOC collected data in such a way as to allow operating efficiency to be readily calculated, thus giving an actual performance to be compared against scheduled or planned performance. The low level of 65.7 per cent achieved in the city's services in our sample period meant that in effect for every 8 hours paid, only 5.25 hours were productive.

5.102. None of the undertakings in our study used computer-based techniques for crew scheduling purposes. All held the view, shared we are told by the industry at large, that such techniques have not yet reached a stage of development where they might with confidence be used to replace manual scheduling. There were possibilities, however, of using computer systems to do the major part of the work, leaving the final adjustments to an experienced scheduler.

Conclusions

5.103. Although very different in size and characteristics, all four undertakings use very similar systems and procedures for the control of platform staff. Indeed these seem to be in common use throughout the bus industry.

5.104. Both WMPTE and CCT operate 100 per cent OMO while BOC and TMT are both over 90 per cent OMO. TMT expects to achieve 100 per cent within the next year while BOC intends to retain some conductor manned services in the City of Bristol for the foreseeable future.

5.105. Manning levels in the four undertakings range from 2.2 drivers per peak vehicle required in WMPTE to 2.7 per peak vehicle in BOC. Both WMPTE and CCT limit spare drivers to 15 per cent of the minimum required to man the rosters and rely on overtime working to cover any shortage. In BOC overtime for platform staff is deliberately kept as low as possible and the spare drivers level is 20 per cent. Platform staff manning levels are particularly well controlled in WMPTE and, given their differing circumstances, are reasonable in the other three undertakings.

5.106. Scheduling constraints and allowances vary both between the undertakings and, within them, between garages, areas and divisions. We recommend that each undertaking should seek to standardise such constraints and allowances across its own garages at the lowest acceptable level.

5.107. The effect of such constraints and allowances, including restrictions on split shift working, is most onerous in BOC city services and is detrimental both to manning levels (paragraph 5.105) and scheduling efficiency (paragraph 5.108). To a lesser extent the constraints are also onerous in CCT where the schedulers' flexibility is further constrained by the small size of many of the rosters at present in use. This constraint will be eased on completion of the conversion to 'fast fare' by late 1982.

5.108. While none of the four undertakings reached the notional maximum scheduling efficiency, averaged across the undertaking, WMPTE and TMT came closest and in individual garages exceeded it. In WMPTE and TMT scheduling efficiency averaged over 81 per cent, in CCT 79 per cent and in

BOC city services 72 per cent. The low level in BOC reflects the constraints and allowances (paragraph 5.107); and we recommend BOC should continue to give attention to these matters.

5.109. Only WMPTE has recently started monitoring scheduling efficiency, none of the others do so and only BOC monitored operating efficiency. We recommend that all four undertakings should regularly use both measures in monitoring efficiency.

5.110. The extent to which the undertakings monitored the use of spare drivers varied, with only TMT regularly monitoring unused time. We recommend that all four undertakings should regularly monitor the use made of spare drivers and the level of unused time.

5.111. Subject to the agreed constraints and local practices, we conclude that traffic operations and platform staff were generally well managed and controlled in all four undertakings.

CHAPTER 6

Efficiency of vehicle maintenance

Introduction

6.1. In this chapter we consider the efficiency with which the four undertakings maintain their bus fleet in such a condition that the required number of buses are available for service each day and that the number of buses failing in service for engineering reasons is kept to a minimum.

6.2. One way of ensuring that the number of buses required for service is always available is to carry a large pool of reserve vehicles. As we shall discuss in the later sections of this chapter, each of the four undertakings holds a proportion of reserve vehicles ranging from 17 to 26 per cent of the peak vehicle requirement. The size of this reserve depends on a number of factors to be discussed later, but one of general application is the pattern of services over the day. Where off-peak services amount to, say, 80 per cent or more of peak services, very few vehicles become available for maintenance work between the peaks so that more reserves are required.

6.3. A certain level of reserve vehicles will always be required in order to allow for maintenance work while maintaining scheduled services. Such work may take anything from one or two hours to three weeks or more where a major overhaul and repaint is involved.

6.4. In recent years a number of developments have affected maintenance operations and costs. Both single and double-deck vehicles are now much larger than ten years or so ago, up to ten feet longer in some cases. This has created difficulties, particularly in relation to pit sizes and in some cases garage roof heights. New buses are also considerably more complex than earlier vehicles reflecting the move towards greater passenger and driver comfort and, more significantly, the technical requirements of one-man operation.

6.5. In driver-only vehicles it is necessary for passenger access to be at the front so that the driver can collect fares or scrutinise various types of pass or season ticket. With the exception of one new vehicle type (Volvo Ailsa), in very limited use in WMPTE and CCT, this requirement has resulted in the engine being mounted at the rear of the vehicle or, in certain single-deck vehicles, horizontally under the floor. The underfloor engine also allowed for an increased passenger capacity compared with a single-deck bus with a front mounted engine. This in turn has created a number of maintenance problems both through increased complexity and rougher handling of the engine. The latter arises partly inadvertently, due to the remoteness of the engine with longer and more complex unit linkage, and partly because drivers are tempted to accelerate rapidly away from stops in order to keep to schedule after a longer than anticipated boarding time.

6.6. One-man buses are also required to have power-operated doors; exit doors, where fitted, must have safety interlocks so that the bus cannot be moved with the doors open. Again this increases maintenance complexity and renders the vehicle particularly vulnerable to damage on the front near-side. A minor dent which bends the door runners will jam the doors and force the bus to be taken out of service. This risk of front end damage is enhanced by the long overhang beyond the wheels at both ends of many new types of bus.

6.7. Most new bus types now have automatic transmissions, and power steering systems which in some cases are more prone to failure than the simpler manual systems. With the exception of the Gardner types, engines have also become more complex and sophisticated, adding further to maintenance problems.

6.8. The increased size and additional equipment on modern buses has also resulted in much heavier vehicles. Furthermore, the rear engined types are generally back-heavy with most of the braking effort being taken on the rear brakes. This has resulted in excessive wear on rear brake shoes and a need to replace them every four to six weeks. Newer types with automatic transmissions have been fitted with integral retarders which considerably extend brake life but add to complexity.

6.9. Such then are some of the technical problems facing the maintenance staff in the undertakings. Recent years have also seen changes in statutory requirements which, at least in the transitional stage, will have a significant impact on maintenance, planning and workload. Until recently buses received an initial certificate of fitness for a period of seven years, after which a second certificate was issued for five or six years with subsequent certificates for shorter periods. This gave rise to major overhauls at these points in a vehicle's life. Whether any vehicle received a second major overhaul prior to recertification at 12 to 13 years very much depended on the condition of the vehicle and the likely cost of the work. Under the new system starting in January 1983, vehicles will require certification annually and as a run up to this the annual inspections required commenced in January 1982. All four undertakings have had to provide additional test and inspection facilities for this purpose. The substitution of annual certification for the previous arrangements also has implications for vehicle replacement policy as discussed in Chapter 9—Investment.

6.10. We now examine in turn the way the undertakings deal with maintenance. In terms of management organisation CCT and the two NBC companies have adopted a very similar approach while that in WMPTE is very different. However, all provide the same basic facilities: one or more operating garages which act both as crew depots and routine maintenance centres, and one or more central workshops which undertake major work including unit (engines, gearboxes, etc) and vehicle overhauls.

WMPTE

6.11. The vehicle maintenance function in WMPTE is separated into two distinct organisations; fleet operations and workshops, reporting to different

directors of the Executive. The management and organisational implications of this are discussed in more detail in Chapter 12. However, the object of the split is to place the routine servicing and maintenance of vehicles (fleet operations) at the operating garages under the control of the operations management who are also responsible for running the services. Standardised maintenance procedures and specialist technical guidance are, however, provided to the operating divisions by Central Engineering staff. Major work, including the stripping down, refurbishment and rebuilding of units and vehicles, is undertaken by the three workshops under the control of specialist engineering management.

Fleet operations

6.12. Fleet operations are based on the 24 garages divided among the three operating divisions (see Chapter 1). The following table shows the number of garages in each division, the number of vehicles allocated and the peak and off-peak service requirements:

TABLE 6.1 WMPTE: Garages and fleet—October 1981

<i>Division</i>	<i>Garages</i>	<i>Total vehicles</i>	<i>Peak requirement</i>	<i>Off-Peak requirement</i>
North	8	723	619	437
South	14	1,259	1,064	544
East	2	241	211	127
Total	24	2,223	1,894	1,108

Source: MMC study.

6.13. Although there are some slight differences in East Division, the system for planning inspections, servicing and maintenance at the garages is broadly uniform. Each garage divides its fleet into four groups identified by a letter A to D. On an alternating basis each group is given a safety check or a pit inspection, such that each bus receives one or the other every week. Major lubrication and oil changes are scheduled to align with the appropriate pit inspection at frequencies varying with the type of operation, not necessarily every four weeks.

6.14. Other routine matters dealt with by the garages include the fuelling and initial servicing of vehicles on return to the garage. Fuelling, water and oil checks are carried out daily together with internal cleaning of the vehicle. Where possible an external wash is given every second day and an exhaustive special cleaning every six weeks.

6.15. Generally garages are also concerned with the preparation of vehicles for annual inspections. For some of the older vehicles, however, where extensive body repairs may be necessary, this work is undertaken by the workshops.

6.16. Unscheduled work in the garages may arise as the result of defect reports submitted by drivers at the end of each operating day or as the result of defects found during routine inspections, accident damage, breakdowns and other defects arising during service requiring a vehicle changeover.

6.17. With the exception of three garages where other systems are being evaluated, the Executive has specified common recording systems for the control of repairs and the allocation of work. However, we did observe during our studies a number of local variations in use, including, in some cases, two sets of control information, the local preference and the centrally specified system. In others the specified Work and Record sheet is not used as a control document during the day, but is merely completed at the end of the day as a record. The Executive told us that it was developing an improved recording system with the object of overcoming these difficulties.

6.18. WMPTE does not regularly monitor the ratio of scheduled to unscheduled work in the garages. In general unscheduled work is undertaken by the skilled workers and is estimated to account for 65 per cent of their workload. For semi-skilled and unskilled employees unscheduled work accounts for only 35 per cent of their time. Overall it is estimated that unscheduled work represents about 40 per cent of the total.

Workshops

6.19. The three centrally controlled workshops are located one in each division but they are not dedicated to any one division. They are controlled as a central unit and their facilities used to augment each other on an interchangeable basis. For obvious convenience much of the work in a workshop will be related to the vehicles allocated to the division in which it is located. Nevertheless, there is a certain degree of specialisation between them. The Walsall workshop, for example, does not undertake engine reconditioning but deals with all minority bus types for body repairs and unit (other than engine) reconditioning. The Coventry workshop only overhauls Gardner engines, other types going to the Birmingham workshop, which also overhauls Gardner engines.

6.20. The majority of work in the workshops is planned and covers the following:

(a) *Vehicle repairs*

Major bodywork repairs beyond the capability of the garages, as required prior to annual inspections, and as a result of defects found during periodic inspections of condition by central engineering staff; mid-life overhauls of vehicles to return them to good condition for the remainder of their service; repainting at three year intervals for appearance purposes; rebuilding vehicles which have suffered major collision damage.

(b) *Major units*

Annual overhaul programmes are prepared for major units such as engines, gear boxes and axles, subject to modification according to fluctuations in demand.

(c) *Units and components*

There is a wide range of items requiring refurbishing, repairing or reconditioning and these are programmed through the workshops on the basis of orders from the Supplies Department in accordance with stock requirements.

6.21. Major unit and component overhauls are generally carried out in the appropriate sections of each workshop specially laid out for effective operation and control. At times the programmed workload is changed in order to meet requirement priorities from the garages and the availability of materials and defective units requiring attention.

6.22. While most work is planned some unscheduled work does arise. This includes accident damage beyond the scope of the garages, seat repairs arising from vandalism—an increasing problem—and major body and chassis defects discovered during routine inspections and requiring emergency action. The last category also includes additional defects discovered on vehicles in the course of planned work at the workshops. Flexibility in the use of resources and special facilities are required in the workshops to enable planned and unscheduled work to be carried out in parallel.

Control of labour and costs

6.23. Within the garages direct manpower control is exercised by foremen who allocate tasks daily. Each garage has its own detailed organisation depending on the number of vehicles based there and the daily duration of traffic operations. As indicated earlier, various methods are used to record the allocation of labour and jobs performed, but all are under the direct control of the foremen and are designed to provide daily records of work done and by whom. Individual job sheets are submitted daily which are checked and certified by the appropriate foreman that the work has been carried out. For skilled labour used on scheduled work, a complete day's work is planned by the foreman. Similarly a series of jobs for unscheduled work is often allocated at the beginning of the day.

6.24. Labour control in the workshops is also the responsibility of the foremen, but here the programme of work can generally be planned in greater detail. Because most work is pre-planned the workload is usually known with a greater degree of precision. However, on major bodywork jobs man-hours used and an assessment of the proportion of the job completed are recorded daily.

6.25. A comprehensive budgetary control system has been introduced throughout WMPTE (see Chapter 2) which applies equally to the garages and workshops. This system covers the financial expenditure aspects of engineering operations as a broad cost control. At the time of our study the system was generally in its first year of operation and was not yet being used to the best effect by local management. Senior management expressed the view that it would probably be the third year of operation before the new system was fully effective.

6.26. Data contributing to cost control have been developed to a more formalised state over the last 18 months and are beginning to be analysed in a way which allows the costs of labour, at least, to be presented in a form useful to management. The development of the premium payment scheme discussed below should increase the availability of labour cost data.

6.27. The workshops collect data on a formalised basis for all major unit and component overhauls. In addition there is a facility to run a sample job costing exercise on any job for comparative purposes, for billing outside bodies or for estimating production programmes.

6.28. In a less formalised manner the garages record the usage of labour and parts against vehicles on individual vehicle history sheets. Major unit and component changes are also recorded in this way. The development of vehicle life costing systems is at present under consideration by the Executive, but we were told that individual vehicle costing records were not yet considered to be as worthwhile as cost records by vehicle type.

Manpower utilisation

6.29. The total engineering manual workforce in WMPTE is just over 2,000 of which nearly 800 are skilled and over 1,200 semi-skilled. A breakdown of this workforce by skill and location is given in Table 6.2. The figures relate to staff in post in mid-October 1981, but there has been no significant change since then. At that time the number of manual employees in the workshops was four below the budgeted level while the number in the garages was 38 over budget.

TABLE 6.2 WMPTE: Engineering workforce (staff in post 12 October 1981)

<i>Location</i>	<i>Foremen</i>	<i>Craft</i>	<i>Non-craft</i>	<i>Total manual employees</i>	<i>Manual employees per foreman</i>	<i>Non-craft per craft</i>
<i>Fleet maintenance</i>						
North Division	27	132	351	483	17.9	2.7
South Division	48	165	618	783	16.3	3.7
East Division	11	47	95	142	12.9	2.0
Total fleet	86	344	1,064	1,408	16.4	3.1
<i>Workshops</i>						
Walsall	9	133	40	173	19.2	0.3
Birmingham	16	254	118	372	23.3	0.5
Coventry	7	63	20	83	11.9	0.3
Total work-shops	32	450	178	628	19.6	0.4
Total WMPTE	118	794	1,242	2,036	17.2	1.6

Source: MMC study.

6.30. As can be seen from the table there are also 118 foremen giving an overall average of one foreman per 17.2 manual employees. This ratio varies between the divisions and the workshops and also between fleet operations and workshops. There is also wide variation in the ratio of craft to non-craft employees across the locations.

6.31. The most striking contrast between the fleet operations and workshops is in the proportion of craft to non-craft employees. This reflects the generally higher skill content of work undertaken in the workshops. There is a lower proportion of foremen in the workshops reflecting the higher proportion of craft employees therein and the higher proportion of planned and scheduled work as described earlier. The exception to this is the Coventry workshop

reflecting the smaller size of this workshop compared with the other two, but which nevertheless still has the same number of skilled trades represented and requiring supervision with an appropriate range of skills.

6.32. While there is considerable variation between the garages, all work some form of shift pattern depending, *inter alia*, on traffic operations and manpower availability. The predominant pattern is a day shift, evening shift and night shift with the last two being manned almost entirely by semi-skilled mechanics and cleaners.

6.33. As far as possible work is allocated to the day shift Monday to Friday since this attracts the minimum rates of payment. However, traffic requirements cause considerably more work to be carried out on evening and night shifts at some garages than in others. For example, some North Division garages have a very high level of off-peak services with a correspondingly low level of vehicles available for maintenance work during the day shift. Consequently some garages have a skilled fitter and a skilled electrician operating night shifts.

6.34. Overtime is tightly controlled and the level of garage manning has been determined with the express intention of minimising the need for overtime. Up until three years ago overtime was running at a very high level, up to 25 per cent for skilled workers. However, for the first half of 1981 overtime in the garages averaged about 11 per cent and was only a little higher than the minimum necessary to compensate for time lost due to absences (about 9 per cent).

6.35. The workshops all normally work days only on a five day week basis. Overtime and weekend working is sometimes needed when shortages of vehicles or major units occur. However, this is tightly controlled and for the first half of 1981 averaged 5 per cent, rather less than the time lost due to absences at 7 per cent.

Work measurement and productivity

6.36. As we described in Chapter 1, WMPTE developed to its present form between 1969 and 1974 by the absorption of a number of former municipal undertakings and the acquisition of part of the NBC Midland Red operation. The largest of the constituent undertakings was Birmingham City Transport, now comprising the bulk of South Division, which was also by far the most advanced in the development of work studied incentive payment schemes for its engineering work force. The introduction of these schemes started in 1962 and by 1969 covered most activities by work measurement standards.

6.37. Some difficulty was experienced with major accident repairs which often required 300 to 1,000 man-hours and with each job different from the last. Analytical estimating techniques were developed for this purpose by a process of refinement and monitoring over the years. Attempts were made to reduce the variance between estimated and actual times for such work to within plus or minus 5 per cent.

6.38. Over the seven year period Birmingham City Transport built up a substantial data bank of time standards for engineering work which, as we shall see, are still used. By 1969 the measurement techniques in use included direct time study, statistical analysis, rated activity sampling, analytical estimating and synthetic data drawn either from the data bank or other well recognised sources such as MTM.

6.39. While all but one of the other undertakings joining the PTE between 1969 and 1974 had some form of engineering incentive payment scheme, the schemes were generally considered by the new Executive to be far from satisfactory. In consequence it was decided to apply the Birmingham City Transport schemes and data to WMPTE as a whole. By mid-1974 some 93 per cent of the engineering work had been measured in one way or another and coverage was still being extended.

6.40. However, it was about this time that the newer bus types began to enter service in increasing numbers, changing the emphasis on some jobs and consequently creating trade union pressure on the validity of existing job times. Furthermore, outside the bus industry there was a move away from work-measured direct incentive schemes. In the West Midlands the influence of British Leyland and the adoption of measured day work in many plants such as Longbridge was particularly strong. WMPTE came under very strong trade union pressure to terminate direct incentive schemes. The craft unions in particular objected to any form of measurement, work recording or indeed any form of effective control. The result of this pressure was that the direct schemes were terminated and the management in practice lost much control over the output of the engineering workforce.

6.41. By 1978 the situation had deteriorated to an alarming extent and required drastic action to restore the position. In the autumn of that year the Executive formally established an investigative study group to review the position in conjunction with consultants. This group identified the shortfall in productivity as follows:

- (a) a significant increase in the number of vehicles *not* available for service;
- (b) an increase in bus 'down time' of almost 40 per cent;
- (c) an increase of over 45 per cent in the number of defects reported in service;
- (d) a reduction of over 20 per cent in the number of times garages met full service requirements;
- (e) bus throughput in works had fallen by about 45 per cent;
- (f) the level of overtime working had reached exceptionally high levels—25 per cent for craftsmen and 17.5 per cent for semi-skilled employees.

6.42. Overall the group concluded that if productivity in 1974 was taken as equal to 100, by 1978 it had fallen to 67. In the absence of effective management information and control the group reported that it was impossible to quantify the shortfall accurately, but that the 33 per cent was a minimum. The group also concluded that, failing any improvement in the productivity of the existing workforce, it would be necessary to increase manning levels

by 46 per cent to restore output to the 1974 level. On the 1978 actual manning level this would have resulted in an increase of 884 posts at a cost in excess of £5 million a year at 1981 prices.

6.43. Over the period 1974 to 1978 the Executive had been reorganising the management and supervisory structures of the former undertakings to bring them all on to a common WMPTE basis. Training was made available to help supervisors understand their new roles and to control the manual workforce effectively without work recording. Friction between supervisors and their staff was increasing and, although the restructuring and associated training sought to improve morale and motivation, the absence of control information restricted the ability of the supervisors to manage.

6.44. In October 1978 the Executive set an overall objective to increase engineering productive efficiency. This entailed overcoming serious industrial relations problems, increasing output and providing increased earnings potential for the engineering workforce. In particular the Executive sought to introduce more effective management controls based on sound information systems, and the generation of information which could provide a sound basis for production planning and control.

6.45. It was from this background that the present engineering premium payment scheme (EPPS) was developed. From the outset a number of constraints were agreed with the trade unions, for example the scheme would be a multi-skilled group scheme rather than individual; detailed measures of individual tasks within a job would not be required, nor would individuals be required to complete detailed work sheets. Other objectives included the establishment of equal earnings opportunity for all groups and stable earnings pattern within groups.

6.46. The EPPS was introduced on a phased programme, completed in May 1980. By March 1981 the scheme had secured a number of improvements of which the most notable were a 50 per cent reduction in overtime working, 20 per cent reduction in sickness absence and the avoidance of a major increase in manning levels. There has also been some improvement in industrial relations, particularly in resolving the problem of a fragmented bargaining structure.

6.47. However, the scheme does have a number of serious shortcomings. Productivity and control information have been improved, although both remain far from satisfactory. At present all employee groups covered by the scheme seem to have settled on maximum bonus (band 5) which represents a productivity level of 95 to 100.

6.48. Clearly this is not a true reflection of the actual performance being achieved. The Executive told us that the standards used are about 20 per cent slack, and stated that the current backlog of engineering work and the additional work arising from annual certifications could be absorbed by the existing workforce. While it is difficult to establish in the absence of adequate control information, it seems clear that at best overall engineering performance is no more than 70 to 75 on the BS scale; that is normal day work rate. To achieve this an 18 per cent bonus is being paid.

6.49. The Executive sought to negotiate an extension of the EPPS known as the Output Index Scheme as an alternative to placing work with outside contractors. In essence, in return for additional bonus payments, acceptance of this scheme would have improved management control and information, particularly in relation to time taken and time lost. The trade unions have so far rejected this proposal and resisted placing work outside but have agreed to some improvements in monitoring and control.

Maintenance facilities

6.50. The 24 garages vary considerably in size, type, number of pits available and in workshop facilities. Indeed only eight of them have separate or enclosed workshop areas. The garages are also used as secure parking areas for vehicles not on service operations, particularly overnight. The differences between the garages largely reflect the historical background of WMPTE and its constituent undertakings and the Executive has a number of proposals under consideration for improvements to the facilities.

6.51. The availability of suitable pit facilities has been one of the principal considerations when improvement programmes have been proposed in the past. One reason for this has been the increased size of modern buses referred to at the beginning of this chapter. Recently trials have taken place with high lift jacking equipment whereby the vehicle is raised up and then supported on pedestals. Initial trials took place at the Walsall workshops and demonstrated considerable advantages in relation to the longer duration under vehicle work. Subsequently, trials in garages have also proved successful and the system is being extended wherever roof height permits. Not only is access to the underside of the vehicle improved but capital costs reduced and flexibility in the use of the garage floor area increased.

6.52. Of the three workshops, Walsall is housed in the oldest buildings. A phased modernisation programme has been in progress at Walsall since 1978 and is now about 50 per cent complete, the latest stage being a large new paint shop designed for the needs of the North Division fleet on a three year cycle. The Birmingham workshop has had a smaller scale modernisation programme over the same period which is now substantially complete. The chassis repair pits have been replaced by high lift jacking equipment and the major projects still in progress or planning involve an engine test shop and the paint shop. The Coventry workshop is comparatively small but adequate for the use made of it. No major modernisation programme is planned because the facilities are generally good and the workshop is fairly modern—1966.

Vehicle fleet

6.53. In October 1981 WMPTE had a total operating fleet of 2,223 vehicles against a peak vehicle requirement of 1,894. Details of the fleet are given in Table 6.3. The 168 unlicensed vehicles are not included in the total since they are only held pending disposal. Over 90 per cent of the fleet comprises double-deck vehicles, all but a few of which are rear-engined. This balance reflects the intensive urban nature of operations in most of the WMPTE area.

Again some 90 per cent of the double-deck vehicles operated are fitted with Gardner engines, and the Executive is in the process of converting 170 Leyland engined Fleetline vehicles to Gardner engines. The operational fleet comprised four types of double-deck vehicle and one type of single-deck vehicle. Some other types are held for evaluation or other purposes.

6.54. The difference between the fleet size and the peak vehicle requirement represents the level of reserves held for engineering reasons plus a small element of contingency cover in case of sudden changes in service requirements. The Executive's policy is to control reserves held at garages to a nominal 15 per cent of the licensed fleet. In practice the level of reserves varies between the garages for a number of reasons discussed below. On average, however, the level of reserves are at or below this level in each of the divisions. In Table 6.3 we have expressed the reserves as a percentage of the peak vehicle requirement which seems to us to be a more significant measure. On this basis WMPTE has an overall reserve level of 17.4 per cent (14.8 per cent of licensed fleet) ranging in individual garages from 5.6 per cent to 33 per cent.

6.55. The pattern of services across the day is one factor affecting the level of reserves required, particularly where off-peak services are at nearly the same level as peak services. As mentioned earlier, this restricts the availability of vehicles for maintenance during the day. Some garages hold a high level of reserves on a pool basis to help other garages, Perry Barr for example (see Table 6.3). It must be stressed that the figures in the table represent the situation at a particular point in time and may change from week to week or even day to day. The fleet at any garage may be increased or reduced to meet short-term operational requirements or because of building work, for example.

6.56. Some maintenance work is undertaken on evening and night shifts, one reason for this being the need to keep the number of reserve vehicles required to a minimum. WMPTE has explored the relative economics of using expensive night shift labour, assuming adequate numbers with the right type of skills could be found to work such shifts, and have a higher or lower level of reserve vehicles. The Executive is generally satisfied that the present balance is near the optimum.

Performance

6.57. Thus far we have described the work undertaken, the physical and human resources available and the composition of the fleet. We now consider the achievements of the engineering function in relation to its primary objective of having the required number of vehicles available for service at the lowest level of cost.

6.58. The first point to consider is the meeting of the service requirement and in this respect performance appeared satisfactory. Over a four week period in late 1981, vehicles available for service averaged 99.3 per cent of traffic requirement. This high level of achievement reflects the pressure to maintain scheduled services and minimise lost mileage.

per cent in 1981 showing an improving trend in reliability. The number of breakdowns occurring in service has remained fairly constant but the incidence of tyre failures has reduced. Table 6.4 summarises breakdowns and tyre failures per 10,000 miles scheduled:

TABLE 6.4 WMPTE: Breakdowns and tyre failures per 10,000 miles

	1979	1980	1981
Breakdowns	9.24	9.10	9.29
Tyre failures	0.41	0.37	0.26

Source: MMC study.

6.60. All these measures provide an indication of performance against service requirements and show a generally improving trend. We also attempted to measure performance against planned output levels in a number of respects. In the garages this was rather difficult since much of the routine work such as fuelling, oiling, cleaning, etc is not amenable to such measurement. Furthermore, some 40 per cent of the work is unplanned. We therefore compared the number of annual overhauls completed with those planned for the first seven periods of the 1981-82 years.

TABLE 6.5 WMPTE: Annual overhauls planned and completed Periods 1-7 1981-82

Division	North	South	East	Total
Planned	363	448	134	945
Actual	331	333	111	775
Percentage complete	91.2	74.3	82.8	82.0

Source: MMC study.

In this respect it can be seen that the garages fell seriously short of target, particularly in South Division.

6.61. In contrast to the garages much of the work in workshops is programmed in advance and we were able to make comparison on a wider basis. The five categories of work we looked at with planned and achieved output for the first seven periods of 1981-82 are set out in Table 6.6 below:

TABLE 6.6 WMPTE: Planned maintenance performance—workshops, Periods 1-7 1981-82

	Paint & varnish	Body	Overheads		
			Engine	Gearbox	Rear axle
Walsall Plan	Not planned*	35	—	As required	
Actual	20	44	—	103	13
Birmingham Plan	120	34	144	480	124
Actual	118	23	128	556	133
Coventry Plan	25	25	25	75	25
Actual	27	6†	23	67	17

Source: MMC study.

* New paintshop development commenced in period 6.

† Body overhauls reduced to concentrate on repair works.

Again a number of shortfalls against plan are evident while in four cases plan was exceeded.

6.62 Before turning to overall maintenance costs particular mention is necessary of tyre maintenance costs. In common with most other bus undertakings WMPTE has a contract with one of the major tyre companies for the regular inspection, maintenance and replacement of tyres on its vehicles. The Executive subsequently received some reduction in the cost and is considering the possible benefits of undertaking its own tyre work. The results of another large operator's experience in buying and self-servicing tyres are awaited before any decision is taken.

6.63. In Table 6.7 below we set out maintenance costs in WMPTE for the last three years, expressed as pence per vehicle mile operated.

TABLE 6.7 WMPTE: Maintenance costs—pence per vehicle mile

	1979-80	1980-81	1981-82*
1. Fuel	5.85	8.12	8.09
2. Tyres	1.44	2.06	2.02
3. Servicing and maintenance	28.03	34.81	36.29
4. Total vehicle maintenance Items 2 and 3			
5. Total operating costs	29.47	36.87	38.31
6. Vehicle maintenance costs as percentage of total operating costs	108.3	130.7	138.3
	27.2%	28.2%	27.7%

Source: MMC study

* First seven periods only.

Note:
The servicing and maintenance costs in this table relate to public service vehicles only and have been calculated as far as possible on an identical basis for the four undertakings. They do not necessarily coincide with services and maintenance cost figures given in Chapter 2.

6.64. The table indicates some improvement in cost performance in 1981-82 in all respects. However, the figures for this year are averages for just over half the year whereas those for the earlier years are full year results. While this suggests a note of caution we have no reason to believe that the full year's figures will significantly alter the trend. How these costs compare with the other undertakings is considered at the end of this chapter.

Stock control and purchasing

6.65. The major stockholdings of spares and materials are located in centrally controlled stores at each of the three workshops. A computerised stock control and purchasing system has been in use for some years which was replaced by a new improved system in 1980. Although in three separate locations, for stock control and purchasing purposes the central stores are operated as one unit.

6.66. Apart from supplying the workshops to which they are attached, the central stores also service the requirements of the imprest stores at the garages. Generally each central store supplies the needs of garages in the division in which it is located, but this is a matter of convenience and does not indicate the store is dedicated solely to that division. For example, the Coventry store does not hold some slow moving items and draws on the Birmingham store when these are required.

6.67. The central stores were generally well laid out and controlled, but many of the garage imprest stores were poorly sited and inadequate. Garage

stores, with some exceptions in North Division, were unmanned and lack control. WMPTE is now conducting some experimental manning of imprest stores in an attempt to improve control without increasing manpower levels and costs. The average value of stocks held, annual stock turnover and stock turn for the last three years are summarised in Table 6.8 below.

TABLE 6.8 WMPTE: Stock performance

	Average stock value £	Stock turnover in year £	Stock turn
1978-79	2,296,339	5,302,400	2.3
1979-80	2,473,876	6,945,072	2.8
1980-81	3,090,345	7,923,191	2.6

Source: MMC study.

6.68. Because of its size and the central control of purchasing WMPTE has obtained a number of benefits in purchasing, particularly in terms of higher than normal discounts. Total annual expenditure on spares is now running at about £10 million. Less than half of this is now spent with the traditional main suppliers. The Executive has been actively exploring the benefits of purchasing from other sources and has been encouraging well managed suppliers new to the market. In addition the Executive is seeking to purchase direct from manufacturers and to rationalise requirements in order to achieve scale economies.

CCT

6.69. Maintenance operations in CCT are undertaken at two locations, the operating garage at Sloper Road and the central workshops at Roath, both under the control of the Chief Engineer. The split in activities between the two is very similar to that described for WMPTE with the garage responsible for routine day-to-day servicing and maintenance, inspections and some minor body repairs and unit replacements. The Roath Works undertakes all major work and overhauls including major accident repairs and repainting.

6.70. CCT had a total fleet of 213 vehicles (October 1981) of which 202 were normally used for stage carriage work. The peak vehicle requirement is 163 leaving 39 as reserves for engineering work or operating contingencies. This is summarised below:

Effective fleet	202
Peak vehicle requirement	163
Off-peak requirement	128
Reserve vehicles	39
Reserves as percentage of PVR	23.9%
Reserves as percentage of effective fleet	19.3%

6.71. At the garage vehicles are inspected on a weekly cycle with the fleet divided into ten groups of 19 to 23 vehicles. Every two weeks a more thorough inspection is made including rolling road brake tests and extensive mechanical, electrical and bodywork inspections.

6.72. Oil changes and lubrication are carried out on a planned cycle. Engine and gearbox oils are changed every ten weeks and rear axles every 25 weeks. An exception to this are the Leyland National vehicles (10 per cent of fleet) which have all oils changed every five weeks.

6.73. Apart from the routine cleaning, fuelling, lubrication and inspection of vehicles, the garage also undertakes repair and defect rectification work. By its very nature much of the latter work is unplanned, about 60 per cent, and includes the rectification of defects reported by drivers or found during inspections, breakdowns on the road and work carried out by road service fitters on the road to keep buses in service.

6.74. A considerable part of the planned workload at Roath Works will be the preparation of vehicles for annual inspections and certification (see paragraph 6.9). Given the relatively small size of the CCT fleet, the input of work to the works tends to be planned but not scheduled very far in advance. Work on major unit reconditioning and body rebuilds is reviewed at weekly progress meetings and is controlled by the foremen.

6.75. At present the works operates very much as an engineering jobbing shop with little formal planning and control. The Works Superintendent and his two senior foremen are relatively new to their jobs and have made a number of improvements in recent months. Further improvements in planning and control are being considered.

Control of labour and costs

6.76. Control of labour and output is exercised by the foremen, both at the garage and works. Job cards are prepared for each task and start and finish times are recorded on the cards. The time recorded is not regarded by management as an accurate reflection of time actually taken on a job, more as an indication of the time available.

6.77. Cost data are collected in total fleet terms although individual vehicle history cards are maintained which record work done and units changed. No attempt is made to calculate vehicle life cycle costs. CCT management is far from satisfied with the existing management control information in relation to engineering work and a new computer-based costing and information system is in the course of development in conjunction with the city council computer department. The new system, when fully operational in two years time, is expected by management to lead to significant improvements.

Manpower utilisation

6.78. CCT employs a total of 190 manual workers in the maintenance function including 15 apprentices. The breakdown is set out in Table 6.9. Associated directly with vehicle maintenance, CCT has 92 craftsmen, 79 non-craft and 15 apprentices.

6.79. The garage operates a three shift system—day, evening and night—while the workshop works day only. The garage night shift undertakes inspection, defect rectification and maintenance work. The workshop staff work overtime and weekends as necessary to clear backlogs on excess demands.

TABLE 6.9 CCT: Maintenance workforce October 1981

	Roath Works	Sloper Road Garage
Craft		
Vehicle	49	43
Other	4	—
Non-craft (vehicle)	18	61
Apprentices (vehicle)	15	—
Total	86	104

Source: MMC study.

6.80. CCT records and analyses overtime and absence on a different basis to WMPTE but, from the information provided, overtime working ranges from 15.1 per cent of basic hours for craftsmen to 13 per cent for unskilled workers. Rest days worked varied from week to week and during 1981–82 averaged 15.3 per cent of total basic days due. In the same period and on the same basis absences for all reasons, including holidays, averaged 20.6 per cent.

6.81. At present no form of work measurement or incentive scheme operates within the Engineering Department although many attempts have been made to introduce schemes in the past. An output bonus scheme, based on the number of buses available for service, was introduced at Sloper Road garage in 1969. Staff at Roath Works did not accept the scheme and did not participate. Since, at this time, Roath was also being used as an operating garage and there was a considerable overlap of work between the two establishments, the difference in payment systems caused a number of industrial relations difficulties.

6.82. Following a period of acute industrial unrest, including stoppages, a new agreement was reached in 1974 covering both locations. Among other things the agreement provided for a number of productivity and flexibility arrangements including:

- interchangeability between crafts;
- flexibility of hours;
- acceptance of new methods;
- acceptance of work study;
- operation of a job card system, including time recording (see paragraph 6.80).

In return for these concessions the output bonus was replaced by a 'local rate' currently paying about 31 per cent above the nationally agreed basic rate for maintenance workers in municipal undertakings.

6.83. In the event the gains in terms of improved productivity and flexibility have been no more than minimal and lines of demarcation persist in spite of further negotiating efforts in 1975 and 1976. One of the more important elements in the 1974 Agreement was the acceptance of work study, albeit with no commitment to accept the findings of any such studies. A study was undertaken by the City Council Management Services Unit in 1975 but completion of the study was accelerated and some aspects left uncovered. The

Unit's findings were not promulgated and it seems that, apart from some minor organisational changes, the recommendations made were not implemented.

6.84. The Unit also undertook an Organisation and Methods Study in 1977 on the management and structure of the Engineering Department. Again the findings were not promulgated and the result seems to have been much the same as for the earlier work study exercise.

6.85. A particular problem in CCT is the complete lack of flexibility and co-operation between skilled and semi-skilled employees, with trade union insistence on a clear and rigid demarcation between the two. The effect of this on management's ability to organise work effectively is considerable. As we have indicated in Chapter 4, industrial relations in the engineering function are far from satisfactory.

Maintenance facilities

6.86. The Sloper Road garage facilities were partially modernised and improved in 1979. The work included adding some 50 per cent to the covered accommodation, improved vehicle washing and fuelling facilities and improvements in welfare amenities. Plans exist for further substantial improvements and extensions to the maintenance and servicing facilities, but, due to financial constraints, it is not known when the work will proceed. The pit facilities are too short for modern vehicles and working conditions generally are cramped. The garage stores, being at first floor level, cause the inconvenience of having to carry material up and down stairs with the result that larger items are kept in the open shop.

6.87. No modernisation plans exist for the Roath Works and in any event no finance is available for implementing such plans. In general the facilities available are adequate, albeit cramped, particularly the pit areas. There are no test-bed facilities for engines or gearboxes and the machine shop and assembly areas are in need of attention.

Performance

6.88. Service requirements are normally met at morning turnout, indeed with a large reserve of vehicles available, conditions would have to be very bad for peak requirements not to be met for engineering reasons. Of the 39 reserve vehicles held above peak requirement only 32 are normally undergoing maintenance attention on any one day, leaving seven as contingency cover should a scheduled vehicle prove to be unserviceable at short notice or be late in completing planned maintenance work.

6.89. The percentage of scheduled mileage lost due to breakdown is very low although it has increased marginally prior to the current year as shown below.

	<i>Year to 30.4.79</i>	<i>30.4.80</i>	<i>30.4.81</i>	<i>3 months to 31.7.81</i>
Percentage scheduled mileage lost due to breakdown	0.12	0.12	0.14	0.03

6.90. Very little work at CCT is planned in a way that permits comparison with actual output on a vehicle or unit basis. Over 80 per cent of the present fleet is fitted with Gardner engines.

6.91. Maintenance cost performance in CCT for the last three complete years is summarised in Table 6.10 below.

TABLE 6.10 CCT: Maintenance costs—pence per vehicle mile

	1978-79	1979-80	1980-81
1. Fuel	4.79	6.75	9.90
2. Tyres	1.03	1.23	1.58
3. Service and maintenance	22.54	27.88	32.72
4. Total maintenance (2. + 3.)	23.57	29.11	34.30
5. Total operating costs	99.85	117.89	129.55
6. Maintenance as a percentage of operating costs (4. ÷ 5. × 100)	23.6%	24.7%	26.5%

Source: MMC study.

Note:

The servicing and maintenance costs in this table relate to public service vehicles only and have been calculated as far as possible on an identical basis for the four undertakings. They do not necessarily coincide with services and maintenance cost figures given in Chapter 2.

As can be seen, not only have maintenance costs per mile been increasing in absolute terms, they also represent an increasing proportion of total operating costs. This reflects the difficulties on control and manpower utilisation discussed earlier.

Stock control and purchasing

6.92. The main store is located at the Roath Works with a smaller store at Sloper Road. Both are well laid out and controlled although rather cramped. Sloper Road store has the additional disadvantage of being at first floor level. Stock control systems are in the process of change as part of the general move towards computerised systems referred to in paragraph 6.77. Meanwhile the present systems are adequate for the purpose. Stock performance is summarised in Table 6.11 below.

TABLE 6.11 CCT: Stock performance

	End of year stock value £	Stock turnover on year £	Stock turn
1978-79	278,340	215,304	0.77
1979-80	399,345	255,952	0.64
1980-81	395,619	474,521	1.20

Source: MMC study.

The rate of stock turn has improved although it remains slow. This improvement resulted from a very much higher rate of usage in 1980-81 and a reduction in the year end value of stock holdings.

6.93. Where possible CCT participates in bulk purchase arrangements with other departments of the City council and through the Welsh Purchasing Consortium. The majority of vehicle spares are purchased direct from Leyland

or Bristol Commercial Vehicles. Other components, such as engine and electrical spares, are purchased from the appropriate local agencies. In general CCT is satisfied that good terms and discounts are obtained, given the size of the undertaking.

6.94. While some new or reconditioned units are purchased on an exchange basis, most repair and reconditioning work is undertaken by CCT. Apart from trade union objections to placing work outside, internal reconditioning has been found to be more economic. A comparison of the costs of reconditioning gearboxes in 1980 indicated that CCT costs were less than half those charged by the manufacturer for reconditioning.

BOC

6.95. Maintenance operations in BOC are undertaken at 12 garages and one central workshop. The garages are divided between two areas, North (5) and South (7). Those in the North provide the mainly urban services in Bristol, Gloucester and Cheltenham, while those in the South provide mainly country services. Each area is controlled by an Area Engineer who reports to the Chief Engineer. The central workshop, located in Bristol, is controlled by a Works Manager also reporting to the Chief Engineer. Table 6.12 summarises the number of garages and vehicles in each area.

TABLE 6.12 BOC: Garages and vehicle fleet (October 1981)

<i>Area</i>	<i>Garages</i>	<i>Total vehicles</i>	<i>Peak requirement</i>	<i>Off-peak requirement</i>
North	5	399	327	246
South	7	369	303	234
Total	12	768	630	480

Source: MMC study.

6.96. The division of maintenance work between the garages and workshop follows the pattern already described. In the garages a programme of routine servicing and inspections is followed with, in addition, comprehensive annual services in preparation for the new annual inspections. The garages also undertake a variety of defect repairs and unit changes. In each area one garage has been designated as an area workshop and is capable of undertaking a wider range of work than normal.

6.97. Servicing schedules are based on the NBC recommended standards but subsidiary companies are responsible for modifying these in the light of local experience and fleet age and condition. Annual and biennial services involve the planned replacement of a number of safety, critical and other units. Experience in BOC has shown that not all the planned changes recommended by NBC are necessary and BOC estimates that its reduced programme saves about £47,000 a year compared with the NBC programme.

6.98. The workshop undertakes unit reconditioning on a planned basis in accordance with stores requirements. In addition it undertakes major vehicle repair and overhaul work beyond the capacity of the garages, and vehicle repainting on a three year cycle.

Control of labour and costs

6.99. Direct control of the engineering workforce is exercised by the foremen. Following termination of the maintenance incentive scheme in 1979 (see paragraph 6.106 below), employees do not record times on and off jobs and all recording of output is undertaken by the foremen. Performance is not calculated against any pre-determined standards.

6.100. An effective budgetary control system is operated with monitoring by garage and by sections within the central workshop. Information is largely collected in total fleet terms although spares are charged to individual vehicles. Vehicle life-cycle costs are not produced.

6.101. BOC does not contribute to the NBC vehicle maintenance costing system (VMC) described in Chapter 2. It does, however, use the data to plan, forecast and measure cost performance.

Manpower utilisation

6.102. The total engineering workforce in BOC was 735 at the end of 1981, but this level was being reduced following implementation of the results of the MAP exercises discussed elsewhere. Subject to agreement with the trade unions and final adjustments in the light of experience operating the new services, BOC plans to reduce the workforce to 667, including apprentices and 30 part-time bus cleaners but excluding foremen and chargehands. The proposed breakdown of the workforce is as follows:

TABLE 6.13 BOC: Maintenance workforce (proposed mid 1982)

	<i>Foremen</i>	<i>Chargehands</i>	<i>Craft</i>	<i>Non-craft (including part-time)</i>
Areas and garages	17	21	202	212
Workshop	12	7	178	27
Other*	4	4	1	47
Total	33	32	381	286
		Total craft and non-craft 667		

Source: MMC study.

* 'Other' includes stores, training school, property maintenance and light vehicle maintenance.

6.103. As can be seen the workforce directly engaged in bus maintenance and servicing is expected to comprise 29 foremen, 28 chargehands, 380 craft and 239 non-craft employees. Treating two part-time staff as one full-time equivalent, non-craft employees total 224. The planned workforce represents a 24 per cent reduction on the numbers employed prior to the MAP exercises in August 1980.

6.104. Shift working patterns are also being revised following implementation of MAP. The new pattern will be a basic day shift in all garages and the workshop, an evening shift in all garages and a night shift in the three City of Bristol garages only. The intention is that the bulk of the work will be undertaken on the day shift.

6.105. Until late 1979 engineering employees in BOC were subject to incentive payment schemes. Bonus earnings were based on performance assessed against work study and MTM time standards. However, the schemes were found to be generally unsatisfactory and gave rise to a number of problems. Much supervisory time was spent negotiating time values for particular jobs rather than supervising and work quality suffered. Furthermore, problems arose over the reduction in the pay differential between supervisor and supervised.

6.106. The incentive schemes were therefore terminated and a new Flexibility Agreement was signed in November 1979. Among other things, the new agreement provided for the consolidation of bonus earnings in basic pay in return for increased flexibility in working practices. For example, specified tasks could be undertaken by craftsmen of more than one trade.

6.107. In the light of experience since 1979, BOC management is generally satisfied with the working of the new agreement and sees it as a considerable improvement on the previous arrangements. With no standards against which to assess performance, much depends on the effectiveness of supervision in controlling work output. In BOC this appeared to be very effective.

Maintenance facilities

6.108. As might be expected, the facilities available in the 12 garages vary. Most are housed in old buildings and difficulties are experienced in dealing with modern, larger vehicles. For example, BOC, following NBC recommendations, aims to have pit facilities in the ratio of one pit to ten buses. While it does have this number, many of the pits are too short, or too close together to be used in this ratio.

6.109. In general garage facilities are adequate but some of the older garages would undoubtedly benefit from modernisation. A number also show signs of deterioration in the fabric of the building, particularly the roofing. Both in regard to modernisation and building repair, limitations on capital expenditure have delayed progress.

6.110. The central workshop is generally well laid out, equipped and maintained. However, here too difficulties are experienced in relation to pit size and spacing. Particular problems are encountered dealing with vehicles with horizontally mounted underfloor engines due to lack of space. Plans exist to extend the workshop in this area, but implementation has been delayed for financial reasons.

Vehicle fleet

6.111. As shown in Table 6.12, BOC has a total operating fleet of 768 vehicles. This total includes 291 double-deck vehicles (all but 64 suitable for OMO) and 477 single-deck (all suitable for OMO). At any one time a number of vehicles are held by BOC either awaiting disposal or undergoing work on behalf of another NBC company. These have not been included in the operating total above, but they do have a significant effect on the workload

of the engineering workforce. For example, at the time of our detailed study (30 October 1981) BOC held a total of 207 vehicles over and above the required operating fleet as follows:

Open top, summer use only	7
Reserve dual purpose vehicles	3
Awaiting transfer within NBC	42
Awaiting disposal	155
	<hr/>
	207
	<hr/>

6.112. It should also be noted that the operating fleet of 768 vehicles represents the level prior to final implementation of MAP. Post-MAP the operating fleet is planned to comprise 709 vehicles.

6.113. Against an October 1981 peak vehicle requirement of 630 vehicles BOC has a reserve of 138 or 21.9 per cent of peak requirement. There is very little variation between the garages in the level of reserves held with the highest at 22.95 per cent and the lowest at 20.0 per cent. The average level matches very closely the level recommended by NBC to all its subsidiaries, that is 22 per cent of peak requirement.

6.114. On average across BOC, off-peak services require 76.2 per cent of the peak requirement. While this does vary between the garages, from 64.3 per cent to as high as 92.0 per cent, it has little effect on the level of reserve vehicles held by each garage.

6.115. When considering the adequacy or otherwise of vehicle reserve levels it is necessary to examine engineering requirements. Based on a sample of Daily Vehicle Disposition returns the following emerges:

Total operating fleet	768
Peak vehicle requirement	630
	<hr/>
Reserves	138
	<hr/>
of which—docked in garages	37
under repair	88
under modification	3
accident repairs	6
	<hr/>
Total receiving engineering attention	134
	<hr/>

It can be seen from this analysis that on average only four vehicles are available to provide contingency cover for services across 12 garages.

6.116. Apart from five Metro buses purchased in 1980 as part of an NBC evaluation study, the BOC fleet consists entirely of Leyland vehicles (including Bristol and Daimler marques). However, some 25 per cent of the fleet has been fitted with Gardner engines.

Performance

6.117. While we have not seen any data relating to the average availability of vehicles for service at morning turnout, we understand that requirements are normally met.

6.118. The percentage of scheduled mileage lost due to breakdowns is very low as shown below.

	1979	1980	1981 (10 periods only)
Percentage scheduled mileage lost due to breakdown	0.21	0.28	0.06

For comparison in the first 10 periods of 1980 breakdowns resulted in loss of 0.33 per cent of scheduled mileage. It appears therefore that a considerable improvement has been achieved in reliability in 1981. This is confirmed by the reduction in the number of breakdowns and tyre failures in the same period.

	1979 Full year	1980 Full year	1980 10 periods	1981 10 periods
Breakdowns	2,268	1,474	1,200	674
Tyre failures	368	339	269	192

6.119. Performance in the garages fell short of planned output in a number of respects over one sample period we examined. However, this does reflect the changing priorities at garage level and the need to meet service requirements before planned maintenance programmes. The following data summarise performance in eight garages over a four week period.

	Planned	Actual	Percentage of Plan
'A' service	1,205	817	67.8
Safety service	273	254	93.0
Intermediate service	94	96	102.1
Annual service	26	24	92.3
Biennial service	17	13	76.5
Repaints	7	7	100.0

The 'A' service (every 7 to 10 days) and the safety service (every 4 weeks) are primarily inspection checks with defect rectification as necessary. The intermediate service is undertaken every 3 to 4 months and includes changing certain oils and filters, while the annual and biennial services involve comprehensive overhauls and servicing.

6.120. Maintenance cost performance in BOC for the last two complete years and the first 10 periods of 1981 are summarised below.

TABLE 6.14 BOC: Maintenance costs—pence per vehicle mile

	1979	1980	1981 (10 periods only)
1. Fuel	4.25	6.16	6.74
2. Tyres	1.09	1.32	1.47
3. Servicing and maintenance	19.44	22.02	23.75
4. Total maintenance (2 + 3)	20.53	23.34	25.22
5. Total operating costs	79.35	98.79	111.43
6. Maintenance as a percentage of operating costs	25.9%	23.6%	22.6%

Source: MMC study.

Note: The servicing and maintenance costs in this table relate to public service vehicles only and have been calculated as far as possible on an identical basis for the four undertakings. They do not necessarily coincide with services and maintenance cost figures given in Chapter 2.

While increasing in money terms, maintenance costs have fallen as a percentage of total operating costs.

Stock control and purchasing

6.121. The main store is located at the central workshop while 10 of the 12 garages have local stores, all supplied from the central store. The stock control system was transferred to computer in 1976 and covers all stock items except reconditioned units. These are now being added to the system.

6.122. While the control system is both simple and effective some shortages do arise, due to difficulties in obtaining parts from certain suppliers. This does result in some vehicles being kept off the road awaiting components and, while most are cleared quickly, at the time of our study 11 vehicles had been waiting over one month.

6.123. As part of NBC the company takes full advantage of the purchasing contracts negotiated by the parent company. These contracts cover the most frequently used items while the balance is covered by local purchase arrangements. Reconditioning work on major units is generally undertaken by the BOC workshop since this has proved to be about 25 per cent less costly than putting the work out to contract.

6.124. The end of year stock value, the value of stock used in the year and stock turn for the last five years is set out in Table 6.15.

TABLE 6.15 BOC: Stock performance

	<i>End of year stock value £</i>	<i>Stock turnover in year £</i>	<i>Stock turn</i>
1977	670,848	1,087,216	1.62
1978	736,306	1,314,195	1.78
1979	854,076	1,626,247	1.90
1980	977,320	2,095,665	2.14
1981	880,412	2,345,211	2.66

Source: MMC study.

The effectiveness of the stock control system is demonstrated by the steady increase in the rate of stock turn.

TMT

6.125. The organisation of vehicle maintenance in TMT is very similar to that of BOC and indeed follows the general pattern for NBC companies. TMT has one central workshop and 15 operating garages divided between two areas—Eastern and Western. The division of maintenance work between the workshop and garages is very similar to the other undertakings.

6.126. In October 1981 TMT had a total operating fleet of 356 stage carriage vehicles of which 120 were double-deck vehicles—94 suitable for OMO. The peak vehicle requirement is 282 and off-peak requirement is 251. In addition TMT has 19 coaches used on express services and outside the scope of this

reference. Unlike BOC, TMT only has a small number of vehicles not included in the operating fleet. At the end of October 1981 there were 26 comprising eight newly delivered vehicles not yet ready for service, six used for training purposes and 12 awaiting disposal.

Control of labour and costs

6.127. As in the other undertakings, direct control of labour is exercised by the foremen and, as in BOC, the workforce do not book on and off jobs, all control and recording of output being undertaken by foremen.

6.128. A budgetary control system is in operation with all expenditure controlled against detailed budgets and monitored at four weekly intervals. TMT is one of eight NBC subsidiaries contributing to the VMC system (see Chapter 2). Comprehensive data on maintenance costs are collected and used in the preparation of budgets and forecasts.

Manpower utilisation

6.129. TMT employs a total of 305 manual workers in the maintenance function and 18 foremen. Details are set out below in Table 6.16.

TABLE 6.16 TMT: Maintenance workforce October 1981

	<i>Foremen</i>	<i>Craft</i>	<i>Non-craft</i>	<i>Total manual employees</i>
Garages	14	75	133	208
Workshop	4	68	29	97
Totals	18	143	162	305

The supervisor and craft to non-craft ratios are as follows:

	<i>Garages</i>	<i>Workshop</i>	<i>Average</i>
Employees per Foreman	14.9	24.3	16.9
Non-craft per craft	1.8	0.4	1.1

Source: MMC study.

6.130. In the garages a three-shift system is generally operated with an early morning shift starting at least half an hour before the first traffic requirement, a main day shift and an evening shift ending about half an hour after the last traffic requirement. TMT policy is to avoid the use of night shifts wherever possible. However, in certain garages the evening shift is extended to become a night shift due to the particular traffic pattern operated. Where this is so the night shift is restricted to non-craft employees and covers fuelling, cleaning and minor repairs only. The workshop has a day shift only.

6.131. As in BOC incentive schemes were in operation for maintenance employees up until late 1979. For exactly the same reasons the schemes were terminated and replaced by a flexibility agreement with very similar terms. In TMT the Agreement was signed in October 1979. Again in TMT the management have been generally satisfied with the results of the new agreement.

6.132. Overtime working is generally controlled at a moderate level and for the first nine periods of 1981 averaged 7.4 per cent for craft and 6.3 per cent for non-craft employees. A comparison of overtime and hours lost for all reasons over this period is set out below:

TABLE 6.17 TMT overtime and lost time (1981 nine periods only)

	<i>Garages</i>		<i>Workshop</i>		<i>Total</i>	
	<i>Craft</i> %	<i>Non-craft</i> %	<i>Craft</i> %	<i>Non-craft</i> %	<i>Craft</i> %	<i>Non-craft</i> %
Overtime	11.8	7.8	2.5	2.1	7.4	6.3
Hours lost (all reasons)	16.8	22.5	14.9	21.1	15.9	22.2

Source: MMC study.

The major part of time lost is due to holidays, 11.5 per cent overall for craft and 14.1 per cent for non-craft employees.

Vehicle fleet

6.133. As indicated in paragraph 6.126, the TMT stage carriage fleet at the end of October 1981 consisted of 356 vehicles, about two-thirds of which were single-deck vehicles reflecting the non-urban nature of most services. With a peak vehicle requirement of 282 vehicles, TMT had 74 reserve vehicles or 26.2 per cent of the peak requirement, some four percentage points higher than the NBC recommended level. However, by the end of December 1981 reserves had reduced to 70 vehicles (24.1 per cent).

6.134. The level of reserves, unlike BOC, varied widely across the 15 garages with two having none at all and two having a level of 40 per cent or more. The generally high level of reserves for TMT as a whole was largely explained by the high level of off-peak services relative to the peak, 89 per cent on average. At individual garages off-peak requirements ranged from 80 per cent to 100 per cent off-peak leaving few, if any, vehicles available for maintenance attention during the day between peaks.

6.135. Certain garages within TMT, such as Derby with a reserve level of 42.1 per cent, in effect hold a reserve pool for other garages, supplying vehicles as required to replace those out of service for any reason. Although high in percentage terms the reserve at Derby is actually only 16 vehicles on a peak requirement of 38. TMT told us that it is taking action to reduce the overall level of reserves to 20 per cent by 1985.

6.136. In common with BOC the fleet consists almost entirely of Leyland vehicles (including Bristol and Daimler) most of which are fitted with Leyland engines. During early 1981 the fleet contained 125 double-deck vehicles of which 109 were Bristol VRT series SL1, 2 or 3 vehicles. Of these 76 were fitted with Gardner engines and 33 with Leyland engines. The 33 Leyland engined vehicles were found to require considerably more time off the road under maintenance than those fitted with Gardner engines. TMT therefore undertook a study using maintenance cost data collected over a twelve month period to assess the relative maintenance and operating costs of the two types of engine. The study also assessed cost benefits of converting the 33 Leyland

engined vehicles to Gardner, using reconditioned engines taken from surplus Daimler Fleetline vehicles.

6.137. Using VMC data, it was shown that the annual maintenance costs of the Gardner engined vehicles were, on average, just over half those of the Leyland types—£3,059 compared with £6,043. Engine life was over double and gearbox life about one and a half times as long with Gardner engines, while fuel costs were about £550 a year lower.

6.138. Against this TMT calculated that the cost of converting the Leyland engined vehicles to Gardner would be £1,895 including labour, materials and a notional charge at current market rates for second-hand Gardner engines. Assuming a sale value of £900 for the surplus Leyland engines and the annual maintenance and fuel cost savings noted above, the cost of conversion would be paid for in the first five months. Thereafter, annual savings would be over £3,500 per vehicle. The proposed conversions are in the course of being carried out.

6.139. Consideration was also given to converting Leyland National single-deck vehicles to Gardner engines; indeed one NBC company had undertaken an experiment. However, due to difficulties arising from the body configuration and engine fit, the cost of this conversion was likely to be excessive at over £5,000 per vehicle. We understand from NBC that Leyland agreed to modify the National body design and that new vehicles will be available from late 1982 with the option of a Gardner engine already fitted.

6.140. Given the experience of TMT with the Bristol VRT vehicles we were interested to establish why a higher proportion of NBC company vehicles were not fitted with Gardner engines. Both WMPTE and CCT have a high proportion of their vehicles so fitted. It was put to us that production of Gardner engines has always been limited and it has only been recently, with the fall in demand for new vehicles, that sufficient Gardner engines have become available. NBC told us that it has always been its policy to specify Gardner engines for new vehicles wherever possible and that it will continue to do so in future.

Maintenance facilities

6.141. With 15 garages of varying ages, including some inherited from absorbed undertakings, TMT has many of the same problems as BOC, particularly in relation to pits. However, the buildings and roofing were generally in better condition. Equipment was generally good and while some expenditure on modernisation would be beneficial, it was not of critical importance.

6.142. The central workshop was in good condition, well laid out, equipped and maintained. Some congestion was caused in the pit areas due to the size of modern buses but not to a serious extent. TMT engineers had developed a metal spraying technique whereby worn components could be refurbished and re-used rather than scrapped. In use for about 18 months the technique was recently the subject of an energy conservation award.

Performance

6.143. As in the other undertakings TMT generally achieves the full turnout of vehicles required for service, giving this aspect priority over routine or planned maintenance needs, but subject always to safety considerations. Over the last three years there has been a reduction in the percentage of scheduled mileage lost due to engineering reasons, including breakdown.

TABLE 6.18 TMT: Scheduled mileage lost for engineering reasons

Year/Period	4	7	9	10	13
	%	%	%	%	%
1979	0.36	0.42	0.47	0.47	0.46
1980	0.20	0.19	0.20	0.20	0.32
1981	0.19	0.08	0.07	0.06	—

Source: MMC study.

6.144. The incidence of breakdowns in service and of tyre failures over the last three years has remained stable at a very low level—0.2 and 0.07 per 10,000 miles operated respectively. The number of changeovers in service required has, however, increased from 1.8 to 2.8 per 10,000 miles operated.

6.145. Changeovers do not necessarily mean that a vehicle has failed in any way, merely that for one reason or another a vehicle operating a particular service has been changed in the course of the day. In TMT as mentioned earlier, off-peak services are very close to peak services and the gap has been reducing over the years. Because of this a vehicle undergoing maintenance at the beginning of the day is often sent out on service, as soon as it is ready, to relieve another so that the second vehicle can return to the garage for planned maintenance. This method of working helps to reduce the level of reserve vehicles required and secures a high level of vehicle utilisation.

6.146. Maintenance cost performance in TMT for the last three years is summarised in Table 6.19. The data represents the average for 36 weeks in each year only.

TABLE 6.19 TMT: Maintenance costs—pence per vehicle mile

	1979	1980	1981
1. Fuel	4.22	6.48	7.49
2. Tyres	1.01	1.51	1.60
3. Servicing and maintenance	14.07	17.67	19.63
4. Total maintenance (2+3)	15.08	19.18	21.23
5. Total operating costs	70.66	85.09	94.44
6. Maintenance as a percentage of operating costs (4. ÷ 5. × 100)	21.3%	22.5%	22.5%

Source: MMC study.

Note:

The servicing and maintenance costs in this table relate to public service vehicles only and have been calculated as far as possible on an identical basis for the four undertakings. They do not necessarily coincide with services and maintenance cost figures given in Chapter 2.

Stock control and purchasing

6.147. As in the other undertakings the main store is located at the workshop with imprest stores at most of the garages. Three of the garages hold larger than usual stocks in order to act as intermediate distributors to the

smaller garages. The stock control system is at present manual and, although effective, has reached the limits of development. Consideration is now being given to a computerised system. Central works and major garage stores are under continuous storekeeper control.

6.148. For purchasing TMT again participates in the NBC arrangements for most items, with some local purchasing for a limited range of slow moving items.

6.149. Stock values, turnover and stock turn for the last five years are shown in Table 6.20 below:

TABLE 6.20 TMT: Stock performance

	<i>End of year stock value</i> £	<i>Stock turnover in year</i> £	<i>Stock turn</i>
1977	363,352	826,225	2.27
1978	476,115	932,596	1.96
1979	452,438	1,066,446	2.36
1980	506,081	1,312,022	2.59
1981	373,095	1,144,106	3.07

Source: MMC study.

As with BOC the rate of stock turn has increased.

Comparisons

6.150. A range of statistics we consider relevant to the maintenance activities of the four undertakings are set out in Table 6.22. Quite apart from the obvious differences in fleet size there are a number of other differences in the characteristics and problems of the undertakings which have been discussed elsewhere in this report. The two most relevant factors to our consideration of maintenance efficiency are the geographical size and dispersion of the area covered, and the balance of urban and non-urban services.

6.151. Both BOC and TMT cover very large areas, much of which is sparsely populated, and this is reflected in the comparatively high average annual mileage per vehicle in the two undertakings. However, some 60 per cent of BOC's services are urban, particularly in the City of Bristol, hence the lower average mileage compared with TMT. WMPTE also covers quite a large area but this is predominantly urban and is reflected in the large fleet size and comparatively low average annual mileage. CCT covers a relatively small, almost entirely urban area.

6.152. These factors are also reflected in the number of garages and workshops operated.

TABLE 6.21 Garages and workshops (October 1981)

	<i>WMPTE</i>	<i>CCT</i>	<i>BOC</i>	<i>TMT</i>
Number of garages	24	1	12	15
Number of workshops	3	1	1	1
Average number of vehicles per garage	92.6	202	64	23.7
Average number of manual employees per garage	58.7	104	34.5	13.9

Source: MMC study.

6.153. The large, sparsely populated nature of much of TMT's operating territory is reflected in the small average size of its garages. Although geographically BOC's territory is similar in size to TMT some 36 per cent of the fleet is concentrated on three garages in the City of Bristol with an average of 92 vehicles per garage, nearly the same as the WMPTE average. CCT only requires one garage because of the concentrated nature of the area served whereas WMPTE, operating intensive urban services across a large area, requires 24.

TABLE 6.22 Comparative statistics

(This table summarises data from the preceding tables in this chapter in respect of the undertakings separately. The data all relate to 1981, either at a point in time or averaged over a period as appropriate.)

	<i>WMPTE</i>	<i>CCT</i>	<i>BOC</i>	<i>TMT</i>
Total fleet	2,223	202	768	356 + 19 coaches
Peak vehicle requirement	1,894	163	630	282
Off-peak requirement	1,108	128	480	251
Off-peak as % of peak	58.5%	78.5%	76.2%	89.0%
Average annual mileage per vehicle	28,700	28,560	34,000	43,000
Vehicle reserves:				
as per cent PVR	17.4%	23.9%	21.9%	26.2%
as per cent total	14.8%	19.3%	18.0%	20.8%
number of double-deck	2,011	180	291	120
Number of single-deck	212	22	477	236 + 19 coaches
<i>Manual workforce</i>				
Garages — Craft	344	43	202	75
— Non-craft	1,064	61	212	133
— Total	1,408	104	414	208
Workshops — Craft	450	49	178	68
— Non-craft	178	18	27	29
— Total	628	67	205	97
Totals — Craft	794	92	380	143
— Non-craft	1,242	79	239	162
Grand total	2,036	171	619	305
Rates craft: Non-craft	1:1.56	1:0.87	1:0.63	1:1.13
Maintenance manpower per vehicle				
Garages — Craft	0.15	0.22	0.26	0.20
— Non-craft	0.48	0.30	0.28	0.36
— Total	0.63	0.52	0.54	0.56
Workshops — Craft	0.20	0.24	0.23	0.18
— Non-craft	0.08	0.09	0.04	0.08
— Total	0.28	0.33	0.27	0.26
Totals — Craft	0.36	0.46	0.49	0.39
— Non-craft	0.56	0.39	0.31	0.44
Grand total	0.92	0.85	0.80	0.82
Maintenance costs pence per vehicle mile				
— Tyres	2.02	1.58	1.47	1.60
— Servicing and maintenance	36.29	32.72	23.75	19.63
Maintenance costs as per cent total operating costs	27.7%	26.5%	22.6%	21.3%
Percentage scheduled mileage lost due to breakdown	0.22%	0.03%	0.07%	0.04%
Percentage of fleet with Gardner engines	80.0% +	80.0%	25.3%	Under 40%
Stock turn (latest year)	2.6	1.2	2.7	3.1

Source: MMC study.

Vehicle reserves

6.154. As can be seen from Table 6.22, there is considerable variation in the level of reserve vehicles held by the undertakings. WMPTE has by far the lowest level but this is matched by the lowest level of off-peak services compared with peak requirements, thereby releasing a larger proportion of vehicles for some maintenance work during the day, compared with the other undertakings. TMT has both the highest level of reserves (above the NBC target level) and the highest level of off-peak services.

Fleet mix

6.155. While we have shown the balance of the four fleets in terms of single- and double-deck vehicles, we do not consider that this has any significant effect upon maintenance costs and efficiency. The fleet mix is more a reflection of the nature of the area served and patronage levels.

Manpower

6.156. With regard to manpower levels WMPTE has both the highest proportion of non-craft to craft employees and the highest number of maintenance employees per vehicle operated. BOC has the lowest proportion of non-craft employees while TMT has the lowest number of maintenance employees per vehicle operated. We do not believe there is any significant connection between the ratio of craft to non-craft and the total number employed, although WMPTE does believe that its manning levels might be somewhat lower if a higher proportion of craft employees was available. The balance of craft to non-craft employees appears to be more a reflection of working practices and traditions in the areas generally, for example, the widespread use of semi-skilled labour in the West Midlands motor industry.

Costs and performance

6.157. It is apparent from Table 6.22 that there are wide variations between the undertakings in costs and performance. The most significant indicator of performance we have available on a common basis is scheduled mileage lost due to breakdown. While in absolute terms the level is very low in all four undertakings it can be seen that the percentage in WMPTE is over seven times that of CCT, five times that of TMT and three times that of BOC. In part this reflects more difficult operating conditions in WMPTE but we do not believe this to be the only reason: the problems of control and productivity discussed earlier also contribute.

6.158. As we discussed in relation to TMT earlier in this chapter, there is strong evidence that the maintenance and running costs of vehicles fitted with Gardner engines are substantially lower than those fitted with Leyland engines. It is for this reason that we have indicated the proportion of the respective fleets fitted with Gardner engines. Both NBC companies have a relatively small proportion of their fleets fitted with such engines while over 80 per cent of the WMPTE fleet is so fitted. CCT also has over 80 per cent of its fleet fitted with these engines. It should also be added that the main reason why maintenance costs are lower on Gardner engines is that they are more reliable and need less attention.

6.159. After making allowances for differences in operating conditions, but taking account of the relative incidence of Gardner engines, servicing and maintenance costs in WMPTE appear to be very high. This applies both in absolute terms and when such costs are expressed as a percentage of total operating costs. On both counts TMT has the lowest level but it also has the easiest operating conditions with long routes, infrequent stops and generally easier traffic conditions. It is not reasonable therefore to compare WMPTE with TMT.

6.160. However, CCT has significantly lower costs than WMPTE in very similar operating conditions. BOC, where costs are even lower, also operates some 60 per cent of its services in similar conditions. Indeed, during peak periods traffic congestion in Bristol appeared to be worse than either Cardiff or much of Birmingham and the West Midlands area.

Stock performance

6.161. CCT has by far the lowest rate of stock turn which, in part, reflects the comparatively small size of the undertaking. However, TMT is the next smallest in terms of fleet size and has the highest rate of stock turn of the four undertakings. Both CCT and TMT rely on manual stock control systems while WMPTE and BOC use computer systems.

Conclusions

6.162. In all four undertakings engineering maintenance of vehicles takes place at two levels. Routine servicing and maintenance, including limited repair work and unit changes are dealt with at from one to 24 operating garages. Major repair work, vehicle overhauls and unit and component reconditioning are undertaken at central workshops. This represents a logical and efficient separation of routine and specialised work.

6.163. In CCT and the two NBC companies all maintenance activities are directly controlled by the Chief Engineer. In WMPTE a recent managerial reorganisation has placed maintenance work at the garages under the control of operations management leaving only the central workshops under the direct control of engineering management, who also retain overall responsibility for technical standards and quality. It is too early to assess the effectiveness of the WMPTE approach.

6.164. The undertakings all operate time-based vehicle inspection and servicing programmes at the garages, but, subject to safety considerations, give priority to having the required number of vehicles available for service. This may result in some deviation from the planned programme. Planned work in the garages represents about 40 per cent of the total workload, the balance being defect rectification and repairs.

6.165. With the exception of CCT much of the work in the central workshops is pre-planned in accordance with vehicle and stores requirements. WMPTE, with a formal production control activity, plans the majority of work in its three workshops. However, performance against plan is very vari-

able. Both NBC companies had some weaknesses in production planning in their workshops. We recommend that all four undertakings take steps to strengthen and improve production planning and control in their workshops.

6.166. Only WMPTE operates a premium payment scheme related to the performance of its engineering workforce. This scheme, the EPPS, was successful in helping to overcome very serious shortfalls in performance in 1978 and to restore output to nearer the 1974 levels. However, the EPPS is deficient in a number of important respects. Attempts to negotiate an improvement on EPPS using a supplementary output index scheme have so far failed. We recommend that in accordance with the terms of the EPPS agreement WMPTE gives notice of intention to terminate the scheme and seeks to negotiate more satisfactory arrangements, paying particular attention to the need for work recording and control information.

6.167. In spite of currently paying 31 per cent above the national basic rate CCT has not yet made effective use of the productivity and flexibility provisions of the 1974 agreement. Given the present inadequate level of management control information we recommend that CCT takes steps to secure accurate work time recording on job cards and introduces work study techniques to provide standards for planning and control in the engineering workshop.

6.168. Both BOC and TMT terminated incentive payment schemes in 1979, replacing them by very similar flexibility agreements. These agreements have worked generally satisfactorily in practice subject to our conclusion on the TMT local supplementary rates (see Chapter 4).

6.169. Vehicle reserve levels in WMPTE and BOC are appropriate to the nature of operations in the two undertakings. However, the level of reserves in CCT and TMT is high. TMT is taking steps to reduce the level, but CCT with an average of six vehicles daily (3.7 per cent of PVR) available for contingencies is taking no such action. We recommend that CCT re-examines its reserve vehicle requirements.

6.170. Servicing and maintenance costs per vehicle mile are significantly higher in WMPTE than in the other undertakings, nearly double those in TMT and 20 per cent higher than CCT, the next highest. While substantial differences in operating conditions and average vehicle speeds will account for some of the gap between WMPTE and TMT, this is not the case in relation to WMPTE and CCT. In BOC, where such costs are less than two-thirds those of WMPTE, some 60 per cent of operations are in similar urban conditions. We conclude therefore that the high level of servicing and maintenance costs in WMPTE are attributable in no small part to weaknesses in planning, control and labour utilisation. A reduction of such costs to the CCT level would reduce total costs by £2.5 million in a full year, and to the BOC level by £8.7 million.

6.171. In spite of higher maintenance costs WMPTE also has the highest percentage of scheduled mileage lost due to breakdown, nearly seven times

that in CCT and three times and five times respectively the levels in BOC and TMT. However, the absolute level is very low in all four ranging from 0.03 per cent to 0.22 per cent.

6.172. Stock control systems and stock levels are satisfactory in three of the undertakings. However, in CCT the annual rate of stock turn is less than half that of the other three indicating scope for a reduction in the value of holdings. Some progress has been made in this direction over the last year. To achieve the same rate of stock turn as the others, the year end value of stocks in CCT in 1980-81 should have been reduced by about £200,000.

CHAPTER 7

Non-manual and administrative staff

7.1. In the previous chapters we have examined the activities which absorb over 90 per cent of the manual workforce in the four undertakings, namely traffic operations and vehicle maintenance. In our discussion of traffic operations we examined the role of the inspectorate and in the last chapter we referred to the activities of the engineering foremen, both groups forming part of the non-manual staff in the undertakings. We now examine the activities of non-manual and administrative staff in more detail.

7.2. The broad category of non-manual and administrative staff is used in this context to cover a wide variety of staff ranging from the most junior clerical and typing staff to the most senior management. It includes foremen and other supervisors, professional staff such as engineers and accountants, management services and market research staff and so on.

7.3. Each of the four undertakings has three main functional activities—traffic, engineering and finance—all of which require considerable input from non-manual staff. The extent to which other functions or activities are provided by in-house staff varies between the undertakings with WMPTE being the most self-sufficient. Depending on the size of the undertaking, the extent to which functions or activities are covered by separate sections or departments, or merely form part of an individual's wider duties also varies.

7.4. In the rest of this chapter we examine movements in non-manual staff levels over the last few years in each of the undertakings and discuss the steps taken to control staff levels. Later we compare relative staff levels in the undertakings by broad functional grouping and by grading and salary distribution.

WMPTE

7.5. Administrative and other non-manual staff in WMPTE are deployed in the five headquarters directorates, three central workshops and related stores, and in the three operating divisions including the 24 garages. The five directorates are each under the direct control of one of the executive directors. The directorates and the functions covered are shown in Table 7.1. Including inspectors, non-manual staff represented 17.8 per cent of the total workforce in December 1981.

7.6. Apart from the Operations Directorate all the staff included in Table 7.1 are based at or directly controlled from headquarters and are part of the headquarters structure. The three central workshops and stores, although located one in each of the three divisions, are all controlled directly by the Chief Engineer.

TABLE 7.1 WMPTE: Non-manual staff

<i>Director</i>	<i>Functions</i>	<i>Staff</i> (as at 3.7.81)
Director General	Company Secretary and Legal Press and Publicity Claims Commercial and Market Development Market Research and Management Services	103
Labour Relations	Labour Relations Personnel and Training	79
Finance	Internal Audit Financial Accounts Pay Control Financial Planning	141
Planning and Engineering	Central Engineering Planning Supplies Building & Services	224
Operations	Traffic Fleet Maintenance Divisional Staff	450
Total Staff (excluding inspectors) at 3.7.81		997

Source: MCC study.

7.7. Most of the Operations staff are located in the three divisions with only the Director and his immediate support at headquarters. The following table shows the percentage of employees and buses in each of the three divisions in October 1981.

TABLE 7.2 WMPTE: analysis of employees and buses by division—October 1981

	<i>North</i>		<i>South</i>		<i>East</i>		<i>Total</i>	
	No.	%	No.	%	No.	%	No.	%
Managerial, administrative, etc	198	43.1	184.5	40.3	76	16.6	458.5	100
Inspectors	166	36.7	244	53.3	46	10.0	456	100
Platform staff	1,558	37.2	2,078	49.7	549	13.1	4,185	100
Fleet maintenance	480	34.7	762	55.0	142	10.3	1,384	100
Buses	723	32.5	1,259	56.7	241	10.8	2,223	100

Source: MMC study.

7.8. As can be seen North Division has more managerial and administrative staff than the South Division even though the latter is a third or more larger in other respects. East Division also has a disproportionate number of managerial and administrative staff. This reflects the background of East Division and its physical separation from the major part of the PTE. Table 7.3 shows categories of employees as a percentage of the total in each division.

TABLE 7.3 WMPTE: analysis of employees in each division—October 1981

	<i>North</i>		<i>South</i>		<i>East</i>	
	No.	%	No.	%	No.	%
Managerial, administrative etc	198	8.2	184.5	5.6	76	9.3
Inspectors	166	7.0	244	7.5	46	5.7
Platform staff	1,558	64.8	2,078	63.6	549	67.5
Fleet maintenance	480	20.0	762	23.3	142	17.5
Total	2,402	100	3,268.5	100	813	100

Source: MMC study.

7.9. These differences in balance between the divisions are due in part at least to variations in organisation and approach. The intention of WMPTE in its current re-organisation is to work towards greater decentralisation, particularly in relation to day-to-day operations (see Chapter 12). However, historical background and location also explain some of the differences. South Division, for example, shares premises with the Executive's headquarters and as a result is able to make use of some common staff, particularly on finance activities such as cashiers and waybills. This would account for 61 out of 198 staff in North Division and 20 out of 76 in East Division.

7.10. Making due allowance for these staff the first lines of Tables 7.2 and 7.3 would read as follows:

	<i>North</i>	<i>South</i>	<i>East</i>
Table 7.2	36.3	48.9	14.8
Table 7.3	5.9	5.6	7.1

It should be noted, however, that since absorption by WMPTE in 1974, managerial and administrative staffing in what is now East Division has been reduced by nearly 44 per cent.

7.11. Over the period 1969 to 1974 when WMPTE reached its present operating responsibilities, a total of 11,018 employees were transferred from the former bus undertakings (see Appendix 1.3, Table 1). By July 1974 the total number employed had been reduced to 9,478 including 1,045 non-manual staff, diminishing further to 8,154 with 992 non-manual staff by 31 December 1981. Over this period the number of platform staff fell dramatically due to the introduction of OMO while the number of engineering employees increased by about 10 per cent.

7.12. Movements in the number of non-manual staff have proved very difficult to establish due to changes in definition, regarding and other factors. However, it is clear that for those staff defined as managerial, administrative, technical, clerical and planning, there was a steady rate of increase up until mid-1980 when steps were taken to review and reduce the number of non-manual staff. Between March 1976 and March 1980 the increase in such staff amounted to 19.7 per cent.

7.13. In 1980 an absolute ban was placed on non-manual staff recruitment, including the filling of any vacancies arising from resignation or retirement. Because of the distorting effect on staff structures arising from such a crude embargo this was soon replaced by a form of severe restraint requiring strong justification to be given for any recruitment and subject to control and monitoring by the Labour Relations Directorate.

7.14. At the same time WMPTE developed a programme to secure reductions in non-manual staffing known as management work value analysis (MWVA). The first draft of a staff reduction programme under MWVA was produced on 22 May 1980 with the aim of securing a reduction of 15 per cent in the non-manual establishment.

7.15. Senior managers were asked to review staffing levels within their departments and to identify those posts which could be deleted without seriously affecting the level of activity. After protracted discussions within the Executive, during which most difficulty was experienced with engineering managers, target reductions in staff levels were agreed in October 1980. The May 1980 proposals and October 1980 agreed targets are summarised in Table 7.4 below.

TABLE 7.4 WMPTE: Proposed and agreed staff reduction targets 1980

		<i>Number of staff Actual</i>	<i>MWVA target</i>
May 1980	1,168	1,034	992
October 1980	1,184	1,048	988

Source: MMC study.

7.16. As can be seen both the staff establishment and the number actually in post had increased during the five month period. However, the agreed target to be achieved by March 1982 was lower than that originally proposed. It was agreed with the trade unions that the reductions would be achieved without any compulsory redundancies.

7.17. Following some redefinition of staff activities the March 1982 target was subsequently increased to 1,004 against a revised establishment level of 1,202. The finally agreed target represented a reduction of 16.5 per cent on the amended October 1980 establishment level, and less than 6 per cent on the staff actually in post at that time. Progress towards the March 1982 target was satisfactorily maintained and by 31 December 1981 the number of staff in post was 12 below the final target.

7.18. While clearly effective in so far as it went, the reduction of under 6 per cent in actual staffing levels achieved by the MWVA programme must be related to the growth of nearly 20 per cent in earlier years. The major result of the MWVA programme was in practice the elimination of a large number of staff vacancies which the Executive might otherwise have come under pressure to fill.

CCT

7.19. The management structure of the CCT reflects the centralised approach to the control and management of its resources and the relatively small size of the undertaking. It is organised into three functional divisions—traffic, engineering and administration.

7.20. The number of non-manual staff employed has remained fairly stable, at least since 1977, falling from 95 to 93 in 1981. By January 1982 the number had fallen to 87 allocated as follows:

General Manager and Deputy	2
Traffic	12
Engineering	21
Administration	49
Recruitment Training	3
	<hr/>
	87

7.21. In January 1982 there were also 37 inspectors in the Traffic Division. Including the inspectors, non-manual staff in CCT represented 16.5 per cent of the total workforce. In addition to the non-manual staff employed in the Transport Department, CCT receives considerable professional and administrative support from other city council departments, for which a charge is made. We have been unable to identify the effect of this support in terms of staff numbers.

7.22. The introduction of computers into the more routine aspects of the department's administration may in the long term serve to reduce staff numbers, indeed the systems already introduced have resulted in the deletion of six posts.

BOC

7.23. As indicated elsewhere, BOC has undergone a period of quite radical change and reduction, both in services and staffing, over the last few years. More recently these changes have been the result of MAP exercises, but even before that there was a steady reduction in staff employed. Between 1977 and 1981 the total workforce fell from 4,098 to 3,074 (25.0 per cent) of which just over two-thirds was due to the reduction in the number of platform staff including the effect of conversion to OMO. Over this same period the number of non-manual staff fell from 638 to 498 (21.9 per cent). At the end of 1981 non-manual staff including inspectors represented 16.2 per cent of the total workforce. Non-manual staff are organised into three main functional divisions—traffic, engineering and administration.

7.24. Implementation of the last stage of the MAP exercises was completed at the end of January 1982. Allowing for the time lag in securing all staff reductions associated with the service reductions and other organisational changes, it is expected that by mid-1982 the total workforce of BOC will have fallen to about 3,000. In the engineering area in particular, the reduction in non-manual staff will have been greater in percentage terms than for the manual employees (27 per cent and 24 per cent respectively).

TMT

7.25. The management structure of TMT has also been subjected to major changes since January 1981, resulting from the findings of an internal exercise conducted earlier, which sought to reduce the manning levels of administrative and supervisory staff. Between 1977 and 1981 the total workforce declined from 1,954 to 1,407 (28·0 per cent) including a 36·8 per cent reduction in the number of platform staff employed. Over the same period non-manual staff declined from 314 to 278 (11·5 per cent) and, including inspectors, represented 19·8 per cent of the total workforce at the end of 1981.

7.26. TMT is also organised into three main functional divisions—traffic, engineering and administration. As a result of streamlining procedures and amalgamating the traffic and administrative functions at the smaller garages, some staff reductions have been achieved. The 1981 complement for non-manual staff included an increase of eight to deal with Midland Red (East) administrative matters, responsibility for which was assumed in the late summer of that year. A further 19 TMT staff also participated in the administrative work of Midland Red, while another eight staff are engaged on computer work on behalf of four NBC companies, including TMT.

7.27. The 1982–85 corporate plan for TMT includes provision for a further reduction of 8 per cent in non-manual staff levels.

Comparisons

7.28. Differences in size, structure and even job titles and descriptions make comparisons of non-manual staff on any group of undertakings difficult. In an attempt to overcome the difficulties we conducted detailed enquiries in each of the undertakings, including interviews with a large number of managerial and supervisory staff. The main objective of the interviews was to identify accurately the activities of staff so that we could relate staff numbers to the main functional activities on a fully comparable basis. For this purpose we have used four functional groupings—finance, engineering, traffic and other.

7.29. In Table 7.5 below we set out the planned manning levels in each of the undertakings by broad functional category, showing for each function both the number of staff and the percentage of non-manual staff excluding inspectors employed therein. The table also sets out the percentage of the total workforce represented by non-manual staff.

7.30. In this last respect the two NBC companies have the highest and lowest percentages. As indicated in paragraph 7.26 some TMT staff are engaged in work on behalf of other NBC companies including eight on behalf of Midland Red (East) and eight on a joint four company computer service. By deletion of the eight Midland Red staff and, say, four of the computer staff from TMT non-manual staff and total workforce figures, the percentage represented by non-manual staff falls to 16·2 per cent, exactly the same as BOC.

TABLE 7.5 Non-manual staff in the four undertakings—October 1981 planned levels

	WMPTE		CCT		BOC		TMT	
	No	% of total	No	% of total	No	% of total	No	% of total
Finance	275.5	26.9	42	47.7	164.5	44.9	86	36.1
Engineering	379.0	37.0	19	21.6	96.0	26.2	62	26.1
Traffic	133.0	13.0	9	10.2	65.0	17.8	57	23.9
Other	236.5	23.1	18	20.5	40.5	11.1	33	13.9
Total*	1,024.0	100.0	88	100.0	366.0	100.0	238	100.0
Non-manual† as percentage of total workforce		17.8		16.5		16.2		19.8

Source: MMC study.

* Excluding inspectors.

† Including inspectors.

7.31. The relatively low level of 16.5 per cent in CCT for non-manual staff must be considered against the administrative support provided by other City Council Departments. While we have not been able precisely to evaluate this support in terms of staff numbers, there is no doubt that had we been able to do so, the percentage in CCT would have been higher. However, the numbers involved are small and to a large extent the relatively small size of the undertaking, when related to the administrative and financial control requirements of local government, would lead us to expect a higher proportion of non-manual staff in CCT.

7.32. Conversely we would have expected a lower proportion of non-manual staff in WMPTE as by far the largest of the four undertakings. At 17.8 per cent, however, when account is taken of our adjusted figure for TMT and subject to our comment on CCT, WMPTE appears to have the highest proportion of non-manual staff. It is also the only one of the four undertakings to have experienced an increase in non-manual staff levels over the past six years prior to the recent, comparatively modest, reductions. There was no increase in business during this period, indeed passenger journeys declined by over 14 per cent and the peak vehicle requirement by nearly 5 per cent.

7.33. Against this background we considered it necessary to consider the deployment of non-manual staff in more detail across the undertakings in order to establish the reasons for variations in manning levels and the relative importance apparently attached to the broad functional categories as demonstrated in Table 7.5.

7.34. Under the broad heading of finance, there are quite wide variations between the undertakings in the proportion of non-manual staff employed. CCT and BOC both have a considerably higher proportion than the other two undertakings in this area which is largely accounted for by staff engaged in revenue, travel and off-bus sales activities. Both CCT and BOC use their own staff to man travel centres and kiosks and to sell tickets of various types off the bus, while BOC staff also undertake sales on a rechargeable agency basis on behalf of National Express and other operators. In contrast WMPTE,

with a much higher proportion of off-bus sales (see Chapter 8), makes extensive use of agencies on a commission basis for this purpose. The executive is convinced that it achieves a wider coverage, at lower cost than would be possible using in-house staff.

7.35. With regard to budgetary control both NBC companies regard this activity as part of normal line management duties and consequently have very little staff time dedicated to it. WMPTE has 21 staff (some 2 per cent) dedicated to budgetary control which, in part, reflects the different techniques and approach used. However, it also reflects the need to provide specialist support and assistance to line management during the first year or so following the introduction of the new budgetary control system (see Chapter 2) and the reorganisation in the divisions (see Chapter 12).

7.36. Both WMPTE and CCT have a relatively high proportion of staff engaged in the calculation and payment of wages and salaries, although in CCT the actual number involved is only 5.5 staff. In WMPTE with 70 staff engaged on this activity in October 1981, a number of steps have been taken over the last six years to reduce the staff level. Because of its background, WMPTE inherited a number of different payroll systems which it has taken time to get on to a common basis. For example, it was not until 1981 that the total payroll was processed on the same computer. Since 1976 the number of staff has been reduced from 76 to the present 70 and is expected to fall to 64 by later in 1982. The Executive is actively seeking trade union agreement to the payment of wages and salaries by cheque or other non-cash means. It is already a condition of employment for all new non-manual staff joining WMPTE that payment is made by such means and the matter is being explored with unions representing manual employees. If agreement should be reached substantial staff savings would be possible.

7.37. WMPTE has the highest percentage of non-manual staff in the engineering function, some 11 percentage points higher than the two NBC companies and 16 points higher than CCT. Engineering non-manual staff is also the largest category in WMPTE whereas finance staff form the largest category in the other three undertakings. In Table 7.6 below we show the number of engineering non-manual staff in each undertaking related to the number of vehicles operated and the number of engineering manual employees.

TABLE 7.6 Engineering non-manual staff comparisons—October 1981

	<i>Non-manual staff</i>	<i>Manual employees</i>	<i>Vehicles</i>	<i>Non-manual staff per manual employee</i>	<i>Non-manual staff per vehicle</i>
WMPTE	379	2,036	2,223	0.19	0.17
CCT	19	172	202	0.11	0.09
BOC	96	619	768	0.15	0.12
TMT	57	305	368	0.19	0.15
Total/Average	551	3,132	3,561	0.18	0.15

Source: MMC study.

