Preface

This report was commissioned by Listen to London, an alliance of the transport unions ASLEF, RMT and TSSA set up to campaign against the government's proposals for the partial privatisation of London Underground. The aim of this report is to clarify the issues surrounding the future funding and financing of London Underground. It is hoped that this will encourage an informed debate on the subject. The report does not seek to make policy recommendations with regard to future financing mechanisms, still less is it intended to support the position of any of the prospective candidates for the mayoral election. However, on the issue of the funding (as opposed to financing) of capital expenditure on the Underground, an issue on which none of the prospective candidates has to our knowledge presented a position, the authors express their own views.

The first chapter of this report examines London Underground's current sources of funding and cost structure. The second chapter draws some comparisons between the funding regimes for public transport in Paris, New York and London. Chapter three examines the government's proposals for the Underground. Chapter four addresses the alternative proposals that have been put forward to finance investment through revenue bonds. Chapter five considers the lessons of privatisation and the private finance initiative and the significance of the operational characteristics of the railway industry. We conclude that the most important issue facing the Underground is that of funding, not of finance.

Declan Gaffney *studied at Trinity College Dublin, the Ecole Normale Supérieure, Paris and the University of Tours. He is Research Fellow in the Health Policy and Health Services Research Unit at the School of Public Policy, University College London. He has written extensively on the Private Finance Initiative and the NHS.*

Dr Jean Shaoul *trained as an economist. She worked for 14 years in transport research at the Centre for Transport Studies, Department of Civil Engineering, Salford University and Transport Operations Research Group, Department of Civil Engineering, Newcastle University before coming to Manchester University where she teaches and researches in business and public policy. She has written extensively on privatisation, infrastructure industries, the Private Finance Initiative, the NHS, food safety and public health issues.*

Prof Allyson Pollock *is Head of the Health Services and Health Policy Research Unit at the School of Public Policy, University College London, and Director of Research and Development at University College London Hospitals Trust. She trained in medicine in Scotland and public health in London where she has extensive experience of working in health authorities in London. She has researched and published widely on a number of areas including long-term care, cancer epidemiology, the NHS, and the Private Finance Initiative.*

Contents

Glossary of abbreviations used

ASLEF	Associated Society of Locomotive Engineers and Firemen
DETR	Department of the Environment, Transport and the Regions
GGFD	General Government Financial Deficit
GLA	Greater London Authority
GLC	Greater London Council
Infraco	Infrastructure company under the PPP
ISC	Infrastructure Service Charge
JLE	Jubilee Line Extension
LU	London Underground
MTA	Metropolitan Transportation Authority
PFI	Private Finance Initiative
PPP	Public-Private Partnership
PSBR	Public Sector Borrowing Requirement
PwC	PricewaterhouseCoopers
RMT	Rail Maritime and Transport Workers Union
RPI	Retail Price Index
TfL	Transport for London
TSSA	Transport Salaried Staffs Association

Summary points

The distinction between funding and finance is essential to any serious debate on the future of the Underground. 'Funding' refers to sources of revenue, whereas 'finance' refers to borrowing against those sources. The future of the Underground has of late been discussed largely in terms of whether borrowing should be undertaken by the public or the private sector, with little attention to the sources of revenue required to fund debt service.

The main sources of funding for the tube are fares revenue and government grant. This will not be changed by the use of any financing mechanism. Government grant has declined in recent years, leaving the Underground with an estimated £1.2bn backlog in routine maintenance of the infrastructure, despite major increases in fare revenue.

Neither Public Private Partnerships nor revenue bonds are a source of funding for the Underground. Both are financing mechanisms, dependent on the revenue available to LU.

Both the PPP proposals and bond issues involve financing capital investment in the Underground through debt rather than grant. External funding for the Underground currently comes in the form of government grant, with no obligations to make repayments or pay interest. Under the PPP, borrowing by the private sector will lead to debt service costs that will have to be met by London Underground.