7.38. The proportion of engineering staff engaged in managing the garages and workshops is generally similar in all four undertakings. However, WMPTE has a marginally higher proportion of staff in building services, but is generally the most self-sufficient in this respect. CCT with no staff in this activity relies on the services of the city council staff, while BOC and TMT receive some assistance from NBC group staff. Again WMPTE has the highest proportion of staff in technical services for much the same reasons as in building services. However, WMPTE also undertakes detailed pre-delivery inspections on new vehicles (including inspections at various stages of construction). None of the other three do this and, although some six staff are engaged on this work, substantial time savings are achieved on defect rectification work for newly delivered vehicles. In WMPTE new buses can be available for service in two or three days compared with up to two weeks in the others.

7.39. Inventory control staff are generally comparable between the four undertakings in relation to fleet size and invite no further comment.

7.40. WMPTE is unique in having 40 staff described as works standards staff. Of these, 36 are engaged in administering the EPPS described in detail in Chapter 6. Given the generally unsatisfactory nature and results of the EPPS, the value of these staff must at best be regarded as questionable against an annual salary cost approaching £0.25 million.

7.41. Turning to traffic operations, CCT has the lowest proportion of staff in this area (10.2 per cent—9 staff) which reflects the concentrated nature of the undertaking and the extensive use of inspectors (37 in all). CCT traffic operations are primarily controlled from the chief office which is adjacent to the city centre bus station. There is only the one operating garage with minimal staff involvement.

7.42. TMT has the highest proportion of staff in traffic operations at 26 per cent (63 staff). This reflects both the dispersed nature of TMT's operations with 15 widely separated garages and the fact that these staff undertake some duties (such as allocating staff to duty rosters) dealt with by inspectors in the other undertakings (see Chapter 5). TMT does in fact have the lowest ratio of inspectors to platform staff of the four undertakings. Staff requirements are continually under review and, as we indicated earlier, the TMT corporate plan for 1982-85 provides for further reductions.

7.43. The percentage of staff allocated to each function does not, in itself, give any real indication of the relative efficiency of each undertaking. We have, therefore, compared the traffic staff in each undertaking against the peak vehicle requirement. Since there is some variation between the undertakings in the division of work between traffic staff and inspectors, we have also included inspectors in the comparisons.

7.44. From this analysis it is apparent that there is little difference between the undertakings in staff levels per peak vehicle required, although TMT is still above average.

TABLE 7.7 Traffic staff and inspectors per PVR—October 1981

	<i>Traffic staff</i>	<i>Inspectors</i>	<i>Total</i>	<i>PVR</i>	<i>Total staff per PVR</i>
WMPTE	133	457	590	1,894	0.31
CCT	9	37	46	163	0.28
BOC	65	140	205	630	0.32
TMT	63	42	105	282	0.37
Total/Average	270	676	946	2,969	0.32

Source: MMC study

7.45. Of the remaining staff grouped as 'other' in Table 7.5, WMPTE has the highest percentage. However, we find less cause for concern in these categories since, partly due to its size and partly to the nature of the undertaking, WMPTE carries out a number of activities either not regarded as specialist, or not done at all by the other three. Support in various respects from the parent bodies also affects the number of staff in CCT and the NBC companies. Computers, personnel and labour relations are examples of activities where non-specialisation and parental support are particularly relevant. As discussed in Chapter 8 WMPTE is also far more active in the area of market research and demand monitoring.

Levels of responsibility and grading

7.46. We also sought to analyse staff by responsibility levels in each undertaking regardless of differences in job title, grading or salary level. For example, both WMPTE and CCT have senior, middle and junior management levels, but because WMPTE is ten times the size of CCT, managerial salaries in WMPTE are much higher for the equivalent level of management. For our analysis we divided non-manual staff (excluding inspectors) into three broad categories of management and one of administrative and clerical support. Each broad category was further subdivided into two or three bands giving a total of 11 bands as shown in Table 7.8.

TABLE 7.8 Management responsibility levels

<i>Broad category</i>	<i>Bands</i>	<i>Classification identification</i>
1. Executive management	A	Head of undertaking.
	B	Directorship by specialism Executive Committee membership
2. Senior management	A	Management Committee membership.
	B	Budget holders.
	C	Heads of functional responsibilities Controllers of specific resources.
3. Middle management	A	Superintending duties.
	B	Technical specialists.
	C	First line supervision.
4. Administrative and clerical support	A	First line administration.
	B	Assistants.
	C	Clerks.

Source: MMC study.

7.47. The distribution of staff across the bands in each undertaking is illustrated in Figure 7.1. This shows a very high peaking at the lower middle management level in WMPTE compared with the other undertakings. In Table 7.9 below we show how this is reflected in salary cost distribution for groups 2 to 4 only.

TABLE 7.9 Staff and salary cost distribution by responsibility level—October 1981

	WMPTE		CCT		BOC		TMT	
	% staff	% cost	% staff	% cost	% staff	% cost	% staff	% cost
<i>Group 2—senior management</i>								
Level A	0.8	2.1	1.1	2.2	—	—	—	—
B	1.9	4.0	4.6	8.6	1.1	2.7	1.3	2.7
C	3.4	5.9	3.4	5.7	0.8	1.6	0.8	1.5
Sub-total	6.1	12.0	9.1	16.5	1.9	4.3	2.1	4.2
<i>Group 3—middle management</i>								
A	4.2	6.3	3.4	5.1	3.6	6.1	0.4	0.7
B	14.4	19.4	11.5	15.1	11.0	16.7	12.2	17.4
C	23.4	25.9	14.9	16.1	11.5	15.6	17.3	21.8
Sub-total	42.0	51.6	29.8	36.3	26.1	38.4	29.9	39.9
<i>Group 4—administration support</i>								
A	12.2	11.2	11.5	10.6	9.3	10.4	18.6	19.2
B	15.9	11.9	35.6	27.2	9.3	8.8	18.1	15.9
C	23.7	13.3	13.8	9.4	53.4	38.1	31.2	20.8
Sub-total	51.8	36.4	60.9	47.2	72.0	57.3	67.9	55.9

Source: MMC study.

7.48. As can be seen the highest proportion of salary cost in WMPTE is in group 3 whereas in the others the highest proportion is in group 4. WMPTE also has a higher proportion of staff in group 3. We explained earlier that our grouping is based on responsibility level and not salary level which will vary with the size of undertaking. Taken with our earlier discussion of staff numbers it appears that, not only does WMPTE have higher manning levels in several areas, it also grades them at a higher level.

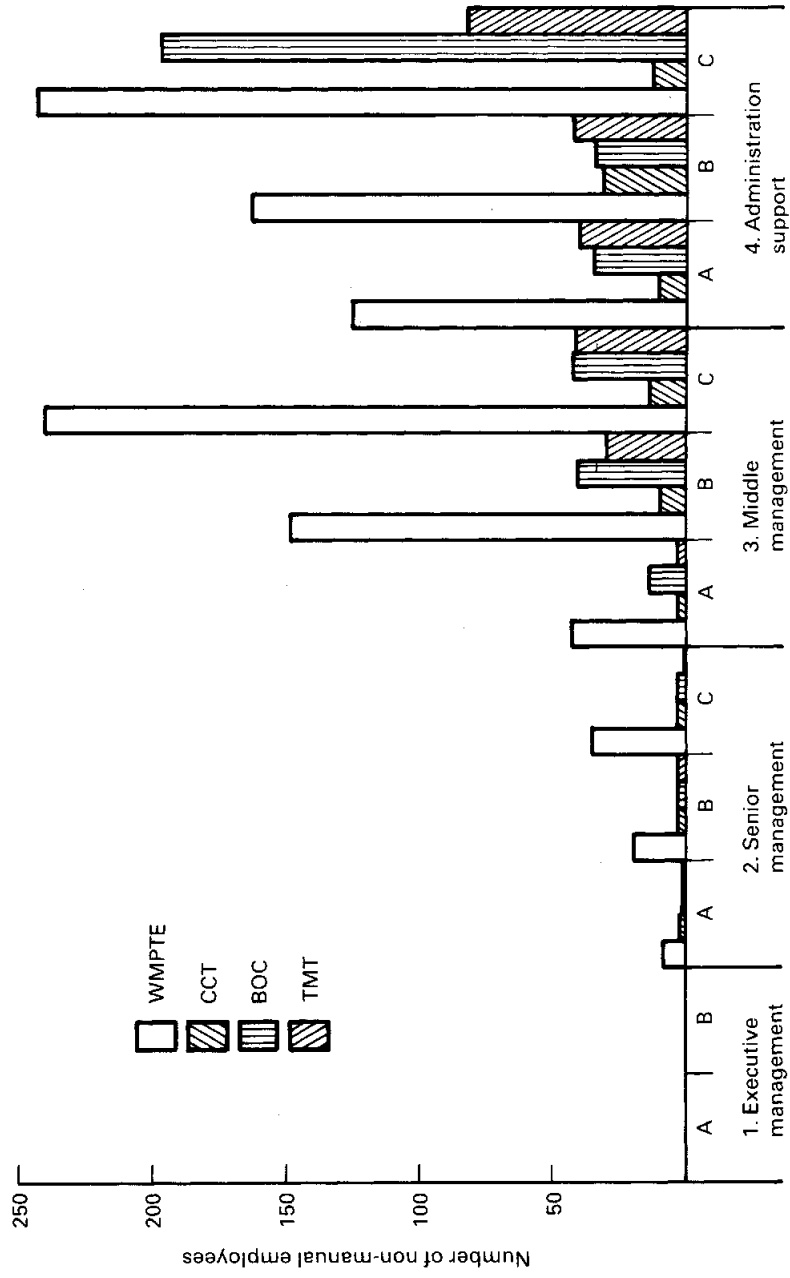
Conclusions

7.49. Between 1976 and 1980 WMPTE had an increase of nearly 20 per cent in the major categories of non-manual staff. This increase took place when business was declining. Since late 1980 there has been an overall reduction in non-manual staff of nearly 6 per cent.

7.50. Since 1976 the other three undertakings have all reduced non-manual staff numbers year by year, apart from a temporary increase in one year in TMT. The decreases range from about 9 per cent in CCT to 22 per cent in BOC.

7.51. Non-manual staff levels expressed as a percentage of the total workforce are very similar in CCT and the NBC companies, when account is taken of TMT staff engaged on work for other companies. However, the 16.5 per cent in CCT does not include administrative support received from other departments of the city council.

FIGURE 7.1 A breakdown of the management structure of the four reference undertakings within major categories



Source: MMC study.

7.52. WMPTE has a higher level of non-manual staff at 17.8 per cent of the total workforce. While WMPTE is more self-sufficient in a number of respects, advantage has not been taken of the potential for economies of scale. In particular non-manual staff levels in the engineering function are high compared with CCT and the NBC companies. We recommend that WMPTE undertakes a further more stringent review of non-manual staff requirements with particular emphasis on the engineering function.

7.53. Compared with the other undertakings, WMPTE has a larger proportion of its non-manual staff in the higher grades and salary levels. We recommend that WMPTE should carefully review the application of its staff grading structure.

7.54. Staff manning levels and the grading structure in CCT and the NBC companies are generally reasonable.

CHAPTER 8

Matching supply and demand

8.1. An important feature of the provision of stage carriage services is the adjustment of the level of the services to match demand. That is the feature which we consider in this chapter, but we consider it only to the extent which our terms of reference require. The question posed by the terms of reference is whether each of the four undertakings, in supplying stage carriage services, could improve its efficiency and thereby reduce its costs without significantly affecting the level of service provided. We have thus to consider whether the services at their existing level are being provided efficiently, and as one aspect of this we examine in this chapter the procedures employed by the undertakings for determining changes of demand and responding to them. We are not required to consider the further question whether the existing level of service needs to be significantly affected, ie whether that level is either excessive or inadequate.

8.2. One of the most pronounced features of the pattern of demand in the undertakings has been the long-term decline resulting mainly from the growth in car ownership. This has affected all public transport. Between 1960 and 1980 Department of Transport statistics show that journeys by stage carriage bus services declined by 53 per cent, and rail journeys declined by 27 per cent. There have been other influences causing changes in the level and pattern of demand for bus services, for example there have been changes in land use as industry and commerce moved from city centres, and associated with this there have been population movements, as well as from the substantial rehousing which has been a feature of post-war development. The undertakings have responded to these influences by providing new services. Finally, in recent years economic recession has had a major impact on the level of demand, in particular on the peak services provided for journeys to and from work.

8.3. The terms of reference do not require us to consider generally the problem of fares policy, which is the subject of so much contemporary debate. Certain features of fares policy do, however, affect the matters referred to us, and those features we consider in this chapter.

WMPTE

Procedures for matching supply and demand

8.4. Since 1977 it has been one objective of West Midlands County Council (WMCC) to maintain the size of the bus network as far as possible, redeploying resources as the opportunity to do so is indicated by the results of area studies. Expansion in newly developed areas comes from resources released by reductions in other areas.

8.5. Regular reviews of routes and timetables are undertaken in two forms consisting of area studies of the network, and 'good housekeeping' reviews of individual services. There has also recently been a special review which led to a 10 per cent service cut in December 1980.

Good housekeeping reviews

8.6. Good housekeeping reviews are carried out at a local level by operating divisions and garages. These are in response to comments received by local managers from passengers, local businesses, elected representatives, or on the media, and also from consideration of the management information on load factors and costs and revenues with which they are supplied.

8.7. Load factor, in terms of passenger mile per bus mile, and operating ratio (total revenue divided by total cost) for each route are produced in the route financial statement every four weeks. Trends in load factor and operating ratio are monitored, and any routes whose indicators show a trend 10 per cent above or below the Executive average are inspected more closely. Under- or over-provided sections of route may be located using the Continuous On-Bus Survey (COBS). COBS is the responsibility of the Market Research Unit, and is carried out by a team of data collectors gathering passenger information on a sample basis. The basic information collected from each passenger is where he gets on and off the bus and what type of ticket he holds. The data are computerised and a number of print-outs are available. It is possible to produce loadings between each stage for the journeys sampled on a particular route. Ticket type analysis by time of day and journey length distribution is also produced regularly. As well as for use in good housekeeping reviews the COBS data are also used as the basis for allocating off-bus revenue and passenger mile figures for each service in the four-weekly route costing statement.

8.8. These reviews can result in changes principally in the timing and frequency of services. The net effect of additions and reductions due to good housekeeping measures in 1980 was a saving of five buses and 14,229 bus miles per week in the North Division, and four buses and 5,861 bus miles per week in South Division.

Area studies programme

8.9. Area studies are the means by which WMPTE makes major changes in service provision. Their objective is 'to formulate and market the most commercially cost effective, integrated passenger transport network . . . consistent with the development of the long-term infrastructure and corporate objectives, taking account of customer needs and financial and manpower resources'. Area studies are undertaken at a rate of about four per year in areas of about 100,000 population. The programme began in 1975 and since then thirteen schemes have been introduced. A total of 207 service changes over this period are due to area studies or reviews of area study changes.

8.10. The programme has developed in four stages. It began by dealing with areas where boundary problems existed between the former bus undertakings that constituted the PTE in 1969 and 1973. The next areas studied were

those affected by rail integration proposals, and thirdly were areas where there were special problems or benefits to be obtained quickly from this type of exercise. Finally, having covered the more difficult areas, WMPTE approached the Passenger Transport Committee of the County Council in July 1981, and the Committee indicated the next priorities.

8.11. At the present rate of four studies per year the whole area will have been surveyed in about three years' time, and the programme implemented by 1986, giving a 12 year cycle. WMPTE considered this to be too long a cycle time, and told us that the programme would be repeated after 1986, but it hoped that by using computer-aided techniques the cycle time could be cut down to six or seven years (see paragraphs 8.22-8.24).

8.12. Responsibility for carrying out area studies lies in the Business Development Group. Within the Group the Market Research Unit collects and processes the survey data and the Service Development Unit devises tests and develops new networks in consultation with operating divisions. Data are collected from two sources. One is a household survey which includes questions on journeys (destination, purpose, mode and time), profile information (age, sex, car ownership etc), rating of existing services, and the priorities for improvement. The second source of information (for later studies) is the Continuous On-Bus Survey, or a special on-bus survey where the COBS sample data are insufficient.

8.13. To assist in the development of new networks the Service Development Unit has devised a set of load factor targets which have been approved as interim standards by the Business Development Committee in January 1982, and are as follows:

Peaks—90 per cent seat occupation during the maximum half hour in the maximum flow direction at the maximum loading point.

Shopping period—50 per cent seat occupation in the maximum hour at the maximum loading point in the maximum flow direction.

Evening and Sundays—20 per cent average seat occupation but subject to social considerations. In the built-up urban area the minimum standard frequency is 30 minutes on Mondays-Saturdays between 07.00 and 19.00 hours, and if a service is operated during the evenings and on Sundays the minimum standard is hourly. On the fringes of the conurbation the minimum standard frequency is hourly.

8.14. The 90 per cent target allows some reserve capacity for fluctuations in demand. This need for reserve capacity stems from two policy decisions which WMPTE inherited from Birmingham City Transport. The first relates to passenger waiting time where the standard was that all passengers should be able to board the first vehicle to arrive when they were waiting at the bus stop in peak periods. The present Executive accepted this standard in respect of all services except those with a high frequency, for example a bus more often than every seven minutes. The policy for high frequency services is that passengers should always be able to board the second, if not the first, bus that arrives. The second policy decision relates to standing passengers.

Birmingham City Transport's policy was to provide large capacity double-deck buses, explicitly bought so that people would not have to stand. WMPTE has continued the policy on the grounds that it was unlikely to be able to attract car drivers on to public transport if there were not enough seats on the bus. The 50 per cent off-peak target is designed to take account of the belief that a reduction in frequency brings about a greater decline in patronage in the off-peak than in the peak, and the 20 per cent evening and Sunday target is designed to cover the marginal costs of operation at those times.

8.15. WMPTE has emphasised that these load factor targets are a planning tool to establish the frequencies which should be provided on new services at particular times of the day. It also hopes to develop targets to monitor the efficiency of existing services. In this case it would look for improvements in load factor over the whole week, taking into account what was achievable on particular services. By providing route load factors measured as passenger miles per bus mile in conjunction with route costings it believed it was moving in the direction of producing appropriate measures of efficiency. In some recent good housekeeping reviews the targets were applied to determine service levels.

8.16. The design of a new network covers three time periods—the peaks, the shopping period, and evenings and Sundays. It is assumed that the basis of the new network will be the peak requirement, so work and school journeys are dealt with first. The study area is divided into zones, and the household survey data are used to identify the most important zone to zone movements. For the purpose of initial network design it is assumed that a direct bus service would run between zones where movements exceed 100 journeys per day.

8.17. When the network has been fully identified, maps of the network are examined to see which links may be merged to form routes. These are developed into proposals for individual services. At this point possibilities for new roads for bus operation or traffic management schemes are explored.

8.18. The next stage is the determination of frequencies. For the peak it is assumed that half the total load between 06.30 and 09.29 occurs in the peak hour, and the frequency is determined according to WMPTE's peak period target capacity figure of 90 per cent. The network is examined to ensure that it meets the DTp accessibility standard of a maximum walk of 400 metres to a bus stop.¹ WMPTE has decided, however, that a 700 metre standard of accessibility is reasonable for evenings and Sundays.

8.19. At this stage routes are abandoned if they do not meet the minimum frequency standards of half hourly services for urban routes and hourly for others unless the accessibility standards would be impaired. When frequencies for time periods have been determined they are co-ordinated along common sections of route since each route's frequency has been decided independently from its own loadings. This may mean deviating from the target capacities in order to retain an acceptable frequency on trunk routes.

¹ Circular 82/73 (Department of the Environment) *Bus operation in residential and industrial areas.*

8.20. The proposed network is then costed. Revenue changes are forecast and the network, together with any alternatives which have been generated, subjected to an economic evaluation. In the case of the Yardley and Chelmsley Wood study the evaluation identified that 2-6 buses could be saved from the existing schedule of 100 buses and early experiments with computer techniques suggested that further savings in buses might be possible.

8.21. Before implementation of the proposed network the area study proposals go to consultation with the County Council, the trade unions and the public. Amendments may follow these consultations, or some proposals may be regarded as experimental for a limited period. WMPTE has told us that it regards the consultation process as extremely important but that the period for consultation is tending to increase and this is lengthening overall timescales for implementation. After implementation the PTE also monitors reaction to the new services and makes readjustments where the monitoring results show this to be appropriate.

The Coventry area study

8.22. WMPTE has commissioned Martin and Vorhees Associates and Volvo Transportation Systems to carry out a study of the City of Coventry services in order to test and evaluate the computer-aided techniques developed by Volvo. The study is the first in Britain to use these techniques, and it is WMPTE's hope that their successful application will substantially reduce the time taken to complete a comprehensive review of the West Midlands. Their objectives in Coventry are twofold: to gain experience of the planning techniques with a view to their general adoption as part of the programme of area studies; and to develop a more cost effective public transport network for Coventry.

8.23. The first phase of the Coventry study was to represent and evaluate the existing network. The second stage was the development of network options, and the production and optimisation of a preferred plan. A computer-designed preferred plan has already been generated and presented to WMPTE for discussion.

8.24. The work has taken 15 months but WMPTE is confident that it could reduce the study time to six to nine months for similar sized projects. The total cost to it so far has been about £100,000, but the preferred plan indicates that it could be possible to cater for the current level of demand with from 5 to 15 fewer buses out of a present peak vehicle requirement of 211, so if the plan were to be implemented even at the lower end of the range of saving the investment in the computer-aided technique would have been more than well justified. The study has also covered a wider area than usual (Coventry has a population of 320,000), and allowed a larger number of service options to be generated and evaluated. In the longer term WMPTE hopes that it can use the technique to explore the consequences of, for example, different patterns of cross-subsidisation, levels of investment, and standards of accessibility.

The 1980 service cut

8.25. A substantial response to the longer term reduction in demand was initiated by WMPTE in July 1980 when it obtained approval from WMCC to cut services by 10 per cent. By then the number of passengers carried had declined by over 50 million from the peak figure of 577 million in 1976-77, so a once-for-all adjustment of this nature was considered to be justified. Additionally, some increase in fares was necessary to help balance the budget for 1980-81.

8.26. WMPTE put forward proposals which it said were 'designed to match the pattern of travel derived from the PTE's monitoring of passengers' requirements'. No formal load factor or financial criteria were used, but in practice lightly loaded services with poor operating ratios were most affected, and amendments to 30 services in East Division, 96 in North Division and 122 in South Division were put forward. They related mostly to reductions in services in early morning, late evening, on the shoulders of the peak, and on Sundays. In addition some lightly used services or sections of routes were proposed for withdrawal. Some other changes had been planned for some time for good housekeeping purposes and were introduced with the general package.

8.27. WMPTE has quantified for us the savings which resulted from the 10 per cent cut, but the picture is to some extent complicated by the good housekeeping changes, and completion of the conversion to OMO. Nevertheless, it has concluded that as a consequence of all the changes, of which the 1980 cuts were the major part, by December 1980 there had been, compared with the beginning of the year, a reduction in scheduled mileage of 10.3 per cent, a reduction of 9.3 per cent in the number of buses required, and a reduction in rota lines of 10.5 per cent. There were 482 fewer drivers, and 194 fewer conductors. It has also estimated that the cut in scheduled mileage caused a fall in passenger journeys of only 3.6 per cent and an improvement in load factor of 7.4 per cent.

8.28. The 10 per cent cut resulted in considerable public concern, and after the change in political control in May 1981 the PTE was instructed by WMCC to draw up a plan which while not reinstating any particular reduction would, nevertheless, meet the view that socially desirable services had been cut. The main criterion for restoration was accessibility, and social considerations predominated. The new package involved the operation of about an extra 350,000 bus miles, over the earlier reduced figure, and at an annual cost of £330,000. Effectively, three-quarters of one percentage point of the 10 per cent cut was restored. WMCC had provided for this restoration in its revised budget, to be funded by the supplementary precept which was later quashed by the High Court.

Present performance: load factors

8.29. A measure of the success which is achieved in matching supply and demand is given by load factor data. By load factor we mean the extent

to which seating capacity is occupied. We would stress that load factors are not the only measure of this aspect of efficiency, since undertakings are required by local authorities to run some services which are not commercially viable, but which the authorities judge necessary to satisfy the transport needs of the area. On such services the undertakings are not free to determine their own operational criteria. Nevertheless, load factors are a useful measure of performance especially on those routes which are profitable or nearly so, and which the undertakings would probably run if they operated in a commercial environment. They can also be useful to the local authorities in indicating to what extent revenue support is achieving its purposes.

8.30. Load factors are measured in two ways in this chapter. First, the figure of passengers per bus in relation to seating capacity is an indicator of loadings at a particular point on the route. Second, passenger miles per bus mile gives an idea of the average load on the bus during the time it is in operation.

8.31. Table 8.1 shows load factors in terms of passenger miles per bus mile for WMPTE and the divisions separately for the last four years.

TABLE 8.1 WMPTE and divisional load factors

	<i>East Division</i>	<i>South Division</i>	<i>North Division</i>	<i>WMPTE</i>
1978-79	17.0	20.3	18.4	19.3
1979-80	17.3	21.0	18.6	19.8
1980-81	17.6	20.2	17.3	18.9
1981-82	18.5	20.9	18.5	20.3

Source: WMPTE.

The load factor for the PTE as a whole has fluctuated considerably; the overall load factor of 18.9 for 1980-81 is the lowest the PTE has recorded since it started producing this indicator in 1974-75. From its highest level of 20.9 in 1976-77 it has shown a 9.6 per cent fall. The service economies made at the end of 1980 combined with the 1981-82 demand levels, brought about by the reduced fares policy from September 1981 to March 1982, produced a load factor of 20.3 for 1981-82.

8.32. To obtain a measure of loadings in relation to seating capacity we asked WMPTE to provide us with recent Continuous On-Bus Survey data for a selection of routes in each division. It gave us a sample of 23 of the best routes with operating ratios between 71 and 116, and 9 of the worst with operating ratios between 21 and 55 (in July 1981). The COBS data for each route give loadings between stages for a selection of bus journeys throughout the day. We have identified the loadings at the maximum loading point, and these figures are in Table 8.2 together with the load factor in terms of passenger miles/bus mile for the whole route.

TABLE 8.2 WMPTE: loading by time of day 1980-81

	00.00 to 06.59	07.00 to 09.29	09.30 to 15.29	15.30 to 17.59	18.00 to 24.00	All day
<i>Best routes</i>						
Passenger miles/ bus mile	14.8	24.2	27.8	27.5	18.5	23.9
Occupancy at max loading point on best journey on best route %	103	133	141	113	104	
<i>Worst routes</i>						
Passenger miles/ bus mile	5.9	10.5	14.6	13.0	6.6	11.4
Occupancy at max loading point on best journey on best route %	26	62	66	95	34	

Source: WMPTE.

Note:

The occupancy percentage is based on a 76-seater bus.

8.33. The points which emerge from the table are:

- (a) There is a broad correlation between both measures of load factor, with high loadings corresponding with higher passenger miles per bus mile.
- (b) The worst routes have an all-day average load factor of about 11 passenger miles per bus mile, and do not reach a load factor of 20 in any period of the day. Occupancy is also lower.
- (c) The best routes have an all-day average load factor of about 24 passenger miles per bus mile. Their load factors are over 20 for the three busy periods of the day, and they achieve high loadings at the peak loading points.

The commercial and strategic network

8.34. WMPTE has told us that it is increasingly aware of the worsening economic situation in the West Midlands, and the effect of growing unemployment on patronage. It also considers that it operates in a climate of uncertainty, particularly with regard to the amount of revenue support it receives. It has seen a period of rapidly decreasing revenue support followed by one of greater commitment by the County Council elected in 1981 but now faces much changed circumstances because of the recent abandonment of the cheap fares policy (see paragraphs 8.103-8.106). It is developing its ideas of a commercial and a strategic network as a response to this uncertainty. This concept has two purposes. First, it is a contingency plan if the day should come when revenue support were drastically cut, and services had to be reduced. Second, it is a means of more closely identifying the needs to be met by revenue support, and the resources required to meet them.

8.35. WMPTE services have been divided into five categories based on revenue per bus mile or load factor. The first two categories contain services which are or could be self-supporting, and are the commercial network. They

contain two-thirds of the buses. The next two groups comprise the strategic network and would be required to provide differing standards of access to the commercial network. They would require revenue support. The final group comprises services with a mainly social justification.

8.36. WMPTE has told us that the work on the commercial and strategic network is still being discussed internally because it wishes to be sure of the implications before putting it to WMCC. While it would prefer to redesign all its services using the Volvo technique, it is conscious that in a period of rapid changes in policy, some of which conflict with pressures on it to reduce costs, time may not allow it to make changes by its preferred way through area studies. Nevertheless, in developing the concepts and identifying the purposes for which revenue support might be given it hopes to make a contribution to a more stable and long-term transport policy for its area.

The scope for economies in matching supply and demand

8.37. WMPTE has told us a proportion of services are only provided because they are traditional, or because of political pressures, and that judged on a commercial basis they would be withdrawn. Also, its work on the commercial and strategic network suggests that other services provide a higher standard of service than the community might be prepared to pay for. In its view the scope for economies in bus mileage lies in the categories 4 and 5 of the strategic and commercial network (see paragraph 8.35) and an additional reduction equivalent to 1 per cent per annum in the peak vehicle requirement to adjust to the long-term recession in demand. It estimated the potential for reduction in mileage to be about 25 per cent, and a period of 6 to 9 years would be required for its implementation. This estimate would include good housekeeping and area studies adjustments. It pointed out, however, that reductions on this scale and over this time period would need the agreement of the County Council.

8.38. We asked WMPTE whether, given the reduction of 10 per cent in load factors between 1976-77 and 1980-81 (see paragraph 8.31), it would not be a reasonable aim to restore the loss. It agreed it would be a reasonable aim, but added that because of changes in policy on revenue support, substantially higher fares, and the loss of traffic because of recession it would be extremely difficult to achieve.

CCT

Procedures for matching supply and demand

8.39. It can be seen from Table 1.2 that the peak vehicle requirement of CCT has changed little over the period 1976-81. This constancy is perceived by CCT as the outcome of two factors. First, as a condition of the binding agreement (see paragraph 10.29) with South Glamorgan CC, the level of service operated in 1976 has to be maintained in broad terms. Second, adjustments have taken place through the replacement of peak services to the inner suburbs by those to the newly developing outer areas. These have tended to balance each other. The service levels of both the old and new services have been defined in South Glamorgan CC's Public Transport Plan.

8.40. The actual level of service operated, in terms of the routes and their frequencies, correspond with those laid down by South Glamorgan although the City Council considers that ultimately its prerogative to determine which routes should be operated, and the frequencies and fares.

8.41. CCT has explained that this correspondence between the conditions and actual levels results from close co-operation between the City Council and County Council over a period of eight years. When local government reorganisation took place, many elected members became dual members for both the city and the county, and hence desires in respect of bus services were often similar. The officers of the county work closely with the General Manager of CCT and are involved in regular meetings of the Public Transport Operators Group (PTOG). This group contains representatives of CCT, National Welsh (the NBC subsidiary) and British Rail. The PTOG provides a forum in which proposals for service changes can be discussed.

8.42. South Glamorgan CC has told us that the routes and their frequencies as specified in the PTP were accepted on an historical basis within the broad policy on level of service and not specifically determined. South Glamorgan CC accepted the service changes which had taken place since 1972 in its first PTP. Subsequent changes to this have to be agreed (as a condition of the binding agreement) with the County Council, and justified even if only at officer level, but then reported to the Environment and Planning Committee. CCT in general has tended to put suggestions to the county council in recent years, but in turn there have been small parts of the CCT network, ie some minibus services, which the County Council has not accepted for support.

Service revisions up to 1979

8.43. Between 1972 and 1975 revisions to the services took place as follows:

June, Sept 1972	Interim revisions to facilitate extension to OMO
June 1973	Major revision to network
August 1974	5 per cent reduction in service frequencies
Nov, Dec 1974	Revision of minibus services
June 1975	Further restructuring to complete revision of 1973.

8.44. Between 1976 and 1979 revisions were made to individual routes/areas when specific developments required adjustments to be made, eg Pentwyn. In January 1979 revisions were proposed, and although approved by the Transport Committee they were not confirmed by the City Council.

8.45. The 1973 restructuring had as its basis the proposals put forward during 1972 for a review of the whole network. Before 1972 the pattern of routes strongly reflected the previous trolley bus services. In 1972 questionnaires were distributed to households and to relevant organisations and groups and the General Manager was instructed to consult with ward members on their particular requirements. The response to the questionnaires was 16 per cent. Detailed origin and destination data did not emerge in a useful form

from the survey and in the event the network revisions proposed in February 1973 were primarily the outcome of the work done within CCT coupled with informal discussions with ward members and interested groups.

8.46. Since 1976 such informal discussions have been an important part of the data on demand which are considered in route revisions. Since the formation of South Glamorgan County Council subsequent discussions included relevant members of this council (where different from those of the City Council. At the same time that proposals are raised with elected members, discussions take place at officer level, and then in the Public Transport Operators Group.

8.47. The form in which proposals are presented to the Transport Committee of the city council has remained largely unchanged. This committee is normally the body which approves revisions. Particular services, as they affect relevant members, are discussed in terms of frequency changes, and overall service revisions are summarised in terms of mileage savings. The general practice has not involved discussions of loading at particular times of day on particular routes or, until recently, the financial consequences for particular routes or the network as a whole. CCT has told us that the overall financial consequences would have been apparent to the committee from previous discussions; for example the proposals of January 1979 were a response to a request from the committee to achieve specified savings.

Revisions since 1979

8.48. The January 1979 proposal contained revisions to the routes of 17 services, and frequency alterations on 13 services (these were to an extent overlapping). A further seven services were to be dropped. These proposals would have resulted in an overall mileage reduction of 1.5 per cent. Consultations on the revisions began in the summer of 1978, they were approved by the Transport Committee in January 1979, but vetoed by the City Council. The current City Council has told us it believed there were two reasons for this. Approval of such a revision would have been unpopular shortly before the May elections, particularly as a fares increase was part of the package. Also, given the high level of lost mileage at that time, 9.7 per cent, it would have been equally difficult to carry through a programme of service reductions.

8.49. Subsequently fares increased by 14 per cent in September 1979. CCT has told us it is unable to estimate the extent by which this increase in fares was exacerbated by the failure to introduce the service economies proposed in January 1979.

8.50. The next proposal for service revisions came in July 1980. The consultation process had been taking place informally since December 1979. The revisions proposed were for changes in the routes of 8 services and frequency alterations in 9 services, only 3 services having changes in both. A further 7 routes were to be dropped and 1 new service added with 38 services remaining unchanged. The proposals were implemented in January 1981 with estimated savings of £258,000 per annum and 5 per cent reduction in bus mileage. This 5 per cent contained 1 per cent due to reductions in service made during the summer holiday period.

8.51. In the autumn of 1981 the Transport Committee began again to examine the matter of service revisions as part of a wider programme for reducing the existing deficit, and that forecast for 1982-83. By then passengers were 2 per cent lower compared with the equivalent period in the previous year. After allowing for a proposed fares increase in January 1982 the 1981-82 residual deficit (ie the deficit after allowing for revenue support from South Glamorgan CC) was estimated, in November 1981, to be £754,965, and the deficit for 1982-83 to be £784,200. In November the General Manager, as previously requested, put forward proposals on revisions, together with an analysis of route costings which classified routes or route groups as follows:

- (a) 2 which were profitable;
- (b) 11 which were 'marginal', ie over a period of years fluctuated between slight profit and slight loss, with operating ratios between 90 and 110 per cent;
- (c) 20 which were loss-making and with operating ratios between 50 and 90 per cent;
- (d) 19 which were heavily loss-making, and had operating ratios of between 12 and 49 per cent.

The services in (c) and (d) between April and October 1981 had produced a cumulative operating deficit of £1,237,991. In his report the General Manager pointed out 'that in an extreme situation the whole of the residual deficits [for 1981-82 and 1982-83] can be recouped, albeit at the expense of a "Beeching" style cutback of the bus route network'.

8.52. Specific proposals were made in respect of the routes in competition with CK Coaches. The economies from these proposals were not quantified although competition from CK Coaches was estimated at that time to have cost £90,000 revenue. The proposals for reductions on the routes experiencing competition were not accepted by the Transport Committee but the Finance Committee and the City Council overturned this decision and the economies are to be implemented. By January 1982 the estimated residual deficit was £811,000 implying an operating deficit of £1.20 million. The Transport Committee agreed to consider more general proposals for dealing with the deficit, and in April 1982 they accepted the principle of a 5 per cent reduction in mileage from September 1982 coupled with a fares increase in October 1982, the remaining balance of the residual deficit being met from the general rate fund.

Data for service revisions and load factors

8.53. The passenger survey of 1972 did not produce usable information in detail of passenger origins and destinations (O & D), and since then CCT has not sought to undertake any general on-bus surveys to identify origins and destinations across the whole network. We asked CCT if it had carried out subsequent O & D studies either of its passengers or on a wider group of travellers, and if any such study had been used for service revisions. CCT replied that limited O & D surveys had been carried out but were restricted to ascertaining the extent to which existing passengers would be affected by

alterations to the routeing and/or timings of individual services or journeys. For larger surveys involving O & D, CCT relied on the work of South Glamorgan CC's Transportation Division.

8.54. CCT does undertake, in co-operation with South Glamorgan CC, regular autumn passenger counts. These involve monitoring passenger loadings on virtually all routes. The counts are designed to take place at the peak loading point on each route although it is recognised that loadings will vary along the route, and that at certain times of day the survey point may not represent the peak loading point. The autumn passenger counts commenced in 1975 and until 1981 covered the Monday-Friday peak periods only, ie 07.30-09.00 and 15.30-18.00. The 1981 count covered all periods for every day of the week. The annual loading data are summarised in Table 8.3.

TABLE 8.3 CCT: per cent of seats occupied at peak loading point, autumn passenger counts

Average all routes Mon-Fri	1976	1978	1980	1981	1981	
					Lowest route	Highest route
Inbound morning peak 07.30-09.00	51.4	63.2	54.8	47.7	19.8	62.9
Outbound evening peak 15.30-18.00	63.1	66.0	69.4	53.1	17.3	74.7

Source: CCT.

Note: The data are for routes covering 90 per cent of CCT's stage carriage mileage. Schools services are excluded.

Table 8.4 shows the results of the 1981 survey for inbound and outbound journeys by time of day, and day of the week.

TABLE 8.4 CCT: per cent of seats occupied at peak loading point by time of day 1981, autumn count

Monday-Friday	Per cent	Saturday	Per cent
Inbound morning peak 07.30-09.00	47.7	all day	31.1
Inbound morning off-peak 10.00-13.00	37.0	Sunday	18.7
Outbound afternoon off-peak 12.00-15.30	32.4	all day	
Outbound evening peak 15.30-18.00	53.1		

Source: CCT.

Note: See Table 8.3.

8.55. South Glamorgan CC does not specify any target load factors for CCT, and the County Council has told us that passenger count data are not utilised to judge the performance of individual routes. The information is used to judge the annual variation in weekday travel into and out of the Cardiff central area by all modes.

8.56. CCT itself makes use of this information for planning services. However, it has told us that load factors were seen as not being of particular significance since neither the central government nor South Glamorgan CC appear to place any emphasis on them. CCT argues that its first concern

is to meet the minimum level of service laid down by the County Council rather than to achieve any particular loading. CCT has said that strict adherence to a load factor target may well be counter-productive in that the reductions in frequency that this would entail would induce passenger resistance, and recession in traffic would follow.

8.57. The Traffic Superintendent of CCT does in practice adopt a target load factor when planning service frequencies, the target being that during the high peak period in the direction of maximal flow, spare capacity of 30 per cent should be provided. This target, however, is affected by numerous factors including the minimum service level specified in the PTP, the attitude and policies of the City Council, and what the public will accept in terms of minimum service levels.

The scope for economies

8.58. We asked CCT if it had considered obtaining the services of the NBC (or other body offering such service) to carry out a MAP type exercise (see paragraph 8.60) in Cardiff. CCT replied that it had officers who had knowledge of MAP and CCT had in fact participated in a MAP exercise with the local NBC subsidiary. CCT's view was that MAP exercises were most likely to be beneficial in situations where the bus service network had been static for long periods and where other information, eg details relating to traffic delays etc, was not readily available. In Cardiff the bus service network had been the subject of a major revision in 1972 and 1975 with lesser revisions subsequently and major revisions again in 1981. Additionally, working groups such as the South Glamorgan CC Bus Working Group, Swissperfo studies and City Council advance planning working parties already provided, on an on-going basis, much of the information obtained by a MAP exercise. These factors, coupled with the relatively small and compact area it served and the developed process of consultation with passengers and elected members of both CCT and South Glamorgan CC suggested to CCT that a MAP exercise was unlikely to produce new information commensurate with the cost of undertaking such an exercise. CCT further justified its position by drawing attention to the rate of passenger loss between 1974 (the year following the introduction of its first major revision) and 1981, which had been one of the lowest in the country.

8.59. It appears that certain limited surveys have been carried out by or for CCT. These surveys, however, have not been comparable either in scope or in depth with the MAP exercise of BOC and TMT, or the area studies of WMPTE. Paragraphs 8.20, 8.24, 8.70 and 8.93 record the considerable economies resulting from such exercises. We believe that in the case of CCT they would also bring economies worth many times the cost of the work involved.

BOC

Procedures for matching supply and demand

8.60. BOC has no specifically designed timetable for service revisions. Action in the past has been stimulated by three main factors. First, BOC seeks to serve any new residential or other land use development at the earliest

opportunity. This objective is laid down in the relevant PTPs of the counties from which BOC receives revenue support. Second, management action is also stimulated by public requests either directly or through local councils and groups to the company for new services. Finally, management action is also stimulated by the continual review of individual service performance. A close review is made of the deficits which are being incurred in relation to the level of revenue support which is being received from county councils. Further to these, and in common with other NBC subsidiaries, BOC has carried out a company-wide review of all its services. This review, the Market Analysis Project (MAP), involved a full survey of existing bus passengers and a sample household survey. Given the results of these MAP studies BOC was able to submit to the relevant county councils proposals for service revisions. The MAP studies commenced in September 1979 with the first major service revisions being introduced in October 1980. The last group of service revisions, relating to country services in the Swindon area, was introduced in January 1982.

8.61. In the period 1976–81 the financial situation of BOC deteriorated. BOC has told us that during these years it was progressively introducing service revisions with a view to reducing the operating deficit, taking into account the levels of revenue support which the company was able to obtain from the county councils. Notwithstanding the action taken, the deficit generated in the three main counties, Avon, Wiltshire and Gloucestershire, rose from 8.5 per cent of total stage carriage revenue in 1977–78 to 25.8 per cent in 1980–81 whilst the proportion of deficit covered by revenue support in these three counties fell from 73 per cent to 29 per cent. Thus, a general imbalance between supply and demand persisted, and it was clear to BOC that a large scale revision of services was overdue. It was against this background that the Market Analysis Project was introduced.

MAP reviews

8.62. The aim of MAP was to improve the financial viability of the services, given the existing pattern of demand, and, as a corollary, it also provided a firm data base from which to begin negotiations with local authorities on the level of revenue support.

8.63. The basic MAP methodology is set out in the MAP operating manuals prepared by the NBC. MAP is designed to produce information related to bus passenger demand and the costs incurred in meeting that demand 'to enable rational judgements to be made to ensure some stability in the level of service provision and in passenger usage of the services provided. This requires the consideration of three main elements of bus service provision, namely network coverage (ie the route pattern), service design (frequencies etc) and revenue. Within this design cross-subsidisation is taken to be the norm'. The area of BOC's operation was divided into 13 study bus systems and a MAP report was produced for each one.

8.64. The original aim of MAP was to provide services without 'undue cross-subsidisation'. In practice networks are designed to achieve break-even financial results, and the size of the network is maximised subject to this

constraint. The network which emerges is not in any strict sense a group of routes which is defined by complementary supply and demand conditions. NBC policy has been to achieve the largest break-even network.

8.65. An important element of MAP is the on-bus survey of passengers. Passenger journeys by time of day are allocated to origin and destination zones. At the most detailed level of consideration flows are allocated to 'fine' zones, ie Bristol City has some 81 'fine' zones. The demand pattern is then built up on the basis of flows between these fine zones. The fine zone demands are aggregated to provide information on the main 'corridors' of travel.

8.66. The day is divided into 14 or 15 periods, and separate weekend periods are identified. These divisions represent a basic segmentation of the market. Services are then built up using the survey information; first, the service between peaks is defined, then the peak and other off-peak services. NBC has told us that the between-peak service, being the profitable segment, would be defined, and then the other services would be provided within the break-even constraint for the overall network. The rationale for this approach is that it takes account of the make-up of operating costs. The eight off-peak hours in the middle of the day, plus two hours of peak before and after, give a basic 12 hour day, which can be met more economically in certain circumstances, particularly in less densely populated areas than the previous approach of maximising vehicle usage by operating two full eight hour shifts. Route revisions can take place in the light of the density of demand or in response to the characteristics of varying classes of passenger who have differing accessibility requirements. No formal accessibility standards are applied.

8.67. System design generally takes place by consideration of each corridor on an incremental basis, but frequencies are not planned by preparing detailed schedules. Instead rough and ready rules are applied, and services are built up on an incremental basis. A load factor of 65 for a 78-seat double-deck bus at the maximum demand period (the morning peak inward or evening peak outward flows) is the minimum target. The period looked at might be as little as one-quarter or as much as a whole hour. Where there are more than 65 passengers in the maximum period requiring a service it is impractical to do other than ensure that their demands are met even if this results in buses having a load of less than 65. For example, when 160 passengers require a service in the period, three buses are run. Generally the maximum target load factor planned for is 90 per cent (70 seats) to allow for fluctuations in demand and errors in the analysis. No formal target load factors for off-peak services are specified in the MAP manuals. The team responsible for the MAP studies in BOC told us that in planning off-peak services on rural and inter-urban routes, it sought to achieve loadings of 15-20 passengers per hour.

8.68. The MAP break-even network provides a basis from which subsequent discussions with county councils can be carried out. However, not all the initial MAP networks were drawn up on a break-even basis, eg the study bus system for North Avon included a provision for revenue support at the outset.

8.69. The county councils, by virtue of their revenue support payments, influence the extent of the network in two ways. First, a different break-even network from the initial MAP network can be defined which would result in a different pattern of cross-subsidisation. Second, further routes can be added to either of these break-even networks. These additions can take the form of the specific 'buy backs' of individual routes, or an overall subsidy to support the group of additional routes. The former case, where counties support specific routes, is known as 'route support' although the description is misleading in that support for individual routes presupposes the existence of an initial cross-subsidising network designed to meet 'basic' needs. The latter case is called network support.

8.70. The service revisions following from the MAP exercises and discussions with the local authorities, were introduced throughout BOC's operating area between October 1980 and January 1982. Table 8.5 sets out the changes in peak vehicle requirement and mileage resulting from the MAP proposals, and the requirements of the county councils.

TABLE 8.5 BOC: reductions in supply resulting from MAP

<i>Bristol City study bus system</i>	<i>Peak vehicle requirement</i>	<i>Mileage per week</i>
Pre-MAP level	303	214,449
MAP proposals	188	152,577
Changes by BOC	—	+ 350
Changes by county councils	+ 36	+ 22,744
Post-MAP level	224	175,671
<i>Total all areas</i>		
Pre-MAP level	762.9	596,148
MAP proposals	479.0	409,253
Changes by BOC	+ 2.0	+ 4,038
Changes by county councils	+ 50.0	+ 37,547
Post-MAP level	531	450,838
<i>Total all areas per cent</i>		
Pre-MAP level	100.0	100.0
MAP proposals	62.8	68.6
Changes by BOC	+ 0.3	+ 0.7
Changes by county councils	+ 6.6	+ 6.3
Post-MAP level	69.6	75.6

Source: BOC.

8.71. The reductions in peak vehicle requirement, 30.4 per cent, and in mileage, 24.4 per cent, are somewhat greater than those achieved on average in other NBC subsidiaries, where the reductions have been 26 per cent and 19 per cent respectively.

8.72. To obtain an insight into the financial consequences of MAP we have considered the operating ratios before and after the MAP revisions introduced between October 1981 and January 1982. The timetable for these was:

4 October 1981	Bristol City
11 October/22 November 1981	East Avon and West Wiltshire
1 November 1981	Cheltenham Town
3 January 1982	Gloucester City
24 January 1982	Swindon rural

The pre- and post-MAP operating ratios are shown in Table 8.6.

TABLE 8.6 BOC: operating ratio by type of service and area pre- and post-MAP

Area	Type of service and operating ratio %					
	Urban	Rural	Inter-urban	Schools	Works	Total
<i>Bristol City</i>						
Pre-MAP	75.3	—	—	41.4	33.6	74.1
Post-MAP	89.9	—	—	63.7	47.9	88.9
<i>Cheltenham Town</i>						
Pre-MAP	80.8	—	—	57.1	33.6	80.4
Post-MAP	93.6	—	—	46.2	46.6	90.7
<i>Gloucester City</i>						
Pre-MAP	80.4	—	—	—	21.7	79.8
Post-MAP	91.4	—	—	—	23.8	90.8
<i>East Avon</i>						
Pre-MAP	44.2	66.2	79.8	—	15.5	72.4
Post-MAP	50.5	71.7	77.5	—	16.1	74.3
<i>West Wiltshire and Swindon</i>						
Pre-MAP	66.4	64.7	74.4	—	—	68.8
Post-MAP	72.3	69.8	84.9	33.1	14.9	77.4

Source: BOC.

All pre-MAP data relate to January-October 1981, post-MAP data for Bristol City are for November 1981. Allowance for the strike in Bristol City in February 1981 raises operating ratio for city urban services, and all services, to 78.3, and 77.2 per cent respectively. Post-MAP data for other areas relate to February 1982.

8.73. All the areas have shown an improved operating ratio, but it is not possible unambiguously to ascribe all of this to the MAP exercise. Other factors may also have had favourable and unfavourable effects on BOC's financial results. Nevertheless, MAP must be given credit for a major part of the improvement, particularly as the service revisions in Bristol City led to a 26 per cent fall in peak vehicle requirement, and an 18 per cent fall in mileage. In the City of Gloucester the peak vehicle requirement fell by 32 per cent, and mileage fell by 26 per cent.

8.74. Following the changes introduced by the application of the MAP proposals, BOC undertook loading surveys on the Bristol City services in November 1981 and February 1982. It was not possible to consider all services within Bristol, but the routes shown in Table 8.7 cover approximately 60 per cent of the total route mileage of the city services. These loading surveys were taken at the peak loading point, and apart from the outbound flow from 09.00 to 13.00 hours they refer to the direction of maximum flow. The loadings are averaged over the periods shown and the route aggregations correspond to broad corridors of demand.

8.75. As a follow-up to MAP NBC is developing two further projects. The first, MISARS (Management Information System for the Age of the Relaxed Licensing System), is a monitoring system which will enable the depot superintendents to assess the financial viability of particular journeys rather than the route as a whole. The second project is described as a total marketing system, the aim of which is to conduct an in-depth off-bus market survey to assess the needs of the passengers. The areas to which this total marketing will be applied are envisaged to be smaller than existing MAP study bus systems.

TABLE 8.7 BOC: capacity utilised at peak loading point (Bristol City services Monday to Friday)

Route	Passengers/seat %			
	Morning peak	Afternoon peak	Between peaks	
	Inbound 07.00-09.00	Outbound 15.00-18.00	Inbound 09.00-13.00	Outbound 09.00-13.00
20-25	57.4	62.6	44.3	26.9
72, 74, 75, 77, 78	74.5	67.9	38.9	18.2
27-29	60.4	78.5	49.2	15.3
51-55	60.9	67.4	52.9	18.5
10, 11	52.6	73.1	65.5	27.8
87, 88	78.9	63.7	39.9	25.8
56-59	57.2	71.3	36.8	25.5
Average capacity utilised	66.3	68.2	44.4	21.4

Source: BOC surveys taken in November 1981 and February 1982.

TMT

Procedures for matching supply and demand

8.76. TMT's financial position has been causing concern since 1976, and for this reason its service reviews have taken the form of substantial remedial schemes rather than 'good housekeeping' reviews. The first such scheme was the Action Plan in 1976, then MAP was introduced in 1978, and August 1980 saw implementation of the Nottingham Action Plan.

The 1976 Action Plan

8.77. The immediate background to this Action Plan was that the 1975 operating results for the company showed a loss, after provision for replacement of assets, of more than £1.25 million, and the following year showed some improvement, but still a substantial deficit. Before this TMT had been amalgamated with the Midland General Company at the beginning of 1972, but, partly because of a Government request to NBC to continue the operation of loss-making services while the newly constituted local authorities decided their revenue support levels, the routes of the previous Trent and Midland General companies had not been rationalised. The management of TMT believed that for this reason alone the Action Plan did not need to take a very sophisticated approach to cost cutting; drastic remedial action was necessary.

8.78. At the time of the Action Plan TMT believed that appreciable increases in stage carriage fares would be counter-productive, so the proposals concentrated on administrative and operational economies. Under the first heading came projects such as bringing wage rates and bonuses on to a common basis throughout the company, and the introduction of standard bus running boards and waybills. The operational economies were based on loading checks carried out on most services. In arriving at the proposals, TMT's policy was to maintain the existing network of services as far as possible so that every community which was then served would continue to have a service, even though this might have to be at a reduced level. The changes provided the opportunity to join up and rationalise some Trent and Midland General routes. The plan envisaged the withdrawal of 3 million bus miles

annually and reduction of the peak vehicle requirement from 452 vehicles to 408 (not including spares) and allowed a considerable number of older types of vehicle to be disposed of, thus reducing the average age of the fleet. Action Plan also contained proposals to increase the level of one-man operation initially from 36 per cent to 57 per cent.

Nottingham Action Plan

8.79. The Nottingham Action Plan has been described by TMT as 'the largest ever company package'. It was implemented on 31 August 1980 and saved 40 vehicles and 610,000 bus miles per annum and eliminated 100 jobs. TMT told us that service reductions became urgently necessary when difficulties arose over the timing and amount of revenue support to be received from Nottinghamshire County Council. There was a shortfall of about £500,000 and TMT had to take action promptly to prevent its deficit from rising beyond that planned.

MAP

8.80. While TMT was responding to its own need to reduce services, the MAP exercises were begun in NBC. TMT then adopted the procedures and MAP surveys began in Trent in 1978. Subsequently schemes for Matlock (1980), Buxton (1981), North East Derbyshire (1981) and Nottingham (1982) have been implemented. Data for the Erewash Valley services are being analysed, and a scheme is planned for implementation in 1982. TMT services in Derby have not been studied as Derby City Transport does not wish to participate in a MAP exercise and TMT services in Derby are already the subject of a co-ordinating agreement (see paragraph 10.35). The Mansfield area also remains to be surveyed. TMT has estimated that MAP had covered 80 per cent of its geographical area, and 60 per cent of its traffic.

8.81. TMT has told us that in planning the Nottingham MAP exercise the first option would have been a completely commercial network, but this would have conflicted with the policy of the present Nottinghamshire County Council not to cut services. In view of the revisions carried out as in the Nottingham Action Plan and the importance of revenue support from Nottinghamshire, they made only good housekeeping changes.

8.82. The surveys on which the MAP proposals were based were carried out in 1978-79 for the whole TMT area except Ilkeston Town, Mansfield and Derby. The delay between survey and implementation was largely due to a backlog of computing in NBC. However, Trent assured us that no major decisions had been taken without a recheck of the demand characteristics.

8.83. On-bus surveys were the main source of demand data. Household surveys were tried and early MAPs incorporated street interviews together with a census-type approach to households, but as the response rate was low TMT decided not to use the results. The response rate to the on-bus survey was about 90 per cent. Although on-bus surveys do not specifically identify desired new service links, the MAP data do occasionally show obvious gaps which indicate that the service provision could be radically changed.

8.84. The MAP manual of procedures recommends that the degree of cross-subsidisation be examined; although the overall financial performance of each service is documented cross-subsidisation is not explicitly considered. The manual also recommends that consideration be given to fares experiments, but TMT told us that revenue support had been insufficient to allow it to embark on any major fare experiments associated with MAP.

8.85. A special allocation of £250,000 was put aside to cover all the expenses of data collection. Derbyshire County Council contributed to the cost although other counties did not do so.

The Buxton MAP

8.86. The procedures followed by TMT in redesigning services through MAP are shown by the Buxton exercise which was implemented in 1981. Although it is a small network the exercise also usefully illustrates the involvement of the Derbyshire County Council because in the course of planning it became clear to TMT that the Buxton services could not be redesigned to operate without revenue support. As Derbyshire County Council was willing to provide support of £75,000 per annum, TMT designed a network which took this into account. The provision of school services was an important consideration of Derbyshire County Council.

8.87. In this exercise the provision of off-peak services was determined first, and then the peak provision was added to it. The two main movement corridors are served by the 198 and 199 routes operating via Buxton and Whaley Bridge, Chapel-en-le-Frith and Stockport, and the 185 Fairfield-Buxton-Harpur Hill-Burrow. TMT has told us that without revenue support it would probably have not provided the other services on the rest of the network.

8.88. Consultations on the proposals took place with the unions most involved in the Buxton depot where employment had been declining for some time before the MAP exercise. The staff made suggestions for route alterations and timings, some of which were accepted by TMT.

8.89. The proposals were presented to Derbyshire County Council in September 1980. TMT planned to reduce the peak vehicle requirement from 24 buses to 15 through a considerable flattening of the peak. Although the proposals involved a more efficient use of resources, some school journeys would have been adversely affected by the service reductions. The County Council's Planning and Transportation Committee suggested that the possibility of tendering be explored, but it was decided that this would not result in a lower cost than that of TMT. The solution to the difficulty was found by altering the starting and finishing time at one school. County Council planning officers used the TASC computer model to assess the network, but concluded that manual scheduling could be as efficient for a network of this size.

8.90. TMT has provided us with the Buxton services operating ratios for eight accounting periods before the implementation of the scheme, and for nine accounting periods immediately afterwards. These show an average improvement from 76 per cent to 86 per cent. A post-MAP loading survey on

the 198/199 route showed a peak load factor of 90 per cent of seats occupied in the morning peak at the maximum loading point, and 124 per cent in the evening peak. On the 185/6 service the post-MAP survey showed morning peak occupancy at the maximum loading point to be 100 per cent, and 71 per cent in the evening peak. Thus, while it is not possible to attribute all of the improvement in results unambiguously to MAP, it does appear to have been successful.

Monitoring of MAP schemes

8.91. MAP schemes are not all monitored to the same extent; the more radical the change the more thorough the monitoring. When a MAP scheme is implemented both the county and TMT check for late, empty and full buses. Waybills are examined and figures on takings compared with expected revenue. Revenues are compared with costs as soon as both are available.

The benefits from MAP and the future

8.92. TMT told us that it thought that its MAP programme as a whole had paid for itself. The existence of information about the characteristics of passenger demand, and the better-informed management decisions had justified its considerable investment in the exercise. It also said that when the MAP programme was complete it would establish a continuing review. The traffic development section, with three full-time staff, had been especially set up to deal with future MAP type service revisions, and would be looking ahead to the future of the network, and working out how to retain existing passengers and attract new ones. TMT will also adopt the procedures being developed in NBC and which are described in paragraph 8.75.

8.93. Table 8.8 shows the operational economies made by TMT since 1978 as a result of all the measures it has taken to improve the demand/supply balance. The early years reflect the implementation of mileage savings and OMO conversion proposed in the 1976 Action Plan. The Nottingham Action Plan provided a large part of the company savings in 1980 and a sizeable OMO conversion programme took place in 1981.

TABLE 8.8 TMT: savings through operational economies 1978-81

	Stage carriage mileage (Thousand miles)	Resources savings		Money savings (1981 prices) £'000
		Buses (PVR)	Drivers & conductors	
1978	730	37	52	587
1979	300	18	57	429
1980 company	1,105	51	154	1,342
1980 MAP	100	7	11	311
1981 company	35	2	135	835
1981 MAP	230	10	22	247

Source: TMT.

Present performance on load factors

8.94. To assess present performance in terms of seat occupancy TMT carried out a loading survey from November 1981 to March 1982 on its most important 33 routes measured in terms of revenue. These routes accounted for 80 per cent of TMT revenue. The survey collected data at the maximum loading points on the routes during the Monday to Friday morning and evening peaks, the morning and afternoon off-peak, and on Sunday. The results are shown in Table 8.9.

TABLE 8.9 TMT: load factors (per cent of seats occupied) surveyed during January, February and March 1982

<i>Time</i>	<i>Average</i>	<i>Minimum</i>	<i>Maximum</i>
<i>Mon-Fri</i>			
Peak am	90	33	125
Peak pm	91	48	124
Off-peak am	59	15	120
Off-peak pm	62	22	151
Sunday	20	7	43

Source: TMT.

8.95. These data suggest that TMT has been able to achieve a reasonably balanced provision of service between the morning and evening peaks, and between the off-peak periods. During the morning peak 12 of the 33 routes had load factors in excess of 100 per cent, and 20 had load factors between 50 and 100 per cent. Loadings on Sundays are considerably below those achieved in the weekday off-peak.

8.96. TMT told us that some of the more lightly loaded off-peak services would be those retained at the request and expense of the relevant county councils, and at an hourly frequency which is the minimum acceptable. They also pointed out that some of the apparently lightly loaded services were making a contribution towards fixed costs.

Planning for service revisions in the future

8.97. The financial position of TMT is still a matter of concern, and its management has given thought to what actions it may take in the future should the recent improved performance not be consolidated. Its planning has been incorporated in the current Corporate Plan to 1986.

8.98. Before the upturn in late 1981 it had appeared to TMT that it would not be able to achieve its target of breaking even on a CCA basis by 1985 without 'withdrawal from appreciable areas which are currently served by the company'. The 1981 Options Review, which was undertaken by all the NBC companies in August 1980, had looked at this situation, and concluded that if it was likely that there would be shortfalls in revenue support TMT would have to retreat to its geographical heartland: the area bounded by Derby, Nottingham, Mansfield and Alfreton. The free-standing outlying areas in West Derbyshire and High Peak and in East Staffordshire would cease to be served, thereby saving about 1.2 million vehicle miles/year. Such a decision would be taken on financial grounds; cutting out whole areas of the service would allow substantial amounts of fixed cost to be saved.

8.99. Another item in the Corporate Plan anticipates that stage carriage mileage will fall by 10 per cent over the Plan period. Again this will be modified in the light of the better 1981 figures, but if needed it is to be achieved by cutting services at times when it is unprofitable to provide them, primarily on Sundays and evenings rather than by cutting out routes or areas. There will also be some adjustments to peak services resulting in a fall in peak vehicle requirement of up to 14 per cent over the Plan period.

Fares and fare structure

WMPTE

8.100. In the West Midlands County there is a distance-related and tapered fare scale for bus services based on stages of approximately one kilometre. For cross-boundary services there are separate but similarly structured scales. There is no return fare. Child fares are half adult fare up to 14 stages when a maximum of 35p then applies. Season tickets, at a discount, in the form of Travelcards are available for county-wide travel, or travel limited to one area (in Coventry, Walsall and Wolverhampton only). There are also student and child Travelcards having differing periods of validity and use. WMCC provides passes for free off-peak travel to old age pensioners, and district councils provide blind and disabled persons with travel passes. On night services in the City of Birmingham a flat fare of 80p is payable or 40p for Travelcard holders.

The level of fares

8.101. Table 8.10 shows the increases in fares between 1974 and 1982. Between 1976 and 1981 fares rose about 48 per cent in real terms. As a result of the average increase in actual fares of 67 per cent in March 1982 the real increase between 1976-77 and 1982 is 60 per cent. The general policy has been to put up the price of the Travelcard less than that of the fares paid on the bus.

8.102. In explanation of these movements WMPTE has told us that at the beginning of the period inflation was rapid and fares were frozen, so real fares fell and traffic grew. However, this policy could not be sustained and by 1976-77 fares were back at the real level of two years before. In 1977-78 the new County Council announced a policy of reducing revenue support by £2 million per year. This was achieved principally by increasing fares, rather than by a major cost cutting exercise.

TABLE 8.10 WMPTE: fares indices (November 1974=100)

	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
<i>Actual prices</i>								
Fares on bus	100	114	147	202	239	282	375	340
Travelcard	100	110	135	175	205	232	294	281
Average	100	114	146	199	234	273	360	327
<i>Real prices</i>								
Fares on bus	100	90	101	121	133	134	154	129
Travelcard	100	87	93	105	114	110	121	106
Average	100	90	101	119	130	130	148	124

Source: WMPTE.

Note: Each figure represents the 12 month average of fare levels for the year in question.

The 1981 fare reduction and 1982 fare increase

8.103. Following the severe reaction to the two fares increases in 1980, and in the light of the earlier increases in real terms, the new County Council decided in 1981 that it was essential to reduce the level of fares. The Executive was asked to prepare proposals to meet the objectives of reducing fares by an average of 25 per cent, and of introducing a 2p flat fare for children.

8.104. The main changes made on 6 September 1981 were that adult fares were reduced by an average of 24 per cent, Travelcards reduced by an average of 21 per cent, and children's fares reduced to 2p flat fare. WMPTE forecast that the loss of revenue would be £10.4 million in 1981-82 and £17.9 million in a full year, and that there would be an increase of around 10 per cent in passenger journeys made by fare-paying passengers. A supplementary rate was levied to finance the reduced fares.

8.105. WMPTE has told us that comparison of the figures for October/November 1981 with those for the corresponding period in 1980 shows there was an increase of 10.2 per cent in passenger journeys. The increases in travel were largely due to children. The data show an increase of 1.3 per cent in adult travel (on-bus payment and Travelcard), a 57.5 per cent increase for children and an 8.6 per cent increase in old age pensioners' free travel journeys. An analysis by time of day showed that passenger journeys increased at all times except weekday early mornings (before 07.29) and during the morning peak period (07.30-09.29); however, at the height of the peak (08.00-08.29) there was an increase in passenger journeys principally due to a 33 per cent increase in children's travel during the half hour, equivalent to an additional 10,500 journeys. WMPTE thought it was difficult to predict accurately the effects of the policy, particularly in relation to children's fares; however the overall cost was less than anticipated.

8.106. On 25 January 1982, following proceedings in the High Court to challenge the supplementary rate, the County Council approved a 67 per cent fare increase to take effect from 7 March. This represented a 27 per cent increase over the August 1980 fare level. WMPTE expects to lose 20 per cent of its traffic as a consequence. A considerable proportion of this will be children. The full effect of the increase, however, will not be felt until about July 1982 because in the three weeks up to the fare increase 38,000 people bought 13 week Travelcards at the old price.

Travelcards

8.107. Travelcards confer benefits on bus users and other road users, but they also impose costs. WMPTE Travelcards are purchased because they offer a discount (on average about 27 per cent), the convenience of not having to find the exact fare at the time of travel, and a cheaper interchange facility. Users travel more and WMPTE may have to provide extra buses depending on whether there is spare capacity when the extra trips are made. On the other hand, use of Travelcards reduces boarding times thus speeding up running times and saving operating costs and reducing journey times for all passengers. There are costs to WMPTE of issuing Travelcard.

8.108. We have made an assessment of the costs and benefits of Travelcard looking at varying combinations of the existence of spare capacity in the peak and off-peak, and the method of cost allocation. We have concluded that, using WMPTE's own figures for the amount of travel generated, Travelcard shows a net benefit to the community.

The common fare

8.109. The PTE's development plan in 1972 aimed for a common fare on all routes, whether bus or train. This policy has been endorsed by WMCC, and has remained so notwithstanding changes in political control. Following the incorporation of Midland Red and City of Coventry services in 1973 and 1974 the opportunity was taken to harmonise the fares by stages, a common basis being achieved in 1975 for bus fares. The present WMCC has told us that following the House of Lords decision on London Transport fares it may be necessary for it to depart from the common fare policy.

8.110. Both WMCC and WMPTE have put forward arguments in favour of common fares. We understand that a predominant view has been that as revenue support was provided for the WMPTE network it was equitable to have a common fare. It was also believed that such a fare structure maximised the use of the network. WMPTE has no view on whether this is so, but has stressed that the policy is practical, and is generally regarded as being equitable.

8.111. WMPTE said that the only departure from the common fare which it thought justified would be to put a premium on special provisions such as fast services or night services. Apart from these it was more concerned to provide a uniform standard, to minimise the cost of providing that standard of service, and to endeavour to market the travel at a price which would give the optimum amount of revenue and traffic retention. Whilst it would be possible to charge different on-bus fares on different services it would not be easy to differentiate for the Travelcard which is a network ticket.

Experimental fares

8.112. A recent experiment has been the Monday Funday. In February 1981 WMCC decided to reduce bus fares within the metropolitan county to 10p for every journey for adults, and 5p for children on Mondays only for an experimental period. It lasted 15 weeks and WMPTE estimated its cost to be £1.5 million. Of this £566,000 was estimated to be lost Travelcard revenue, £675,000 on-bus revenue, and £280,000 was extra operating costs.

8.113. WMPTE recommended that the experiment be off-peak but WMCC did not act upon its advice. The effect of the experiment was, therefore, that a large number of peak travellers who would have travelled anyway enjoyed a sizeable fare reduction. Monitoring of the experiment showed that no peak travel was generated, but WMPTE had to operate an extra 77,000 bus miles to cope with the extra off-peak travel.

CCT

8.114. Within the City of Cardiff ordinary fares are based on five zones. The inner zone is 1 km in radius and centred on the Queen Street shopping centre. The succeeding zones are 3, 5, 7 and 9 kms in radius respectively. The basic fare is the ordinary adult single; no return fares are available. Additional to this basic fare structure are a lower priced off-peak fare scale, reductions for seasons ticket holders (Multiride) and family groups and various concessionary fares.

8.115. The increases in fares since November 1974 are shown in Table 8.11.

TABLE 8.11 CCT: fare increases

<i>Date</i>	<i>% increase</i>
27.10.74	7.7
6.4.75	50.0
4.1.76	9.2
3.10.76	9.6
14.8.77	14.2
13.8.78	7.4
2.9.79	14.4
6.4.80	14.6
4.1.81	18.6
4.1.82	11.7

Source: CCT.

Over this period fares rose on average by 312 per cent. This implies a rise in real terms of 53 per cent.

Multiride tickets

8.116. The Multiride ticket allows travel throughout the CCT network for a fixed sum and is available for weekly, monthly, three monthly and annual periods. Some 21 per cent of passenger journeys are undertaken by Multiride ticket holders and the discount for an adult ticket ranges from 30 per cent for the weekly ticket to 52 per cent for the annual ticket. Taking all factors into account, we have estimated that Multiride generates a net social benefit.

Fare experiments

Family tickets

8.117. Family tickets are available at weekends and after 18.15 hours Monday to Friday and allow, for a fixed price, unlimited travel within the city for up to two adults and four children on the day of issue. Originally, use on Saturday was limited to after 18.15 hours but the scheme was extended to cover all day Saturday in January 1981.

The off-peak fare

8.118. The off-peak fare scale applies between 09.15 and 15.45 hours on Mondays to Fridays, and offers a discount of 25 to 50 per cent on the peak fare depending on the number of zones travelled.

8.119. The reduced off-peak fare is of significance not only for its financial implications but also for its importance in assessing the response to competition from CK Coaches (see paragraph 11.9). The possibility of reduced off-peak fares was raised at the November 1980 meeting of the Transport Committee which resolved that the General Manager produce a report on the introduction of reduced fares for certain periods of the day. The Policy (Finance) and Transport Committees were advised by the General Manager in January 1981 that previous experiments of this kind in other parts of the country had succeeded in increasing patronage but only at the expense of a fall in revenue. The General Manager at this time recommended that the family ticket scheme be extended but did not recommend that a cheap off-peak fare be introduced. Nevertheless, the Transport Committee resolved that a reduced fares scheme should be introduced, and called for a further report.

8.120. At the May 1981 meetings of the Transport and Policy (Finance) Committees the General Manager gave details of the experience of extending the family ticket scheme. The scheme had resulted in an increase in patronage and was expected at worst to lead to increased losses of £10,000. Given this experience with the family tickets the General Manager recommended the adoption of the off-peak fare reduction. The expected losses from this scheme, to be introduced in June 1981, for an experimental period of six months, were not quantified. The recommendation was adopted by both the Transport and Policy (Finance) Committees.

8.121. For a further meeting of the Transport Committee in July 1981 the loss of revenue from the off-peak fare reduction was estimated to be £214,000 per annum. At this time the total residual deficit for 1981-82 was expected to be £1.025 million with an operating deficit of £1.465 million. The size of this deficit was not made explicit to either the Transport or Policy (Finance) Committees in July 1981. In September 1981 the revenue loss due to the off-peak scheme was re-estimated to be £240,000, and the General Manager suggested to the Transport Committee that a decision on future fares policy be deferred because of, among other things, uncertainty due to competition with CK Coaches, and the results of a sample survey on the public's attitude to various options on fares policy which he had commissioned.

8.122. In October 1981 a proposal for an average fares increase of 13.8 per cent, to be implemented in January 1982, was considered by the Transport Committee. These proposals were given further consideration by the Committee in November 1981 when they were approved in the anticipation that the residual deficit would be reduced to £755,000. The off-peak fares scheme was also made a permanent feature of the fare structure. At a subsequent meeting of the City Council in November 1981 the increase in fare for the first zone was reduced by 5p. This has been estimated to have decreased the expected revenue from the fares increase by £184,000. The financial implications of the alteration to the fare proposal were not requested or taken into consideration by the City Council.

8.123. It has been put to us by the City Council that the reduced off-peak fare scheme achieved two aims. First, it maintains overall patronage in an

adverse economic situation, and thus helps preserve the existing route structure. Second, it was the only means legally available to the council of giving particular help to the unemployed in respect of bus fares.

BOC

8.124. BOC has a distance-related scale for single adult and child fares for each of four areas; Bristol City, Swindon, all other urban areas, and country areas. In addition to the basic scale BOC offers discounted fares to particular segments of the market. These are as follows:

- (i) Off-peak day returns providing at least a 25 per cent discount on two single fares are available after 09.00 hours on Monday to Friday inclusive, and all day on Saturday, Sunday and Bank Holidays.
- (ii) Farecards are available for journeys between two specified points and offer discounts of 15–40 per cent depending on the period of the ticket.
- (iii) Rovercards are available for unlimited travel on the urban networks of Bristol, Bath, Cheltenham, Gloucester, Stroud, Swindon or Weston-super-Mare together with a Maxi Rovercard for the whole of the company's services. In April 1982 a Rovercard for the county of Avon was introduced.
- (iv) Weekend reductions for children; two children can travel free when accompanied by two adult fare-paying passengers on Saturdays, Sundays and Bank Holidays.
- (v) NBC Explorer tickets—these offer an unlimited day's travel on most participating NBC company services.

The level of fares

8.125. Over the period from March 1975 to April 1982 the increase in the basic fare scale for country services was 253 per cent whilst that for the Bristol City services was 211 per cent. This implies an increase in real terms of 61 per cent for the country fare scale and 34 per cent in the City fare scale.

8.126. BOC has told us that it regards this as an inappropriate comparison for a labour-intensive operation such as it undertakes, and considers an earnings index to be more relevant. BOC explained that during the 1950s when demand was still growing fares rose less than the RPI, but this situation reversed in the 1970s and, additionally, BOC had to compete for scarce labour. Prior to 1974 it was generally only possible to obtain revenue support for rural services under section 34 of the 1968 Act; wider powers to shire county councils to make revenue support grants were only introduced with the re-organisation of local government from 1974. BOC explained that 'we allowed the growth of cross-subsidisation, which has definitely meant that fares were higher on average than they would otherwise have been, to maintain the networks without revenue support. We sought to maintain a service . . . by acting as a social agency, which we can no longer do. We have tried to maintain services that the county councils have wanted us to do without them necessarily paying the full cost of what is needed. [The rise in fares] is a combination of all these factors.'

Season tickets

8.127. Season tickets in the form of Farecards and Rovercards form a growing proportion of BOC revenue. In 1973 some 4.3 million passenger trips were taken by Farecard and Rovercard holders and by 1980 this had risen to 13.9 million trips. The bulk (70 per cent) of the revenue earned by these cards is accounted for by Rovercards. The importance of Farecards and Rovercards varies significantly between areas, for example, in Bristol City 16 per cent of adult journeys are made in this way, while in the City of Gloucester they are used on 30 per cent of adult journeys.

8.128. The discount for Rovercards and Farecards has been growing over time, with successive fare increases being proportionally greater for the ordinary fare scale. At our request BOC carried out a survey of Rovercard use in the City of Bristol. This revealed that the value of the average number of Rovercard journeys there was equivalent to £6.30 per week, for primary journey purposes, and an additional £1.67 per week for optional trips. The average payment for a Rovercard was £4.22 per week ie a discount of 33 per cent for the primary journey purpose. MAP survey data showed that 16 per cent of passenger journeys were undertaken by Rovercard holders and generated 10 per cent of the revenue.

8.129. BOC identified one advantage of Rovercards to be an interest saving due to cash in advance. A further effect was on the speeding up of boarding times but this was difficult to quantify and any savings could be swallowed up in congestion delays. BOC has reached the conclusion that the discount on Rovercards has been allowed to grow to an excessive degree. In January 1982 Rovercard prices, outside Avon, were increased by a greater percentage than that applied to the ordinary fare scale. The Gloucester Rovercard increased from £2.80 to £3.30 (17.9 per cent) compared to the ordinary fare increase of 10 per cent. Increases on a similar scale within Avon were introduced in April 1982.

Fare experiments

8.130. BOC has undertaken relatively few fare experiments. Two off-peak fare schemes are of particular interest, the Woodspring scheme and the Avon-fare scheme. Woodspring District Council (in South Avon) operated a reduced off-peak return fare scheme. In return for a pass (£2 pa for adults), all Woodspring residents could travel on BOC buses at a maximum flat rate return fare of 50p for adults, and 35p for OAPs (November 1981). Journeys could begin or end in Woodspring district but had to commence after 09.00 hours. The method of payment to BOC was based on what BOC would lose on the fares of those travelling at the flat rate maximum compared to the ordinary fare scale. Offsetting this Woodspring DC received 'credits' to be set against the BOC loss proportion for all the additional journeys created by the scheme. Journeys were estimated to have increased by an average of 6.6 per cent. Pass holders could return in the evening peak, and this led to BOC providing duplicate buses, the cost of which was borne by the District Council. Some routes gave rise to an increase in patronage of 20 per cent, and on these routes BOC increased the scheduled frequency at no cost to the District Council.

8.131. The Avonfare scheme was introduced in January 1982 and covers all journeys in Avon. The Woodspring scheme was dropped in March 1982 on the grounds that the schemes overlapped. No pass is required and the maximum flat rate return fare is 50p on urban services in Bath and Weston-super-Mare, 60p on Bristol City urban services, and 80p on country services. The scheme was introduced at the instigation of Avon CC which is providing financial support. Return journeys in the evening peak are permitted, the scheme being available on weekdays after 9.30 am, and all day Saturday and Sunday. BOC and Avon have carried out a joint monitoring study to assess this scheme. The results were not available to us at the time of completing our report. Nevertheless, we have made our own limited estimates based on the comparison of the financial results of the Bristol City and Bath services for November 1981 and February 1982. Our estimates suggest that the loss of revenue for these two areas alone may be almost equal to the extent of Avon's planned support for the Avonfare scheme, ie £84,600 per period. If this is so, then for the whole of the County of Avon it is possible that the support required will exceed the budget of £1.1 million pa, if the scheme is continued on the present scale. The effect on the Bristol City services is to reduce the operating ratio (before Avonfare support) to the pre-MAP level, thus it appears that BOC is not fully compensated for the revenue loss deriving from the scheme.

TMT

8.132. TMT has two basic distance-related and tapered scales for single adult fares, Scale A and Scale B, but the fares charged also reflect local variations where TMT has agreements with other operators (see also Chapter 11 for the fares where TMT has responded to competition). Generally, children travel at half the adult fare. On journeys originating in Nottinghamshire children aged five to sixteen pay half fare up to 21.30 hours. Nottinghamshire, Derbyshire, Leicestershire and Staffordshire issue child and scholars' passes giving half fare travel at specified times. Season tickets, at a minimum discount of 10 per cent, are available for unrestricted local travel between two points. Loughborough Rovercards allow unrestricted travel for seven days. National Wanderbus tickets are available, as are special day returns, and family tickets. Twenty-seven local authorities operate concessionary fare schemes for the elderly, the blind and the disabled. In Derby and Nottingham TMT charges the City Transport operators' fares.

The level of fares and the common fare

8.133. Table 8.12 shows movements in the A scale, inherited from the Trent company, and the B scale inherited from the Midland General company. The first two columns are indices of actual fares, while the last two show movements relative to the RPI. Scale A fares have increased by 55 per cent in real terms since 1974 and Scale B fares are now over two and a half times their real level in 1974.

8.134. The Midland General company services covered Alfreton, Ilkeston and Langley Mill. TMT has described them as 'good bus country', that is an urban area with relatively low car ownership. Although Midland General's operating costs were higher than Trent's when it was taken over (because rural services are cheaper to run), its net revenue position was better because it was carrying higher loads even though its fares were lower.

TABLE 8.12 TMT: fare increases since 1974

<i>Date of increase</i>	<i>Nominal</i>		<i>Real</i>	
	<i>Trent</i>	<i>Midland Gen</i>	<i>Trent</i>	<i>Midland Gen</i>
Jan 1974	100	100	100	100
March 1974	112	112	109	109
Sept 1974	125	120	113	108
March 1975	161	161	130	130
Aug 1975	162	162	117	117
Nov 1975	187	195	130	135
Feb 1976	207	236	138	158
Oct 1976	228	265	139	162
Feb 1977	244	297	140	171
Jan 1978	273	344	144	182
Jan 1979	273	380	132	183
July 1979	281	426	123	186
Jan 1980	318	527	130	215
June 1980	344	590	130	222
Jan 1981	388	705	140	254
Jan 1982	429	781	155	281

Source: MMC Study.

8.135. The policy of bringing together the two scales began in 1975, and the process was speeded up in November 1978. Then the Traffic Commissioners refused to let TMT raise fares on both scales on the grounds that putting up fares on Scale A was perpetuating anomalies in the charging system, and discouraging rural travel. TMT appealed and DTp's inspector decided in its favour, but his decision was overridden by the Minister.

8.136. TMT has told us that the policy of bringing together the fare scales developed over time, and was the result of a number of factors. First, when the process of integrating and interworking services began, and the need for interchange diminished, there was a strong case for a common structure. This was reinforced later as it became clear that there were common fixed costs for the two companies after integration had proceeded. Finally, they said that when under pressure to raise revenue it was easier to do this without much passenger loss in the former Midland General areas because of the nature of demand. TMT also noted the pressure from the Traffic Commissioners to bring the scales together. In reply to our question as to whether the former Midland General routes have made a disproportionate contribution to TMT revenues, the company agreed that it was so, but pointed out that the level and quality of the service had improved to a greater extent than on the former Trent routes.

8.137. Although TMT has two fare scales which are in part common there are divergences over a considerable length of its route mileage to take account of fares charged by other operators. In Derby and Nottingham TMT charges Derby City Transport and City of Nottingham Transport fares which are considerably lower than its own, and it has to phase in its own fare scale gradually outside these areas of operation. There are also agreements between operators that fares on a route will be set at the level required by the major operator. In some areas TMT fares are set below scale as a systematic response to competition.

8.138. TMT told us that it can foresee a time when the common fare policy will become less important. First, it is becoming more market-oriented, and is conducting fare experiments. Second, it is facing more competition. On the other hand, it did not think that charging different fare scales in different areas, or on different routes to reflect costs or profits, would always be possible because of problems with common sections of route and difficulties for the drivers and passengers in understanding the scales. Rather, it saw itself responding to market opportunity or competition by diverging from the common fare scale in particular instances.

Season tickets

8.139. Although TMT has offered season tickets to passengers on a monthly and three monthly basis, it has had, in contrast to the other undertakings, only a relatively small proportion of its revenue deriving from such sales. TMT told us that in its area there has been no tradition of favouring this method of purchasing tickets. In pricing its season tickets TMT is conscious that the majority of users are peak travellers which is where the highest costs are incurred. While recognising that season tickets can reduce costs, it believes it important not to set the discount at a point which underprices the peak services. The present discount assuming five return journeys per week is 10 per cent. Now TMT wishes to extend the use of season tickets, so it has introduced a weekly ticket, also at 10 per cent discount. It has no sales target in terms of percentage of revenue from such sales.

Fare experiments

8.140. The Derbyshire fare experiment was introduced in October 1981 initially for a period of six months. It was designed to test the effects on patronage and revenue of a variety of reductions from the standard fare applied in different areas of the county. A preliminary report suggests that the lower fares are encouraging more passengers to travel and that local circumstances are important in the determination of the relationship between fare and patronage. The experiment is continuing for the current financial year within the overall cash limits set for operators.

Cross-subsidisation

8.141. Cross-subsidisation in the bus industry consists of using the profits from profitable routes to keep in existence services which are loss-making and might otherwise be reduced or withdrawn. This policy has long been a feature of the provision of bus services. It has been accepted for many years by operators, by local authorities and by the Traffic Commissioners as a means of maintaining, for a fixed level of revenue support, a larger network than would be possible if each service had to be considered financially independent of all other services. Tables 8.13-8.16 show the extent to which cross-subsidisation prevails in the four undertakings.

8.142. To the extent that it provides support which might otherwise have to come out of public funds, cross-subsidisation works to the advantage of local authorities. Derbyshire, Nottinghamshire and South Glamorgan make cross-subsidisation a condition of revenue support. WMCC, Avon and Cardiff City Council also regard cross-subsidisation as an important element of transport policy.

TABLE 8.13 WMPTE: cross-subsidisation by division

Division	Routes No	May 1978 £	Routes No	May 1979 £	Routes No	May 1980 £	Routes No	July 1981 £
<i>South</i>								
Profitable	9	57,843	10	33,127	14	63,313	16	89,035
Loss	60	386,136	82	560,911	79	530,960	113	628,161
Profit/loss %		13.0		6.0		11.9		14.2
<i>North</i>								
Profitable	25	91,270	24	87,071	35	94,830	13	33,500
Loss	131	384,359	130	466,260	138	496,427	171	678,599
Profit/loss %		23.7		18.7		19.1		4.9
<i>East</i>								
Profitable	0	0	0	0	0	0	2	10,388
Loss	25	199,150	26	199,898	29	272,960	26	229,109
Profit/loss %		—		—		—		4.5
<i>Total</i>								
Profitable	34	149,113	34	120,198	49	158,143	31	132,923
Loss	216	969,645	238	1,227,069	246	1,300,347	310	1,535,869
Profit/loss %		15.4		9.8		12.2		8.7

Source: MMC study.

TABLE 8.14 CCT: cross-subsidisation

	1981 (Apr–Oct est)	1980 (Apr–Dec)	1979–80	1978–79
<i>Loss-making routes</i>				
Sum of losses £'000	1,295	1,004	1,300	725
Revenue £'000	5,449	3,168	3,452	3,438
Operating ratio %	80.8	75.9	72.7	82.6
Number of routes/route groups	44	45	46	48
<i>Profitable routes</i>				
Sum of profits £'000	206	350	327	286
Revenue £'000	2,383	2,426	2,749	2,139
Operating ratio %	109.5	116.9	113.5	115.4
Number of routes/route groups	8	12	11	10
Profits/losses, % all routes	15.9	34.9	25.1	39.4

Source: MMC study.

Note: Included in the data above for all years except 1981 are the contract services.

TABLE 8.15 BOC: cross-subsidisation by type of route

Type of route	Jan–Oct 1981			
	Sum of losses £	Sum of profits £	Profits/losses %	Operating ratio %
Urban	2,790,789	256	<1	76.6
Rural	616,732	19,232	3	64.9
Inter-urban	941,382	75,432	8	82.0
Works	220,942	0	0	52.0
Schools	37,146	71	<1	45.1
All routes	4,606,991	94,991	2	76.2

Source: MMC study allocation of routes based on MAP reports.

TABLE 8.16 TMT: cross-subsidisation by type of route and service (April to February 1981)

Type of service	No of services	Sum of profits £	No of profitable	Sum of losses £	Operating ratio (%)	Profits/losses (%)
Urban	34	32,665	4	628,059	75	5.2
Inter-urban	61	265,873	16	751,688	94	35.4
Rural/Urban	7	1,558	1	164,761	82	1.0
Rural	18	—	—	129,572	47	—
Special						
School services	33	52,237	8	85,594	86	61.0
Works services	32	25,096	—	130,854	58	19.2
Guaranteed services	7	—	—	30,970	51	—
Local express	2	—	—	54,252	62	—
Total special	74	77,333	14	301,670	67	25.6
Total TMT	194	377,429	35	1,975,750	87	19.1

Source: MMC study.

8.143. Cross-subsidisation is generally achieved by the application of a common fare policy. This fare policy is practicable, and is widely regarded as a fair method of charging for bus services. However, if regard is paid to the costs of individual routes rather than the costs of the whole network, the common fare policy together with substantial cost variation between routes means that some services are heavily subsidised by others. When cross-subsidisation is combined with payment of revenue support in the form of a general subsidy for a whole network, it may have the disadvantage of giving the undertaking no adequate incentive to minimise the costs of individual routes. This gives added importance to the regular production of operating ratios for individual services or groups of services. Such ratios should also enable those local authorities which use them to scrutinise the performance of individual routes and, if they so wish, to use the performance of individual routes as the basis for calculating their revenue support.

8.144. Cross-subsidisation also has a bearing upon fares experiments. A number of fares experiments have been tried out by the undertakings, notably WMPTE's Monday Funday and BOC's and CCT's off-peak fare schemes. CCT's off-peak experiment has become an integral part of the fare structure. The bus undertakings face the difficult task of attempting to attract passengers against the background of a long-term decline in the demand for bus services. We are sympathetic to the attempts which have been made to attract passengers particularly by charging lower fares at off-peak periods. However, CCT and BOC (at Avon CC's behest) introduced their off-peak fares experiments and, in CCT's case, made the new scheme an integral part of the fare structure, without paying sufficient attention to the relative costs of peak and off-peak services. Such developments could be avoided if all four undertakings carried out peak/off-peak costing exercises at appropriate intervals.

8.145. One difficulty about this suggestion is that two methods of allocating vehicle costs between peak and off-peak services have been suggested by CIPFA. The first is the full peak allocation basis and assumes that the objective of the undertaking is to provide a peak service, so these carry the whole of the vehicle costs and a substantial proportion of crew costs. Off-peak services are thus provided at marginal cost. The second is the excess peak allocation basis and assumes that the objective is to provide an all-day service,

so only the additional costs of vehicles brought in to meet the peak (above the all-day level) are charged to the peak. Cost allocations on both bases for each of the undertakings are set out in Appendix 8.1.

8.146. Neither of these methods provides more than a rough guide to the proper allocation of costs between peak and off-peak periods. However, if the undertakings carry out peak/off-peak costing exercises, say annually, the experience gained may result in a common and more precise method of cost allocation. This would afford a more reliable basis upon which to conduct fares experiments.

Conclusions

8.147. County councils have an important role to play in determining the needs of their areas for bus services and thus in determining the size and shape of the bus network. It is clearly desirable that in performing this role they are well informed about passenger performances in relation to bus services and the cost of providing these services.

8.148. Minor revisions in services are continually made on the basis of comments made by passengers, local businesses, elected representatives and other interested parties. However, we believe that it is also necessary from time to time to conduct major reviews of networks which may demonstrate the need for more radical changes in order to adjust to changes in needs and market conditions.