Under government's current expenditure plans, grant funding for LU is to be withdrawn. In its 1999 Annual Report, the DETR estimates that by 2001/2 grant for the Underground can be withdrawn completely. This is 'based on the assumption that the introduction of the PPP will remove the need for government subsidy in respect of London Underground'. The long term policy aim is to fund the Underground through fares revenue alone, with the possible exception of major extensions to the network. (Under the expenditure plans London Transport retains some grant for other forms of transport.)

No other capital city in Europe funds its metro system solely through fares revenue. In other cities, public transport costs are shared between fares and local and national taxation. Taken together, the PPP and the withdrawal of government grant would mean that the costs of investment in the Underground would be shifted from taxation to passengers. This has already happened to a certain extent with the cutting back of grant over the last ten years. LU fares have increased at double the rate of inflation over the last ten years as the cost of the network has been redistributed from taxpayers to passengers.

The government's proposals

The PPP proposals are not intended to expand the existing network. The PPP companies will take over routine maintenance and enhancement of the existing network, and address the existing backlog in repairs and maintenance. There is no funding currently committed to any expansion of the network, such as the long-delayed East-West Crossrail.

The amount of investment which will be secured by the PPP has been exaggerated. Of the £8 billion which is required for capital investment in the network over the next 15 years, LU estimates that **only £2.5 billion will be raised as private finance, while the rest will come directly from fares revenue and would therefore be available even without recourse to private finance.**

LU expects to meet the cost of the PPP through fare revenue and anticipates a 40% increase in passenger numbers over the 15 year period. This extra demand, according to LU, will be met without any expansion of the network, through greater efficiency.

The Infrastructure Service Charges which London Underground will pay to the PPP companies are expected to increase on an almost annual basis as more enhancements are carried out on the network. Once the contracts are signed, London Underground will be obliged to meet these increased charges whether fares revenue rises or not, unless the PPP companies fail to meet their side of the contract. **The responsibility for meeting any shortfall will ultimately rest with the Mayor of London and the Greater London Authority, who will not be party to the PPP negotiations.**

The Infrastructure Service Charge will take precedence over all other claims on London Underground's revenues. **The latest estimates of the costs of the PPP imply that there is a gap of at least £110m a year between the available fares revenue and the Infrastructure Service Charge that will be required at the start of the contract. We believe the gap is likely to be closer to £175m.**

This Infrastructure Service Charge will constitute an additional claim on revenues equal to 10-20% of passenger receipts which London Underground simply does not and will not have. The proposals have not addressed either the size of the charge or how it can be met.

1 London Underground

"London Underground is a wholly owned subsidiary of London Transport. It is a nationalised industry whose powers and duties are set out in the London Regional Transport Act of 1984. As a vertically integrated industry, it both owns and operates the system's infrastructure, rolling stock and passenger services, although services on some lines also use sections of the National Railways Network owned by Railtrack Plc."[1]

London Underground plays a crucial part in the economy of London and the South East. More than 40% of the million people travelling into central London in the morning peak hour use the underground for all or part of their journey to work[2]. It is essential for business and leisure trips to and from London and for cross-London journeys. It is important for the tourist industry as it is used by 90% of all domestic and overseas visitors to London. In other words, the underground plays an important role in the life not just of Londoners but those living in other parts of the country as well.

The following analysis is based upon the annual report and accounts of London Transport and London Underground and statistics published by the DETR. All data are shown in current or nominal prices, unadjusted for inflation. While every attempt has been made to ensure accuracy, this is not unproblematic, as there have been changes in the reporting methodologies over time both within and between the different sources of information. There is a marked lack of detailed cost information and considerably less than that contained in the old British Rail accounts during the 1980s. Data from London Underground sometimes differs quite significantly from London Transport, its parent company, for reasons that are not at all obvious. Despite the differences, the same essential points emerge. It is however a matter of some concern that the accounts of public bodies, while complying with the statutory requirements, should be so uninformative.