8.149. In WMPE these major reviews have taken the form of Area Studies which will have covered the whole of the operating area by 1986. WMPTE is hoping to improve and speed up its Area Studies by the application of computer-aided techniques. In BOC and TMT the MAP exercises, which include information on passenger demand, were a response to severe financial problems. Both companies intend to introduce new marketing techniques as a follow-up to MAP. CCT has not conducted a major network review since the 1972 review.

8.150. We approve of WMPTE's, BOC's and TMT's decision to extend and improve these major reviews.

8.151. *We Recommend* that CCT should, as a matter of urgency, develop and apply techniques along the lines of WMPTE's Area Studies or the NBC's MAP exercises. The data from such an exercise are an important aid to those whose task it is to adjust supply to demand, and the experience of the other three undertakings suggests that it may lead to significant savings.

8.152. It is also important that local authorities, as well as the bus undertakings, are well informed about the extent to which services are used and the cost of supplying these services. Such information is supplied by load factors and operating ratios.

8.153. WMPTE collects data on load factors and operating ratios on a monthly basis. It has set itself load factor targets so that management becomes aware of variations from those targets and has an incentive to examine the

reasons for the variations. BOC and TMT have no regular system of collecting load factor data for all their routes. CCT undertakes, at the request of South Glamorgan County Council, regular autumn passenger counts. BOC, TMT and CCT have all produced operating ratios for individual routes but CCT have produced this information on a less regular basis than the two NBC companies. *We recommend* that all four undertakings should produce data showing operating ratios and load factors of individual services or, if more meaningful, groups of services, and that these data should be made available on, at least, a quarterly basis.

8.154. We accept that decisions about bus services cannot, and should not, be made simply on the basis of load factors. Nevertheless target load factors are a useful management tool, and *actual* load factors should be known by county councils. The latter should also be aware of the cost involved in providing unremunerative, low load factor services, which are required to meet social needs. Operating ratio data for individual services would allow local authorities to see where their revenue support is going and how much it is costing to maintain specific routes. Such data would assist authorities in achieving value for money in the pursuit of social aims.

8.155. Average fares have increased in real terms in all four undertakings over the period since 1974. The operators told us that a major cause of this increase had been the growth in labour costs.

8.156. Counties generally have policies limiting the size and/or frequency of fare increases. Many of them make compliance with these policies a condition of revenue support. Fares are also affected by changes in this support. A reduction in revenue support, for instance, will result in an increase in fares unless it can be compensated by cost reductions associated with increased efficiency or service revisions.

8.157. Season tickets impose costs on bus undertakings as well as conferring benefits on them. An analysis of WMPTE's Travelcard and CCT's Multiride suggests that both these schemes have produced at least a net social benefit. BOC, however, recognises that the discount which it has given to season ticket holders has been excessive. The BOC experience demonstrates the danger of underpricing season tickets. Subject to this warning, however, we would want to encourage the undertakings in their efforts to increase the proportion of off-bus revenue.

8.158. A number of fare experiments have been tried out by the undertakings. The bus undertakings face the difficult task of attempting to attract passengers against the background of a long-term decline in the demand for bus services. We are sympathetic to the attempts which have been made to attract passengers by charging lower fares at off-peak periods. However, CCT and BOC can be criticised for introducing their off-peak fares experiments and, in CCT's case, for making it an integral part of the fare structure, without sufficient attention being paid to the relative costs of peak and off-peak services. *We recommend* that all four undertakings carry out peak/off-peak

costing exercises annually. Experience in carrying out these exercises may result in more accurate cost allocations and thus a more reliable basis on which to conduct fares experiments.

8.159. The common fare policy together with substantial cost variation across routes means that some bus services are heavily subsidised by others. Our earlier recommendation concerning the provision of route operating ratios should go some way towards dealing with this problem. It should enable authorities to scrutinise the performance of each route. *We recommend* that the level of cross-subsidy between services and between time periods should be clearly identified in order to provide local authorities with a rational basis for the decision on the levels of subsidy to be provided via revenue support and through cross-subsidy.

CHAPTER 9

Investment

9.1. Stage carriage services in the United Kingdom are operated with a low value of capital assets in relation to turnover or labour costs, and of the capital stock employed a large proportion is the fleet of buses. There is an active second-hand market for such vehicles (although it is currently depressed), thus the main items of capital equipment are disposable, and not fixed in their use. This has had considerable effects on the nature of the planning of capital expenditure in the industry, and in particular has shortened the horizon within which investment is planned.

9.2. Additions to and replacements of the capital stock were about 12 per cent of the total costs incurred by the reference undertakings in 1980,¹ and of the real total capital expenditure of £60 million made by the reference undertakings in the four years 1977–80¹ over 90 per cent was upon the purchase of buses. Nonetheless capital expenditures can have important effects on efficiency and costs, as the composition of the bus fleet has a direct effect on maintenance and fuel costs and in some circumstances can also affect platform staff costs (for example, certain types of bus cannot feasibly be operated by the driver alone). Investment decisions may also have limited effects upon revenue, in so far as bus patronage is responsive to features of service quality affected by the composition of the fleet.

9.3. The framework in which bus replacement decisions are made is currently in transition. One of the major changes is the phased withdrawal of new bus grant (see paragraph 1.13) which either could encourage investment whilst some grant is still available or could provide a disincentive to invest by increasing its cost. Another change is the introduction of annual testing of vehicles (see Chapter 6) which is expected to alter the timing of major maintenance expenditures and hence the economics of bus retirement.

9.4. The operation of the Government's cash limit system is another feature of the framework. Capital expenditure of the four undertakings is subject to varying severities of rationing. In the case of WMPTE and CCT, from the beginning of the financial year 1981–82, overall local authority capital expenditure, of which their investment is a part, became subject to a national cash limit. Moreover Cardiff City Council and the West Midlands County Council were set individual capital expenditure cash limits, of which the investment² of CCT and the PTE was also a part. The NBC is given an overall external financing limit (EFL), which is a constraint on the capital expenditure of BOC and TMT to the extent that NBC's overall requirement for finance equals or exceeds the EFL.

¹ The figures for WMPTE and CCT are for financial years, ie 1980–81 where 1980 is shown for the other two undertakings. WMPTE's figures exclude capital expenditure upon rail facilities.

² However, expenditure financed by leasing under this cash limit was not treated equivalently to that financed by borrowing, in that no individual cash limits for expenditure financed by leasing were set.

9.5. In this chapter our discussion of the capital expenditure policy of each of the undertakings is developed as follows. We begin with a description of the procedural framework for the determination of capital expenditure and in particular bus replacement policy. We then set out some descriptive statistics showing capital expenditure in the context of the operating environment. In view of the relative importance of bus replacement expenditure we next review vehicle replacement policy. This is discussed step by step, beginning with policy on fleet size and age composition, policy on bus type for purchase, purchasing policy and relations with suppliers. Finally we give a brief account of infrastructure policy.

9.6. As background to our discussion of purchasing policy of the undertakings the material on capital expenditure policy is preceded by a description of the structure of the bus manufacturing industry in the mid-1970s and at present.

Structure of the bus manufacturing industry

9.7. Most full-size buses and coaches are supplied as separate chassis and body, notable exceptions being the single-deck Leyland National, the double-deck Metrobus and the Leyland Titan which are integral vehicles. Main units such as engines and gearboxes are often supplied by a third manufacturer on sub-contract.

Chassis manufacturers

9.8. Table 9.1 shows the main manufacturers of chassis for vehicles classed as public service vehicles (PSV), whether the assembly was in the United Kingdom, and the types of vehicle chassis that they sold in the United Kingdom in 1975 and in 1981. The main types used by stage carriage operators are double-deck and heavyweight single-deck buses.

TABLE 9.1 Manufacturers of PSV chassis in 1975 and 1981 and types they sold

Company	UK manufacture	Types sold in 1975					Types sold in 1981				
BMH	Yes	DD	SD	LW	Mini		DD	SD	Mini		
Leyland Vehicles	Yes	DD			Mini	Co			Mini	Co	
MCW	Yes	DD					DD				
Bedford	Yes			LW		Co			LW		
Ford	Yes			LW	Mini	Co			LW	Mini	Co
Dennis	Yes	DD	SD	LW	Mini	Co	DD	SD	LW	Mini	Co
Volvo GB	Yes	DD				Co	DD				Co
Atkinson	Yes			LW					LW		
Volvo Sweden	No					Co					Co
Daf	No										Co
Scania	No	DD	SD				DD	SD*			

Source: MMC study.

Key: DD= double-deck bus, SD= heavyweight single-deck bus, LW= lightweight single-deck bus, Mini= minibus, Co=coach. Lightweight is taken to be under 15 tonnes gross vehicle weight.

* Double-deck chassis but can be used for single-deck vehicles.

Body manufacturers

9.9. Table 9.2 shows the main manufacturers of PSV bodies supplied separately from the chassis, whether manufacture was in the United Kingdom or overseas, and the types of vehicle body they sold in the United Kingdom in 1975 and 1981.

TABLE 9.2 Manufacturers of separate PSV bodies in 1975 and 1981 and the types they sold in the UK

Company	UK manufacture	Types sold in 1975		Types sold in 1981	
BMH	Yes	DD	LW	DD	
Duple	Yes	DD	LW Co	DD	LW Co
Alexander	Yes	DD	LW	DD	LW
Northern Counties	Yes	DD	SD	DD	SD
East Lancashire	Yes	DD		DD	
Plaxton	Yes		Co		Co
Marshall	Yes	DD	SD LW	DD	SD LW
Willowbrook	Yes	DD	SD Co	DD	SD Co
Scania	No	DD	SD	DD	
Volvo Sweden	No		Co		Co

Source: MMC study.

For Key see Table 9.1.

Engine manufacturers

9.10. There were eight engine manufacturers whose engines were fitted to double-deck or heavyweight single-deck buses sold in 1975, and the same eight had engines fitted to such buses in 1981. These suppliers were Leyland, Gardner, Mercedes, Rolls Royce, Perkins, DAF, Volvo and Scania.

Bus Manufacturers Holdings Limited

9.11. Bus Manufacturers Holdings Limited (BMH) was incorporated in 1970 as a joint venture between British Leyland and NBC (each of which owns 50 per cent of the shares) to manufacture and sell buses. Manufacture and sales are managed by Leyland Vehicles Ltd, for which it receives a fee from BMH. BMH comprises four manufacturing plants:

- Bristol Commercial Vehicles—Bristol
- Leyland National—Workington
- Eastern Coach Works—Lowestoft
- Charles A Roe—Leeds

It also includes the Nottingham Bus Service Centre.

WMPTE

9.12. In 1972 the PTE produced a Development Plan as required by section 18 of the Transport Act 1968 (see paragraph 10.14). The main purpose was to set out the future development of the passenger transport system. This plan, adopted by WMCC in 1974, provided the basis for investment for the period up to 1981. No comprehensive corporate planning exercise was undertaken until 1980, when WMPTE began work on a new plan for the next ten years. The main emphasis of this plan is to provide a framework for

Executive policy by examining likely developments of the market under various hypotheses, and it has not as yet been used to derive any specific implications for capital expenditure. During the intervening years investment has not been planned within a formal corporate planning framework.

9.13. WMPTE submits its proposed capital expenditure budget each year to the WMPTA, and within the budget it administers its own expenditure. For WMCC financed items, and those exceeding £100,000 (or which exceeded the approved budget by 10 per cent or more) separate authorisation from the WMPTA must be obtained. Before 1981 bus replacement was planned annually as a three year rolling programme, under which each year commitments for the next year's expenditure were authorised, and the subsequent two years were planned. However, in 1981 as an experiment the Executive decided to place contracts for three years' purchases. It was granted authority for three years' orders to be placed with MCW, and approval in principle for a further 100 buses to be made for the last two years of the programme, with the manufacturer as yet not determined. The experiment was initiated to enable the manufacturers of buses to plan over a longer period and hence to secure for WMPTE a larger volume discount.

9.14. Within WMPTE the Engineering Department is responsible for preparing the bus replacement programme, details of which are approved by the Engineering Committee before presentation to the Management Committee. The Operations Committee is also involved in the estimation of the required fleet. The programme is planned within the general policy determined by WMPTE and the conditions on which financial and political approval are given are well known. When the scale of retirement and the volume of orders have been authorised, decision-making is again delegated; recommendations on which particular buses to retire are made by the engineer (special duties); the disposal list is then ratified by the Engineering Committee. Commercial arrangements with suppliers are delegated to the supplies manager, who obtains the Management Committee's agreement on prices and arrangements for disposal.

Procedures for investment in infrastructure

9.15. Investment in infrastructure is planned less formally and is described by WMPTE as more flexible, for example if a suitable site for a new garage (to consolidate two existing garages) became available this might justify altering plans. A priority list of establishments needing works has been drawn up but the timing of action is dependent upon financial constraints. The county council is directly involved in the proposals for works, as it funds certain types of work (such as bus stations) and bids for approval of its overall programme in the TPP submitted to the Department of Transport. Within WMPTE responsibility for infrastructure rests principally with the Director of Planning and Engineering although some capital items, eg canteens, ticket equipment, are decided by the other functional directors.

Investment criteria

9.16. The requirement for the purchase of vehicles is assessed on the basis that sufficient buses should be provided to meet forecast need and that existing

buses will on average be retired after 15 years' service. Forecast need for vehicles is the sum of the fleet required to meet the forecast peak and ensure an adequate reserve (to provide cover for vehicles out of service and to meet variations in demand).

9.17. The Executive's main criteria for proposals as to which types of bus should be purchased are that:

- (i) wherever possible dependence on a single supplier should be avoided;
- (ii) provided that criterion (i) has been satisfied, the greatest possible standardisation of fleet should be sought, excepting that small numbers of non-standard types may be bought for evaluation;
- (iii) within the framework of (i) and (ii), proposals should be based upon the minimisation of total life costs.

Past and future investment

9.18. Table 9.3 shows real total capital expenditure by the PTE on items relating to its stage carriage service (ie rail investment is excluded). These figures are shown in the context of operating and patronage data. Each year's capital expenditure figure shows sum paid rather than expenditure committed, and hence is the outcome of previous decisions.

TABLE 9.3 WMPTE: changes in real capital expenditure, patronage and the fleet composition

Year	Total expenditure (constant 1980 prices)* £'000s	No of passenger journeys stage carriage millions	No of buses owned as at 31 Mar	Average age of bus fleet at 31 Mar years	Average age of buses retired between May 1978 & Nov 1981 years
1977-78	13,523	551.3	2,671	7.5	} 14.0
1978-79	9,776	528.6	2,636	7.0	
1979-80	9,476	528.1	2,560	6.8	
1980-81	14,294	494.7	2,478	6.3	
1981-82	10,088	500.0	2,426	6.0	

Source: WMPTE.

* Using CSO Index of Total Home Costs.

9.19. During the period shown in the table real capital expenditure averaged £11.4 million per annum and was at its highest in 1980-81. This investment spending made an important contribution to the reduction in average fleet age to six years. The size of the fleet was reduced by slightly less than the decline in patronage (measured in the table by passenger journeys; passenger mileage changes were very similar). The average age of the buses retired during the period was 14 years, but lightweight (shorter life) buses and vehicles badly damaged by accident are included in these figures.

9.20. Table 9.4 shows the breakdown of real investment expenditure by category; the figures are of expenditure before grant.

TABLE 9.4 WMPTE: real capital expenditure by category (all figures in £'000s constant 1980 prices)

Year	Purchase of buses	Purchase of other vehicles	Workshop and garage equipment	Garages & works	Bus stations & shelters
1976-77	8,492	142	250	1,566	—
1977-78	11,863	96	662	903	—
1978-79	8,104	179	319	1,042.1	131
1979-80	7,196	381	314	1,403	182
1980-81	12,803	318	298	420	455
Total	48,458	1,116	1,843	5,334	768
5 year category total, as % of total investment on all items	84.2%	1.9%	3.2%	9.3%	1.3%

Source: WMPTE.

The table illustrates the importance of bus purchase in total capital expenditure; during the last two years bus purchases have taken an even greater proportion of total capital expenditure.

9.21. Estimated expenditure on bus purchases for each of the years 1982-83 and 1984-85 is expected to be £9,363,000 in 1980 prices. These estimates were made without allowing for any differential inflation between the prices of buses and that in the economy as a whole. The purchases in 1982-83 are to be 175 Metrobuses, which are double-deck vehicles manufactured by Metro-Cammell Weymann, Ltd. In each of 1983-84 and 1984-85 a further 125 Metrobuses are to be purchased. WMCC has approved a further order for 50 vehicles pa for delivery in both of these years, but has not agreed whether the orders should be for Titans or Metrobuses. WMPTE is continuing consideration of the need for these vehicles and will make recommendations as to quantity and type at the appropriate time.

Bus replacement policy

Forecast of peak vehicle requirement

9.22. The Executive formulates its bus replacement programmes on the basis of a forecast of its peak vehicle requirement. The methodology used is illustrated by the determination of the 1982-83 to 1984-85 proposals planned between December 1980 and March 1981. Patronage was forecast on the basis of allowances for, *inter alia*, population loss, employment changes and growth in car ownership within the context of an assumption about fares policy. There was some difficulty in deciding the appropriate assumption, as the level of public transport fares had become an important party political issue in the West Midlands and County Council elections were soon to be held. WMPTE had forecast that it would require 2,100 peak vehicles if a cheap fares policy was adopted, but decided that it could not make provision for this possibility. Instead WMPTE based its estimate of peak vehicle requirement upon an assumption that the level of revenue support would be maintained at 18 per cent which was the same level as planned the previous year. This produced a forecast requirement of 1,783 vehicles, a reduction from the requirement of 1,894 on which the previous year's plans were based. As

WMPTE would have 70 Leyland Bristol vehicles laid up awaiting substantial bodywork repairs which it did not have the resources to undertake, it believed that it had a buffer of vehicles which could be brought into service should patronage turn out to be higher than expected.

Reserve capacity

9.23. In investment planning WMPTE uses as an estimate of its requirement for spare capacity the target it has set itself to achieve, which is to require only 15 per cent more buses than the peak vehicle requirement. We have discussed this target in Chapter 6.

Retirement policy

9.24. The main bus types in WMPTE's fleet are depreciated over 15 years, and it is policy to retire these types so as to achieve an average retirement age of 15 years. This policy is based on engineering assessment rather than detailed calculations of the average optimal bus life as WMPTE does not have the detailed records of maintenance costs of the sort necessary for such calculations. WMPTE also pursues the policy of timing retirements so as to smooth the requirements for replacement finance and to even the flow of maintenance work.

9.25. WMPTE drew our attention to the practice of some Continental operators who withdraw vehicles from service when they require several major unit replacements or a major re-build (usually after about seven to nine years' life). These vehicles are sold to other operators who use their fleets less intensively or can overhaul them more cheaply. In doing so these operators achieve cost savings in maintenance and overhaul, and the requirement for spare capacity can be reduced. Against this must be set the consequential increase in net capital expenditure, which depends partly on the state of the second-hand market for buses. WMPTE told us that it saw great advantages in such a policy, but that considerable financial and industrial relations problems would arise in the transition to such a policy. The advantages are because the costs of manufacturing are lower than that of repair. The financial problems of transition would arise as the introduction of such a policy would produce an immediate increase in the requirement for finance, but would generate the savings several years later. WMPTE explained that on the basis of a nine year bus life an extra 85 new buses per year would be needed, which might cost an extra £5 million. However, this ordering pattern would not allow any run down of the central works until about five years after the onset of the policy, and at this point costly redundancies might be inevitable. The industrial relations problems arise not only because such redundancies would inevitably cause tensions, but also because the morale of the central works staff in the intervening five years would be damaged. WMPTE told us that on the Continent in some cases the transition had been achieved by using Marshall Aid for the purchase of new vehicles rather than the replacement of workshops, which had become unusable during the war. It also pointed out United Kingdom manufacturers designed their vehicle for a 15 year life.

9.26. The decision about which particular buses to retire is taken on the basis of engineering assessment, and the spread of retirement ages is fairly wide (typically between 13 and 18 years). The engineer making recommendations to the Engineering Committee for disposal will base his assessment on the condition of the vehicles, the expenditure needed to retain them in service, and operating efficiency.

Choice of vehicles for purchase

9.27. We have set out the Executive's criteria for determining the type of vehicle to be purchased in paragraph 9.17. We were told that it wishes to establish dual sources of supply of vehicles in order to maintain 'a commercial balance between suppliers' and hence to obtain 'the keenest quotations for new vehicle purchases and long-term component support'. It does not believe that such a policy is in conflict with its second criterion, that of standardisation, because the main benefits of standardisation can be achieved even with three sources, if the major units (such as engines and gearboxes) fitted to the new vehicles are standard. The benefits of standardisation are maintenance savings (maintenance can be routinely controlled and mechanics' familiarity with the main types can be improved), a reduction in stockholding (WMPTE hopes standardisation will, in the long term, enable a reduction in the number of different components stocked by about 40 per cent), and savings from bulk purchase. WMPTE gave us information on the volume discounts offered by suppliers when the 1982-83 to 1984-85 programme was planned and this shows a considerable benefit from bulk purchase.

9.28. Small numbers of non-standard vehicles are bought to evaluate technical and operating differences, but in general are sold in mid-life to other operators for whom these vehicles are standard. A current example of such evaluation exercises is the purchase of 22 vehicles with Rolls Royce engines.

9.29. Within the broad framework the main criterion for replacement policy is that of minimisation of total life costs. This criterion is not applied in a formal and rigorous manner, in that only a proportion of forecast differences in maintenance costs are quantified and no discounted cash flow evaluation of options is attempted. Quantitative assessments of all the differences in running costs of various vehicle types would be difficult in the absence of appropriate data.

9.30. WMPTE told us of its preference, despite the higher purchase cost, for integral buses of a treated aluminium construction with air suspension, and with retarders to minimise expenditure on brake relinings, and explained that it sought these features in its choice of double-deck vehicles. It pointed to experience with the Leyland National, which was introduced in 1972 and was built with some of these features, as evidence of the cost savings achievable with such specifications. It told us that those early eight-year-old vehicles 'are proving to be in very good condition when it comes to a structural overhaul'. As early as in 1978 the Executive was prepared to declare that it was confident that the cost savings resulting from these design features were 'sufficient to justify the extra first cost'. Experience with low floor vehicles had

shown that the cost of repair and the downtime because of problems with the body/chassis connection would justify a higher first cost for a bus of an integral design.

Recent purchases of double-deck vehicles

9.31. In 1979 WMPTE's proposals to WMPTA were for the order of 80 Leyland Titans and 80 Metrobuses manufactured by Metro Cammell Weymann (MCW). WMPTA told WMPTE to experiment with ten vehicles of a third make, but WMPTE did not agree that the alternative suggested met its criteria. It went ahead with the order of the 75 Metrobuses and 75 Titans for which it had received authorisation, but delayed the order of the other ten vehicles. Subsequently the third manufacturer altered his proposed terms of sale, and the County Council accepted that this alternative should not be pursued. WMPTE, with WMPTA approval, purchased 10 Leyland National single-deck vehicles which were available 'off the shelf'. However, after these purchases had finally been settled Leyland decided to cease production of the Titan, at its Park Royal plant leaving the PTE short of 75 vehicles in that year. WMPTE purchased a further 35 Leyland Nationals as they could be delivered quickly and altered its plans for the next year.

9.32. These plans in their original form were for the order of 100 Metrobuses and 60 Titans (the change from even shares of the total order reflecting changes in the purchase prices). Having ordered the 35 extra Leyland Nationals the Executive sought replacements for the other 100 Titans it had hoped to obtain. It chose, with WMPTA approval, to increase its 1979 order by a further 100 Metrobuses for delivery in 1980-81, and altered its 1980 recommendations to an order of 120 Metrobuses and 50 Ailsa underframe/Alexander body vehicles. The County Council would not approve this proposal as the Ailsa vehicles were produced outside the West Midlands and it was concerned to protect local employment. It therefore decided that the order should be altered to 160 Metrobuses. WMPTE told us that at the background to this problem there was a press campaign against the proposal to purchase foreign vehicles (Ailsa being a Volvo subsidiary), to which Volvo responded with evidence that a high proportion of the Ailsa components were manufactured in the West Midlands and that by value 95 per cent of the bus was British.

9.33. WMPTE's 1981 proposal was for three years' orders of 50 Leyland Olympians per annum and 125 Metrobuses per annum. The County Council again overruled the proposal in respect of the 1982-83 orders; it decided that the order of the first 50 Olympians should be transferred to MCW and that the remaining 100 should be approved in principle. WMPTE therefore placed firm orders with MCW for 425 Metrobuses to be delivered over the three year planning period.

9.34. We asked the County Council about the extent to which it had taken into account the PTE's costs and efficiency in making these decisions. It explained that it accepted in principle that dependence on a single source of supply was undesirable and appreciated the risk that was taken in placing all the orders locally. It told us that to try to minimise this risk it had a

series of talks with the management and trade unions at MCW. These talks were in particular with the financial management, as the County Council wished to be certain that there was no fear of any financial problems at MCW leading to it failing to deliver. The County Council stressed that the matter should not be seen out of context as it had not said that it would continue to order only MCW vehicles, and intended to review the issue before the later years of the programme were finalised. It added that there had been discussions within the Association of Metropolitan Authorities which were examining ways in which alternative sources of supply could be maintained.

9.35. During the period 1979-81 WMPTE also purchased 80 seven-year-old ex-London Transport Fleetline double-deck vehicles, with MCW bodies and Gardner engines. These vehicles had many features in common with its existing Fleetlines and had already undergone mid-life reconditioning. The purchase enabled WMPTE to avoid an overload of its works capacity which would otherwise arise from the need to repair defective 10-and 11-year-old buses, a number of which were withdrawn from service.

Contractual policy

9.36. WMPTE regards the use of competitive tendering as the most effective policy for ensuring that suppliers offer reasonable terms. However, as orders for vehicles are placed for delivery one or two years later, it seeks in its contractual policy to specify the consequences of late delivery and to settle the circumstances in which contractual terms can be altered. As an example we were given a copy of its contract with MCW signed in August 1981.

9.37. This contract was drawn up on the basis of an agreed tender price subject to escalation clauses to allow for inflation. The escalation indices used are specific indices of relevant manufacturing costs rather than a general index of inflation (such as the wholesale prices index). A clause was included specifying the consequences of late delivery. Stage payments are to be made when the vehicles' chassis is completed, but if final delivery is not made within 10 weeks of the scheduled date all escalation in the tender price ceases. However, this clause operates only if the late delivery is not the result of one of a number of specified causes including an industrial dispute at the manufacturer's works. WMPTE told us that this was a provision upon which both MCW and Leyland had insisted in negotiation. Similarly the penalties for late delivery had not been fixed on the basis of WMPTE's consequential loss as the proposed contractual terms had to be such that Leyland and MCW would agree to them. The negotiations had been concluded more swiftly than usual because WMPTE believed that at the time that new controls on local authority capital expenditure (see paragraph 9.4) would prevent it making any orders at all after 31 August 1981. In the event the new controls were lenient to purchases financed by leasing and the rapid conclusion of the negotiation was unnecessary.

9.38. We asked WMPTE whether there had been any occasions on which the clause providing for cessation of indexation had operated, and were told that in cases of late delivery the supplier had always been able to show that

the cause was one of those specified in the contract as beyond his responsibility. WMPTE also drew our attention to the likelihood that a supplier would regard the cessation of indexation as significant in the current circumstances of the bus manufacturing industry, because profit margins are low and the loss of indexation could 'cut deeply into the profit element'.

9.39. We also asked about the circumstances in which it would seek to take action against a manufacturer because the vehicle supplied had a design defect. We were told that buses were customarily guaranteed for about a year, and that it was very difficult to succeed in a claim for breach of contract when a vehicle developed defects after its first year. The case of 200 Bristol VRT buses with MCW bodies, which were delivered between 1973 and 1975, is an example. It emerged during the fourth and fifth years of operation that there were serious structural difficulties in the body/chassis connection which were expensive to remedy, and the Executive has since stored 70 of these vehicles. WMPTE told us that in the past it has received considerable assistance in overcoming design difficulties which became apparent outside a guarantee period, from both MCW and the BMH Group. This was offered without recourse to legal action, and illustrates the influence of a buyer expected to place substantial future orders.

Allocation of new vehicles

9.40. When buses are delivered, the Chief Engineer and the Divisional Managers agree their allocation. The main criteria are to minimise the number of different vehicle types in each garage and to secure an even mix of bus ages at each garage, which brings benefits in terms of fair and even workloads for the maintenance staff (and also is fair to the drivers, who prefer newer buses). A further criterion is that the new buses should work on highly utilised and commercially viable routes. Allocation to routes is determined within each garage by its manager.

Infrastructure policy

9.41. Infrastructure investment is treated on a flexible basis, as described in paragraph 9.15. Buildings are given a book life of 40 years, reflecting the judgment that at this age they require either a major refit or to be rebuilt. In recent years only two decisions on total garage replacements have arisen, one in Wolverhampton and the other in Coventry. It was decided to rebuild, at both sites, partly because the scope for consolidation of these two garages was limited by the availability of sites. The decision to rebuild was seen as essential for the continuance of services and hence no rigorous financial evaluation (such as DCF appraisal) was made. Some degree of betterment was incorporated into the new design, but was spread throughout the plan and hence would have been difficult to appraise; much of this betterment is occasioned either by changes in regulations (eg Health and Safety at Work) and some by the advantages of replacing to today's standards and needs (jacks for bus maintenance rather than pits, modern heating and ventilation, redesign of the garages to improve cash security etc). Where basic structures are sound WMPTE has provided new workshop facilities, heating, ventilation, fuelling, and cleaning installations. Such projects have taken place at six garages and one works.

CCT

9.42. CCT does not undertake corporate planning exercises (see paragraphs 10.22–10.24) but plans its bus replacement expenditure by drawing up five year programmes. Other capital expenditure is decided upon as and when a need arises, within the constraints of availability of cash and the priorities set by the City Council.

Procedures

9.43. Capital expenditure proposals are prepared by CCT's General Manager and submitted to the Transport Committee of the City Council. They are then considered by the Policy (Finance) sub-committee and, if approved at this stage, the proposals then require the approval of the City Council's Policy Committee before being ratified by the full City Council. The council's guidance for all investment proposals specifies that the City Treasurer shall be given 'full particulars of the cost of the proposed scheme, . . . any Government grants which may be claimed, and such information as may be necessary to show the effect of the . . . scheme together with an estimate of the probable annual maintenance expenses which will be chargeable to revenue and the income, if any, which may be receivable'.

Investment criteria

9.44. We were told by the City Council that its investment criteria were based on the assumption that it wished to continue to run a bus service, and upon a consideration of the level of service it wished to provide. It is then the responsibility of the General Manager to provide a technical opinion as to how the needs of the service are best met.

9.45. Until recently it has been policy and practice to plan bus replacement on the basis of a 12-year life of vehicles, which was originally adopted to match the loan sanction period over which borrowing to finance the purchase of buses and the timing of certification of vehicles. Since 1980 CCT has been experimenting with life extension of those vehicles in good condition at the end of their 'book' life, and intends to operate such vehicles for the maximum time possible 'consistent with cost'.

9.46. In 1979 CCT decided that the dangers of dependence upon a single source of supply were such that it should seek dual sources of supply for its future purchases of vehicles.

Past and future investment

9.47. Table 9.5 shows real total capital expenditure by CCT for the years 1977–78 to 1981–82 in the context of operating and patronage data. Each year's capital expenditure figure shows the sum paid rather than expenditure committed, and hence is the outcome of previous decisions.

TABLE 9.5 CCT: changes in real capital expenditure, patronage and the fleet composition

	<i>Total capital expenditure (constant 1980 prices,* £'000)</i>	<i>No of passenger journeys millions</i>	<i>No of buses owned (as at 31 March)</i>	<i>Average age of the fleet years</i>
1977-78	880	37.4	217	7.8
1978-79	1,364	36.6	224	6.1
1979-80	986	36.2	222	5.1
1980-81	92	35.2	218	5.9
1981-82	1,045	33.5	209	5.9

Source: CCT.

* Using CSO index of total home costs.

During the period shown in Table 9.5 real capital expenditure averaged £873,000 pa; it was at its highest in 1978-79 and fell to only £92,000 in 1980-81 as the deliveries from the 1975-79 programme were completed. During this period the size of the fleet was reduced, but by somewhat less than the decline in patronage. The average age of the buses retired during the five-year period was 12.7 years. Over the period the average age of the fleet was reduced somewhat. Just under 90 per cent of the last five years' real capital expenditure was on bus replacement.

9.48. Capital expenditure on vehicles for 1982-83 is expected to be £988,000 in 1980 prices. This estimate does not allow for any differential inflation between the price of buses and that in the economy as a whole. The latest replacement programme is planned to begin in 1982 with the delivery of 18 vehicles with Ailsa chassis and Northern Counties bodies. In 1982-83 a further nine Ailsa/Northern Counties vehicles and nine vehicles with a Leyland Olympian chassis and East Lancashire Coach-builders body are expected; in 1983-84 nine vehicles of each of these two types are expected, and the programme is to be completed in 1984-85 with the arrival of a further 17 Olympians.

Bus replacement policy

Forecast of peak vehicle and reserve requirements

9.49. The 1982-85 bus replacement programme has been determined on the basis of a reduction in the size of the fleet to 196. The programme was planned on the assumptions that the level of service will continue to be reduced somewhat and that the next generation of vehicles will be more reliable and hence fewer reserve vehicles will be needed.

Retirement policy

9.50. CCT's retirement policy during the last five years has been to retire vehicles after about 12 years' operation. However, during the last ten years the average age of buses retired was less than this as about 20 of CCT's vehicles (that is about 10 per cent of the fleet) were withdrawn because of technical problems after about seven years' service. During this period more vehicles were retained beyond their 'book' life than were retired early. Several vehicles were given overhauls at the end of their 'book' life only because delivery of new vehicles from the 1975-79 programme fell behind schedule (see paragraph 9.58).

9.51. In 1980 CCT decided to adopt a policy of planned life extension. It explained that 'some buses will not achieve their expected life' and if a vehicle required a costly overhaul, was non-standard or was expensive to repair or if there were difficulties in obtaining spare parts for it, it could pay to cannibalise the vehicle and use its components to extend the life of others in its class. CCT told us that it had already undertaken such a policy on a small scale with seven 13-year-old Daimler Fleetlines which were cannibalised to maintain 10 of the batch for an extended period. This policy was adopted partly because the second-hand bus market has become depressed and frequently the value of the components of an old vehicle exceeds its second-hand price. In future CCT proposes to carry on this planned cannibalisation on the basis that every good vehicle should have its life extended to 'destruction as it were'. Conversely some vehicles will be cannibalised rather than given a major overhaul. CCT added that it felt it must be cautious about the likelihood of the next generation of buses being significantly more reliable than the last.

Use of quantitative evaluation

9.52. These life extension decisions were not based upon a quantitative evaluation of the merits of overhauling or cannibalising a vehicle. No Discounted Cash Flow (DCF) or equivalent calculations were undertaken. Similarly replacement decisions were not taken on the basis of DCF or equivalent analysis. The Treasurer's Department of the City Council explained that as buses had a short life it did not consider that 'the precision of a DCF calculation was important'. DCF was only used for bus investment to compare alternative methods of funding such as leasing and outright purchase.

9.53. CCT maintains a card index of an individual vehicle's maintenance history (see paragraph 6.87) which could be used as a first step towards a database for calculations of vehicle life cycle costs. Under a current development programme CCT proposes to introduce a computerised system recording engineering data, of which the vehicle history information will be a part. This ultimately will provide data on the running costs of each vehicle throughout its life.

Choice of vehicles for purchase

9.54. CCT's current replacement programme was determined after it had undertaken trials with vehicles currently available from manufacturers. One vehicle (a Leyland Olympian) was delivered in 1981, and a further three were borrowed including one Ailsa double-deck from Tayside Regional Council and one Metrobus from MCW. The views of drivers, maintenance staff and the public were obtained, and the availability of parts and experience in service assessed. Ease of maintenance was a particularly important consideration in the choice finally made, but the study report based upon the trials did not attempt to forecast life-time running costs of the types on trial.

9.55. CCT was mindful of its experience with the 1975-79 programme (see paragraph 9.58 below) and in particular the problems of late delivery when deciding upon choice of supplier. CCT told us that 'the people who let us down were not considered the second time around'.

9.56. To avoid dependence on a single supplier, CCT's final choice was of two chassis suppliers and two suppliers of vehicle bodies (see paragraph 9.46). The suppliers chosen quoted tender prices at the bottom of the range. However, neither of the lowest tenders were chosen, in one case because the vehicle was non-standard and not operated by any other British undertaking, in the other because the supplier was one of those who had obtained orders in the 1975-79 programme. Of the two chassis types chosen, one (the Ailsa) has many components which were not standard in CCT's fleet, but an allowance was made for the additional cost of stocking spare parts when the purchase price was considered. The vehicles chosen are to be made to the manufacturers' standard specification, except for a small number of modifications including the provision of fully automatic transmission, integral brake retarders and alkaline batteries. These provisions are expected to reduce maintenance costs at the cost of some increase in purchase price.

The 1975-79 bus replacement programme

9.57. The 1975-79 programme was determined in February 1975. 114 vehicles were to be purchased, and the choice was made on the basis of the advantages anticipated from standardisation and of the benefits of a larger volume of orders. CCT placed the entire order in 1975 to give the manufacturers the opportunity to plan their building programme well in advance. Contracts were awarded to Bristol Commercial Vehicles (a division of Bus Manufacturers Holdings Ltd) for the double-deck chassis and Walter Alexander & Co (Coachbuilders) Ltd for the corresponding bodies. Both suppliers 'stated that they could meet the required delivery dates'. In the event neither supplier met the required delivery dates and Walter Alexander fell sufficiently behind programme to cause CCT to transfer the order of the first batch of 26 bodies to another supplier, Willowbrook International. Furthermore it was considered necessary to hire 20 second-hand double-deck vehicles to maintain services and the momentum of the conversion to OMO; 14 of these vehicles were eventually purchased. Twelve vehicles at the end of their 'book' life were given costly overhauls to bridge the remaining gap. The order for 114 vehicles was subsequently reduced to 97.

9.58. Table 9.6 sets out the scheduled and actual deliveries of the revised programme.

TABLE 9.6 CCT: scheduled and actual deliveries of new vehicles ordered in 1975

(1) <i>Revised numbers of vehicles ordered</i>	(2) <i>Scheduled delivery date of completed vehicles</i>	(3) <i>Actual delivery of completed chassis</i>	(4) <i>Actual delivery of completed vehicle and body</i>	(5) <i>Lateness Difference between col (4) and col (2)</i>
26*	March 1977	April 1977	December 1977	months 9
34	December 1977	March-Sept 1977	January 1979	11-14
21	September 1978	October 1978	July 1979	10
16	June 1979	June-Aug 1979	February 1980	8

Source: CCT.

* Body order transferred to Willowbrook, who offered to complete by April 1977.

As a consequence of these late deliveries, CCT paid an extra purchase price of just over £280,000. The hire charges and overhaul costs mentioned in paragraph 9.57 were also additional costs attributable to the late delivery. The 26 vehicles whose body work was built by Willowbrook had eventually to be returned to the manufacturer for rectification work, with a consequent loss of availability.

9.59. Particular problems arose with the last 16 buses of the programme. Four broke down before arrival, and two of these were stranded en route for three and two weeks respectively. All 16 were fitted with the wrong type of automatic gear change designed for a different vehicle, almost all had water leaks on delivery and all were incorrectly wired, causing a fault in the temperature warning system. As a result one engine was lost after overheating. All of the 97 new vehicles have been substantially less reliable and more difficult to maintain than CCT expected.

9.60. CCT told us that with the benefit of hindsight, standardisation on the Bristol/Alexander vehicles did not produce the right results, and that it was recognition of this which led to the change to dual sourcing.

Contractual policy

9.61. CCT gave us an example of one of its contracts for the supply of vehicles, dated April 1977. The contract specified a delivery schedule, and gave CCT the right to give notice to the contractor should the schedule not be met for any cause, except those 'beyond the reasonable control of the contractor'. The contract price was specified and 'deemed to be based upon the cost of labour materials and establishment charges prevailing at the date of the "quotation" ' but if there were variations in these before completion 'then the Contract Price shall be amended to provide for these variations subject to agreement between the Contractor and City Council'.

9.62. We asked CCT what recourse it had against the manufacturers of the buses supplied in the 1975-79 programme. It told us that after careful investigation it decided that it could either break the contracts, cancel the orders or litigate. The City Solicitor advised that the best course was to negotiate commercially for whatever could be obtained which was 'not very much'. CCT explained that 'one of the things manufacturers always used to press on us in those days when everybody was behind-hand with deliveries was, "if it would help you to cancel the order we will not be upset", but that does not help us very much when we want buses'.

9.63. CCT explained that the position for the current programme was different. The market for buses was now a buyers' market, and availability of vehicles was correspondingly better. Moreover the Government's regulations on capital spending do not permit the transfer of capital expenditure into the next financial year, which gives the manufacturer 'a very powerful incentive' to complete the work to avoid the loss of the order. Furthermore under the latest contracts price variations depend upon indices specified in the contract instead of depending upon negotiation between the parties.

Infrastructure policy

9.64. The last major works undertaken by CCT were completed at the Sloper Road garage in 1978 (see paragraph 6.97). Plans exist for further improvements to the garage, but no firm date has been determined for such works, as availability of finance is uncertain. The Cardiff Central bus station is currently being modernised; the work is expected to be completed within the 1982–83 financial year. The site of the bus station is owned by the City Council and the cost of redevelopment (£1.25 million) is being shared between the City Council and the South Glamorgan County Council.

BOC

Investment planning procedures

9.65. BOC's investment programme is determined within the procedures for corporate planning of NBC as a whole. The planning looks at present four years ahead, but bus replacement orders are authorised annually. Large infrastructure projects are approved as and when they occur but itemised in BOC's corporate plan. Corporate planning in NBC is discussed in greater detail in Chapter 10.

9.66. The process begins with the issuing of guidelines by NBC HQ, setting out economic assumptions (likely level of GDP, estimates of user response to fare and service changes, bus prices, rates of inflation etc); guidelines for depreciation policy are also centrally determined. The planning guidelines are drafted by the NBC Planning Department after consultation with other departments, and informal contact also takes place with the Department of Transport. These guidelines are discussed by the Chief Executive's committee, of which all Regional Directors are members. At this meeting the availability of external finance is discussed and Regional Directors are given a budget of capital expenditure in cash and in volume terms; this is not, however, communicated to the operating companies.

9.67. The Regional Director (RD) of the Midlands and West Region holds a meeting with all his General Managers at which he introduces the guidelines and outlines the likely EFL position, which mainly affects infrastructural investment. Support is sent from the Corporate Planning Unit. BOC's current Chief Engineer attends, as he is the Regional Chief Engineer. The General Managers are instructed to draw up Corporate Plans on the basis of the guidelines. These meetings also serve as an opportunity to exchange experience and information.

9.68. Within BOC investment proposals are developed in discussions between the Traffic Manager, the Chief Engineer, the Company Secretary and the General Manager. The draft investment proposal produced is regarded as a requirement, rather than a negotiating position. When the draft is produced it is presented to the Regional Director, but the procedure from this point is relatively informal, partly because the RD is the Chairman of all the subsidiaries in the region including BOC and has frequent contact with operating companies. The plan is revised to take account of availability of finance and sent to NBC HQ. The Plan must ultimately be endorsed by NBC group.

9.69. At NBC headquarters the capital expenditure proposals of all the subsidiaries are summed, and the result is presented to Government in the Investment and Financing Review (the bid document for approval of the capital programme and the external financing requirement). We were told that in general NBC's proposals are approved by Government, as it has 'a reputation of not over-stating its case'. However, both the 1980-81 and 1981-82 EFLs were trimmed, and accordingly investment programmes were slowed down. BOC could not remember any occasion when BOC's investment proposals in its endorsed Plan had had to be altered as a result of the Government's decision on the EFL.

Procedure for investment in infrastructure

9.70. Infrastructure projects are authorised at various levels depending upon the outlay. The following are the levels of authorisation for works (a similar structure applies to the sale or purchase of land or buildings):

<i>Estimated costs</i>	<i>Authorities</i>
Up to and including £150,000	Regional Directors are authorised to approve the work provided the project is included in the company's current capital expenditure budget as previously approved by NBC.
Up to and including £150,000 (if not included in the current capital expenditure budget)	NBC's Director of Engineering and Technical Services is authorised to approve and will report particulars to National Bus Management Ltd.
£150,000-£750,000	NBC's Director of Engineering and Technical Services will recommend a course of action to National Bus Management Ltd which has authority to approve.
Over £750,000	NBC's Director of Engineering and Technical Services will recommend a course of action to National Bus Management Ltd which in turn will make recommendations to NBC which has authority to approve, subject to the concurrence of the Department of Transport. Applications must be supported by a Discounted Cash Flow appraisal.

Investment criteria

9.71. Bus replacement policy is linked 'in the round' to depreciation policy and to 'book' life, the basis of which is determined centrally by the NBC group, although there is some discretion allowed to subsidiaries. The NBC told us that assessments of the needs for replacement are judgments of prudence, and that a variety of considerations were relevant. It added:

'In determining vehicle lives for depreciation purposes regard is had not only to optimum mechanical life but [also] to other factors . . . [including] non direct financial factors such as operational and marketing considerations . . . Changes in operating requirements necessitate changes in vehicle design which inevitably result in vehicles becoming obsolete.'

Examples were the introduction of OMO and the requirement to meet the needs of female drivers. The list continued:

'Vehicles must meet the passengers' minimum expectations of reliability, ride, heating and ventilation, lighting and comfort.'

Engineering constraints were also a factor:

'Spare parts become progressively more difficult to obtain, increasing the vehicle down-time while spare parts are awaited. Increased utilisation [greater mileage per annum] of older vehicles would cause maintenance costs to rise rapidly in the latter years and place an additional burden on engineering resources available.'

Finally,

'vehicle policy must be continually reviewed in the light of the changing commercial environment in which NBC is operating. Decisions will be affected by factors such as available grants, subsidies and prevailing interest rates . . . It is also necessary for vehicles to be compatible with their counterparts in service with [another] . . . operator' with which a joint operating agreement has been reached.

9.72. BOC's bus replacement is planned on the basis of average retirement lives set at 'book' life, and a forecast of peak vehicle requirement and required reserves. Choice of new vehicles follows NBC policy, which is that its subsidiaries should choose from the standard vehicles which it has approved after close consultation with the manufacturers. Special vehicles can be purchased to meet unusual situations and for evaluation purposes (see paragraph 9.83).

Past and future investment

9.73 Table 9.7 shows real total capital expenditure by BOC in the context of operating and patronage data. Each year's capital expenditure figure shows the sum paid rather than expenditure committed, and hence is the outcome of previous decisions.

TABLE 9.7 BOC: changes in real capital expenditure, patronage and the fleet composition

<i>Year (end of year where appropriate)</i>	<i>Total capital expenditure (constant 1980 prices*) £'000s</i>	<i>No. of passenger journeys (stage carriage) millions</i>	<i>No. of buses owned</i>	<i>Average age of buses retired years</i>
1977	3,238	98.4	1,075	15.2
1978	2,439	96.6	1,025	14.6
1979	2,382	96.9	1,012	14.5
1980	2,902	86.7	1,053	13.4
1981	1,439	76.6	929	13.8

Source: BOC

* Using CSO index of Total Home Costs

During the period shown in the table real capital expenditure averaged £2,480,000 per annum and was at its highest in 1977. The size of the fleet was reduced, but not by as much as the decline in patronage. However, at the end of 1981 145 vehicles were held awaiting 'immediate' disposal and a further 11 were to be disposed of in the 'short term'. If these vehicles are

excluded from the figures, the size of the fleet would be 773, a 28 per cent reduction on 1977. Over the five year period the average age of the fleet changed from 7.5 to 8.2.

9.74. Table 9.8 shows the breakdown of real investment expenditure by category; the figures are of expenditure before grant.

TABLE 9.8 BOC: real capital expenditure by category (all figures in £'000s constant 1980 prices)

Year	<i>Purchase of buses coaches and dual purpose vehicles</i>	<i>Land and buildings</i>	<i>Plant, machinery and cars</i>
1977	2,974	107	157
1978	2,005	289	145
1979	2,040	179	163
1980	2,845	12	45
1981	1,070	252	116
Total	10,934	839	626
5 year category total as % of total investment on all items	88.2%	6.8%	5.0%

Source: BOC

The table illustrates the importance of purchases of rolling stock (which were nearly all for stage carriage operations) in total capital expenditure, and the reduction in this category of expenditure in 1981.

9.75. BOC's future capital expenditure for the years 1983-85 has not yet been determined as the company is currently in a state of 'flux' such that 'it is premature to make the cases now'. Its current plans are for the purchase of 30 new vehicles in 1982, none in 1983, and 'that it appears feasible to purchase 20 double-deck vehicles in each of 1984 and 1985'.

Bus replacement policy

Forecast of peak vehicle and reserve requirement

9.76. BOC relies on the demand forecasts produced by NBC's Corporate Planning Unit and does not attempt to take into account the effect of local employment conditions. Any future divergence between local and national trends may necessitate a change of policy. Its estimate of the fleet required is based upon a judgment of its operational requirements taking into account the availability of local authority support. In current circumstances (the levels of service having been reduced considerably during 1981), any journey missed is 'immediately noticed'. Its policy is to endeavour to operate every scheduled journey but in practice its operational target or requirement is that less than 0.5 per cent of mileage be lost for all reasons, including driver or bus shortage, breakdown, accident, weather or congestion.

Retirement policy

9.77. NBC changed the 'book' lives of vehicles in 1981 in response to financial pressures and to the changes in vehicle certification, and in the light of

new vehicle design and the phasing out of new bus grant. Previously all heavy-weight stage carriage vehicles became 'life-expired' at 12 years except the Leyland National which had a book life of up to 16 years, but standard single-deck vehicles are now to have a range of 14-16 years 'book' life and standard double-deck buses 12-14 years 'book' life. Before the decision was made to alter 'book' lives a working party was established whose remit included an investigation of the engineering aspects of vehicle life. Using VMC information the working party calculated that the annualised sum of initial and lifetime maintenance costs (excluding items such as tyres) of double-deck buses was minimised 18 years after purchase. However, the working party noted that the operational service a bus had undertaken was a greater influence on its condition than was its age. As its remit was primarily to apply engineering criteria and NBC takes into account a much wider range of considerations in the choice of bus life (see paragraph 9.71), the study's finding was only an influence on the change in the depreciation standard.

9.78. NBC told us that the disappearance of the requirement for the second re-certification of fitness (usually after 12 years operation) and the change to annual testing will give, 'a great deal more flexibility... We shall still have to look at this in a pragmatic way looking at the condition of the individual vehicle... It [is] difficult to conceive how one could do a discounted cash flow calculation on the marginal vehicle in a cross-subsidised network'.

9.79. BOC has chosen to adopt the maximum book life allowed by NBC policy for both single- and double-decks in response to financial pressures. However, retirement decisions are based upon traffic requirements and vehicles may be retired before or after expiry of book life. Decisions about which particular bus to retire are made after consultation with the engineers at the garage who are told how many to retire, and are offered suggestions compiled by analysis of fleet records showing mileage, unit life, repaint date and DTp test requirements.

Allocation of scarce funds

9.80. NBC told us that in circumstances where there is insufficient finance for all its subsidiaries to purchase new buses, some will be instructed either to buy second-hand vehicles usually as transfer or 'cascade' of vehicles within the group, or to defer retirements. The allocation of permission to buy new vehicles is undertaken firstly by reference to any agreements companies may have with local authorities which specify vehicle quality, and secondly by allocating to those companies whose older vehicles require the most maintenance and where the benefits of new vehicles are greatest. This again is 'a pragmatic process' rather than a 'sophisticated' evaluation. No DCF calculations at the margin are used. However, this process of selection has not been necessary during the last three years.

Transfers of vehicles

9.81. BOC told us that in 1981 it took 15 relatively new double-deck vehicles from London Country and transferred 42 single-decks to Hants and Dorset. Such transfers allow subsidiaries to dispose of buses which are non-standard in their fleet to other undertakings for which they are standard. These transfers

do not affect NBC's EFL, and take place both within each region and within the group as a whole.

Choice of vehicles for purchase

9.82. BOC's fleet is standardised on the vehicle types approved by the NBC group. NBC has a 50 per cent shareholding in Bus Manufacturers Holdings (see paragraph 9.11) and has adopted BMH's products as its standard for stage carriage work. In recent years the NBC group standards were the Bristol VRT double-deck, the Leyland National single-deck and the Bristol LH lightweight single-deck. The Leyland Olympian is to replace the Bristol VRT as the standard double-deck, as the Bristol VRT is no longer being manufactured. NBC no longer has a standard lightweight. The specification of the Olympian was developed by close consultation between NBC and BMH, after NBC had analysed its VMC data and produced a functional vehicle specification for its fleet.

9.83. This standardisation policy allows for the purchase of small numbers of non-standard vehicles for evaluation purposes. In 1980 BOC, as a participant in a group trial, took delivery of five Metrobuses from MCW, all fitted with Rolls Royce engines.

9.84. BOC believes that the Olympian is the most suitable for its needs of those on the market; it is perfectly happy to take a bus designed to the typical requirements of a subsidiary of NBC even if such a bus is a compromise between different operators' needs. BOC is not a participant in the VMC system, but receives group data to which it relates its own circumstances in the course of making management decisions. The detailed costs of maintenance work are not formally recorded nor is fuel usage by type of vehicle; instead BOC depends upon the general data and judgments produced by the group on the basis of the eight VMC companies which together cover one-third of NBC's vehicles. However, it has specified options to the basic specification of the Olympian (such as front entrance, centre exit doors, fully automatic transmission, a low engine power rating and close gearbox ratio) which suit the urban environment in which it operates double-deck vehicles.

9.85. In its urban areas BOC traditionally ran a double-deck fleet, but when new bus grant was first introduced BOC bought exclusively single-deck buses for some years. The new bus grant specification laid down only that buses be 'suitable' for OMO, but BOC wished to introduce OMO and at that time drivers refused to accept OMO on double-deck buses. However, a 'break-through' occurred in negotiations in the mid-1970s and since then some double-decks have been bought. As lately as 1978, BOC's Corporate Plan envisaged the purchase of single-decks only, but since then the company has altered its policy completely and is now buying double-decks only. The introduction of MAP (see Chapter 8) gave an impetus to the return to double-decks.

9.86. Lightweight single-deck buses, which cost considerably less to purchase, are no longer bought and BMH has discontinued production of these models. BOC believes that such buses are unsuitable for the heavy work of stage carriage operations and have high maintenance costs. BOC does not

consider it feasible to use mini-buses on lightly used services off-peak, reverting to standard single-decks in the peak, whilst using double-decks and the mini-buses on heavily loaded routes in the peak and the standard single-decks off-peak. 'Such an approach would require many more vehicles to be owned with less miles per vehicle being achieved.'

Recent purchases of buses

9.87. Table 9.9 sets out the new buses for stage carriage operation which BOC has had delivered and the timing of the delivery during the past five years, and the deliveries it expects in 1982.

TABLE 9.9 BOC: deliveries of stage carriage vehicles in the last five years, and expected deliveries in 1982

Vehicle model	Single- or double-deck	Seats	Deliveries					
			1977	1978	1979	1980	1981	1982
Bristol VRT	DD	70	29(6*)	5	8*	23†	—	—
Bristol VRT	DD	74	12	—	—	—	19	—
Leyland National	SD	44	6	25	15	—	—	—
Leyland National	SD	52	14(6*)	22	10	35	—	—
Bristol LH	SD	43	22	—	19*	14*	—	—
Reebur Ford	Minibus	17	—	—	2	—	—	—
MCW Metrobus	DD	76	—	—	—	5	—	—
Leyland Olympian	DD	76	—	—	—	—	—	30

Source: BOC.

* Scheduled for delivery in previous year.
† Scheduled for delivery two years earlier.

The table shows that of the 285 vehicles delivered between 1977 and 1981, 95 were delivered either in the year following their scheduled date or in the case of 23 Bristol VRT vehicles delivered in the second year following the scheduled date. BOC told us that in the past life-expired vehicles had 'to be kept on the road at great expense in order to maintain service' as a result of late deliveries of new vehicles.

Purchasing policy

9.88. Purchasing of new buses is organised centrally with NBC to gain the advantages of bulk purchase and of the expertise of full-time purchasing and contracts departments. NBC and British Leyland each owns 50 per cent of Bus Manufacturers Holdings Ltd (see paragraph 9.11) and each has an equal voting representation on BMH's board. NBC told us that a very high proportion of its purchases of vehicles are from BMH, but added that, other than from an overseas supplier, it could not see where else a low floor single-deck heavyweight bus could be obtained, and that it would not be permitted to purchase abroad. In the case of double-deck vehicles, many of its companies required vehicles which were low enough to pass underneath low bridges, and it pointed out that the prices BMH charged for the Olympian have been competitive. NBC provided us with figures which showed that the price it paid for single-deck vehicles had increased 16 per cent in real terms and

double-deck vehicles by 15 per cent over the last five years, but told us that this was no worse than it could expect and that no other buyer obtains better terms from BMH. NBC's 1981 guidelines for corporate planning forecast a 4 per cent per annum real increase in bus prices over the next four years and a 2 per cent per annum increase in engineering costs.

9.89. NBC told us that BMH and it undertake negotiations entirely at arm's length, with NBC applying its buying power or 'market weight' rather than its influence as shareholder. NBC believes that it takes over half BMH's chassis production, and somewhat less of its body output. Those NBC Directors who are Directors of BMH 'wear two hats' and 'manage it very successfully'. NBC receives a large volume of information about the costs of manufacture and is in constant contact over vehicle design, modifications and developments. The quality of vehicles produced by BMH has in NBC's view varied, as the original Leyland National model was a 'disappointment', but the Mark II with a Leyland 680 engine is a 'very good vehicle'. The delivery record of BMH was 'no better and no worse than any other manufacturer during this period . . . in the early years of bus grant . . . the market was very keen indeed . . . All bus operators . . . suffered from delay'. In summary, NBC told us 'we have not suffered extensively because we are single sourced'.

9.90. We asked NBC about the relative merits of the Gardner and Leyland engines and it told us that it recognised that the Gardner had an overall cost advantage. It told us that in the past it could not obtain as many Gardner engines as it had wished. 'The output of Gardner engines has been strictly limited and we have taken . . . as many Gardner engines as we possibly could.' In the past it had not been possible to fit Gardner engines in Leyland Nationals, and in view of the restricted output of Gardners any necessary re-design of the National to enable it to take Gardners had not been pursued. Recently three Gardner engines have been fitted to Leyland Nationals and BMH is planning to offer the Gardner as an option in the National. NBC pointed out that one of the reasons why the Gardner gave a better performance than Leyland engines was that the latter had been designed to comply with EEC sound regulations, which are to be introduced in 1983 but were expected to be in force much earlier. NBC told us that Gardner engines will have to be modified to meet the regulatory standard.

Contractual policy

9.91. Contractual negotiation is also undertaken centrally at NBC headquarters. It is not NBC's policy to seek penalty clauses in contracts to give protection against late delivery. In the past 'it would have been very difficult . . . to get a penalty clause out of a manufacturer when he knew that there was a demand for vehicles and that if he did accept a penalty clause then he would certainly introduce a *force majeure* clause which would nullify it'. Furthermore NBC as a very important purchaser has agreed with suppliers that it should be able to vary its purchase from the contract level, and considers that 'if we were to insist upon penalty clauses we would lose more than we would gain' as 'manufacturers certainly would not accept the situation where they were subject to a penalty clause but we could change the contract'.

Infrastructure policy

9.92. BOC's infrastructure policy 'is basically to maintain and improve facilities to ensure the reliable operation of bus services'. Infrastructure investment has in the absence of sufficient funds generated from its own operations in recent years been restricted by the shortage of finance imposed as a result of NBC's EFL. 'Nevertheless a policy is being pursued which ensures the renewal of assets which have become in need of investment.' The following important infrastructure projects have been undertaken since 1977:

1977—Office accommodation, Colston Centre, Bristol;

1977—Body Shop extensions, Central Repair Works, Lawrence Hill, Bristol;

1977—Alterations and additions to workshop—Cheltenham;

1978—Extension to workshops, Marlborough Street, Bristol;

1979—Additional chassis cleaning ramp, Winterstoke Road, Bristol;

1979—New bus wash and service lane, Muller Road, Bristol;

1981—Upgrading of maintenance facilities, Gloucester garage.

9.93. The largest infrastructural work undertaken in recent years by BOC is at the Gloucester garage. The scheme was proposed in three stages and all three were approved on the basis of a DCF appraisal prepared in 1979. Some of the works (Stage I) were essential if the site was to conform with Health and Safety Regulations and reliable operation of services from the garage could be continued. Stage I is being undertaken but Stages II and III are likely to be abandoned because operational needs have changed (because of service reductions).

TMT

Procedures

9.94. We have set out NBC's corporate planning procedures as they relate to investment in paragraphs 9.65, 9.66, 9.69 and 9.70. The system is a national one, and applies to TMT as well as to BOC. However, there are some differences in the intra-regional process. The Regional Director of the Northern Region asks each subsidiary to produce its corporate plan as an independent exercise (within the national guidelines for corporate planning and with the aid of the regional staff). This is then aggregated and a meeting held at which the General Managers and the Regional Director discuss any necessary revisions. Within TMT the proposals are developed in discussions between the General Manager, Chief Engineer, Traffic Manager, Company Secretary and Assistant Company Secretary.

Investment criteria

9.95. These again are determined by NBC policy; it is one of the Regional Director's responsibilities to ensure that companies within the region prepare plans on a common basis. TMT has fixed the life of vehicles for replacement purposes at the NBC maxima, 16 years for heavyweight single-deck and 14 years for double-deck vehicles, and determines its programme accordingly.

Past and future investment

9.96. Table 9.10 shows real total capital expenditure by TMT in the context of operating and patronage data. Each year's capital expenditure figure shows sum paid rather than expenditure committed, and hence is the outcome of previous decisions.

TABLE 9.10 TMT: changes in real capital expenditure, patronage and fleet composition

<i>Year (end of year where appropriate)</i>	<i>Total capital expenditure (constant 1980 prices*)</i>	<i>No. of passengers Journeys (stage carriage) million</i>	<i>No. of buses owned</i>	<i>Average age of bus fleet years</i>	<i>Average of buses retired</i>
1977	2,138	55.7	492	7.5	14.5
1978	2,225	54.9	445	7.0	14.3
1979	1,464	51.4	430	6.1	13.3
1980	983	44.7	371	6.7	13.1
1981	1,416	36.7	384	5.9	12.8

Source: TMT

* Using CSO index of Total Home Costs.

During the period shown in the table real capital expenditure averaged £1.6 million per annum and was at its highest in 1978. The size and average age of the fleet were reduced during this period.

9.97. Table 9.11 shows the breakdown of real investment expenditure by category; the figures are of expenditure before grant.

TABLE 9.11 TMT: real capital expenditure by category (all figures in £'000s constant 1980 prices)

<i>Year</i>	<i>Purchase of buses, coaches and dual purpose vehicles</i>	<i>Land and buildings</i>	<i>Plant, machinery and cars</i>
1977	1,911	151	76
1978	2,146	8	71
1979	1,394	—	70
1980	973	—	10
1981	1,307	47	62
Total	7,731	206	289
5 year category total as % of total investment on all items	94.0	2.5	3.5

Source: TMT.

The table illustrates the importance of purchases of rolling stock (which were nearly all for stage carriage operations) in total capital expenditure.

9.98. TMT's future capital expenditure plans are to take no new buses in 1982, ten in 1983 and seven per annum in 1984 and 1985. No infrastructure works are anticipated other than completion of the refurbishment of Langley Mill depot.

Forecast of peak vehicle and reserve requirement

9.99. TMT uses the NBC guidelines and forecasts of national economic variables modified to suit local conditions. Together with the likely levels of revenue support over the plan period these are used to produce a traffic forecast. The forecast level of spare vehicle capacity required in 1985 was the target set of 20 per cent.

Retirement policy

9.100. TMT told us that a few years ago it was its policy to give buses a major overhaul after 12 years operation in almost every case. With the large service cuts of recent years and hence a smaller fleet requirement this policy was reversed and some buses unsuitable for conversion to OMO were sold before they were 12 years old. A formal evaluation of this policy was not undertaken as it was considered obvious that the cost of overhaul plus that of two man operation outweighed the cost of a new bus. However, for future retirements TMT has now come full circle as it now must consider the retirement of vehicles which are already OMO or suitable for conversion. Moreover the certification system has changed as have NBC's recommended 'book' lives. Retirement policy is therefore more open. TMT is a participant in the VMC scheme, but its VMC data is not yet used in retirement decisions, as it has only been available in recent years and does not cover the older type of vehicle.

Replacement in the current planning period

9.101. In December 1980, TMT finished its 1981-85 corporate plan, envisaging the purchase of 18 new vehicles per annum over the period. However, in its 1982-85 plan it revised its requirements, reducing orders in 1983 to 10, in 1984 and in 1985 to seven per annum, and cancelling all plans for purchases in 1982. The change takes into account the reappraisal of bus lives discussed in paragraphs 9.77, reductions in the operational fleet and the revision in vehicle testing requirements.

Choice of vehicles for purchase

9.102. As in the case of BOC (see paragraphs 9.82 and 9.83) TMT's choices of new vehicle are made within the context of NBC's purchasing policy; TMT is standardised on BMH products, both models and major components. TMT has discretion on what mix of the standard products it wishes to order, and what options or extras¹ it wishes to specify to be fitted to the vehicles. These choices are made on the basis of engineering and operational judgment rather than quantification. In 1983-85 it is intending to buy 17 Leyland Olympians and 7 Leyland Nationals. In the past TMT bought a number of Ford buses, but it found that they were not suitable for its operational circumstances.

9.103. In the past TMT's new vehicles were supplied fitted with Leyland 501 engines. In November 1981 TMT made a formal case using VMC data for the replacement of its 501 engines with Gardner wherever technically feasible, the limitation being its compatibility with the Leyland National configuration (see paragraph 9.90). The proposal quantified the costs and benefits of the change. The change proposed has been put into effect.

¹ Tyre type, heated windscreen, battery type, moquette seats etc.

Purchasing and contractual policy

9.104. TMT's purchasing and contractual policy is undertaken by NBC headquarters (see paragraphs 9.88 to 9.91). In recent years it has experienced some late deliveries of vehicles, but as the average age of the TMT fleet has been relatively young and its size falling, the consequential cost increases were not as great as they might be. Recently TMT has had to store eight Leyland chassis for a year as the body-builder (Willowbrook) was not ready to take them. TMT told us that any claim for delay would be dealt with by NBC headquarters. In response to the delay some other NBC orders were withdrawn.

Infrastructure policy

9.105. The only current capital expenditure of consequence is at Langley Mill depot. This is being refurbished, primarily to replace vehicle maintenance facilities inherited from tramway days with modern and more efficient arrangements. TMT told us that all other major properties are in good or adequate repair, and are suited to their purpose. Surplus properties have been disposed of, but small pockets of surplus land have been retained since they are too small for commercial disposal.

Comparisons between undertakings

9.106. In each of the reference undertakings a mixture of quantitative and more subjective assessments are used to determine replacement decisions. In each undertaking estimation of the required size of fleet is quantitative whereas the allowance of spare capacity and the choice of average retirement age are arrived at by judgment. The calculation of how many buses should be bought, which to a great extent determines the amount and timing of capital expenditure, thus depends more on the judgment of the senior management of each undertaking than upon rigorous evaluation.

9.107. The 'nature' of the capital expenditure (as well as in part the amount to be spent) depends largely on the choice of bus type. There are choices between new and second-hand, single- and double-deck, integral and split body/chassis vehicles as well as many more detailed options. Bound up with the choices is the choice of suppliers, which is often no less significant. Contracts exist between the approaches of the reference undertakings to these decisions, but it is equally striking that their policies have much in common. Each buys a small number of vehicles of different makes from the standard vehicles of its fleet, and these are used for evaluation of technical and operating differences. Each gives regard to differences in the likely running costs (mainly maintenance and fuel costs) between different vehicle types, and to some extent this is put in a quantitative form. However, none of the undertakings has developed a formal and quantitative methodology for the forecasting of the cash flow effects of the investment options available to it, and accordingly none has attempted to support their proposals with discounted cash flow analysis. Another similarity of some importance is that all the reference undertakings have sought the advantages of standardisation of their fleets, in each case within the context of a policy on sources of supply.

9.108. However, there are differences in purchasing policy. NBC has a large shareholding in the major manufacture of buses in the United Kingdom and

has very largely standardised its purchasing on that supplier alone. Both BOC's and TMT's purchases of new buses are of those manufactured by companies within the Bus Manufacturers Holdings group, excepting a small number of evaluation vehicles. WMPTE and CCT have an explicit policy of securing multiple (in practice dual) sources of supply of vehicles, but in WMPTE's case its 1980 and 1981 proposals for purchase from two suppliers were overruled by WMCC, and the PTE was instructed to buy only the locally assembled Metro-bus. Only CCT, which because of its size has a very different relationship with suppliers to that of the NBC or WMPTE, has in practice pursued a policy of purchasing from more than one supplier.

Conclusions

9.109. Item 1(c) in our terms of reference requires us to examine: 'Methods for determining the nature, amount and timing of capital expenditure and the extent (if any) to which decisions thereon have increased efficiency or reduced costs.' We have devoted most attention to the determination of bus replacement policies in view of the very high proportion of capital expenditure spent on purchases of buses in each of the reference undertakings.

9.110. In reaching our conclusions we are conscious that the management effort put into the development of techniques of investment appraisal will inevitably reflect the relative importance of capital expenditure. We would also expect the withdrawal of the 50 per cent bus grant to stimulate management interest in the possibilities of life extension, and of purchasing in their second-hand market. Additionally, it is not surprising that the undertakings fixed retirement ages to coincide with the expiry of certificates of fitness when recertification required a major overhaul; to that extent, basing retirement policy upon judgment rather than quantification of costs was understandable.

9.111. However, during the last decade real maintenance costs have risen very substantially. The withdrawal of new bus grant and the requirement for annual testing are making an impact. The evaluation of the benefits and costs of alternative replacement policies must now become more scientific. *We therefore recommend* that quantitative evaluation be used. This will be feasible if the reference undertakings develop their knowledge of operating history of each vehicle in their fleets sufficiently to enable them to make broad estimates of the likely maintenance expenditure necessary on vehicles nearing the end of their life. We understand that TMT already possesses such information. An estimate of the cost over the planning period of retaining each individual vehicle approaching the end of its life can then be compared with the capital and operating costs of a new vehicle. Life cycle costs of existing models are recorded by, amongst others, NBC's VMC system, and the basic pattern of maintenance costs over a vehicle's lifetime is well known in the industry.

9.112. Although the task of choosing between new models is more difficult, the scepticism of the bus industry about the value of estimates of future running costs of new vehicles must be contrasted with other industries which have coped with new developments of familiar technology. *We recommend* that further steps are taken by the undertakings to quantify in broad terms the running costs of different vehicle types.

9.113. Well-ordered relationships with suppliers of vehicles are important for the efficiency of bus undertakings. We believe that in general effective competition between suppliers is the best safeguard of the interest of purchasers and that to depend on a single supplier's designs is to take significant and avoidable risks. NBC has told us of the benefits it has secured from its close trading relationship with Bus Manufacturers Holdings, but we believe that such benefits can be secured with two suppliers, although the costs of trading with two suppliers may be somewhat greater. We do not regard this advantage of single supply as by any means sufficient to offset the disadvantages we have identified. We do not believe that WMCC should have interfered with WMPTE's choice of supplier. We *recommend* that the purchasing policy of the undertakings should be determined by them (or in the case of BOC and TMT, jointly with NBC) on the basis of efficiency considerations, and should have due regard to the general desirability of securing at least dual sources of supply.

9.114. The extent (if any) to which decisions on the nature, amount and timing of capital expenditure have increased efficiency or reduced costs can be assessed only by reference to the consequences of alternative strategies that could have been pursued. During the last decade substantial capital expenditure on new vehicles was associated with increases in real maintenance costs. However, available alternatives were severely restricted by the development of new mechanical features, by the requirement that new vehicles be suitable for OMO, and by the technical and safety regulations. Thus we are unable to quantify the consequences for efficiency of discretionary decisions as to the design of vehicles purchased.

9.115. We have examined the implications for costs of the change to OMO in Appendix 2.6. The difficulty of isolating the financial effects of OMO from that of other changes is such that we cannot say what effect its introduction had on efficiency and cost. Moreover we are unable to identify with any precision other design changes not a consequence of the change to OMO or a necessary response to changing operating conditions.

9.116. Many of the vehicles purchased during the last few years by BOC and TMT had Leyland engines, but there is now a considerable weight of evidence that Gardner engines have substantial fuel and maintenance cost advantages for stage carriage services. BOC, TMT and NBC, which undertakes purchasing arrangements on their behalf, have told us that Gardner engines have periodically been in short supply. We believe that while Gardner engines retain their overall cost advantages the undertakings should seek to increase the proportions of their fleets fitted with them.

9.117. The return on capital expenditure of the undertakings during the recent past has been lower than that it might have been because the delivery and performance of the vehicles supplied have not met the reasonable expectations of the purchasers. It would be surprising if suppliers always succeeded in meeting such standards, but even after making due allowances we regard the experiences of CCT in particular as so unfortunate that they are beyond chance explanation. We conclude that as a consequence of difficulties with this programme costs were increased.

THE MONOPOLIES AND MERGERS COMMISSION

**Bristol Omnibus Company Limited
Cheltenham District Traction Company
City of Cardiff District Council
Trent Motor Traction Company Limited
and
West Midlands Passenger Transport
Executive**

A Report on Stage Carriage Services
supplied by the Undertakings

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CHAPTER 10

Local authorities—revenue support

10.1. Counties can wield influence on bus operators' efficiency in two ways. First they can affect the efficiency with which operators match supply and demand. Secondly they can affect the efficiency with which men and materials and other resources are used, and hence affect unit costs. In interpreting their duties, however, most counties have concentrated on the former role. This is discussed in Chapter 8 while the second role is discussed in the following paragraphs.

10.2. Whilst non-metropolitan district councils, including city and borough councils, also have powers under section 1(5) of the Transport Act 1978 to subsidise bus operators, it is not their general practice unless they have their own municipal bus undertakings. We found only three district councils which had provided separate support. Gloucester City Council has on rare occasions shared with BOC losses on bus operations within the city boundaries by virtue of its agreement with BOC (see paragraph 10.41 following), and this year Cheltenham Borough Council has set aside money for public transport support. Derby City currently supports TMT services within its boundary by virtue of a tripartite agreement with Derbyshire CC and TMT. (However, in Wiltshire district councils subsidise certain services jointly with the county.)

10.3. Most district councils studied have concessionary fares schemes for old age pensioners (and occasionally for some other classes of traveller), of which they bear the cost. They therefore support bus operators indirectly in this way.

10.4. Counties' interpretations of their duties under section 1 of the Transport Act 1978 vary widely. Some, such as Gloucestershire CC, believe that it is a duty of the operator, for example an NBC company, first to produce a viable network in the sense that it breaks even on costs. Thereafter the county should consult with districts and parishes and decide what additional services if any it should support.

10.5. Other county councils, eg Derbyshire, either identify the public's travelling needs themselves or do so in conjunction with an operator. They then agree with the operator the services required to meet the identified needs. These counties tend to have more staff engaged on public transport duties and staff who have themselves served in the bus industry. They also tend to be those which support networks as a whole rather than individual services.

Trends in revenue support

10.6. Appendix 10.1 gives figures for Transport Supplementary Grant (TSG) paid over the last six years to the six non-metropolitan counties which provide most of the revenue support to the four undertakings (Table 1). The

sums actually paid to the operators over the same period are shown in the appendix in Tables 2 and 3. Table 4 gives details of concessionary fares payments, whilst Table 5 sets out available details of forecast costs and revenue for each year by county and by operator together with comparative outturn figures. Overall revenue support from English non-metropolitan counties has not increased significantly in the last two years. £46 million (at 1978 prices) was accepted as eligible for TSG by Government in reply to TPP submissions for 1980-81 and £49 million (at 1979 prices) for 1981-82. For 1982-83 the amount is £73 million at 1982-83 prices which is equivalent to approximately £44 million at 1979 prices.¹ On the other hand from mid-1981 in particular there has been a marked increase in support in real terms in some large counties. The period since 1975 has seen a continuation of a decline in bus passengers, particularly in rural areas, which has been apparent since at least 1955. There was no local authority financial support for bus services before the Transport Act 1968 came into effect.

10.7. Although support by local authorities to NBC companies averages only 7 per cent of total revenue, this gives no measure of the influence which they exert over services. Furthermore, the distribution of revenue support varies widely between services. For example, in Derbyshire 28 services provided by TMT made a profit, on CIPFA costings, of £220,000 from January to November 1981. The remaining 109 services failed to cover their costs; their operating ratios ranged from 18 to 97 but most were above 70. Without support from the county, they would not have been kept running in their current form, and some might not have been kept running at all. In such circumstances a county obviously has an influence over all services run by an operator out of all proportion to the percentage of costs met by subsidy.

10.8. Similarly in the county of Avon only 18 services provided by BOC (9 per cent) showed a profit in 1980-81 of £53,000. This profit equalled the loss on the 31 least loss-making routes. The remaining 151 routes (75 per cent) had to be subsidised to a total of £4.7 million and there was a further subsidy on certain special services. The subsidy on individual routes ranged from £12,000 to £225,000. In such circumstances commercial viability would hardly be possible without severe pruning of services, particularly those on Saturday or Sunday or in the late evening.

10.9. Our attention has also been drawn by Derbyshire, Gloucestershire and Staffordshire CCs to the importance of travel to school as a primary determinant of the pattern of bus services in rural areas. School children form the majority of peak hour travellers by bus in rural areas (both stage carriage services and contract services). In urban areas they form a significant proportion of the peak hour travellers. In Staffordshire, for example, the cost in 1980-81 of providing statutory transport of children to school was £4.3 million, over twice the amount which was given in subsidy to the operators of the essential network of stage carriage services (£1.89 million). Particularly in rural areas Staffordshire saw the integration of school transport and stage carriage services as a means of ensuring the long-term stability of the basic network. Cheshire CC in 1980-81 spent about £4 million on educational trans-

¹ Assuming an increase in RPI of 10 per cent in 1982 over 1981.

port compared with nearly £3 million on bus revenue support. Nationally the amount spent in 1980 by non-metropolitan counties on education transport was approximately double their expenditure on support of stage carriage services.

10.10. Since many counties have always carried school children on stage carriage services and others are now finding that it is cheaper for them to travel to school in that way rather than on special school buses, the connection between school travel and peak bus services is becoming closer. However, school rolls are falling generally and this is said, eg by Derbyshire, to be a further potential cause for decline in the viability of many services in the county. In some cases too the running of all-day services would be threatened.

10.11. All operators, the Confederation of British Road Passenger Transport and most counties who submitted evidence to us agreed that a further decline in the use of rural services was inevitable, as car ownership continued to increase. They said that a further decline in the use of rural services meant even higher fares per mile to cover fixed costs which had then to be spread over a smaller mileage base. These higher fares then tended to accelerate the decline, as they followed costs increasing in real terms. Counties were therefore faced with a dilemma: they would have to keep fares increases in line with general inflation and accept service cuts, or face putting up fares in line with costs, leading to a reduction in passengers carried, or increase grants in real terms.

The mechanism of support

10.12. It has been suggested to us by TMT that support given by local authorities to operators can be classified as either 'subvention' or 'revenue support'. Subvention is defined as 'financial payments made as a result of agreements whereby in broad terms the operator complies with conditions on specified service levels and fares in return for cost reimbursement of relevant operations'. This implies that the full cost for a year ahead is covered, whatever the original forecast of costs was and irrespective of revenue received from fares. The Department of Transport told us that they would not regard such payments as grants under section 1 of the Transport Act 1978.

10.13. TMT receives subvention payments from Derbyshire CC and Derby City Council in respect of services wholly or partially within the city boundary (see paragraph 10.35 below) and from Greater Manchester and South Yorkshire PTEs. The latter sums are relatively small. Other NBC companies receive money under similar arrangements from other PTEs. With the exception of the Derby City agreement, arrangements by non-metropolitan counties to pay subventions to NBC operators are rare.

10.14. Revenue support payments are normally made only after the maximum possible degree of cross-subsidisation of one service by another has been arranged in the whole network of routes within a given local authority's territory (two examples of this have been discussed in paragraphs 10.7 and 10.8 above). Many local authorities do not plan to meet the whole of an operator's forecast deficit. The provision of revenue support to operators is discussed in detail in Appendix 10.1.

10.15. In all cases where revenue support is given the grants made are maxima and usually made monthly on the basis of costs actually incurred and revenue actually received by the operator. This means that if either revenue from fares is higher or costs are lower than forecast, grant can be clawed back.

10.16. Although the occasions on which grant has actually been clawed back are few, any efficiency gain by the operator during the course of a year which results in reduced costs will accrue to the county rather than to the operator, and hence in the case of subsidiaries of NBC not to NBC centrally. It must also be acknowledged, however, that most counties are prepared to exceed their stated maxima, if there is good reason for the extra cost being incurred.

10.17. Counties justified clawback on two grounds. First, they said that it was required by normal rules of propriety in public spending. To pay any more than was actually necessary for the operator to break even would be a misuse of public funds. Secondly, if lower support were needed than had actually been budgeted for, it was proper for a county to decide whether to spend the surplus on other public transport needs.

10.18. Such a system might be thought to act as a disincentive to increased efficiency by operators. Subsidiary companies cannot keep for themselves or pass on to NBC centrally any benefit from achieving the Secretary of State for Transport's target for NBC as a whole of a 3 per cent reduction in costs in real terms in 1981.

Ineligible costs

10.19. NBC argued to us that a particular impediment to efficiency was the refusal by some counties to treat interest on its commencing capital debt and the 1.5 per cent reserve in its accounts for contingencies, as eligible costs for revenue support purposes. The main non-metropolitan counties which provide support to BOC and TMT were therefore asked what the practice was. The results that are set out in Table 10.1 below indicate that the former problem does not arise in any of the counties with which we are principally concerned.

TABLE 10.1 Treatment by counties of certain NBC companies' costs for revenue support payments

County	Cost item	
	Interest on NBC's commencing capital debt	1.5% contingency allowance
Avon	Eligible	Ineligible, but actual contingency costs may be paid if there is a proven need, eg when there are abnormal weather conditions
Gloucestershire	Eligible	Ineligible
Wiltshire	Necessity to decide has not arisen since the county does not meet the full operator's deficit	As for Avon
Derbyshire	Eligible	Ineligible
Nottinghamshire	Eligible	Eligible, but under review and payable only in respect of eligible services

Source: County councils.

10.20. Cheshire CC has objected to paying for the full CCA replacement cost of buses in CIPFA route costings on the grounds that, since services are continuing to decline, not all existing buses will have to be replaced. The county council therefore discusses their capital base requirements with operators and uses its annual auditing procedures to check that capital expenditure on buses is at an appropriate level. TMT operates a very small number of services within Cheshire.

Treatment of inflation

10.21. A further difficulty for NBC companies in the mechanism of revenue support is the treatment by some counties of fares increases. Two counties, Avon and Derbyshire, have policies that fares shall not be allowed to increase in real terms, ie faster than the prevailing rate of inflation. South Glamorgan CC limits them to the higher of RPI or average earnings. There is some inconsistency between these policies and NBC's guidelines on inflation for subsidiary companies' corporate plans.

10.22. For planning purposes 'before management action' NBC allows its subsidiaries to assume that earnings per employee will rise in line with average earnings in the economy—in the medium term by 1 per cent above the RPI. The cost of new buses and spare parts is assumed to rise by 4 per cent above the RPI. (The term 'management action' is defined in Chapter 12.) The companies are allowed to make their own assumptions on fuel prices. Of course 'after management action' NBC companies' unit costs will not necessarily increase by the full amount allowed by the guidelines, especially since NBC was set a target by the Secretary of State for Transport of reducing costs per vehicle mile in real terms by 3 per cent in 1981 and a further 1½ per cent in 1982.

10.23. The Department of Transport said they were aware of this anomaly. Their officials did meet regularly with NBC to agree sensible estimates of inflation which might be built into NBC's corporate plan with the aim of avoiding arguments with the Department over details at a later stage.

Uncertainties concerning the payment of Transport Supplementary Grant

10.24. NBC claimed that there were grave uncertainties about the amount of revenue support which its subsidiary companies could expect to receive during their financial year (January–December) since counties did not know until late December, or even early January, the amount of TSG that they themselves would receive for the fiscal year beginning 1 April. If the amount of money which its subsidiary companies received was less than they expected they had to take management action to offset this reduction. There could be a lead time of from four to six months, particularly if service reductions had to be made, before the benefit of such changes could accrue. In any event patronage would fall and they would find it extremely difficult to make up the whole loss of revenue support within that financial year.

10.25. TMT gave as an example of the deleterious effects of the present system that revenue support for 1980–81 was only notified by Nottinghamshire

on 19 March 1980. The amount of revenue support to be received was appreciably less than 50 per cent of the total losses sustained by TMT in that year in providing services which were unremunerative. This meant that 610,000 vehicle miles had to be withdrawn, and staff numbers and buses significantly reduced. This had the effect of cutting operating losses by over £50,000 each month, but because of the necessary time for discussion with the council and for preparatory work, changes could not be introduced before 31 August 1980. This five months delay, it said, therefore cost TMT £250,000. The loss could have been avoided, TMT said, had revenue support been finalised before the end of 1979.

10.26. Furthermore, central Government timetables for setting TSG and RSG meant that NBC companies had to forecast their revenue support needs too far in advance to allow accurate forecasts to be made, and it was only sustained pressure on counties over the years that had produced barely adequate local timescales for TSG submissions.

10.27. Most counties pointed out to us that since they themselves were not notified of the amount of TSG and RSG or of what control would be exercised over their spending levels until just before Christmas, and they then had to put proposals to meetings of council committees and of full councils, they could not finally decide support for bus companies until about mid-February, although it was often possible to give an indication of what it would be in advance. They really needed to know their amounts of central Government grants by the end of November. NBC said that this was the date by which its companies needed to know their level of support for the next fiscal year. That would mean that the Department of Transport would have to decide the level of grants to local authorities by July, in order to give time for the full local authority procedures.

10.28. The Department of Transport told us that although they aimed to announce the amount of accepted transport expenditure to local authorities in November, it was not always possible to issue decision letters in that month because the announcement had to be held back until the RSG settlement was made. There was therefore little prospect of advancing the notification date. Counties could however help NBC companies by indicating the probable level of support to NBC companies around the beginning of November, and some already did so.

Formal agreements for the provision of bus services

Agreements between counties and operators

10.29. Appendix 1.2 contains the legislation referring to agreements between non-metropolitan counties and operators for the provision of bus services. From a study of the legislation, Hansard and DTp circulars it is clear that it was the intention of the Government in 1978 to place an obligation on such counties to enter into binding agreements to give financial support to operators. However, few agreements have been signed in England and

Wales as a whole and of the nine counties which provide revenue support to the four undertakings only one (South Glamorgan) had until recently entered into a binding agreement under the Act, and that for one year only.

10.30. Gloucestershire has now offered BOC a draft three year agreement and Cheshire has recently signed an agreement with operators and the district council for provision of services in the Warrington area. This is discussed further in paragraph 10.50. Wiltshire is making a number of short-term agreements with operators for the provision of supplementary services, and it says that agreements, probably for at least three years, can be drawn up when its network of basic services has finally been determined. Derbyshire has a tripartite binding agreement with Derby City and TMT for services wholly or partly within the city boundary (see paragraph 10.35 below) and West Midlands PTE entered some years ago into a binding agreement with the Midland Red bus company.

10.31. Most counties told us that it was not realistic for them to commit themselves formally to support a particular set of bus services provided by a particular operator for a longer time ahead than one year since that was the time for which they themselves were certain of contributions from central Government in the form of RSG and TSG.

10.32. The Department of Transport acknowledged that some counties would find it difficult to enter into a financial commitment for three years ahead. However, whilst they favoured counties entering into agreements since this would provide stability, the decision was one for each county to make. Any agreements which were made would be taken into account by the Secretary of State when deciding the level of accepted expenditure for the purposes of TSG.

10.33. Both BOC and TMT would like to see counties fulfilling their duties to set up agreements under the Act. They pointed out, however, that in order to give them as operators the continuity necessary for planning, a rolling agreement would be required. At the very least there should always be certainty of support for two years ahead.

Agreements involving borough or city councils and operators

10.34. Where services run by an NBC or private operator and supported by a county council run into a city or town in which the council also operates a municipal bus service, problems of co-ordination can arise. Sometimes support given by the district council to its own bus operations is relatively greater than that given by the county to other operators, with the result that the municipal fares are lower than fares in the county. The county-supported operators therefore have to charge lower than normal fares inside municipal boundaries and for a short distance outside or else face loss of passengers. Furthermore there can be restrictions on the county-supported operator's picking up passengers within the municipal boundaries and on its using the same stops as municipal buses. It is claimed by operators that this has led in some cases to buses having unnecessarily empty seats.

10.35. The Department of Transport told us that many municipal bus undertakings have co-ordination or agency agreements with NBC subsidiaries which are not the subject of this inquiry. We have noted that the difficulties described above have been overcome in the case of Derby City by the signing of a tripartite perpetual agreement between the city, Derbyshire CC and TMT. The agreement contains a provision for a minimum notice of two years for change or termination. Under the agreement both the city and the county give financial support to TMT so that within the city boundary it is recompensed for charging fares at the same level as those of the city. There are other provisions for the better integration of services.

10.36. TMT told us that it believed that a similar agreement should be signed with the City of Nottingham and that the initiative should be taken by Nottinghamshire CC under the 1978 Act. Similar problems occurred within the City of Nottingham to those which had been experienced in Derby before the signing of the agreement there. Nottingham City Transport charged subsidised fares which had the effect of undercutting even an efficient commercial operator such as TMT by up to 50 per cent. Since TMT could charge no higher fares on common routes this could be leading at a modest estimate to a loss for TMT of as much as £300,000 a year, only part of which was currently met by subsidy from Nottinghamshire CC.

10.37. Nottinghamshire CC drew our attention to its joint Statement of Intent agreed with Nottingham City Council in 1977. Under this agreement the operation of Nottingham City Transport was left to the city council. The county council's role was strategic with responsibility for co-ordinating public transport in the whole of Nottinghamshire. The county council would give particular attention to bus services affecting passengers outside the city boundary.

10.38. BOC told us that it faced a similar situation in Thamesdown, even though it had certain agreements with Thamesdown Transport, the municipally owned operator, on co-ordinated timetables and on pooling of revenue on certain routes. Thamesdown Borough Council subsidised Thamesdown Transport's fares to a greater extent than Wiltshire CC did BOC's. Competition between the two operators had therefore resulted in BOC's fare scales being significantly lower in Swindon than in the other urban areas in which it operated. BOC also incurred considerable losses on the Swindon urban services. The operating ratio for these services was 65 per cent over the period January-November 1981. Revisions to the Swindon urban services were introduced in January 1982 but the forecast deficit remained substantial. BOC told us that it would like to have an agreement with Thamesdown BC and Wiltshire CC after the Derby pattern. Wiltshire should initiate it because of its duty to co-ordinate public transport.

10.39. Wiltshire CC told us that it had promised to meet £11,000 of BOC's estimated deficit on Swindon services for 1982-83, leaving a net forecast deficit of £233,000 out of a net forecast deficit after revenue support of £243,000 for the whole county. The county council told us that it had not been possible to persuade Thamesdown BC to agree to a co-ordinated approach whereby

both operators would share in the network of services required in this developing urban area. However, Thamesdown BC had now indicated that it was willing to meet from its own revenue the cost of providing services which BOC might abandon in order to reduce its losses. In these circumstances Wiltshire CC felt that this co-ordinated approach was not a matter with which it should now be concerned. It had in any event been pressing BOC for some months to indicate precisely what proposals BOC had for avoiding its estimated losses. Finally it wished to emphasise that no non-metropolitan county could enforce co-ordination since none of them had powers to require any operator to provide or vary any specific service.

10.40. Thamesdown BC confirmed to us that it was not willing to enter into further co-ordination agreements as it wished to negotiate an extension of its own services to the whole of Thamesdown without seeking any financial support from the county council.

10.41. Since giving up its own buses in 1937 Gloucester City Council has had an agreement with BOC to provide bus services for it. Under the agreement profits and losses were shared equally and in most years profits were made on costs charged on an historic basis. In 1980 the agreement was extended for a further 20 years, but on a different basis. Costs were to be calculated on the CIPFA formula, the main difference being that the depreciation was to be charged on a Current Cost Accounting basis. Gloucester City moreover is now guaranteed against any losses in return for giving up any share in profits over £20,000 per annum. BOC is satisfied with this agreement. Gloucester City Council considers that having regard to the current economics of bus operation, the agreement represents a fair balance between the interests of BOC, the travelling public and the city. Gloucestershire CC professes itself generally satisfied with the agreement since its policy is to subsidise only rural services. However, if opportunity arose it would prefer to see the agreement ended.

Value for money

10.42. Local authorities attempt to achieve value for money in their transactions with operators in two ways, first by ensuring after costs have been incurred by the operator that the subsidy paid is no more than necessary, and secondly (and most important) by putting continuous pressure upon the operator to ensure that costs to be incurred in future are the minimum possible to provide the required service.

10.43. Chapter 2 (Financial framework) has discussed the CIPFA costing system which now forms the basis on which all local authorities pay subsidy to larger bus operators. Such a common standard has been welcomed by counties and operators alike, since it has cut out a large area of potential disagreement. However, merely to accept the monthly CIPFA operational costings as a basis for payment is not seen as enough. Many county councils use their own auditors to carry out a regular scrutiny of costings. This is accepted by operators and in many cases it is a condition of their obtaining revenue support.

10.44. Other county councils, eg Nottinghamshire and Derbyshire, go further and use a computer or manual methods to analyse operational costings between routes and for a single route over time, in order to discover trends and anomalies. It is claimed for such analyses that they give valuable insights into methods of dealing with unprofitable routes. Cost per bus hour or per crew hour was said to be one of the best comparators. Some county councils such as Cheshire also analyse bus and crew utilisation to identify reasons for cost changes and seek room for improvement. Information on operational costings is also exchanged within the Association of Transport Co-ordinating Officers.

10.45. Cheshire and South Glamorgan CCs monitor lost mileage and grant can be reduced if it exceeds a low target figure. Cheshire CC for example imposed penalties totalling £29,000 between 1978 and 1982, after consideration of each occasion by its Public Transport Sub-committee.

10.46. Fewer counties involve themselves with the question of an operator's efficient future use of resources. Some counties have a policy of seeking to encourage efficiency by giving a smaller grant to an operator than that which he requests to meet the whole of his forecast deficit for next year. Given the lead times necessary for operators to make changes involving working practices, make of bus or spare part types, it is difficult to see how such a policy can do other than encourage further cuts in services.

10.47. Putting pressure on operators to reduce unit costs, for example by setting targets, is a much more difficult matter. Among those which have undertaken it is South Glamorgan CC. In its annual binding agreements with operators, it has progressively set more demanding lost mileage targets even though those for CCT were in line with what CCT thought it could achieve. It also claims to have been instrumental in improving the productivity of platform staff by agreeing over the years a series of targets for progressing towards 100 per cent OMO. Its 1981-82 agreement also calls for CCT to draw up 'a programme of efficiency measures with regard to agreed targets and/or incentives'.

10.48. Derbyshire CC said that it had been refused access to TMT's corporate plans. Seeing them would enable it to verify that the company's plans took account of the county's own transport planning policies. TMT told us that it was indeed unwilling to show any county its corporate plans. They were confidential documents which contained details of its commercial strategy, and could for example also include details of planned action in a competitive situation. Moreover county councils were already supplied with large amounts of operating and financial information which, in the company's view, enabled counties to meet their statutory transport requirements.

10.49. Some counties possess specialised staff with long experience of bus operations. This enables county councils such as Cheshire and Derbyshire to carry out their own calculations of how many buses or crews would be needed to run the required network of services.

10.50. Cheshire CC, as part of its Warrington agreement (paragraph 10.30 above), has proposed a particular scheme for obtaining value for money for the sums it pays to operators. First it would agree with them the number of buses and crews required to run the proposed services. Then it would contract to pay so much each year for each bus and each crew hour actually provided and so much for each bus mile actually run. If the operator provided the resources at lower cost, he would keep the difference, if higher, he would meet the extra cost. Next year any efficiency gains would be taken into account negotiating new unit prices for each item of resource, but at the same time maintaining an incentive for the operators to make a modest 'profit'.

Influence on operators' efficiency resulting from changes in political control of county councils

10.51. A number of operators and NBC centrally have claimed to us that the efficiency of their operations has been adversely affected by changes in the political control of county councils which give them revenue support. TMT said that in Nottinghamshire there was an endeavour, until the spring of 1977, on the part of the then prevailing administration, to meet losses on unremunerative but socially desirable services so far as availability of finance permitted. Thereafter, however, there was a period of retrenchment, with a fall in revenue support in real terms dictated by a new administration of a different political colour. 1981 saw a further political change, with a reversion in political terms to 1977 and thereby an uprating of public transport in priority terms, increased revenue support, and the implementation of 'good housekeeping' measures rather than severe retrenchment. Nottinghamshire CC confirmed that the incoming administration in May 1981 decided to meet all TMT's eligible losses from July of that year and that that had also been the policy for the years 1975-76 to 1978-79. Following the bad winter of that year the council decided to meet only between 50 and 60 per cent of TMT's losses.

10.52. WMPTE claimed that it has suffered a number of adverse effects from changes in the political control of West Midlands CC. From 1974-77 the administration in power pursued a policy of integrating public transport and giving it a relatively high level of subsidy with reduced fares. A different administration was in control from 1977 to 1978. Its first aim was to put the buses back into profit during its four years of office. The immediate result had been a fares increase of 33 per cent instead of the budgeted 25 per cent. It had also, by reducing revenue support, set the PTE a target of reducing costs by £2 million a year in real terms. This would have led to the requirement that bus services should break even in 1983-84. For the first three years this was achieved and in fact a total of £7.8 million less in revenue support was required than was budgeted, and without major service economies. However in 1980-81 there had to be a 10 per cent service cut. The fleet was reduced by 200 buses by March 1981. 100 of these were not sold, partly because the second-hand bus market was poor and partly because the policy of the Labour party in its manifesto for the May 1981 election was to restore some of the bus service cuts. If the party obtained a majority (which it in fact did) additional buses would have to be found at short notice.

10.53. In recent years revenue support had varied from 13 per cent in 1980-81 to 32 per cent in 1981-82 following the change of administration in that year. One immediate effect had been that the labour force thought that the PTE could now afford much bigger wage increases. Moreover the same incoming administration had reduced child fares to 2p irrespective of distance. This resulted in an extra 10,000 children per weekday travelling in the peak half-hour. It had interfered with previously made service plans and the PTE had suddenly to find extra buses. In the event, the legal actions following the House of Lords decision in the GLC case resulted in revenue support for the year being £27.8 million, although the effect of the cheap fares policy had led to an actual shortfall of £32.3 million. This compared with an originally budgeted figure for revenue support of £22.1 million for 1981-82 and a revised budget by the incoming administration of £41.7 million.

10.54. On the other hand West Midlands County Councillors said that it was easy to exaggerate the effects on the PTE of the change in political control of the council. Over the whole period of the existence of West Midlands CC revenue support to the PTE had varied only between 13 and 28 per cent of operating costs and stage carriage miles operated had varied by no more than 2 per cent. Furthermore the 10 per cent service cuts introduced by the previous administration in 1980 had not been restored exactly by the present administration, and even to restore the cuts on average would take a long time.

Communication of policies between local authorities and operators

10.55. Both local authorities and operators take policy initiatives with respect to bus services. Both propose service changes resulting from new assessments of the needs of the travelling public or from changes in the amount of finance available. It is appropriate therefore to consider the communication of policies in both directions, from local authority to operator and vice versa.

10.56. Local authorities' mechanisms for communicating their policies to operators are complex and vary in detail from authority to authority. In general they involve either special committees on which operators are represented or their attendance at meetings of the main transport committees of county councils. These fora are also the main means through which operators communicate formally with county councils. In addition there are frequent and extensive contacts at officer level.

10.57. Most of these arrangements are said by both operators and councils to work well. The exceptions concern BOC, Nottingham City Council and Thamesdown Borough Council. These last two have been discussed in paragraphs 10.36 and 10.38-10.40 above. Avon CC, Gloucestershire CC, Cheltenham Borough Council and Bristol City Council commented on their relations with BOC. Cheltenham told us of a history of increasingly poor relations and lack of consultation by BOC over recent years, culminating in the Council's abandonment of a joint consultative committee. It believed, however, that conditions were now right for a renewal of good consultative relationships.

10.58. Gloucestershire CC complained of a lack of consultation by BOC before starting MAPs and of some unexplained changes in operational costs. Current communications with BOC, largely through local managers, were unsatisfactory since they had insufficient delegated powers although day-to-day communications on operational matters were good. However it was hoped that relations would improve now that a formal agreement for the provision of services had been proposed.

10.59. Avon CC pointed out that such matters as the conclusion of new bonus agreements by BOC with its employees clearly had implications for the county council and that full and early information on such matters would be very helpful.

10.60. Bristol City Council was disappointed with consultation by BOC over major service revisions following MAP and with insufficient direct contact at officer level. The cause was partly structural. BOC as an NBC operating company was not designed to respond to the pressures of a local community.

10.61. BOC told us that it appreciated Bristol's feelings over the diminution in regular consultations that had taken place following dissolution in 1978 of the bus undertaking which it had operated jointly with the city, but financial and structural changes had made it difficult to devise direct consultative machinery that would be appropriate. Concessionary fares apart, Bristol no longer made the financial contribution that would give it an influence on policy. Like other former county boroughs following the reorganisation of local government, Bristol had lost its transport planning powers to the county council and all consultation had to be via Avon. However, BOC also said that its relations with Avon were close and there had been a constant interchange of information with the county.

10.62. BOC said that relationships with Gloucestershire and Somerset were good. Contact was through officers. In Wiltshire there was regular contact with members as well as officers through the Joint Consultative Panel on Transport.

10.63. NBC told us that it did not give central guidance to General Managers of its constituent companies on how to conduct relations with local authorities.

Conclusions

10.64. The process of arriving at the amount of revenue support to be paid by a non-metropolitan county to a bus operator has to be a joint process between the parties. We believe that the operator should first consider his routes very carefully and identify separately those which contribute to overheads and those which do not. The county council should then see the detailed outcome of this examination. It is to be expected that as a result of this some profitable routes would have to subsidise unprofitable routes and a bargain should then be struck by negotiation.

10.65. The present mechanism by which revenue support is paid by counties to operators does indeed involve a detailed examination by the former of the latter's costs and considerable pressure from time to time for their reduction, usually through service cuts. The tension between the parties which this produces can be creative and promote the attainment of value for money for the travelling public. There are, however, some defects in the process. In particular where support is given on condition that revenues and costs should break even it is likely to prevent NBC companies from achieving on their stage carriage services an adequate proportion of the financial target set by the Secretary of State for NBC as a whole.

10.66. We think that the experimental system proposed by Cheshire County Council for the Warrington area should be watched by other local authorities. Although it is obviously too early to judge its potential, it may in the end offer a way of retaining within a system of revenue support some incentive to profit earning by operators, whilst enabling the county council to achieve value for money. We believe that all agreements made under the Transport Act 1978 should include proper provision for monitoring operators' costs.

10.67. Many non-metropolitan counties allow NBC companies fares increases which are based on a lower rate of inflation than that given as guidance to these companies by NBC centrally. This conflict does not make for realism in planning. The Department of Transport have a role to play in avoiding this conflict since they give general guidance to NBC on the treatment of inflation.

10.68. BOC and TMT have complained about the uncertainties which they experience over the amount of the revenue support which they receive from counties and in particular of inadequate advance warning of changes. This can at times have an adverse effect on their efficiency. Counties in their turn point out the uncertainty over the level of Transport Supplementary Grant.

10.69. We believe that three year agreements under section 3 of the Transport Act 1978 should have a stabilising effect on the provision of bus services. However, there are difficulties for counties entering into such agreements when they themselves have no commitment from central Government on the level of financial support in future years. Nevertheless, it appears that more counties are now proposing to enter into such agreements and it is encouraging that the Department of Transport told us that the Secretary of State would take an agreement into account when deciding what levels of expenditure to accept for the purposes of Transport Supplementary Grant.

10.70. Under the Transport Act 1978 non-metropolitan counties have a duty 'to develop policies which will promote the provision of a co-ordinated and effective system of public passenger transport to meet the county's needs'. Public passenger transport service operators and county and district councils are given a duty to 'co-operate with one another . . . for the purpose of co-ordinating public passenger transport services within the county'. Since county councils are given no powers to enforce co-ordination if an undertaking operates without a subsidy from them, effective co-ordination depends upon the voluntary co-operation of local authorities with operators and with each other.

10.71. The tripartite agreement between Derbyshire County Council, Derby City Council and TMT shows what can be done when there is a will to find a solution to problems of co-ordination.

10.72. Since different county council administrations not infrequently have different transport policies, operators may experience sudden changes in the level of services they are asked to provide. When this occurs there may well be some adverse effect on the efficiency of the operators.

10.73. In general the mechanisms for communicating the policies of local authorities to and within the bus undertakings studied are satisfactory. However, in the case of BOC communications in the reverse direction could be improved by BOC giving more advance warning to councils of action which it intends to take, especially any which might increase the revenue support required.

CHAPTER 11

Competition and the Transport Act 1980

The experience of the four undertakings

11.1. To obtain evidence on the response of existing private bus operators to the Transport Act 1980 one-page questionnaires were sent to a random sample in each of the four undertakings' operating areas. A total of 94 usable replies was received, a response rate of 80 per cent, with little variation between regions. Fifty of the operators who replied held one or more stage carriage licences. The survey was supplemented by case studies of competing operators and their routes. We followed up operators who reported difficulties in starting up new routes in competition, and their experience provides much of the material which follows.

WMPTE

11.2. No competitors have so far emerged in the West Midlands.

CCT

11.3. In January 1981 CK Coaches (Cardiff) Ltd (CK) applied for short period licences to operate stage carriage services between the centre of Cardiff and Cyncoed and Llanrumney. In February 1981 the Secretary of State for Transport revoked section 46 of the Cardiff Corporation Act 1930 which had restricted the running of buses in competition with services provided by the city council, and in March the short period licences were granted in spite of objections from CCT.

11.4. The CK services began on 6 April 1981. They ran at an hourly frequency on both routes, all day for seven days per week. Table 11.1 shows the main CCT routes to Cyncoed and Llanrumney, their frequencies at the time CK began operating, and their operating ratios in late 1980.

TABLE 11.1 CCT: main CCT routes to Cyncoed and Llanrumney

<i>Route</i>	<i>Service number</i>	<i>Frequency</i>	<i>Operating ratio April-Dec 1980</i>
Cyncoed	54	30 min Mon-Sat 60 min Sun	87
Llanrumney	19	30 min Mon-Sat 60 min Sun	114
	47/48	10 min Mon-Sat 15 min Sun	109
	49	Mon-Fri peak 6 journeys	

Source: CCT.

There then followed a series of competitive responses on both frequency and fare.

Frequency

11.5. On the day the CK service began, CCT applied to increase the frequency of its Sunday afternoon service to Cyncoed from hourly to half-hourly, and this service was introduced on 12 April. On 14 April CK applied to increase its frequency on the Llanrumney route from hourly to half-hourly, and extend its route between Cardiff and Cyncoed. It also applied for a short period licence for a new service to Llanedeyrn. CCT then applied on 29 April to increase the frequency on its 47/48 route to Llanrumney from every 10 minutes to every 7½ minutes. On 8 May the Traffic Commissioners granted both operators' applications for increased frequencies to Llanrumney and CK's applications for the new route to Cyncoed and its new service to Llanedeyrn. CK increased the frequency of its Llanrumney service on the same day although CCT did not increase its frequency until 7 June. Table 11.2 shows the frequency and operating ratios of the CCT services between the centre of Cardiff and Llanedeyrn.

TABLE 11.2 CCT: services to Llanedeyrn

<i>Service number</i>	<i>Frequency</i>	<i>Operating ratio April-Dec 1980</i>
56	30 min Mon-Sat	98
57/58	10 min Mon-Sat 15 min Sun	123
59	Mon-Fri peak 8 journeys	49

Source: CCT.

11.6. On 22 May 1981 CK informed the Traffic Commissioners that Sunday and evening services to Cyncoed would cease. It began its new service to Llanedeyrn on 1 June and varied its route on 9 June. On 15 June it applied to extend the route from Llanedeyrn to Pentwyn but proposed to halve the existing evening frequency to Llanedeyrn. This application was later refused since the Traffic Commissioners thought that the public would already be totally confused by all the service changes in the area. CK also informed the Traffic Commissioners that its Sunday services on all routes would cease after 14 June, and that the Saturday early morning frequency to Llanrumney would be reduced.

11.7. On 17 September 1981 CK was granted substantive licences for a period of three years to operate services to Llanrumney, Cyncoed and Pentwyn, and its new Pentwyn service began on 21 September. Meanwhile CCT had also applied to operate a new Pentwyn service and this, service 51, began on 9 November. CK later applied for two variations to its Pentwyn route and also for a licence to operate from Cardiff (Castle Street) to Ely, but this latter application was refused. On 21 December CCT applied to reduce the frequency of its Llanrumney service but withdrew the application because of objections from CK. In January 1982 CK applied to operate its services with one man in the off-peak periods.

Fare

11.8. When the CK services began on the Cyncoed and Llanrumney routes in April 1981 CK charged a maximum single fare of 35p. CCT charged a

maximum single fare of 44p (since the longest route crossed three fare zone boundaries) and also offered family ticket and multiride facilities.

11.9. On 13 April, a week after its service had begun, CK informed the Traffic Commissioners that it intended to introduce family tickets, 12-journey tickets and day returns and put its minimum fare at 10p. On 19 May it gave notice that it would replace 12-journey tickets with 14-journey tickets, increase the availability of its family tickets to all-day and introduce some cheaper return, child and OAP fares. These fares were introduced on 8 June, and on the same day CCT introduced its off-peak reduced fare scheme throughout Cardiff giving a flat fare of 20p between 09.15 and 15.45 on Monday to Friday. The background to the introduction of this scheme is discussed in paragraphs 8.118 to 8.123. A week later CK announced that it would introduce a 20p flat fare between 09.00 and 16.00 Monday-Saturday which it did on 6 July 1981. CCT increased its fares in January 1982 and CK increased its fares on 6 February 1982.

Results

11.10. A monitoring report by the County Planning Officer of South Glamorgan CC in September 1981 suggested that the introduction of higher frequency services at lower fares had generated no traffic on the high-frequency Llanrumney route although it had done so on the Cyncoed route. It was too early to give results for the Llanedeyrn route. CCT told us in February 1982 that it estimated its annual loss in revenue due to competition from CK to be about £110,000. The increased frequencies on the Llanrumney and Cyncoed routes, which it had operated for about six months, had cost another £42,000. The annual total cost of the reduced fare experiment was estimated in July 1981 to be £214,000.

11.11. CK has been unable to supply us with any loading data or financial information relating to its stage carriage services. However, it thought that the services had been profitable until the effects of CCT's fare reductions had been felt. Since August 1981 the services had been losing about £500 per week and financial difficulties forced CK to cease operating stage carriage services on 15 February 1982. After a brief respite afforded by increased overdraft facilities from the Commercial Bank of Wales, CK went into receivership in March 1982 with debts of £70,000.

School contracts

11.12. In 1981 CK lost five school contracts which it had held from South Glamorgan County Council for six years. CK had been awarded the contracts in 1978, one at £18 per day, two at £35 per day and two at £45 per day per bus and it had submitted tenders in 1981 at the same prices. In framing its tender prices CK calculated its operating costs at £30 per day based on wages, fuel and wear and tear.

11.13. When the schools contracts came up for tender in 1978, CCT tendered for only one contract, which it obtained. CCT has told us that its reason for tendering only for one contract was that it was having problems with vehicle reliability and felt that it could only attempt to take on one

contract at that time. When 53 contracts were put out to tender by South Glamorgan County Council in 1981, the problems with vehicle reliability had been largely overcome and it tendered for five contracts it felt could be operated as a package. Of these five, one was the contract it had obtained in 1978 and three had been run by CK since 1978.

11.14. We have looked at the costs used by CCT in calculating its tender price and compared them with its average costs. The basic cost per vehicle mile assumed in the tender was about half the total departmental operating cost per vehicle mile of CCT for 1980-81. The elements accounting for most of the difference were labour, repairs and maintenance and overheads.

11.15. The labour costs in the tender calculation are approximately half the 1980-81 labour costs. CCT told us that the average figure included weekend, holiday and overtime premium rates which were not relevant to school contracts. The contract work itself could be efficiently organised within the constraints of the normal working shift, and the trade unions were being particularly co-operative. Maintenance costs per vehicle mile were based on the fact that old buses were being used; they were given only day-to-day maintenance and if any major repair became necessary the buses would be scrapped. Most overheads were not included in the tender price calculation; CCT told us that no overheads at all were involved after the actual process of preparing the tender had been completed. CCT did, however, include elements for loss of interest on the sale of old buses, a margin for future inflation and a net profit in its price.

NBC policy

11.16. Both BOC and TMT have experienced the advent of competitors in their operating areas and both have responded according to NBC policy on meeting new competition.

11.17. NBC told us that its prime duty was to meet the financial targets laid down for it by the Secretary of State, and it, therefore, had to protect the remunerative part of its business. If a competitor appeared he was to be fought in the traffic courts, and if he obtained a licence, he was to be fought operationally. Fares on NBC buses were to be reduced to match competitors' fares, and no competing buses were to be allowed to use NBC-controlled bus stations. General managers were told that NBC did not expect to see overall financial loss from the taking on of competition. It therefore followed that any loss must be made good by increased efficiency or as a last resort by removing unremunerative services.

BOC

11.18. There is one main competitor for BOC: an independent operator named Swanbrook Transport.

Swanbrook Transport

11.19. Swanbrook Transport (Swanbrook) operates two stage carriage services in competition with BOC. One is in the Gloucester-Quedgeley-Arlingham/Frampton area. Swanbrook and BOC are in direct competition over

the Gloucester–Quedgeley section, and most of the Quedgeley–Frampton section. Swanbrook currently receives a subsidy from Gloucestershire County Council for these routes. Swanbrook took over the Gloucester–Quedgeley route from another operator in 1979, when it was still very rural, but a new housing development has since taken place in the Quedgeley area. When the housing development began, the local parish councils asked BOC if it would vary its route to go into the estate. At that time, BOC had a policy of not running over unadopted roads without an indemnity against claims for damages so it refused. At the same time, however, Swanbrook sought and received permission to go via the estate and BOC followed when it had obtained insurance clearance. As demand grew, Swanbrook applied to run more journeys over the Arlingham–Gloucester route. BOC objected because of clashes of timings and the idea emerged of the two operators co-ordinating their timetables, but this fell through because of the difference in fare levels (Swanbrook's single fare from Gloucester to Quedgeley was, and still is, 25p compared with BOC's then fare of 39p). The matter was finally resolved by the operators agreeing that they could both serve the area.

11.20. After the Transport Act 1980 was passed both operators increased the frequency of their service. BOC reduced its fares, the single fare, which had risen to 63p, being brought down to match Swanbrook's 25p. After the North Avon and Gloucestershire MAPS in 1981 BOC withdrew from the Frampton service, and reduced the fare where it continued to compete with Swanbrook. Swanbrook now operates the Frampton service with support from Gloucestershire County Council.

11.21. The financial performance of the BOC routes in the area is given below.

TABLE 11.3 BOC: routes subject to Swanbrook competition

Route	Service number	Operating ratios (revenue—cost %)	
		Pre-MAP (1980–81)	Post-MAP (Nov 1981)
Gloucester–Frampton	568	46.4	Not now operated
Bristol–Gloucester	820	76.6	69.6
	525/6		
	537/8		

Source: BOC.

11.22. The other area where BOC and Swanbrook are in competition is Tewkesbury. Gloucestershire told us that shortly before the passage of the 1980 Act, BOC proposed to run a service within a new housing area in Tewkesbury, but asked for a substantial revenue guarantee. The county council invited other operators to quote for operating the service. BOC put in an application to provide an experimental local service without any subsidy and Swanbrook did the same. The Traffic Commissioners granted licences to both operators, and both began operating services within Tewkesbury.

11.23. BOC also applied to vary the Tewkesbury end of its Cheltenham–Tewkesbury service to bring passengers from a new development at the east side of Tewkesbury into the town centre. The Traffic Commissioners granted

a dispensation for this. At the same time, BOC reduced its fare on the section of route competing with Swanbrook. BOC withdrew its experimental service due to poor public support but the variation of the Cheltenham–Tewkesbury service has continued.

11.24. Swanbrook told us that, considered in isolation, its town service was loss-making, but when considered as part of an integrated service it was extremely useful since it only ran in the off-peak and could be operated with one bus which also ran morning and evening works and school services. The financial performance of the BOC Cheltenham–Tewkesbury service (542) has been as follows.

TABLE 11.4. BOC: financial performance of Cheltenham–Tewkesbury service (542)

	<i>1980-81 (pre-MAP)</i>	<i>Nov 1981 (post-MAP)</i>	<i>Feb 1982</i>
Route 542	90.2	93.7	86.3

Source: BOC.

11.25. Swanbrook also has stage carriage licences for most of its works and school services, but these were restricted so that passengers could only be set down at the terminus. Swanbrook applied to remove these conditions and following agreement with BOC, three services have no restrictions at all and on the remainder conditions have been amended to the satisfaction of both operators.

11.26. Swanbrook also applied to run services between Avonmouth and Bristol which were refused as a result of objections from BOC, Avon County Council and the local branch of the Transport and General Workers Union. The Traffic Commissioners noted that there might be advantages stemming from the introduction of an element of competition in the area and that some parts of north west Bristol would have a better bus service if the application were to be granted. However, they were satisfied that the disadvantages resulting from the loss of revenue to BOC, namely that two weekday services and seven Sunday services would have to be withdrawn and another cut back, outweighed the advantages to be gained to such an extent that there would be significant damage to the public interest.

TMT

11.27. Four companies operate stage carriage services which compete with those run by TMT and three companies have applied to run competing services.

Byrne Bros

11.28. In the mid-1970s the Derby–Manchester service via Ashbourne and Leek was operated jointly by TMT and National Travel. It was a flourishing service especially at weekends and in the summer when duplicate buses were often needed. In 1978 National Travel introduced new services between Derby and Manchester via Buxton to which many passengers transferred. In 1979 the Derby–Manchester service via Ashbourne and Leek was returned to

TMT's control as service 201 but its financial performance continued disappointing although it was operated with marginal resources. In September 1980 the service was reduced to three return journeys per day between Derby and Macclesfield via Leek and Ashbourne, again using marginal resources and with rail connections at Macclesfield for Manchester.

11.29. TMT's Derby-Macclesfield service was not a success and Staffordshire County Council wrote to operators, including Byrne Bros (Byrne), inviting proposals for a Derby-Manchester service. Byrne submitted an application published in May 1981 which it said would not require revenue support. TMT told us that the Byrne proposal directly competed with its own Derby-Macclesfield service and also threatened TMT's local services between Derby and Ashbourne. Byrne was also offering lower fares than TMT. TMT, Crossville, National Travel (West), Derbyshire and Cheshire all objected, but following discussions with other operators and county councils, Byrne amended its application to be short term only and Cheshire's objection was withdrawn.

11.30. Further to discussion which had been taking place with Derbyshire since the spring of 1981 and related to the Byrne application, TMT then applied to reintroduce a thrice daily Derby-Ashbourne-Manchester service. It told us that nothing had happened to make it think that the route itself would be any more successful than it had been before September 1980, and agreed that it might have taken a longer time before applying to reinstate the service had it not been for Byrne's application. There were however important operating changes which encouraged the company to think that the route's performance might be better than that which applied before September 1981 (see paragraph 11.31). Staffordshire, Derbyshire and Cheshire County Councils and the Peak Park Planning Board together produced a timetable to be operated jointly by Byrne and TMT but TMT did not wish to co-operate.

11.31. TMT's application involved co-ordination of the Derby end with its local Derby-Ashbourne service and joint participation by Crossville enabled the use of off-peak vehicles by both companies to provide the Derby-Manchester service. Byrne objected to the TMT/Crossville proposal, and Staffordshire County Council also objected on the grounds that the two NBC companies had only responded because of the Byrne proposal, TMT had refused to co-operate with Byrne, and Byrne's proposals would be cheaper for the county since it would not require revenue support. Eventually the various objections were withdrawn, short-term licences were granted for both the Byrne and TMT/Crossville services and operation duly commenced on 8 November 1981. Both operators have now been granted full licences.

11.32. The TMT and Crossville joint timetable for service 201 offered promotional fares in competition with Byrne. One important area of competition was the Derby to Ashbourne corridor where Byrne offered a return fare of £1.20. Both Crossville and Trent considered it imperative to retain the traffic along this crucial corridor and offered a competitive return fare of £1.10, a reduction on TMT's normal fare scale for a journey of this length. TMT now sells about 1,110 return journeys per week.

11.33. Revenue support is only provided by Derbyshire County Council for the section of service 201 within Derbyshire because it forms part of the local Derby-Ashbourne service. Staffordshire County Council and Cheshire County Council do not at present intend to provide financial support in view of the competitive situation. The Peak Park Planning Board, which previously provided a small amount of finance for that short section within its area, takes the same view.

11.34. Byrne has now applied for a substantive licence to operate a slightly varied timetable between Manchester and Derby. A number of the revisions will result in clashes between Byrne and TMT/Crosville departure times and are contentious. Further consultation between the parties will take place but, in the meanwhile holding objections are being lodged to Byrne's proposal.

11.35. 60 per cent of the seats are occupied on the joint TMT/Crosville service between Derby and Ashbourne. Between Ashbourne and Manchester there are only five to ten passengers on average, but the financial performance of the service is improving although its operating ratio in March 1982 was only 50 per cent.

Stevensons of Uttoxeter Ltd

11.36. On 8 December 1981, Stevensons of Uttoxeter Ltd (Stevensons) introduced a shopping service from Burton to Derby at a fare of 50p single, 85p return. The following day TMT applied for a new non-stop service from Burton to Derby. Stevensons did not object. TMT's 'Shopaway' service was introduced at 60p return, about one-third of its normal return. Stevensons then reduced its return to 50p, but subsequently raised it to 60p. On 1 March, TMT reduced its Shopaway fare to 40p, and has told us that this was a competitive reaction to Stevensons. TMT's Derby-Burton Shopaway service makes a profit on a marginal cost basis.

11.37. The other area where Stevensons and TMT compete is on the Burton to Rolleston services. There were before 1980 two services between Burton and Rolleston, one direct and one via Stretton, both operated by TMT. In November 1980 Staffordshire produced a Burton Public Transport plan which proposed to have only the Stretton service. When Stevensons indicated that it could run this service without a subsidy TMT applied to operate between Uttoxeter and Burton which is Stevensons' main route, whereupon both companies agreed to drop their applications. TMT continued to provide both the Stretton service and the direct service. Stevensons then applied to operate a direct service between Burton and Rolleston which would compete with TMT. TMT did not object because it planned to withdraw from the direct service which had been difficult to integrate with its other services. However, Staffordshire CC did, because this was not in its plan and it thought it might abstract revenue from the profitable Stretton service. While the objection was being considered Stevensons ran a free service for seven days, so as to maintain continuity. No licence is required for a free service. Stevensons have told us that TMT had been carrying 80 passengers a day on the direct service, but during that week Stevensons carried 900, and it is now making a profit on the route.

Erewash Travel Services Ltd

11.38. In September 1981 Erewash Travel Services Ltd (Erewash) applied to run a stage carriage service between Eastwood and Stapleford via Queens Medical Centre in Nottingham. It proposed to run nine journeys per day, four in one direction and five in the other from Monday to Saturday. The route was about 18.5 miles long and competed with the City of Nottingham Transport (CNT) route 53, two Barton routes for about half a mile each, and TMT routes for four miles between Nottingham and Eastwood including TMT's profitable 231 route. Objections were made by Barton Transport, TMT and CNT and there were representations to the Traffic Commissioners from Broxtowe Borough Council and Nottinghamshire County Council.

11.39. In addition to their objection TMT and CNT applied for a short period licence to run a joint service between Beeston and Eastwood, along the same route as that proposed by Erewash Travel. Erewash objected to this application. The TMT service frequency was to be six journeys in each direction Monday to Friday, no Saturday service, and four journeys in each direction on Sundays.

11.40. The joint service timetables were so formulated that in one direction their buses would run five minutes ahead of Erewash; in the other direction the buses would be four minutes ahead. The Erewash buses were timetabled to run one minute ahead of TMT's 231 service from Eastwood, and just ahead of TMT's service 333 from Kimberley to Eastwood.

11.41. Fares on the proposed Erewash service were much lower than on existing TMT and CNT services. Examples were Erewash fares of 5p, 10p, and 15p where the corresponding fares on existing TMT or CNT services were 15p, 22p and 27p respectively. TMT and CNT proposed to run the joint service at the same fare levels as Erewash, thereby putting TMT in the incongruous position of charging different fares for the same journey on different buses. Both applications were granted for a six month period and the services began on 1 March 1982.

11.42. Erewash has told us that it has not carried out a detailed costing of its service. The break-even takings were believed to be £300 per week, and this level of revenue was achieved by the third week of operation. Apart from workers in the afternoons, the bulk of the passengers are shoppers or elderly people visiting relatives. The demand for travel to the hospital has so far proved disappointing. Peak loads are 40-60 people on the first buses of the day.

11.43. TMT has told us that it is carrying 60-80 passengers/day on its three return journeys (ie its half of the six-return-journey joint service) and is very encouraged by the results. For the first few weeks of operation of the service TMT ran duplicate buses on several journeys but it has now discontinued this practice. TMT has estimated that its services 231, 332 and 333 are losing 120 trips per day although still making a profit. Eighty trips per day are taken by the new service and 40 by Erewash, amounting to £800 per four week period in lost revenue. TMT has calculated that in its first

period of operation its part of the new service made a profit of £87 on a marginal cost basis and in a typical month without service duplication could be expected to make about £150. Therefore taking into account the abstraction of £800 per month the overall loss attributable to TMT's participation in the new service is £650 per month. However, through this competitive reaction TMT has minimised its loss.

Albert Wilde (Coaches)

11.44. Albert Wilde (Coaches) (Wilde) obtained a stage carriage licence in January 1982 to operate from Heage to Belper. The service was successful, and by Easter 1982 was carrying 120 school children on two coaches to a school in Belper.

11.45. On 19 April when the school term began TMT augmented its Belper town and school services. TMT could choose as part of the Derbyshire fares experiment to charge 20p for adults and 10p for children on the extra journeys. On the normal scale these fares would have been 40p and 20p respectively, and TMT told us that the extra journeys and low fare were competitive reactions to Wilde. Wilde's fare was 20p for the school children's service but when the new TMT journeys were introduced over half of his passengers switched to the TMT buses and he had to reduce his own fare to 10p to retain them.

11.46. Under the terms of the Derbyshire fare experiment Derbyshire County Council repays to TMT the revenue lost by charging lower fares. It is open to Wilde to apply to Derbyshire County Council for revenue support for his school journeys. TMT is operating its extra journeys under a special dispensation which may be given by the Traffic Commissioners if there are no other authorised operators on the route in question. Wilde has objected to TMT's application to run the extra journeys.

11.47. Wilde has also applied for two new stage carriage licences. One is for a circular route from Heage to Ripley, Denby and back to Heage, a distance of about seven miles which takes about 20 minutes. There would be two journeys/day in each direction and at a flat fare of 30p. TMT operates between Heage and Ripley with a fare of 50p, and between Ripley and Denby with a fare of 40p, and has objected. The second application is for a service from Heage to Milford, again about a 20 minute journey. This would be at a flat fare of 30p and consists of two journeys. TMT has objected on the grounds that it provides facilities between Heage and Milford.

Other applications

11.48. Luxi Coaches of Derby has applied to run a service between Castle Donington and Derby. TMT has objected and so have Derbyshire County Council, Barton, and Derby City Transport. The proposed service would compete with TMT services 621/2/3 on part of the route. The Luxi Coaches service would serve Elvaston and Thulston which do not at present have bus services. People from these villages walk to the A6 to catch TMT buses into Derby.

Along the old A52 road the Luxi Coaches service would compete with TMT/ Derby City Transport services 111/2/3/4/5, 102, 353 and 355 and Barton services 5, 5B, 5C, 5X. Luxi Coaches has written to TMT saying that it is only interested in serving the villages of Elvaston and Thulston. TMT has told us that the only service to which it would not object would be a service starting at Elvaston and going into Derby via the new A52 dual carriageway which has no houses or bus stops.

11.49. Luxi Coaches has also applied for renewal with modification of four existing stage carriage licences linked with works services. The modification would allow two of the services to be turned into circular services, and two others to pick up passengers on sections of road between Borrowash and Derby which at present are dead mileage. TMT has objected because its services along the A52 would be affected, as well as its route 90 operated around the Derby ring road, under the Derby City Agreement. TMT would not object to the renewal of the licences without the modifications.

11.50. Another application to offer competition to TMT is that by G Howlett & Son (Quorn) Ltd (Howlett) to augment its Leicester-Derby service. At the moment it makes one return journey on Friday, Saturday, Sunday and Monday. It is proposing a service giving three return journeys on Monday-Friday inclusive. TMT and Midland Red (East) have both objected. Howlett is considering TMT's demand for protection between Loughborough and Derby, and Midland Red (East)'s demand for protection between Leicester and Loughborough and expects that then the objections will be withdrawn. TMT introduced a non-stop Leicester-Derby service on 10 May 1982.

Conclusions

11.51. In the foregoing paragraphs we have described the response of the four undertakings to the competition which has so far emerged. We have to consider whether in making its response any of the undertakings has abused any monopoly situation existing in its favour, or pursued a course of conduct which operates against the public interest.

11.52. In the four areas with which we are concerned (and the position, as far as we know, is not different elsewhere), different views are found among the local authorities, and in the same authority at different times, about the size of the desirable network and the level of desirable subsidy. There is widespread agreement, however, that social considerations demand a network and a level of service which cannot be operated profitably. Accordingly, each of the undertakings operates a network which depends upon subsidy of two different kinds. There is generally a break-even network, within which loss-making routes are subsidised by profitable routes. Each undertaking also operates additional loss-making services which, because the county councils consider them essential for satisfying social needs, are subsidised from local authority funds. The county councils favour the subsidising of loss-making routes by profitable routes, and some of them (eg Nottinghamshire, Derbyshire and South Glamorgan) make it an explicit condition of revenue support.

11.53. The Transport Act 1980 has facilitated the entry of competitors upon this scene. Where competitors appear, the results are likely to include reduction of fares on the affected routes and an increase of the efficiency of the established undertaking as a consequence of competitive stimulus, and may also include some expansion of demand. However, experience so far leads us to expect that the additional demand and the increased efficiency would offset only a small part of the loss of revenue suffered by the undertaking from reduced fares and a diminished share of the market on the affected routes. Therefore, in view of the reluctance, or indeed inability, of local authorities to increase their subsidy for public transport, the probable consequence is that the undertaking will have to increase fares on other routes or abandon some loss-making routes altogether. The benefits accruing to passengers who will pay lower fares and receive more efficient service will then have to be set against the losses of others who will pay higher fares or be deprived of their bus service completely.

11.54. Alternatively, it is possible that having entered the market a new competitor would be content to charge the same fare as the undertaking and strive for some form of agreement on the co-ordination of services. In this case the result would again be a loss of revenue for the undertaking but there would be smaller gains to set against the losses of those who would have to pay more or lose their service altogether.

11.55. In the case where competition results in lower fares on the profitable routes and higher fares elsewhere there would be a closer matching of fares to the relative cost of supplying bus services and thus a gain from the point of view of allocative efficiency. Such an outcome might also be appealing from the point of view of equity, especially if a high proportion of passengers on the profitable routes had low incomes. However, there would also be persons of low incomes among those who would have to pay higher fares, and the problem of the lost services would still remain. These problems could only be completely solved by an increase of revenue support.

11.56. A conflict thus arises between two aspects of the public interest. To the extent that a competitor reduces the return derived by the established undertaking from a profitable part of the network, services which are non-profitable, though socially needful, are likely to be curtailed. To the extent that the established undertaking, with the support of local authorities, succeeds in protecting the network by defeating competition, the benefits of competitive stimulus are likely to be lost.

11.57. This conflict makes the questions before us very difficult to answer. It must also be emphasised that they have to be answered against the background of the existing institutional and financial framework. In responding to competition the undertakings have been trying to avoid impairment of networks operated by arrangement with county councils, and dependent upon financial support given by the county councils (and in the case of CCT by the City of Cardiff District Council itself) because they consider the networks necessary to meet the needs of their areas. Clearly these circumstances could

not justify every response to competition, but we have to take the circumstances into account, including the attitude of the local authorities to cross-subsidisation and revenue support. It is possible to envisage bus services provided upon quite a different basis. They might be provided with much less reliance on cross-subsidisation and much greater reliance on public funds for the support of loss-making services. Such altered circumstances might well affect the decision of what could be justified as response to competition.

11.58. We have to judge the responses of CCT and TMT in the circumstances actually prevailing. It is clear that they have used their superior financial strength in an attempt to drive off small competitors. CCT increased the frequency of its Llanrumney service although it was already in its view an adequate service, and was much more frequent than the increased service offered by its competitor. TMT lowered its fares selectively to, or below, the levels of competitors. One of these undertakings (CCT) is part of a municipal authority and the other (TMT) is part of a nationalised industry; both are in receipt of subsidies from public funds. We do not condone or approve their conduct, but we recognise that the alternative to eliminating competition on profitable routes would be to curtail or abandon services on some unprofitable routes unless an increased subsidy could be obtained from the local authority. In all the circumstances we do not conclude that the actions of any of the undertakings have amounted to abuse of any monopoly situation or to conduct operating against the public interest.

CHAPTER 12

Management and control of the undertakings

Introduction

12.1. As we have frequently indicated earlier in this report, there are very considerable differences between the four undertakings in terms of their size and the nature of the areas they serve. These differences apply equally to the way in which the undertakings are organised and controlled, with the exception of BOC and TMT. As wholly-owned subsidiaries of the NBC, the organisation and control of these two undertakings is generally very similar.

12.2. None of the four undertakings can be regarded as wholly autonomous since all are subject to control in one way or another by a superior body, and all are subject to at least some influence by local authorities at county level. This influence arises both through the statutory responsibilities of county councils for the provision of public transport in their areas and, in a more practical and immediate sense, through the provision of subsidies to the undertakings.

12.3. By far the largest of the four, WMPTE has the highest degree of autonomy and is certainly the most self-sufficient in terms of administrative and other support services. Nevertheless, the Executive is subject to both policy and financial control by WMCC in its capacity as PTA for the area. As a municipal undertaking CCT is merely a department of the City of Cardiff Council and as such is subject to full local authority control. The two NBC companies are subject to broad control by the parent company.

12.4. In spite of these differences the internal organisations of the four undertakings are broadly similar in concept, being designed to cover the three main functions of traffic operations, engineering maintenance and administration. However, the differences do result in considerable variations in detail and we now examine the structure of each undertaking in turn. Later in the chapter we examine the planning and control systems used by the undertakings to manage their businesses as a whole. We also consider the provision of cars and canteen facilities for staff of the undertakings.

WMPTE

12.5. The historical background to WMPTE and its constituent undertakings is described in detail in Appendix 1.3. In summary the PTE was created in 1969 by the amalgamation of four municipal undertakings, Birmingham, Walsall, West Bromwich and Wolverhampton. Birmingham was by far the largest contributing over half of the finally absorbed bus fleet. By April 1974 the Executive had expanded to its present size by purchasing in December 1973, with WMCC approval, those parts of the Midland Red (an NBC company) stage carriage operations within the WMCC boundaries and by the vesting in the Executive, of the municipal transport undertaking of Coventry.

The latter coincided with the April 1974 local government reorganisation when Coventry became part of the Metropolitan County of West Midlands.

12.6. WMPTE is controlled by the board of directors, the Executive, all of whom are appointed by WMCC. At present the Executive comprises the Director General and three full-time executive directors with specific functional responsibilities. The County Treasurer of WMCC holds the part time post of Director of Finance in the PTE while the Chief Executive of WMCC is a non-executive director.

12.7. Since 1974 the basic structure of the Executive has remained the same with five directorates including the Director General. However, there has been quite considerable rearrangement of the functions and duties under the various directors during the last eight years.

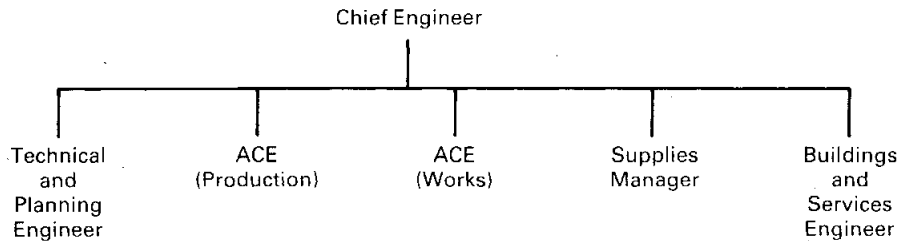
12.8. The changes have evolved in the light of operational experience, the changing emphasis on certain functions and, to some extent, the background and experience of particular directors. In the early years priority was given to centralisation in order to achieve uniformity of systems and standards across the undertaking. More recently, however, the balance has changed and the emphasis is now on decentralisation and delegation of responsibility to the lowest appropriate level.

12.9. Significant changes have occurred in the organisation of both the traffic and engineering functions including, in the case of engineering, separation and transfer to two different directorates. In the 1974 organisation the Chief Engineer reported to the Director of Labour Relations and had direct line responsibility for the total engineering workforce in both workshops and garages. Reporting to the Chief Engineer were a Works Engineer responsible for the works, plant engineering, technical matters and related administration, and a Fleet Engineer responsible for the garages. At that time the purchasing and stores functions were under the Director of Finance.

12.10. In 1977 the engineering function was transferred to the Director of Planning together with the supplies function. The workload on the Director of Planning was reducing at that time due to the completion of the major part of the improvements in the railway network within the Executive's area of responsibility. The former Director of Labour Relations had resigned and his successor was given responsibility for business development.

12.11. At this stage the Director of Planning and Engineering had three senior managers reporting directly to him: the Chief Engineer, the Planning Manager and the Supplies Manager. The Chief Engineer had two Assistant Chief Engineers (Works and Fleet) and two other engineers reporting to him. The two were technical and planning and special duties. By 1978 two divisional engineers were appointed under the ACE (Fleet) in order to improve control and liaison with operating managers. A production engineer was also appointed to establish production techniques in the works and to operate the new premium payments scheme, including responsibility for the work study personnel on their transfer from management services to engineering.

12.12. A further reorganisation in 1980 entailed the transfer of the fleet function (the more routine maintenance at operating garages—see Chapter 6) to the Operations Directorate under the control of the new Divisional Managers (see below). The central engineering function retained responsibility for the three major workshops and for technical standards in maintenance; it also assumed direct responsibility for supplies and buildings and services. While still reporting to the Director of Planning and Engineering the Chief Engineer now has the following reporting to him:



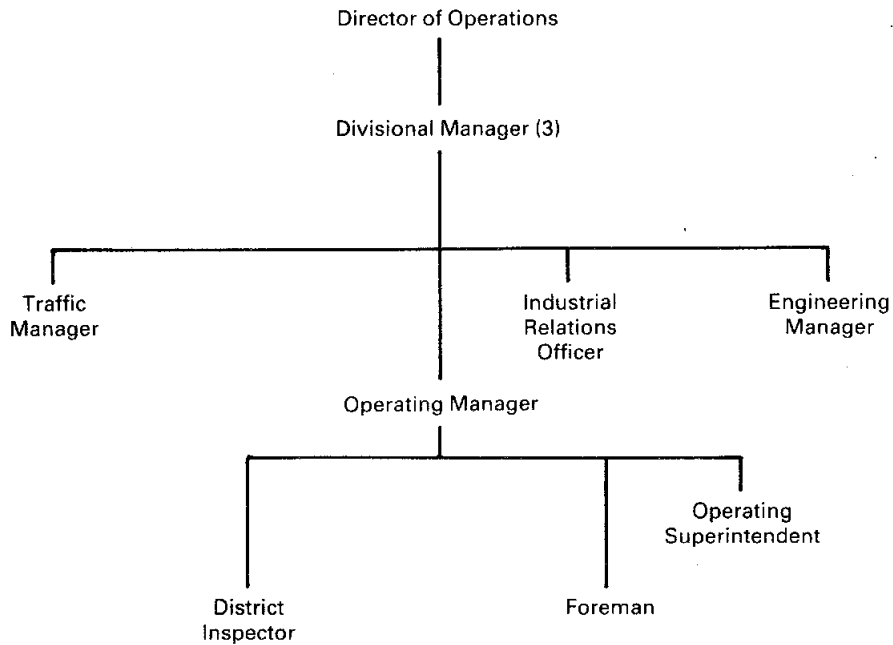
12.13. Throughout the existence of WMPTE the traffic function has been the responsibility of the Director of Operations and below him operating managers based on geographic areas at divisional and district level. During 1980 it was decided to reorganise on the basis of the existing three divisions, each of which would be headed by a Divisional Manager reporting to the Director of Operations. Henceforth each division would have a greater degree of autonomy than hitherto with the manager having wider responsibilities than just traffic operations.

12.14. Under this reorganisation, which has been completed in North Division and will be completed in South Division during 1982, the Divisional Manager is responsible for both traffic operations and for the servicing and maintenance of vehicles at garage level. Day-to-day control of operations in the divisions is exercised by an operating manager through an operating superintendent and district inspectors and foremen. Reporting directly to the Divisional Manager and providing support to the Operating Manager are a Traffic Manager, Engineering Manager and an Industrial Relations Officer as shown on page 260.

12.15. Under this arrangement line responsibility for the largest part of the engineering workforce now lies in the Operations Directorate, 64 per cent of the total excluding apprentices. However, the Chief Engineer—reporting to the Director of Planning and Engineering—does have functional responsibility for standards, methods and technical matters. He also retains direct control of the central workshops and their staff.

12.16. The object of the reorganisation of operations was to simplify lines of communication resulting in a faster response to operational problems. The Executive considers that the greater delegation will 'allow senior management to concentrate on the policy and direction of their responsibilities'. The organisation of East Division, essentially the former Coventry municipal undertaking, will remain different in detail, but follows the same general principle.

WMPTE divisional structure—1980



12.17. Apart from the loss of the supplies function and fares and charges, the responsibilities of the Director of Finance have remained substantially unchanged over the years. With the transfer of the engineering function to the Director of Planning, the Director of Labour Relations became responsible for the newly created business development function. However, following a recent change in post holder, responsibility for business development has now been assumed, at least as an interim measure, by the Director General.

Committee structure

12.18. In addition to the departmental organisation, WMPTE has also developed a formal committee structure comprising four committees. The senior committee is the Management Committee consisting of all principal budget holders (chief and senior officers) and the executive directors. The other three committees are:

- Business Development Committee
- Operations Committee
- Engineering Committee

The overall objectives and membership of these three committees is shown in Appendix 1.3.

12.19. All three of these committees have detailed and extensive terms of reference and objectives, including some executive powers and responsibilities.

The Engineering Committee, for example, has the power to authorise expenditure on projects subject to there being appropriate budgetary provision and to not exceeding limits approved by the Executive. The committees meet regularly, usually monthly, and monitor performance within their areas of responsibility.

12.20. The committees are seen by the Executive as being primarily co-ordinating bodies ensuring uniformity of standards across the PTE area and resolving conflicting demands for limited resources.

Relations between WMPTE and WMCC

12.21. While WMPTE manages its business within the policy, including the budget approved by WMCC, matters involving changes in policy or significant revisions to the budget also require WMCC committee approval. The Executive reports monthly to the WMCC as PTA and to other WMCC committees as appropriate, thus providing a measure of public accountability.

12.22. As WMCC is the PTA, WMPTE is subject to many of the control mechanisms of local government, including the elected members committee structure. The Passenger Transport Committee is responsible for the detailed relationships between the PTE and WMCC although some matters involving finance, bus priorities and so on may need to be considered by other committees of WMCC.

12.23. In evidence to the Commission WMPTE explained its independent role, citing the powers over the PTE possessed by the Secretary of State. Moreover, although WMCC sets general transport policy, the PTE initiates particular service changes to meet requirements and then informs the appropriate committee of the council, although not legally obliged to do so.

12.24. While it is true that WMCC can, by means of directives, absolutely control the performance by the PTE of its duties, such directives have been few. One was issued in July 1980 by the previous county administration to lease rather than purchase buses and another required the PTE to undertake major capital building projects through the appropriate county council department instead of using outside specialist firms. Although not directives there have also been policy guidelines effectively enforced through the committee approval procedure such as the purchase of a particular make of bus, and that the PTE should not send its buses for repair to workshops belonging to the Midland Red Omnibus Company, an NBC subsidiary.

12.25. WMPTE pointed out that its capital expenditure was often restricted by central Government restrictions on the county council. On the revenue account any surplus remaining from county council grants at the end of the financial year was clawed back and used for general council purposes. Claw-back had amounted to £7.5 million between 1977-78 and 1979-80 and in the latter year the PTE had to meet a shortfall from reserves accumulated prior to 1974. However, an application for additional grant of £3.2 million in 1980-81 was met.

12.26. WMPTE told us that most of the disadvantages of control as currently exercised by the PTA arose from political considerations and were probably inevitable. It was difficult for a member elected to represent a particular ward to strike a balance between the interests, efficiency and welfare of the transport service as a whole, and a particular local issue. The PTE could strike such a balance.

12.27. In particular WMPTE referred to the influence upon labour relations which sometimes made it difficult to achieve the most effective outcome. For example at a time when the council was pressing the PTE to restrict wage increases to its staff to 4 per cent (in December 1981), the Labour Party group of county council members, had a resolution on its agenda to give all council employees an increase of 13.6 per cent. Since some lay union negotiators were members of the Labour group, they felt that the PTE was acting badly in offering only just over half that proposed increase. In staffing matters, during the previous Conservative administration, the PTE was put under pressure to justify the retention of particular staff posts and on their salary levels in relation to those of the county council. This was at a time when there were strong suggestions that PTEs should be merged with metropolitan county councils and led to some demoralisation of staff.

12.28. Councillors of WMCC told us that they did not intervene in wage negotiations until the Director General of WMPTE indicated that he would not grant a particular demand by the unions unless the council underwrote the cost. However, for 1981-82 they had given the PTE a 6 per cent guideline within which to settle wage increases, by analogy, with percentage increases for the council's own staff. The pressure on WMPTE in the course of the December 1981 wage negotiations not to send buses for repair to Midland Red garages was an exceptional case, made to smooth the path of wage negotiations between the unions and the PTE.

12.29. WMPTE also drew the Commission's attention to the directive of 1980 to lease buses rather than purchase them. The PTE objected professionally to a policy of reducing current expenditure at the price of higher costs in the longer run and insisted on there being a directive. In 1980 and in 1981 it had been told by WMCC, to purchase 80 Metro buses, made in Birmingham, to the exclusion of other types made elsewhere in the United Kingdom. This was solely to help employment in the West Midlands (see also Chapter 9).

12.30. Both WMPTE and WMCC agreed that detailed operating performance targets were not set by WMCC and the PTE was endeavouring to introduce them internally on a formal basis with a view to their adoption by WMCC.

12.31. WMCC told the Commission that it monitored the performance of the PTE through the normal budgetary process. It received regular reports of financial indicators including cost per bus mile and cost per passenger mile. Manning levels were monitored monthly by the Personnel Committee of the council and a manpower budget was set for the PTE as for the council's

departments. The council was satisfied with the extent and quality of the information it received for budgetary purposes and for monitoring spending. Its main criterion of efficiency of the PTE was its provision of an adequate service.

An increased role for WMPTE

12.32. WMPTE said in further evidence to the Commission that it believed that its responsibilities as a PTE could be expanded to cover the whole of the West Midlands Transportation Study Area, an area slightly larger than the West Midlands Metropolitan County and with a matching PTA. The Executive thought that such an expansion would overcome some of the transportation problems at the existing boundaries.

12.33. The TGWU in its evidence to the Commission also believed that not to have extended the concept of PTAs on a regional basis with elected members from city, district and county councils was a major weakness of the 1972 Act which reorganised local governments.

Integration of the PTE into WMCC

12.34. WMCC argued that to all intents and purposes the PTE was part of the council and, insofar as it was not, it should be. At present the system worked because it was fortunate in the management of the PTE, but it feared that if at some time it was less fortunate, the current structure might turn out to be inconvenient. The original legislation had been naive in attempting to set up an arm's length relationship between the PTE and the council. It was not practical to have to control by means of formal directives. As an elected body it was the council which was best fitted to judge what was in the public's interest, and council members should therefore be involved directly in the PTE's operations.

12.35. The Association of Metropolitan Authorities (AMA) told us that it believed that PTEs should be wholly absorbed into metropolitan counties and that the current system was undemocratic. Moreover co-ordinated planning between highways, land use and public transport was substantially prejudiced and different terms and conditions of employment and salary levels in PTEs created difficulties for metropolitan counties in negotiating with their own employees. Among the advantages of making PTEs part of councils would be a rationalisation of common services, a saving of senior staff time in both organisations, speedier and more effective procedures and greater democratic controls.

12.36. The AMA agreed that PTAs should concern themselves with the value for money obtained from their revenue support to PTEs and with the setting of performance targets for items such as those in the Code of Practice published in 1981 by the Secretary of State for Transport. However, they were hindered in so doing by the statutory independence of the PTEs and their reluctance to provide PTAs with adequate information for monitoring purposes.

12.37. The AMA did not believe that the current practice of appointing metropolitan county Chief Officers as members of PTEs avoided the problems they had outlined. Chief Officers had sufficient time only to attend to their council duties.

CCT

12.38. Unlike the other undertakings, CCT is a department of a local authority, Cardiff City Council. The General Manager is, therefore, one of a number of chief officers reporting to the council's Chief Executive. While as a trading department it is given some degree of autonomy, it is nevertheless closely involved with other departments of the council. Apart from some common service provision in respect of finance, personnel and computer services, officers of CCT join with officers of other departments of the council in working groups when considering such matters as the development of new housing areas, industrial development, etc. CCT is responsible to the City Council's Transport Committee which is a Standing Committee of the Council. Matters relating to finance and staffing are also subject to the approval of the Policy (Finance) and Policy (Personnel) sub-committees which are both sub-committees of the Policy Committee.

12.39. As would be expected with a small undertaking (total workforce 782), the organisational structure of CCT is very simple (see Appendix 1.4). Under the General Manager there is a Deputy General Manager with particular responsibility for project co-ordination, recruitment and training, and three heads of functional divisions—traffic, engineering and administration. Given also the relatively small geographical area covered by the undertaking there is no need for any divisional or district level organisation.

12.40. CCT has its own headquarters office, separate from the City Hall, housing the senior staff and the administrative division. The balance of managerial and other non-manual staff are located at either the workshop or operating garage, both of which are the responsibility of the Chief Engineer although the garage includes facilities for drivers to sign on and off and a mechanised cash counting office.

12.41. The Chief Engineer has a total of 20 non-manual and 192 manual staff under his control. He has an Assistant Engineer as his deputy and five others reporting directly to him, namely Technical Engineer, Stores Superintendent, Works Superintendent, Garage Superintendent and a Night Superintendent. Below this level there are five foremen, four stores staff, two time-keepers and three clerical staff plus the manual workforce.

12.42. The Traffic Division comprises 50 non-manual and 436 platform staff headed by the Traffic Superintendent with an Assistant Traffic Superintendent as his deputy. Below them the division has two sections: Planning, Implementation and Administration with 10 staff and the Inspectorate with 38 staff.

12.43. Administration is under the control of the Chief Administrative Officer who does not have a deputy as such but five officers reporting directly

to him. These are a Principal Administration Officer responsible for the travel bureau, fare box control, secretarial services and tailoring services; two Senior Administration Officers covering finance and general administration, revenue control, statistics and wages; a Claims Superintendent and the Canteens Manager. In all there are 52 non-manual staff in this division plus 15 canteen staff and 6 office cleaners.

Monitoring of financial performance and policies

12.44. Monitoring of bus operations is carried out within the appropriate Council committees as well as by CCT itself. CCT submits six-monthly reports to the Transport Committee. Reviews of policy are undertaken by the Policy Review Sub-Committee, but other committees can also initiate inquiries. It is not the current practice of the Council to use targets for particular departments as a means of keeping up the pressure for economy.

12.45. CCT told us that the budget is the main means of management control and provides for a rigorous examination of work practices. Budgets are rarely authorised in full and the difference has to be met by economies. Economies were sought by management during the autumn of each year before submitting budget estimates. Moreover there could be external pressures towards greater efficiency. If any ratepayer felt aggrieved about particular expenditures of CCT he could appeal to the District Auditor.

12.46. The management of CCT acknowledged, however, that budgets were not 'zero-based' and hence did not involve an original calculation of what the cost should be of providing a given level of service. They were usually based upon the previous year's experience adjusted for such matters as inflation (see Chapter 2).

12.47. We also received evidence concerning the influence of Council Committees on the management of operations. Implementation of the report of a study in its Engineering Department carried out by The City Council Management Services Unit in 1975 was prevented by a decision of the administration of the day (see also Chapter 6 paragraph 6.83). The incoming administration also did nothing to implement its findings but in 1978 the same administration effected a reduction in manning levels of 20 per cent through wastage. However, in 1979 a new administration immediately reversed these reductions.

12.48. The trade unions told us that because of the normal distinction drawn between policy matters, which were reserved for a Council Committee, and non-policy matters, which could be dealt with by officers, CCT management was hampered in its union negotiations. For example, negotiations about periods of uncertified sickness counted as negotiations about a policy matter, and hence had to be taken to a Council Committee for approval. Moreover officers could not approve additional expenditure when they had no authority. Since the outcome of many trades union negotiations could involve an initial increase of expenditure of some kind, even when there would be an ultimate saving, most agreements proposed with a union had to be approved by one or more Council Committees. Even if it was not necessary, according to the

Council's rules, to seek committee approval in a particular case union negotiators might insist on it. The TGWU in written evidence to the Commission noted that in its view some municipal undertakings did suffer political interference in their operations.

12.49. On the other hand CCT claimed that because it was a municipal operator it naturally responded swiftly to the will of the elected members of the Council. Because the City as well as the County gave subsidies for bus operations, there could be a sensible dialogue with the County authorities about the public transport policies which it was the particular duty of the County to promote.

BOC and TMT

12.50. With both undertakings being wholly-owned subsidiaries of the NBC, their organisational structures are very similar and we therefore consider them together. For operating company purposes the NBC is divided into four regions, each headed by a Regional Director supported by a small staff. All four Regional Directors are members of National Bus Management Ltd and of the NBC Chief Executive's Committee. Each is also Chairman of the operating companies within his region. BOC is one of seven companies in the Midlands and West Region while TMT is one of 12 companies in the Northern Region. The Deputy Chairman and Chief Executive of NBC is also a member of each operating company board. These arrangements provide the basic structural framework by which NBC controls its operating companies.

12.51. Subject to making satisfactory progress towards meeting NBC imposed targets, and conforming with group policy guidelines, each operating company has considerable autonomy in managing its own affairs and dealing with local authorities in its area. Each company is controlled by a General Manager appointed by NBC and who is also a member of the local company board.

12.52. In both BOC and TMT the General Manager is supported by three chief officers, each in charge of a functional department—traffic, engineering and administration/finance. Neither undertaking has a full-time Deputy General Manager although all of the chief officers do have assistant chief officers. The functional responsibilities of the three chief officers are virtually identical in the two companies.

12.53. Because of the geographical area served by each company, both have a number of operating garages (BOC-12, TMT-15) and both have sub-divided the traffic function into areas (BOC-3, TMT-2), each headed by an Area Traffic Superintendent reporting to the Traffic Manager.

12.54. Again in both companies, the Chief Engineer is responsible for all engineering and maintenance activities, including stores and building services. The central workshops, stores, technical and building services are controlled directly from the centre, while the routine maintenance in the operating garages is controlled in each company by two area engineers reporting to the

Chief Engineer. The engineering areas coincide with the traffic areas in TMT but not in BOC, because of the additional traffic area.

12.55. As can be seen, the organisational structure of the two companies is extremely simple and straightforward. It works equally well in both although BOC is about twice the size of TMT in terms of vehicles operated and staff employed. In both companies experience over the years and progressive reductions in services have resulted in the present identical format in spite of their different backgrounds.

Comparisons

12.56. Comparisons of the organisational structure of the four undertakings are largely irrelevant since they are so very different in size and constitutional background. As we have said the two NBC companies are for practical purposes identical and the much smaller CCT is also very similar.

12.57. WMPTE is a large undertaking with over 8,000 employees and 2,000 vehicles. It covers a large, predominantly urban area operating intensive services. With an organisation of this size it is almost inevitable that the management structure should be more complex than in the other three undertakings. Efforts have been made in the recent reorganisations to rationalise the structure and managerial responsibilities but it is too early to say with what effect. When combined with the new budgetary control and other information and control systems introduced over the same period, it was not surprising that we found a degree of uncertainty among managers as their new role. The Executive is aware of the problems and expects that it may take as long as two years before the new organisation and systems are fully settled and effective.

12.58. Superficially at least, the structure still appears to be extremely complex particularly when account is also taken of the committee structure. In practice, however, the various committees are only a very formalised version of the meetings of senior management which regularly take place in any business undertaking.

12.59. The most complex aspect of the new organisational structure is in the engineering function, with the Director of Planning and Engineering and his Chief Engineer having direct line management responsibility for only a relatively small part of the engineering workforce. Clearly there is a logic in the new Divisional Managers having direct control of both operations and engineering maintenance. In most cases it is the maintenance activity at garage level which determines the availability of vehicles for operations. Vehicles going to the workshops usually do so on a planned basis and are expected to be out of service for some days, if not weeks.

12.60. However, at the time of our study it was evident that problems were being experienced in the only division (North) to have been fully reorganised on the new basis. Whether these problems were only of a transitional nature or reflected a fundamental fault in the structure, it is too early to tell.

12.61. It is certain that of the four undertakings, WMPTE has been the subject of the most extensive and protracted reorganisations over the past few years. CCT has been generally stable in this respect, while the changes in BOC and TMT have largely resulted from a contraction in operations, and have been a logical consequence clearly understood by management.

12.62. We have frequently referred in earlier chapters to the support and guidance provided by NBC to its subsidiary companies. In Chapter 2 we discussed the financial control systems while in Chapters 4 to 9 inclusive we dealt with a wide range of other matters including personnel, purchasing and the MAP studies. There is little doubt that being part of the NBC group provides the subsidiary companies with a degree of sophistication and, in the case of purchasing, power which would generally be beyond them if they were separate independent concerns. Certainly the General Managers of BOC and TMT both saw the advantages as far outweighing any possible disadvantages. Particular benefits mentioned included the central specialist services provided by NBC such as research and development and engineering standards. The ability to move vehicles between companies to meet particular needs was also seen as an important advantage as was the ability to 'cascade' older vehicles to companies with less demanding operating conditions. We also found that NBC takes full advantage of the potential provided by a large number of subsidiary companies with different operating characteristics, to train and develop its managers for senior posts.

Planning and operational control

Introduction

12.63. The technology of planning in the bus industry is not yet well developed. The bus industry is labour intensive with a relatively low capital input. The bulk of the assets is in vehicles and a few low value depots and garages. The procurement lead time for vehicles is relatively short and so too is the lifetime when compared to the capital assets of many other industries. On the operational side service levels can be reduced very quickly and have been used to provide financial control from year to year. These two factors tend to lead to short business horizons and the incentive for technical development in planning has not been strong.

12.64. In the rest of this section we discuss in turn:

- long-term planning;
- medium-term planning;
- operational planning;
- operational control;
- management information systems.

Long-term planning (say 5 to 15 years)

12.65. None of the undertakings is directly concerned with planning of bus transport in the long term, that is with a time horizon between five and fifteen years. Planning in these timescales is the function of the county councils.

12.66. Each county council produces a structure plan for its area setting out the strategy for land use, and development for 10–15 years ahead. The plans deal with housing, employment, resource use, transport etc. The transport needs are developed from the forecast of population distribution and growth and a prediction of travel patterns given the locations of industry, recreation, housing etc. In the transport area the plans set the balance between private and public transport and set out the broad strategy for roads, rail and bus transport.

12.67. The councils also produce a document, the 'Transport policies and programme' (TPP), setting out a five-year capital programme and a revenue expenditure programme, annually on a rolling basis. The first year of the TPP is the basis of submission for the Transport Supplementary Grant.

12.68. In addition the non-metropolitan counties are required by the 1978 Act to produce and publish annually a 'public transport plan' (PTP) which sets out details of policies necessary to meet the needs for transport in the county. The PTP sets out objectives for service and efficiency, policies for the co-ordination between private and public operators, and financial policies for revenue support.

12.69. However, the various transport plans produced by the local authorities generally address broad issues and do not specify levels of service in quantitative terms nor operational details. They are in effect statements of intent.

12.70. The bus undertakings are involved in the local authority planning process in two ways: first, the short-term budgeting plans form the basis for negotiation with the local authority for revenue support, the result of which contributes to the submission for TSG; second, they are told and have to be consulted about the content of the structure plans and PTPs. In the case of WMPTE it has a representative on the county 'Joint Transportation Planning Unit'. Cardiff City Council has a representative on the South Glamorgan County Council Environment and Planning Committee which handles transportation planning.

Medium-term planning (say up to 5 years)

12.71. We have commented upon the slow development of corporate planning in the bus industry and the reduced incentive resulting from the low level of capital investment. A further reason is the manner in which the undertakings receive part of their revenue from the local authority.

12.72. All undertakings run a network which consists partly of a commercially viable core of routes with additional services provided for social reasons and financed either by cross-subsidisation or by revenue support or both. In some cases the core network may be very small, in others a substantial part of the network may be self-supporting. However, the fact of revenue support gives the local authorities a strong influence over corporate objectives.

12.73. The local authority influence on policy may take many forms, including:

- the extension of the network or provision of specific services which would not normally be commercially viable;
- the degree of cross-subsidisation;
- particular fares policies;
- cost reduction in the form of service reduction.

The interaction with the undertaking is made complex because there is no guarantee of the continuity of a particular policy beyond the term of office of the elected representatives indeed, because of the influence of central government on the local authorities, policy may change within a term. The 1978 Transport Act provides for three-year agreements for revenue support from non-metropolitan counties but more often the time span is for one year and the amount of support is known only a short time before the commencement of the operating year or even after.

12.74. The NBC companies have particular difficulties as they must negotiate with many authorities having differing policies, whereas CCT deals mainly with two and WMPTE mainly with one.

12.75. The reaction in the undertakings to the uncertainty in long-term objectives and policy of the local authorities is to plan, in firm terms, over a short timescale of one or two years, and to achieve a balance of revenue and costs primarily by planned changes of service level rather than a planned reduction in unit cost whilst maintaining a constant service level.

Historical development

12.76. WMPTE produced a development plan in 1972 setting out long-term strategy for the area as required by the 1968 Transport Act, which dealt with both bus and rail services in a co-ordinated manner, to divide passenger traffic between appropriate bus and rail corridors. The main objective of the bus plan was to halt the decline in patronage. The two main policies centred around rationalisation of services and fares.

12.77. A major task of the PTE was to integrate and rationalise the former 'Midland Red' services with the various municipal routes, to produce trunk corridors and local services to meet passenger demand with an economic network. In 1974 the PTE set up a field survey unit to obtain planning data on an area-by-area basis. The work included household surveys to determine the pattern of existing and potential travel needs. The bus network was re-planned in a systematic way area by area using the new socio-economic data base.

12.78. The second major thrust was in fares policy. The aim was to establish a common fare base throughout the PTE and to encourage off bus fare collection. In addition, at that time, the aim was to stabilise fares by financing any deficit from the county council.

12.79. Most of the development plan objectives have been achieved. The network has been largely rationalised with the development of main corridors. A common fare scale was achieved by 1978 and a considerable discount travel market has been set up.

12.80. However, although the development plan could have been used as a base for an annual planning process, the plan was never revised and did not develop into a corporate planning system, because the county council believed the TPP system was sufficient. In practice the TPP is not sufficiently detailed to use as a corporate plan.

12.81. NBC started to develop a corporate planning procedure in 1975 in which each company produced an annual five-year business plan. The plans were aggregated to become the NBC five-year plan. The system has continued to develop and is described in more detail below.

12.82. CCT was required by the city council during the period 1974-76 to produce an annual plan. The plan set out both qualitative and quantitative objectives and also the resource consequences, especially manpower, necessary to achieve them. The 1975-76 plan included the following objectives:

- to provide a minimum spare capacity at peak loading points of 5 and 20 per cent at peak and off-peak respectively;
- to review the route network on a three-year cycle;
- to increase reliability to allow operations on a 12 per cent spare fleet capacity by April 1976;
- to reduce lost mileage due to staff shortages to 1 per cent by April 1976;
- to monitor complaints;
- to monitor late running and mileage lost;
- to monitor public requirements from surveys.

The progress in achieving the objectives was reported to and reviewed by the Policy (Performance Review) Sub-Committee of the city council.

12.83. The system was partially abandoned in 1977 following a change in the elected administration although a form of reporting and review was retained. Most of the monitoring systems set up for internal management, such as lost mileage and complaints have been retained. Some of the quantitative targets were not achieved in the timescale, for example the 12 per cent spare vehicles, but most of the others were. It is of interest to note that the system for periodic network review and for conducting comprehensive surveys was not developed.

12.84. Although the CCT system encompassed a one-year timescale only, it could have provided the structure for a medium-term planning procedure, but this opportunity was not taken.

Current planning practices

12.85. The level and refinement of planning varies throughout the undertakings, BOC and TMT have been producing annually, five-year corporate plans

since 1974-75, WMPTE is now in the process of producing similar plans for the first time and CCT does not produce plans over a timescale of more than one year ahead. We set out below the planning systems in detail.

WMPTE

12.86. Medium-term programmes are produced under the following general headings. Bus infrastructure, rail and transportation planning. The bus infrastructure programme relates first to major work on PTE garages, and second to work connected with bus stations, highway modifications to aid bus operation or interchange, and car parks for passengers. The latter forms part of the TPP submission and the work is carried out in conjunction with the WMCC County Surveyors Department. The rail programme also forms part of the TPP submission, but work in this area is carried out by British Rail as agent. Overall transportation planning is the responsibility of WMCC and entrusted to the County Surveyor. PTE and other inputs are evaluated through the Joint Transportation Planning Unit in order to assist policy formation. The forward fleet programme is initiated by the Operations Committee.

12.87. The various medium-term programmes are co-ordinated at executive level where the allocation of resources, especially capital, is made. The total capital programme is aggregated in the finance department from the various approved programmes. The procedure for capital planning is discussed in Chapter 9. We note here that the programmes in the different areas appear to be produced largely independently without appraisal of the relative benefits of devoting available resources to different activities between programmes.

12.88. The executive is in the process of developing a corporate planning procedure to cover both a ten-year and a five-year time horizon. The ten-year plan will look at the broad developments in socio-economic trends and the trends in new technology, and outline schemes for further investment in the bus and rail transport system. The five-year plan will serve as a medium-term corporate plan with specific objectives and set out the detail of resource procurement and allocation. It is expected that the five-year plan will be rolled over annually but the ten-year plan will be revised at slightly longer intervals.

12.89. The proposed planning procedure aims to produce a three part structure to the corporate plan.

- Part one: to set out the corporate objectives, to forecast the future economic trends and the consequences on the financial performance, to review options, targets and programmes.
- Part two: marketing strategy, to undertake customer research and identify the market sectors, to set network and service level standards to satisfy the market, to outline pricing and fares policy.
- Part three: resource procurement, to outline the physical assets, manpower resources and financial resources necessary to achieve the plans.

A draft part one setting out the forecast of financial performance and passenger business, up until 1991 under a number of economic assumptions has been produced.

12.90. The input data for the forecasts was obtained from the WMCC structure plan estimates of population, car ownership, unemployment levels, net income growth, and fuel prices. The forecasts were in the form of sensitivity studies for low, central and high patronage levels. The options tested represented alternative fare and service levels as follows:

- Low forecast: fares increased in line with costs and service levels reduced to match decreased patronage;
- Central: fares increased with inflation, with constant service levels;
- High: fares frozen at 1981 level and service levels increased to match increased patronage.

The calculations were obtained using the models developed by WMCC transportation group.

12.91. The organisational structure for producing the corporate plan is very centralised. The plan is produced within the planning directorate with inputs from the business development group and marketing. Co-ordination and policy direction is derived from the corporate planning group chaired by the Director General and consisting of the Directors of operations, planning and engineering and senior managers from finance, business development, planning and engineering. The consequence appears to be that the plan addresses the strategic issues of service levels and investment but not the efficiency of operations. In particular it does not set up a programme for unit cost reduction.

12.92. With the present centralised structure it is difficult to see how an operational plan setting tasks for operational managers will be derived from the corporate plan. This will require an involvement in the planning process by the operational managers in order to set feasible operational targets consistent with the resource allocation. In particular, targets for unit cost reduction programmes need a planning timescale of the same order as the corporate plan.

12.93. Currently the main instrument of the operational plan is the one year ahead budget which will be discussed later.

CCT

12.94. CCT has no formal planning procedures for timescales greater than one year, except for capital expenditure which is required for local government expenditure procedures. The undertaking has representatives on the various officer working groups of the council, and has an input to the long-term planning proposals for new estates, schools and industrial sites. Extensions to the network are built in as the developments proceed. In general, because of the changing distribution of population from the city centre to the perimeter, the extensions have been financed by equivalent reductions elsewhere in the network.

BOC and TMT

12.95. BOC and TMT operate within the NBC Corporate planning system. The system was introduced in 1975 and has been developed slowly over the period. Each company produces a corporate plan over the same timescale setting out the business plan in terms of capital and revenue account for each of its activities. The NBC plan is an aggregation of the individual company plans. The early plans were set in terms of a pessimistic, central, and optimistic estimate for a five-year projection. Subsequent plans made central estimates only for five years ahead and current plans consider a four-year period to coincide with the proposed DTp performance aims.

12.96. *NBC objectives* NBC has a statutory duty to break even, in total, taking one year with another, after providing for interest on the initial capital debt, making proper provision for depreciation or renewal of assets and making allocation to general reserve and after including revenue support from local authorities. It does not have a duty to run particular bus services or provide any particular level of service. Its business objectives have therefore been rather loosely defined. However, this may change now that the DTp have set NBC some financial targets and it has itself adopted the objective to maximise patronage of revenue earning passengers on stage carriage services subject to breakeven whilst adopting a profit target on other activities. The NBC business objectives for the 1982-86 plan period are:

‘To secure within the financial and statutory framework and having regard to the needs of the business for the longer term that National Bus Company’s subsidiaries should provide efficiently:

- (i) local bus services and facilities promoting the maximum patronage of such services by revenue earning passengers; and
 - (ii) express coaching and such other services, facilities and supplies as may be provided under the company’s statutory powers so as to make a commercial return on the investment.
- (1) “Revenue earning passengers” means passengers contributing to revenue either directly through the fares they themselves pay, or indirectly through grants and payments in accordance with local authorities’ plans for public transport in their areas.
 - (2) In providing services efficiently, the company shall have regard to effective utilisation of the Company’s operating resources.
 - (3) “Statutory framework” means the financial target and external financing limit set by Ministers in pursuance of the Company’s statutory financial duties.’

12.97. The performance aim for 1981 set by government was for a 3 per cent reduction in real term operating cost (cost/vehicle mile in 1981 compared with 1980), and the current financial target is for a current cost operating profit (at 1980 prices) of £18.5 million by 1985. These targets are discussed in Chapter 2 on Financial Framework. However, NBC have not set any formal targets for the individual companies.

12.98. *Planning procedure* The main steps in the corporate planning process are:

- Step 1: NBC issues planning guidelines to the companies after some consultation with the companies in June.
- Step 2: Companies discuss the interpretation of guidelines with the regional directors in July/August.
- Step 3: Each company projects forward over the plan period the financial position, without management action, as though all policy were frozen at the end of period 6 of the current year.
- Step 4: Companies prepare a management action plan to bring the financial performance under control if step 3 shows an adverse projection.
- Step 5: The chosen capital and revenue plans are approved at regional level in October.
- Step 6: The allocation of available capital against company capital bids is made at the centre on a regional basis. The regional director then allocates capital to individual companies. There does not appear to be a formal criterion for this allocation.
- Step 7: Plans are aggregated to produce the NBC plan between January and March.
- Step 8: At company level the first year of the plan is converted into a detailed budget.

12.99 *Company guidance for corporate planning* The guidance sets out the format to be used in presenting the plans and provides advice about the factors to be considered in the projection together with information about assessing the effects of competition. The context of other NBC company policies, which influence the individual bus undertakings, are also set out, for example the micro computer implementation programme of the NBC Computer Company.

12.100. A major use of the guidance is to provide companies with the NBC economic and financial assumptions to be used. These assumptions are derived by the NBC planning unit and include:

- prices and earnings indices;
- vehicle cost and leasing indices;
- market trends including unemployment levels;
- public expenditure;
- capital cost indices for plant and machinery, and for land and buildings;
- population and age distribution changes in relevant counties.

Finally the guidance provides a stage carriage demand forecasting model as follows:

$$\begin{aligned}
 & \% \text{ change in passenger numbers} \\
 & = -2.5\% \text{ per annum} \\
 & \quad -0.3\% \times \% \text{ increase in fares above inflation} \\
 & \quad -0.4\% \times \% \text{ reduction in scheduled bus miles} \\
 & \quad -0.6\% \times \% \text{ lost scheduled miles} \\
 & \quad -0.75\% \times \text{ increase in unemployment rate.}
 \end{aligned}$$

12.101. These indices and formulae are derived from national statistics and companies are allowed to use a modified demand model where they have evidence to suggest that the local market behaves differently. The guidance does not contain specific information for each company; in particular it does not set companies specific performance targets.

12.102. *The projection process* The projection process is essentially the same in both companies. Initially a projection is made assuming that no further policy changes are made after the current year; in effect management action is frozen. The difference between the result and the break even position represents the magnitude of the management action required. This is termed 'position before management action'.

12.103. The next step is to feed into the projection all previously planned ongoing policies over the next five years. This is the initial position 'after management action'.

12.104. Commonly this proposed action will not close the performance gap and additional management action must be considered. This process will proceed until an acceptable performance level is projected.

12.105. Financial performance can be adjusted readily by changing fare levels or service levels and the financial consequences are relatively easy to calculate. The projection process is heavily biased towards these actions rather than the reduction of unit costs. This bias is understandable when it is recognised that cost reductions of 10-15 per cent are possible over a short time as the result of service level changes although in unit cost terms it would not be reasonable to expect more than 2-5 per cent over the same period. However, one may expect to continue to achieve modest unit cost gains over the long term whilst there may well be a limit to the short-term absolute cost gains obtainable from service reductions or in the increased revenue obtainable from fare increases.

12.106. As the planning process centres around the projected level of service the relationship between the procedures in the various functions is sequential rather than interactive, and generally has the following pattern.

- (a) The general policy direction of the company is discussed at regular meetings of the corporate management team which consists of the General Manager and his chief officers. The company's position and performance are reviewed and the broad policies for service levels and market development authorised including private hire, coaching and discount travel. The management committee acts also as a forum for the co-ordination of the activities of the individual functions. Both companies are trying to develop a Central Policy Committee, which has employee representation, to involve the staff in the planning process. The role of these committees is discussed in Chapter 4.
- (b) The traffic function projects forward the number of bus miles to be operated to achieve the given service level. This is calculated from a knowledge of the current network with additions for any extensions to new developments and any changes indicated by the MAP process.

The influence of local authority requirements after the first year of the plan is uncertain and in subsequent years is either held constant or a best estimate is made taking into account such factors as the proximity of the next elections and their outcome in central and local government and likely financial trend. The estimate of annual bus miles leads directly to an estimate of:

- manpower level in traffic grades;
- fuel use;
- peak vehicle requirement;
- depot utilisation.

- (c) The engineering function then estimates engineering costs from the projection of PVR.
- (i) Using the NBC cost point model an estimate is made of labour and materials needed for maintenance and servicing. The cost point model was developed specifically for planning purposes and is derived from the VMC data base. A cost index in labour and materials is tabulated for each vehicle type and age for a standard annual mileage averaged over all VMC companies. From an analysis of the type and age profile of vehicles in each projected year the labour and materials costs can be estimated from the standard index after adjustment for:
- last current year's engineering cost in the specific company relative to standard cost;
 - actual vehicle utilisation in terms of bus miles per year per bus relative to standard utilisation.
- (ii) The capital requirement in terms of bus replacement and spare cover together with capital needs for additional workshops or depots is calculated.
- (d) The administrative function then costs and aggregates the resource requirements of traffic and engineering by means of historic cost allocation and trends and, where appropriate, NBC guidance indices. The revenue income is estimated by projecting changes in patronage for a proposed fare structure and service level and socio-economic trends using the NBC demand forecasting formula. In addition, the administrative function will cost its own plans for computerisation etc, together with other cost saving projects in other functions such as heat and fuel conservation measures.
- (e) A revenue account is drawn up for the plan years from the projected expenditure and income and the net revenue deduced.
- (f) Local authority revenue support is negotiated for the first year of the plan.

The sequence may be repeated with varying service levels, deferred expenditure levels, or modified fare scales until a satisfactory projected performance level is obtained.

12.107. The first year of the plan may well be unstable because of the interaction with the local authorities in the negotiations for revenue support. The

level of support will depend upon the proposed network and the resultant cost allocation to routes of interest to the local authority. The support may be in the form of network support or buy-back of particular routes or services. The process is iterative and may involve several modifications to the plan before the bargain is struck. Except where there are three-year contracts, this instability will progress through the plan from year to year.

12.108. We have commented that the main instrument of cost adjustment in the companies is the level of service offered. The generation of efficiency projects does occur within functions and will be included in the corporate plans. The major example is the conversion to OMO, which is discussed in Chapters 2 and 5, but others include the change to Gardner engines and computerisation of administration. However, these do not form part of a formal unit cost reduction programme. Such a programme may require greater interaction between the functions. For a constant output service level there may well be a number of alternative options for transferring tasks between functions or for the substitution of capital for labour and for changes in procedures, all of which may require joint costing of expense and the estimates of benefits. Both BOC and TMT are beginning to develop procedures for generating and evaluating options within each function, for example:

- In engineering: A high level of preventive maintenance coupled with a policy of low spare vehicle cover compared with a low maintenance high cover policy. Capital intensive machine wash compared with labour intensive hand wash.
The estimates of fuel cost levels at which additional energy conservation measures in buildings becomes economic.
- In traffic: General fare change compared with differential changes.
Depot rationalisation.
Differential service charges at peaks, weekends and evenings.
Changes in the rate of conversion to OMO compared with changes in costs of redundancy and retraining.

12.109. Neither company has a formal process of monitoring the outturn of the corporate plans, except in terms of the current year through the budgetary process. There is therefore no analysis of long-term variances as a procedure to feed back information to improve the planning process. Tables 12.1 and 12.2 show the planning performance of BOC and TMT respectively.

TABLE 12.1 BOC: Cost and revenue performance for the period 1977-81 (£ million)

Item	Plans Year	One year ahead		Two years ahead		Three years ahead		Four years ahead		Five years ahead	
		Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual
Stage fare revenue	1976	31-07	31-23	0-51	31-13	30-23	28-83	30-86	30-80	25-45	30-62
	1977	31-16	31-48	1-03	31-13	30-23	28-83	30-86	30-80	25-45	30-62
	1978	28-81	28-83	4-93	30-67	28-83	28-83	28-83	28-83	28-83	28-83
	1979	30-22	28-83	-4-60	30-64	25-45	25-45	25-45	25-45	25-45	25-45
	1980	28-61	25-45	-11-05	28-29	25-45	25-45	25-45	25-45	25-45	25-45
	1981	23-25	23-25	-	23-25	23-25	23-25	23-25	23-25	23-25	23-25
	1976	2-28	2-10	-7-89	2-40	2-75	2-09	2-36	2-34	2-37	2-33
	1977	2-34	1-82	-22-22	2-40	2-75	2-09	2-36	2-34	2-37	2-33
1978	2-77	2-75	-0-72	2-14	2-09	2-09	2-16	2-06	2-06	2-06	
1979	1-97	2-09	6-08	1-67	2-37	41-92	1-46	1-46	1-46	1-46	
1980	1-84	2-37	28-80	1-33	2-37	2-37	2-37	2-37	2-37	2-37	
1981	2-71	2-71	-	2-71	2-71	2-71	2-71	2-71	2-71	2-71	
Variable costs	1976	19-11	19-02	-0-47	18-65	17-73	17-99	17-99	17-81	16-75	17-74
	1977	19-28	18-14	-5-91	18-65	17-73	17-99	17-99	17-81	16-75	17-74
	1978	16-44	17-73	7-85	16-08	18-71	16-36	15-32	14-71	14-71	14-71
	1979	16-91	18-71	10-64	16-40	16-75	2-33	16-21	16-21	16-21	16-21
	1980	16-02	16-75	4-56	14-49	16-75	16-75	16-21	16-21	16-21	16-21
	1981	14-08	14-08	-	14-08	14-08	14-08	14-08	14-08	14-08	14-08
	1976	10-04	12-23	21-81	10-03	12-42	23-83	9-99	10-02	10-87	10-02
	1977	10-05	12-15	20-90	10-03	12-42	23-83	9-99	10-02	10-87	10-02
1978	9-76	12-42	27-25	9-50	12-37	30-21	9-50	10-87	10-87	10-87	
1979	12-10	12-37	2-23	12-24	10-87	-11-19	12-43	12-43	12-43	12-43	
1980	11-08	10-87	-1-90	10-65	10-87	10-87	10-87	10-87	10-87	10-87	
1981	9-67	9-67	-	9-67	9-67	9-67	9-67	9-67	9-67	9-67	
Fixed costs	1976	4-88	4-95	1-43	5-07	5-20	2-56	5-01	4-95	5-74	4-92
	1977	5-09	4-95	-2-75	5-07	5-20	2-56	5-01	4-95	5-74	4-92
	1978	4-79	5-20	8-56	4-90	5-42	10-61	5-05	4-87	5-74	4-92
	1979	5-02	5-42	7-97	5-25	5-74	9-33	5-28	4-87	5-74	4-92
	1980	5-67	5-74	1-23	5-22	5-74	5-22	5-28	4-87	5-74	4-92
	1981	4-75	4-75	-	4-75	4-75	4-75	4-75	4-75	4-75	4-75
	1976	32-87	36-21	10-16	36-67	35-36	-3-57	35-70	35-50	33-36	35-49
	1977	36-84	34-66	-5-92	36-67	35-36	-3-57	35-70	35-50	33-36	35-49
1978	32-80	35-36	7-80	31-90	36-50	14-42	31-57	30-82	33-36	35-49	
1979	34-01	36-50	7-32	33-89	33-36	-1-56	33-92	33-92	33-36	35-49	
1980	32-77	33-36	1-80	30-36	33-36	33-36	33-92	33-92	33-36	35-49	
1981	28-50	28-50	-	28-50	28-50	28-50	28-50	28-50	28-50	28-50	
Net Revenue	1976	(1-65)	1-15	-	(1-48)	1-07	(0-53)	4-41	(0-28)	4-53	(0-39)
	1977	(0-18)	0-24	-	(1-48)	1-07	(0-53)	4-41	(0-28)	4-53	(0-39)
	1978	(0-80)	4-41	-	(0-51)	4-53	-	0-05	-	-	-
	1979	(0-80)	4-41	-	(0-51)	4-53	-	0-05	-	-	-
	1980	(0-80)	4-41	-	(0-51)	4-53	-	0-05	-	-	-
	1981	(0-80)	4-41	-	(0-51)	4-53	-	0-05	-	-	-
	1976	3-38	3-18	-5-92	3-76	2-87	-23-67	3-51	3-31	3-49	3-49
	1977	2-87	3-19	11-15	3-76	2-87	-23-67	3-51	3-31	3-49	3-49
1978	3-76	2-87	-23-67	3-69	2-30	-37-67	2-03	1-87	2-03	1-87	
1979	3-84	2-30	-40-10	1-80	2-49	-	-	-	-	-	
1980	1-52	2-30	-40-10	1-80	2-49	-	-	-	-	-	
1981	2-37	2-37	-	2-37	2-37	2-37	2-37	2-37	2-37	2-37	

Source: BOC.