This section examines the context in which London Underground operates, the physical characteristics of the industry, its revenues, performance, cost structure, and investment during the 1900s, in order to understand the problems confronting the industry and the operational and financial implications.

Sources of funding

Since 1990 London Underground has been funded from two sources: passenger fares and central government grant.

Fares

Fares revenue has increased in absolute terms and as a proportion of income since 1984-5, partly due to increased demand and partly to above-inflation fare increases (table 1.2).

Travel patterns and trends are closely related to the level of economic activity with more than half of all journeys each day directly connected with work. Rail revenues rose from £333m in 1983 to £565m in 1993, an increase of 70%, less than the rate of inflation. As table 1.2 shows, from 1984 to 1989, the number of rail passenger journeys rose by 45% as Britain came out of recession. The number of journeys *fell* by 11% during the recession of the early 1990s. After initially falling, rail fares per passenger km rose towards the end of the period, from 0.070p in 1989 to 0.098p in 1993, thus compensating for the decline in passenger volume. This increase of 40% was well ahead of the 23% rise in the Retail Price Index (RPI). Thus until 1990, the increase in rail revenues was largely the result of rising demand. Between 1990 and 1993, the revenue increase was the result of fare increases.

Rail revenues rose from £642m in 1993-94 to £1,009m in 1998-99, an increase of nearly 60%, considerably more than the rate of inflation of 19% for the same period. In part, this was due to the 20% increase in the number of passenger journeys to the highest level ever in 1998-1999, as Britain climbed out of recession. But it was also due to the increase in fares: fares per passenger km rose from 0.11p in 1994 to 0.15p in 1999, a 26.6% increase.

The analysis of trends in LU fares revenues between 1985 and 1999 shows that the Underground is a cyclical industry in which patterns of demand are closely tied to movements in the economy. Demand decreases substantially during recession, and the continuous rises in LU's fares revenues during the 1990's depended on above-inflation increases in fares.

Grants

Like other urban rail networks, London Underground has historically been dependent on significant levels of grant and subsidy. Until the abolition of the Greater London Council (GLC), a large proportion (66%) of LU grant was funded through a precept on the rates by the Greater London Council. Since the abolition of the GLC, grant has been allocated by central government(see below).

Central government grants have been made to cover three expenditure items:

- revenue subsidy for passenger services
- renewal of the infrastructure, i.e. maintaining and replacing existing infrastructure assets
- enhancement and expansion of the network.

(The first two were counted as revenue grants, or

1 *House of Commons Transport Committee 7th Report: London Underground Vol.1 p.vii-viii*

2 *Transport Statistics 1999, table 1.5, DETR*

contributions to income, and recorded in the profit and loss account, while the latter was counted as a capital grant.)

Since 1994, the first of these has disappeared, while the second and third have been reduced progressively. On current DETR expenditure plans, all grants to London Underground will be withdrawn by 2002/3.

Revenue subsidy: In its 1994 report 'Transport in London'[3], the Department of Transport stated 'it should not be the aim to maintain general subsidies to support railway services in London'. In other words, user charges (fares) must henceforth be set to cover the cost of passenger services. Since then, grants have only been made for maintaining and enhancing the infrastructure. To put it another way, grants would only be available for the network not the supply of services.

Grant for renewals: The grant for infrastructure renewals has declined from £398m in 1994/5 to £160m in 1998/9 (table 1.3, column 1) and for the last two years has not covered LU's expenditure on maintaining the network. Thus fares have had to rise to absorb the full cost of running passenger services and a significant and increasing proportion of the cost of infrastructure maintenance. According to the most recent estimates of government department spending, the grant made to LU for renewals (approximately £156m in 1998-99) is set to disappear altogether, thereby constraining the amount available for capital maintenance, without a further round of cost cutting.

Grant for capital expenditure: In the allocation of government grant, funding for enhancement of the existing network is in general kept separate from funding for major developments such as the Jubilee Line Extension, which is ring-fenced by government. The Underground was starved of investment until the 1990s when there was a very modest increase. But much of this capital expenditure went on the Jubilee Line Extension and other new, much needed lines rather than on existing lines. Table 1.3 (columns 1 and 5) shows that according to London Transport's accounts, of the £6.32bn government grants for capital expenditure since 1990-1, 40% has gone on the Jubilee and other new developments. The grant for capital expenditure on existing lines, including maintenance, has declined from £533m in 1990-1 to £143m in 1998/9 (table 1.3, column 3).

London Underground's cost structure and expenditure

In the following section we examine LU's cost structure and the implications of the decline in government grant on the operating costs, the workforce, and the investment on the capital stock and renewals programmes.

London Underground, like most infrastructure industries such as railways, water, gas and electricity supply, is essentially a network system. As such it is highly capital intensive with most of its expenditure going on operating, maintaining and enhancing the network. By comparison, supplying the services, be they trains, water, etc., is relatively cheap. Like many such capital-intensive industries, particularly where they operate in 'mature' markets, it is difficult to generate the cash to cover both operating and capital expenditure, *and* provide the rate of return on capital employed that the capital markets require. This is one of the reasons, in addition to planning and co-ordination, why these industries have been in the public sector, not just in Britain but all over the world. This has particularly been the case during those periods requiring high capital expenditure since under public ownership the cost of investment can be spread across taxpayers as a whole rather than just consumers. The generic problems of such industries is an issue that will be returned to later in the report.

External Purchases

Table 1.1 shows that the cost of bought in goods and services (purchases) is unusually low, averaging 17% of revenues (passenger receipts and grants taken to the profit and loss account) since 1985-6. Such a low percentage is consistent with a vertically integrated industry whose main purchases are power and fuel. With the turn to outsourcing and PFI, the cost of purchases rose to 23% of revenues in 1999. Outsourcing reduces management's control over costs. LU's low purchases mean that its internal resources (value added) are high and potentially capable of generating substantial profits.

Labour costs

Labour costs (wages plus national insurance contributions and pensions) were always a significant proportion of LU spending from internal resources (value added) (table 1.4). They rose from £246m in 1985-6 to £581m in 1992-93, and accounted for 60-73% of total internal costs (value added), which is more or less the norm for British manufacturing industry. This was despite the fact that between 1985-93, employment fell from 21,598 to 19,000, a fall of 14% in 7 years. It can be seen that after allowing for restructuring costs in 1992-4, which complicates the picture, labour costs fell substantially in both absolute and relative terms. This was because between 1993-99, employment fell by a further 3,000 (16%) to 16,000. Most of the jobs lost were in engineering services as the number employed fell by half from more than 6,000 in 1993 to 3,000 in 1999 (table 1.4).

Average wage costs rose as jobs were shed, reflecting the changing composition of the workforce. Thus the (ex)workforce bore the cost of adjusting to the increasingly commercial, regime imposed by government. For those who remained, the pace of work increased. Labour productivity, as measured by the number of passenger km per employee, rose

3 *Department of Transport, Transport in London, (1994)*

from 0.278m km in 1992 to 0.423m km in 1999. As a result, between 1993 and 1999, labour's share of internal resources (value added) fell to an average of 55%, considerably less than in the earlier period, as productivity increased.

In its evidence to the Select Committee, LU was expecting to reduce its operating costs by a further 13% by 2003-4. The projections of costs produced by LU's financial advisers show that these are expected to fall from £757m in 1998-9 to £680 m in the first year of the PPP(table 1.5). Given the already low costs of purchases, the significant loss of jobs over the last 15 years and the reduction in labour costs, operating costs can only be driven down further by outsourcing the work to corporations whose lower wage costs more than compensate for their profit margins, or by cutting jobs, wages and conditions.