TABLE 12.2 TMT: Cost and revenue performance for the period 1977-81 (£ million)

Item	Plans Year	One year ahead		Two years ahead		Three years ahead		Four years ahead		Five years ahead	
		Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual
Stage fare revenue	1976	15.37	15.08	15.80	14.90	16.16	14.16	16.45	14.13	16.67	13.39
	1977	15.06	14.90	14.87	14.16	14.82	14.13	14.85	13.39	14.92	
	1978	13.94	14.16	13.86	14.13	13.83	13.39	13.76			
	1979	13.44	14.13	13.43	13.90	13.39	15.28				
	1980	13.53	13.39	13.04							
Sect 1 Grants (Revenue Support)	1976	1.08	1.29	0.88	1.34	0.79	1.20	0.84	0.98	0.88	1.02
	1977	0.98	1.34	0.88	1.20	0.79	0.98	0.84	0.98	0.88	1.02
	1978	0.93	1.20	0.88	0.98	0.79	0.98	0.84	0.98	0.88	1.02
	1979	1.04	0.98	1.32	0.98	1.40	1.02	1.41			
	1980	0.84	1.02	1.10	1.02	1.15					
Variable costs	1976	11.04	11.17	11.01	10.57	11.31	10.19	11.70	10.14	12.10	8.67
	1977	10.53	10.57	9.48	10.19	8.65	10.14	8.54	8.67	8.40	
	1978	9.49	10.19	9.29	10.14	9.23	8.67	9.18			
	1979	9.64	10.14	9.33	8.67	9.07					
	1980	8.93	8.67	8.01							
Semi-variable costs	1976	5.34	5.83	5.23	5.83	5.32	6.14	5.48	4.81	6.72	4.57
	1977	5.75	5.52	4.00	5.65	5.58	4.81	5.58	4.57	5.58	
	1978	4.89	5.17	5.73	5.19	4.81	5.19	4.57			
	1979	4.93	4.81	2.43	5.09	4.57					
	1980	4.88	4.57	6.35	4.99						
Fixed costs	1976	2.82	2.64	3.05	2.88	3.48	2.88	4.03	2.94	4.77	2.92
	1977	2.87	2.88	0.35	2.89	2.76	2.94	2.94	2.92	2.67	
	1978	2.67	2.88	7.87	2.60	2.94	2.63	2.92			
	1979	2.62	2.94	12.21	2.71	2.92	2.75				
	1980	2.97	2.92	1.68	3.00						
Total cost	1976	19.41	19.65	19.89	18.98	20.93	18.24	22.14	17.89	23.59	16.17
	1977	19.14	18.28	18.02	18.24	17.00	17.89	16.77	16.17	16.65	
	1978	17.05	18.24	17.08	17.89	17.05	16.17	17.14			
	1979	17.21	17.89	17.13	16.17	17.09					
	1980	16.78	16.17	16.00							
Net revenue	1976	0.59	1.42	0.77	0.62	1.35	0.85	2.10	0.81	3.17	0.04
	1977	1.25	0.62	0.47	0.85	0.41	0.81	0.60	0.04	0.72	
	1978	0.15	0.85	0.16	0.81	0.28	0.04	0.18			
	1979	0.25	0.81	0.07	0.04	0.05					
	1980	0.52	0.04	0.15							
Finance total requirements	1976	1.85	1.79	3.24	2.90	1.49	1.64	1.59		1.82	
	1977	3.00	2.90	3.33	2.34	2.16		2.16		2.16	
	1978	1.71	1.64	4.09	1.84	1.87		1.91			
	1979	1.88									
	1980	2.11									

Source: TMT.

12.110. There are two main reasons why the actual outturn may differ from the planned value. Firstly, the accuracy of the forecasting and planning procedures, and secondly, policy or other decisions may be taken to alter the plans, especially in the later years of the plan. The analysis that we have made of the planning performance suggest the following:

- (i) That it is very difficult, especially for TMT to predict the level of revenue support from 'section 1' grants. Even for one year ahead errors of up to 36 per cent can occur.
- (ii) That net revenue is a very unstable parameter and difficult to predict precisely. TMT is better able to predict the correct order of magnitude.
- (iii) That the area of total finance requirements, which includes capital, may be subject to large deviations. However, this may result from NBC constraints and therefore may not be entirely under the control of the undertakings.
- (iv) In other areas of revenue and expenditure they are able to fulfil the three years ahead plan to within 15–20 per cent and the five year ahead plan to within 20–30 per cent.

Given the current unsettled nature of the industry we think that this is a reasonable level of planning performance and execution.

Operational Planning

12.111. Here we are concerned with the short-term detailed planning of operations and services. The main short-term planning instrument is the one year ahead budget. None of the undertakings produces a two or three year operational plan or a provisional two year ahead budget. Operational planning starts with the detailed planning of the scheduled network, routes and service timetables from which is derived the detailed budget for traffic operations, and the consequential budgets for engineering and administration.

Service planning

12.112. None of the undertakings has an annual cycle of timetable production. Service planning falls into three categories:

- (a) continuous modifications to the existing schedules to overcome timing or operational difficulties;
- (b) extensions to the network necessitated by new developments;
- (c) regular or *ad hoc* reviews of part or all of the network;
- (d) response to specific requests and suggestions from local authorities, schools, factories, private individuals etc.

The review processes which attempt to match supply to trends in demand are described fully in Chapter 8. Reviews use as their starting point a survey of travel patterns and demand tabulated in the form of an origin and destination matrix, if possible, by time of day. The basic data is obtained by the Area Study process, household surveys and the 'continuous on-bus survey' in WMPTE, the 'MAP' procedure in BOC and TMT and a very much less refined process of 'cordon counts' and *ad hoc* surveys in CCT.

12.113. We shall discuss the technical processes of converting travel demand patterns into bus schedules and the quantification of resource requirements under the three main processes:

- network planning;
- bus scheduling;
- crew scheduling.

The procedures are very similar in all four bus undertakings. All use manual procedures routinely although WMPTE is currently experimenting with a network planning model in Coventry and a Bus and Crew scheduling computer programme. Network planning is difficult and time consuming and the advantage of a planning model is that a number of alternative networks can be investigated in a short time period.

12.114. We have investigated the use of computer scheduling of buses and crew and it does not appear to us that the systems are yet suitable for routine use. The bus scheduling algorithms are effective in some situations but there is a good deal of manual effort required in data preparation. With respect to the crew scheduling algorithms it is not at all clear that they can handle the complexity of the manning constraints. We think that the most likely development will be a highly interactive system where the machine undertakes the bulk of the data manipulation, but interrupts the process to present the scheduler with decisions concerning a small number of good options before proceeding.

12.115. *Network planning* Network planning is the process of setting down a number of inter-dependent routes which best suits the potential travel demand geographically and is subject to a number of financial constraints concerning operating cost and potential revenue earnings.

12.116. The great difficulty with network planning is attempting to estimate the passenger loadings on different parts of the network because passenger travel behaviour is not entirely predictable. Potential travellers have a choice as to the route they may take and the entry and exit point on the network.

12.117. The planning process is one of trial and error and often of intuition since there is no readily usable theoretical method of producing an optimal route system. The procedure is to define a route structure and then evaluate it with regard to a number of performance measures:

- journey times and route directness;
- accessibility;
- load profile along the routes;
- costs;
- potential revenues;
- matching potential demand.

The measures are compared for a number of alternative networks and one will be selected by considering the balance of demand satisfied against the operating index, the balance depending on the social or commercial objectives of the undertaking.

12.118. *Bus Scheduling* Once the network structure is set marketing considerations are used to specify the service levels required on each route. The service specification is set out in the following parameters:

- route;
- bus type;
- start times at major terminals;
- intermediate timings along the route;
- first and last bus of the day;
- frequency at peak, off-peak, inter-peak and evenings, Monday to Friday, and Saturdays and Sundays.

12.119. The skill of the scheduling process is to fulfil the service specifications using the minimum number of buses. If demand were constant throughout the working day and shared no common routes then scheduling would reduce to the trivial case of determining the number of buses needed to service each route separately from a knowledge of the frequency and the normal trip time. A difficulty arises when demand varies throughout the day. Normally there are two demand peaks, one in the morning and one in the afternoon, or where several services come together at a common terminal point. The possibility is then introduced of linking two or more services using the same vehicle and considerable savings can be made.

12.120. Skilled scheduling and linking can increase vehicle utilisation but the arrangements must be practical or there may be a consequential loss in reliability, because late running or cancellation of one component of a linked service will result in late running or cancellation of subsequent associated services. It is possible that savings gained from higher utilisation may be outweighed by the resulting loss of passengers or higher costs in a more refined control system.

12.121. *Crew scheduling* Crews are considerably more difficult to schedule than buses. Buses are subject only to the constraints of the service specification and road speed whereas crews are subject to a large number of complex constraints set out in the manning agreements, United Kingdom and EEC regulations. Some of these constraints may be relaxed under certain conditions whilst others are absolutely binding. In addition the nature of the constraints may change locally from depot to depot. The nature of these constraints are considered in Chapter 5.

12.122. The scheduling procedure is outlined briefly in the following steps:

- (1) An estimate is made of the minimum number of crews required to run the bus schedules under ideal conditions from the ratio of total bus running hours to the maximum standard productive hours per man. Standard productive hours are defined as the standard working day less allowances for meal breaks and signing on and off. These will vary between undertakings depending on the manning agreements.
- (2) Assign crews on allowed split shifts to cover peak duties.
- (3) Assign crews to the early shifts and work until a meal break.

- (4) Assign crews to late shifts following a meal relief.
- (5) There will be still a number of uncovered duties in the middle of the day which may be assigned in a number of ways:
 - to unassigned early crews following a meal relief;
 - to unassigned late crews before a meal relief;
 - to the remaining part of a split shift;
 - to a middle shift;
 - to overtime.

The skill is in making good assignments at step 5 to give minimum cost. Finally the crew number assigned is compared with the estimate made in step 1. If the utilisation appears to be very low then it may be necessary to retime or reschedule the buses.

12.123. *Performance measures* There is clearly an interaction between the service specification, the bus schedule and the crew schedule. Small modifications in specifications may produce disproportionate savings in buses or crew. Changes in the bus schedule in terms of reduced numbers will produce crew savings. We have found that there is often an informal link between the service planner and the scheduler where in the event of particular difficulty with the bus or crew schedule some changes to the timings or route length may be made to ease the problem. However, this iteration between service requirement and scheduling resource costs is not well developed. There is no systematic analysis of scheduling performance trends, and there is no formal use of performance measures.

12.124. None of the undertakings has yet devised a performance measure which indicates how close a bus or crew schedule is to optimum. In Chapter 5 we propose the following measure for crew scheduling efficiency

$$\frac{\text{scheduled bus hours}}{\text{scheduled driver attendance hours}}$$

which we believe provides a consistent relative measure which could be used to monitor trends in scheduling efficiency and help to determine those factors especially in manning agreements, to which it is most sensitive.

Budget preparation

12.125. The service schedules represent the operational objectives which are transformed into a financial plan in the form of the annual budget. In WMPTE and CCT the budget is the only formal representation of an overall operational plan whereas in the NBC companies the budgets are derived from the first year of the medium-term corporate plan.

WMPTE

12.126. The inputs to the budget planning system come from a number of internal and external sources:

- PTA services and fares policy;
- budget guidelines setting out the planning background and assumed wage settlements and inflation rates;

- estimates of patronage and revenue effects of alternative fare scales from the business development section;
- extensions to the system from new development or modified service levels after area schemes reviews.

The total budget will normally be constrained by the imposition of financial objectives set by the WMCC.

12.127. *Expenditure estimates* The expenditure budgets are zero based in the sense that they derive naturally from the service schedules, but the schedules are not reassessed annually from scratch. Thus the output volume is not determined from a zero base annually. The determination of operational expenditure is outlined below.

- (a) For each garage separately the numbers of bus miles operated and crews needed are derived from the bus and crew schedules. The final costs are then determined from the mileage operated and the manpower requirement from the complementing formula.
- (b) The PVR is determined from the bus schedules. From this and the knowledge of the current fleet level and spare cover, the engineering throughput is estimated. Historic trend of costs is used to establish manpower and material requirements.
- (c) The total expenditure budget is then derived centrally by aggregating garage costs for traffic and engineering. The costs are estimated at the November level of costs for the service level pertaining in November. The costs are adjusted for the assumed inflation and wage awards when these are known.

12.128. *Revenue estimate*

- (a) Revenue estimates are first made division by division from patronage estimates and fares levels for on-bus fares, and a PTE-wide estimate is made for total off-bus revenue. The Executive has developed a computer model to estimate revenue by taking the current level of revenue and patronage and using elasticity estimates to adjust for new fare levels. Revenue is adjusted for seasonal effects and special events such as the Motor Show.
- (b) The total revenue is then allocated to individual garages using information from the continuous on-bus survey.

12.129. The annual budget is disaggregated into actual estimates of expenditure and revenue phased over 13 four week periods. A financial model has been built which allows the sensitivity of the budget to changes in the inflation and wage settlement assumptions to be tested.

12.130. A four weekly return showing projected against actual budget is produced and distributed to Directors, Divisional Managers and garages. The formal options to bring the budget back to plan after deviation are:

- to raise a supplementary estimate in advance;
- to reallocate across garages by approved virement;

- to reallocate across divisions by approved virement;
- to contain an adverse variance by deferred expenditure in building maintenance, reduction in duplications, reduced cleaning schedules;
- reduce level of service.

Any proposal to reallocate across divisions would be initially considered by the Operations Committee. There is currently no system of formal stewardship reviews for budget holders, but WMPTE has told us that it is developing a system to be implemented by 1983–84.

CCT

12.131. The budget system in CCT is integrated into the city council system. The City Treasurer issues budget guidelines setting out the expected rates of inflation and level of wage awards.

12.132. The budgets are collated centrally by the Chief Administrative Officer on an incremental basis, as follows:

- (a) divisional heads submit changes in resource needs in the budget year relative to the last budget year:
 - Traffic—changes in mileage, staff, PVR;
 - Engineering—changes in materials, staff, and vehicles;
- (b) last year's budget expenditure is inflated to November prices using either the last recorded unit price, or a specific external price index, or RPI, whichever is available or appropriate;
- (c) the volume changes in staff, materials, fuel etc submitted in step (a) are added in to last year's revalued budget, and expenditure is then itemised under budget heads;
- (d) a contingency provision to cover anticipated inflation and wage awards is calculated using the guidelines assumptions;
- (e) revenue is estimated by taking current level of income, adjusted for seasonal effects, to produce an annual rate. The annual rate is then adjusted for projected changes in fares levels. The estimation of passenger and revenue response to changes in fare structure is unsophisticated and is based on a judgment relating to experience rather than a formal analysis using demand elasticities.

The budgeted expenditure is not phased for seasonal effects, but summaries are produced showing actual expenditure and income against expected proportionate expenditure and income to date, and projected year end outturn.

12.133. In addition to the budgetary process each function head is required to produce an annual action plan setting out the activities for the coming year under three headings:

- divisional activities;
- joint activities with other functions;
- policy activities.

The action plans do not contain quantitative objectives and they are not associated with the specific consequential resource costs but the aggregate effects are linked to the estimated expenditure for that year. Progress on these plans is discussed at regular management team meetings.

BOC and TMT

12.134. The NBC company budgets are zero based in the same sense as those of WMPTE and are derived directly from the first year of the corporate plan. Expenditures are derived from the number of scheduled miles required to run the services in terms of crew, vehicle and fuel costs. Engineering costs are now derived using the cost point model described earlier and in this respect are more refined than the WMPTE process. The budgets are produced and managed centrally by chief officers in TMT, but it is proposed that in BOC budgets should be disaggregated and devolved to area traffic and engineering managers. This is to be achieved in two phases:

- (a) budget developed centrally and held locally;
- (b) budget developed and held locally, and then aggregated to produce the company-wide budget.

12.135. Neither BOC nor TMT have refined methods of projecting revenue income. Both make use of the NBC passenger demand model for predicting on bus revenue, through changes in passenger numbers and historic revenue trends.

12.136. Neither company has a formal process of annual stewardship reviews for budget holders. The general managers present a four weekly management report showing company performance and budget variances to NBC and TMT has developed a system of stewardship meetings in engineering. The proposed system in Bristol may pose problems of accountability because the budget for some units is constructed as a joint traffic and engineering budget with joint responsibility between two budget holders.

12.137. The budget is phased over 13 four week periods and is adjusted for actual estimated expenditure for each period.

12.138. In none of the undertakings is there a formal system for setting and monitoring comprehensive operational targets for all managers down to depot level, nor associated procedures for formal stewardship reviews. The universal monitoring instrument is financial and derives from the budget. In each undertaking some financial and some physical targets are set for some managers, for example bus availability targets for the engineering functions but these do not usually extend to depot level. BOC and WMPTE are extending their budgetary system to depot level. Some performance measures are formally monitored in each undertaking, for example lost mileage is monitored in all undertakings, cleaning performance is monitored comprehensively depot by depot in WMPTE and partially or not at all in the other three, and unused staff time is monitored in TMT. No undertaking monitors punctuality of

buses as routine management information. It is feasible however that comprehensive depot level targets could be set for appropriate managers in both financial and physical terms, for example:

- route specific revenue;
- depot costs;
- manpower costs;
- engineering throughput;
- staff attendance levels;
- lost mileage;
- punctuality of buses;
- accident reduction.

Operational Control

12.139. By operational control we mean the day-to-day management of available resources to carry out as closely as possible the operational plan. All four undertakings use similar procedures for day-to-day control summarised by two basic control elements:

- allocation;
- inspection.

Allocation

12.140. The planned schedules require a given number of buses and a given number of crews to be available at any particular time of day. In the event there may be a shortfall of vehicles or crews or both. The available resources must then be reallocated between services, against some priority criteria, to minimise the effect of the shortfall.

12.141. *Bus allocation* The provision of buses is the responsibility of the engineering function. One night before operations the night engineer assesses the buses available for the following day at all garages. The available number is the total less those required for routine maintenance, less those required for MOT examinations, less accident repairs, less those unserviceable awaiting spares, less those on drivers' defect sheets. If the number available is less than the PVR then he must take some action to cover the shortfall. There are a number of alternatives:

- defer some minor maintenance;
- apply extra manpower to bring vehicles on stream earlier;
- reallocate available vehicles between depots;
- recommend to traffic to cut services.

The available buses are allocated to services and routes by fleet number ready for the drivers in the morning.

12.142. *Crew allocation* The allocation of crew is the responsibility of the traffic function. The duty rosters which include spare duties are prepared many weeks in advance and posted for union inspection. About one week

before operation the crew availability is reviewed and compared with requirements. A shortfall on requirements may arise for a number of reasons:

- garage below complement;
- staff holidays;
- additional duties;
- staff long-term sickness;

and result in some duties being left uncovered. Action is then taken to allocate new crews to the uncovered duties in the following order of priority:

- spare duties;
- on duty spare (for short cover periods);
- rest day working (if agreed);
- overtime or extra duties;
- transfer between garage (if agreed).

In Bristol there is a formal procedure for applying for extra duties. If there is still a shortfall then the uncovered duties are left open until the day of operation. The amended roster is posted 48 hours prior to operation for inspection by the crews.

12.143. If on the day of operation there is still a shortfall of vehicles or of crew because of sickness or failure to arrive for duty or because of late running of a previous service, then further action is taken to minimise the effects. The possible alternatives are:

- to deploy spare crew;
- to assign some overtime;
- to cut service schedules and reallocate duties.

12.144. The decision to cut some of the planned services is clearly a last resort but has to be taken if no additional resources can be found. It does not follow that the cut will necessarily fall on that part of the schedule coincident with the resource shortfall, for it may be possible to reallocate the resources across subsequent services to allow the cut to occur at some predetermined point. This ability to 'push up' shortfalls of crews or buses gives room to minimise the effect of the cut with respect to some performance criteria, for example:

- minimise revenue loss;
- minimise social loss;
- minimise loss of patronage;
- maximise cost reduction;
- maximise net revenue.

These decisions are left to the judgment of the supervisor on the spot and none of the undertakings except TMT appears to have a formal system of priority or guidance. However, in general we have found that operators try to maintain schools services and contracts and infrequent rural services and

make the cuts if possible in the peaks. In TMT the District Traffic Superintendent's Instruction manual sets out the priority order as contract, stage carriage, private hire, express, excursions, but does not set out priority for categories of stage carriage services.

12.145. These decisions are made every day at depot level and clearly have cost, revenue and patronage consequences but none of the undertakings regularly monitors the value of the decisions made in quantitative terms or has developed a post mortem procedure for making the evaluations. In TMT each District Traffic Superintendent makes a weekly detailed report to the Traffic Manager reporting on use of staff and reasons for deviations from the schedules.

Inspection

12.146. Inspectors perform three functions: quality control, which is concerned with the state and condition of the bus and street furniture, crew appearance and destination board; audit and fraud prevention; and the regulation and timekeeping of buses. In all these fields a balance must be struck between the cost of inspectorial provisions and the attainment of desired results. The inspectorial function is discussed in more detail in Chapter 5.

12.147. Their duties are performed either by travelling at random on buses or in special vehicles, or by regulating the progress of buses at terminals or at set points along the route or from a central position by radio.

12.148. With respect to operational control the inspectors deal with three conditions:

- (a) late running;
- (b) cancellations;
- (c) excess demand.

The alternatives in the event of late running are to reroute the bus to bring it back on schedule further along the route, or to stop it short and substitute a spare bus at some other point further along the route, or allow it to continue off schedule. In the event of a cancellation or breakdown the alternatives are to reroute another service or hold passengers until the arrival of a following vehicle or run a spare.

12.149. In the urban areas of BOC, Cardiff and WMPTE the short-term inspection functions are assisted by a centralised radio control system. The operation of the systems are similar having separate radio channels for communications with buses and with inspectors.

Management information systems

12.150. A management information system is normally designed as an element in a management control system. As with all control systems management control requires procedures to provide the following elements:

- preset targets on output performance to be achieved;
- a means of monitoring the actual output achieved;

- feedback of information to the controller on the level of deviation of output from target;
- means of taking actions to correct the deviation.

In this context it is normal for a MIS to serve three purposes: firstly, to assist planning, which is the process of setting targets and acquiring the resources to achieve them; secondly, to assist management control, which is the process of ensuring the best use of existing resources and setting rules and guidelines for their use; and thirdly, to assist operational control, which is the planning of the consumption of resources by carrying out the task according to rules devised by managers.

12.151. In large scale industries with a high degree of technological input the MIS systems usually evolve from the operational control systems within functions, to company-wide management control in the form of a budgetary control and financial information system. Then follows the addition of systems set up for long and medium term planning, and finally a totally integrated system with common data bases to help managers make commercial decisions across functions.

12.152. Judged by these observations the MIS systems in the bus industry are at a very early stage of development. None of the undertakings has yet developed an integrated system and the main emphasis is still on the control within functions. It may be that the incentive to develop refined systems is inhibited by the slow development of the medium-term planning procedures.

12.153. We are in general satisfied that management and operational control information in the traffic functions of all undertakings is adequate with the possible exception of bus punctuality. Traffic operations are carried out effectively, although there is still room for development of systems to monitor fuel consumption and mileage analysis by route and service.

12.154. Information in the engineering function is dealt with in detail in Chapter 6 on Maintenance but it is clear that there is a lack of proper systems for the prediction of maintenance costs and the planning of maintenance operations. Only the NBC companies have developed a vehicle maintenance costing system and an extension into the cost point model. But even this system does not allow an analysis of the cause of costs and indications of priorities for cost reduction. In both WMPTE and CCT there are defects in the information available for job costing and engineering throughput control.

12.155. WMPTE and the NBC companies have adequate financial information systems based on the budgetary control systems. That used in CCT has a number of defects of presentation and preparation.

12.156. For medium-term planning purposes a bus undertaking needs information on passenger travel demands and patterns, on passenger behaviour to changes in fares and service structure, and on route costs and service costs in the peak, inter-peak and off-peak. In addition, to make properly balanced decisions between social and commercial needs, information on attitudes and route load profiles is needed.

12.157. In the area of planning information systems all undertakings have developed route costing to the CIPFA specification. However, none has yet extended this to peak/off-peak costing. WMPTE and the NBC companies have well developed systems for obtaining passenger information about travel patterns and travel demands in the Area Studies (household surveys), COBS and MAP procedures. COBS has the advantage that it is continuous whereas the MAP procedure is discrete. CCT has no regular passenger monitoring information system.

12.158. WMPTE is developing or experimenting with a number of computer models for checking budget sensitivity, predicting revenue income for different fare structures and for network planning.

12.159. In the rest of this section we outline the historical development in each of the undertakings. Detailed descriptions of the budgetary control, maintenance costing and the MAP and COBS system will be found in Chapters 2 and 8.

WMPTE

12.160. In 1977 WMPTE undertook a review of its MIS systems and set up a project team to remedy some apparent defects in the financial and asset control procedures, and also to improve the degree of achievement of budgets. The result of the review was a recommendation to give priority to the installation of an FIS system.

12.161. The FIS system is under development and the plan is to introduce it in three phases as follows:

- Phase I:
- (a) income and expenditure recording to be allocated at route and garage level;
 - (b) bills to be signed off by responsible budget holder who also allocates the budget code;
 - (c) the budget holder also allocates codes for orders;
 - (d) facility for engineering data to be incorporated.

Phase II: System to be computerised with allocation of time profiles and thresholds for exception reporting.

Phase III: To incorporate actual mileage rather than scheduled mileage.

The system is designed to take data direct from waybills and bus running boards.

12.162. The FIS system has now been implemented to phase II level and is likely to be further developed as the core of an integrated MIS system. Currently WMPTE has no engineering project control on vehicle maintenance systems implemented but a number of other systems have been computerised:

- engineering productivity scheme;
- waybills;
- stores;

- payroll;
- market research;
- off bus sales.

CCT

12.163. The control of program development and computing facilities rests with the Cardiff City Council, and the development of MIS systems had been frustrated until 1979 by the lack of systems analysis and programming support.

12.164. In 1974 a route costing system was introduced which allocates revenue, variable, semi-variable and fixed costs to individual routes. Since waybills in CCT are aggregated over routes it is not currently possible to extend the system to allocate costs and revenues to individual trips.

12.165. In 1979 a proposal was made for a system which would produce life cycle costs by individual vehicle using data derived from the standard accounting package. The achievable specification was not considered appropriate by the engineers and a specification for an entirely new suite of programs is being developed.

12.166. The payroll, stores and ledger systems are already in use on the City mainframe. Recently three micro-computers have been installed to undertake waybill analysis and a pilot study is under way with a package that is designed to provide up to the minute operational data and to provide management with information on operational performance, miles operated by route and by bus.

12.167. CCT is currently developing a computer-based system for obtaining passenger information in conjunction with South Glamorgan County Council.

The NBC companies

12.168. The NBC companies now rely on the central NBC computing company for new developments and systems support. Computing is now carried out at a number of regional centres, and they are developing a company-wide facility and MIS package. The proposal is for two large mainframes based at Birmingham and Preston to be linked to mini-computers in each company. Some computing and data preparation will be carried out locally on the mini and in other cases data will be sent down the link to the mainframe for processing. It is proposed that the MIS package will cover the following:

- wages, salaries and payroll;
- accounting cost and budget;
- stores accounting;
- inventory control;
- management accounts and reports.

In the future it is expected that the system will be extended to include interactive financial modelling. This would allow managers to test the sensitivity of the corporate plans to changes in inflation assumptions and fares elasticity.

They are currently developing a programme to analyse the trends in the four weekly management reports on a visual display unit and to make comparisons across companies.

BOC

12.169. Prior to 1976 all systems had been developed separately within each function for operational control purposes. The costing system was manual and operated at a highly aggregated level. In 1976 a new costing system was proposed, developed and implemented in four stages as follows:

- Phase I: Manual operational costing by route to the specification of CIPFA.
- Phase II: Development of integrated ledger to allocate other costs—central repair costs, Head Office costs and cost attributable to NBC.
- Phase III: Traffic and engineering budgets produced at depot level but managed centrally by chief officers.
- Phase IV: Detailed budgets issued to Area Managers and depots but managed at area level.

12.170. BOC has made no development of traffic systems or engineering systems for fuel consumption statistics or for maintenance costing, but a number of other systems are computerised for routine management information:

- payroll;
- stores;
- scholars' passes;
- fare tables;
- mileage system—allocates miles run to buses and routes;
- ledger system;
- sales system.

TMT

12.171. There has been no recent review of the management information structure in TMT, and most of the present systems were developed separately within the functions for operational control purposes. The following systems have been computerised and produce routine management information:

- payroll;
- waybill analysis;
- route revenue (from waybill);
- route mileage revenue analysis;
- engineering records and statistics;
- vehicle maintenance costing;
- purchase ledger;
- nominal ledger.

Relative computer use

12.172. Table 12.3 sets out the ratio of the 1981 computing budget to total turnover for each of the undertakings. For a typical commercial organisation the computing effort would be about 1–2 per cent of turnover.

TABLE 12.3 Computer expenditure for each of the undertakings as a percentage of total revenue for 1981

	<i>WMPTE</i>	<i>CCT</i>	<i>BOC</i>	<i>TMT</i>
<i>Computer budget</i>	%	%	%	%
Total revenue	0.60	0.44	0.82	0.34

Source: MMC study.

12.173. These figures suggest that computer expenditure in the four undertakings is on the low side of the range common in other industries. The value for BOC is apparently inflated because there was development work on new systems taking place during the year. The relatively low use of the computer confirms to some extent the early development stage of the MIS.

Good housekeeping

12.174. Under this heading we looked at such matters as conditions of service, use of cars, the provision of canteens, standards of accommodation, entertainment and attendance at conferences. In general we found that the undertakings have satisfactory policies which have due regard to economy in these matters. There are, however, two aspects—the use of cars in WMPTE and BOC and the operation of canteens in WMPTE—about which we feel comment is warranted.

Use of cars

12.175. *WMPTE*. At present 67 employees of WMPTE, the nature of whose duties require them to have a car constantly available for use on official duty, are paid an Essential Car User Allowance, which varies somewhat from the national scheme promulgated for PTEs. The latter is an orthodox scheme, providing for a lump sum and mileage payments related to engine capacity and mileage levels. The WMPTE scheme has four categories of mileage for essential users:

Category I	2,400 miles	30 users
Category II	3,400 miles	24 users
Category III	4,500 miles	13 users
Category IV	7,200 miles	Nil

Users are paid the full mileage related to their category (and the appropriate lump sum) without being required to keep detailed mileage records. Should a user claim excess mileage, he has to support the claim with precise records of all his mileage. Another feature of the scheme is that officers who were designated as essential users on or before 31 December 1980 are, as a retained condition of service, paid at the rate for a 1451–1750cc car, regardless of the actual engine capacity of the vehicle. Other essential users are paid at the rate for the actual engine capacity of the car.

12.176. The Executive considers that the scheme is cost effective and that it avoids the generation of unnecessary mileage by staff. Nevertheless, following advice from its auditors it proposes to review the scheme and intends from 1 April 1982 to institute a systematic sample of Essential Car Users' mileage. The returns to be submitted by different users from year to year will show detailed records of their mileage.

12.177. *BOC*. Eighteen cars are provided on a personal basis for staff required to be on call and there are four pool cars. Petrol is provided from a company pump and against four accounts with local garages. Petrol issued and miles run are recorded by vehicle but there is no monitoring of the one against the other. Following NBC's standard practice, there is no reimbursement in respect of private use. We expressed our concern to NBC about the lack of monitoring in BOC between petrol issues and usage which we felt was open to criticism. We received an assurance from NBC that the matter would be put right and we now understand that a monitoring system is being implemented.

Canteens

12.178. *WMPTE*. It has been the Executive's policy since it was formed in 1969 to provide a canteen and refreshment service for all its employees and to pay the overhead costs from Executive funds. There are 30 canteens at out stations, 22 of them being run by social clubs and the balance directly by the Executive.

12.179. During the year 1980-81 the Executive incurred expenditure of £1.4 million on the provision of canteen facilities for its staff. The average cost per employee was £165-£170, much higher than in the other undertakings. The Executive told us that it did not consider its canteen subsidy unduly high.

12.180. We noted that canteen expenditure included nearly £900,000 for the labour costs and certain other expenses of the 22 canteens operated by staff social clubs, which are allowed to retain, and apply to their own social, sports and welfare purposes, any profit on the sales of food and from other sources such as the operation of gaming machines. The clubs are also seen as a means of overcoming some of the disadvantages experienced by employees who work unsocial hours.

12.181. The Executive also told us that catering consultants had recommended the setting of clearer policy objectives on quality, cost and the extent to which canteens should be subsidised, and the establishment of effective budgetary control and accounting systems; and steps have been taken to implement these recommendations.

Conclusions

12.182. Largely because of its size, the organisational structure of *WMPTE* is far more complex than the other three undertakings and reflects a different approach in a number of respects, particularly engineering and labour relations. Since 1974 *WMPTE* has been subject to continual reorganisations and

it is not clear whether the best form has yet been achieved. However, we *recommend* that after completing the present organisational changes, WMPTE should for a time limit organisational changes to those necessary to secure specific efficiency improvements.

12.183. The organisational structures of CCT, BOC and TMT are relatively simple and straightforward, reflecting the needs of the undertakings and clearly understood by management and staff.

12.184. Our terms of reference ((i) (f)) drew particular attention to the relevance for the efficiency of BOC and TMT of their positions as subsidiaries of NBC. We have discussed the effects of this relationship on particular aspects in earlier chapters of this report (2 and 4 to 9 inclusive). Overall we conclude that the relationship is both relevant and beneficial to the efficiency of BOC and TMT.

12.185. Only BOC and TMT, following NBC directives, have implemented a formal corporate planning system covering the next four to five years. WMPTE is developing a corporate planning system but operating managers do not contribute a significant input. CCT has no planning system beyond the one year. Neither the NBC procedure nor the proposed WMPTE procedure includes formal targets agreed and tested for feasibility by the operating units.

12.186. None of the undertakings sets targets as part of a formal unit cost reduction programme aimed at reducing cost whilst maintaining the same level of service. Most of the cost reductions which have been secured in recent years, with the notable exception of those arising from the introduction of OMO, have resulted from reductions in the level of service.

12.187. We recognise that it may be helpful to produce a corporate plan over a time horizon of five years or more, setting out a capital programme and marketing strategy in response to forecast travel demand. However, it seems to us that an appropriate detailed planning horizon for the bus industry is three years. This time scale corresponds to the statutory provisions for three-year revenue support agreements, the lead time for bus procurement and allows sufficient time for a cycle of time table and schedule revisions. We, therefore, *recommend* that each undertaking should adapt its procedures to produce annually a three-year operational plan.

12.188. We are conscious of the difficulties which arise in the absence of three-year agreements with local authorities and the consequent uncertainties about the level of future revenue support. Nevertheless, the undertakings should, in co-operation with local authorities, be able to make progress towards introducing the procedure we recommend below.

12.189. The procedure for producing the operational plans should have the basic features set out below, but the degree of detail should be appropriate to the size of the undertaking and its management resource:

- (i) It should set specific three-year targets for service and costs, which should be consistent with a parallel three-year programme of feasible unit cost reduction. These should be set in consultation with the appropriate local authorities and should work towards a commitment to a provisional statement of the three-year revenue support programme.
- (ii) The plan should provide for a firm one year ahead budget, a provisional two-year ahead budget and a third year ahead budget in outline.
- (iii) It should include specific targets in physical and financial terms for managers in Administration and in Traffic and Engineering down to depot and garage level. The feasibility of the targets and the consequential resources required should be agreed with the appropriate manager.
- (iv) Each manager should produce an active plan setting out the tasks and resources needed to achieve his target.
- (v) The plan should be monitored annually against outturn and rolled on for one additional year. Managers should be subject to formal stewardship reviews.
- (vi) The future development of Management Information Systems should be compatible with the operational planning procedures:
 - (a) It should provide each manager with the information needed to produce his active plans and set targets.
 - (b) It should provide each manager with monthly reports with which to monitor his outturn against his particular plans.

12.190. WMPTE and NBC centrally have seen the need for a review of the Management Information Systems and have plans for producing a more integrated system which will improve the precision of the planning and financial information. CCT systems are relatively less refined and their development is dependent upon adequate resources being made available for systems analysis and programming from the appropriate City Council department.

12.191. Improvement of the management and operational control information in the engineering function is needed in all undertakings but particularly in CCT and WMPTE (see also paragraph 6.167). In the area of commercial planning there is scope for improved information systems relating the sensitivity of passenger reaction to fare and service level changes and the precision with which avoidable costs are known for service level changes.

12.192. The General Manager of CCT does not enjoy the same autonomy as the Director General of WMPTE or the General Managers of BOC and TMT. Many matters relating to the undertaking can only be decided after submission to one or more committees of the City Council with ensuing delays. The efficiency for CCT is consequently reduced and we *recommend* that the City Council should consider how these matters might be improved.

12.193. It is quite natural that WMCC councillors should take an interest in the operations of WMPTE and this can promote a healthy questioning of the services provided. However, if this interest is carried to the stage of intervention in day-to-day matters as the evidence presented to us shows, efficiency is adversely affected.

12.194. We regret that WMCC does not use its powers to set efficiency targets for WMPTE. However, we do not think that it would be an improvement for the PTE to become part of the county council.

12.195. The arrangements imposed by statute on a PTE and its county council do not make for easy relationships between those bodies. Nevertheless, key individuals in WMCC and WMPTE have succeeded in making the arrangements work satisfactorily.

Comparative performance of the undertakings

Introduction

13.1. The terms of reference ask the Commission to comment in particular upon:

- 'the relevance for the efficiency of each of the said bodies of its size';
- and
- 'whether any significant conclusions can be drawn from the differences between the efficiency and costs of each of the said bodies and each of the others'.

To obtain some understanding of these areas it would seem necessary to compare the relative efficiencies of the four undertakings. However, we recognise that this is a very difficult process and that the outcome requires careful and cautious interpretation.

13.2. The difficulties arise from two sources. First, there is no commonly used single aggregate measure of efficiency, and secondly, there are a number of factors, which are beyond the direct control of management, which significantly influence the measures of efficiency. We would strongly expect efficiency to be influenced by the following groups of factors:

- (a) the level of revenue achievable which depends upon the response of the passenger market to service and fares policy especially the constraints of external policies of local authorities and general rate and revenue support;
- (b) the socio-geographic environment in which the undertaking operates, including the travel demand pattern, geographically and temporally, and the road network, terrain and level of other road users;
- (c) the management efficiency with which the appropriate mix of resources is adopted and controlled.

Only factors in group (c) can be said to be totally within the control of managers, those within group (b) are almost certainly outside their control, whilst in group (a) there may be some scope for management influence.

13.3. During our investigations we asked each undertaking formally about the validity of comparisons. They told us that there was no satisfactory method currently available. They all agreed that to use 'cost/mile' as an indicator would be misleading for the reasons discussed above. WMPTE suggested that 'cost per hour' may be a better indicator, this is equivalent to adjusting total costs for differences in vehicle speed, and also suggested that 'passenger miles achieved' could be used for comparisons. TMT suggested that 'net revenue per mile' would be the best indicator.

13.4. We have selected two performance indicators which we believe measure social efficiency and commercial efficiency in terms of the conflicting objectives placed upon them by the present system of financial support for public

transport. We have set these measures in a logical framework which shows their relationship to those suggested by the undertakings, to the code of practice suggested by DoT and to a number of other partial measures used by the industry.

13.5. NBC on behalf of BOC and TMT has told us that it thinks the measures we have chosen are inappropriate. It has also told us that it believes the method of analysis we have used to investigate the likely magnitude of the influence of external factors on operations 'does not correspond in any way to the pattern of mainly radial services operated as urban, suburban, rural and inter-urban networks'. It has also told us that some of the data, which we believe is important in understanding these effects, are not used by their companies 'in the direct control or planning of bus services' and therefore the information supplied by BOC and TMT are estimates only.

13.6. Nevertheless we are required to make the comparisons. Because we found that the operators had no generally agreed methods of quantifying the influence of external factors on operational efficiency we had to develop our own methods of analysis and these are set out in the following sections.

13.7. In the rest of this section we discuss in turn:

- the framework of comparison;
- trends in performance indicators;
- the influence of socio-geographic factors on cost;
- the influence of market behaviour on policy effectiveness.

The framework of comparison

13.8. It seems to us that it would not be feasible to assess and compare directly the contribution of management efficiency to differences in the performance indicator in other than qualitative terms. We propose therefore to attempt to assess the probable contribution of the factors in group (a) passenger behaviour and in group (b) socio-geographic factors to the differences and then to discuss the significance of any residual difference. Significant residual differences may not be totally unambiguous, for they may result from the level of management efficiency or from an additional external factor or a combination of both.

Primary measures of efficiency

13.9. The notion of efficiency refers to the conversion of resources into useful output. The usual measure of efficiency is the ratio of the useful volume or value of the product produced to the volume or value of the associated resources consumed. The ratio is meaningful only in so far as the units chosen for the output and input are such that a change in the volume of input has a direct effect on the volume of output, and that the output is useful and related to the objectives of the system. In this respect the immediate difficulty is in defining a primary measure for the bus industry. This arises in part from the division of responsibility between the local authorities who are required to serve the transport needs of their area which includes a large

element of social objective and the undertakings who are required to break even on operations which relates clearly to a commercial objective. However, particularly in the case of BOC and TMT break-even may be considered more of a constraint that limits the achievement of other objectives. WMPTE with its close association with WMCC may be considered as having responsibility in both areas.

13.10. We shall consider two primary measures, the one concerned with social efficiency and the other with commercial efficiency. It is unlikely that the operating point for maximum efficiency in each case will be the same.

13.11. There are a number of ways of viewing the level of social output and perhaps the best single measure is 'passenger miles' although the pursuit of this measure by the undertakings would not be without regard to those without access to private transport and for route patterns serving hospitals etc. In terms of commercial output, the level of return on capital is probably inappropriate because of the relatively low capital requirements. A better measure, more in line with statutory objectives, is the level of net revenue. Taking these outputs together with total associated cost as a measure of resource input provides our two primary measures of performance:

$$(i) \text{ Level of social efficiency} = \frac{\text{Number of passenger miles}}{\text{Associated total cost}}$$

$$(ii) \text{ Level of commercial efficiency} = \frac{\text{Net revenue}}{\text{Associated total cost}}$$

13.12. Passenger miles as a statistic is tabulated only by WMPTE among the four undertakings but it can be represented as equivalent to—Passenger journeys \times Average journey length—so that passenger journeys can also be used in the primary measure as a substitute, provided that the average journey lengths are similar in the four undertakings. The estimates that we have suggest that they are within about 25 per cent across the four undertakings.

13.13. The definition of net revenue is made difficult because of the nature of revenue support which is treated rather differently in the NBC companies from WMPTE and CCT where the support is calculated on the basis of the deficit. We shall therefore split it into two components so that net revenue is—

$$\{[\text{Fare paying revenue—Cost}] + \text{Revenue Support}\}$$

and in the performance measures the first terms will indicate commercial viability and the second the network subsidy per mile.

Component measures

13.14. When considering differences in the measures, over time or between undertakings, it is helpful to represent them in terms of a series of component measures.

A: Secondary measures

13.15. By introducing vehicle miles as an intermediate output the primary measures can be expressed in terms of secondary measures:

$$\frac{\text{Passenger miles}}{\text{Total cost}} = \frac{\text{Passenger miles}}{\text{Vehicle miles}} \times \frac{\text{Vehicle miles}}{\text{Total cost}}$$
$$\frac{\text{Net revenue}}{\text{Total cost}} = \frac{\text{Net revenue}}{\text{Vehicle miles}} \times \frac{\text{Vehicle miles}}{\text{Total cost}}$$

13.16. The first term of the components, passenger miles/vehicle miles and net revenue/vehicle miles, will be strongly influenced by the market behaviour of the potential passengers, and also gives an indication of the matching of supply and demand. The second term, vehicle miles/total cost, is the commonly used measure equivalent to cost per mile and will be strongly influenced by the socio-geographic factors. The secondary factors therefore provide some degree of separation of the main external factors.

B. Tertiary measures

13.17. By introducing vehicle number and employee number as intermediate inputs the secondary measures can be expressed in terms of resource utilisation:

$$\frac{\text{Vehicle miles}}{\text{Total cost}} =$$
$$\frac{\text{Vehicle miles}}{\text{Vehicle no}} \times \frac{\text{Vehicle no}}{\text{Employee no}} \times \frac{\text{Employee no}}{\text{Employee cost}} \times \frac{\text{Employee cost}}{\text{Total cost}}$$

13.18. The first term is the vehicle utilisation which is influenced by socio-geographic factors and also by bus scheduling efficiency. The second term concerns manpower utilisation and depends on crew, maintenance and administrative efficiency. The third and fourth terms will be greatly influenced by the socio-geographic environment.

13.19. The rest of this chapter sets out the trends and relative values of the various measures described above, and attempts to assess how they may be influenced by factors outside the control of management.

Trends in the efficiency measures

13.20. In the framework discussed above we have set out a number of measures to indicate the level of efficiency in a number of areas. Recently the Secretary of State issued a Code of Practice calling for operators to publish a set of performance indicators. Some of these are identical to those set out above and others are equivalent variations.

13.21. Tables 13.1, 13.2, 13.3 and 13.4 set out the trend for the performance indicators for the four undertakings together with those required for the Code of Practice. In the table some of the measures have been inverted to give unit cost measures which are more familiar.

TABLE 13.1 Trends in performance indicators for WMPTE

		1976- 77	1977- 78	1978- 79	1979- 80	1980- 81
<i>Primary measures</i>						
Total cost/pass miles	p					7.6
Total cost/pass journeys	p	17.5	17.8	18.8	19.8	21.1
Net pass rev/total cost*		-0.184	-0.064	-0.043	-0.095	-0.096
Rev supt/total cost*		0.285	0.188	0.156	0.148	0.147
<i>Secondary measures</i>						
Pass miles/veh miles						18.8
Pass journeys/veh miles		7.58	7.30	7.10	7.20	6.81
Net pass rev/veh miles	£	-0.244	-0.083	-0.057	-0.135	-0.138
Rev supt/veh miles	£	0.378	0.245	0.208	0.212	0.212
Total cost/veh miles†	£	1.33	1.30	1.33	1.43	1.44
<i>Tertiary measures</i>						
Vehicle miles/vehicles†		28.78	28.43	28.12	29.27	28.79
Employees/vehicles		3.40	3.36	3.32	3.38	3.23
Employees/employee cost (emp/£'000)		0.117	0.119	0.116	0.110	0.108
Emp cost/total cost		0.762	0.767	0.765	0.739	0.722
<i>Other measures</i>						
Pass miles/vehicles	'000s	578	569	546	572	553
Pass miles/employees	'000s	174	170	160	165	163
Pass journey/vehicles†	'000s	218.3	207.4	199.8	210.7	196.2
Pass journey/employees†	'000s	64.28	61.82	60.15	62.25	60.67
Net pass rev/vehicles	£'000s	-7.04	-2.36	-1.61	-3.94	-3.97
Rev supt/vehicles	£'000s	10.88	6.95	5.86	6.19	6.10
Net pass rev/employees	£'000s	-2.07	-0.71	-0.49	-1.17	-1.23
Rev supt/employees	£'000s	3.20	2.07	1.76	1.83	1.88
Vehicle miles/employees†	'000s	8.48	8.47	8.46	8.65	8.90
Lost miles %†		2.0	2.3	2.4	3.8	1.9
Ave fare/pass journey†	p	14.27	16.64	17.96	17.92	19.09

Source: MMC study.

Passenger revenue includes concessionary fare grant.

All prices at 1981 level.

* Measure similar to that of code of practice.

† Required for code of practice.

Notes:

1. No. of buses has been taken as No. owned on 31 October each year.
2. No. of employees has been taken as the actual No. of full-time employees in post on 31 December each year.

TABLE 13.2 Trends in performance indicators for CCT

	1976- 77	1977- 78	1978- 79	1979- 80	1980- 81
<i>Primary measures</i>					
Total cost/pass miles					10.7‡
Total cost/pass journeys	p				25.8
Net pass rev/total cost*					-0.0315
Rev supt/total cost*					0.102
<i>Secondary measures</i>					
Pass miles/veh miles					16.3
Pass journeys/veh miles					5.65
Net pass rev/veh miles	£				-0.031
Rev supt/veh miles	£				148.5
Total cost/veh miles†	£				1.46
<i>Tertiary measures</i>					
Vehicle miles/vehicles†					29.2
Employees/vehicles					3.59
Employees/employee cost (emp/£'000)					0.118
Emp cost/total cost					0.716
<i>Other measures</i>					
Pass miles/vehicles	'000s				375
Pass miles/employees	'000s				110.4
Pass journeys/vehicles†	'000s	188.9	172.4	163.4	163.1
Pass journeys/employees†	'000s	41.88	45.39	48.54	47.20
Net pass rev/vehicles	£'000s	-2.37	-0.18	-0.03	-2.26
Rev supt/vehicles	£'000s	11.53	9.52	8.13	10.91
Net pass rev/employees	£'000s	-0.524	-0.048	-0.008	-0.655
Rev supt/employees	£'000s	1.218	0.896	0.857	1.663
Vehicle miles/employees†	'000s	7.12	7.64	8.05	7.91
Lost miles %†		4.40	4.21	9.73	9.72
Ave fares/pass journey†	p	22.39	22.86	22.87	22.83
					24.95

Source: MMC study.

Passenger revenue includes concessionary fare grant.

All prices at 1981 level.

* Measure similar to that of code of practice.

† Required for code of practice.

‡ The passenger mile estimate for CCT is subject to a very large margin of error.

Notes:

1. No. of buses has been taken as No. owned on 31 March each year.

2. No. of employed has been taken as the actual No. of full-time employed in post on 31 December each year.

TABLE 13.3 Trends in performance indicators for BOC

	1977	1978	1979	1980	1981	
<i>Primary measures</i>						
Total cost/pass miles	p			18.8		
Total cost/pass journeys	p	33.1	32.8	33.5	38.6	39.3
Net pass rev/total cost*		-0.037	+0.013	-0.065	-0.135	-0.154
Rev supt/total cost*		0.064	0.056	0.083	0.061	0.077
<i>Secondary measures</i>						
Pass miles/Veh miles				-5.5		
Pass journeys/veh miles		2.71	2.78	2.94	2.68	2.67
Net pass rev/veh miles	£	-0.033	-0.011	-0.064	-0.140	-0.160
Rev supt/veh miles	£	0.057	0.051	0.082	0.063	0.080
Total cost/veh miles†	£	0.90	0.91	0.99	1.04	1.04
<i>Tertiary measures</i>						
Vehicle miles/vehicles†		34.32	34.83	33.43	33.41	31.90
Employees/vehicles		3.81	3.75	3.71	3.56	3.31
Employees/employee cost (emp/£'000s)		0.170	0.164	0.159	0.148	0.143
Emp cost/total cost		0.728	0.720	0.707	0.710	0.697
<i>Other measures</i>						
Pass miles/vehicles	'000s			173		
Pass miles/employees	'000s			50.6		
Pass journeys/vehicles†	'000s	93.02	96.7	98.2	84.1	
Pass journeys/employees†	'000s	24.40	25.81	26.45	24.65	25.41
Net pass rev/vehicles	£'000s	-1.13	+0.40	-2.143	-4.39	-5.10
Rev supt/vehicles	£'000s	1.96	1.78	2.73	1.99	2.26
Net pass rev/employees	£'000s	-0.30	+0.11	-0.58	-1.29	-1.54
Rev supt/employees	£'000s	0.51	0.48	0.73	0.58	0.77
Vehicle miles/employees	'000s	9.00	9.30	9.00	9.20	9.64
Lost miles %†		0.30	1.19	2.64	2.36	1.92
Ave fare/pass journey†	p	31.87	33.18	31.36	33.42	33.33

Source: MMC study.

Passenger revenue includes concessionary fare grant.

All prices at 1981 level.

* Measure similar to that of code of practice.

† Required for code of practice.

Notes:

1. No. of buses has been taken as No. owned on 31 March each year.

2. No. of employees has been taken as the actual No. of full-time employees in post on 31 December each year.

TABLE 13.4 Trends in performance indicators for TMT

	1977	1978	1979	1980	1981	
<i>Primary measures</i>						
Total cost/pass miles	p				13.5	
Total cost/pass journeys	p	30.3	30.2	31.8	36.	39.35
Net pass rev/total cost*		-0.058	-0.014	-0.045	-0.037	-0.000
Rev Supt/total cost*		0.074	0.079	0.072	0.058	0.068
<i>Secondary measures</i>						
Pass miles/veh miles						6.43
Pass journeys/veh miles		2.72	2.77	2.76	2.53	2.22
Net pass rev/veh miles	£	-0.048	-0.012	-0.040	-0.034	-0.000
Rev supt/veh miles	£	0.062	0.066	0.063	0.054	0.060
Total cost/veh miles†	£	0.83	0.84	0.88	0.92	0.87
<i>Tertiary measures</i>						
Vehicle miles/vehicles†		42.73	45.64	44.36	48.99	46.12
Employees/vehicles		3.970	4.034	4.067	4.353	3.792
Employees/employee cost (emp/£'000s)		0.153	0.148	0.149	0.140	0.144
Emp cost/total cost		0.733	0.712	0.703	0.689	0.654
<i>Other measures</i>						
Pass miles/vehicles	'000s					296.5
Pass miles/employees	'000s					78.18
Pass journeys/vehicles†	'000s	116.3	126.7	122.3	124.0	102.4
Pass journeys/employees†	'000s	29.29	31.42	30.13	28.48	27.01
Net pass rev/vehicles	£'000s	-2.034	-0.544	-1.764	-1.658	0.014
Rev supt/vehicles	£'000s	2.617	3.020	2.790	2.635	2.753
Net pass rev/employees	£'000s	-0.512	-0.135	-0.434	-0.381	-0.013
Rev supt/employees	£'000s	0.659	0.749	0.686	0.605	0.726
Vehicle miles/employees	'000s	10.76	11.33	10.91	11.25	12.16
Lost miles %†		1.80	1.18	2.75	0.39	0.34
Ave fare/journey†	p	28.58	29.84	30.37	35.01	39.33

Source: MMC study.

Passenger revenue includes concessionary fare grnat.

All prices at 1981 level.

* Measure similar to that of code of practice.

† Required for code of practice.

Notes:

1. No. of buses has been taken as No. owned on 31 March each year.
2. No. of employed has been taken as the actual No. of full-time employees in post on 31 December each year.

13.22. The procedure for accounting for capital charges and depreciation varies between the undertakings. To provide a greater degree of comparability the costs used in the tables are total costs, less depreciation, less interest, less leasing charges. Also for reasons of comparability we have used operated miles rather than scheduled miles and revenue obtained in the course of carrying passengers rather than total revenue minus revenue support. The decision, whether or not to include the income from LA concessionary fares payments in passenger revenue, depends on whether any additional revenue could be obtained from users of the concessions if the LA support were withdrawn. For the purpose of this chapter we have included it in passenger revenue because it is probable that at least some additional revenue could be obtained direct from the current users of the concessions.

13.23. To include the concessionary fare payments as part of the fare paying revenue provides an optimistic or upper limit to the commercial performance indicator, to exclude it provides a pessimistic or lower limit. In the event of the concessions being withdrawn the actual performance would lie between

the two. For the purpose of our comparisons we shall consider the upper limit in detail. WMPTE has told us that the amount of concessionary fare payment it receives is based on an estimate of the revenue loss from that proportion of users who would be expected to have paid full fare in the absence of a concession. The lower limit may therefore be over pessimistic for WMPTE.

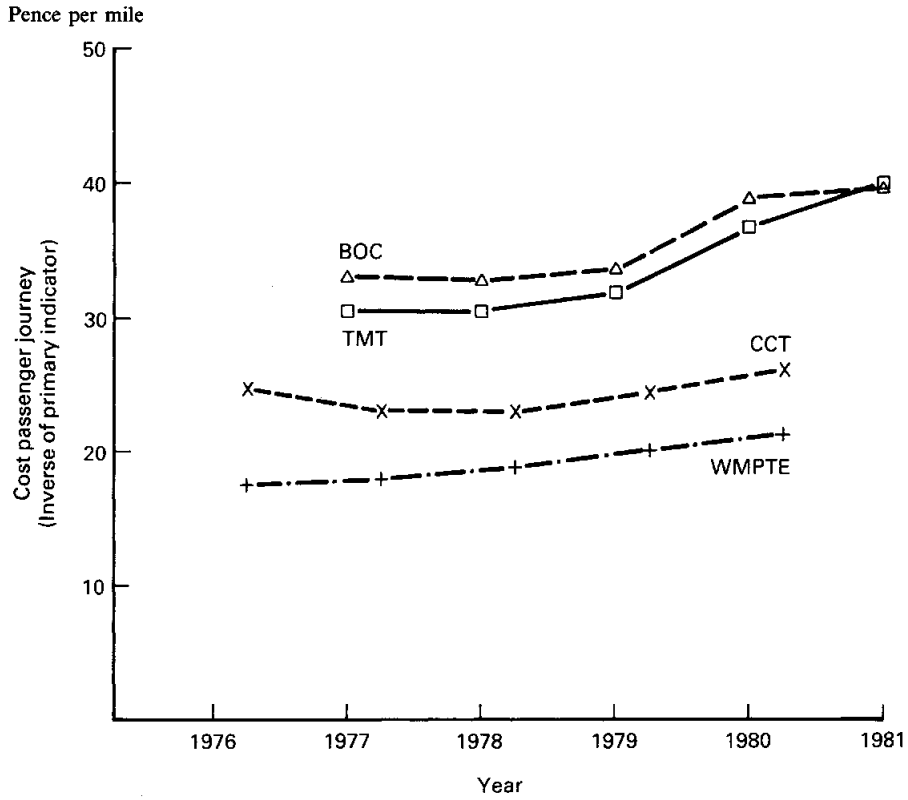
13.24. Table 13.5 sets out the values of the primary performance indicators and the relationship with the value of the component ratios. The greater the value of the primary indicator the better the performance. The greater the value of a component ratio the greater the contribution to total performance. However, it is noticeable that the highest ranking components do not appear consistently in the highest ranking primary indicators. For example; in 1980-81 WMPTE had the best performance for the primary social efficiency indicator, but in terms of the components only performed best with respect to passenger miles/vehicle miles, vehicles/employee and employee cost/total cost in the same period. TMT had the best value of vehicle miles/vehicle, BOC the best value of cost per employee.

13.25. Figure 13.1 shows the trend in the primary social performance indicator and Figure 13.2 the trend in the primary commercial performance indicator in terms of the optimistic value including concessionary fares payment. To indicate the sensitivity of the commercial performance to the level of concessionary payment we set out the performance trend excluding this element in Figure 13.3.

13.26. The social performance indicator seems to be a fairly stable indicator, and the use of passenger journeys as a substitute for passenger miles gives the same ranking order. WMPTE performs best of the four whilst BOC performs least well but all show a worsening trend in social performance. The secondary measures show that the urban operators tend to have high levels of passenger loadings per mile operated, but high running costs per mile, whilst the inter-urban operators have low running costs and low average passenger loadings.

13.27. The commercial performance indicator appears to be less stable. The variability from year to year prevents great confidence in a rank order and it may be that the pursuit of a break-even position imposes a cyclic pattern on this measure. Currently TMT and CCT perform better than BOC and WMPTE if one includes the concessionary payments; TMT is very close to break-even. However, CCT and WMPTE are more sensitive to these concessions than BOC or TMT. The relatively good performance of CCT depends upon the assumption that if the concession payments were withdrawn then CCT would retrieve a large proportion of revenue directly from the users of the concessions. In the case of WMPTE if the concessionary payments were to be withdrawn and revenue could not be retrieved from the users then they would appear to have the worst commercial performance of the four. However, this may be too pessimistic (see paragraph 13.23). The position of TMT as the best commercial performer would not be altered if one excluded the concessionary payment from the definition of passenger revenue.

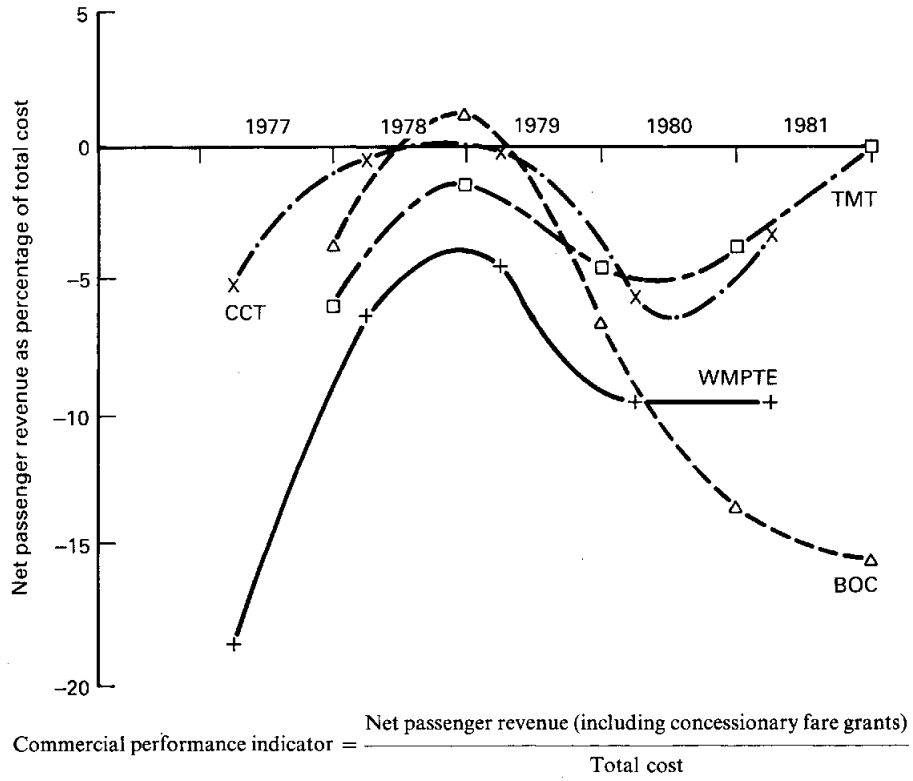
FIGURE 13.1 Trend in social performance



Source: MMC study.

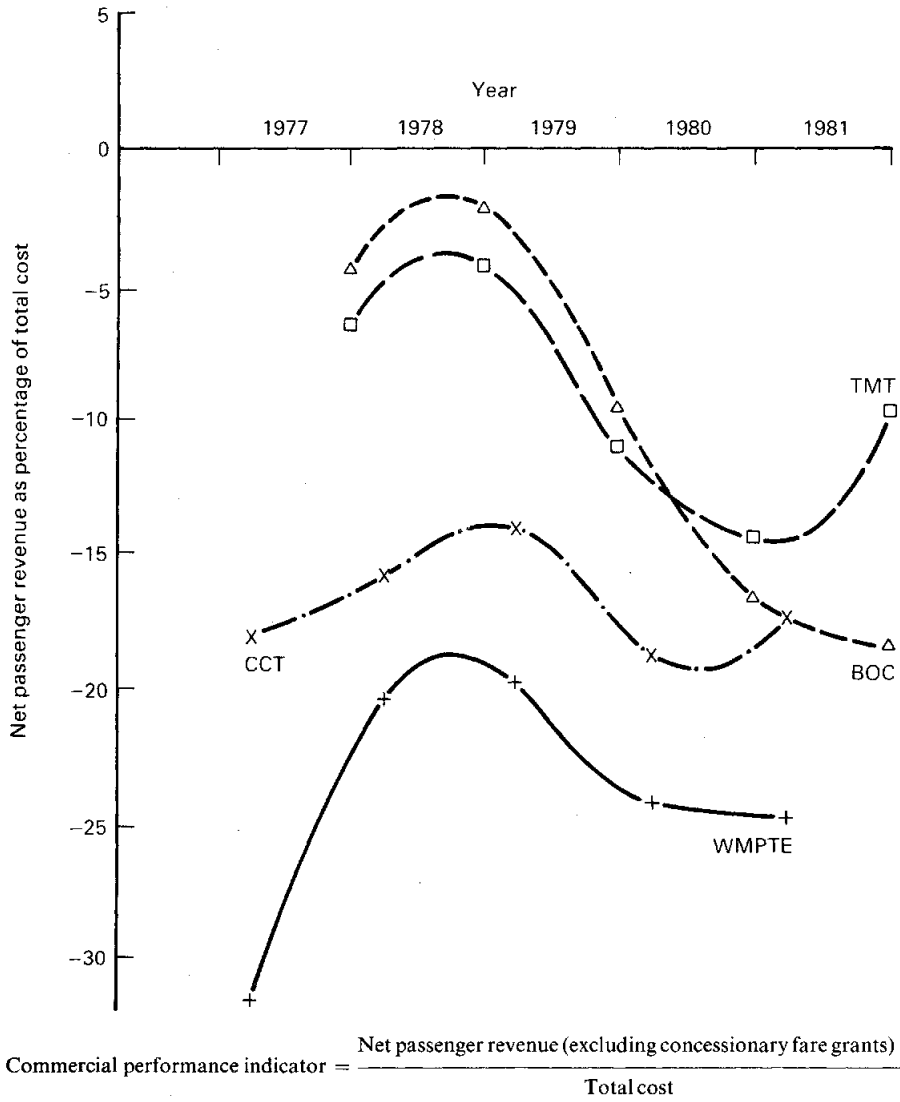
Note: This has been set out in terms of the inverse of the efficiency measure defined earlier to present it in the more familiar unit cost terms.

FIGURE 13.2 Trend in commercial performance, including concessionary fare grants.



Source: MMC study.

FIGURE 13.3 Trend in commercial performance, excluding concessionary fare grants.



Source: MMC study.

WMPTE

13.28. The adverse trend in the social performance results from a steady decrease in the number of passengers carried for each mile operated over the whole period. WMPTE has told us that there was a temporary improvement in 1981-82. Despite this, net passenger revenue per mile improved until 1979 and then worsened. This has been reinforced by an upturn in costs per mile over the last three years.

13.29. From the tertiary measures we can see that vehicle utilisation has tended to improve slightly over the period 1977-79 with manpower utilisation improving slightly in the last year. However, the employment cost has been rising steadily but other costs have not fallen relatively to compensate.

CCT

13.30. The adverse trend in social performance in the case of CCT has not extended over the whole period. There was some improvement in the first three years, since when there has been a reduction in the number of passengers carried per mile. However, net revenue per mile improved in the years 1977-78 and 1978-79. Costs per mile have been variable over the period but achieved a minimum in 1979-80 which contributed to the peak in net passenger revenue.

13.31. The tertiary measures show a complex variation, with vehicle utilisation improving in the middle years but worsening in the last year, manpower utilisation improving in the early period and then remaining steady. CCT manpower costs have been rising over the period but other costs have not been falling relatively to compensate.

BOC

13.32. The adverse trend in social performance in BOC has resulted less from loss of passengers per mile operated and more from a steady increase in costs per mile. Indeed, the passenger loadings were improving in the early years. However, net passenger revenue per mile has been falling at a greater rate than passenger numbers.

13.33. The tertiary measures show that vehicle utilisation in BOC is substantially higher than for WMPTE or CCT and has been declining over the last three years. There has been a steady improvement in manpower utilisation but an increase in manpower costs which is rather more than that for WMPTE and CCT. BOC had a comparatively high level of OMO at the beginning of the period so improvement from this source would probably be small. The increased manpower costs have not been compensated by reduced costs elsewhere.

TMT

13.34. The adverse trend in TMT social performance indicator results mainly from a substantial drop in passengers carried per mile operated in the later period before which the loadings appeared to be stable. This may be partly due to the effect of increased linking of services which may result

in some journeys being currently counted as one but previously counted as two. Net revenue per mile operated is currently the highest of the four and improving steadily against the trend of passenger loss. Costs per mile operated in TMT worsened slightly in the early part of the period but in 1981 a real reduction in unit costs was achieved over the 1980 value.

13.35. The tertiary measures show that vehicle utilisation is highest of the four undertakings and generally improving. Manpower utilisation improved significantly in 1981 and manpower costs are increasing. However, in the period 1980 to 1981 there was compensating relative reduction in other costs. The relatively good performance in cost per mile results from an increasingly high level of vehicle utilisation and since 1980 an increasing level of manpower utilisation.

The Influence of Socio-Economic Factors on Cost

13.36. However, comparing these indicators at their face value may not be entirely valid because of the influence of external factors. A better comparison could be made by estimating the best possible value in the specific circumstances of each undertaking and comparing the degree of achievement. An equivalent procedure is to adjust the values of the indicator to simulate the values they would have under common circumstances. The following sections discuss the probable level of adjustments that should be made.

13.37. The two efficiency measures outlined in the framework both have the ratio, vehicle miles/cost as a component measure. The cost element will certainly be related to the level of service provided in terms of frequency and accessibility. It will also be affected by a number of external factors:

- road speed: because many costs are incurred on a time basis;
- the peak to off-peak ratio and the balance of passenger flow: because these factors influence the level of PVR;
- the average passenger trip length in terms of time: because this will set the occupancy rate and hence required capacity;
- population density and level of car ownership: because these parameters determine the level of demand.

13.38. We have constructed a simple simulation model to indicate the nature of the relationship between cost and the parameters discussed above. The model is based on a simple uniform grid network, from which the number of bus hours, bus miles and a number of buses can be determined to provide a given level of frequency and accessibility.

13.39. The cost of running the system can then be estimated from the following relationship:

$$\begin{aligned} \text{Total cost} &= \text{bus hours} \times \text{unit cost component per bus hour} \\ &+ \text{bus miles} \times \text{unit cost component per bus mile} \\ &+ \text{PVR} \quad \times \text{unit cost component per bus per year} \end{aligned}$$

The definition of the three unit cost components are set out in Table 13.6 and can be estimated from the CIPFA cost allocation procedure. Table 13.7 sets out the values of these unit costs for the four undertakings. The mathematical formulation of the model is given in Appendix 13.1.

13.40. The breakdown of costs in Table 13.7 demonstrates a reasonable degree of uniformity in the unit costs. Some variation is introduced as the result of accounting differences. In particular, CCT has no depreciation or interest charges on capital, so the semi-variable and fixed cost components allocated by PVR are shown with and without the financial and leasing charges. There also appears to be a difference in accounting with respect to fixed costs allocated by time.

TABLE 13.6 Cost categories and allocation with CIPFA convention

Allocation parameter	Categories of cost relating to time of response to a change of service level		
	Variable costs	Semi-variable costs	Fixed costs
Time			
Drivers' hours	Crew costs PSV servicing	Traffic supervision staff Traffic expenses PSV maintenance RTITB	Administration Welfare
Distance			
Miles operated	Fuel Tyres PSV hire Insurance claims		
Peak no of vehicles		Publicity PSV licences PSV insurance PSV leasing PSV depreciation	Buildings Cars, vans, etc Communications Interest

Notes:

- (1) The unit costs are obtained by summing the variable, semi-variable and fixed costs, for each allocation parameter and then dividing the total obtained by the annual value of the same parameter.
- (2) The CIPFA code allocates by drivers' hours but this can be converted to bus hours by dividing by the observed scheduling efficiency.

TABLE 13.7 A comparison of unit costs under CIPFA convention

Allocation parameter		Cost category				Total unit cost		
		Unit variable cost	Unit semi-variable cost	Unit fixed cost				
Time	WMPTE	4.21	3.17	1.57		8.95		
Cost in £ per driver hr	CCT	4.64	2.58	1.69		8.91		
	BOC	5.23	3.36	0.76		9.35		
	TMT	5.51	2.77	0.98		9.26		
Distance	WMPTE	0.11				0.11		
Cost in £ per vehicle mile	CCT	0.135				0.135		
	BOC	0.097				0.097		
	TMT	0.106				0.106		
PVR Cost in £ per peak vehicle per year	WMPTE		649	4,102	4,266	4,669	4,915	8,771
	CCT		566	689	3,454	3,454	4,020	4,143
	BOC		506	2,808	3,678	5,418	4,184	8,226
	TMT		521	3,742	4,991	5,828	5,512	9,570

Source: MMC study.

13.41. The most significant determinant of cost is the number of hours of bus time involved and for a given mileage this is inversely proportional to the average speed. The simulation model for a simple grid network set out in Appendix 13.1 gives some indication of how cost per mile may vary with speed, population density, peak to off-peak ratio, unidirectional flow and frequency. These variations are shown in Figures 3, 4, 5, 6 and 7 of the appendix. Table 13.8 lists the values of a number of socio-geographic factors for each of the undertakings.

TABLE 13.8 Average socio-geographic operating environment for each undertaking

Parameter	WMPTE	CCT	BOC	TMT
<i>Geographical factors</i>				
Population: millions	2.86	0.27	1.770	1.123
Area: miles	355	46.3	2,136	1,062
Average speed: mph	10.31	10.7	13.7	16.8
<i>Passenger travel pattern</i>				
Peak to off-peak passenger flow rate: ratio	1.8:1	2.04:1	1.54:1	1.33:1
Flow of passengers in max direction to minimum: ratio	3.5:1	1.5:1	2.0:1	2.0:1*
Average trip length: miles	2.9	2.4	2.3	3.0
Duration of peak: hrs	3.5	3.75	3.5	3.5
Ratio of non-car owners to car owners	2.46:1*	2.7:1*	2.06:1*	2.96:1*
<i>Service level</i>				
Length of service day: hrs	19.5	18.6	18.0	11.3
Average frequency: bus/hr	4.2*	3.3*	1.29*	1.27*
Average accessibility: miles	0.29	0.33*	1.3*	0.65*
Average vehicle capacity	66	65	56	61

Source: MMC study.

Notes:

- (1) Figures indicated by * have been estimated by MMC.
- (2) The length of service day is taken in to include 95 per cent of services.
- (3) Average frequency was estimated from the annual frequency, the length of the service day and assuming 365 operational days in the year.
- (4) Average speed has been calculated as bus miles/bus hours.

13.42. Table 13.9 sets out the composition of the cost/mile value in terms of the component of cost due to mileage, the component of cost due to time and the component of cost due to peak vehicle requirement for the year 1981-82 in current prices. We have used the concepts of the model to indicate how the cost components might change if all the undertakings operated under the same conditions as WMPTE with respect to the following geographic and passenger factors:

- same average speed;
- same peak to off-peak ratio;
- same balance of passenger flow;
- same average trip length.

13.43. The model assumes that changes in the number of passengers carried on buses at peak times will directly affect the number of buses required at the peak. The costs in the model depend on this assumption and are therefore sensitive to variations in the estimate of the size and direction of peak flow.

The model may tend to over-estimate the increase in the frequency of service required in the peak in absolute terms. We have therefore used the model to compare only relative cost changes between the undertakings by adjusting the actual observed unit costs for each undertaking relative to the difference between their actual environment and the standard. The adjusted components are shown in Table 13.10 in the columns headed 'condition a'. We are interested only in whether adjusting for these factors reduces the variation in cost per mile between undertakings. Because of the uncertainty of the data and the nature of the model no significance should be given to the order of ranking in Table 13.10.

TABLE 13.9 The components of total cost/mile for the year ending 31 December 1981 for the four undertakings (excluding financing costs etc)

	<i>Components of total cost/mile</i>			
	<i>Cost due to mileage £/mile</i>	<i>Cost due to time £/mile</i>	<i>Cost due to PVR £/mile</i>	<i>Total cost/mile £/mile</i>
WMPTE	0.110	1.145	0.129	1.384
CCT	0.135	1.045	0.096	1.276
BOC	0.097	0.838	0.098	1.033
TMT	0.106	0.673	0.095	0.874

Source: MMC study.

Note:

The data for this table were prepared by a special exercise of the undertakings and because of rounding and averaging the total costs are slightly different from those quoted earlier in the chapter.

TABLE 13.10 The components of total cost/mile for the four undertakings adjusted to illustrate the probable value if each undertaking worked in the same socio-geographic environment as WMPTE

	<i>Adjusted components of total cost/mile</i>					
	<i>Adjusted cost due to mileage £/mile</i>	<i>Adjusted cost due to time £/mile</i>	<i>Adjusted cost due to PVR £/mile</i>		<i>Adjusted total cost/mile £/mile</i>	
			<i>condition a</i>	<i>condition b</i>	<i>condition a</i>	<i>condition b</i>
WMPTE	0.110	1.145	0.129	0.129	1.384	1.384
CCT	0.135	1.084	0.143	0.142	1.362	1.361
BOC	0.097	1.113	0.182	0.219	1.392	1.429
TMT	0.106	1.097	0.193	0.142	1.396	1.345

Source: MMC study.

13.44. Cost changes occur in the time component when adjusting for differences in average speed because for the same number of miles operated, the time spent and hence the driver wage cost etc, depend on the speed. Cost changes occur to the PVR component when adjusting for differences in the other factors because they change the peak passenger flow that must be catered for.

13.45. The speed adjustment has the effect of substantially increasing the unit cost of the time component in BOC and TMT and the other factors produce substantial increases in the unit cost of the PVR component in CCT, BOC and TMT.

13.46. In principle it is possible to adjust for differences in population density and level of service. These will influence simultaneously the PVR and the number of miles operated. The combined effect may produce unit cost changes in the PVR component in either direction depending upon which effect dominates. We have used the model to adjust also for variations in the following factors:

- population;
- length of service day;
- frequency;
- accessibility;

to estimate the cost/mile if all undertakings had the same value as WMPTE for their factors. The results are shown in Table 13.10 in the columns headed 'condition b'. The results should be regarded with some caution because of the uncertainty in the elasticity to changes in frequency and accessibility.

13.47. It must be recognised that the model is very simple and the parameters used have been averaged over the whole activities of each undertaking. In some cases they could be estimated only subjectively and subject to a wide range of error which may differ between the undertakings, and may in some cases include the difference between undertakings. Also the CIPFA system is based on an attribution of costs which necessarily involves some arbitrary allocations which may not quite match the implied demand relationships.

13.48. Nevertheless, when allowance has been made for these considerations, the analyses based on the figures supplied to us by the undertakings do suggest that a large part of the difference between undertakings in terms of cost per mile is due to the difference in the impact of external factors. This is consistent with the emphasis which all the undertakings placed in the evidence to us on the importance of these external factors.

The influence of changes in the national economy

13.49. The unit cost of resources change over time depending to some extent on the changes in the economy nationally. Also the relative cost between resources may change. Managements react to these changes by cost reduction programmes and by changing the resource mix by substituting less expensive or more productive resources.

13.50. We have investigated how the undertakings have reacted to trends in the external economy, that is to trends in the unit cost of resources, and to what extent they have been able to absorb the changes in real costs of inputs.

13.51. We have tried to simulate what would have happened to their unit cost, in terms of cost/mile, with a 'hands-off' policy since 1974, ie had they taken no action to offset cost increases but had accepted the unit cost trends

which prevailed in the economy as a whole. The assumptions of a 'hands-off' policy were:

- no change in operating procedures;
- no change in labour productivity;
- no change in fuel efficiency;
- no change in quality of service;
- that cost component trends followed those in the economy as a whole.

13.52. We considered the following components of cost in terms of resource inputs, labour, materials, fuel, tyres and all other costs excluding financing charges such as interest and depreciation. Figure 13.4 shows the national trends for these components relative to RPI, indexed to 100 in 1974. For the purpose of simulating the expected unit costs under the 'hands-off' policy the following indexes of national trends were used:

- Earnings —Average annual earnings for whole economy, all employees.
- Materials —Average annual price of materials purchased by manufacturing industry.
- Tyres —National index of the price of rubber tyres and tubes.
- Fuel —National index of the price of deriv.
- Other costs —Assumed to follow RPI.

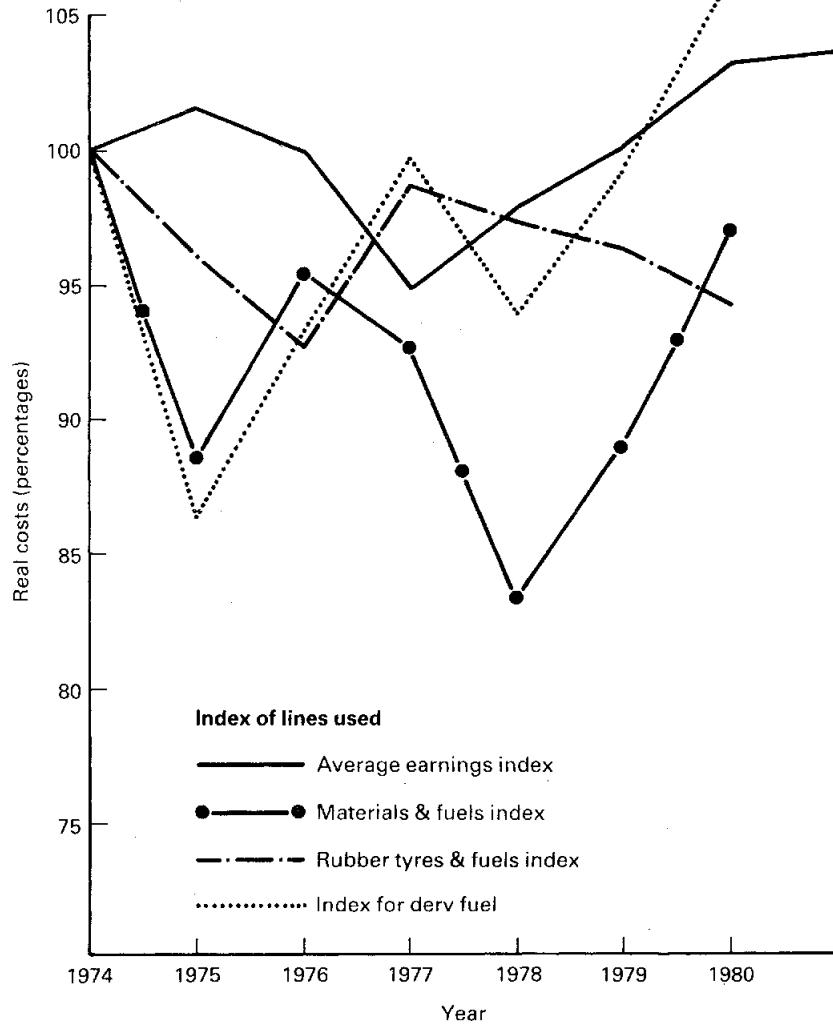
13.53. The expected cost trends have been estimated by taking the cost structure of each undertaking in 1974-75 and projecting each component into subsequent years assuming the trends in Figure 13.4. It is then possible to compare the expected with actual unit cost in total and the proportion of the difference accounted for by each component.

13.54. The choice of base year is important because any atypical behaviour of the cost structure will be carried through to other years when calculating the expected unit cost. When considering four undertakings it is difficult to select a base year which is neutral in this respect for all of them. We have selected 1974 to provide a sufficiently long time span over which trends may be evident. In the case of BOC and TMT we understand that in 1974 their wage awards were somewhat below the rest of the industry, and in 1975 were somewhat higher. This should be borne in mind when considering the analysis.

13.55. Figure 13.5 shows the expected and actual unit costs for each undertaking in terms of absolute cost/mile. Figures 13.6-13.9 show the actual and expected trends for each undertaking indexed to 100 in 1974 together with the proportion of the difference accounted for by each component also indexed to 100 in 1974.

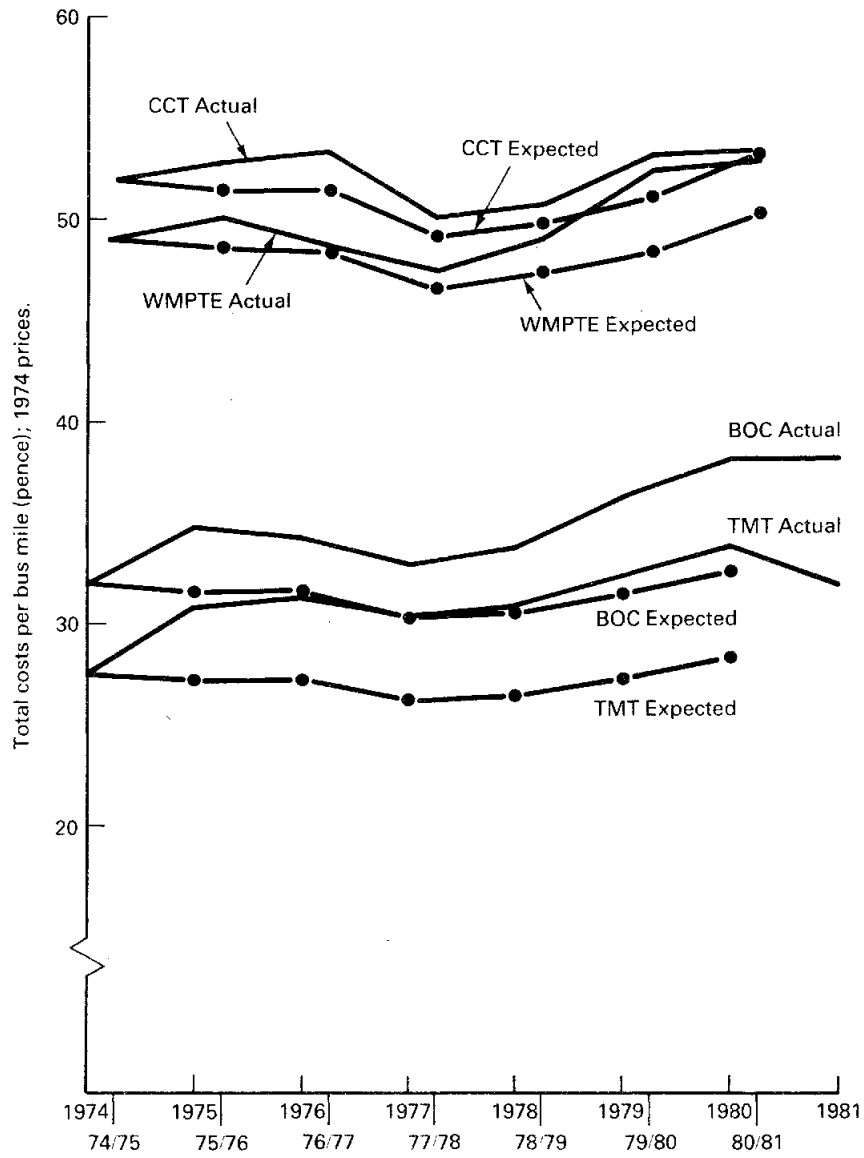
13.56. The analysis suggests that none of the undertakings has been able to hold unit cost increases in line with the real changes in individual cost of resources experienced in the national economy as a whole over the years 1974-81. The main areas of divergence have been in labour costs and materials presumably associated with the increasing complexity of the maintenance task.

FIGURE 13.4 National trends in the input cost elements of operational expenditure, 1974-1980
(base 1974=100%, deflated by RPI)



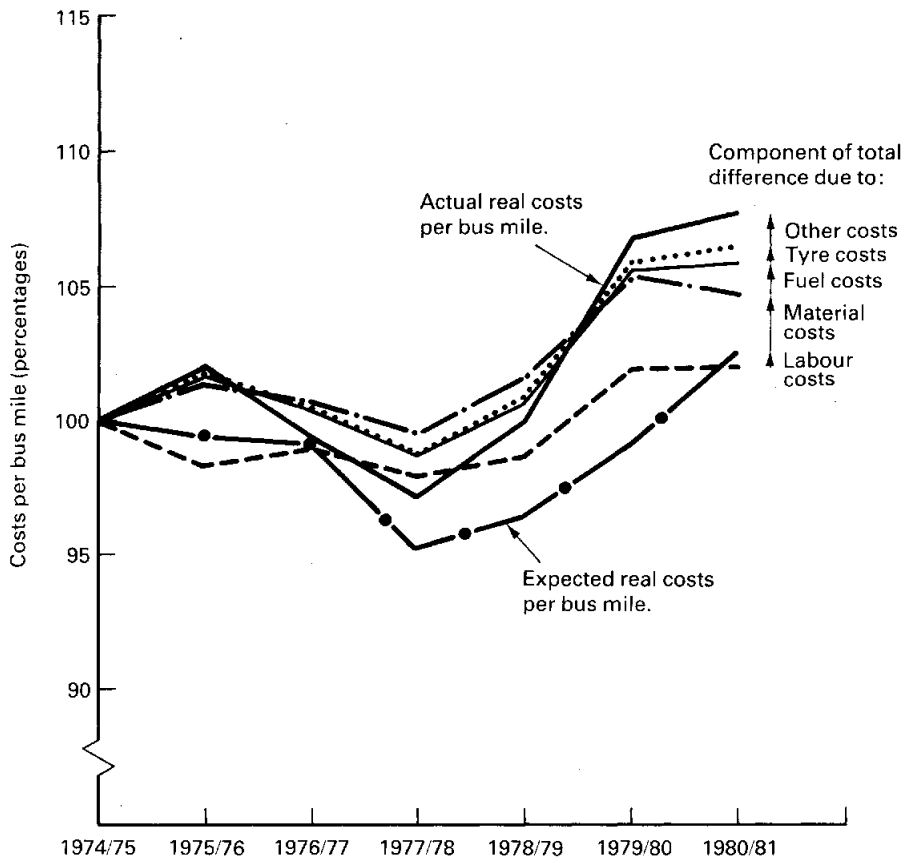
Sources: Monthly Digest of statistics.
DoE Gazette.
Annual abstracts of statistics.
Digest of UK energy statistics 1981.