Expenditure on Renewals and Investment

Table 1.6 shows the amount spent on renewals (maintenance) and additions to the asset base for each year since 1986. For the last six years, renewals have been running at about £200m per year. For the last two years, the grants for renewing the network has been less than actual expenditure on renewals. In 1998/9, the cost of renewals was £244m, considerably more than LU's grant of £108m (table 1.6 and 1.3).

During the 1980s, investment in new or enhanced assets was only slightly greater than the annual depreciation charge. In other words, like much of the public sector, LU was barely replacing its worn out assets, let alone enhancing the network. Since 1993, new asset formation has averaged £680m per year. But much of this has been for new lines, such as the Jubilee Extension rather than existing lines. In all, for the last two years, the maintenance and investment grants for existing lines have been less than actual expenditure, as evidenced by the negative sign in column 6 of table 1.7. In other words, LU was funding some of the expenditure on maintenance and investment from its own operational savings (table 1.8).

Despite this, the expenditure falls far short of LU's requirements. In its evidence to the Select Committee[4], LU estimated that the backlog of work arising from past under-investment at about £1.2bn. As a result, assets were being used beyond their design life with corresponding increases in maintenance and inspection costs and increasing unreliability. Expenditure of about £150m a year for about 7-8 years would be required to remove the investment backlog with a further £400m a year would be required to maintain the system in a 'steady state' and prevent the backlog reappearing. Average annual expenditures were therefore forecast to be about £550m for the first 7-8 years of the plan and £400m thereafter. However, it is unclear how this corresponds to past expenditure patterns, the PPP plans as issued to the public or the current revised estimates reported by LU's financial advisors, PwC (table 1.10). Neither is it clear whether LU was referring to maintenance, investment or both.

Infrastructure v train costs

It is pertinent to consider the split of operational expenditure on track, infrastructure and rolling stock, and train operations, since this issue lies at the heart of the PPP proposals to outsource the financial management of the infrastructure and rolling stock. But there is no explicit breakdown in either LT or LU's accounts of the cost split as there was in British Rail's accounts. Prior to the privatisation of the national railways, the infrastructure accounted for approximately 50% of revenue costs. There is no reason to suppose that LU would be substantially different. And of course, in both cases it was widely acknowledged that the infrastructure was deteriorating rapidly, suggesting that the split ought to have been say 60/40 instead of 50/50.

PwC's projections of the cost of operating passenger services and the cash flow available for infrastructure and rolling stock show that by year 5, expenditure on the infrastructure and rolling stock is expected to exceed that for passenger services. PwC's projections for cash flows after deducting the cost of passenger services – the amount available for the infrastructure – show that by year 15, the passenger service/infrastructure split is expected to reach 45/55 (table 1.9), which confirms our guestimate of the current split of expenditure.

Surplus available for external distribution

As a public sector corporation with no interest or dividend obligations or statutory requirement to make a return on capital employed, LU does not generate a surplus either to distribute to external stakeholders (interest or dividends to the providers of finance) or to pay tax. It therefore spends the entirety of what remains after paying for purchases and labour on maintenance. More recently any surplus after covering renewals has been ploughed back into the business in the form of investment. LU would therefore be incapable of servicing debt if grants were to be replaced by interest bearing debt without subsidies, fare increases or increased labour productivity. Neither would it be able to afford any extra charges to cover the cost of the PPP.

London Underground's presentation of summary financial data can easily be misread in such a way as to disguise this point. LU classes the revenue remaining after paying for purchases and labour - but not capital maintenance and investment - as 'gross operating margin'. This figure has been positive for several years as table 1.7 shows. This has been taken by some to mean that LU makes a profit - from which the further conclusion has been drawn that LU would be able to meet the cost of debt service under the PPP or a bond issue with no need for external subsidy. This is potentially very

4 *House of Commons Transport Committee 7th Report: London Underground Vol.1 p.viii*

misleading. *Profit is what remains after providing for capital maintenance.* After taking capital maintenance into account, LU does not make, and indeed does not report a profit. Furthermore, it is only in the last two financial years that LU has reported positive cash flows from operating activities.

As LU has become more commercially orientated and increased labour productivity, the gross operating margin has increased (table 1.7). However, it is still considerably lower, at £288m in 1998-9 than the margin of £490m that is assumed for the first year in the financial projections for the PPP (and without which the PPP proposals would make no financial sense whatsoever). (Table 1.9). PwC, LU's financial advisors, explanation for this discrepancy is that their estimate of costs relate only to the restructured operating company (Opsco) that will run passenger services and that some of LU's present operating costs will be transferred to the infrastructure companies (Infracos) under the PPP.

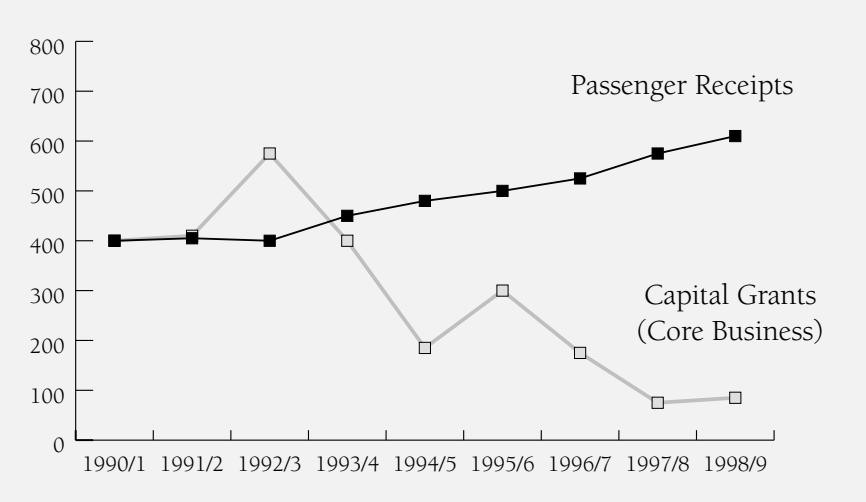
Summary

The London Underground is a high fixed cost industry where a high proportion of the costs is associated with providing the network. In this, the Underground and the railways are similar to other public utilities such as gas, electricity, telecoms and water where the main costs relate to the distribution network. However the essential problem for railways, and this includes the Underground, is that they are unable to generate the revenues that cover the full costs of both the infrastructure and train operations, i.e., the distribution network and the supply of services. LU has had to cover an increasing proportion of its costs from user charges as successive governments have scaled back the subsidies for passenger services, and cut back on grants for maintenance and investment in the core business. On current government expenditure plans, grant will have no role in the future funding of the Underground with the possible exception of new lines and extensions, meaning that all operating and infrastructure costs will have to be met by passengers. However, despite greatly increasing the contribution it makes to infrastructure costs from fares income, LU is currently faced with a backlog of £1.2bn., representing infrastructure assets (track, signalling, rolling stock etc.) which are being used beyond their design life.

2 Funding LU - international comparisons

If government plans to withdraw grant from the Underground come to fruition, the Underground will become the only metro system in Europe in which the entire cost is borne by passengers. The debate on the future of the Underground has so far failed to address the question of whether this is a desirable, or even a feasible policy.

Figure 2.1 Sources of funding for London Transport from 1991 to 1999



The reductions in grant shown in figure 2.1 are often cited as evidence of London Underground's efficient performance. An unfortunate implication of this is that public funding of transport systems elsewhere in Europe is inefficient. While LU has certainly reduced its operating costs over recent years, it also has the highest fares of any urban rail system in Europe and efficiency is not the most visible characteristic of its operations.