FIGURE 13.5 The four bus undertakings: Comparison in real terms of trends for actual end expected costs per Bus Mile, 1974-1981, at 1974 prices



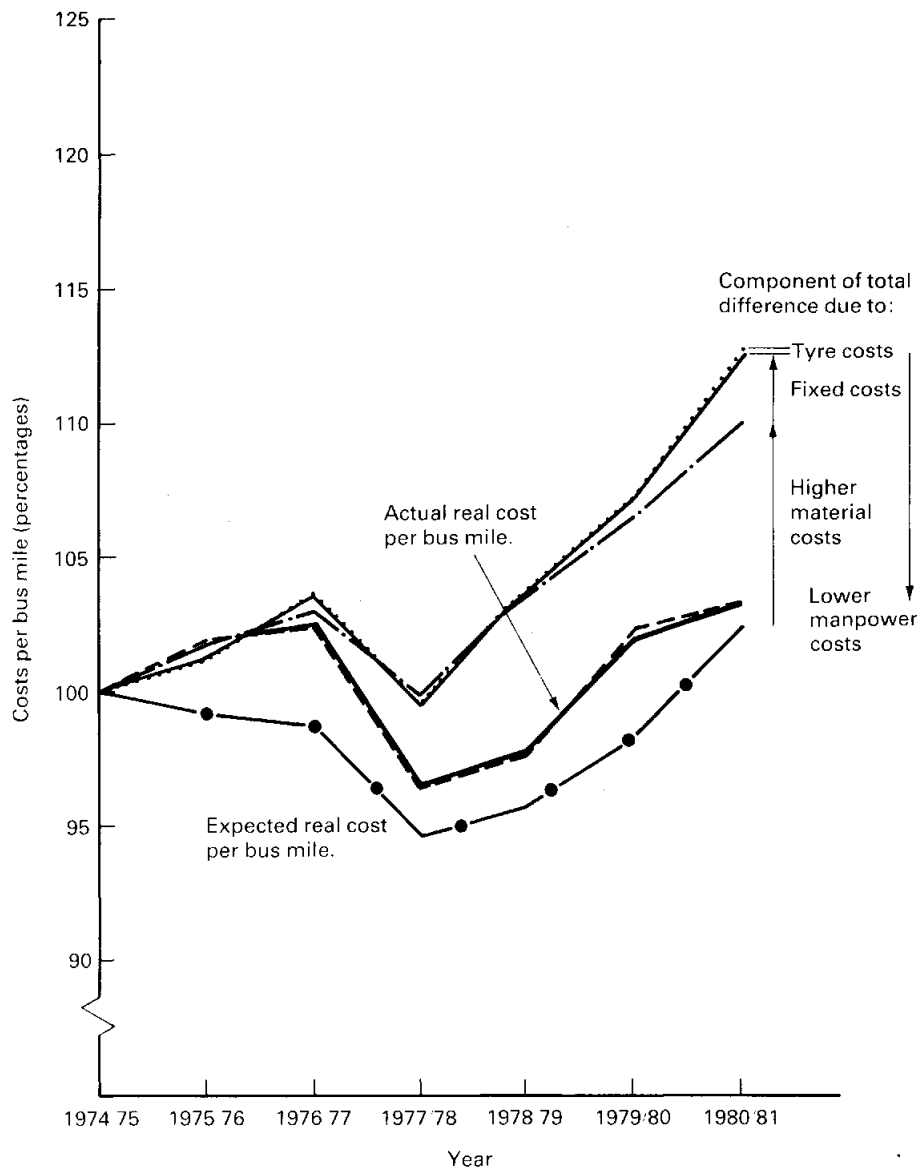
Source: MMC study.

FIGURE 13.6 West Midlands PTE: Comparison in real terms of trends for actual and expected costs per mile operated, showing the proportion of difference attributable to the component resource costs. All costs deflated by RPI.



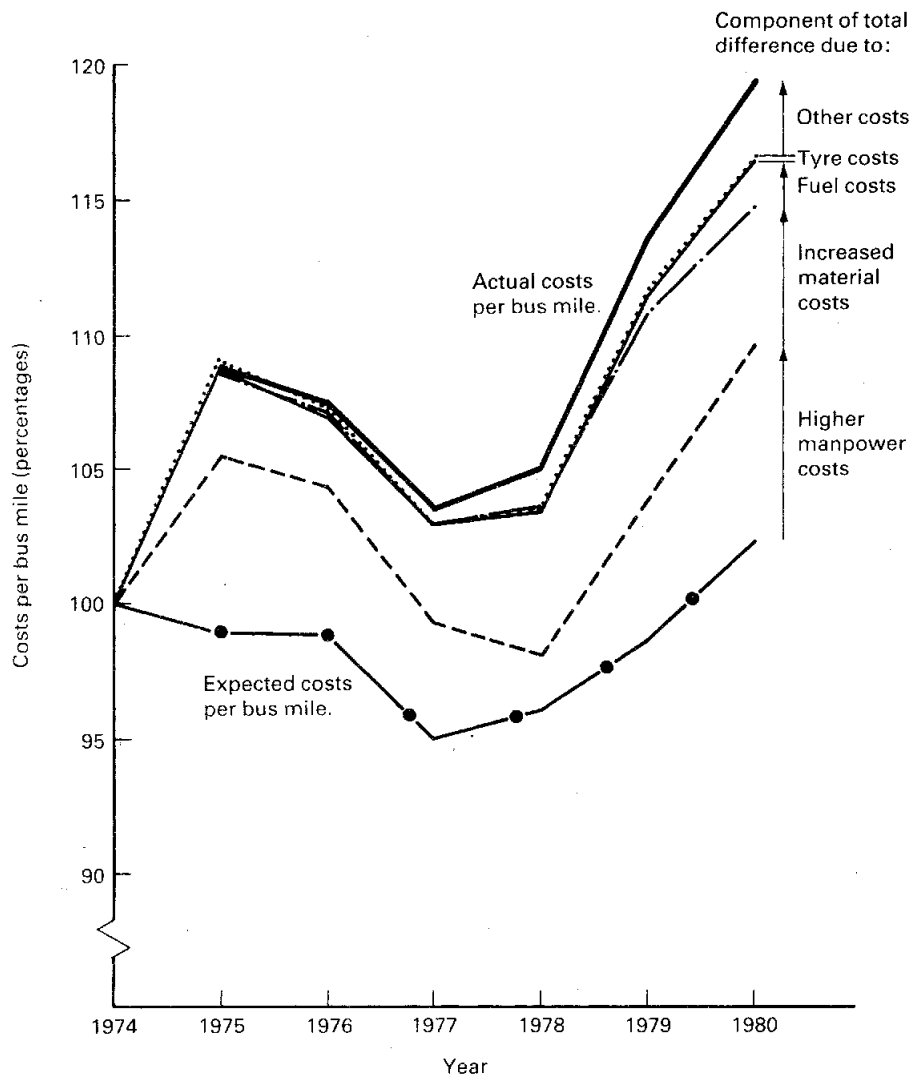
Source: MMC study.

FIGURE 13.7 City of Cardiff Transport: Comparison in real terms for actual and expected costs per mile operated, showing the proportion of difference attributable to the component resource costs. All costs deflated by RPI



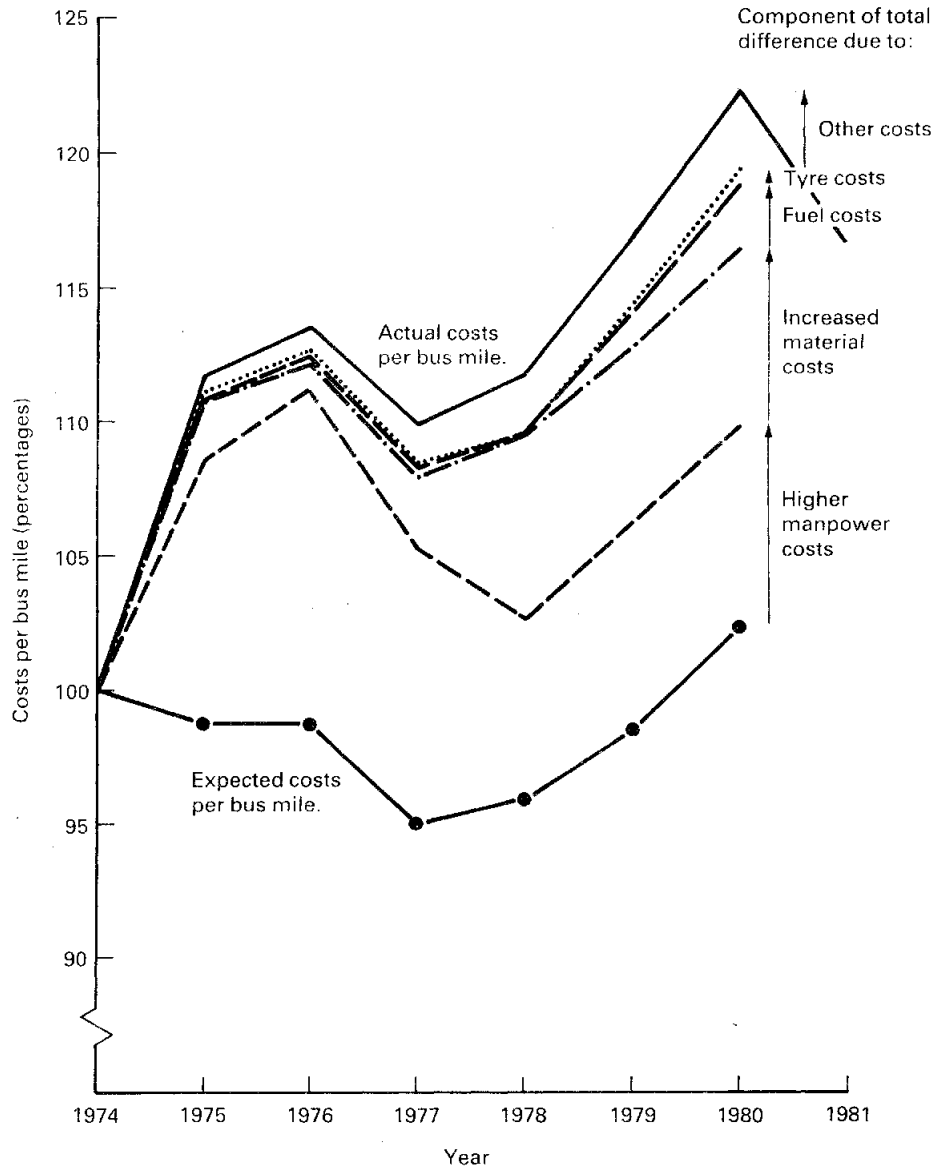
Source: MMC study.

FIGURE 13.8 BOC: Comparison in real terms of trends for actual and expected costs per mile operated, showing the proportion of difference attributable to the component resource cost. All costs deflated by RPI



Source: MMC study.

FIGURE 13.9 TMT Co Ltd: Comparison in real terms of trends for actual and expected costs per mile operated, showing the proportion of difference attributable to the component resource costs. All costs deflated by RPI



Source: MMC study.

WMPTE

13.57. Over the last seven years the cost per mile for WMPTE has increased by some 5 per cent in real terms above that expected from the change in resource costs. Most of this increase resulted from increase in material costs. In the early period there appears to have been a decline in labour cost compared with the economy as a whole. This advantage was lost in the middle period but appears to have been regained currently.

CCT

13.58. The actual costs per mile for CCT have been kept within about 2.5 per cent of those expected from changes in resource cost. This has occurred despite significant increases in material costs and has been achieved by increased labour utilisation. Over the year 1980-81 CCT appears to have achieved a reduction in unit costs to the point where they are almost equivalent to those in 1974.

BOC

13.59. Over the period analysed the cost per mile of BOC has increased by about 15 per cent more than one would have expected from the real change in resource cost in the national economy. However, taking the more recent years a more stable relationship is indicated. The overall trend is a result of increased material costs and manpower cost increases mostly incurred in 1974-75 with some smaller increases between 1978 and 1980. There is some evidence that control has now been regained. The rise in total unit cost now appears to have levelled out.

TMT

13.60. TMT appears to have performed least well of the four over the period with unit costs some 20 per cent above that expected from changes of resource costs. This mostly resulted from substantial increases in manpower costs relative to the rest of the economy of about 12 per cent between 1974 and 1976 referred to in paragraph 13.54. In more recent years manpower productivity has steadily improved. In common with all the other undertakings TMT has suffered continuing real term increases in material costs. However, recalling the good steady performance of TMT in terms of the commercial efficiency indicator (see Figures 13.2 and 13.3) it should be noted that TMT has performed well in absolute total cost terms.

The influence of size on unit cost

13.61. It may be expected that some economy of scale would be derived from geographical size or from mileage run or from size of fleet. The economies would be expected from network planning in that the larger the enterprise the relatively less would be the distorting effects of boundaries. In respect of maintenance and procurement of materials economies may well be expected as the size of fleet increases.

13.62. Table 13.11 sets out the cost per mile of the undertakings against geographic size, mileage, fleet size, together with maintenance costs per bus

against fleet size for the year equivalent to 1980–81. The table also shows the 1980–81 cost per mile adjusted to the WMPTE socio-geographic conditions.

13.63. With only four examples it is not possible to draw reliable conclusions. Table 13.11, however, suggests that there is no strong relationship between unit costs and any of the measures of size. This conclusion is reinforced to some extent by the simple grid network simulation which suggests that population density rather than geographic size is the dominant factor.

TABLE 13.11 The influence of size on unit cost in 1980–81 units

	Unit costs measures			Measures of size		
	Total cost/mile in £		Maintenance	Area sq miles	Vehicle miles operated	Size of fleet
	Actual	Adjusted for socio-geography	Cost/ bus in £/year			
TMT	0.92	1.42	1,176	1,062	18.2m	384*
BOC	1.04	1.44	1,010	2,136	33.1m	989
CCT	1.46	1.56	1,087	46	6.23m	213
WMPTE	1.44	1.44	1,335	355	72.6m	2,478

Source: MMC study.

* Includes 29 vehicles awaiting disposal.

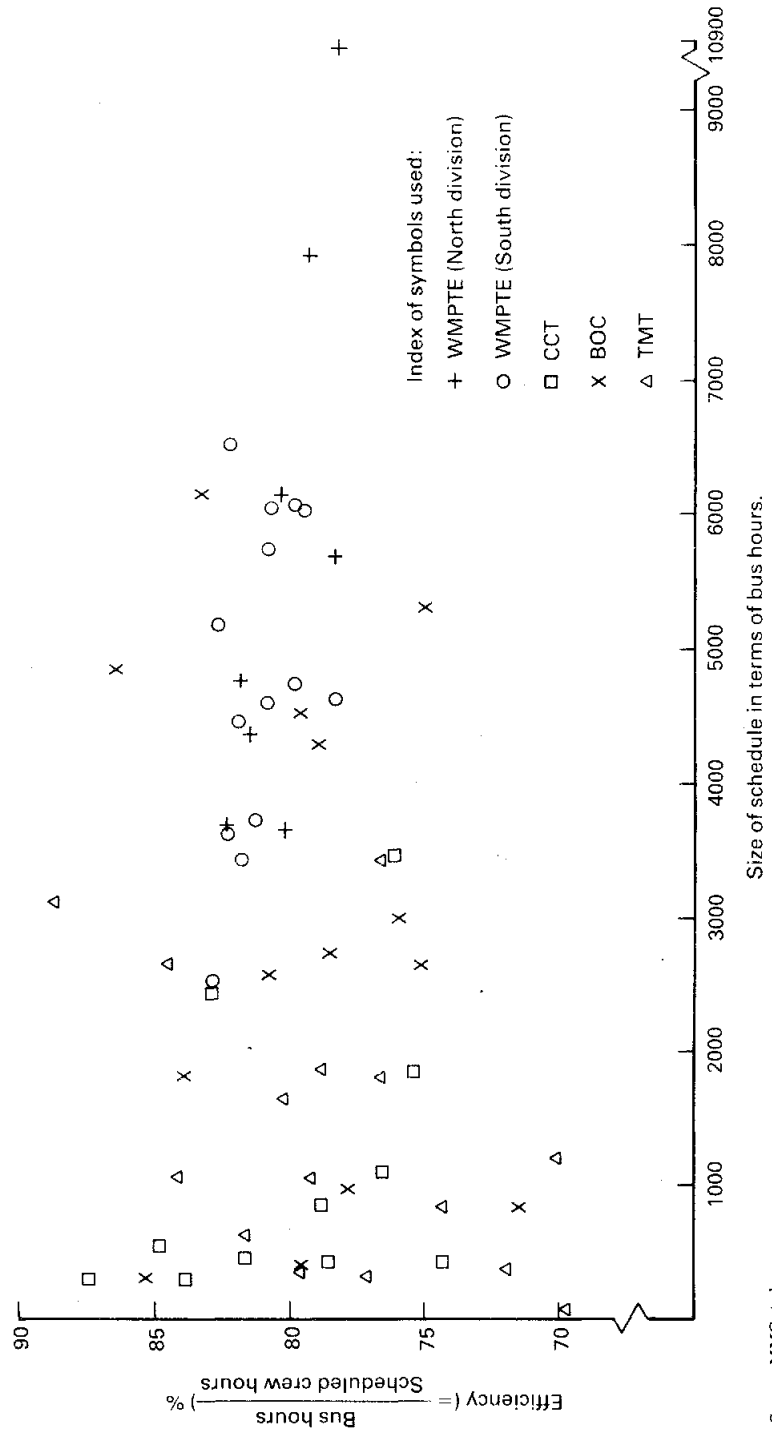
13.64. A further area in which economies of scale might be expected is in the size of depot, or the number of rota lines on a schedule. It might be thought that the scheduler would have greater flexibility in scheduling large rather than small schedules; thus the scheduling efficiency of crew allocation may be expected to increase with the number of rota lines. Figure 13.10 shows the relationship between the scheduling efficiency achieved and the size of the schedules taken over all four organisations. Since we are only here interested in trends it was necessary to adjust for the average level of efficiency between undertakings and divisions because the average level may be set by a number of other factors such as the skill of the scheduler and the industrial relations scheduling constraints.

13.65. The results do not suggest that there is any strong relationship between scheduling efficiency and size of schedule. In any event the variation introduced by other factors is overwhelming.

The influence of market behaviour on policy effectiveness

13.66. In the two efficiency measures outlined in paragraph 13.11 one contains the ratio, passenger journeys/vehicle miles, and the other contains the ratio, net passenger revenue/vehicle miles. The values of these ratios will depend on the influence of population density and car ownership and also on the reaction of potential passengers to the level of service and fare structure. Management action to improve the commercial measure—for example increasing fares or reducing service levels—will have an adverse effect on the other measure, since passengers may decide not to take the bus, or if they do, reduce their journey length to minimise the increased fare which they paid.

FIGURE 13.10 Relation between schedule efficiency and schedule size



Source: MMC study.

The influence of population density and car ownership

13.67. It is a reasonable proposition that for the same network miles and, if there is spare capacity, for the same bus miles, passenger revenue and passenger numbers will increase with population density and decrease with a higher proportion of car ownership. Table 13.12 sets out the relative population density and level of car ownership for the four areas.

TABLE 13.12 Comparisons of population density, car ownership and estimated averaged local factors for the undertakings

	Density of population in people/sq mile	Car ownership		Density of non-car owning population in people/sq mile	Estimate of current load factor on buses
		Car ownership per 1000 population			
WMPTE	8,069	264.2		5,738	0.27
CCT	5,908	245.8		4,456	0.17
BOC	829	310.7		571	0.08
TMT	1,057	236.1		808	0.10

Source: MMC study.

Note: Average load factor was estimated as $\frac{\text{pass miles}}{\text{veh. miles}} \times \frac{1}{\text{ave. bus capacity}}$

13.68. The non-car owning population density of WMPTE and CCT is considerably higher on average than for BOC or TMT and this is reflected in the high level of the secondary performance measures passenger miles/vehicle miles and passenger journeys/vehicle miles. It should be possible to adjust the measures for the difference in population density and to simulate the value they would be expected to have if all operated with the same value as WMPTE.

13.69. This is not a simple calculation, for unless there is sufficient spare capacity there would also be an increase in operating mileage. The effect of population on operating cost per mile, which results from changes in PVR, has been discussed earlier.

13.70. An indication of the order of magnitude influence of population size can be obtained by adjusting the actual value in proportion to density, provided that the implied average load factors do not exceed say 30 per cent at which point extra mileage would be incurred through increased frequency.

13.71. Table 13.13 sets out the 1980-81 value for passenger journeys per vehicle mile, and the estimated value for the undertakings if they operated in the same population size as WMPTE.

TABLE 13.13 Estimated level of social performance indicator for each undertaking operating in a non-car owning population density similar to WMPTE

	Passenger journeys vehicle mile		Estimate of implied load factor with change of service level
	Actual value in 1980-81	Estimated value adjusted for population difference	
WMPTE	6.81	6.81	0.27
CCT	5.68	7.31	0.22
BOC	2.68	26.9	0.80
TMT	2.53	17.9	0.71

Source: MMC study.

13.72. The procedure for normalising the commercial performance is more difficult since it involves adjusting the revenue and cost/vehicle mile simultaneously and has not been attempted.

13.73. It would appear that all undertakings could achieve levels of performance comparable to WMPTE in terms of passenger journeys/mile given the denser population in which to operate. In CCT this could possibly be done without adjusting mileage, whereas in TMT and BOC the implied load factors are far too high and additional mileage would be scheduled.

The influence of market behaviour

13.74. In attempting to compare the four undertakings it is important to know whether the effects of the same policy carried out in each undertaking could be expected to achieve the same success. If there are differences between undertakings in the relative effect on revenue and patronage for changes in fares or service levels this will be reflected in the relative difficulty with which they can raise the performance level of one indicator without adversely affecting the other.

13.75. To help in assessing the passenger sensitivity to policy we have attempted to construct a financial model of each undertaking within the context of a common structure reflecting passenger behaviour. We were assisted in this endeavour by the four undertakings in the form of a steering group with representatives of each undertaking and the Commission staff. The steering group advised on the most significant factors likely to influence passenger behaviour and supplied data relating each of these factors to revenue and passenger numbers for the past five to seven years. Regression analysis was carried out to estimate the co-efficient of sensitivity of revenue and passenger journeys to each of the factors for each undertaking. We were interested in establishing whether these co-efficients differed between undertakings.

13.76. It has been suggested within the industry that the average passenger behaviour would not vary very much from area to area. However, our analysis suggests that the responsiveness of revenue and passenger demand to changes in fares, scheduled mileage and service reliability may differ appreciably between the four undertakings. We acknowledge, however, that because of the quality of the data available, statistical levels of confidence were not reached.

13.77. The ability to estimate the likely effects of policy changes is very important to the commercial planning of future operations within the undertakings. No precise method is yet available to any of the undertakings. We have made the detailed results of our analysis available to them as we consider it important that they are better informed about the effects of policy changes. We hope that in future such effects will be carefully monitored.

Conclusions

Comparative performance of the undertakings

13.78. In this chapter we have tried to compare the performance of the undertakings in total one with another by using aggregate measures. In other parts of the report we have made comparisons of activities such as engineering and traffic operations which represent only part of the business activities. A more complete understanding will be obtained by considering the following conclusions together with those of previous chapters concerned with particular activities.

13.79. We have not felt it possible to define a single measure of performance by which to compare the undertakings. At least two aggregate measures are necessary, one for social performance and one for commercial performance. There is a wide variation in the level of these indicators between undertakings and over time in the case of the commercial performance.

13.80. Management action to improve one measure is almost certain to affect the other adversely. Currently WMPTE performs best from the social standpoint as measured by the ratio of passenger miles or passenger journeys to total cost, and CCT and TMT perform best from the commercial standpoint as measured by the ratio of net passenger revenue to total cost.

13.81. It is possible to represent the performance measures in terms of a number of component measures. The best overall performer does not necessarily perform best in all components. The elements which show most variation are the number of passengers who board per vehicle mile and the vehicle utilisation.

13.82. Whilst the performance of an undertaking clearly depends on efficient management, our analysis, based on data supplied by the undertakings, confirms that the level of performance which can be achieved by management is also to a considerable extent influenced by external factors such as density of population and traffic congestion.

13.83. We have not been able to demonstrate any strong influence of size of the whole undertaking on unit costs nor of size of depot on scheduling efficiency.

13.84. In the areas of fares and service levels there is some indication that the same policies implemented in different undertakings would achieve different levels of success because of variations in market behaviour.

13.85. Tabulations of costs in the form of unit costs derived from the CIPFA allocation convention (see Table 13.7) may provide possible means of direct comparisons between undertakings which may be relatively insensitive to the socio-geographic operating environment. We recommend that all bus undertakings should prepare annually this tabulation of unit costs in a common form and under common definition of cost categories to be prescribed by the Department of Transport and submitted to the Department for dissemination within the industry. We believe that exploration of the reasons for

differences in the unit cost categories will not only help the comparison between undertakings but may also be used within an undertaking to monitor trends over time.

13.86. In view of the large influence of external factors on the absolute level of performance we believe that the most helpful current method of comparison is by means of the trend in improvement over time. In terms of trends all undertakings show a worsening of social performance of about the same magnitude since 1979. Only in WMPTE was that trend evident before that time. In terms of the trend of commercial performance BOC and to a lesser extent WMPTE appear to be in decline whilst CCT and TMT are improving. TMT in particular has had a good level of performance since 1977.

13.87. We have investigated the abilities of the undertakings to absorb the trend in external increase in the unit cost of resources. CCT has consistently had the best performance since 1974-75 followed by WMPTE. With respect to the two NBC companies TMT appears to have regained control of unit costs since 1977 but this has yet to occur in BOC.

13.88. We believe that the development of models such as that described in Chapter 13 would be valuable in helping to assess the likely effects of proposed policy changes. We therefore recommend that the undertakings consider how they might build on the experience referred to in paragraphs 13.75-13.77.

CHAPTER 14

Conclusions

14.1 Our terms of reference require us to report whether Bristol Omnibus Company Limited, Cheltenham District Traction Company, City of Cardiff District Council, Trent Motor Traction Company Limited and West Midlands Passenger Transport Executive could in supplying stage carriage services, without significantly affecting the level of services provided, improve their efficiency and thereby reduce their costs. We have to consider this question with particular reference to the flexibility of working practices and the efficiency with which manpower and vehicles are used; procedures for maintenance of vehicles; methods for determining the nature, amount and timing of capital expenditure and the effect on costs; the way in which efficiency is affected by local authority policy and the way such policy is communicated to and within and implemented by the undertakings; the relevance for the efficiency of the undertakings of their size; and in the case of BOC and TMT, the relevance for their efficiency of their being subsidiaries of the National Bus Company. As explained in paragraph 1.5 the Cheltenham company is effectively part of BOC. We therefore make no separate reference to the Cheltenham company in this chapter.

14.2. We are also required to report whether any significant conclusions can be drawn from the differences between the efficiency and costs of each of the undertakings and those of the others; whether any of the undertakings is abusing any monopoly situation, with particular reference to the way it responds to competition and uses public funds; and whether, in relation to any matter falling within the terms of reference, any of the undertakings is pursuing a course of conduct which operates against the public interest.

14.3. We are conscious that we have looked at four only out of many bus undertakings in England and Wales. It follows that we are unable to make general recommendations applicable to the whole industry but we feel that we have been able to identify a number of common problems. As explained in Chapter 8, the demand for stage carriage services has for a number of reasons been falling since the 1950s and is expected to continue to fall. Most services are unprofitable. Some make heavy losses but it is not possible to abandon them on a wide scale except at considerable social cost. Financing unprofitable services is difficult and expensive and likely to become more so as demand declines, particularly in rural areas. When looking at the performance of the undertakings it is necessary to bear in mind that they are all performing under these constraints.

14.4. We have found it a very complex matter to judge the degree of efficiency and economy with which each of the undertakings has been carrying on its business and to compare one with another. There are many different measures of efficiency and there is no single agreed measure of performance

for purposes of overall comparison. As indicated in Chapter 13, there is inevitable conflict between the objectives of social performance and commercial performance. The difficulty is increased because some of the undertakings do not assemble the material needed for applying certain criteria. For example, only WMPTE of the four undertakings estimates passenger miles and calculates cost per passenger mile.

14.5. Furthermore, the undertakings are very different. WMPTE, unlike the others, has a duty to secure or promote the provision of a properly integrated and efficient system of public passenger transport to meet the needs of its area. From time to time, it is necessary on grounds of overall efficiency for the Executive to subordinate the efficiency of the bus service to that of the rail business; one example is the provision of unprofitable rail feeder services. It is perhaps more important that WMPTE operates in the difficult environment of a large conurbation, with high wear and tear on its buses but with the benefit of relatively high load factors. CCT is a department of a district council and draws on the council's common services. Relatively small and compact, it is in terms of resources about one-tenth of the size of WMPTE. It has one garage and one workshop and neither needs nor could sustain the range of sophisticated controls necessary in larger undertakings. BOC and TMT are subsidiaries of NBC and benefit substantially from group services. BOC's resources are about one-third of WMPTE's. It provides services over a wide area but draws 60 per cent of its revenue from urban operations. TMT also has a wide geographical spread of services but only around half BOC's resources; the main element in its services is inter-urban.

14.6. Finally, efficiency is affected by the policies of the local authorities involved with each of the undertakings. We comment on this aspect in paragraphs 14.9 to 14.11 below.

14.7. Manpower represents a high proportion of the undertakings' total costs. All the undertakings have achieved a considerable measure of success in controlling the level of manpower and have generally coped well with change, particularly in the case of platform staff who in recent years have had to face both a contraction in services and the conversion of nearly all services to one-man operation (OMO). We have expressed reservations about the extent of financial savings from OMO but its smooth implementation and acceptance by the workforces reflect much credit on management, union representatives and employees in all four undertakings.

14.8. Nevertheless, we have identified two areas in which further substantial savings should be made. These are vehicle maintenance in WMPTE and CCT and non-manual staff in WMPTE.

14.9. We have already mentioned that local authority policy has affected the efficiency of the undertakings. First, there is the general effect of changes in political control and secondly, particular effects related to the different relationships of the undertakings with local authorities. There is no doubt of the difficulties which can be caused to the undertakings by radical changes

of policy following change of political control of local authorities, although sometimes a change may be seen by an undertaking to be beneficial. These difficulties are inevitable so long as transport policy continues to be the subject of strong political disagreement.

14.10. As to particular effects on efficiency, we note that WMPTE occupies an ambivalent position in relation to West Midlands County Council. In its capacity as the public transport authority, the county has wide powers to direct and supervise the Executive but the latter nevertheless has in practice a good deal of freedom in the day-to-day management of the business. The county feels that efficiency would be improved if the PTE were simply absorbed into its own organisation. The Executive feels that it would benefit from less intervention by the county. With the existing statutory background, there is always the possibility of friction between a PTE and its county council. We believe, however, that on the whole the system has worked reasonably well in the West Midlands, thanks to the good sense of key individuals on both sides.

14.11. The policies of non-metropolitan counties affect mainly BOC and TMT. These counties have extensive responsibilities in the field of public transport and the extent of the companies' network very much depends on the financial support the counties provide. We noted that their resources and expertise in matters of public transport varied markedly from county to county but saw no evidence that they have been unreasonably inquisitive or interfering. In fact, as indicated in our recommendations, we should like to see the existing relationship between the counties and the undertakings supplemented by more formal arrangements, particularly in the direction of three year agreements which we believe would have a stabilising effect on the provision of public transport. The agreements should be coupled with the setting and monitoring of performance targets for the undertakings which would need to reflect and support the Secretary of State's target for NBC as a whole. Subject to an adequate level of performance by the undertakings, it is important that the counties should meet the whole loss (after any cross subsidy) on uneconomic services which they wish to retain on social grounds, if a reasonable standard of public transport is to be maintained in the long term. The companies should be less ready than they have sometimes been to supply such services without adequate reimbursement.

14.12. Our final major concern is the apparent conflict in the public interest between the existing institutional and financial framework for the provision of stage carriage services and the liberalisation of stage carriage licensing brought about by the Transport Act 1980. It is too early to judge the operation of the 1980 Act but, as explained in some detail in Chapter 11, experience so far in the areas of the four undertakings suggests that there are considerable difficulties in its implementation. We return to this matter in our discussion of the public interest.

14.13. Our detailed conclusions and recommendations are summarised below.

Summary of conclusions and recommendations

Financial framework	<i>Recommendation Number</i>	<i>Paragraph Number</i>
		2.143
	1.	2.144
	2.	2.145
	3.	2.146
	4.	
	5.	
	6.	2.147
	7.	2.147

<i>Recommendation Number</i>		<i>Paragraph Number</i>
8.	<p>The costs of making up and paying out cash wages each week, together with the attendant costs of security, are a significant expense. CCT has made good progress in converting its salaries and wages payments to non-cash methods, with nearly 60 per cent of payments made either by cheque or credit transfer. We recommend that the other three undertakings should aim to make similar progress in this direction.</p>	2.148
	<p>Appendix 2.1 describes the cash collection and control procedures used by each undertaking for cash collected on the bus. These systems give rise to some loss of individual driver accountability for the cash that he has collected, and we note that no system has been devised which combines the merits of a secure cash vault with those of individual driver accountability for cash collected.</p>	2.149
9.	<p>WMPTE and CCT have both made significant efforts to collect more of their revenue off the bus, to the extent that this now provides over 50 per cent and 40 per cent respectively of their total traffic receipts. This not only improves the security of traffic receipts but, also of importance, helps to reduce fare collection delays at bus stops. For these reasons we consider it important that all the undertakings should endeavour to increase the proportion of traffic revenue collected off the bus (see conclusion at 8.157 below).</p>	2.150
	<p>In the cases of WMPTE and CCT, where the auditors accept that they have a duty to examine the economy, effectiveness and efficiency with which the undertakings conduct their business, we welcome the assurances given to us that value-for-money work receives the maximum attention possible within the resources that can properly be made available for the audit.</p>	2.151
10.	<p>Because the statutory auditors of the two NBC companies, which are companies incorporated under the Companies Acts, have no duty to involve themselves in value-for-money investigations except to the extent that these affect their statutory responsibilities, we recommend that NBC include 'value-for-money' investigations within the terms of reference of their group internal auditors.</p>	2.152
	<p>We have also considered the question of the value-for-money of the management accounting systems. In the case of CCT and the two NBC companies we consider that these operate</p>	

*Recommendation
Number*

*Paragraph
Number*

11. economically. These operators rely for management accounting information primarily on information that would in any event be produced in the ordinary course of business. WMPTE, however, has established a considerably more complex and elaborate system with provision for a large number of cost centres. This may be justified by its large size compared with the other three undertakings but **we recommend it should ensure that its management accounting and costing systems are not further refined at a cost exceeding the additional benefits to be obtained.**

2.153

It will be apparent from the data given in Chapter 2 that, depending on the assumptions made as to the basis of evaluating and comparing costs, the ranking of the four undertakings in terms of their unit costs of operation can vary widely. Although we find the various comparisons useful in establishing profiles of the undertakings we do not think it possible to draw firm conclusions from comparisons of unit costs about the undertakings' relative efficiency in general (as distinct from their relative efficiency in carrying out particular functions). Neither do we think it possible to draw from comparisons of unit costs general conclusions about the relative efficiency of PTEs, municipal transport departments and NBC companies. Even if consistent trends or patterns could be identified, unit costs are not the only criteria by which efficiency should be assessed. Any comparison of efficiency would involve consideration of other factors, such as the level of service provided.

2.154

**Quality of
service**

There has been a tendency among non-metropolitan counties and in WMPTE to adopt standards of accessibility as a basis upon which revenue support is given. BOC and TMT have also paid attention to similar matters in the course of MAP studies. If more counties and operators were to use such an approach, generally accepted standards for support might eventually emerge.

3.32

12. We should like to see improved and continuous monitoring of cleaning schedules at management level. However, we recognise that this may have significant cost implications. **We recommend, therefore, that each undertaking should devise a system of periodic sampling which forms part of the monthly management information received by the responsible manager and that minimum operational achievement levels should be set.**

3.33

<i>Recommendation Number</i>		<i>Paragraph Number</i>
13.	<p>The extent to which punctuality is monitored varies considerably between the undertakings. They should all consider whether some more regular check on punctuality could be maintained for a modest cost, at the very least for less frequent services in rural areas.</p> <p>It is clearly necessary for the needs of the travelling public and especially those who do not have access to a private motor vehicle, to be taken into account when bus routes are being planned. We believe that it is the duty of elected members of local authorities to perform this task, and that there is no need for additional consultative machinery to assist the process.</p>	3.34 3.35
Manpower and industrial relations	14.	4.93
	15.	4.94
		4.95
		4.96
		4.97
16.	<p>We note that strikes in WMPTE have taken place before the disputes procedures have been exhausted. If the procedures are unsatisfactory they should be renegotiated; if not they should be observed.</p> <p>The decentralisation of part of the industrial relations function in WMPTE is justified but we see the need for care to be taken that the authority of line management is not undermined.</p>	4.98 4.99

<i>Recommendation Number</i>		<i>Paragraph Number</i>
	We consider that the overall industrial relations structure in WMPTE is satisfactory.	4.100
17.	We recommend that the Transport Department Consultative Committee in CCT be re-activated with the scope of its authority clearly established.	4.101
18.	If discussions with local full-time officials of the trade unions do not result in the election of a smaller committee of shop stewards to attend meetings with engineering management, we recommend that CCT takes the issue of the committee's size to the NJC whose national agreement for craftsmen provides for the election of one representative from each craft trade union to form a local committee.	4.102
	In the engineering department of CCT work involving the use of hand tools cannot be devolved to semi-skilled workers. It is clearly necessary for any organisation to match its workforce to the work required to be done. In CCT this would be better achieved by either employing a greater proportion of craftsmen or by negotiating to allow semi-skilled workers to take on some of the less skilled tasks at present reserved for craftsmen.	4.103
19.	The continuation of the agreement restricting the circulation of non-manual staff vacancies in CCT, in present circumstances, tends to be discriminatory and inequitable and we recommend that it be reviewed to allow manual employees equal opportunity with their non-manual colleagues.	4.104
20.	Industrial relations between CCT management and the traffic and salaried staffs are good. Industrial relations within the engineering department, however, are in need of improvement. We recommend that management exercise more effective supervision of the engineering manual workforce and improve its direct communication with the shop floor.	4.105
	Industrial relations within the engineering and white collar areas of BOC are good, and are largely so in the country traffic services. We are satisfied that the less satisfactory situation in the Bristol City traffic services is improving as a result of action being taken by the newly appointed General Manager.	4.106
21.	We consider industrial relations in TMT to be good but recommend that management and the trade unions review the local engineering pay agreement to remove the anomalies resulting from the outdated basis of payment of the Local Supplementary Rates.	4.107

	<i>Recommendation Number</i>		<i>Paragraph Number</i>
Efficiency in the use of manpower in traffic operations		Although very different in size and characteristics, all four undertakings use very similar systems and procedures for the control of platform staff. Indeed, these seem to be in common use throughout the bus industry.	5.103
		Both WMPTE and CCT operate 100 per cent OMO while BOC and TMT are both over 90 per cent OMO. TMT expects to achieve 100 per cent within the next year while BOC intends to retain some conductor manned services in the City of Bristol for the foreseeable future	5.104
		Manning levels in the four undertakings range from 2.2 drivers per peak vehicle required in WMPTE to 2.7 per peak vehicle in BOC. Both WMPTE and CCT limit spare drivers to 15 per cent of the minimum required to man the rosters and rely on overtime working to cover any shortage. In BOC overtime for platform staff is deliberately kept as low as possible and the spare drivers level is 20 per cent. Platform staff manning levels are particularly well controlled in WMPTE and, given their differing circumstances, are reasonable in the other three undertakings.	5.105
	22.	Scheduling constraints and allowances vary both between the undertakings and, within them, between garages, areas and divisions. We recommend that each undertaking should seek to standardise such constraints and allowances across its own garages at the lowest acceptable level.	5.106
		The effect of such constraints and allowances, including restrictions on split shift working, is most onerous in BOC city services and is detrimental both to manning levels and scheduling efficiency. To a lesser extent the constraints are also onerous in CCT where the scheduler's flexibility is further constrained by the small size of many of the rosters at present in use. This constraint will be eased on completion of the conversion to 'fast fare' by late 1982.	5.107
23.		While none of the four undertakings reached the notional maximum scheduling efficiency, averaged across the undertaking, WMPTE and TMT came closest and in individual garages exceeded it. In WMPTE and TMT scheduling efficiency averaged over 81 per cent, in CCT 79 per cent and in BOC city services 72 per cent. The low level in BOC reflects the constraints and allowances; and we recommend BOC should continue to give attention to these matters.	5.108

<i>Recommendation Number</i>		<i>Paragraph Number</i>
24.	<p>Only WMPTE has recently started monitoring scheduling efficiency, none of the others do so and only BOC monitored operating efficiency. We recommend that all four undertakings should regularly use both measures in monitoring efficiency.</p>	5.109
25.	<p>The extent to which the undertakings monitored the use of spare staff varied, with only TMT regularly monitoring unused time. We recommend that all four undertakings should regularly monitor the use made of spare staff and the level of unused time.</p> <p>Subject to the agreed constraints and local practices, we conclude that traffic operations and platform staff were generally well managed and controlled in all four undertakings.</p>	5.110 5.111
Efficiency of maintenance of vehicles	<p>In all four undertakings engineering maintenance of vehicles takes place at two levels. Routine servicing and maintenance, including limited repair work and unit changes, are dealt with at operating garages. Major repair work, vehicle overhauls and unit and component reconditioning are undertaken at central workshops. This represents a logical and efficient separation of routine and specialised work.</p> <p>In CCT and the two NBC companies all maintenance activities are directly controlled by the Chief Engineer. It is too early to assess the effectiveness of the WMPTE approach of placing maintenance work at garages under the control of operations management.</p> <p>The undertakings all operate time based vehicle inspection and servicing programmes at the garages, but, subject to safety considerations, give priority to having the required number of vehicles available for service. This may result in some deviation from the planned programme. Planned work in the garages represents about 40 per cent of the total workload, the balance being defect rectification and repairs.</p> <p>With the exception of CCT much of the work in the central workshops is pre-planned in accordance with vehicle and stores requirements. WMPTE with a formal production control activity plans the majority of work in its three workshops. However, performance against plan is very variable. Both NBC companies had some weaknesses in production planning in their workshops. We recommend that all four undertakings take steps to strengthen and improve production planning and control in their workshops.</p>	6.162 6.163 6.164 6.165
26.		6.165

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27. Only WMPTE operates a premium payment scheme related to the performance of its engineering workforce. This scheme, the EPPS, was successful in helping to overcome very serious shortfalls in performance in 1978 and to restore output to nearer the 1974 levels. However, the EPPS is deficient in a number of important respects. Attempts to negotiate an improvement on EPPS using a supplementary output index scheme have so far failed. **We recommend that in accordance with the terms of the EPPS agreement WMPTE gives notice of intention to terminate the scheme and seeks to negotiate more satisfactory arrangements paying particular attention to the need for work recording and control information.**
- 6.166
28. In spite of currently paying 33 per cent above the national basic rate CCT has not yet made effective use of the productivity and flexibility provisions of the 1974 agreement. Given the present inadequate level of management control information **we recommend that CCT takes steps to secure accurate work time recording on job cards and introduces work study techniques to provide standards for planning and control in the engineering workshop.**
- 6.167
- Both BOC and TMT terminated incentive payment schemes in 1979, replacing them by very similar flexibility agreements. These agreements have generally worked satisfactorily in practice subject to our conclusion on the TMT local supplementary rates (see recommendation 21).
- 6.168
29. Vehicle reserve levels in WMPTE and BOC are appropriate to the nature of operations in the two undertakings. However, the level of reserves in CCT and TMT is high. TMT is taking steps to reduce the level, but CCT with an average of 6 vehicles daily (3.7 per cent of PVR) available for contingencies is taking no such **action. We recommend that CCT re-examines its reserve vehicle requirements.**
- 6.169
- Servicing and maintenance costs per vehicle mile are significantly higher in WMPTE than in the other undertakings, nearly double those in TMT and 11 per cent higher than CCT, the next highest. While substantial differences in operating conditions and average vehicle speeds will account for some of the gap between WMPTE and TMT, this is not the case in relation to WMPTE and CCT. In BOC where such costs are less than two-thirds those of WMPTE, some 60 per cent of operations are in similar urban conditions. We conclude therefore that the high level of servicing and maintenance

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	costs in WMPTE are attributable in no small part to weaknesses in planning, control and labour utilisation. A reduction of such costs to the CCT level would reduce total costs by £2.5 million in a full year, and to the BOC level by £8.7 million.	6.170
	In spite of higher maintenance costs WMPTE also has the highest percentage of scheduled mileage lost due to breakdown, nearly seven times that in CCT and three times and five times respectively the level in BOC and TMT. However, the absolute level is very low in all four ranging from 0.03 per cent to 0.22 per cent.	6.171
	Stock control systems and stock levels are satisfactory in three of the undertakings. However, in CCT the annual rate of stock turn is less than half that of the other three indicating scope for a reduction in the value of holdings.	6.172
Non-manual and administrative staff	Between 1976 and 1980 WMPTE had an increase of nearly 20 per cent in the major categories of non-manual staff. This increase took place when business was declining. Since late 1980 there has been an overall reduction in non-manual staff of nearly 6 per cent.	7.49
	Since 1976 the other three undertakings have all reduced non-manual staff numbers year by year, apart from a temporary increase in one year in TMT. The decreases range from about 9 per cent in CCT to 22 per cent in BOC.	7.50
	Non-manual staff levels expressed as a percentage of the total workforce are very similar in CCT and the NBC companies, when account is taken of TMT staff engaged on work for other companies. However, the 16.5 per cent in CCT does not include administrative support received from other departments of the city council.	7.51
30.	WMPTE has a higher level of non-manual staff at 17.8 per cent of the total workforce. While WMPTE is more self-sufficient in a number of respects, advantage has not been taken of the potential for economies of scale. In particular non-manual staff levels in the engineering function are high compared with CCT and the NBC companies. We recommend that WMPTE undertakes a further and more stringent review of non-manual staff requirements with particular emphasis on the engineering function.	7.52

<i>Recommendation Number</i>		<i>Paragraph Number</i>
31.	Compared with the other undertakings, WMPTE has a larger proportion of its non-manual staff in the higher grades. We recommend that WMPTE should carefully review the application of its staff grading structure.	7.53
	Non-manual staff levels and the grading structure in CCT and the NBC companies are generally reasonable.	7.54
Matching supply and demand	County councils have an important role to play in determining the needs of their areas for bus services and thus in determining the size and shape of the bus network. It is clearly desirable that in performing this role they are well informed about passenger preferences in relation to bus services and the cost of providing these services.	8.147
	Minor revisions in services are continually made on the basis of comments made by passengers, local businesses, elected representatives and other interested parties. However, we believe that it is also necessary from time to time to conduct major reviews of networks which may demonstrate the need for more radical changes in order to adjust to changes in needs and market conditions.	8.148
	In WMPTE these major reviews have taken the form of Area Studies which will have covered the whole of the operating area by 1986. In BOC and TMT the MAP exercises, which include information on passenger demand, were a response to severe financial problems. Both companies intend to introduce new marketing techniques as a follow-up to MAP. CCT has not conducted a major network review since the 1972 review.	8.149
	We approve of WMPTE's, BOC's and TMT's decision to extend and improve these major reviews.	8.150
32.	We recommend that CCT should, as a matter of urgency, develop and apply techniques along the lines of WMPTE's Area Studies or the NBC's MAP exercises. The data from such an exercise are an important aid to those whose task it is to adjust supply to demand, and experience of the other three undertakings suggests that it may lead to significant savings.	8.151
	It is also important that local authorities, as well as the bus undertakings, are well informed about the extent to which services are used and the cost of supplying these services. Such information is supplied by load factors and operating ratios.	8.152

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33.

WMPTE collects data on load factors and operating ratios on a monthly basis. It has set itself load factor targets so that management becomes aware of variations from those targets and has an incentive to examine the reasons for the variations. BOC and TMT have no regular system of collecting load factor data for all their routes. CCT undertakes, at the request of South Glamorgan County Council, regular autumn cordon counts. BOC, TMT and CCT have all produced operating ratios for individual routes but CCT has produced this information on a less regular basis than the two NBC companies. **We recommend that all four undertakings should produce data showing operating ratios and load factors of individual services or, if more meaningful, groups of services, and that this data should be made available on, at least, a quarterly basis.**

8.153

We accept that decisions about bus services cannot, and should not, be made simply on the basis of load factors. Nevertheless target load factors are a useful management tool, and *actual* load factors should be known by county councils. The latter should also be aware of the cost involved in providing unremunerative, low load factor services, which are required to meet social needs.

8.154

Average fares have increased in real terms in all four undertakings over the period since 1974. The operators told us that a major cause of this increase had been the growth in labour costs.

8.155

Counties generally have policies limiting the size and/or frequency of fare increases. Many of them make compliance with these policies a condition of revenue support.

8.156

Season tickets impose costs on bus undertakings as well as conferring benefits on them. An analysis of WMPTE's Travelcard and CCT's Multiride suggests that both these schemes have produced at least a net social benefit. BOC, however, recognises that the discount which it has given to season ticket holders has been excessive. The BOC experience demonstrates the danger of underpricing season tickets. Subject to this warning, however, we would want to encourage the undertakings in their efforts to increase the proportion of off-bus revenue (see recommendation 9).

8.157

A number of fare experiments have been tried out by the undertakings. We are sympathetic to the attempts which have been made to attract passengers particularly by charging lower fares at off-peak periods. However, CCT

<i>Recommendation Number</i>		<i>Paragraph Number</i>
34.	and BOC can be criticised for introducing their off-peak fares experiments and, in CCT's case, for making it an integral part of the fare structure, without sufficient attention being paid to the relative costs of peak and off-peak services. We recommend that all four undertakings carry out peak/off-peak costing exercises annually.	8.158
35.	The common fare policy together with substantial cost variation across routes means that some bus services are heavily subsidised by others. Recommendation 33 concerning the provision of route operating ratios should go some way towards dealing with this problem. It should enable authorities to scrutinise the performance of each route. We recommend that the level of cross-subsidy between services, and between time periods should be clearly identified in order to provide local authorities with a rational basis for the decision on the levels of subsidy to be provided via revenue support and through cross-subsidy.	8.159
Investment		
	We have concentrated on bus replacement policies in view of the very high proportion of capital expenditure spent on purchase of buses in each of the undertakings.	9.109
	The undertakings fixed retirement ages of buses to coincide with the expiry of certificates of fitness when recertification required a major overhaul; to that extent basing retirement policy upon judgment rather than quantification of costs was understandable.	9.110
36.	During the last decade real maintenance costs have risen very substantially. The withdrawal of new bus grant and the new requirement for annual testing are making an impact. The evaluation of the benefits and costs of alternative replacement policies must now become more scientific. We therefore recommend that quantitative evaluation be used.	9.111
37.	Although the task of choosing between new models is more difficult, the scepticism of the bus industry about the value of estimates of future running costs of new vehicles must be contrasted with other industries which have coped with new developments of familiar technology. We recommend that further steps are taken by the undertakings to quantify in broad terms the running costs of different vehicle types.	9.112
	We believe that in general effective competition between suppliers is the best safeguard of the interest of purchasers and that dependence on a single supplier's designs is to take significant	

<i>Recommendation Number</i>		<i>Paragraph Number</i>
38.	<p>and avoidable risks. We recommend that the purchasing policy of the undertakings should be determined by them (or in the case of BOC and TMT, jointly with NBC) on the basis of efficiency considerations, and should have due regard to the general desirability of securing at least dual sources of supply.</p> <p>The extent (if any) to which decisions on the nature, amount and timing of capital expenditure have increased efficiency or reduced costs can be assessed only by reference to the consequences of alternative strategies that could have been pursued. During the last decade substantial capital expenditure on new vehicles was associated with increases in real maintenance costs. However, available alternatives were severely restricted by the development of new mechanical features, by the requirement that new vehicles be suitable for OMO and by technical and safety regulations. Thus we are unable to quantify the consequences for efficiency of discretionary decisions as to the design of vehicles purchased.</p> <p>We have examined the implications for costs of the change to OMO in Appendix 2.6. The difficulty of isolating the financial effects of OMO from those of other changes is such that we cannot say what effect its introduction had on efficiency and costs. Moreover we are unable to identify with any precision other design changes not a consequence of the change to OMO or a necessary response to changing operating conditions.</p>	<p>9-113</p> <p>9.114</p> <p>9.115</p>
39.	<p>Many of the vehicles purchased during the last few years by BOC and TMT had Leyland engines, but there is now a considerable weight of evidence that Gardner engines have substantial fuel and maintenance cost advantages for stage carriage services. BOC, TMT and NBC, which undertakes purchasing arrangements on their behalf, have told us that Gardner engines have periodically been in short supply. While Gardner engines retain their overall cost advantages the undertakings should seek to increase the proportions of their fleets fitted with them.</p> <p>The return on capital expenditure of the undertakings during the recent past has been lower than that it might have been because the delivery and performance of the vehicles supplied have not met the reasonable expectations of the purchasers. It would be surprising if suppliers always succeeded in meeting such standards, but even after making due allowances we regard the experiences of CCT in particular as so unfortunate that they are beyond chance explanation. We conclude that as a consequence CCT's costs were increased.</p>	<p>9.116</p> <p>9.117</p>

Local Authorities— revenue support	<i>Recommendation Number</i>		<i>Paragraph Number</i>
		<p>The process of arriving at the amount of revenue support to be paid by a non-metropolitan county to a bus operator has to be a joint process between the parties. We believe that the operator should first consider his routes very carefully and identify separately those which contribute to overheads and those which do not. The county council should then see the detailed outcome of this examination. It is to be expected that as a result of this some profitable routes would have to subsidise unprofitable routes and a bargain be struck by negotiation.</p>	10.64
		<p>The present mechanism by which revenue support is paid by non-metropolitan counties to operators does indeed involve a detailed examination by the former of the latter's costs and considerable pressure from time to time for their reduction, usually through service cuts. The tension between the parties which this produces can be creative and promote the attainment of value for money. There are, however, some defects in the process. In particular where support is given on condition that revenues and costs should break even it is likely to prevent NBC companies from achieving on their stage carriage services, an adequate proportion of the financial target set by the Secretary of State for NBC as a whole.</p>	10.65
		<p>We think that the experimental system proposed by Cheshire County Council for the Warrington area should be watched by other local authorities. Although it is obviously too early to judge its potential, it may in the end offer a way of retaining within a system of revenue support some incentive to profit earning by operators, whilst enabling the county council to achieve value for money. We believe that all agreements made under the Transport Act 1978 should include proper provision for monitoring operators' costs.</p>	10.66
		<p>Many non-metropolitan counties allow NBC companies fares increases which are based on a lower rate of inflation than that given as guidance to these companies by NBC centrally. This conflict does not make for realism in planning. DTp have a role to play in avoiding this conflict since they give general guidance to NBC on the treatment of inflation.</p>	10.67
		<p>BOC and TMT have complained about the uncertainties which they experience over the amount of the revenue support which they receive from the counties and in particular of inadequate advance warning of changes. This can at times have an adverse effect on their efficiency. Counties in their turn point out the uncertainty over the level of Transport Supplementary Grant.</p>	10.68

<i>Recommendation Number</i>		<i>Paragraph Number</i>
	We believe that three year agreements under section 3 of the Transport Act 1978 should have a stabilising effect on the provision of bus services. However, there are difficulties for counties entering into such agreements when they themselves have no commitment from central government on the level of financial support in future years. Nevertheless, it appears that more counties are now proposing to enter into such agreements and it is encouraging that DTp told us that the Secretary of State would take an agreement into account when deciding what levels of expenditure to accept for the purposes of TSG.	10.69
	Under the Transport Act 1978 non-metropolitan counties have a duty 'to develop policies which will promote the provision of a co-ordinated and efficient system of public passenger transport to meet the county's needs'. Public passenger transport service operators and county and district councils are given a duty to 'co-operate with one another . . . for the purpose of co-ordinating public passenger transport services within the county'. Since county councils are given no powers to enforce co-ordination if an undertaking operates without a subsidy from them, effective co-ordination depends upon the voluntary co-operation of local authorities with operators and with each other.	10.70
	The tripartite agreement between Derbyshire County Council, Derby City Council and TMT shows what can be done when there is a will to find a solution to problems of co-ordination.	10.71
	Since different county council administrations not infrequently have different transport policies, operators may experience sudden changes in the level of services they are asked to provide. When this occurs there may well be some adverse effect on the efficiency of the operators.	10.72
	In general the mechanisms for communicating the policies of local authorities to and within the bus undertakings studied are satisfactory. However, in the case of BOC communications in the reverse direction could be improved by BOC's giving more advance warning to councils of action which it intends to take, especially any which might increase the revenue support required.	10.73
Competition	As a result of the Transport Act 1980 a conflict arises between two aspects of the public interest. To the extent that a competitor reduces the return derived by the established undertaking from a profitable part of the network, services which are non-profitable, though socially	

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necessary, are likely to be curtailed. To the extent that the established undertaking, with the support of local authorities, protects the network by defeating competition, the benefits of competitive stimulus are likely to be lost.

11.56

This conflict makes the questions before us very difficult to answer. It must also be emphasised that they have to be answered against the background of the existing institutional and financial framework. It is possible to envisage bus services provided upon quite a different basis. They might be provided with much less reliance on cross-subsidisation and much greater reliance on public funds for the support of loss-making services. Such altered circumstances might well affect the decision of what could be justified as response to competition.

11.57

We have to judge the responses of CCT and TMT in the circumstances actually prevailing. It is clear that they have used their superior financial strength in an attempt to drive off small competitors. CCT increased the frequency of its Llanrumney service although it was already in its view an adequate service, and was much more frequent than the increased service offered by its competitor. TMT lowered its fares selectively to, or below, the levels of competitors. One of these undertakings is part of a municipal authority and the other is part of a nationalised industry; both are in receipt of subsidies from public funds. We do not condone or approve their conduct, but we recognise that the alternative to eliminating competition on profitable routes would be to curtail or abandon services on some unprofitable routes unless an increased subsidy could be obtained from the local authority. In all the circumstances we do not conclude that the actions of any of the undertakings have amounted to abuse of any monopoly situation or to conduct operating against the public interest.

11.58

**Management
and control
of the
undertakings**

40.

Largely because of its size, the organisational structure of WMPTE is far more complex than the other three undertakings and reflects a different approach in a number of respects, particularly engineering and labour relations. Since 1974 WMPTE has been subject to continual reorganisations and it is not clear whether the best form has yet been achieved. However, we recommend that after completing the present organisational changes, WMPTE should, for a time, limit organisational changes to those necessary to secure specific efficiency improvements.

12.182

<i>Recommendation Number</i>		<i>Paragraph Number</i>
	The organisational structures of CCT, BOC and TMT are relatively simple and straightforward, reflecting the needs of the undertakings and clearly understood by management and staff.	12.183
	BOC's and TMT's relationship with NBC is both relevant and beneficial to their efficiency.	12.184
	Only BOC and TMT, following NBC directives, have implemented a formal corporate planning system covering the next four or five years. WMPTE is developing a corporate planning system but operating managers do not make a significant contribution. CCT has no planning system beyond the one year. Neither the NBC procedure nor the proposed WMPTE procedure includes formal targets agreed and tested for feasibility by the operating units.	12.185
	None of the undertakings sets targets as part of a formal unit cost reduction programme aimed at reducing cost whilst maintaining the same level of service. Most of the cost reductions which have been secured in recent years, with the notable exception of those arising from the introduction of OMO, have resulted from reductions in the level of service.	12.186
41.	An appropriate detailed planning horizon for the bus industry is three years. This time scale corresponds to the statutory provisions for three years revenue support agreements, the lead time for bus procurement and allows sufficient time for a cycle of timetable and schedule revisions. We therefore recommend that each undertaking should adapt its procedures to produce annually a three year operational plan.	12.187
	We are conscious of the difficulties which arise in the absence of three year agreements with local authorities and the consequent uncertainties about the level of future revenue support. Nevertheless, the undertakings should, in co-operation with local authorities, be able to make progress towards introducing the procedure we recommend.	12.188
	The procedure for producing the operational plans should have the basic features set out in paragraph 12.189 but the degree of detail should be appropriate to the size of the undertaking and its management resource.	12.189
	WMPTE and NBC centrally have seen the need for a review of the Management Information Systems and have plans for producing more integrated systems which will improve the precision of financial and planning information. CCT systems are less sophisticated and their	

<i>Recommendation Number</i>		<i>Paragraph Number</i>
	development is dependent upon adequate resources being made available for systems analysis and programming from the appropriate city council department (see recommendations 4, 5 and 6).	12.190
42.	The General Manager of CCT does not enjoy the same autonomy as the heads of the other three undertakings. Many matters relating to the undertaking can only be decided after submission to one or more committees of the city council with ensuing delays. The efficiency of CCT is consequently reduced and we recommend that the city council should consider how these matters might be improved.	12.192
	It is quite natural that WMCC councillors should take an interest in the operations of WMPTE and this can promote a healthy questioning of the services provided. However, if this interest is carried to the stage of intervention in day-to-day management as the evidence presented to us shows it sometimes has been, efficiency is adversely affected.	12.193
	We regret that WMCC does not use its powers to set efficiency targets for WMPTE. However, we do not think that it would be an improvement for the PTE to become part of the county council.	12.194
	The arrangements imposed by statute on a PTE and its county council do not make for easy relationships between those bodies. Nevertheless key individuals in WMCC and WMPTE have succeeded in making the arrangements work satisfactorily.	12.195
Comparative performance of the undertakings	We have not felt it possible to define a single measure of performance by which to compare the undertakings. At least two aggregate measures are necessary, one for social performance and one for commercial performance. There is a wide variation in the level of these indicators between undertakings and over time in the case of the commercial performance.	13.79
	Management action to improve one measure is almost certain to affect the other adversely. Currently WMPTE performs best from the social standpoint as measured by the ratio of passenger miles or passenger journeys to total cost, and CCT and TMT perform best from the commercial standpoint as measured by the ratio of net passenger revenue to total cost.	13.80
	Whilst the performance of an undertaking clearly depends on efficient management, our analysis, based on data supplied by the undertakings, confirms that the level of performance which can be achieved by management is also	

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	to a considerable extent influenced by external factors such as density of population and traffic congestion.	13.82
	We have not been able to demonstrate any strong influence of size of the whole undertaking on unit costs nor of size of depot on scheduling efficiency.	13.83
	In the areas of fares and service levels there is some indication that the same policies implemented in different undertakings would achieve different levels of success because of variations in market behaviour.	13.84
43.	<p>Tabulations of costs in the form of unit costs derived from the CIPFA allocation convention (see Table 13.7) may provide possible means of direct comparisons between undertakings which may be relatively insensitive to the socio-geographic operating environment. We recommend that all bus undertakings should prepare annually this tabulation of unit costs in a common form and under common definition of cost categories to be prescribed by the Department of Transport and submitted to the Department for dissemination within the industry. We believe that exploration of the reasons for differences in the unit cost categories will not only help the comparison between undertakings but may also be used within an undertaking to monitor trends over time.</p>	13.85
	<p>In view of the large influence of external factors on the absolute level of performance we believe that the most helpful current method of comparison is by means of the trend in performance over time. In terms of trends all undertakings show a worsening of social performance of about the same magnitude since 1979. Only in WMPTE was that trend evident before 1979. In terms of the trend of commercial performance BOC and to a lesser extent WMPTE appear to be in decline whilst CCT and TMT are improving. TMT in particular has had a good level of performance since 1977.</p>	13.86
	<p>We have investigated the abilities of the undertakings to absorb the trend in external increase in the unit cost of resources. CCT has consistently had the best performance since 1974-75 followed by WMPTE. With respect to the two NBC companies TMT appears to have regained control of unit costs since 1977 but this has yet to occur in BOC.</p>	13.87
	<p>We believe that the development of models such as that described in Chapter 13 would be valuable in helping to assess the likely effects of proposed policy changes. We therefore recommend that the undertakings consider how they might build on the experience referred to in paragraphs 13.75-13.77.</p>	13.88

Priorities

14.14. All these recommendations are important, but among them there are a few which appear to us to demand the prior attention of the undertakings. Five of these particularly important recommendations apply to all four undertakings. They are:

- 24 They should regularly monitor both scheduling efficiency and operating efficiency as indications of their effective employment of platform staff.
- 26 They should take steps to strengthen and improve production planning and control in their workshops.
- 33 They should produce, at least quarterly, data showing operating ratios and load factors of individual services or groups of services.
- 36 They should use quantitative evaluation of the benefits and costs of alternative bus replacement policies.
- 41 They should adapt their planning procedures to produce annually a three year operational plan.

14.15. For two of the undertakings, however, there are particular recommendations of still more urgent importance.

14.16. WMPTE should give special priority to the following:

giving notice to terminate the engineering premium payment scheme and seeking to negotiate more satisfactory arrangements with particular attention to the need for work recording and control information (recommendation 27);

undertaking a more stringent review of non-manual staff requirements with particular emphasis on the engineering function (recommendation 30).

14.17. CCT should give special priority to the following four matters:

reviewing its methods of presenting accounting and statistical information for management purposes (recommendation 4);

exercising more effective supervision of the engineering manual workforce and improving direct communication with the shop floor (recommendation 20);

securing accurate work time recording on job cards and introducing work study techniques to provide standards for planning and control in the engineering workshop (recommendation 28);

developing and applying techniques for assessing supply and demand on the lines of WMPTE's area studies or the NBC's MAP exercises (recommendation 32).

The public interest

14.18. We have not found that any of the undertakings is abusing any monopoly situation existing in its favour, nor that in any matter falling within the questions referred to us any of the undertakings is pursuing a course of conduct which operates against the public interest. Before coming to these

conclusions, we gave particularly careful consideration to the actions taken by CCT and TMT in response to competition from independent operators which we describe and discuss in Chapter 11.

14.19. The terms of reference require us to say whether the efficiency of the undertakings can be improved. Necessarily, therefore, we have concentrated on possible criticisms, but we have also found much to commend. We appreciate the level of efficiency and service which the undertakings have managed to achieve, but we believe the efficiency can be increased and the service improved. We make our recommendations in the hope that they will lead to that result.

J. G. LE QUESNE (*Chairman*)

K D GEORGE

D G GOYDER

E A B HAMMOND

H H HUNT

N L SALMON

N E D BURTON (*Secretary*)

7 June 1982

APPENDIX 1.1
(referred to in paragraph 1.18)

Licensing of operators, drivers and services

1. The system of licensing and control is administered by the Traffic Commissioners and the Department of Transport. There are eleven traffic areas in Great Britain; each area has three Traffic Commissioners, one of whom acts as Chairman, and a number of Deputy Commissioners. Traffic areas and Traffic Commissioners were originally established by the Road Traffic Act 1930; current provisions for their appointment are contained in the Public Passenger Vehicles Act 1981 (the Act). Traffic Commissioners are appointed by the Secretary of State. The Chairman is permanent and acts in a full-time capacity; the two other Commissioners are selected by the Secretary of State from a panel of persons nominated by county councils and district councils and are appointed for a period of three years.

Public service vehicle operators' licences

2. A person wishing to operate public service vehicles (PSVs) must first obtain from the Traffic Commissioners a PSV Operator's Licence in accordance with section 12 of the Act. This system of operator licensing was introduced on 1 April 1981, and replaces the previous system of licensing each vehicle. It specifies the maximum number of vehicles that can be operated at any one time. Transitional provisions allow the two systems to operate side-by-side until 1 October 1982. The Commissioners are required to be satisfied before issuing a licence that the applicant is, among other things, of good repute, of appropriate financial standing and professionally competent.

PSV drivers' licences

3. The driver of a PSV is required by section 22 of the Act to hold a PSV driver's licence in addition to an ordinary driving licence.

Road service licence

4. Road service licences are required for stage carriage services; all other types of service such as scheduled express services (where no passenger is carried less than 30 miles in a straight line) and long-distance excursions and tours are exempt from road service licensing,¹ as are contract carriage services on which separate fares are not paid. If certain conditions are met, however, separate fares can be paid and the service nevertheless treated as a contract carriage service. This allows, for example, certain types of works services to gain exemption from road service licensing.

¹ Although scheduled express services are exempt from road service licensing, details of services have to be notified to the Traffic Commissioners not less than 21 days before they are due to begin.

5. Traffic Commissioners are required under section 31 of the Act to grant a road service licence, unless they are satisfied that to do so would be against the interests of the public. They have to have regard to:

- '(a) the transport requirements of the area as a whole and of particular communities in the area;
- (b) any transport policies or plans which have been made by the local authorities concerned and have been drawn to the Commissioners' attention by those authorities;
- (c) any objections or other representations made to the Commissioners in the prescribed manner which in their opinion are relevant.'

Notices of applications are published by the Traffic Commissioners and they may at their discretion (and generally do) hold a public sitting to hear any objections and other representations.

6. Under section 50 of the Act, applicants and holders of road service licences have rights of appeal to the Secretary of State against decisions of the Traffic Commissioners in respect of licences. In addition, local authorities in whose area the service is being provided, and other people providing transport facilities along or near the route in question, have rights of appeal against a decision of the Commissioners provided they have made objections or other representations to the Commissioners in the course of the proceedings resulting in that decision.

7. The Traffic Commissioners are empowered by section 32 of the Act to attach conditions, other than fares conditions, to licences and to remove or vary conditions in licences. Under section 33 the Commissioners have a reserve power to attach fares conditions to licences; this power, however, is to be exercised only when the Commissioners are satisfied that it is essential to protect the public from unreasonable use of his position by the licence holder, or to regulate the terms of competition on any route or routes. Licence holders can apply to have existing conditions varied or removed and on any such application the Traffic Commissioners are required to remove all fares conditions unless they are satisfied that their retention is essential. Where there are no conditions, or they have been removed, licence holders must notify the Traffic Commissioners of fare changes before they are put into effect.

8. Under the Act the Secretary of State may make orders designating an area in Great Britain (outside Greater London) as a Trial Area in which road service licences are not required for stage carriage services.

Fitness of PSV

9. Under section 6 of the Act each PSV adapted to carry more than eight passengers requires a certificate of initial fitness before it can be used on the road. There are also powers to inspect vehicles and prohibit their use if they are thought to be unfit for service or do not comply with regulations. A formal system of annual inspection was instituted on 1 January 1982 to comply with EEC requirements; all PSVs that are more than one year old

are required to have had their first test by January 1983. Previously buses received an initial certificate of fitness for a period of seven years, after which a second certificate was issued for five or six years with subsequent certificates for shorter periods; informal arrangements also operated, however, whereby vehicles were inspected at approximately yearly intervals.

APPENDIX 1.2

(referred to in paragraphs 1.19 and 10.29)

Extract from the Transport Act 1978

County transport planning (England and Wales)

- Passenger transport policies in county areas.
- 1.—(1) In each non-metropolitan county of England and Wales, it shall be the duty—
- (a) of the county council, acting in consultation with public passenger transport service operators and district councils within the county—
 - (i) to develop policies which will promote the provision of a co-ordinated and efficient system of public passenger transport to meet the county's needs, and
 - (ii) for that purpose to take such steps as the council think appropriate for promoting the co-ordination, amalgamation and re-organisation of road passenger transport undertakings in the county;
 - (b) of each of the district councils in the county who provide any public passenger transport service to operate the service in accordance with policies developed by the county council as mentioned in paragraph (a) above; and
 - (c) of public passenger transport service operators, and the county and district councils—
 - (i) to co-operate with one another in the exercise and performance of their respective functions for the purpose of co-ordinating public passenger transport services within the county, and
 - (ii) to afford to one another such information as may be reasonably required for that purpose.
- (2) In this section and sections 2 and 4 below, "public passenger transport services" means all those services (whether publicly or privately operated) on which members of the public rely for getting from place to place, when not relying on private facilities of their own, including school transport but not—
- (a) services provided in accordance with permits under the Minibus Act 1977 (carriage of passengers by bodies concerned with education, social welfare etc.); or
 - (b) excursions or tours within the meaning of the 1968 Act.
- (3) For the purpose of such co-operation as is referred to in subsection (1)(c) above, all those mentioned in that subsection shall have power to enter into such arrangements with one another with respect to the exercise and performance of their respective functions on such terms as may appear to them to be expedient.

1977 c. 25.

(4) Those who provide public passenger transport services may under subsection (3) enter into arrangements between themselves for the establishment under the Companies Acts of companies controlled (jointly or severally) by the parties to the arrangements and for—

- (a) the transfer of assets to such companies; and
- (b) facilitating the voluntary transfer of employees.

(5) The council of a non-metropolitan county or non-metropolitan district may make grants towards any costs incurred by persons carrying on public passenger transport undertakings wholly or partly in the county or district, as the case may be, and may also make grants—

- (a) to persons providing community bus services; and
- (b) in cases where local authorities and traffic commissioners have consented, under paragraph 5 of Schedule 12 to the 1960 Act, to the advertisement of facilities as being provided under a social car scheme, to persons arranging those facilities.

(6) Where, in carrying out their duty under subsection (1)(b) above, a district council incur expenditure which they would not otherwise have incurred or receive less revenue than they would otherwise have done, the district council may, by notice to the county council, require the county council to reimburse the amount of that expenditure or of that reduction in revenue.

(7) If any amount which, in accordance with the notice under subsection (6) above, a county council are required to reimburse to a district council is not determined by agreement between those councils within 6 months of the receipt of the notice or such longer period as may be agreed between them, the amount shall be determined by an arbitrator appointed either by agreement between those councils or, in default of such agreement, by the President of the Chartered Institute of Public Finance and Accountancy.

2.—(1) Every non-metropolitan county council shall—

- (a) not later than 31st March 1979, prepare and publish a public passenger transport plan for the succeeding period of 5 years; and
- (b) revise and re-publish the plan every 12 months (which means not later than 31st March in each year after 1979), relating its contents always to the next 5 years after re-publication.

County public transport plans.

(2) The plan shall contain—

- (a) a review of the county's needs, and the needs of communities comprised in it, in respect of public passenger transport services, and the extent to which those needs are

met by existing services (this review to be accompanied by an account of the criteria applied to determine need);

- (b) a description of—
 - (i) the council's policies and objectives for public passenger transport, and the services and facilities they consider to be needed by the county; and
 - (ii) the measures proposed for securing them in the short, and also in the longer, term;
- (c) estimates of the financial resources required for the realisation of those policies and objectives, with proposals for obtaining such resources; and
- (d) an account of how far forecasts in earlier plans have been, and are being, realised as regards the availability and use of such resources.

(3) When preparing or revising the plan, and when considering from time to time the way in which they are to discharge their responsibilities under section 1 above, the council shall enter into consultations with—

- (a) public passenger transport service operators in the county, or their representatives;
- (b) district councils in the county; and
- (c) the following, if they or their areas may be affected by the policies described in the plan—
 - (i) other county councils,
 - (ii) the Greater London Council, and
 - (iii) joint planning boards set up under section 1 of the Town and Country Planning Act 1971.

1971 c. 78.

(4) To all those mentioned in paragraphs (a) to (c) of subsection (3), and also to—

- (a) the county's parish and (in Wales) community councils; and
- (b) trade unions, transport user organisations and others appearing to the county council to be especially concerned with public passenger transport matters,

there shall be afforded an opportunity of commenting on a preliminary draft of the plan, and of making representations with respect to its contents.

(5) Particulars shall be given in the plan of the county council's consultations entered into in compliance with subsection (3) and of the consideration which has been given to views expressed in the consultations.

(6) When the plan or revised plan has been published, the county council shall cause it to be made available for inspection (at all reasonable hours)—

- (a) at the council offices; and
- (b) at the offices of each of the district councils in the county; and
- (c) at such other places as are considered suitable, having regard to the convenience of members of the public.

(7) The council shall give notice, by such means as they think expedient for bringing it to the attention of the public, about where the plans can be inspected, and as to the way in which copies of the plan (and if practicable, parts of it) can be purchased or otherwise obtained.

3.—(1) A non-metropolitan county council shall from time to time, with a view to implementation of their public passenger transport plan, enter into agreements with persons carrying on public passenger transport undertakings wholly or partly in the county for the provision or retention and financing of services and facilities which are required by the plan but would not, apart from such agreements, be available. Agreements with operators.

(2) The council may enter into similar agreements with persons within section 1(5)(a) and (b) above.

(3) Agreements under subsection (1) above shall be made so as to remain in force for period of 3 years, except in cases where, having regard to the nature of the services and facilities to be provided, a longer or shorter period is determined by the parties to be expedient.

(4) Whenever the public passenger transport plan is published or re-published, it shall include particulars of such agreements made by the council as are referred to in subsections (1) and (2) above and are then in force or to be in force during the period of 12 months immediately following.

(5) When preparing or revising their plan and deciding whether any, and if so what, agreements should be made under this section, the council may require any of the persons referred to in section 1(5) above to furnish such information concerning their services (including the cost of providing them) as is reasonably required by the council for those purposes; and—

- (a) the information shall be formulated in such a manner as may be specified in the council's requirement; and
- (b) the council shall, when framing the requirement, have regard to any directions given by the Secretary of State to county councils about the form and content of the information which ought to be obtained by them from persons qualifying for grant under section 1(5).

(6) Any requirements under subsection (5) above shall be complied with by the persons to whom it is addressed, subject to the council giving, and complying with, such written undertakings of confidentiality as may be requested by those persons as a condition of the information being furnished; but nothing in subsection (4) or (5) above requires or authorises the council to include anything in their plan whose disclosure may adversely affect the business interests or commercial security of any person.

Concessionary fare schemes. 4.—(1) All those county councils who have under this Act to prepare and publish an annual public passenger transport plan shall include in the plan, whenever it is published or re-published, the following matters relating to travel concession schemes (meaning schemes for the reduction or waiver of fares or charges on public passenger transport services in favour of special categories of persons).

(2) The matters to be included in the plan are—

- (a) an account of what (if any) travel concession schemes are operative in the county or planned for early introduction, being schemes which are wholly or partly financed, or the subject of financial contribution, by the council themselves or by any of the district councils in the county;
- (b) the nature and extent of the concessions available under those schemes;
- (c) proposals for introducing new travel concession schemes such as are mentioned in paragraph (a) above, or for extending or improving existing schemes; and
- (d) the reasons why (if it be the case) in any part of the county either no such schemes are operative or existing schemes are inadequate.

APPENDIX 1.3
(referred to in paragraph 1.24)

West Midlands Passenger Transport Executive

Background

1. West Midlands is one of six English Passenger Transport Areas. It was designated by the Secretary of State under section 9 of the Transport Act 1968. (There is one, Strathclyde, in Scotland). The 1968 Act (as modified by the Local Government Acts of 1972 and 1974) provides for a Passenger Transport Authority (PTA) and a Passenger Transport Executive (PTE) in each designated area. The PTA appoints the Directors of the PTE, and has budgetary and policy control. The PTE is responsible for planning and running bus services, either directly or through agreements with other operators, and also for entering with the approval of the PTA into agreements with British Rail for the provision of local rail services, in order to provide a properly integrated and efficient system of public passenger transport to meet the needs of the area.

2. The first PTAs, set up before the 1974 local government reorganisation, consisted of representatives of constituent local authorities in the area, together with Ministerial appointees. Under section 202 of the Local Government Act 1972, the new metropolitan counties themselves became the PTAs. The West Midlands County Council became the West Midlands Authority on 1 April 1974.

3. WMPTE was formed in September 1969. On 1 October 1969 four municipal transport undertakings (Birmingham, West Bromwich, Walsall and Wolverhampton) were transferred to the control of the Executive. By April 1974 the Executive had expanded further. In December 1973 it purchased with the approval of the WMCC the then Midland Red stage carriage operations within the county. The Coventry municipal undertaking was vested in the Executive under the Local Government Act 1972 on 1 April 1974.

TABLE 1 Numbers of buses and employees transferred to WMPTE

<i>Undertaking</i>	<i>No of buses</i>	<i>No of employees</i>
Birmingham	1,420	5,221
Walsall	261	915
West Bromwich	119	521
Wolverhampton	293	1,565
Midland Red	413	1,396
Coventry	300	1,400
Total	2,806	11,018

Source: WMPTE.

The structure

4. The members of the Executive are appointed by the WMCC. At present the Executive comprises the Director General, three full-time Directors with responsibilities for Operations, Labour Relations and Planning and Engineering; the County Treasurer acts as part-time Director of Finance and the Chief Executive of the WMCC is also a part-time member with no line management responsibility.

5. The Executive has developed a formal committee structure comprising four committees. The senior committee is the Management Committee (a decision-making body with clearly defined powers) consisting of all the Executive Directors and attended by most principal budget holders (Chief and Senior Officers). The other three committees are a Business Development Committee, an Operations Committee and an Engineering Committee.

6. The overall objectives of these committees are summarised below:

Business Development Committee

Objective—To formulate and market the most commercially and cost effective, integrated passenger transport network and fares structure consistent with the development of the long-term infrastructure and corporate objectives, taking account of customer needs and financial and manpower resources.

Operations Committee

Objective—To organise the operation of the Executive's services in accordance with the requirements of the Executive and on the most economical basis.

Engineering Committee

Objectives—To recommend policies on technical engineering matters to the Executive, and to implement Executive decisions on these policies. To control the maintenance of premises.

All three of these committees have detailed and extensive terms of reference and objectives which include some executive powers and responsibilities.

Links with WMCC

7. In its contacts with the WMCC the Executive reports monthly directly to the Passenger Transport Committee of the county council and to the Finance, and Policy and Resources Committees as well as to the Highways and full council as and when necessary. It is represented at other committee meetings when appropriate. The Executive's Directors and Officers also join in activities involving WMCC departments such as the Strategic Planning Group which is responsible for developing and monitoring the Structure Plan on which the transportation policy of the county council is based. Transportation planning work is partly carried out by the WMCC/WMPTE Joint Transportation Planning Unit on which appropriate disciplines are represented.

County council's passenger transport policy

8. The county council is responsible for establishing a comprehensive transportation policy. The passenger transport component of this policy is based on the 1972 Development Plan adopted by the county council in 1974 and updated annually by the TPPs; this provides the policy which the PTE is required to implement. Since 1974 WMPTE has in discharging this policy:

- (1) established standard fares for bus and rail and comprehensive Travel-card bus/rail season ticketing;
- (2) introduced uniform passenger-carrying principles;
- (3) developed extensive market research;
- (4) developed five local rail lines including the building of four new stations;
- (5) provided co-ordinated bus/rail facilities at stations;
- (6) provided free car parking at local rail stations;
- (7) designed and published comprehensive timetables and service network information;
- (8) co-ordinated bus services throughout its operating area;
- (9) established agreed policies for employment and training;
- (10) progressed the rationalisation of equipment (buses, street furniture, fare collection machines, two-way radio etc).

APPENDIX 1.4
(referred to in paragraph 1.29)

City of Cardiff Council

Legislation

1. The City of Cardiff derives its power to run a bus service from two local Acts of Parliament—the Cardiff Corporation Act 1920 and the Cardiff Corporation Act 1930. The basic legislative provisions governing bus operations in Cardiff are contained in sections 64–90 of the 1920 Act. A later provision in section 46 of the 1930 Act restricted the running of buses in competition with services provided by the corporation. This restriction was removed by the Cardiff (Revocation of Restrictions) Order 1981, made under section 43(2) of the Transport Act 1980 following an application by a resident of Cardiff.

The public transport undertaking

2. The power to run the transport undertaking is a statutory function of the city council and the undertaking is subject to the constitutional rules which bind a local authority. The day-to-day operations of Cardiff's bus services is undertaken by the Transport Department (CCT) headed by a General Manager, who is a Chief Officer responsible to the council's Chief Executive.

3. The council has a Transport Committee to deal with the detailed affairs of the undertaking and to report to it with recommendations at monthly intervals on matters concerning the undertaking. The Transport Committee consists of 15 elected city councillors and one co-opted county councillor. Like virtually all the council's committees, the Transport Committee reflects the political composition of the council; the majority party normally provides the Chairman and Vice-Chairman of the committee and a majority of its members.

4. Co-ordination of policies and strategies of the council is undertaken by a Policy Committee. Some matters dealt with by the Transport Committee—for example, finance, personnel or land—fall to be considered by sub-committees of the Policy Committee. There is also some cross-membership of committees between the city council and South Glamorgan County Council; the county council has a member on the city's Transport Committee (see paragraph 3) and the city has a member on the county's Environment and Planning Committee and on its Traffic Public Transport Sub-Committees.

5. A chart showing the links between the city council and its committees, and the Transport Department is at Figure 1.

CCT

6. Under the General Manager there is a Deputy General Manager with particular responsibility for project co-ordination, recruitment and training, and three heads of functional divisions—traffic, engineering and administration. Details of the responsibilities of the divisional heads are set out in Figure 2.

The City Treasurer's Department

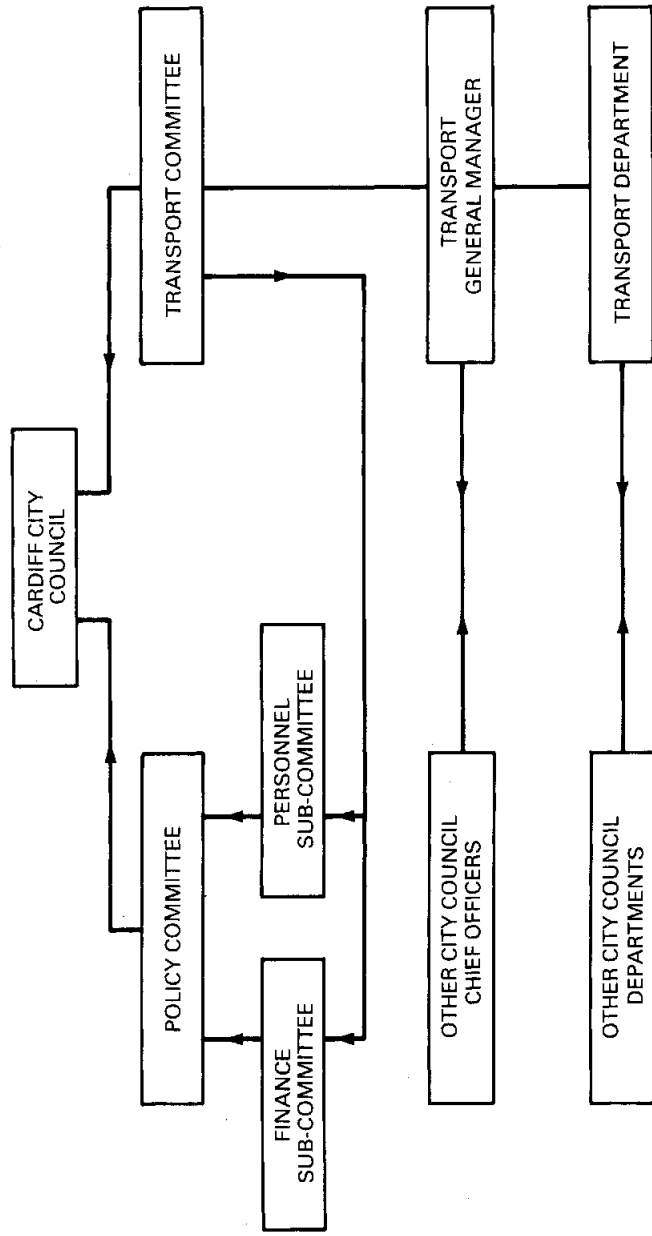
7. Overall responsibility for the preparation of the city council's budget is undertaken by the City Treasurer on the basis of data prepared by the individual council departments—including CCT. The City Treasurer's Department is also responsible for the apportionment of central establishment charges for administrative work undertaken by the council on behalf of individual departments.

8. Throughout council the day-to-day management of departments rests with the individual Chief Officers who act within the various nationally and locally agreed rules and procedures in relation to appointments, discipline, training and other appropriate matters. In order to avoid undue consideration of detailed personnel matters by committees three levels of delegation operate:

- (i) to the City Personnel Officer in consultation with the Chairman of the Policy (Personnel) Sub-Committee;
- (ii) to the City Personnel Officer; and
- (iii) to individual Chief Officers in respect of their own departments.

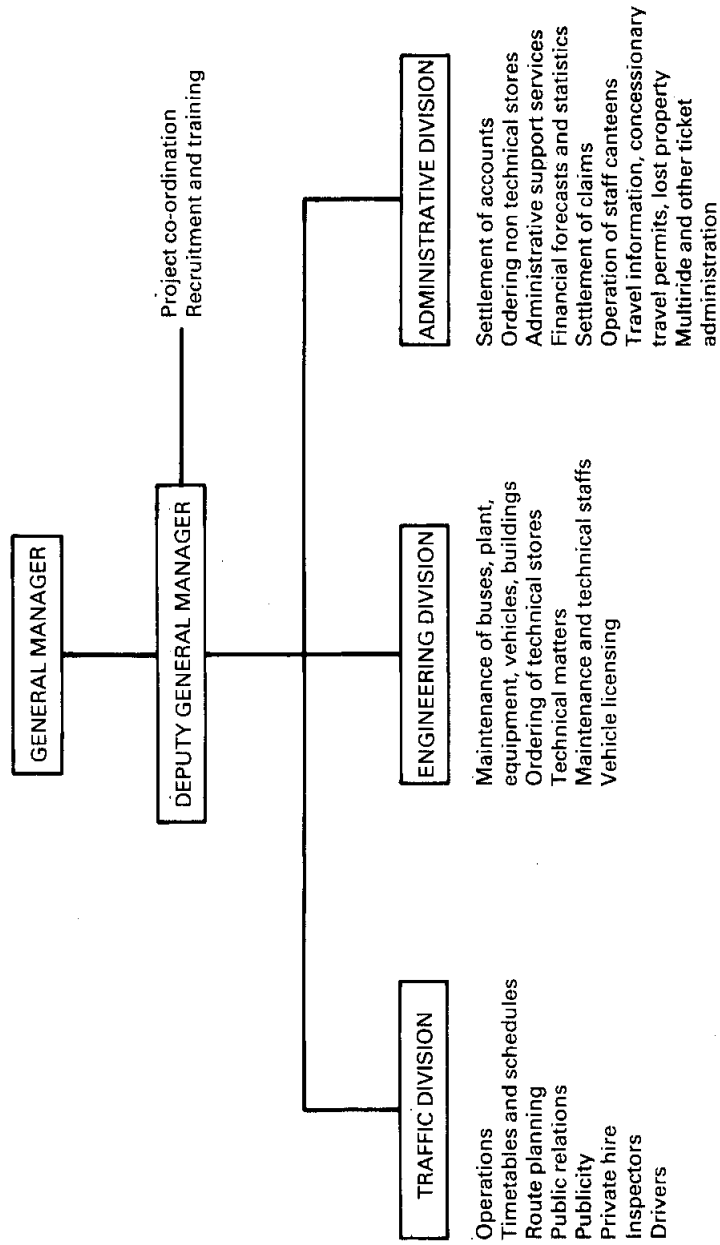
Matters which cannot be dealt with under delegated powers are referred to the appropriate council committee. Normally, this is first to the Employing Committee which makes a recommendation to the Policy (Personnel) Sub-Committee. Matters having financial implications also require consideration by the Policy (Finance) Sub-Committee before being passed to the Policy Committee and the city council.

FIGURE 1 CCT—relationship between Cardiff City Council and CCT



Source: CCT.

FIGURE 2. CCT—responsibilities of divisional heads



Source: CCT.

APPENDIX 1.5
(referred to in paragraph 1.31)

National Bus Company

1. The National Bus Company (NBC) was created by the Transport Act 1968 to take over the various bus and coach companies in England and Wales then in public ownership. NBC's operating companies are concerned with the operation of stage carriage services in England and Wales, and also with scheduled express services, excursions and day tours, coach holiday tours, and private hire and contract operations. National marketing of the express services and holiday tours is carried out by the National Express Division and the National Holidays Division of NBC. The Chairman and directors of NBC are appointed by the Secretary of State and it is effectively part of the nationalised industry sector.

2. The subsidiary companies are expected to conform to NBC's general policies and statutory financial duties but they each have their own General Manager and Board of Directors with a wide measure of delegation to manage their businesses to suit local circumstances, including the policies of local authorities. Co-ordination between operating companies and implementation of NBC policy is achieved by a system of regional direction in which a Regional Director has overall responsibility for the companies in each of NBC's four regions and chairs their Boards of Directors. Regional Directors take part in the formulation of group policy through membership of the Board of National Bus Management Ltd and the NBC Chief Executive's Committee.

3. NBC companies are generally treated by central and local Government in the same way as other operators of bus services. Thus they receive a grant (now being phased out) towards the purchase of new buses, obtain rebates of road fuel duty used on stage carriage services and receive grants under section 1 of the Transport Act 1978. In total in 1980 the support to NBC from these sources was about £90 million. This is equivalent to about 15 per cent of the revenue needed to cover the costs of NBC's stage operations.

4. In 1981 some 1,511 million passenger journeys were made on the group's 14,712 buses and coaches, which operated 607 million miles on urban, rural, local and long distance services. In 1980 the group operated 23 per cent of all buses and coaches in Great Britain and provided for about 25 per cent of passenger journeys by operating some 31 per cent of total bus and coach miles.

5. The NBC companies are major operators in Greater London and the metropolitan counties running substantial mileages on cross-boundary and internal services within the areas of these authorities in accordance with financial and operating agreements with the London Transport Executive and the PTEs. In the non-metropolitan counties NBC subsidiaries are responsible for the urban bus networks in Bristol and many other towns and cities. In those

towns and cities in non-metropolitan counties where there are municipal undertakings, NBC subsidiaries contribute to the local networks by operating cross-boundary services linking the centre with peripheral suburbs, and they sometimes run a proportion of the internal services. In most cases municipal and NBC urban operations are covered by agreements of some kind between the districts and NBC undertakings, designed to secure the best service network at best cost in resources. In some cases there are comprehensive agreements incorporating financial arrangements; in others there are no such agreements but only arrangements restrictive of the NBC undertakings.

6. NBC buses, crews and other staff based at urban depots are normally involved not only in the operation of the urban networks but also in the local suburban, inter-urban and rural services. Those services operated from rural depots similarly may feed into the urban networks. In many cases the rural depots share with the urban depots the operations of inter-urban stage carriage routes of considerable length, which provide better frequencies for intermediate villages than are normally practicable for scattered and remote communities.

7. Most of the urban and rural depots provide regular contract services, notably for the carriage of school children; they also provide vehicles for local private hire and excursions. Many of the depots take part in group National Express coach services and in group National Holidays programmes.

APPENDIX 2.1
(referred to in paragraph 2.149)

Fare collection and control procedures

1. Of the four operators under inquiry, WMPTE uses for fare collection on its buses an automatic system (the Autofare system) of the type described below. CCT is in the process of converting to a similar system (the Almex system). The two NBC companies, BOC and TMT, do not use any form of automatic fare collection system at present.

WMPTE

On-bus fares

2. The Autofare system used by WMPTE works as follows. The passenger inserts the exact fare (no change is given) into a slot on the top of the ticket issuing equipment. The cash is held in a viewer until the driver has verified that the correct money has been inserted. He then issues a ticket to the passenger. The action of doing so releases the cash into a locked cash vault at the base of the equipment.

3. The earlier machines installed in the Autofare conversion programme are fitted with numerators, which record only the number of tickets issued. Later machines are fitted with totalisors, which record both the number and value of tickets issued. WMPTE is at present engaged in fitting totalisor equipment to all its bus fleet.

4. If the passenger does not have the exact fare available, the driver either provides change or issues an unpaid fare voucher which is payable at one of the Executive's offices or to any of the Executive's inspectors. Likewise, any non-payment or underpayment of fares discovered by a travelling inspector which cannot be collected on the spot is the subject of an unpaid fares voucher. Any cases of non-payment of an unpaid fares voucher are followed up by a personal visit by an inspector.

5. If a driver is required to change the route of his bus, or to change from one bus to another while away from his depot, he enters the number of tickets issued and/or the value total of tickets issued, as shown by the ticket equipment, on the waybill which is maintained for each cash vault.

6. At the end of each service run, the driver delivers the locked cash vault to the duty inspector at the depot and deposits the relevant waybill, duly completed for his service duty or duties, in a secure letter box at the depot.

7. Cash counting and bagging equipment is used to count and bag simultaneously the cash in each vault. The totals are then entered in a cash counting book. When the contents of all the vaults in respect of a particular day's

service have been counted, the total cash is agreed with the total shown by the cash counting equipment and the cash counting book. The cash is then prepared for banking. About 130 tons of cash per week are handled in this way at an estimated cost of £600,000 per annum.

8. The route waybills are collected from each garage by ticket audit staff together with the relevant copies of the cash counting book. The total value of ticket sales is calculated for each waybill, using the totaliser or the numerator readings entered thereon, as the case may be, and compared with the total recorded on the copy of the cash counting book. Material discrepancies are reported on for further action by garage staff, plain clothes inspectors, internal audit or divisional management as appropriate.

CCT

On-bus fares

9. The Almex farebox system used by CCT is in principle the same system as the Autofare system used by WMPTE, but was chosen by CCT because the equipment conversion costs are only about £350 per vehicle compared with a current cost of about £1,800 per vehicle for the new equipment purchased by WMPTE. (WMPTE told us, however, that the two systems are not strictly comparable.)

10. CCT operates an 'exact fare only' policy on its farebox buses with drivers instructed not to handle passenger revenue. Change vouchers are provided for overpayments and these are redeemable at CCT's City office. CCT adopts a strict attitude to cases of non-payment or underpayment of fares. In such cases inspectors, and occasionally drivers, require an additional payment of a standard fare. This is currently 60p for adults and 30p for children. (WMPTE told us that this standard fare system is experimental and that DTp and the Home Office are not yet prepared to allow its use outside certain specified areas.)

11. As a part of its conversion to the farebox system, CCT has built a new cash office, making extensive use of conveyors, at its operating garage. The area provides for the safe deposit of vaults and, when cash office staff are on duty, simultaneous counting and bagging facilities within the same security area. Revenue from each bus vault is recorded and is set against ticket sales for that bus. CCT estimates that once fully operational it will handle approximately 12 tons of cash per week. As a part of its on-bus revenue accounting procedure CCT has also introduced micro-computers to handle its waybill records and reconciliations, and to provide various management statistical reports.

12. Until July 1982 CCT will operate a combination of farebox and 'payment to the driver' systems. Its system for driver accounting is as described below for BOC and TMT. Irrespective of which system is in use, however, CCT requires drivers to record ticket machine readings at each terminus and to complete the summary of total ticket sales, etc, before returning their ticket machines.

Off-bus fares

13. WMPTE's procedures for dealing with travel card sales, which are made through its own offices or through agencies, are similar to those for dealing with on-bus fare receipts. A daily waybill is prepared for each sales outlet. In the case of a travel card office, for example, this would be for each sales window. Sales of tickets are controlled by a system of serial numbering with stocks of unsold tickets remaining under the control of the office manager or agent. Travel card sales are subject to regular scrutiny by ticket checkers and also by internal audit.

14. CCT deals with its sales of multi-ride tickets in a similar way to that in which WMPTE deals with travel card sales, except that the checking work carried out by separate ticket checkers in the case of WMPTE is performed in the case of CCT by inspectors.

BOC and TMT

On-bus fares

15. Neither BOC nor TMT uses any form of automatic fare collection system. Drivers use a Setright machine, suitably modified for OMO operation, to issue tickets as required. The fares collected are deposited in a container. Although passengers are encouraged to tender the exact fare, a 'no change' policy is not enforced and if necessary change is given by drivers from their personal change machine. TMT (but not BOC) issues a small change float of about £1 but this is not always adequate and on occasion drivers may either use their own money or the day's takings to give the required change. Change can be a problem, particularly at the beginning of a duty.

16. In contrast to the practice with the automatic fare collection systems, the ticket machines and change machines normally remain with the driver throughout his tour of duty. If he changes buses during the day, he cashes up, enters the readings shown by his ticket machine on to a waybill and takes the cash takings, ticket machine and change machine with him to the new bus. Likewise, if he changes route during the day without a change of bus, he also enters the totals shown by his ticket machine on to the waybill. (There are exceptions at BOC's Bristol City and Gloucester depots, which use a 'one machine per bus' system.)

17. At the end of his day's duty, the driver completes the waybill, counts the cash taken and enters this total on to the waybill. He pays the cash in at his garage accompanied by the waybill and deposits the ticket machine for the night. (There are also facilities for cash to be paid in on account during a duty.) At the garage, the ticket machine readings are checked with the waybill, the cash is recounted by a cash clerk and the cash total is also checked to the waybill. Cash is then banked through the Post Office or private security services or by the use of escorted personnel.

18. In addition, in the case of BOC a headquarters revenue officer also periodically spot-checks the amount of cash paid in with the corresponding waybill totals. Internal audit also verifies that the ticket machine totals are

regularly compared with those on the waybill. Continuity is checked on a daily basis. As part of the computer systems, audit checks are carried out on a weekly basis together with spot checks by inspectors and checked by cash clerks on a daily basis.

19. TMT has recently installed on a trial basis cash counting equipment at its Nottingham garage. It told us that this equipment will pay for itself within 12 months through staff savings. Provided that it continues to give satisfactory service, it is intended to extend its use and also to concentrate cash counting into fewer locations.

20. BOC, on the other hand, has used semi-automatic cash counting equipment for two years at its Stroud, Cheltenham and Gloucester depots. It has recently introduced an automatic cash counting and bagging machine at headquarters to cope with the requirements of all its Bristol depots. Future plans envisage the installation of cash counting equipment at Bath, Swindon and Weston-super-Mare depots. BOC considers that the introduction of cash counting equipment will have a neutral effect on staffing levels but that there will be benefits by way of a reduction in bank charges.

Off-bus fares

21. Season ticket, Rover card and express coach, holiday and private hire sales are dealt with by BOC and TMT through their sales offices. Waybills are completed daily for each clerk detailing the sales made for each type of ticket, listed by serial number and value. Cash is counted daily and entered on to a waybill and the cash is then banked along with traffic receipts in the manner described above.

APPENDIX 2.2

WMPTE: Income and expenditure for the 5 years 1976-77 to 1980-81 compared with budgets and comments on significant variances

	1976-77		1977-78		1978-79		1979-80		1980-81	
	Budget £m	Actual £m	Budget £m	Actual £m	Budget £m	Actual £m	Budget £m	Actual £m	Budget £m	Actual £m
<i>Income</i>										
Passenger revenue etc	41.8	44.5	53.8	57.2	66.3	64.4	71.6	72.4	79.5	85.2
Integrated services	1.4	1.5	1.9	1.5	1.7	1.6	1.8	1.7	1.6	1.6
Interest receivable	0.1	1.0	0.4	0.6	0.3	1.0	0.8	1.8	1.2	1.5
Total	43.3	47.0	56.1	59.3	68.3	67.0	74.2	75.9	82.3	88.3
<i>Expenditure</i>										
Employee costs	42.2	41.7	46.5	47.0	52.9	52.1	56.4	59.2	71.1	69.3
Materials and other expenses	11.8	12.4	16.0	14.3	17.3	15.6	18.0	19.2	24.0	24.3
Asset utilisation charge	4.1	4.9	6.2	6.2	6.9	6.8	6.9	6.9	8.7	5.2
Loan interest	1.4	1.0	1.3	0.9	0.9	0.7	0.6	0.6	0.4	0.4
Integrated services	2.3	2.1	2.1	2.1	2.3	2.1	2.4	2.5	2.8	2.6
Total	61.8	62.1	72.1	70.5	80.3	77.3	84.3	88.4	107.0	101.8
<i>Revenue Shortfall</i>	18.5	15.1	3.4	11.2	4.8	10.3	10.1	12.5	24.7	13.5

Source: MMC study.

Note

The above expenditure figures differ from those in Table 2.8 because they include integrated services.

Comments on significant variances

1976-77 *Materials and other expenses.* Expenditure on stores exceeded budget due to a combination of unprecedented increases in prices (many parts averaged over 50 per cent increase) over and above the general level of inflation and increased consumption on bus maintenance partly caused by delays in delivery of new buses. There was an underestimation on fuel due to increased rebates.

Asset utilisation. The charge for depreciation was reduced to take account of an expected reduction in New Bus Grant.

1979-80 *Employee costs.* Pay increases were 5 per cent in excess of the budget but this was partially offset by reduced staffing levels and redundancy pay.

Materials and other expenses. Increases in costs of fuel and tyres offset by savings on levels of stores prices and works orders.

1980-81 *Asset utilisation.* Reduction in provision for replacement cost depreciation due to the new policy of leasing buses instead of purchasing. *Passenger revenue.* Fare increases. (WMPTE told us that it was not envisaged that the £24.7 million shortfall should be fully supported by W.M.C.C. A fare increase in March 1980 had already been planned, to yield £6.9 million. The balance of the shortfall was to be covered by a combination of a further fare increase in August 1980, service economies and additional revenue support.)

APPENDIX 2.3

CCT: Income and expenditure for the 5 years 1976-77 to 1980-81 compared with budgets and comments on significant variances

	1976-77		1977-78		1978-79		1979-80		1980-81	
	Budget £m	Actual £m	Budget £m	Actual £m	Budget £m	Actual £m	Budget £m	Actual £m	Budget £m	Actual £m
Income										
Revenue	4.31	4.69	4.95	5.29	5.43	5.64	5.88	6.28	6.60	7.87
Transport supplementary grant	0.25	0.27	0.25	0.25	0.30	0.34	0.39	0.39	0.47	0.47
Total	4.56	4.96	5.20	5.54	5.73	5.98	6.27	6.67	7.07	8.34
Expenditure										
Drivers and conductors	2.42	2.34	2.38	2.38	2.54	2.56	2.50	2.98	3.49	3.32
Repairs and maintenance PSV	0.81	0.81	5.41	0.97	1.02	1.05	1.21	1.31	1.18	1.75
Other working expenses	1.71	1.88	(0.17)	2.11	2.24	2.11	2.49	2.44	3.37	3.10
Debt charges and leasing	0.25	0.24	0.01	0.28	0.47	0.35	0.56	0.51	0.55	0.52
Total	5.19	5.27	(0.08)	5.74	6.27	6.07	6.76	7.24	8.59	8.69
Net deficit	(0.63)	(0.31)	0.32	(0.53)	(0.54)	(0.09)	(0.49)	(0.57)	(1.52)	(0.35)

Source: MMC study.

Comments on significant variances

1976-77 Revenue. Fares increase 30 October 1976 and 5 per cent increase in passengers carried. Also concessionary fares introduced for children.

1977-78 Revenue. Fares increase.

1978-79 Revenue. Fares increase.

1979-80 Revenue. Fares increase.

Wage awards. Approximately 14 per cent instead of 5 per cent budgeted in line with Government's pay policy.

Fuel oil. Increased prices.

1980-81 Revenue. Fares increase.

Repairs and maintenance PSV. Higher costs and increase in breakdowns.

APPENDIX 2.4

BOC: Income and expenditure for the 5 years 1977 to 1981 compared with budgets and comments on significant variances

	1977		1978		1979		1980		1981	
	Budget £m	Actual £m	Budget £m	Actual £m	Budget £m	Actual £m	Budget £m	Actual £m	Budget £m	Actual £m
<i>Income</i>										
Grants	1.2	1.3	1.6	1.2	2.3	2.1	2.0	1.9	1.9	2.4
Stage passenger fares	19.3	19.2	20.5	21.1	21.8	22.8	27.3	25.6	28.5	25.4
Other passenger revenue	0.4	0.4	1.1	1.0	0.7	0.7	0.6	0.7	0.5	0.6
Total passenger revenue	20.9	20.9	23.2	23.3	24.8	25.6	29.9	28.2	30.9	28.4
Other	0.6	0.6	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.4
Total	21.5	21.5	23.5	23.5	25.1	25.9	30.2	28.5	31.3	28.8
<i>Expenditure</i>										
Variable costs										
Drivers and conductors	9.2	9.4	10.0	9.7	10.3	10.4	11.7	12.8	12.2	12.8
Other	2.4	2.3	2.6	2.5	2.8	3.0	3.7	3.8	3.9	4.0
Semi-variable costs										
PSV maintenance	3.8	4.2	4.4	4.6	5.3	5.6	6.2	6.1	6.2	6.0
PSV depreciation and leasing	1.4	1.4	1.7	1.4	1.5	1.2	1.5	1.5	1.7	1.6
Other	2.0	1.9	2.2	2.1	2.3	2.6	3.3	3.4	3.2	3.3
Net fixed costs	7.2	7.5	8.3	8.1	9.1	9.4	11.0	11.0	11.1	10.9
Interest	0.6	0.6	0.6	0.5	0.5	0.4	0.6	0.7	0.8	1.2
Other fixed costs	2.4	2.5	2.8	2.8	3.3	3.5	3.9	4.1	4.8	4.5
Total	3.0	3.1	3.4	3.3	3.8	3.9	4.5	4.8	5.6	5.7
Total	21.8	22.3	24.3	23.6	26.0	26.7	30.9	32.4	32.8	33.4
<i>Net surplus/(deficit)</i>	(0.3)	(0.8)	(0.8)	(0.1)	(0.9)	(0.8)	(0.7)	(3.9)	(1.5)	(4.6)

Source: MMC study.

Comments on significant variances

1977 PSV maintenance. Revised analysis of wage costs and additional material and outside contractors charges.

1978 PSV depreciation and leasing. Revised basis of calculation in line with NBC instructions.

1979 PSV maintenance. Increased costs and requirements, and engineering back pay provision.

PSV depreciation and leasing. Amended replacement depreciation.

Other semi-variable costs. Supervisory and clerical wage award above that incorporated in budget.

1980 Drivers and conductors. Wage award and consolidation in excess of that incorporated in budget.

Stage revenue. Reduction due to school teacher weekly strikes, steel strikes, passenger resistance, inflation, reducing spending power and general industrial recession less increased income from fares increase effective from 11 May and not provided for in budget.

1981 Drivers and conductors. OMO conversions not in line with anticipation due to delayed MAP introduction.

Interest. Increased charges due to adverse financial position.

Stage revenue. Reductions due to industrial dispute, industrial and economic recession and non-implementation of budgeted fares increase.

APPENDIX 2.5

TMT: Income and expenditure for the 5 years 1977 to 1981 compared with budgets and comments on significant variances

	1977		1978		1979		1980		1981	
	Budget £m	Actual £m	Budget £m	Actual £m	Budget £m	Actual £m	Budget £m	Actual £m	Budget £m	Actual £m
<i>Income</i>										
Grants	0.7	0.8	0.7	0.9	1.0	0.9	0.9	0.8	0.8	1.0
Fares	9.5	9.3	10.1	10.0	10.3	10.7	12.6	12.6	13.7	13.4
Other passenger revenue	0.8	0.7	1.2	1.3	1.4	1.4	1.6	1.6	1.6	1.6
Total passenger revenue	11.0	10.8	12.0	12.2	12.7	13.0	15.1	15.0	16.1	16.0
Other	0.4	0.4	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Total	11.4	11.2	12.1	12.3	12.9	13.2	15.3	15.2	16.3	16.2
<i>Expenditure</i>										
Variable costs										
Drivers and conductors	5.3	5.5	5.8	5.7	6.2	5.9	6.4	6.6	6.2	6.1
Other	1.4	1.4	1.5	1.4	1.6	1.8	2.3	2.4	2.6	2.6
Semi-variable costs										
PSV maintenance	1.6	1.7	1.9	1.9	2.2	2.2	2.5	2.6	2.9	2.6
PSV depreciation and leasing	1.0	1.2	1.2	1.0	0.8	0.8	0.8	0.7	1.0	1.0
Other	0.7	0.7	0.7	0.8	0.9	0.9	1.1	1.0	1.1	1.0
Net fixed costs	3.3	3.6	3.8	3.7	3.9	3.9	4.4	4.3	5.0	4.6
Interest	0.4	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.4	0.3
Other fixed costs	1.4	1.3	1.5	1.6	1.9	1.9	2.2	2.3	2.6	2.6
Total	11.8	12.1	13.0	12.7	13.8	13.8	15.6	15.9	16.8	16.2
<i>Net surplus/(deficit)</i>	(0.4)	(0.9)	(0.9)	(0.4)	(0.9)	(0.6)	(0.3)	(0.7)	(0.5)	0.5

Source: MMC study.

Comments on significant variances

1979 Drivers and conductors. Over assessment of costs.

1980 Drivers and conductors. Under assessment of wages awards.

1981 PSV maintenance. Over assessment of costs.

APPENDIX 2.6
(referred to in paragraph 2.142)

Effects of OMO on costs and revenues

1. Introduction

1.1. The objectives of the study are as follows:

- (1) to identify the potential effects on costs and revenues of OMO;
- (2) where possible, to quantify these effects financially; and
- (3) using the outcome of the first two stages, to identify the circumstances in which OMO may have an adverse financial effect.

1.2. These somewhat circumspect objectives are necessary because for a number of reasons it is difficult to isolate all the benefits and costs of OMO with any degree of certainty. First, a number of other factors have been changing at the same time as the conversion to OMO which have had the same type of effect. For example, increased traffic congestion has reduced running speeds and has thus increased fuel and maintenance costs. These factors have also been affected by OMO. Thus, isolating the precise effects of OMO is difficult. Second, the circumstances of OMO conversion differ from operator to operator and any definitive study must be on a case study approach, the results of which may not be generally applicable.

1.3. Unfortunately there is no way completely to surmount the first problem although a judgment can be made, and has been made, usually after discussion with relevant people in the bus industry. The second problem has been overcome (and the first to some extent lessened) by basing estimates on WMPTE data without necessarily implying that all the factors have affected that particular operator. This allows, on what is thought to be a consistent basis, estimates of the relative magnitudes of each potential effect to be made and a number of conclusions to be drawn.

1.4. The general conclusions are set out in Section 4 but can be summarised as follows:

- (1) The effects of OMO conversion on costs are diffuse and a relatively complex calculation is needed to isolate them. They are *not* confined to the effects on wage-related costs.
- (2) Two potential cost increases are sufficiently large, relative to the savings in wage-related costs, to eliminate in some circumstances these primary savings. These are the costs of any additional vehicles and crews needed because of slower running times and the effects on fuel, engineering spares and maintenance. The former should in principle be identifiable in a specific case. The latter is less easy to identify but would warrant further study.

1.5. In considering these conclusions, however, a number of other factors must be kept in mind. The most important of these is that most OMO conversions took place at the time when the bus industry was short of labour and was often failing to run advertised services in consequence. Whilst it is true that higher wages were paid to one-man drivers and that productivity bonuses were earned by all crews, it is possible that some of these would have been granted in any case in an attempt to attract sufficient labour. Thus, the initial or primary cost savings from OMO conversion may have been underestimated.

1.6. The second qualification concerns the productivity bonus itself. In WMPTE at least, the bonus was not increased as wage rates increased generally during the conversion period. At the end of the conversion period this ceased to be so but until then the proportion of savings being retained by the operator was, in effect, increasing as conductors' wages rose. Thus in the past the savings to the operator may have been higher than they are now.

1.7. Finally, it must also be recognised that where OMO conversion is complete the costs of reverting to crew (or conventional) operation may not be the mirror image of the costs of one-man conversion. For example, there could be staff pressure to retain current wage rates. Vehicles, although more complex as a result of OMO, could not be simplified overnight. Thus a fairly long transitional stage would be needed before the full effects on costs of reverting to two-man operation were felt.

1.8. The analysis has largely been based on information supplied to the Commission for other parts of its inquiries. WMPTE was, however, extremely co-operative in providing additional data at relatively short notice. Where data were not available it was either the result of the time constraint on the study or the fact that it was not kept in a readily accessible form.

1.9. Section 2 identifies the main financial effects of OMO whilst Section 3 quantifies them. Section 4 contains the general conclusions and an opinion on the effects on WMPTE.

2 Identifying the effects of OMO

2.1. For the purpose of analysis it is helpful to divide the effects of OMO into primary and secondary effects. The primary effects are the savings in wages and other wage-related costs of conductors, less the additional payments to drivers and the general bonus distributed to all staff. In the case of WMPTE this has been estimated at £8.4 million a year on an assumed staff saving of 4,023 conductors.

2.2. Secondary effects comprise the other financial effects of OMO including those which may not be apparent at the time of conversion. Not all secondary effects are likely to be present in any particular undertaking and, indeed, there is often scope for trading off some of these effects. For example, expenditure on automatic fare collection equipment can be traded against expenditure on additional buses in a schedule. The list below, though comprehensive, would not therefore apply in its entirety to any particular undertaking.

2.3. The main secondary effects comprise:

- (1) cost savings (other than wages and wage-related costs) associated with a reduction in total staff requirements, primarily uniforms, personal equipment and canteen costs;
- (2) cost savings associated with a reduction in the numbers of new staff recruited, mainly training costs. In most circumstances OMO leads to a once for all reduction in recruitment and may also result in a longer-term change in recruitment as labour turnover is affected;
- (3) the costs of additional buses and crews if OMO conversion leads, through an increase in running times, to a higher vehicle requirement on a service;
- (4) the costs of additional or more sophisticated ticket equipment needed to maintain running times with OMO. These may comprise initial purchase costs, maintenance costs and any associated costs in cash counting, ticket issuing departments, etc;
- (5) the change in inspectorate costs if the supervision of either crews or passengers needs alteration;
- (6) the change in maintenance costs resulting from the lower average speed of OMO;
- (7) the change in fuel costs arising from the same cause;
- (8) the increase in the initial purchase price and the continuing maintenance costs of the more sophisticated buses incorporating devices to ease the strain on one-man drivers, eg fully automatic transmission, power steering, etc;
- (9) the increase in costs resulting from a higher spare vehicle requirement, arising either directly from OMO or from the greater sophistication of the vehicles;
- (10) the costs of introducing off-bus ticket sales in order to reduce boarding times;
- (11) any loss of revenue from a lower quality of service due to OMO;
- (12) the improvement in revenue resulting from greater staff availability with OMO;
- (13) changes in overtime costs if OMO affects recruitment and absenteeism; and
- (14) the costs of vehicle conversion.

3 Quantification of the secondary effects

Introduction

3.1. The objectives of this section of the report are two-fold. First, it is intended to explain in more detail the processes by which the secondary effects may arise. Second, it will attempt to quantify their potential magnitude using, wherever possible, data for WMPTE. This does not imply, however, that OMO necessarily had these effects on WMPTE. Rather, it is intended to identify on a consistent basis the relative magnitudes of the different factors.

Cost savings associated with a reduction in total staff requirements

3.2. A number of items of expenditure are directly related to the number of employees. The most obvious of these are the on costs attributable to wage or salary payment, such as pension contributions, national insurance, etc. These have been taken into account in the estimates of primary cost savings. Other expenditure items are:

- (1) uniforms and personal equipment (eg lockers, cash boxes etc);
- (2) any net expenditure on canteens; and
- (3) expenditure on employee welfare.

In the case of WMPTE, costs of uniforms did enter the OMO bonus calculations. In March 1978, the last conversion in the South Division, an annual cost of £41 per man was estimated which would be about £66 at current prices. Canteen costs have been estimated at approximately £170 per employee per annum and a reasonable estimate of welfare expenditure would be in the region of £10-£20 per year. In total, therefore, savings amount to about £225 per man per year (allowing for the life of uniforms), equivalent to £905,000 per year for the 4,023 conductors no longer employed because of OMO.

Cost savings resulting from changes in the number of staff recruited

3.3. In the short-term OMO will normally reduce turnover amongst crews. During most of the 1970s, when staff shortage was a problem, the effect of OMO was to reduce the shortage and therefore to make recruitment less necessary. Indeed many operators deliberately barred recruitment prior to OMO in order to avoid potential redundancy problems.

3.4. OMO may have an effect on recruitment costs in two other ways. First, even if labour turnover rates remain the same, the total number of staff is reduced and therefore the absolute level of recruitment will fall. Second, it might also be argued that OMO will affect turnover amongst drivers in two different ways: because the rate of pay is higher and because the job is more arduous. If these two factors are not in equilibrium then there will be a change in turnover rates. Unfortunately, relatively little is known about the causes of labour turnover and whilst it would be feasible to compare turnover rates between one-man operators and conventional drivers it would not necessarily be reasonable to ascribe any differences to OMO. In these circumstances the latter point has not been quantified.

3.5. Costs associated with recruitment are:

- (1) the issue of uniforms;
- (2) training costs.

Estimates of the cost per man are £200 a year. The number of men affected in a year has been estimated at between 10 per cent and 20 per cent of total conductor requirements based on the experience of most major operators over the years since 1974-75. Taking 15 per cent of WMPTE's former 4,023 conductors indicates a saving of about £121,000 a year.

Additional buses and crews if one-man operation leads to an increase in running time and vehicle requirements

3.6. This is potentially the greatest hidden cost of OMO. Its extent in practice will vary enormously from case to case and will depend initially on the effect on passenger boarding times; and hence on the running time required to travel from terminus to terminus. If an increase in running time is necessary as a result of OMO, additional resources may only be needed if this cannot be absorbed by a reduction in the time spent at the terminus before the next trip. (The fact that this is possible does not necessarily indicate inefficiency. For example a service may need 50 minutes running time and operate hourly so that 10 minutes is spent at each terminus, in order to produce the hourly frequency. If converted to OMO an extension of running time to say 55 minutes would be feasible.)

3.7. WMPTE has, in fact, taken a number of steps to minimise the impact on passenger boarding times of OMO. First, its use of Travelcards means that there is no cash transaction on the bus for a proportion of its passengers. Free off-peak travel for pensioners (although a county council rather than a WMPTE policy) also has this effect. In total only 53 per cent of passengers pay on the bus. Passengers paying cash place their fares in a farebox and no change is given. Ticket issue is automatic and requires relatively little work on the part of the driver. In consequence, the increase in passenger boarding times has been relatively small.

3.8. WMPTE has therefore been able to convert most of its services to OMO without increasing its vehicle requirements. Where increased running times have been necessary they have either been caused by other factors like route extensions or have been accommodated by reducing standing time at termini. Data have been produced for Coventry comparing two-man running times with those for OMO using, first, normal ticket issuing equipment and, second, Autofare. These indicate that while additional running times are sometimes necessary, with Autofare the increases are generally negligible.

3.9. However, WMPTE may not be a typical case and other operators have had to concede additional running times and use extra vehicles. One measure of the extent of this is shown by the statistics of vehicle miles per vehicle hour in service. If a route is converted to OMO and the running time increase needs more vehicles while vehicle mileage will remain unchanged, the number of vehicle hours needed to provide this mileage will increase and vehicle miles per vehicle hour will fall.

3.10. Data assembled by another major operator over a number of years has shown a steady decline in vehicle miles per vehicle hour and a steady increase in the proportion of OMO. For example, over a period when an extra 20 per cent of bus-mileage was converted to OMO there was a 2 per cent fall in vehicle miles per vehicle hour. However, OMO conversion is not the only factor affecting this statistic. Increased traffic congestion and increases in the number of traffic signals and pedestrian crossings have also contributed.

3.11. To obtain an estimate of the potential order of magnitude of this effect, estimates were based on a 2.5 per cent and a 5.0 per cent increase in vehicle hours as a result of OMO. Had this happened in WMPTE and had costs increased in direct proportion, the additional costs at 1981 prices would have been in the region of £3.6 million to £7.2 million a year. It must be recognised that the cost assumption used may be somewhat extreme and a more reasonable estimate might be about 80 per cent of the above figures, ie £2.9 million to £5.8 million.

Costs of ticket equipment

3.12. It would be possible to have OMO using the same ticket equipment as conductors use although normally some kind of fitment for the vehicle would be needed. In urban areas this is likely to produce unacceptably high boarding times and more sophisticated equipment is required. Experience throughout the industry has been that the no-change Autofare system used by WMPTE and several other major operators does give boarding times per passenger which are probably the fastest feasible. The equipment itself cost about £600 per set in 1978 prices which is equivalent to £930 in 1981 prices. As an annual charge on 2,433 buses this amounts to £150,000 a year over a 15 year life.

3.13. Offsetting this is the saving from a reduced requirement for clerical staff who no longer have to reconcile waybills and cash. At the same time it could be argued that part of the cost of routine data collection by WMPTE's Field Survey Unit (FSU) should be offset against this saving as this activity is needed to replace data which was previously obtained from ticket sales records. However, the FSU data collection activity would probably have been necessary on some scale as a result of the pensioners' fares scheme and the Travelcard and it is doubtful whether the quality of data obtained from ticket machines would have been sufficiently high for modern service management to match supply and demand.

3.14. No estimate of staff savings could be made in the time available. However, an outline estimate based on one clerk per WMPTE garage would give a saving of 25 posts. If as much as half of this were offset by additional FSU costs there would still be a saving of some 12 posts which at £7,500 each give annual savings of £90,000. Overall, therefore, the effect of changing the method of ticket issue for OMO is a net cost of £60,000 pa. which may, in fact, be an over-estimate.

Inspectorate costs

3.15. Inspectorate costs are affected in two ways. First, fewer inspectors are likely to be needed at garages to supervise signing on and duty allocation. The main reasons for this are that there are fewer men to supervise and that the problems caused by a mismatch between driver and conductor availability are eliminated. The latter is important, as with two-man operation both crew members obviously have to be available if the bus is to run. If the driver is unavailable for duty A and the conductor unavailable for duty B then it is possible that both buses will fail to run if there are no spare staff and

the available crew members insist on claiming their scheduled duties. Clearly, avoiding this situation requires more resources than simply matching vehicles and drivers.

3.16. The second effect on the number of inspectors results from changing requirements for supervising crews and for revenue protection. There seems little reason to expect that OMO will materially affect the amount of supervision of the running of the services. Revenue protection supervision is likely to change from an emphasis on non-payment, which is more common with two-man operation, to overriding which is more common with OMO. Generally, a higher level of inspectorate activity may be needed but this is difficult to estimate.

3.17. Overall, however, WMPTE has reduced the number of inspectors by 40 partly as a result of OMO and partly as a result of the use of radio for vehicle supervision. If 50 per cent of this were the result of OMO the cost saving would be about £150,000 a year.

Maintenance, fuel costs, vehicle modification and spare buses

3.18. These items are best treated together as they all ultimately stem from the fact that a bus today is more complex than a bus of 20 years ago. The latter was, typically, a front engine bus with an open platform at the rear, with manual transmission and no power steering. (London Transport's Routemaster bus conforms to this general layout but does, in fact, have some of the technical improvements, such as automatic transmission, which are common on modern buses.) In the early 1960s this type of bus began to be superseded by vehicles with a transverse rear engine which minimised the intrusion of the engine into the passenger carrying area. Because the engine was at the rear, and therefore out of earshot of the driver, semi-automatic or automatic transmission was necessary. A further difference was that with this type of bus the front axle was moved further back so that a relatively flat front platform was possible directly opposite the driver.

3.19. The main advantage of this design was its large seating capacity. It could seat up to 78 passengers compared to a maximum of 73 in a traditional design vehicle of similar size and compared with 56 to 65 in the traditional design vehicle typical at the time. Although this imposed a higher work-load on the conductor, the driver was now able directly to supervise loading and unloading to offset this. It should be stressed that most major operators were purchasing this type of vehicle, which is, of course, suitable for OMO, before OMO of double-deck buses was either legally possible or had been accepted by the trade unions.

3.20. One consequence of this change in bus design was that maintenance became more expensive and a higher proportion of spare vehicles was needed. These consequences were not, however, the result of OMO.

3.21. Since OMO of double-deck buses became possible in 1967 the trend towards this type of bus accelerated and was encouraged by the fact that

the more traditional bus was ineligible for New Bus Grants under the Transport Act 1968. Further modifications have been introduced including more widespread use of automatic transmission, power steering, power assisted hand brakes, etc. While it is true that OMO would be extremely difficult without such aids it is equally true that other factors like increasing traffic congestion, problems of parked vehicles, health and safety requirements and the recruitment of women drivers might have made them essential in any case, and changed driving conditions would have led to increased fuel and maintenance costs.

3.22. In response to these problems it is only possible to provide a range of the estimated costs of these effects and then to consider what proportion may be attributable to OMO. A starting point is the vehicle itself. A modern double-deck bus currently costs in the region of £60,000. Whilst there is no comparable simpler vehicle on the market a broad estimate of the additional cost of this vehicle compared with a less complex one is about £10,000, which is 17 per cent less. If a similar proportion of maintenance and fuel costs were also attributable to this complexity then estimates for these items can be made. Spare vehicles present a more complex problem because even as far back as the late 1960s some urban fleets were operating with 20 per cent spare vehicles on traffic requirements. A figure of 10 per cent is often quoted as a reasonable figure for a fleet consisting entirely of the simpler type of bus but no detailed data to substantiate this could be found. If this figure is accepted, however, additional spare vehicles of 10 per cent of traffic requirements can be attributed to more complex rear-engined buses.

3.23. Using data for WMPTE gives the following estimates of increased costs.

	<i>£ million per annum</i>
Additional capital cost of vehicles	
2,391 at £10,000 over 15 years	1.594
17% of fuel cost	0.961
17% of maintenance cost	4.665
10% spare vehicles, 190 buses at £50,000 depreciated over 15 years	0.633
	7.853

It cannot be too strongly emphasised, however, that these figures are only very broad estimates, although they obviously allow estimates to be made on other assumptions.

3.24. Given the arguments above concerning other factors it would not be reasonable to attribute all of this to OMO. Twenty-five per cent of the figure of increased costs set out above would amount to £1.96 million a year.

Off-bus ticket sales

3.25. This is a good example of an area in which an operator can trade off increased running times and consequent higher operating costs against the costs of off-bus ticket sales. It must again be emphasised, however, that off-bus

ticket sales may be introduced for other reasons. In particular, the Travelcard type of ticket has advantages in reducing the cost penalty associated with changing buses and may in consequence give the operator greater flexibility in matching supply and demand by use of feeder services and interchanges.

3.26. As part of its work for the inquiry WMPTE has produced estimates of the costs of printing and selling its Travelcards. Other financial effects include the gain in interest receipts and the change in revenue resulting from Travelcard. As far as the latter is concerned WMPTE has argued that the long-term effect of Travelcards on revenue has been almost neutral, the short-term losses having been compensated by long-term retention of traffic. A range of estimated revenue effects has been made based on the extremes of no long-term retention and the long-term retention claimed by WMPTE.

3.27. Costs of issue and distribution have been estimated at £0.334 million a year which is partly offset by interest gains of £0.076 million leaving a net figure of £0.258 million a year. Revenue loss would be £5.5 million annually if no traffic had been retained in the long term. If the figures claimed by WMPTE for traffic retention are correct there has been a revenue gain of £0.5 million from Travelcard. Taking the mean of these two estimates gives a revenue loss of £2.5 million and a total effect of Travelcard of £2.758 million. Attributing 50 per cent to OMO gives a cost of £1.379 million per year.

Effects on revenue

3.28. Regardless of whether it affects boarding times OMO can be held to reduce service quality because the conductor is no longer available to assist with luggage, prams or to help less agile passengers on and off the bus. However, the major measurable effect of OMO is the increase in boarding times resulting from the fare transaction with the driver. As already pointed out this is influenced by the fare system and the nature of the fare collection method used.

3.29. It is, however, possible to estimate the likely effects on a passenger's total journey resulting from the increased boarding times. An average urban bus journey is about 2.5 miles long. In the West Midlands the average number of boardings per vehicle-mile in 1981 was seven. Thus during a 2.5 mile journey 17.5 other passengers will board. Some of this, however, will be at route termini or other points at which boarding time and total time spent at a stop are unrelated. No information exists on this but an estimate of 25 per cent would seem reasonable. Thus the additional delay per passenger journey would be about 13 times the average additional boarding time per passenger.

3.30. If the additional boarding time per passenger were two seconds, then the effect on a full journey would be an extra 26 seconds. As a proportion of the total time and money cost of a bus journey (including walking and waiting times) this is negligible. The net loss of revenue, on WMPTE figures, would be about £500,000 a year.

Revenue effects of greater staff availability

3.31. OMO conversion can have two effects on staff availability. First, it eliminates the mismatch between driver and conductor availability referred to in paragraph 3.15. Second, it may have long-term effects on staff availability.

3.32. Again, however, it is almost impossible to isolate these effects from those of other causal factors. However, it is possible to estimate the effects on revenue of changes to the level of lost mileage. Using an elasticity of -0.5 (which means that each 1 per cent change in mileage operated will lead to an 0.5 per cent change in patronage) each 1 per cent reduction in lost mileage would increase WMPTE's traffic receipts of £83.0 million in 1980-81 by about £400,000 a year.

3.33. Given that total lost mileage has in recent years been in the range 1 per cent to 4 per cent, of which about 20 per cent results from breakdowns, the impact of one-man operation is likely to be relatively small.

Change in overtime costs

3.34. When OMO was first introduced on a large scale, staff shortage was a considerable problem in the industry. To meet it extensive overtime was worked at enhanced rates of pay. Over the years, however, regulations governing drivers' hours were gradually made more restrictive, particularly as a result of the Transport Act 1968 and the application of EEC Regulations. Whilst at this time overtime was probably considerably more expensive than recruiting additional drivers (assuming the latter could be done without raising wage rates generally), OMO conversion by reducing overtime would have been contributing to cost reductions. As time has gone on, however, the non-wage costs of employment have increased to the point at which there is often little difference between meeting a staff shortage through overtime or through extra recruitment. This benefit of OMO, whilst at one time significant, is no longer so important.

3.35. Evidence on the effects of OMO on job stress and absenteeism has proved impossible to find in the time available. In principle most operators would agree that one-man driving is more stressful than driving with a conductor. A one-man driver is working continuously during the journey whilst a two-man driver can relax momentarily at stops. In addition there is the added responsibility of ticket issue and cash reconciliation in most cases.

3.36. WMPTE does not, however, have readily available data on the incidence of absence over time split down amongst one-man drivers, two-man drivers and conductors. Whilst this information is available at source it is not summarised in this way. It also points out that other factors are known to influence the incidence of absenteeism and therefore a more complex analysis would be needed to isolate the effects of OMO alone.

3.37. Discussions with senior operating management also indicated that changes in the payment system have a much more marked effect on absenteeism. For example, in November 1978 absenteeism due to sickness averaged 873

days per week out of 2,300 drivers (7.6 per cent). By November 1980 this had been reduced to 368 days per week with 2,200 drivers (3.3 per cent). The main cause of the change was that in November 1978 the OMO productivity bonus was paid to men whilst they were absent sick whilst by November 1980 this practice no longer applied.

3.38. In these circumstances, however, it has not been possible even to produce an estimated quantification of these effects.

Vehicle conversion costs

3.39. During the 1970s many operators had to modify their buses in order to make them suitable for OMO. This generally comprised installing fittings for the ticket machines and change holders, and a mirror system which allowed the driver to see the upper deck. New buses ordered during this period were, of course, already fitted for OMO and conversion costs have now been absorbed in new vehicle costs. When they were incurred they were probably of the order of £120 per vehicle at current prices.

4. Factors affecting the overall assessment of OMO

4.1. From the analysis and estimates made in Section 3 it is clear that there are a large number of factors which have to be taken into consideration in determining the actual financial cost of conversion to OMO. It is unlikely that a simple case of the saving comprising conductors' costs less the additional payments to drivers would ever be found. At the same time considerable uncertainty must surround the estimation of the effect of OMO conversion on certain costs because other factors have been having a similar effect.

4.2. In order to form a view about whether any of them, either alone or in combination with others, would significantly erode the primary cost savings, the relationship between each of the secondary factors and the primary cost saving has been examined using WMPTE data for consistency. The results are presented in Table 1.

TABLE 1 Relationship between primary and secondary effects of OMO

<i>Cost heading</i>	<i>Cost saving (+) or increase (-) per annum (£ million)</i>	<i>Percentage of primary cost %</i>
<i>Primary effect</i>		
WMPTE's share of wage cost savings	+8.40	100.0
<i>Secondary effects</i>		
(1) Reduced staff requirement	+0.90	+10.7
(2) Reduced labour turnover	+0.12	+1.4
(3) Additional vehicles due to reduced speeds	-2.9 to -5.8	-34.5 to 69.0
(4) Ticket equipment	-0.06	-0.7
(5) Inspectorate	+0.15	+1.8
(6) to (9) Fuel, maintenance, etc	-1.96	-23.3
(10) Off-bus ticket sales including discount	-1.38	-16.4
(11) Revenue loss	-0.50*	-5.6*
(12) Reduced lost mileage	+0.40	+4.8
(13) Overtime	} not quantified	
(14) Vehicle conversion		

* Per two second increase in average boarding time.

4.3. Several conclusions can be drawn from this analysis:

- (1) There is a wide range of effects which must be quantified and, if necessary, taken into account, besides the primary effect of conversion.
- (2) There are a number of cost savings which are almost certain to be realised because they result from the reduction in the total staff requirement which is achieved. In particular the non-wage related costs of employment and the effects of reduced labour turnover add about 12 per cent to primary cost savings.
- (3) There are a number of factors which may have a significant adverse financial effect. In particular, reductions in operating speeds which result in additional vehicles having to be provided to produce a given number of vehicle-miles on a service can very quickly absorb a substantial proportion of the primary cost savings.
- (4) Although considerable uncertainty surrounds the estimated effects on engineering costs, spare vehicles etc, the analysis does show that these two are potentially large relative to the primary cost savings.
- (5) Given the relative magnitudes of the potential effects of increased running times (on both costs (3) and revenues (11)) and the costs of off-bus ticket sales and automated ticket equipment, the trade-off in the case of any major urban route appears to be in favour of expenditure on increasing off-bus ticket sales and installing automated ticket equipment.
- (6) Considering WMPTE itself, whilst it is impossible to be definite there are a number of factors which point clearly towards the conclusion that OMO has resulted in a net reduction in costs. Besides the primary cost saving of £8.4 million a year there are costs savings from reduced staff requirements of just over £1 million a year. Effects on revenue are probably neutral with any reductions from increased boarding times being offset by reductions in lost mileage. Likewise, additional ticket equipment costs are substantially offset by reduced inspectorate costs. This leaves the effects on engineering costs, of additional vehicles and crews, and of off-bus sales. Given WMPTE's policy on running times, it seems unlikely that the costs of additional buses and crews will be very high. This therefore leaves the costs of off-bus sales and the engineering effects. If the figures in Table 1 applied to WMPTE this would amount to just over £3 million a year, leaving a substantial net surplus. Another way of looking at this is that these additional costs could be almost three times their estimated levels before WMPTE's OMO conversion resulted in a net overall cost.

APPENDIX 3.1
(referred to in paragraph 3.11)

Vehicle cleaning procedures in the undertakings

1. Set out below are cleaning standards and monitoring procedures for the four undertakings.

WMPTE

2. The same standards and schedules apply in all divisions:

- (i) Sweep off: Daily; sweep off upper and lower saloons, empty ticket boxes, disinfect floors and driver's compartment.
- (ii) External wash: Three times a week; wash outside of vehicle and brush wash wheels.
- (iii) Interior clean: Weekly; clean exterior of windscreen, interior clean all windows, wipe down ledges, clean ceilings of top and lower saloon and driver's cab.
- (iv) Seat clean: Twice weekly; dry vacuum clean cushions and seat of moquette seats.
Annually; wash vinyl seats, wet vacuum clean moquette seats.
- (v) Special clean: Four weekly; soap wash exterior and interior walls and ceilings, clean interior windows, clean seat legs.

These standards were set up for a particular type of bus and working conditions which prevented much nightwork. It is envisaged that they may now need reviewing.

3. All cleaning is monitored and recorded for the premium payment scheme and the average rate of achievement is presented in a management report at divisional level. Special, weekly and annual cleans are planned into a maintenance programme and, therefore, the cleaning history of each bus known by fleet number. Bus exterior wash is not monitored individually and each depot is responsible for installing an appropriate procedure to ensure that all buses are washed regularly.

CCT

4. All vehicles are garaged in a single depot which assists general quality control. There are formal cleaning standards operated by the engineering function:

- (i) Interior sweep: Daily; manual sweep of upper and lower saloon, empty ticket boxes, dust ledges, etc, clean driver's windscreen if labour available.
- (ii) External wash: Daily.

- (iii) Special clean: Six to eight weekly; detergent clean exterior, scrub and disinfect floors, clean all interior windows, walls, ceilings, skirt panels and seat frames, detergent wash seats.
- (iv) Non-routine clean: clean driver's cab, in preparation for private hire.
- (v) Annually: a special spring clean of the whole fleet following the winter period.

5. The daily wash and sweep are carried out partly in the day but mostly at night depending on the time buses run in. The special cleans are programmed to coincide with the planned routine maintenance. There is no monitoring system to supply routine management information for the daily wash and sweep schedules. The day-to-day responsibility rests with the charge hands. The record appears against fleet number on the job card. Special cleans are monitored at garage only and if missed on one occasion would be given priority at the next. The only management level indication is the budgetary return.

BOC

6. The same standards and schedules apply in both North and South engineering divisions:

- (i) Interior sweep: Daily; manual sweep of upper and lower saloons, empty ticket box, and sweep driver compartment.
- (ii) External wash: Daily; after vehicles are fuelled at night.
- (iii) Special clean: Monthly; clean windows, detergent wash ceilings, walls and seat frames, vacuum clean floor and seats.
- (iv) Annually: special clean to coincide with MOT including a vacuum wash.

7. There is no monitoring procedure for cleaning; no records are kept of exterior washing. Interior cleans are left to night staff to complete a target number each night. This sometimes results in vehicles not being cleaned and these will be swept during the following day. Quality control is by spot checks by engineering staff and by a driver's check before taking the bus out. Monthly and annual cleans are more systematic because they take place during the day under supervision and must be planned to a schedule by fleet number. However, the only records are the engineering job cards; each garage is responsible for maintaining quality systems.

TMT

8. Trent has well-documented standard cleaning schedules. They set out in detail what equipment must be used, what must be done and how often:

- (i) Sweep out interior: Daily; sweep out upper and lower saloons and driver's compartment, dust all ledges and seats, clean interior windows, disinfecting as necessary.
- (ii) External wash: Daily; includes hosing down with detergent of driver's windows and passenger doors, front and rear of vehicle.

- (iii) Weekly clean: clean all interior windows and mirrors, special cleaning of cab including windows, seats and instruments, sweep interior of vehicle.
- (iv) Special interior clean; Six or seven weekly; vacuum clean all seats and beat cushions, wet clean with detergent all interior surfaces (such as ceilings, walls, seat supports and backs, stair wells and luggage lockers, sweep and mop floor) and clean all interior windows and hand rails.

9. There is no monitoring of daily washes or weekly cleans at management level although the special interior cleans are monitored and form part of a management report. Quality control is the responsibility of the depot supervisor. A cleaning foreman plans the weekly cleans by fleet number and the plan is left for the day foreman to execute. There is no night supervision and productivity and quality control of night cleaning is by spot checks during the day. Special cleans are pre-planned by fleet number and monitored at senior level by a routine management return.

APPENDIX 3.2
(referred to in paragraph 3.14)

Trend in level of service provided by the four undertakings

1. Figure 1 shows the trend for the four undertakings of the ratio of operating area to network miles operated. This gives an indication of accessibility in terms of an estimate of the average distance to a bus route from any point in the undertaking. It should be noted that this simple measure is not weighted by population density and, therefore, does not necessarily represent the average walking distance for travellers.

2. Clearly there is a difference between the largely urban and largely inter-urban undertakings. In WMPTE and CCT the average distance to a bus route is approximately one-third of a mile, in TMT about two-thirds of a mile, and greater than a mile in BOC.

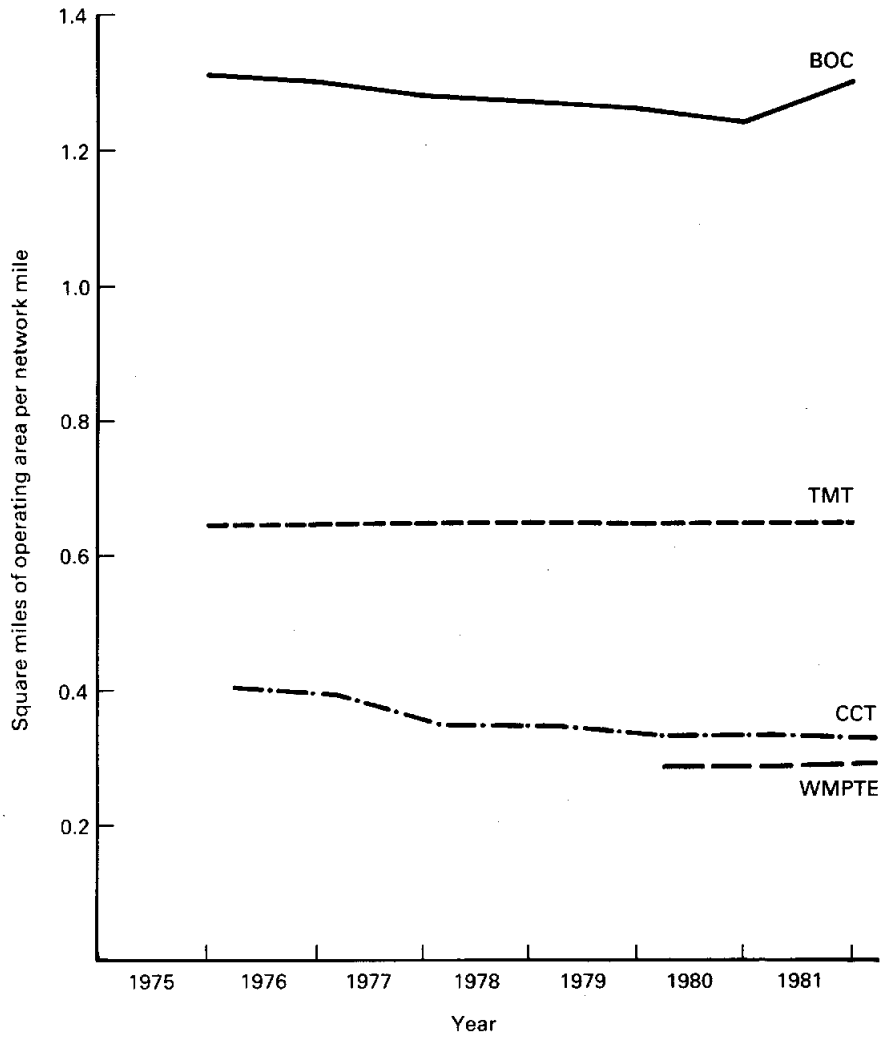
3. Data is not available for WMPTE before 1979 but the indications from the other undertakings are that the network structure has remained fairly stable.

4. Figure 2 provides a measure of the trend in average daily frequency of buses over the network. The measure which is the ratio of bus miles operated to network miles represents an average over the whole undertaking including weekdays and weekends, peak and off-peak. It will hide many variations between services and between times of day. Since the average is taken over a 24 hour day, the effective frequency during the operational day will depend on the times of first and last buses. If the operating day is not significantly different between operators (WMPTE has a small all night service) the measure can be used for comparisons.

5. Again it is clear than the urban undertakings provide a higher level of service compared with that in the inter-urban companies. This is to be expected since the frequency that can be maintained will depend upon demand and load factors. This relationship is discussed in more detail in Chapter 8 on Matching supply and demand. It also appears that frequency has been declining in all undertakings.

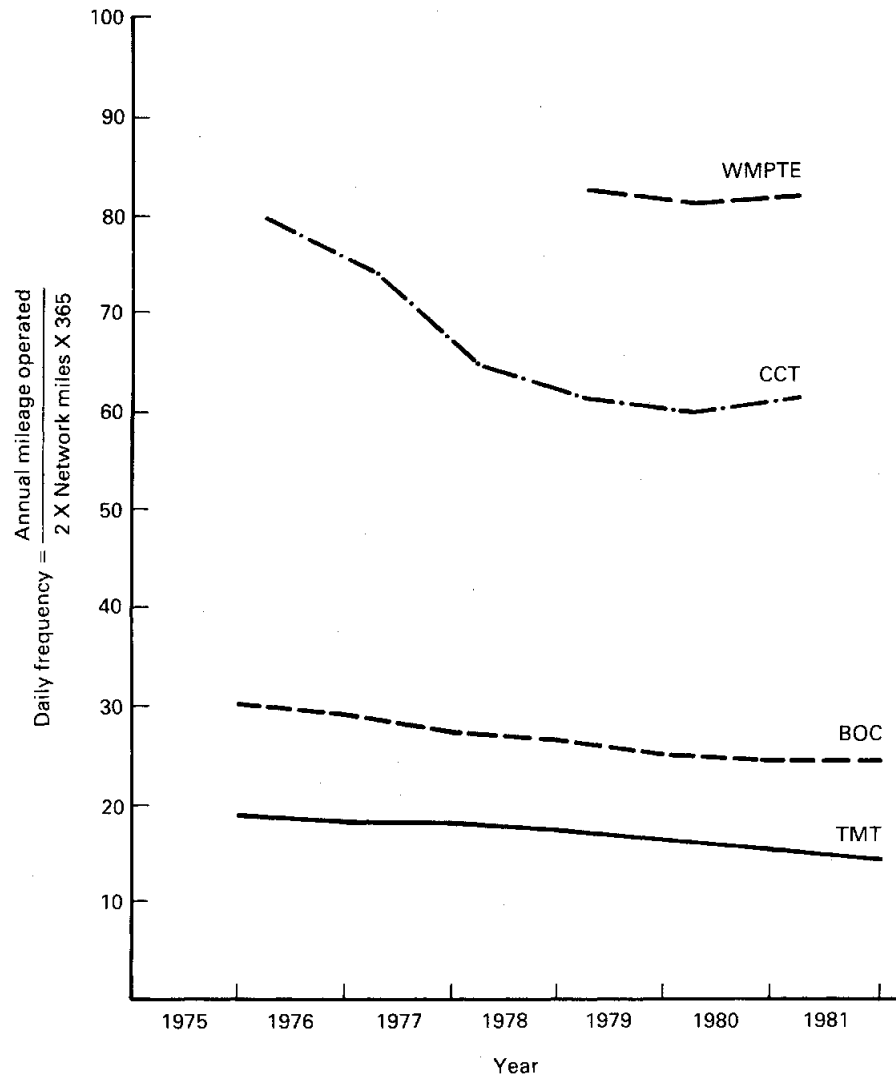
6. These trends should be considered together with the trend in fares to obtain an indication of value for money. Figure 3 shows the trend in average fare per passenger journey in real terms for the four undertakings. Average fare has been calculated from total passenger revenue not including revenue support. The figure cannot be used to compare absolute levels because travel patterns, especially in terms of journey length, may vary between undertakings. However it provides a reasonable comparison of rates of change. A complete understanding can only be obtained by a detailed analysis of the split between on-bus, off-bus and concessionary fares. This is dealt with in detail in Chapter 8 on fare structure.

FIGURE 1 Trends in average accessibility to bus routes 1975-81



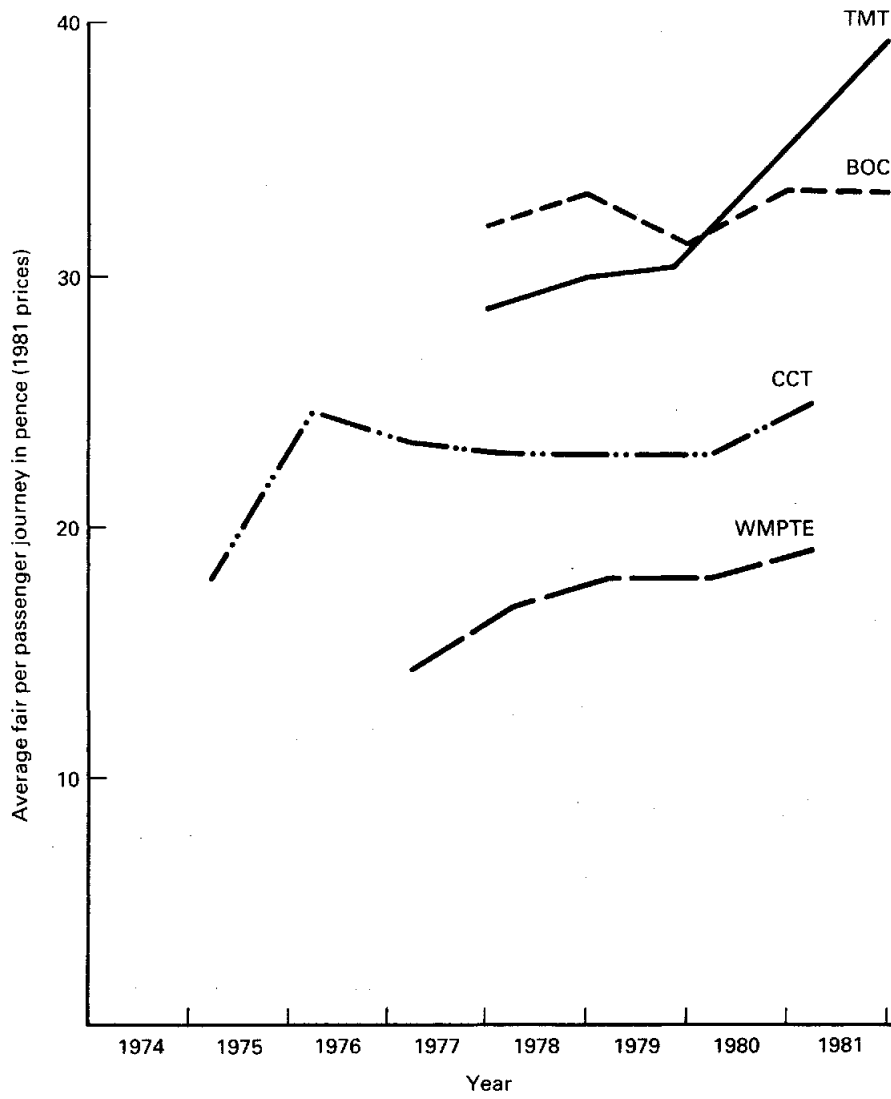
Source: MMC study.

FIGURE 2 Trends in average daily service frequency, 1975-81



Source: MMC study.

FIGURE 3 The trend in average fare per passenger journey for the four bus undertakings (1981 prices), 1974-81



Source: MMC study.

7. Real fares per journey have been increasing in all undertakings over the whole period but have remained nearly constant in BOC since 1976. The average annual increase is shown in Table 3.1 in Chapter 3.

8. A test of the quality of service and the value for money obtained by potential customers is the extent to which they use the services provided. Figure 4 shows the trend in passenger journeys per member of the population in the area served by each undertaking. A more critical test perhaps is the use of buses by those members of the population who cannot easily undertake their journeys by car. This is not an easy statistic to obtain but an estimate can be made from the number of private cars and vans in use in each area estimated from the county registrations of motor vehicles. Figure 5 shows the trend in the estimated number of passenger journeys per unit of population not owning a car. We have assumed that car availability is such that one member of the population is associated with each car registered.

9. It is clear from Figure 4 that there is a general trend away from bus transport in WMPTE, BOC and TMT, which did not appear to be the case in CCT until 1978 since when the same trends may be developing. This trend is still evident in WMPTE, BOC and TMT even where the potential users have been adjusted for car ownership, but not in CCT. It would appear that these three undertakings are losing the custom of non-car owners. WMPTE told us that some of the apparent loss of passengers on buses results from increased use of their local train network. In the case of TMT some of the apparent loss may result from the increased amount of linked services, where some linked journeys would previously have been counted as two journeys.

Quality of services from the view of the individual traveller

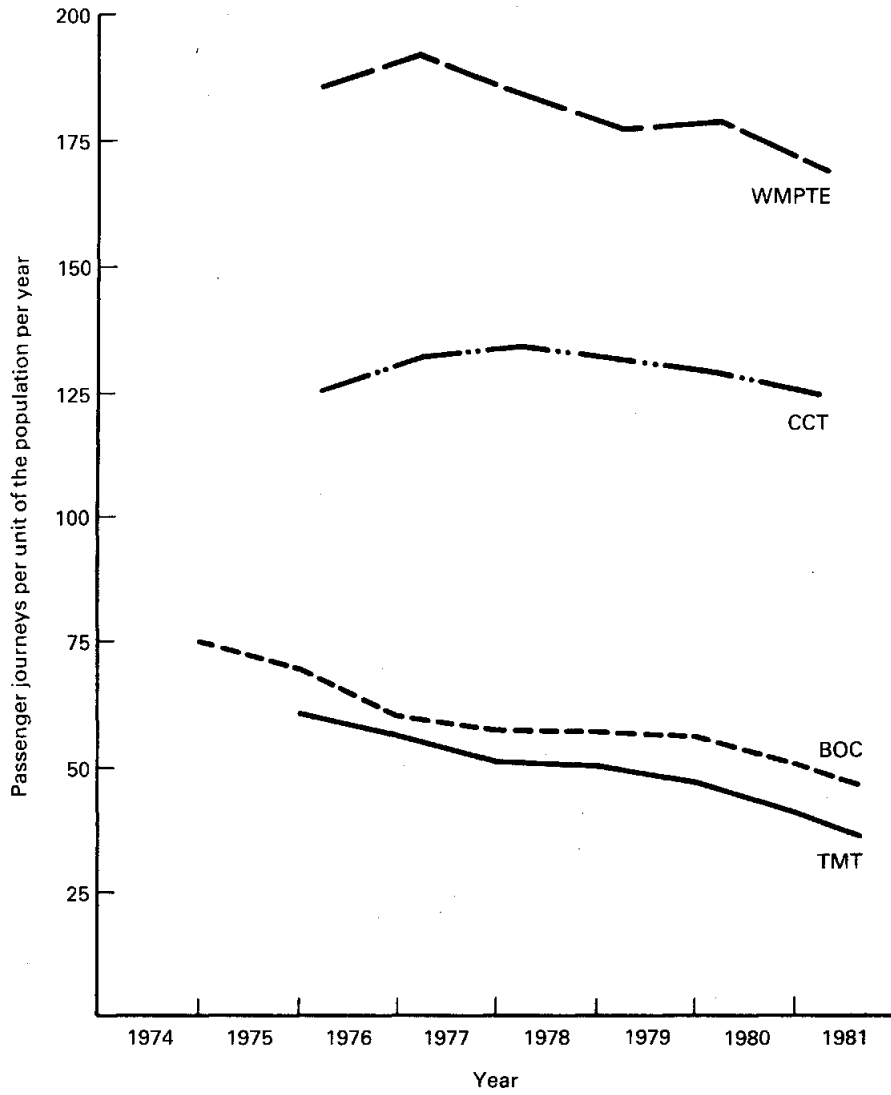
10. The measures discussed above are aggregates and attempt to represent the position in the undertaking as a whole. Average measures naturally hide the inherent variations which will certainly be experienced by the customer. To obtain some understanding of the way changes have affected the individual user we have looked at the detailed service trends for some specific services in each undertaking which represent the following typical journeys undertaken by an individual over the past 15 years:

- journey from a residential area to place of work;
- journey from a residential area to a central shopping area;
- journey from a residential area to a local school;
- journey from a rural (village) area to the centre for shopping, leisure, etc.

11. For each journey, representing a specific origin and destination, we have looked at the following indicators for weekdays, Saturday and Sunday:

- type of bus used;
- peak service frequency;
- off peak service frequency;
- time of first bus of the day;
- time of last bus of the day;
- the journey time;
- the fare charged.

FIGURE 4 Passenger journeys per member of the population per year between 1974 and 1981



Source: MMC study.

The particular routes and services were chosen because they represented real journeys taken by a substantial number of people. They are representative in a qualitative sense that there are other journeys similar to them in the undertakings but are not a representative sample in the statistical sense.

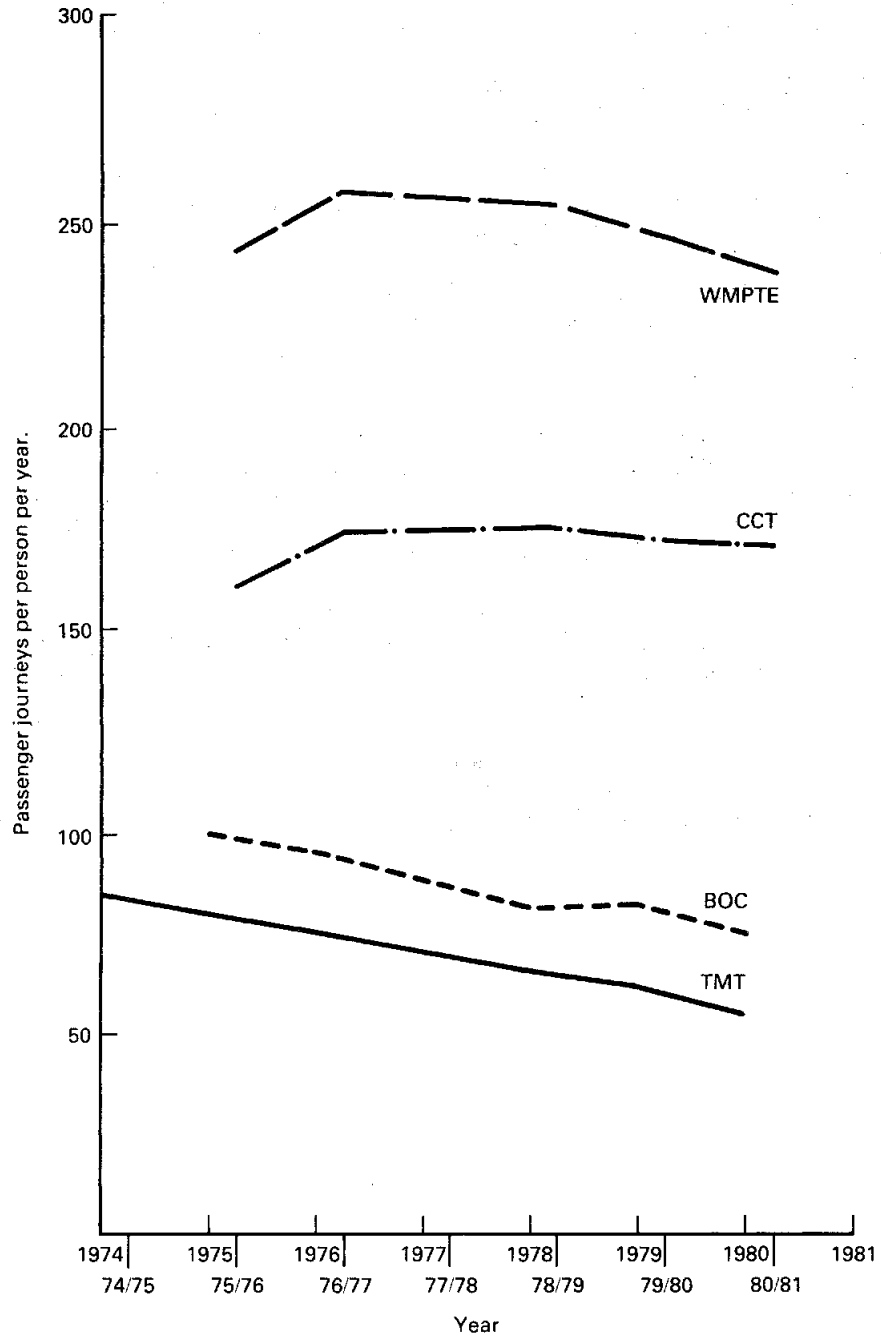
12. Tables 1-4 show the trends in these indicators for the four typical journeys in WMPTE, CCT, BOC and TMT over the period 1967-82.

13. The general structure of the network has remained remarkably stable and the services have remained recognisably similar over many years. However, the level of service offered by the undertakings has been slowly declining. This has been manifested by a reduction of frequency of service rather than a decline in the network size. Generally speaking they are serving the same areas but less frequently. The tendency towards reduced frequency is reflected in our sample of particular journeys, with the exception of the trunk route expansion in WMPTE.

14. From the detailed journeys it would appear that journey times are relatively stable, with changes occurring during the conversion to one-man operation. The time of the first and last bus of the day may have changed in detail but in the journeys selected there is no strong evidence that the length of service day has been cut back significantly except for Sunday services.

15. Against a background of reducing frequency levels, the value of fares in real terms have increased in WMPTE and TMT by about 8-9 per cent per year, and in CCT by 6.5 per cent. The equivalent rate in BOC is only of the order of 1.5 per cent per year. It can be argued therefore that potential bus users have seen a reduction in value for money since the mid-1970s. This is reflected in reduced use of buses per head of population even for those members of the population without direct access to a car, except in CCT where there would appear to be a slight increase in use when car ownership is taken into account.

FIGURE 5 The trend in the estimated number of passenger journeys per unit of the population not owning a car, 1974-80



Source: MMC study.

TABLE 1 WMPTE: Quality of service trends 1967-82 for four typical journeys

Type of journey made	Year	Type of bus	Frequency in buses/hr			First bus of the day			Last bus of the day			Journey time on bus in mins			Fare	Operator	
			Mon to Fri		Sat	Sun	M-F		Sat	Sun	M-F		Sat	Sun			
			Peak 8-9	Peak 11-4	11-4	11-4	M-F	Sat	Sun	M-F	Sat	Sun	M-F	Sat			Sun
Residential to workplace (Neachells Lane to Wolverhampton)	1982	DD,OMO	8	6	8	4	05:16	05:16	09:06	23:20	23:20	23:20	9	9	9	15p	Wolverhampton and Walsall Boroughs
	1977	DD,OMO	8	6	8	4	05:16	05:16	09:06	23:20	23:20	23:20	9	9	9	13p	
	1972	DD,TMO	9	5	7	4	05:15	05:13	09:20	23:18	23:18	23:18	10	10	10	7p	
Residential to shopping centre (Wylde Green to Colcombe Circus)	1982	DD,OMO	10-5	10	10	5	04:55	04:55	07:37	22:37	22:37	22:37	31	31	31	30p	Midland Red Omnibus Co
	1977	DD,OMO	7	4	4	2	06:15	06:15	07:25	22:05	22:05	22:05	31	31	31	24p	
	1972	DD,TMO	12	3	6	3	06:15	06:15	07:22	22:03	22:03	22:03	31	31	31	11p	
Residential to school (Green Lane to King Henry VIII G.S.)	1982	DD,OMO	4	3	3	2	06:30	06:35	10:05	23:19	23:19	23:19	16	16	16	20p	Coventry City Coventry City
	1977	DD,OMO	7	3	4	2	06:20	06:35	10:05	23:21	23:21	23:21	16	16	16	10p	
	1972	DD, Mono with Change	7-5	3	4	2	06:20	06:35	10:05	23:21	23:21	23:21	16	16	16	6p	
Village to centre (Hampton in Arden to Solihull)	1982	DD,TDO	8	4	8	3	06:15	06:25	10:05	23:20	23:20	23:20	12	12	12	9d	Mid Warwickshire Motors
	1977	SD,OMO	2	2	2	2	07:59	07:59	—	17:30	17:30	—	10	10	—	—	
	1972	SD,OMO	1	3	3	—	08:05	08:05	—	18:20	18:20	—	15	15	—	—	
	1972	SD,OMO	1	1	0-5	—	08:00	08:00	—	20:20	20:20	—	13	13	—	—	
	1967	SD,OMO	2	1	1	—	08:14	08:07	—	21:45	20:28	—	15	15	—	—	

Source: WMPTE.

TABLE 2 CCT: Quality of service trends 1967-82 for four typical journeys

Type of journey made	Year	Type of bus	Frequency in buses/hr				First bus of the day			Last bus of the day			Journey time on bus in mins			Fare Peak	Off-Peak
			Mon to Fri Peak	Sat	Sun	11-4	M-F	Sat	Sun	M-F	Sat	Sun	M-F	Sat	Sun		
Residential to work (City Centre to East Moors)	1981	DD	4/day*	4/day*	NI*	07-05	07-30	—	16-40	16-45	—	12	12	—	28p	20p	During the period the steel works has closed and the population has moved from centre Route changed Route changed
	1976	DD	4/day	4/day	2/day	05-40	05-40	05-40	22-08	14-08	14-10	10	10	10	13p	—	
	1971	DD	7/day	7/day	1/day	07-20	12-45	13-45	22-08	14-08	14-10	10	10	10	6p	—	
	1966	DD	8/day	8/day	1/day	06-25	06-25	13-45	17-40	12-10	14-10	10	10	10	9d	—	
Residential to Shopping Centre (Gaballa to City Centre)	1981	DD	5	3	2	05-23	05-23	07-06	23-00	23-00	23-00	29	29	26	—	—	
	1976	DD	4	3	2	05-20	05-20	09-25	23-00	23-00	23-00	21	21	21	—	—	
	1971	DD	4	3	3	05-20	05-20	13-18	23-00	23-00	23-30	18	18	18	—	—	
	1966	DD	4	3	3	05-20	05-20	13-18	23-00	23-00	23-30	18	18	18	—	—	
Residential to School (to St Iltyd's school)	1981	DD	5	5	5	1-75	06-32	09-15	22-50	22-50	22-50	22	22	20	44p	20p	
	1976	DD	5*	5	5	1-75	06-33	09-25	22-55	22-55	22-55	22	22	20	16p	—	
	1971	DD	6	5	3	06-37	06-37	11-15	23-00	23-00	22-47	22	22	20	7p	—	
	1966	DD	8	6	5	05-15	05-15	05-20	23-00	23-00	23-00	22	22	20	1/-	—	
Village to Centre (Lisvane to City Centre)	1981	DD	2	1	1	07-50	07-50	—	22-50	22-50	—	29	29	—	44p	20p	
	1976	DD	2	1	1	08-00	08-00	—	22-50	22-50	—	29	29	—	17p	—	
	1971	DD	2	2	2	08-07	08-07	13-37	22-57	22-57	22-05	32	32	30	8p	—	
1966	DD	2	2	2	08-07	08-07	13-37	22-57	22-57	22-05	32	32	30	1/3d	—		

Source: CCT.

* Arranged to coincide with shifts.
 † 7 buses in pm peak.

TABLE 3 BOC: Quality of service trends 1967—82 for four typical journeys

Type of journey made	Year	Type of bus	Frequency in buses/hr				First bus of the day			Last bus of the day			Journey time on bus in mins			Fare	
			Monday to Friday		Sat		M-F		M-F		M-F		M-F		M-F		
			Peak 7-9	Inter-peak 10-4	8-10	Sun 12-4	M-F	Sat	M-F	Sat	M-F	Sat	M-F	Sat	M-F		Sat
Residential to work (Thornbury to Filton)	1982	SD/DD,OMO	2	1	1	1	0.5	06:16	06:16	08:56	23:08	23:08	23:03	28	28	28	80p
	1977	SD,OMO	4	2	1	2	1	06:14	06:14	10:34	22:47	23:47	22:37	25	25	25	37p
	1972	SD,OMO	4	2	1	2	1	06:14	06:14	10:34	22:47	23:47	22:37	25	25	25	15p
	1967	DD,CREW	4	2	2	2	2	06:14	06:14	10:34	22:52	22:52	22:37	25	25	25	2/3d
Residential to Shopping Centre (Hatherley to Cheltenham)	1982	SD/DD,OMO	2	2	1	2	—	06:54	06:54	—	22:14	22:14	—	17	17	—	45p
	1977	SD/DD,OMO	4	4	2	4	2	06:52	06:52	08:25	22:45	22:45	22:30	16	16	16	25p
	1972	SD,OMO	4	4	2	4	2	06:52	06:52	08:41	22:50	22:50	22:15	16	16	16	9p
	1967	SD/DD,CREW	4	4	2	4	2	07:14	07:14	08:37	22:45	22:45	22:45	16	16	16	1/-
Residential to School (Whitbywood to Hartcliffe Bristol)	1982	SD,OMO	2	2	2	2	2	06:00	06:20	09:03	23:25	23:25	22:59	6	6	6	31p
	1977	SD,OMO	2	2	2	2	2	05:55	05:55	08:55	23:13	23:13	23:13	7	7	7	15p
	1972	SD,OMO	2	2	2	2	2	06:00	06:00	08:57	23:03	23:03	22:52	7	7	7	6p
	1967	DD,CREW	2	2	2	2	1	06:00	06:00	09:09	23:03	23:03	22:52	7	7	7	7d
Village to Centre (East Harptree to Bristol)	1982	SD,OMO	1	1	0	1	—	07:26	10:16	—	17:45	17:45	—	59	59	—	107p
	1977	SD,OMO	1/day	1/day	—	2/day	—	07:33	07:33	—	17:25	17:25	—	67	67	—	51p
	1972	SD,OMO	1/day	2/day	—	3/day	—	07:40	07:40	—	19:41	19:41	—	60	60	—	21p
1967	SD,OMO	1/day	2/day	—	3/day	—	07:40	07:40	—	19:41	19:41	—	60	60	—	3/6d	

Source: BOC.

TABLE 4 TMT: Quality of service trends 1967-82 for four typical journeys

Type of journey made	Year	Type of bus	Frequency in buses/hr		First bus of the day			Last bus of the day			Journey time on bus in mins			Fare
			Mon to Fri Peak	Sat Peak	Mon to Fri	Sat	Sun	Mon to Fri	Sat	Sun	Mon to Fri	Sat	Sun	
Residential area to work (Swarwick to Aertex Factory)	1981	OMO	3	3	06:01	06:31	08:41	22:27	22:27	13	13	13	35p	
	1976	CREW/OMO	4	6	06:03	06:03	09:03	22:40	22:40	12	12	12	10p	
	1971	CREW	5	6	06:03	06:03	09:03	22:40	22:40	12	12	12	10d	
Residential to Shopping Centre (Mickleover to Derby)	1981	OMO	8	8	06:40	06:40	09:45	23:00	23:00	26	26	26	30p	
	1976	CREW	8	8	06:39	06:54	09:44	23:00	23:00	27	27	27	21p	
	1971	CREW	7	5	07:05	07:05	07:03	23:00	23:00	19	19	16	1/3d	
Residential to School (Mickleover to Etwell)	1981	OMO	7	1	06:49	06:49	11:14	21:29	21:29	7	7	7	45p	
	1976	CREW/OMO	12	1	06:45	07:15	11:14	22:30	22:30	7	7	7	25p	
	1971	CREW	9	1	06:53	06:53	09:15	22:17	23:02	8	8	8	1/3d	
Village to Centre (Idridgehay to Derby)	1981	OMO	1	1	06:37	07:54	11:29	22:45	22:45	33	33	48	85p	
	1976	CREW	2	1	06:45	06:50	07:10	22:46	22:46	33	33	33	47p	
	1971	CREW	2	1	06:45	06:50	07:10	22:35	22:45	33	33	33	3/-	
	1966	CREW	2	1	06:45	06:50	07:10	22:35	22:35	33	33	33	2/7d	

Source: TMT.

APPENDIX 3.3

(referred to in paragraphs 3.9 and 3.14)

Trends in the causes of lost mileage

1. Figure 1 shows the trend in the proportion of scheduled miles lost in each undertaking over the period 1974 to 1981. Between 1975 and 1980 there was a general increasing trend. Some of this was due to engineering problems associated with a new generation of buses of increasing technical complexity. This is discussed in detail in Chapter 6 on Planning and control of maintenance. The exceptionally bad performance of Cardiff was almost entirely the result of staff problems in the engineering function. Since 1979 all undertakings appear to have regained control and reduced lost mileage to below 2 per cent, with TMT having achieved the very low figure of 0.5 per cent. CCT has told us that in 1981-82 it achieved a level of lost mileage similar to that of TMT.

2. Table 1 gives the detailed breakdown of causes of lost mileage, and Figures 2-5 show trends in the components from 1974-75 to 1981 where data is available.

TABLE 1 A comparative breakdown of the causes of lost mileage in 1981*

Cause	Percentage of scheduled miles lost due to cause			
	WMPTE South Division	CCT	TMT	BOC
Staff shortage	0.28	0.06	0.04	0.23
Vehicle shortage	1.53	1.43	0.08	0.13
Industrial disputes	0.61	—	0.14	1.43
Traffic congestion	0.13	0.10	0.08	0.09
Weather conditions	—	—		
Other causes	—	0.02		
Total	2.55	1.61	0.34	1.88

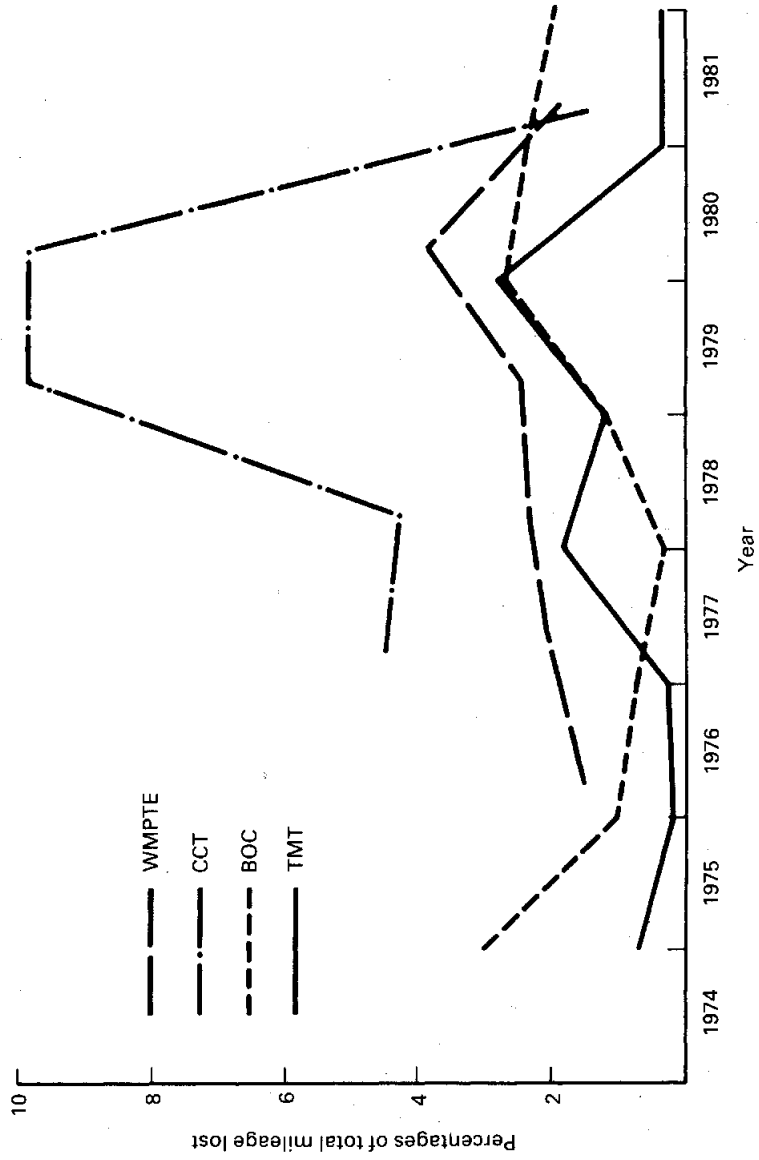
Source: MMC study.

* 1980-81 for CCT.

WMPTE

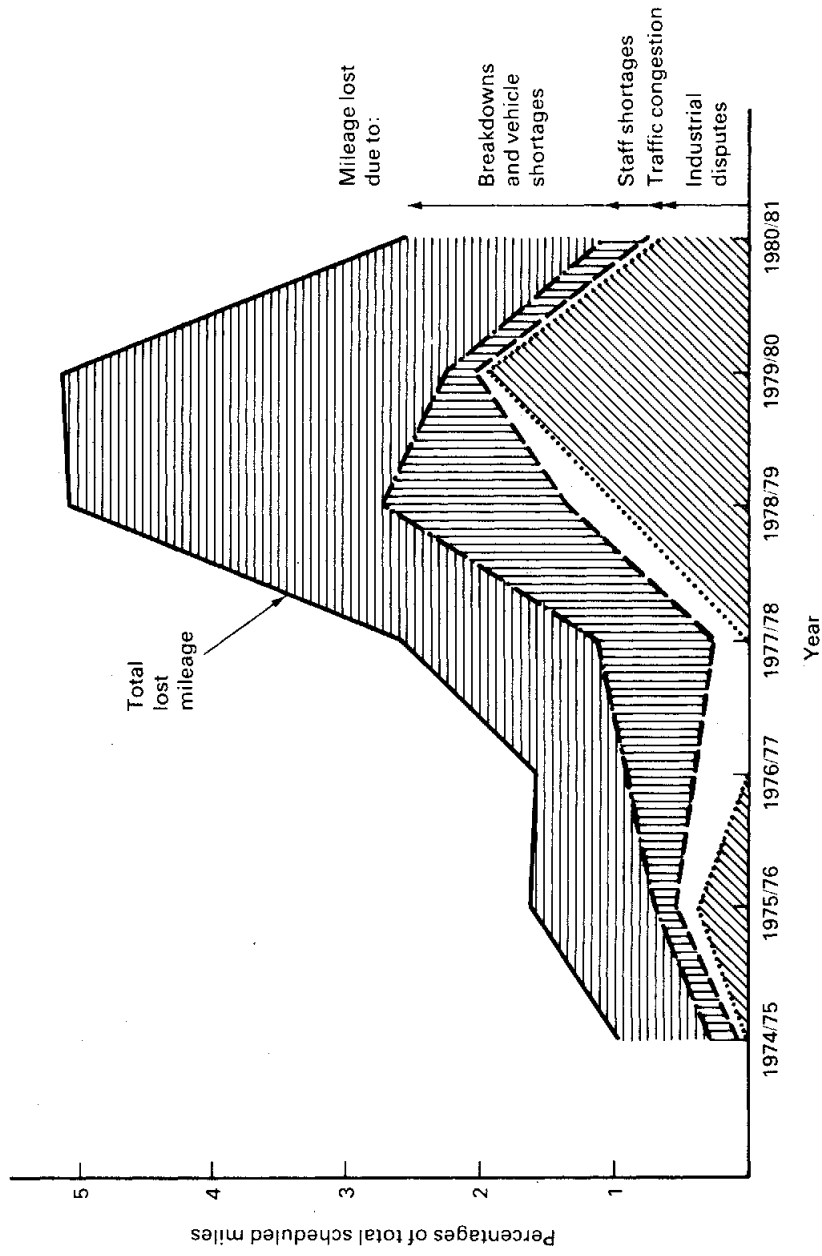
3. It was not possible for us to obtain a detailed breakdown of the trend in the causes of lost mileage for all divisions of WMPTE. Figure 2 shows the trend in the components for South Division. Since 1977-78 the major loss has resulted from vehicle shortages and industrial disputes. Staff shortages resulted in a significant lost mileage between 1976 and 1980 since when the position in this respect has improved.