Public funding of urban transport is recognised as essential by governments of all political complexions. All railways, and this includes the Underground, are faced with the problem that they are unable to generate revenues through fares that cover the full costs of both the infrastructure and train operations. Infrastructure costs are usually around 50% for railways, and LU is no exception. Raising fares to a level where both operating and infrastructure costs are covered would threaten to choke off demand. Even in extremely market-oriented economies such as the USA it is recognised that costs can only be met by requiring a contribution from those who benefit from the existence of a public transport system, not just from passengers. Public funding is therefore neither an indication of inefficiency nor a reflection of social policy, although the latter can play a role in the way taxation is used to target costs.

London, New York and Paris

The funding of public transport in Paris and New York - two cities with very different political structures and traditions - provide illustrative examples. Note that the two organisations concerned are both transport authorities (corresponding to LT or TfL) covering bus and suburban rail as well as light rail and metro services.

Paris: The Parisian transport authority, the Syndicat des Transports Parisiens, is funded through a levy on employers, the *'Versement de travail'* and also receives half the revenue raised from traffic and parking fines. The proceeds of the *Versement de travail* are used to fund subsidised fares and capital maintenance. Line extensions and new lines are mainly funded by central government, with contributions from local and regional government. As figure 2.2 shows, in the Paris system direct payments by passengers contribute only 34% of the costs of public transport. The total internally generated revenue of the various transport companies was 42% (assuming that 'miscellaneous' covers such items as commercial rents and advertising revenue). The remaining 58% was funded primarily by local and regional tiers of government.

New York: In New York (City and State), the Metropolitan Transportation Authority is funded through a combination of user payments and subsidies for both operating and capital costs. Fares revenue accounted for 52 % of funding in year 1997 (figure 2.2). The State and the City of New York fund grants and subsidies, which account for 46%. A large proportion of the subsidy comes from hypothecated taxation, which is in principle at least targeted at the non fare paying beneficiaries of the system. These include 'new charges on business and property owners, taxes on commercial rents, business telephone charges (and) property transfers'[5]. Because of these assured future revenues, the transport companies are able to raise finance through the revenue bonds which have attracted such attention in London.

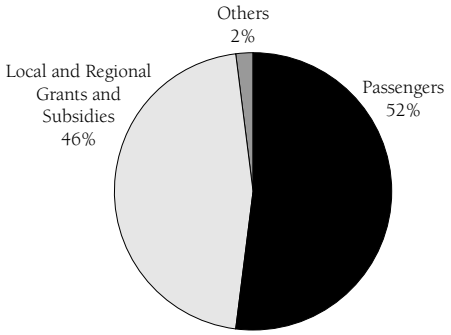
As we have seen, the London Underground meets all its operating costs, and an increasing proportion of its infrastructure costs, through fares revenue (table 1.1). This has been achieved partly by containment and improved fare recovery but mainly through increases in fares. The New York system, by contrast, receives considerable subsidy for operating costs as well infrastructure costs. 'In calendar year 1998, State and City operating assistance, special tax-supported subsidies and reimbursements for the Transit System constituted, on a cash basis, approximately 38% of the total revenues ... *not including reimbursements for capital expenses or amounts used for debt service.*'[6]

5 *Robert A Gerard 'New York can teach us alot about our Tube', London* Evening Standard*, 25 November 1999.*

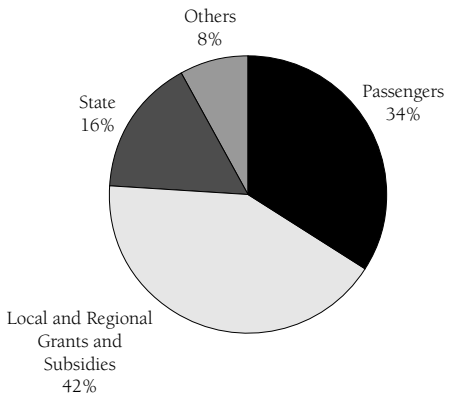
6 *Metropolitan Transportation Authority,* Combined disclosure filings 1999