FIGURE 1 Trends in lost mileage as a percentage of total scheduled mileage for the four bus undertakings, 1974-81



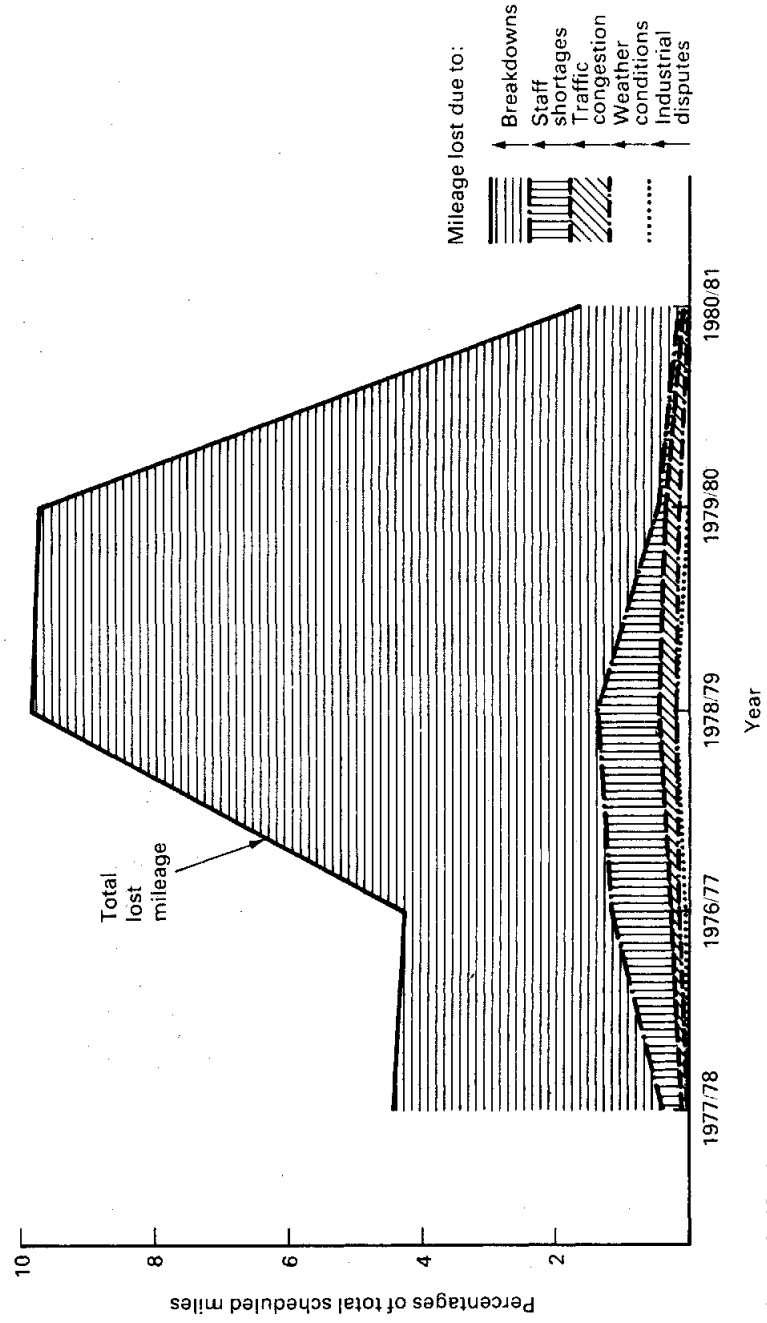
Source: MMC study.

FIGURE 2 A cumulative analysis of lost mileage for the South Division of WMPTE, split between its contributory causes, 1974-75 to 1980-81



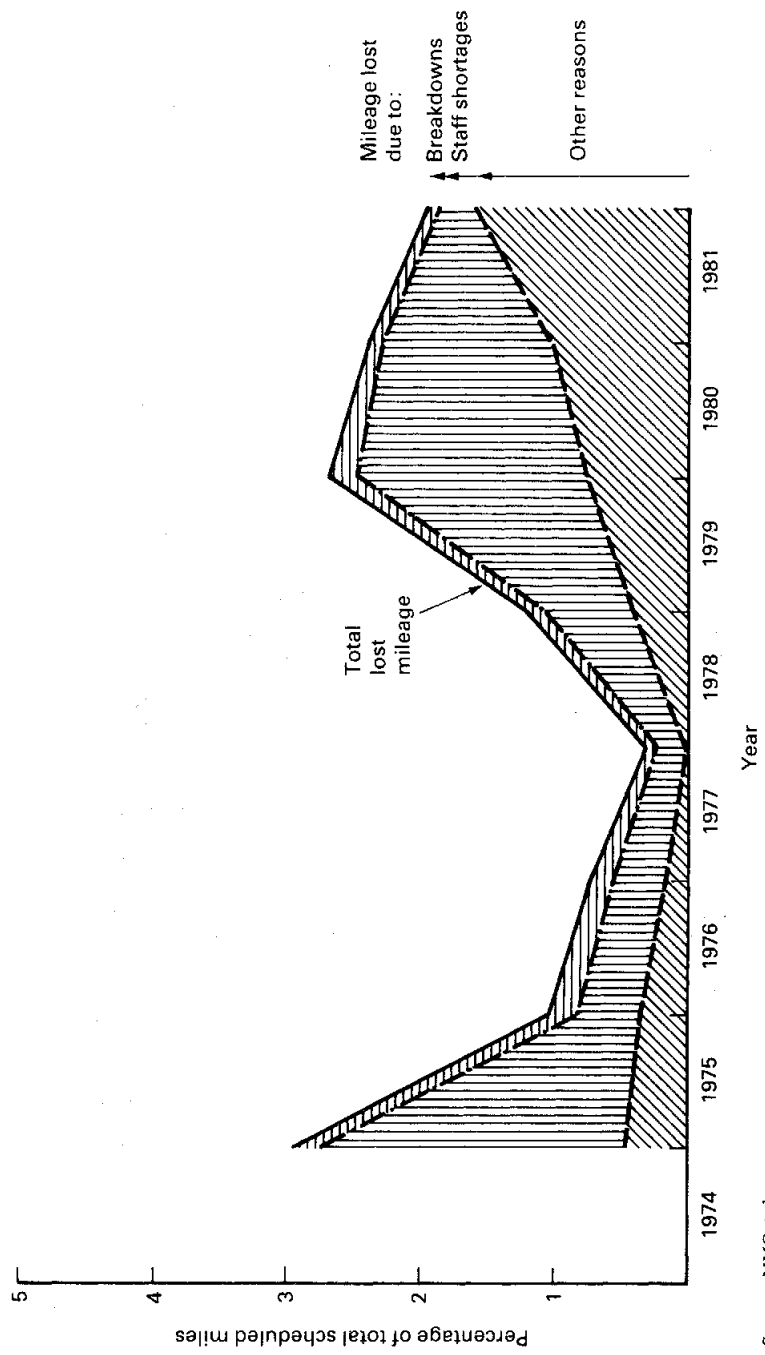
Source: MMC study.

FIGURE 3 A cumulative analysis of lost mileage for CCT, split between its contributory causes 1976-77 to 1980-81



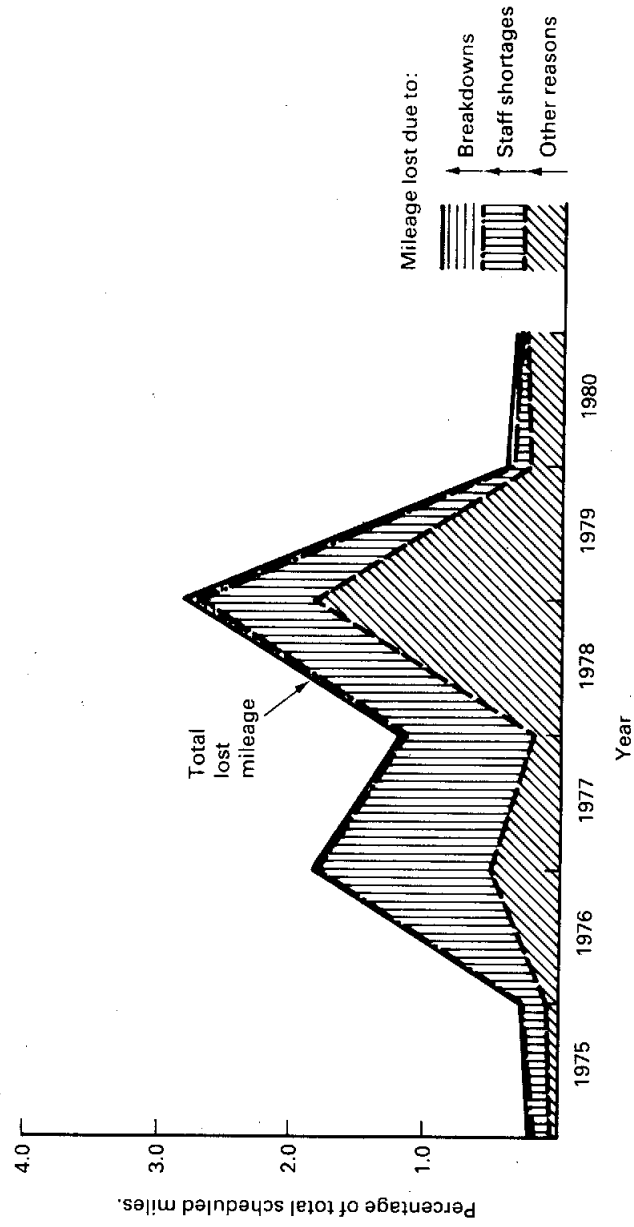
Source: MMC study.

FIGURE 4 A cumulative analysis of lost mileage for BOC, split between those caused due to 'vehicle breakdown', 'staff shortage', and 'other reasons', 1974-81



Source: MMC study.

FIGURE 5 A cumulative analysis of lost mileage for TMT Co Ltd, split between those caused due to 'vehicle breakdown', 'staff shortage' and 'other reasons', 1975-81



Source: MMC study.

CCT

4. The major loss in 1978-80 resulted from a shortfall in available vehicles due to engineering difficulties. Staff shortfalls are less of a problem but traffic congestion in Cardiff had contributed significantly. Cardiff has a number of traffic management schemes and these appear to be having a positive effect.

BOC

5. Staff shortage has been a major contributor to lost mileage. This has been a traditional problem in Bristol where there is a concentration of high skill, high pay industries.

TMT

6. In the past Trent lost a major part of scheduled mileage as a result of staff shortages. Some of this resulted from the need for higher calibre staff on OMO operations. The 1979 figures were distorted as the result of lack of fuel because of a tanker drivers' strike.

APPENDIX 3.4
(referred to in paragraph 3.14)

Punctuality

1. It has been difficult to obtain data on punctuality because none of the undertakings monitors this routinely at management level. Table 3.1 (paragraph 3.16 of the main text) shows some sample data for 1981 for WMPTE and BOC. Arrivals represent the positions at the end of the journey and departures those at or near the beginning. One would expect the arrival pattern to have a higher proportion of late running than the departure pattern and for early starts at departure to be negligible. This is true for WMPTE. The percentage of early starts in BOC may be exaggerated because the timing points are not at the terminals.

2. The WMPTE data comes from a sample survey conducted by inspectors at a number of terminals within a sampling scheme associated with the 'Continuous On Bus Survey' system. The BOC data is derived from a loading survey undertaken in November and December 1981 and January 1982 in connection with a fares experiment. Checks were made during the morning and evening peak periods and at off-peak periods where in some cases the effect of the peak traffic was still apparent. The sample analysed by us was not necessarily statistically representative of the whole of the operating day; it will probably be biased towards conditions in the peak when traffic congestion in the city is at its worst. Departure times represent times of outgoing buses passing a survey point close to the city centre or ingoing buses at a timing point remote from the centre and vice versa for arrival times.

3. We have no information on punctuality in CCT. We have seen a sample of inspectors' reports for TMT for the last quarter of 1981, which show some incidence of late departures from bus stations and early running en route, but we have no way of assessing the numbers involved or the subsequent timekeeping en route.

APPENDIX 3.5
(referred to in paragraph 3.24)

Passenger attitude surveys

WMPTE

1. Since late in 1974 WMPTE has been carrying out market research surveys on an area basis. These surveys have sampled households to establish existing and potential travel patterns and also customer preferences and attitudes. The results from these surveys have shown some variation in preferences from area to area. Overall the main priorities are: keeping fares down, greater reliability, cleaner buses, greater frequency and more bus shelters. Factors that do not feature so strongly are: later/more evening services, more Sunday services, better publicity, faster services, more direct routes, nearer bus services or more helpful staff.

2. Because the area surveys only give details of preferences and attitudes in a particular area of the West Midlands, in 1981 the PTE embarked on a twice-yearly survey covering the whole of the West Midlands. The first such survey was in October 1981.

3. Table 1 shows the result of an attitude survey undertaken in 1981. It included a sample of 1,203 adults who were asked questions and indicated the degree of agreement on a five-point scale (+2 to -2 for strong agreement or disagreement, respectively).

4. WMPTE passengers apparently feel that fares are reasonable, the bus stops convenient and that inspectors are helpful. However, they feel that the buses are dirty outside and indifferently clean inside. Buses are seen as reliable but not necessarily good timekeepers.

TABLE 1 Results of attitude survey in WMPTE

<i>Statement</i>	<i>Degree of agreement</i>
WMPTE buses are usually dirty outside	+0.9
There is usually plenty of room on a WMPTE bus	+0.3
Fares are reasonable	+0.8
WMPTE buses used by me are reliable	+0.6
It is awkward to get off or on a WMPTE bus	-0.5
The buses are modern and comfortable	+0.6
One does not know what time the buses will really leave the stop or arrive at their destination	-0.1
WMPTE buses are kept clean inside	+0.1
The drivers are normally pleasant and polite	+0.5
The inspectors are helpful and informative	+0.8
The stops at this centre are convenient for me	+1.1

Source: WMPTE.

CCT

5. The CCT survey included a sample of 895 passengers interviewed by inspectors on a cross-section of routes, times of day and areas of the city. A central objective of the survey was to provide information to assist the formulation of future fares policy. The results are shown in Table 2.

6. Passengers in Cardiff would like off-peak fares continued. In order to cover increasing costs they just preferred an overall increase in fares to reducing or withdrawing lightly loaded services, and to a combination of these. Despite alternative services provided by competition they would prefer CCT to continue to serve all parts of the city.

TABLE 2 Results of CCT passenger survey

Questions	Answer		No answer
	Yes%	No%	
1. Do you or your family use cheap off-peak fares?	67	33	
2. Do you or your family use family tickets?	48	52	
3. Would you like cheap off-peak fares continued permanently?	97	3	
4. If fares had to be increased would you prefer:			
(i) an increase on all fares;	30	—	
(ii) an increase on some but not others;	17	—	
(iii) reduce or withdraw lightly loaded services;	27	—	
(iv) a combination of the above alternatives?	26	—	
5. If lightly loaded services were to be reduced which would you prefer:			
(i) withdraw heavy loss-making routes only;	19		} 14
(ii) withdraw selected light load journeys from all routes;	56		
(iii) withdraw total services from all routes at selected times?	11		
6. In view of the competition facing CCT would you prefer:			
(i) a continued service to all parts of the city;	35		
(ii) continue to operate loss-making routes;	16		
(iii) concentrate on the busiest routes;	18		
(iv) combination of (i) and (ii);	17		
(v) combination of (i) and (iii);	8		
(vi) combination of (i), (ii) and (iii)?	6		

Source: CCT.

BOC

7. In the Bristol survey which took the form of household questionnaires people were asked their attitude to a number of areas for improving the service and also to alternative policies for covering financial losses. The results are shown in Table 3.

8. The results show some variation in priorities from area to area, but generally high on the priority list for improvement are: keeping fares down, bus shelters, timekeeping, and easy to read timetables, and low priorities given to ticket issue and convenience of bus stops. There is less variation in the preferred method of covering financial loss, with increased town centre car park charges and subsidies high on the list, and attempts to increase efficiency given lowest priority.

TABLE 3 Results of the BOC attitude survey

<i>Areas of improvement</i>	<i>Bristol City</i>	<i>Mendip</i>	<i>Weston</i>	<i>Chelt</i>	<i>Glos</i>	<i>Bath City</i>	<i>South Avon</i>
Keeping down fares	1	2	2	1	1	1	1
Making buses run to time	2	9	7	4	2	2	3
Availability of bus shelters	3	1	1	3	7	3	2
Traffic management schemes	4	8	6	6	4	4	4
Understanding timetable	5	4	4	2	6	5	5
Frequency of services	6	3	8	9	10	6	8
Public behaviour on buses	7	5	5	7	3	7	6
Luggage capacity	8	7	3	4	5	8	6
Timetables to suite work and school journeys	9	6	11	11	11	9	9
Ease of getting on or off buses	10	12	9	8	8	10	11
Bus comfort	11	13	10	10	9	11	10
Simplifying ticket issued	12	14	14	12	12	12	14
Convenience of bus stop at destination	13	10	12	13	13	13	12
Convenience of bus stop to home	14	11	13	14	14	14	13
<i>Covering financial loss</i>							
Increase town centre car park charges	1	1	1	1	1	1	1
Increase rates/taxes to increase subsidy	2	2	2	3	3	2	2
Cut back services	3	4	3	2	2	3	3
Lower fares	4	5	5	4	4	4	5
Increase fares	5	3	4	5	5	5	4
Increase efficiency	6	6	6	6	6	6	6

Source: BOC.

Note:

Numbers refer to ranked order of priority in each area.

APPENDIX 3.6
(referred to in paragraph 3.27)

Customer complaints

Analysis of customer complaints

1. Figure 1 shows the trend in customer complaints for the four undertakings in terms of complaints per million passenger journeys per year. Table 1 shows the proportion of complaints by cause, for each of the undertakings, under the following headings:

- complaints concerning staff;
- complaints concerning services;
- complaints concerning equipment;

and gives a more detailed breakdown of the complaints for 1981. In the case of WMPTE data are available only for the South Division.

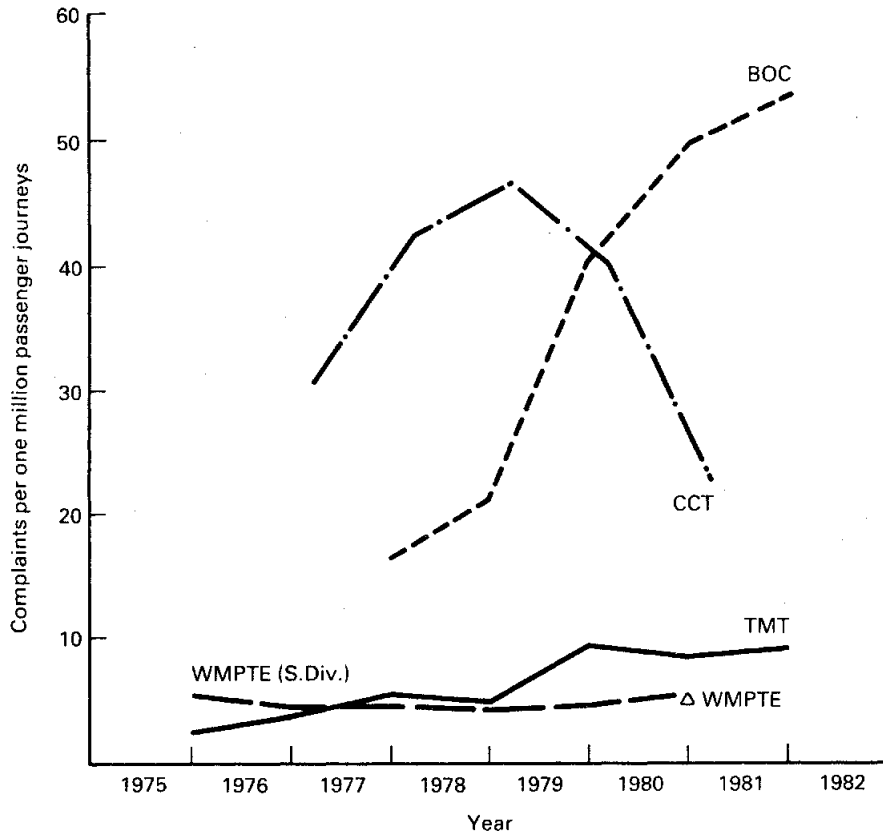
2. The total level of complaints does not appear to be excessive, being only about one per 100,000 journeys for WMPTE and TMT. For someone who travels to work each day on a bus, this is equivalent to about 0.25 complaints in the whole of a working life. The relatively high volume of complaints in CCT in the period 1979-80 corresponds with the period of a high level of lost mileage. The volume of complaints in BOC is over five times that in TMT per journey and is continuing to rise and seems to indicate a growing dissatisfaction with the BOC services. This appears to have been reinforced by the 1981 restructuring of services.

3. In all undertakings, the majority of complaints in 1981 concerned the behaviour of staff rather than service or equipment. The three main categories of complaint in descending order were:

- WMPTE—timetabling, staff discourtesy, fare irregularities;
- CCT—fares, not stopping and discourtesy;
- BOC—timetabling, fares, timekeeping;
- TMT—fares, discourtesy, not stopping.

4. Figures 2-5 show the trend in the causes of complaint. For WMPTE data is available for the South Division only.

FIGURE 1. Total complaints received by the undertakings per million passenger journeys between 1975 and 1981*



Source: MMC study.

* Figures for CCT are in fiscal years.

TABLE 1 Analysis of complaints received by the four bus operators during 1981*—percentages of total complaints

	WMPTE	CCT	TMT	BOC‡
<i>Staff complaints</i>				
Not stopping	11.63	24.62	12.24	7.60
Discourtesy	15.14	14.20	12.24	9.77
Fares, change, passes etc	11.01	27.64	13.41	11.41
Driving	5.58	7.04	2.92	—
Premature starting	5.00	2.89	0.29	—
Early departs/lateness	7.07	7.04	9.04	11.32
Miscellaneous	6.15	7.41	11.66	—
Sub-total	61.58	90.84	61.80	40.10
<i>Service complaints</i>				
Non-operation	3.56	3.14	11.37	—
Late operation	1.11	1.38	8.75	—
Timetable etc	21.06	1.63	11.66	38.21
Sub-total	25.73	6.15	31.78	38.21
<i>Equipment complaints</i>				
Cleanliness	0.53	0.25	1.17	0.55
Design	0.72	0.25	2.33	—
Street furniture	8.46	0.63	0.58	0.87
Publicity	1.20	0.12	2.04	1.28
Miscellaneous	1.78	1.76	0.29	—
Sub-total	12.69	3.01	6.41	2.70
Other (uncategorised)	—	—	—	18.99
Total	100.00	100.00	99.99	100.00

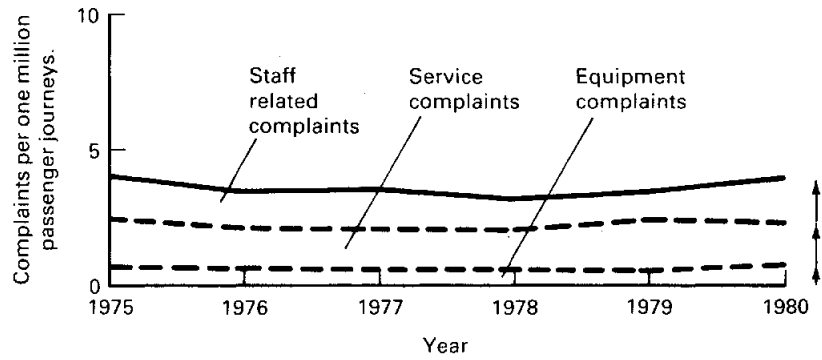
Source: The four operators.

* CCT analysis is for 1980-81.

‡ BOC percentages are for 1980.

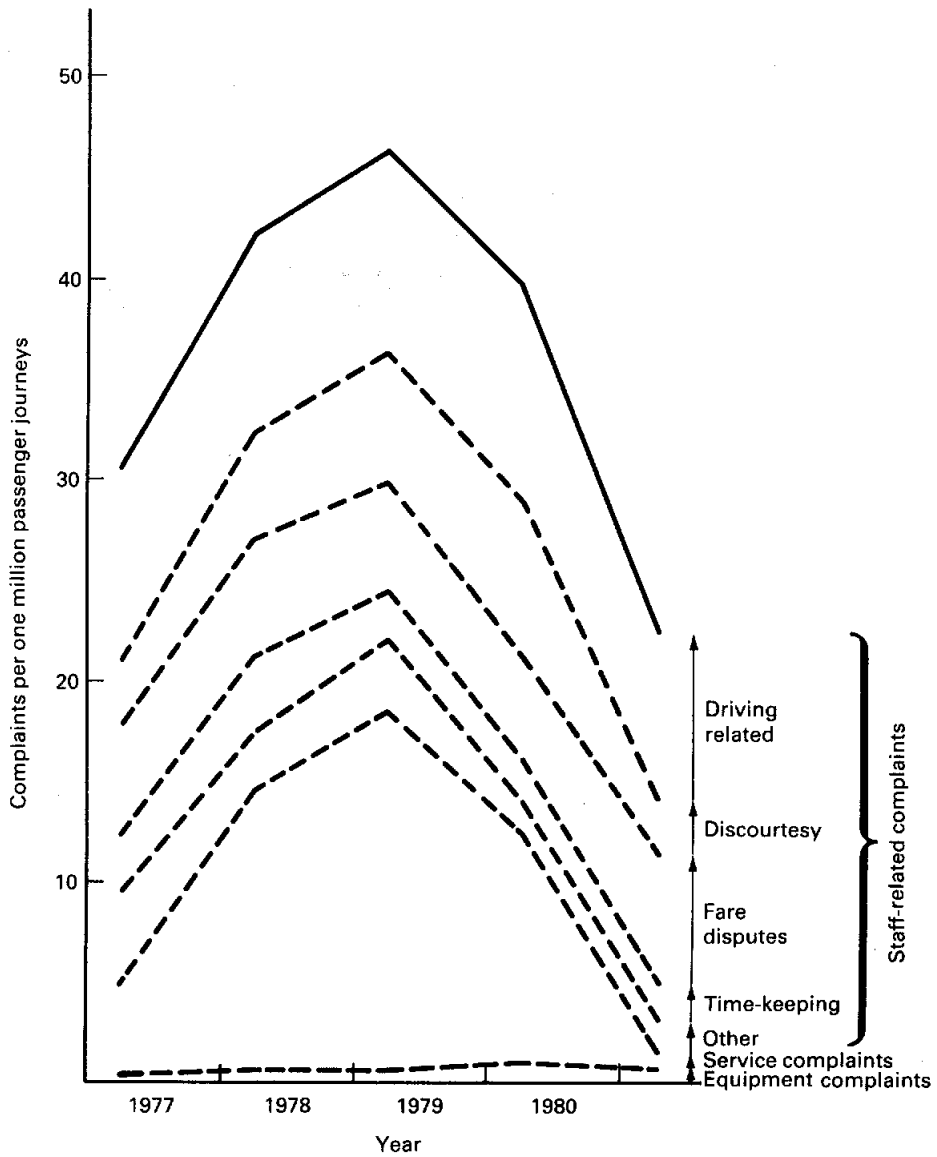
Note: Differences are due to rounding errors.

FIGURE 2 A cumulative breakdown of complaints received by WMPTE (South division) per one million passenger journeys, 1975-81.



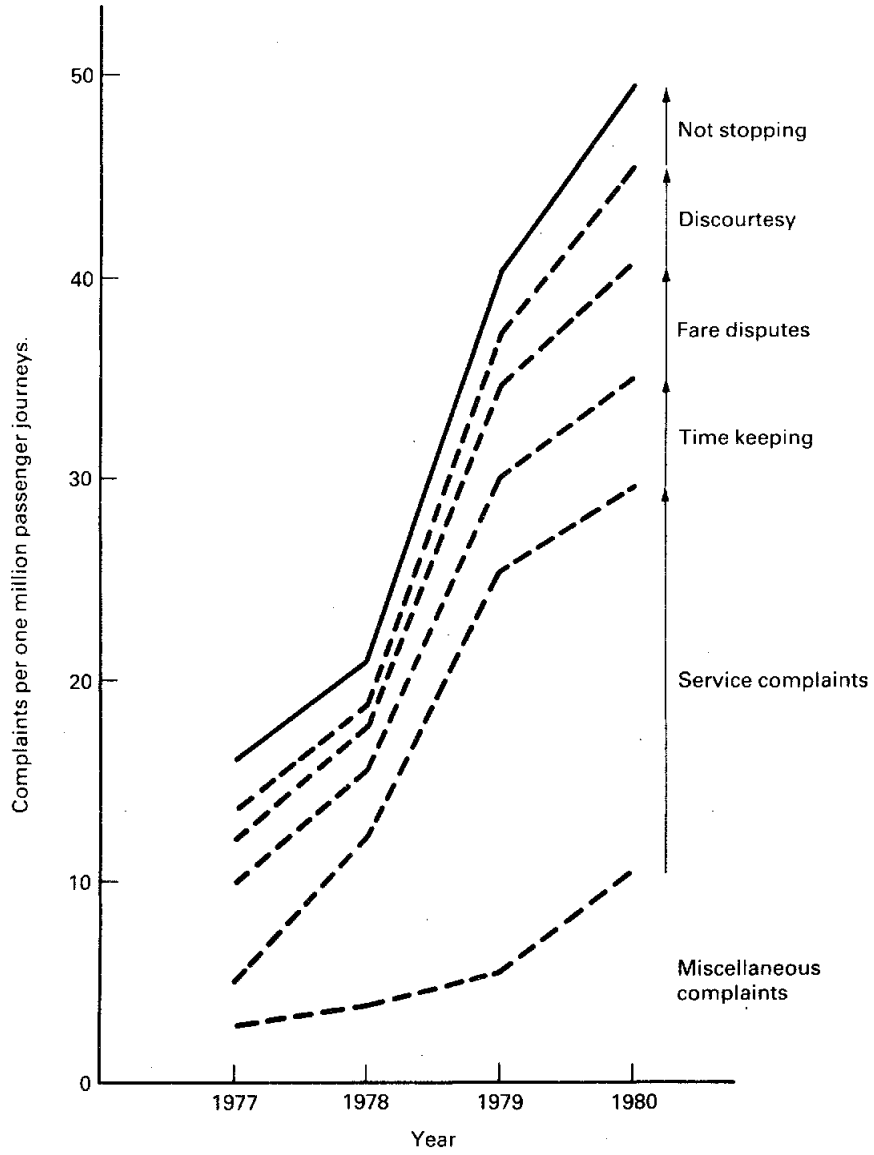
Source: WMPTE.

FIGURE 3 A cumulative breakdown of complaints received by CCT per one million passenger journeys, 1976-7 to 1980-81.



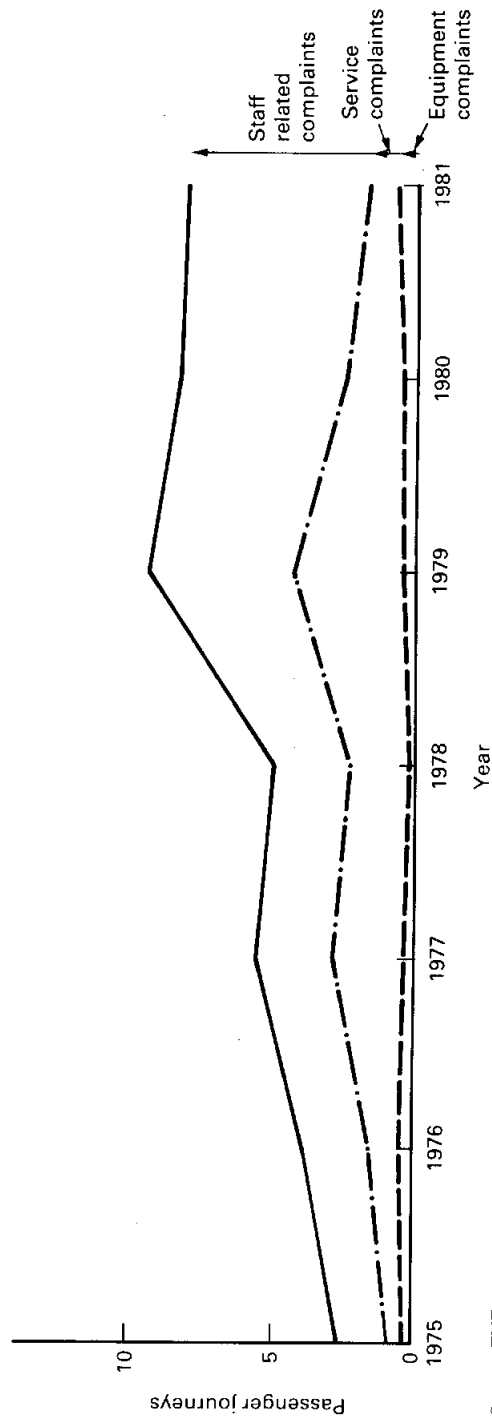
Source: MMC study.

FIGURE 4: A cumulative breakdown of complaints received by BOC, per one million passenger journeys 1977-81.



Source: BOC.

FIGURE 5 A cumulative breakdown of complaints received by TMT per one million passenger journeys 1975-81.



Source: TMT.

APPENDIX 8.1

(referred to in paragraph 8.145)

Cross-subsidisation by time of day, and day of week

1. A pronounced feature of bus services are the morning and evening peaks in demand which arise from travel to and from work and school. As the peaks determine the maximum quantity of resources which will be employed, it is important for an undertaking to know to what extent its revenues meet the costs which arise through peak and non-peak operation, and in particular for week-end services. A development of the CIPFA route costing methodology can be used to give an understanding of how revenues and costs are influenced by the peaks, and thus how cross-subsidisation can arise during the day, and between days of the week.

2. For each of the undertakings we have carried out computations on the two bases deriving from the suggested CIPFA methodology. The first is the full peak allocation basis and assumes that the objective of the undertaking is to provide a peak service, so these carry the whole of the vehicle costs and a substantial proportion of crew costs. Off-peak services are thus provided at marginal cost. The second is the excess peak allocation basis and assumes that the objective is to provide an all-day service, so only the additional costs of vehicles brought in to meet the peak (above the all-day level) are charged to the peak. Tables 1 and 2 set out the results for WMPTE.

TABLE 1 WMPTE peak off-peak costing (full peak basis) £'000 November 1981

	Weekdays		Total	Saturday	Sunday	Total
	Peak	Off-peak				
Revenue	1,872	2,809	4,681	580	208	5,469
Crew and mileage costs	1,277	1,458	2,735	559	199	3,493
Other time related costs	1,561	1,579	3,140	606	203	3,949
Specific vehicle costs	836	—	836	—	—	836
Net contribution	-1,802	-228	-2,030	-585	-194	-2,809
Operating ratio %	50.9	92.5	69.8	49.8	51.7	66.1

Source: WMPTE.

TABLE 2 WMPTE peak off-peak costing (excess peak basis) £'000 November 1981

	Weekdays		Total	Saturday	Sunday	Total
	Peak	Off-peak				
Revenue	1,872	2,809	4,681	580	208	5,469
Crew and mileage costs	650	326	976	559	199	1,734
Other time related costs	1,561	1,579	3,140	606	203	3,949
Specific vehicle cost	340	—	340	—	—	340
Contribution to joint crew costs	-679	+904	+225	—	—	—
Joint crew costs	—	—	1,759	—	—	1,759
Contribution to joint vehicle costs	—	—	-1,534	-585	-194	-2,313
Joint vehicle costs	—	—	—	—	—	496
Net contribution	—	—	—	—	—	-2,809

Source: WMPTE.

3. WMPTE has told us that it considers that its duty is to provide an all-day service and it regards the CIPFA excess peak method of cost allocation as being most appropriate for its services. On this basis Saturday and Sunday services only just cover avoidable crew and mileage costs and when other time related costs are taken into account these services make no contribution towards joint vehicle costs. The weekday peak and off-peak services do not cover their joint crew costs and hence make no contribution to joint vehicle costs.

4. WMPTE has told us that the period it took to carry out the analysis was during the fares reduction and this would have depressed the revenue figures considerably compared to current levels, whilst current costs are estimated to be 8 per cent higher than those of November 1981.

5. Tables 3 and 4 set out the results of the peak off-peak costing for CCT.

TABLE 3 CCT peak off-peak costing (full peak basis) £'000 January to March 1981

	Weekdays		Total	Saturday	Sunday	Total
	Peak	Off-peak				
Revenue	820.9	957.4	1,778.3	311.5	93.9	2,183.7
Crew and mileage costs	384.7	450.7	835.4	185.4	94.3	1,115.1
Other time related costs	160.9	509.9	670.8	82.4	55.7	808.9
Specific vehicle costs	445.0	—	445.0	—	—	445.0
Net contribution	-169.7	-3.2	-172.9	+43.7	-56.1	-185.3
Unallocated revenue	—	—	—	—	—	18.5
Operating ratio %	82.9	100	91.1	114.0	62.6	92.2

Source: MMC study.

TABLE 4 CCT peak off-peak costing (excess peak basis) £'000 January to March 1981

	Weekdays		Total	Saturday	Sunday	Total
	Peak	Off-peak				
Revenue	820.9	957.4	1,778.3	311.5	93.9	2,183.7
Crew and mileage costs	115.0	146.5	261.5	185.4	94.3	541.3
Other time related costs	160.9	509.9	670.8	82.4	55.7	808.9
Specific vehicle costs	91.4	—	91.4	—	—	91.4
Contribution to joint crew costs	+453.6	+301.0	+754.6	—	—	—
Joint crew costs	—	—	573.8	—	—	573.8
Contribution to joint vehicle costs	—	—	+180.8	+43.7	-56.1	+168.4
Joint vehicle costs	—	—	—	—	—	353.6
Net contribution	—	—	—	—	—	-185.3
Unallocated revenue	—	—	—	—	—	18.5

Source: MMC study.

6. On both bases the Sunday services did not provide sufficient revenue to cover the avoidable crew and mileage costs, but Saturday services made a net contribution of almost £44,000 after meeting all their costs. CCT has agreed that Sunday services are unprofitable.

7. On the full peak basis the weekday peak made a contribution of only £275,300 towards vehicle costs of £445,000, but off-peak services almost broke even. On the excess peak basis the weekday peak and off-peak services covered their specific and joint crew costs and made a net contribution to joint vehicle costs.

8. CCT has stated that it would not wish to be committed to either bases of costing as being the most appropriate for their operations. It regards the exercise as giving rise to two extremes. The data which was used for the costing related to January–March 1981, ie prior to the introduction of the reduced off-peak fare scheme, and the study would need to be repeated to confirm the results.

9. The lessons CCT saw as following from this exercise would lie in the future when such a study, if repeated, would help in planning the differential between peak and off-peak fares. The General Manager had not thought that the exercise could give any guidance in respect of over-provision of services at one time of the week compared with another.

10. A similar exercise was carried out for the BOC services in Bristol City and the results are shown in Tables 5 and 6. BOC regards the excess peak basis of allocation as being most appropriate for its services.

TABLE 5 BOC peak off-peak costing (full peak basis) Bristol City services November 1981 £'000

	Weekdays		Total	Saturday	Sunday	Total
	Peak	Off-peak				
Revenue	317.6	402.7	720.3	104.0	23.6	847.9
Crew and mileage costs	84.8	262.8	347.6	80.2	33.7	461.5
Other time related costs	58.8	194.0	252.8	47.4	25.3	325.5
Specific vehicle costs	167.2	—	167.2	—	—	—
Net contribution	+6.8	-54.1	-47.3	-23.6	-35.4	-106.3
Operating ratio %	102.2	88.2	93.8	81.5	40.0	88.9

Source: MMC study.

TABLE 6 BOC peak off-peak costing (excess peak basis) Bristol City services November 1981 £'000

	Weekdays		Total	Saturday	Sunday	Total
	Peak	Off-peak				
Revenue	317.6	402.7	720.3	104.0	23.6	847.9
Crew and mileage costs	84.8	262.8	347.6	80.2	33.7	461.5
Other time related costs	58.8	194.0	252.8	47.4	25.3	325.5
Specific vehicle costs	44.6	—	44.6	—	—	44.6
Contribution to joint costs	+129.4	-54.1	+75.3	-23.6	-35.4	16.3
Joint costs	—	—	—	—	—	122.6
Net contribution	—	—	—	—	—	-106.3

Source: MMC study.

11. On this basis it can be seen that no period, other than the weekday peak, contributes to joint costs. The surplus from the weekday peak is more than sufficient to cover all the joint costs. Sunday operations incur a relatively large loss and fail to cover avoidable crew and mileage costs.

12. BOC has told us that it was aware of the poor performance of Sunday services and also of evening operations as a result of the MAP surveys. BOC also pointed out that substantial reductions have already been made during 1981 but in the case of Bristol City and elsewhere in Avon many of the remaining Sunday and evening services have been 'brought back' by the County Council on social grounds. These are being further reviewed as part of the post-MAP monitoring exercise.

13. Tables 7 and 8 show the results of the peak off-peak costing exercise for TMT. TMT has told us that its primary objective is to meet peak demands and hence the full peak cost allocation is most appropriate to the services it supplies.

TABLE 7 TMT peak off-peak costing (full peak basis) 1-20 November 1981 £'000

	Weekdays		Total	Saturday	Sunday	Total
	Peak	Off-peak				
Revenue	376.8	505.7	882.5	164.9	32.6	1,080.0
Crew and mileage costs	127.4	351.1	478.5	115.2	34.1	627.8
Other time related costs	93.8	241.6	335.4	57.6	21.8	414.8
Vehicle costs	220.9	—	220.9	—	—	220.9
Net contribution	-65.3	-87.0	-152.3	-7.9	-23.3	-183.4
Unallocated revenue	—	—	—	—	—	67.2
Operating ratio %	85	85	85	95	58	91

Source: MMC study.

TABLE 8 TMT peak off-peak costing (excess peak basis) 1-20 November 1981 £'000

	Weekdays		Total	Saturday	Sunday	Total
	Peak	Off-peak				
Revenue	376.8	505.7	882.5	164.9	32.6	1,080.0
Crew and mileage costs	50.9	90.8	141.7	115.2	34.1	291.0
Other time related costs	93.8	241.6	335.4	57.6	21.8	414.8
Specific vehicle costs	36.8	—	36.8	—	—	36.8
Contribution to joint crew costs	195.3	173.3	368.6	—	—	368.6
Joint crew costs	—	—	336.7	—	—	336.7
Contribution to joint vehicle costs	—	—	31.9	-7.9	-23.3	0.7
Joint vehicle costs	—	—	—	—	—	184.1
Net contribution	—	—	—	—	—	-183.4
Unallocated revenue	—	—	—	—	—	67.2

Source: MMC study.

14. No period of the week for TMT is profitable, although Saturday approaches break-even. On the full peak cost allocation the weekday peak and off-peak periods have a similar performance; both have an operating ratio of 85 per cent. In the case of the peak services these made a contribution of £155,600 towards the vehicle costs of £220,900. Weekday off-peak made a contribution of £154,600 towards the appropriate time related cost of £241,600. Sunday services incur a relatively large loss, and the revenue from these services does not cover avoidable crew and mileage costs.

15. TMT has agreed that Sunday services perform poorly. When it discovered this it had carried out the loading survey mentioned in paragraph 8.94. It intends to look again at Sunday and evening services, particularly in its 10 per cent mileage cut exercise mentioned in the Corporate Plan. Adjustments, however, would be subject to county council approval.

APPENDIX 10.1
(referred to in paragraphs 10.6 and 10.14)

Role of local authorities

Sources of evidence

1. We invited the county councils and district councils in the area of operation of WMPTE, CCT, BOC and TMT to give evidence, and we received evidence from the following 14 county councils and 20 district councils:

County councils

Avon
Cheshire
Derbyshire
Gloucestershire
Greater Manchester
Nottinghamshire
Oxfordshire
Somerset
South Glamorgan
Staffordshire
Warwickshire
West Yorkshire
West Midlands
Wiltshire

District councils

Bath City Council
Bristol City Council
Broxtowe Borough Council
Charnwood Borough Council
Cheltenham Borough Council
Chesterfield Borough Council
Coventry City Council
Derby City Council
North Warwickshire Borough Council
North West Leicestershire District Council
Nottingham City Council
Rushcliffe Borough Council
Solihull Metropolitan Borough Council
South Staffordshire District Council
South Tyneside Borough Council
Stroud District Council
Thamesdown District Council
Vale of Glamorgan Borough Council
Walsall Metropolitan Borough Council
Wansdyke District Council

2. Detailed figures showing trends in revenue support are set out in the following tables. Table 1 gives the amounts of transport expenditure submitted by selected counties for acceptance by the Secretary of State for Transport for the purpose of calculating the amount of Transport Supplementary Grant (TSG) they are to receive. Not all proposed expenditure is accepted as eligible for grant. The table also shows total accepted expenditure and TSG received. Full information is not available for all counties for all years.

3. Table 2 sets out a comparison between bids for revenue support made by operators to non-metropolitan counties, the amount of support then agreed by the county and the amount finally received for the year. It will be seen that of the 32 year's figures for which information was available from counties support paid was the same as that agreed in approximately 50 per cent of years, larger in 30 per cent and smaller in 20 per cent. Table 3 sets out the revenue support paid to WMPTE from all sources. WMPTE told us that the administration in power had a policy of reducing revenue support in the early years shown in the table. Between 1976-77 and 1978-79 revenue support as a percentage of turnover fell dramatically.

TABLE 1 Transport Supplementary Grant (£m) outturn prices²

See notes below	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
<i>S Glamorgan</i>						
(a) Total submission ¹	—	8·017	8·197	10·347	21·609	20·223
(b) Total accepted expenditure	—	7·401	8·453	10·700	15·933	19·208
(c) Total TSG actually granted	—	2·393	3·023	4·286	7·217	7·652
<i>Avon</i>						
(a) Total submission	14·814	14·485	13·543	16·909	19·638	20·773
(b) Total accepted expenditure	14·277	11·481	13·282	16·029	17·511	16·968
(c) Total TSG actually granted	1·923	0·438	1·494	1·778	1·758	0·357
<i>Gloucestershire</i>						
(a) Total submission	6·053	—	—	—	—	—
(b) Total TSG actually granted	1·366	—	—	—	—	—
<i>Wiltshire</i>						
(a) Total submission	6·02	7·10	11·02	11·14	13·14	13·76
(b) Total TSG actually granted	0·43	0·39	1·97	1·35	2·16	1·91
<i>Derbyshire</i>						
(a) Total submission	N/A	11·344	15·592	14·511	21·262	22·897
(b) Total TSG actually granted	N/A	1·706	3·443	2·425	1·827	2·728
<i>Nottinghamshire</i>						
(a) Total accepted expenditure	N/A	13·712	12·297	15·660	12·779	19·959
(b) Total TSG actually granted	3·605	1·512	0·660	1·106	0·268	1·023

Source: Local authorities.

Notes

¹ The 'submission' figures supplied by South Glamorgan CC were based on price levels existing 12 months before those on which the 'accepted expenditure' and the 'TSG actually granted' were based. For the presentation in these schedules, therefore, the 'submission' figures have been inflated using the following series obtained from the Monthly Digest of Statistics.

Nov '75	Nov '76	Nov '77	Nov '78	Nov '79	Nov '80
144·2	165·8	187·4	202·5	237·7	274·1

² Apart from the figures for South Glamorgan CC which are based upon the level of prices existing the November before each financial year, all figures are outturn prices.

TABLE 2 Revenue support to operators (£'000s) at outturn prices

See notes below	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
<i>S Glamorgan</i>						
(a) Original bid by CCT	250 ²	250	482	401	473	467
(b) Amount agreed by county	250	250	375	395	473	467
(c) Amount actually received by operator at year end	250	250	337 ¹	395	473	467
Amount received from Cardiff City Council	330	204	96	568	349	475*
<i>Avon</i>						
(a) Original bid by BOC ³						
(b) Amount agreed by county	1,000	765	1,100	1,250	1,140	2,350
(c) Amount actually received by operator at year end	850	650	843	1,050	1,260	—
<i>Gloucestershire</i>						
(a) Original bid by BOC	500	377	546	493	839	466
(b) Amount agreed by county	258	285	290	315	279	253
(c) Amount actually received by operator at year end	258	285	290	247	279	253
<i>Wiltshire</i>						
(a) Original bid by BOC	254	482	537	338	371	295
(b) Amount agreed by county	92	247	249	330	307	250
(c) Amount actually received by operator at year end	247	253	375	304	400	—
<i>Derbyshire</i>						
(a) Original bid by TMT ⁴	—	600	579	620	700	600
(b) Amount agreed by county ⁵	—	450	575	650	667	600
(c) Amount actually received by operator at year end	—	450	550	658	672	750
<i>Nottinghamshire</i>						
(a) Original bid by TMT	250	303	350	604	725	606
(b) Amount agreed by county	250	283.4	271	306	328	—
(c) Amount actually received by operator at year end	258.7	283.4	271	306	328	—

Source: Local authorities' TPPs.

* Estimated.

Notes:

¹ (South Glamorgan CC). In 1978-79, the revenue of the undertaking was greater than expected; the estimated eligible deficit was not reached.

² (South Glamorgan CC). The 'original bid' figures represent the amount jointly agreed to be the eligible deficit for the year in question. Amounts actually received in 1974-75 and 1975-76 were £1,093,000 and £318,000 from the city council and zero and £312,000 respectively from South Glamorgan CC.

³ (Avon CC). Bristol Omnibus Company does not submit a bid as such but rather provides the county council with forecasts of expenditure and income in relation to which the council's revenue support policy and budget can be determined. It should be noted that until 1979-80 the revenue support paid by the county council was sufficient to enable Bristol Omnibus Company's operations to break even had it complied with Avon CC's criteria. The deterioration in the company's financial situation in 1979-80 prompted the MAP surveys, the purpose of which was to restore the bus company to a position of financial viability.

⁴ (Derbyshire CC). The figures shown for the 'original bid' are in most cases, the bids made by the company after negotiations, often three months after the start of the financial year.

⁵ (Derbyshire CC). The figures given for 'support' were also those which emerged some way into the year and apply only to support for those routes regarded as eligible by Derbyshire County Council and excludes any support given by Derby City Council.

TABLE 3 WMPTE: revenue support from local authorities

	1976-77 £'000	1977-78 £'000	1978-79 £'000	1979-80 £'000	1980-81 £'000	Total £'000
<i>Revenue support</i>						
From West Midlands County						
In respect of bus services ¹	15,117	11,201	10,325	11,492	13,477	61,612
In respect of rail services	2,010	3,095	3,921	3,708	4,699	17,433
	<u>17,127</u>	<u>14,296</u>	<u>14,246</u>	<u>15,200²</u>	<u>18,176</u>	<u>79,045</u>
From Staffordshire						
In respect of bus services	206	168	60	233	193	860
	<u>17,333</u>	<u>14,464</u>	<u>14,306</u>	<u>15,433</u>	<u>18,369</u>	<u>79,905</u>
<i>Revenue support as % of turnover</i>						
Total	(26.6)	(18.7)	(16.6)	(16.6)	(16.1)	—
Bus	25.2	16.1	13.4	13.2	13.1	—

Source: WMPTE.

Notes:

¹ Includes support for integrated bus services (Midland Red, Mid-Warwickshire Motors etc).
² In 1979-80, after allowing for revenue support received from WMCC there was a deficit of £971,000. This deficit was covered from PTE reserves. These reserves arose from surpluses produced prior to 1974.

4. Table 4 gives details, where available, of concessionary fares payments made by selected authorities to operators.

TABLE 4 Concessionary fares payments (£'000s) (outturn prices)

Payments to operator	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
<i>CCT</i>						
1. From South Glamorgan CC	60	64	73	80	80	112.5
2. From Cardiff City Council	714	752	736	745	944	1,030*
<i>BOC</i>						
From authorities within the county of Avon	514	407	494	786	625	—
<i>BOC</i>						
From authorities within Gloucestershire	91	44	84	103	133	—
<i>BOC</i>						
From Wiltshire CC	Nil	Nil	Nil	Nil	Nil	Nil

Source: Local authorities.

* Estimate.

5. Table 5 compares forecast costs and revenues for the operators by county in which the services operate. 'Revenue' includes concessionary fares receipts from both county and district councils. Outturn revenue for CCT includes deficit payments from Cardiff City Council. These are set out in the fourth line of Table 2. It will be seen that in many years BOC's deficit was not fully met by revenue support. The provision of revenue support by counties is now examined in more detail operator by operator.

TABLE 5 Operators' costs and revenues (£'000s) (at outturn prices)

See notes below	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
<i>South Glamorgan</i>						
<i>CCT</i>						
(a) Forecast costs	4,940	5,728	6,255	6,762	8,587	9,850
(b) Forecast revenue	4,341	5,228	5,745	6,275	7,069	9,349
(c) Actual outturn costs	5,268	5,744	6,073	7,239	8,689	9,850
(d) Actual outturn revenue ¹	5,268	5,744	6,073	7,239	8,689	9,850
<i>Avon</i>						
<i>BOC</i>						
(a) Forecast costs	15,013	13,721	15,335	17,129	20,651	21,060
(b) Forecast revenue	14,007	13,721	15,333	17,291	20,075	19,350
(c) Actual outturn costs	13,301	14,029	15,301	17,762	22,092	—
(d) Actual outturn revenue	13,301	13,929	15,301	17,078	18,231	—
<i>Gloucestershire</i>						
<i>BOC</i>						
(a) Forecast costs	4,121	4,307	4,917	5,252	6,302	5,622
(b) Forecast revenue	3,621	3,930	4,371	4,759	5,463	5,156
(c) Actual outturn costs	4,091	4,350	4,814	5,514	6,246	6,188
(d) Actual outturn revenue	3,642	3,982	4,326	4,661	5,128	5,167
<i>Wiltshire</i>						
<i>BOC</i>						
(a) Forecast costs	1,468	2,066	2,389	2,305	2,578	3,041
(b) Forecast revenue	1,306	1,231	2,099	2,297	2,514	2,990
(c) Actual outturn costs	1,977	2,144	2,119	2,379	2,779	—
(d) Actual outturn revenue	2,763	1,925	2,072	2,274	2,567	—
<i>Derbyshire</i>						
<i>TMT</i>						
(a) Forecast costs	11,243	11,820	12,975	13,728	15,638	16,784
(b) Forecast revenue	10,009	11,488	12,064	12,820	15,339	16,259
(c) Actual outturn costs	11,055	12,092	12,417	13,786	15,911	—
(d) Actual outturn revenue	10,438	11,218	12,305	13,145	15,190	—
<i>Nottinghamshire</i>						
<i>TMT</i>						
(a) Forecast costs	3,725	4,100	4,427	4,766	5,926	6,164
(b) Forecast revenue	3,327	3,880	4,045	4,247	5,257	5,535
(c) Actual outturn costs	3,357	4,054	4,370	5,273	5,718	—
(d) Actual outturn revenue	3,367	3,698	3,910	4,527	5,031	—

Source: Local authorities.

All counties: 'Forecast revenue' and 'Actual outturn revenue' include revenue from all sources, including revenue support and concessionary fares scheme payments by county and district councils.

Note:

¹ Outturn revenue includes deficit finance from Cardiff City Council to CCT as given in Table 2.

WMPTE

6. WMCC was asked how it set about identifying the needs of the area for public transport. It said that its first priority was to underpin the industrial and commercial base of the West Midlands. Its second priority was to see that there was available to all who needed it a public transport system to assist them to enjoy the leisure activities they needed and in some cases had paid to provide.

7. The county council as strategic planning authority determined the overall land use strategy paying attention to the possibilities and pressures of providing public transport and to the funds available. A five-year rolling programme for transport was determined after due consideration of the economics and alternative policies.

CCT

8. Individual route costing statements are prepared for South Glamorgan CC as a condition of the binding agreement (see paragraph 10.29). South Glamorgan CC has stated that the monitoring of the effectiveness of an individual service is on a financial basis in the first instance. Where services are performing badly a closer look may well involve examining loadings but to assign a target load factor may well hide the social value of a service which is often determined politically.

BOC

9. Table 6 shows the extent to which the revenue support provided by the counties matched the operating deficit of BOC in the county areas.

TABLE 6 BOC operating deficit covered by revenue support for each county area

	<i>Avon</i>		<i>Gloucestershire</i>		<i>Wiltshire</i>	
	<i>Deficit £'000</i>	<i>% covered</i>	<i>Deficit £'000</i>	<i>% covered</i>	<i>Deficit £'000</i>	<i>% covered</i>
1976-77	850	100	N/A	N/A	461	53.6
1977-78	750	86.7	437	65.2	442	57.2
1978-79	843	100	333	87.1	296	92.9
1979-80	1,734	60.6	668	37.0	403	75.4
1980-81	5,121	24.6	890	33.0	617	64.8
1981-82	N/A	N/A	1,021	24.7	487*	52.8*

Source: County councils

* Estimates

BOC's relations over revenue support with each county are now considered in turn.

Avon County Council

10. Avon CC provides the bulk of BOC's revenue support. This is provided on a network basis. In 1976 Avon CC sought to select a basic level of services in the light of the 'needs' identified. The identification of need involved on-bus interviews to examine current demand and meetings with district and parish councils to assess needs including those not met by existing services. A com-

mittee of councillors was set up to develop a network compatible with the needs identified. In 1979 Avon CC decided to continue the service reviews in association with BOC's MAP exercises. Avon insisted that the consultation procedures adopted for the basic fabric review should be retained although it was noted that in urban areas where no parish councils existed consultations would involve the district councils and all relevant local organisations.

11. Avon CC told the Commission that financial support was given for a 'preferred network' of services, ie a network derived from that initially devised by BOC as the 'break-even network' but restructured as assessed to be necessary by Avon CC, in order to provide the bus services within the county for which a need had been shown to exist (but within the financial constraints). The MAP studies conducted in Avon were paid for by the county council. When constructing the preferred network the county council did not employ any target load factors and when deciding frequencies the council stated that it had regard to what was reasonable for the demand and the needs of the passengers concerned, rather than to any pre-determined loading criteria.

12. Given the inter-related network which existed the route costings (on a CIPFA basis) were not regarded as of general applicability for planning purposes when considering individual routes. In the light of this no formal criteria were used to assess the level of revenue support on an individual route by comparing the on-bus revenue and route costing.

13. BOC told us that Avon CC's criteria for payment of revenue support in 1982-83 were as follows:

- (i) Current network and level of services to be maintained (subject to agreed changes arising from post implementation reviews) throughout 1982-83 except by specific agreement between the Company and the County Council. This agreement may be varied if any material unforeseen circumstances jointly identified should arise.
- (ii) County Council policy in 1982-83 set out in the TPP and PTP with regard to fares increases to be followed, both in terms of level of increase and timing of increase; again subject to variation should material unforeseen circumstances arise which are jointly identified by both parties
- (iii) The Company to pursue economies including those identified in the MAP studies, such as
 - (a) the implementation of double-deck vehicles on routes currently operated by saloons at a higher frequency than intended under the MAP recommendations;
 - (b) the further co-ordination of City and County services, but the Company also to seek out new bus traffic and improve services wherever this will make a financial contribution to the network;
- (iv) The Company to review jointly with the County Council appropriate findings of the Monopolies and Mergers Commission.
- (v) The current monitoring exercise in respect of running, capacity and complaints to be formalised and continued on a regular basis.'

14. For 1982-83 Avon CC has set an upper limit on revenue support to BOC of £2.84 million (November 1981 prices) excluding budgeted expenditure for the 'Avonfare' experiment (see paragraph 8.130). BOC estimates that this level of revenue support will give rise to a net deficit of £1-£1.5 million in 1982-83.

Gloucestershire County Council

15. The council paid revenue support annually in the past, without meeting the full deficit. Support was for the network. The council hoped that this would provide a spur to efficiency. BOC did not react to this in terms of significant cuts in services until the MAP procedures were introduced.

16. Policy post-MAP is for 'viable networks and additional services bought back'. Policy is not to support urban routes in Cheltenham and Gloucester since these are thought to be able to make a profit or at least break even. However, they do make a loss; of BOC's total deficit in Gloucestershire in 1980-81 of £890,000, urban routes accounted for £236,000. Cheltenham District Council has now agreed to make available in 1982-83 a sum of £45,000 to be spent on public transport, although as yet there are no identified objectives or schemes towards which the money may be put. Having identified needs for the retention of particular services not met by the break-even network by consultation with district and parish councils, the county council aims to satisfy these needs either by buy-back from BOC or by the introduction of an independent operator. Selection of the operator is generally by negotiation.

17. For the satisfaction of need unconventional modes of transport are also considered, where stage carriage services do not meet travel needs within what is seen as an acceptable level of financial support.

18. Whilst Gloucestershire CC employs no formal criteria for assessing the performance of individual routes, those where the revenue cost ratio falls below 50 per cent are examined. Many services which cover less than 50 per cent of costs are supported in the light of the needs they meet.

19. A separate agreement exists with Gloucester City Council in respect of urban services in Gloucester City (see paragraph 10.38). The costing basis used for this agreement, prior to its renegotiation in 1980, was different to the CIPFA basis employed in the rest of BOC. On a CIPFA costing basis the Gloucester City services generated losses of £183,000 in 1979-80. On the costing basis of the agreement BOC paid Gloucester City Council a half share of 'profits' equal to £65,000 in 1979-80. The total loss to BOC on a CIPFA basis on these services given the payment of these 'profits' was therefore £248,000 in 1979-80. A similar calculation for the years 1977-78 and 1978-79 gives total 'losses' of £160,000 and £220,000 respectively. Changes to the Gloucester City services were made in 1981 and the Gloucester City MAP proposals were introduced in January 1982. During the period January-November 1981 BOC incurred losses of £251,000 on the Gloucester City services and on average revenue was 79.8 per cent of costs during this period.

Wiltshire County Council

20. Wiltshire CC first defines a 'Basic Network', ie one which comprises those services which will continue for the foreseeable future. MAP was the starting point and Wiltshire contributed to its cost. There is no formal agreement with BOC concerning BOC's part of the basic network other than an annual exchange of letters in which the council indicates the revenue support it is willing to pay. BOC is then at liberty to decline and submit economy proposals.

21. Once the basic network is defined, local groups, called 'Parish Groups', are expected to 'identify the areas of residual need left unsatisfied', and the council then takes shopping lists to each district council for approval in the light of the recommendations of the parish groups. District councils may then choose to subsidise certain services jointly with the county council. In this way Wiltshire CC constructs its 'Supplementary Network'. Services in this network are obtained either by buying back the bus services from the existing operator, by inviting a new operator, or by meeting the need in a less orthodox way.

22. Wiltshire CC says that though 'it is probable that a hard core of basic services' will eventually be reached, the basic network is diminishing and being gradually replaced by the supplementary network. It regards it as a matter for BOC to state whether the basic network can be provided within the stated level of revenue support.

23. Bought back services are primarily assessed on an expectation that the operating ratio will be at least 50 per cent. After an initial experimental period services are unlikely to remain unaltered unless this criteria is satisfied.

TMT

24. Table 7 shows details of revenue support and subvention payments made to TMT by Derbyshire, Nottinghamshire and other authorities.

Derbyshire County Council

25. Derbyshire CC gives revenue support on a network basis. Derbyshire CC's aim is to promote a co-ordinated and efficient system of public passenger transport to meet the country's needs, in accordance with the requirements of the Transport Act 1978. The overall objective is to ensure that a basic level of mobility is maintained for people without access to their own personal transport and to avoid hardship that would arise from undue lack of public transport facilities.

26. The county council considers that requisite provision of school transport is an integral element of public transport. Meanwhile it is pledged to support the promotion of community transport where local needs cannot adequately be met by normal stage carriage and allied facilities. The provision of special works transport is encouraged but only in circumstances in which associated demand cannot be readily accommodated by the stage carriage

TABLE 7

Authority	1976-77 £	1977-78 £	1978-79 £	1979-80 £	1980-81 £
(i) <i>Revenue support</i>					
Derbyshire	417,998	450,000	490,284	536,970	409,367
Nottinghamshire	258,710	283,458	272,037	306,000	328,000
Leicestershire	136,350	159,868	90,404	106,994	78,000
Staffordshire	40,000	27,000	35,000	53,000	27,000
Peak Park	508	—	280	9,529	14,640
	<u>853,566</u>	<u>920,326</u>	<u>888,005</u>	<u>1,012,493</u>	<u>857,007</u>
(ii) <i>Subvention</i>					
Derby City	—	—	—	96,018	262,938
Derbyshire	—	—	—	163,698	288,472
Greater Manchester	11,277	4,798	6,217	3,644	991
South Yorkshire	8,592	1,920	9,516	10,900	19,100
	<u>19,869</u>	<u>6,718</u>	<u>15,733</u>	<u>274,260</u>	<u>571,501</u>
Total (Revenue support and subvention)	873,435	927,004	902,738	1,286,753	1,423,508

Source: TMT

Notes:

- (1) Revenue support is classed as financial payments rendered by local authorities to sustain continued operation of loss-making services (or journeys on services) which are considered by those local authorities to be socially necessary. Certain services such as works services are not eligible.
- (2) Subvention is classed as financial payments made as a result of agreements whereby, in broad terms, TMT complies with specified service levels and fares/conditions in return for cost-reimbursement of relevant operation.

service network. Derbyshire CC also claims to ensure an adequate level of service during summer weekends to and from the Peak Park, in accordance with the requirements and provisions of the Peak Park Joint Planning Board.

27. The council has carried out a rural passenger transport study. This specifies a set of guidelines for appropriate minimum levels of service in rural communities. A corresponding urban study will be carried out when needed. This will relate mainly to the urban areas of Chesterfield and Derby where the county council to a large extent responds to the needs of the district councils for advice and assistance. In Derby the city council and Trent are establishing a joint exercise to look at schools and works services.

28. Derbyshire County Council considers that cross-subsidisation is a by-product of policies and not a policy in itself. The county council's policy is to maximise the scale of service that can be provided for the amount of money that is available and it is fully aware of the costs and revenues on each route and it therefore accepts the extent of cross-subsidisation which results.

Nottinghamshire County Council

29. Nottinghamshire CC sets out its policy towards providing public transport to meet the needs of the county in its PTP for 1982-87, as follows:

'In consideration of the social needs of those dependent on public transport the County Council takes the view that in all communities a reasonable level of service should be provided to enable people to reach conveniently:

- (a) major centres of employment and schools;
- (b) local shopping and administrative centres;
- (c) health and pharmaceutical facilities;
- (d) evening entertainment centres;

and for rural areas it is the general intention:

- (a) to provide access to the main local employment centre on a daily basis;
- (b) to provide access to shopping facilities on at least one day each week;
- (c) to provide access to medical facilities;
- (d) to provide access to the main local centres providing recreational facilities on at least one evening each week.'

The council will also financially assist the early extension of selected services into major new developments.

30. When there is a question of providing revenue support, the county council believes that each service should be assessed in a way relevant to the local circumstances, taking into account:

- (a) the number of passengers involved;
- (b) the cost of providing the service, it being necessary to determine the cheapest way of providing a service, which would include considering unconventional services and volunteer drivers;
- (c) the journey purpose, with work and school journeys the most important, followed by shopping, business and health trips, with leisure trips being the least important;
- (d) the type of area and location of facilities;
- (e) the subsidy per passenger, as an indicator of value for money.

31. Nottinghamshire also sets out in the PTP for 1982-87 its detailed ideal and accepted accessibility standards for both urban and rural areas. In the present financial circumstances these vary from a maximum walk to a bus stop of 200 metres in urban areas to 1,600 metres in rural areas.

APPENDIX 13.1

(referred to in paragraph 13.39)

Relationship between cost and the socio-geographic environment

Introduction

1. It is well known that a number of socio-geographic factors influence the cost structure of a bus company. The relationship between these factors and cost is a complex one and not well understood in detail. The difficulty of understanding the nature of the relationship is enhanced by the variation of the socio-geographic environment within a single undertaking. Some insights can be gained by making a number of simplifying assumptions. In this appendix we outline the formulation of a simulation model based on a simple uniform grid bus network. This is a simplification with respect to many real networks where there may be an emphasis on radial routes.

Basic concept

2. The CIPFA code provides a procedure for allocating the total costs of bus operations into variable, semi-variable and fixed costs, each sub-divided by a second allocation depending on the way the costs are incurred, ie by time, distance or peak vehicle requirements. Table 13.6 in Chapter 13 sets out these cost categories. From this CIPFA allocation it is possible to determine for the bus undertakings the following unit costs.

- Unit cost of crew, plus servicing, plus maintenance, plus administration per bus hour—we shall call this U_h .
- Unit cost of fuel, plus tyres, plus insurance claims etc per bus mile—we shall call this U_m .
- Unit cost of licenses, plus insurance, plus depreciation, plus garaging costs etc per peak vehicle per year—we shall call this U_p .

3. If for any given network we can determine the number of hours, miles and PVR necessary to provide a given service level, then the total operating cost can be estimated as follows:

$$\begin{aligned} \text{Total cost/year} &= \text{Number of bus hours/year} \times U_h \\ &+ \text{Number of bus miles/year} \times U_m \\ &+ \text{Peak vehicle number} \times U_p. \end{aligned}$$

The basic simplifying assumption is that the unit costs U_h , U_m and U_p will not vary significantly between operators and that bus hours, bus miles and PVR will be determined by the service level and the socio-geographic factors. The formulation which follows suggests how these factors will be related for a simple uniform grid bus network.

Definition of service level

4. The two attributes of service which are most directly controllable by management are:

- (a) *Accessibility*, which we shall define as the maximum distance of any member of the population from a bus route; and
- (b) *Frequency*, which we shall define as the number of buses per hour passing any point on the route in a given direction.

This definition of accessibility is slightly different from that commonly used in the bus industry which is related to the average time for a member of the population to get to a bus route.

Notation

5. The following notation is used.

- Bm — Operational bus miles per day
- Rm — Number of network route miles
- Bh — Number of bus hours operated per day
- A — Area of uniform grid in square miles
- L — Length of side of the uniform grid area in miles
- f — Average service frequency in buses/hour
- a — Maximum distance of any person from a bus route in miles
- D — Duration of the service day in hours
- h — Duration of morning and evening peak in hours
- r — Ratio of patronage rates peak to off-peak
- p — Ratio of passenger flow in maximum to minimum direction
- N_p — Peak vehicle requirement
- C — Average passenger capacity per bus
- t — Average trip length per passenger
- V — Ratio of non-car users to car users in the population
- Z — Population density in people/square mile
- P — Total patronage per day
- G_n — Average number of public transport trips/day/non-car user under reference conditions
- G_c — Average number of public transport trips/day/car user under reference conditions
- S — Average speed per bus in miles/hour
- U_h — Unit cost per bus hour (defined previously)
- U_m — Unit cost per bus mile (defined previously)
- U_p — Unit cost per peak bus per year (defined previously)
- E_{fn} — Frequency elasticity for non-car users
- E_{an} — Access elasticity for non-car users
- E_{rn} — Fares elasticity for non-car users
- E_{fc} — Frequency elasticity for car users
- E_{ac} — Access elasticity for car users
- E_{rc} — Fares elasticity for car users
- R — Fare rate/mile
- T — Total cost/year

Formulation

6. Consider a uniform grid bus network as in Figure 1, consisting of a number of linear bus routes. Assume that the buses make journeys to and fro with the same average frequency, travelling at the same constant speed, during the whole of the working day. Assume also that the population density is uniform with homogenous travel patterns. In using the model we shall use averaged data for the parameters which will approximate the uniformity assumption, but the model will not in this respect represent accurately the variations in travel patterns and population density of a real bus undertaking.

Derivation of scheduled bus miles per day

7. For the uniform grid assumed, the network miles necessary to provide an accessibility 'a' is given by:

Network miles = Number of routes \times Average length of route

$$R_m = \left(2 \times \frac{L}{2a} \right) \times L$$
$$\therefore R_m = \frac{A}{a}$$

.....(i)

But the average frequency f is given by:

$$\text{Average frequency} = \frac{\text{Bus miles operated}}{\text{Average round trip miles} \times \text{length of service day}}$$
$$f = \frac{B_m}{2 \times R_m \times D}$$

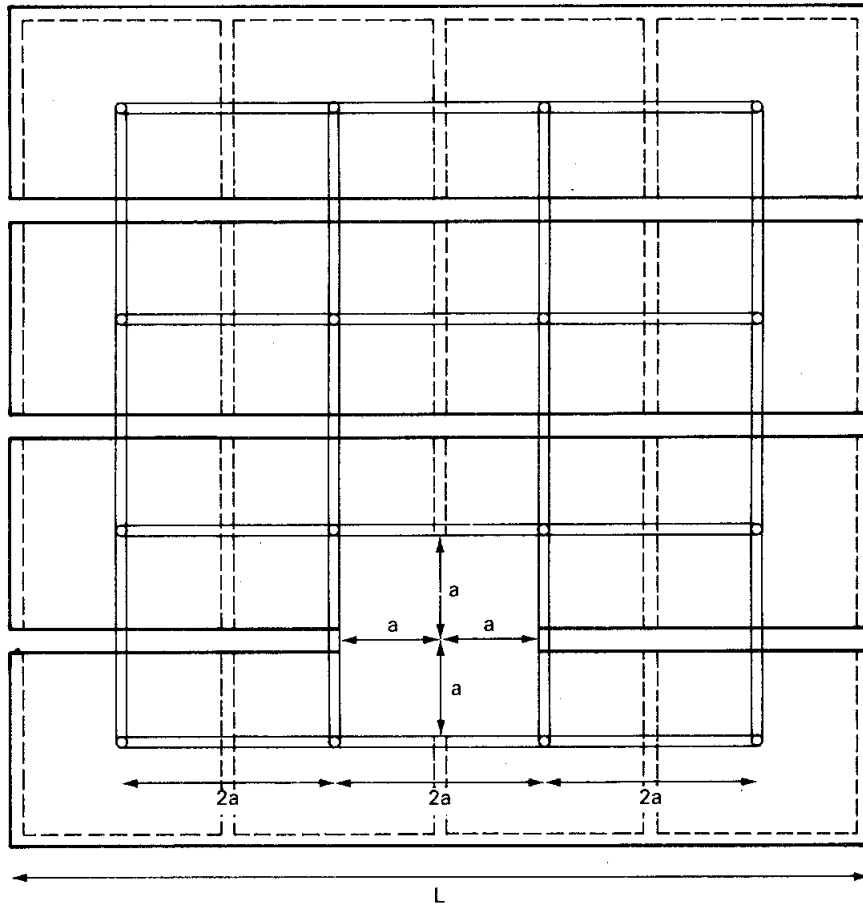
.....(ii)

and substituting for R_m from (i) gives

$$B_m = \frac{2 \times f \times A \times D}{a}$$

.....(iii)

FIGURE 1 The uniform grid bus network illustrating the linear routes and definition of accessibility



Network miles $\hat{=}$ No. of routes \times Length of route.

$$\hat{=} 2 \times \left(\frac{L}{2a}\right) \times L$$

$$\hat{=} \frac{A}{a}$$

Derivation of bus hours run per day

8. Now average bus speed = $\frac{\text{Total distance travelled}}{\text{Total time taken}}$

$$S = \frac{B_m}{B_h}$$

$$B_h = \frac{B_m}{S}$$

and substituting B_m from (iii) gives:

$$B_h = \frac{2 \times f \times A \times D}{a \cdot S}$$

.....(iv)

Derivation of peak vehicle requirements

9. The derivation of the peak vehicle requirement for our simple grid network requires two stages of estimation, first the estimation of total daily patronage, and secondly the estimation of peak patronage rate during the day from which PVR is estimated.

(a) *Estimation of patronage*

If G_n and G_c are the average number of trips per day for non-car owners and car owners respectively under the reference conditions of frequency f' , accessibility a' , and fare level R' , then the daily total patronage will be given by:

$$\text{Daily patronage} = \text{Total population} \cdot \left[\frac{V}{1+V} \cdot G_n + \frac{1}{1+V} \cdot G_c \right]$$

$$P = Z \cdot A \left[\frac{V}{(1+V)} \cdot G_n + \frac{1}{(1+V)} \cdot G_c \right]$$

And the patronage under the assumed conditions of fares ' R ', frequency ' f ', and accessibility ' a ' will be given by:

$$P = ZA \cdot \left[\left(\frac{V}{1+V} \right) \cdot G_n \left(\frac{f}{f'} \right)^{E_{fn}} \cdot \left(\frac{a}{a'} \right)^{-E_{an}} \cdot \left(\frac{R}{R'} \right)^{-E_{rn}} \right. \\ \left. + \left(\frac{1}{1+V} \right) \cdot G_c \left(\frac{f}{f'} \right)^{E_{fc}} \cdot \left(\frac{a}{a'} \right)^{-E_{ac}} \cdot \left(\frac{R}{R'} \right)^{-E_{rc}} \right]$$

.....(v)

(b) *Estimation of peak directional rate of passenger flow*

We shall assume the simple two peak symmetric profile of patronage rate shown in Figure 2. The proportion of total passengers travelling in the two peaks is given by the ratio of the area under the peak to the area under the total profile, which is:

$$\frac{2 (r \cdot h)}{D \cdot 1 + 2 \cdot h (r - 1)}$$

Hence the average peak hourly rate is:

$$= \frac{P}{2h} \cdot \left[\frac{2 (r \cdot h)}{D + 2h (r - 1)} \right] \quad \dots\dots(vi)$$

And if the flow is asymmetric, the average hourly peak rate in the maximum direction of flow is given by:

$$= \frac{P}{2h} \cdot \left[\frac{2 \cdot (r \cdot h)}{D + 2h (r - 1)} \right] \cdot \frac{p}{(p + 1)} \quad \dots\dots(vii)$$

(c) *Estimation of PVR*

The maximum number of vehicles needed is given by:

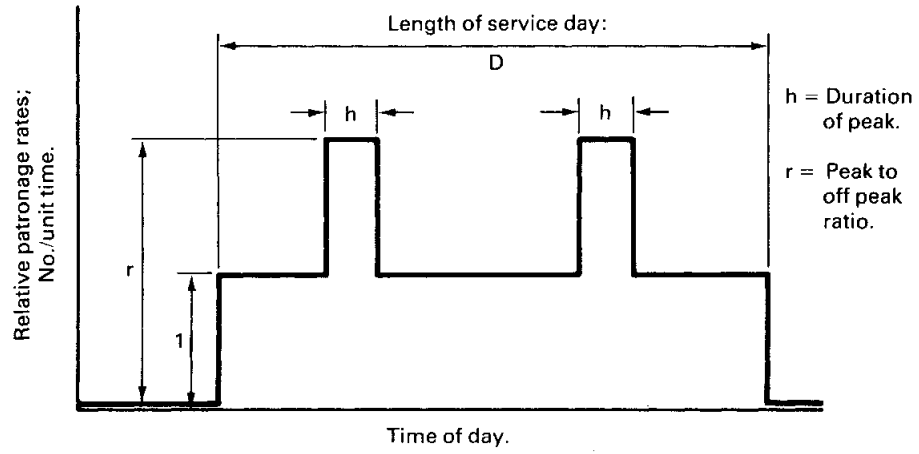
Peak vehicle requirement =

$$\begin{aligned} & \frac{\text{Max no of passengers travelling at any time}}{\text{Average vehicle capacity}} \\ &= \frac{\text{Max patronage rate}}{\text{Capacity per vehicle}} \times \text{Average occupancy time} \\ &= \frac{\text{Max patronage rate}}{\text{Capacity per vehicle}} \times \frac{\text{Average trip length}}{\text{Average vehicle speed}} \quad \dots\dots(viii) \end{aligned}$$

Now since we have assumed round trips, in the event of any asymmetry of flow buses will be relatively full in one direction and empty in the other, with the same number of buses in each direction. From the standpoint of capacity the number of buses required is the same as if the peak directional flow occurred in both directions simultaneously. Thus the effective peak hourly patronage rate is twice the rate in the maximum flow direction. Thus the peak vehicle requirement can be estimated by substituting (vii) in (viii) above, to give:

$$N_p = \frac{P}{2h} \cdot \left[\frac{2 \cdot (r \cdot h)}{D + 2h (r - 1)} \right] \cdot \frac{2 \cdot p}{(p + 1)} \cdot \frac{t}{C \cdot S} \quad \dots\dots(ix)$$

FIGURE 2 Profile of patronage rates through the day



Derivation of total annual cost

10. The total annual cost for the simple grid network bus service can be estimated from equations (iii), (iv) and (ix) as:

$$T = 365 \cdot B_m \cdot U_m + 365 \cdot B_h \cdot U_h + N_p \cdot U_p$$

and the cost per mile also estimated by:

$$\text{Cost per mile} = U_m + \frac{B_h}{B_m} \cdot U_h + \frac{N_p \cdot U_p}{365 \cdot B_m}$$

$$\frac{T}{365 \cdot B_m} = U_m + \frac{U_h}{S} \cdot \frac{N_p U_p}{365 \cdot B_m}$$

.....(x)

which can be evaluated by direct substitution of parameter values to provide an indication of how the cost per mile may be expected to change with variations in the values of the socio-geographic factors.

Normalisation of costs per mile to a standard environment

11. Equation (x) can be used to estimate the expected operational cost for any undertaking if it operated in some other socio-geographic environment.

12. If C_m , C_h and C_p are the components of total cost per mile associated with costs incurred through distance, time and PVR respectively with unprimed variables representing the actual working socio-geographic environment and primed variables representing a standard environment then the following adjustments allow an estimate of cost per mile to be made for the standard environment:

$$C_m' = C_m$$

$$C_h' = C_h \cdot \frac{S}{S'}$$

$$C_p' = C_p \cdot \frac{N_p'}{N_p}$$

$$\text{and } T' = C_m' + C_h' + C_p'$$

The value of N_p and N_p' being estimated from (ix). Since we need the ratio N_p/N_p' we need only evaluate (ix) for those parameters that change.

13. Figures 3-7 illustrate how cost/mile for a bus undertaking would be expected to vary with:

- average speed
- population density
- peak to off-peak ratio
- net directional balance of passenger flow
- average frequency

It should be noted that cost per mile increases with population density because of the higher fixed costs associated with increased PVR but reduces with increase in average frequency because of the higher utilisation of the bus fleet off-peak.

FIGURE 3 Variation of cost/mile with average speed for a simple uniform grid with constant service level

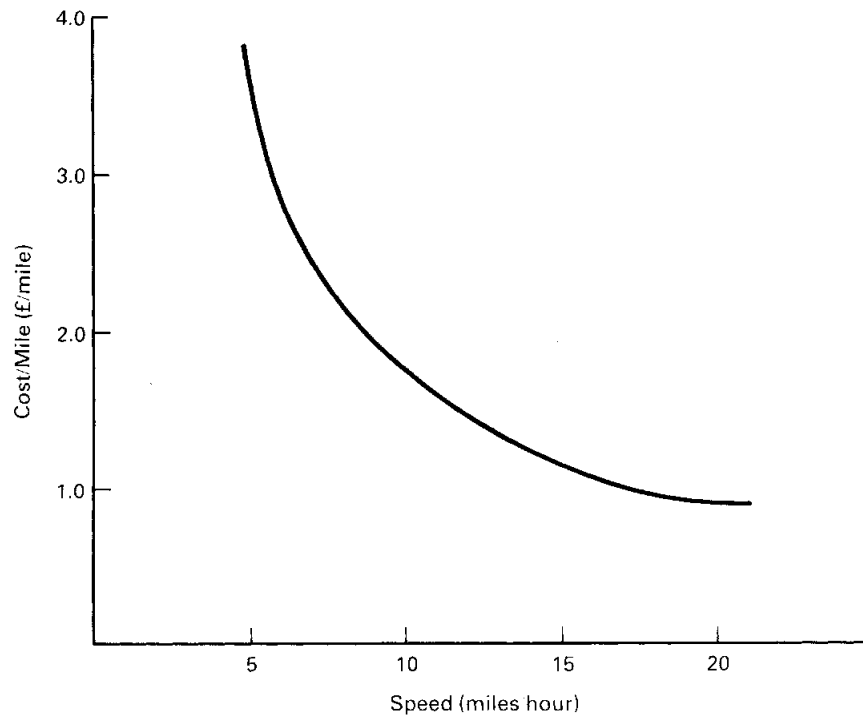


FIGURE 4 Variation of cost/mile with population density for a simple uniform grid with constant service level

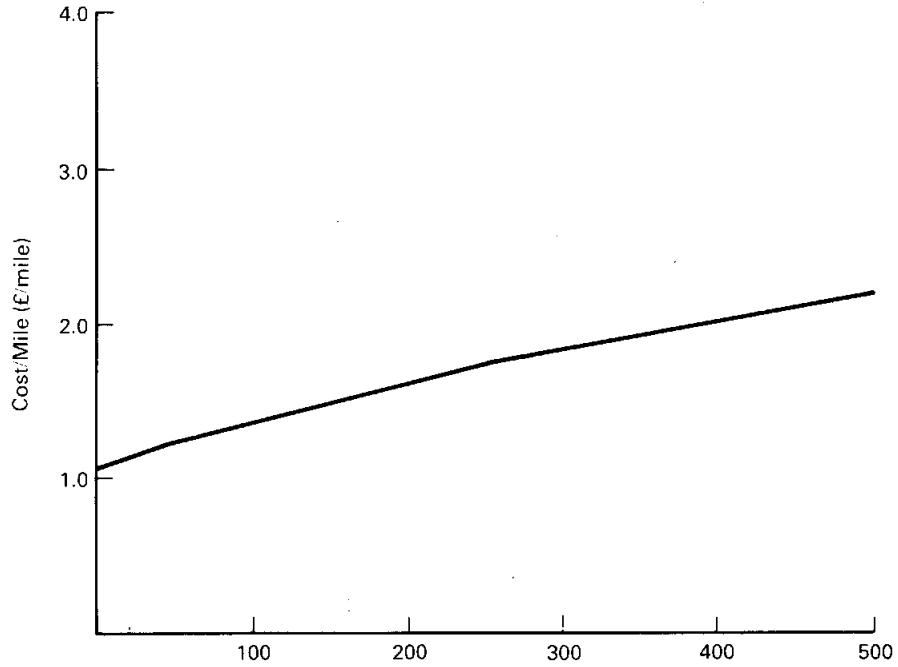


FIGURE 5 Variation of cost/mile with balance of passenger flow at peak with constant average service level for a simple uniform grid

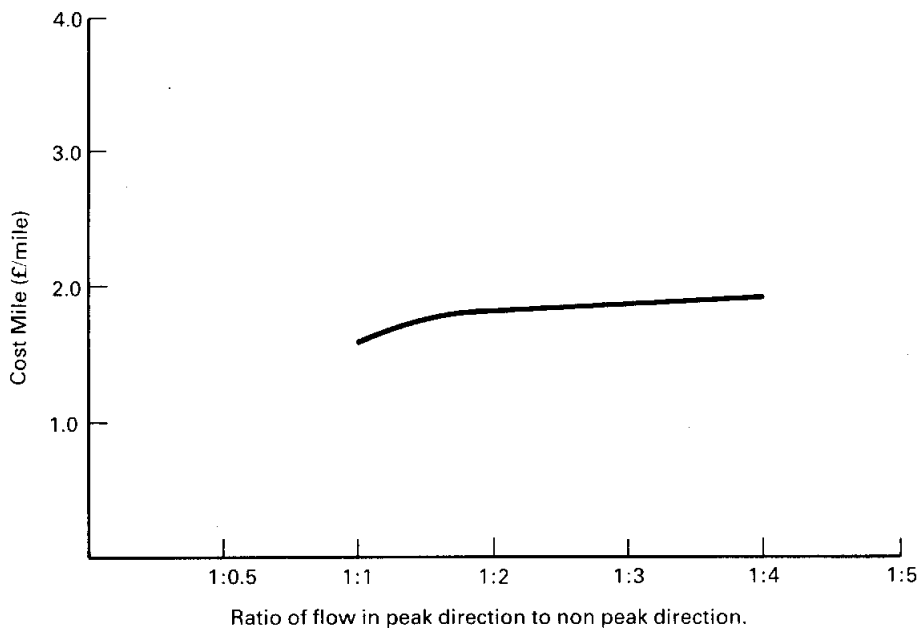


FIGURE 6 Variation of cost/mile with variations in peak to off peak passenger flow at constant total patronage and service level for a simple uniform grid

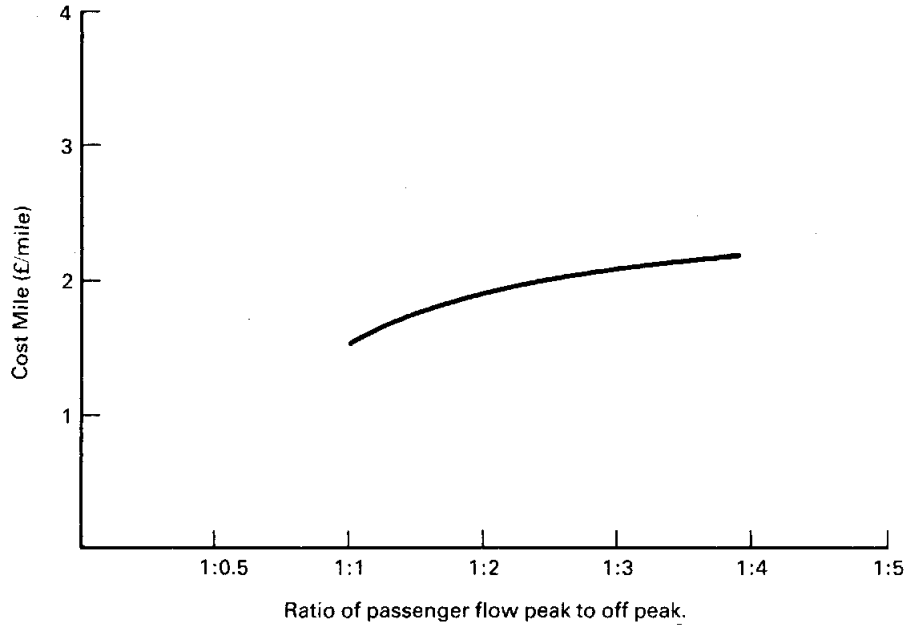
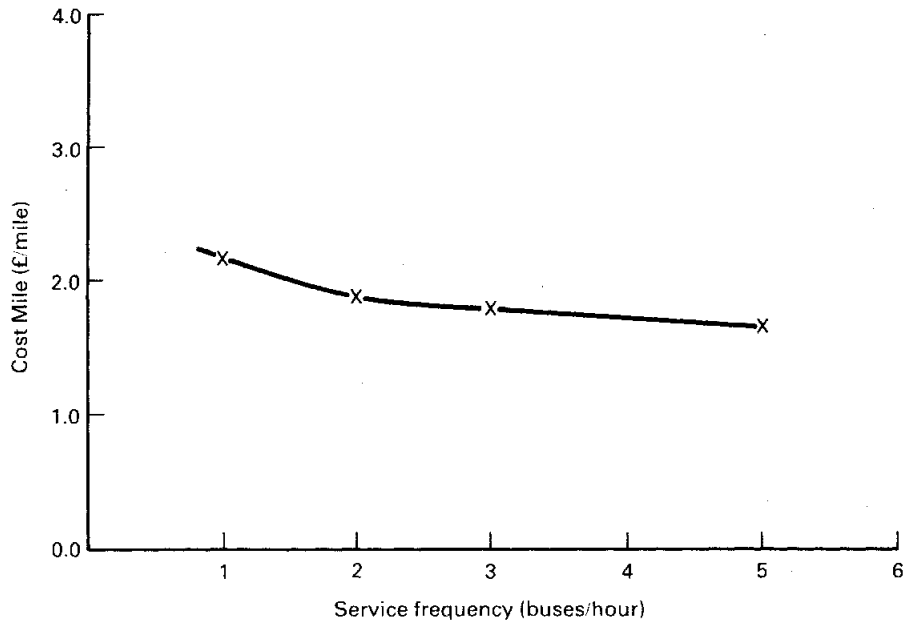


FIGURE 7 Variation of cost/mile with service frequency for a simple uniform grid, all other factors constant



14. Table 1 shows the parameter values used to generate the data for the figures discussed above. The elasticity estimates were obtained from the TRRL report 'The Demand for Public Transport'.

TABLE 1 Parameter values used for model demonstration

Area—900 sq miles
Length of service day—12 hours
Average speed—14·7 miles/hour
Average bus capacity—35
Average trip length—6 miles
Duration of peak—1 hour
Ratio of peak to off-peak—1·5 : 1
Ratio of flow in peak direction—1·5 : 1
Trips per day non-car users—0·8 trips/day
Trips per day car users —0·3 trips/day
Effective population density—400 per sq mile
Ratio of non-car users—4 : 1
Frequency elasticity for non-car users—+ 0·5
Frequency elasticity for car user —+ 1·7
Accessibility elasticity for non-car users—- 0·1
Accessibility elasticity for car owners —- 0·3
Um—£0·11/mile
Uh—£10·20/hour
Up—£11,000/bus/year

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