Figure 2.2: Funding of public transport systems in New York, Paris and London

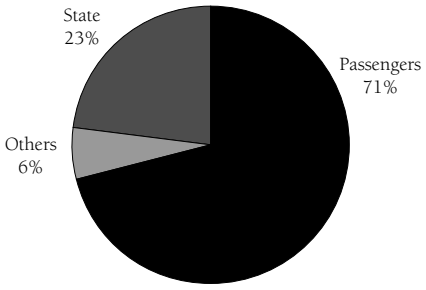
Metropolitan Transportation Authority - 1998



Syndicat des Transports Parisiens - 1999



London Transport - 1998



Sources:

Metropolitan Transportation Authority 1999 Combined Continued Disclosure Findings; Syndicat des Transports Parisiens 'Qui Paie Quoi?'; London Transport Annual Report

Comparison of funding regimes

The sources of subsidy in Paris and New York are worth commenting on. In neither case is national taxation the sole source: rather, forms of local taxation are used to raise revenue from people who benefit from the existence of an urban transport system. The costs of public transport are thus spread between users, beneficiaries, regional and national taxation. What is unique about the plans for the London Underground is that users will be required to meet all costs.

An important consideration here is the highly centralised public expenditure system in the UK, under which the bulk of resources raised through taxation is under central government control. Central government also exercises final control over the application of funds. This leaves considerably less room for the kind of distribution of costs that takes place in Paris and New York.

Until relatively recently the funding of the Underground was much closer to the systems adopted in Paris and New York. Up until the abolition of the GLC, London Regional Transport's grant was partly funded through a precept on local taxation (the rates) in the Greater London area. In 1984 central government took over responsibility for London Transport from the GLC. The GLC precept was replaced with a central government levy, effectively centralising control of locally raised resources. In 1990, domestic rates were abolished and replaced with the Poll Tax, and control of funding raised through non domestic rates was taken over by central government. The funding base for public transport in London was thus centralised in two stages as a side effect of Margaret Thatcher's war against local authority expenditure.

As the grant to London Transport was now funded through national taxation, government argued that grant for the Underground should be withdrawn on the grounds that it was unfair 'that people outside London with lower incomes should pay for services which only benefit Londoners'[7]. By 2001/2, grants for LU are to be completely withdrawn.

The question of funding for urban public transport can not be addressed outside the context of the financial resources at the disposal of the authorities concerned. In Paris and New York, sophisticated arrangements exist for spreading the burden of costs between passengers and beneficiaries of the system and between different levels of government. In both cities, transport companies can borrow and are funded through subsidy to meet the costs of debt service. The PPP plans for London, on the other hand, involve introducing debt finance without providing the underlying funding that this requires.

The devolution plans for London will not create the kind of structures under which such arrangements can be developed. In setting up the GLA, just as in its fiscal settlements for the devolved assemblies in Scotland, Wales, and Northern

7 *Department of Transport,* Transport in London *(1994) p.15*

Ireland, central government has retained an extraordinary control over both the level of resources available and the way resources can be used. In particular, capital expenditure is restricted by Treasury control on public borrowing, leading to the imposition of PPP/PFI schemes on all parts of the UK. Although the mayor will have the power to levy new taxes on road traffic, borrowing against these revenues will remain under central government control. The methods used to distribute costs in Paris and New York are thus not available. The funding of the Underground is as much a political issue concerning the relationship between central and devolved government as it is an issue of equity and efficiency.

3 The PPP proposals

It is important to recognise that the Public Private Partnership is not intended to expand the existing network. As LU notes in its briefing for prospective bidders 'The Infrastructure Services (to be provided) will not include provision of new Underground lines'.[8] The capital expenditure envisaged in the proposals is intended to deal with the backlog in maintenance and renewal of the infrastructure of £1.2bn and to upgrade or replace existing assets. Government has given no indication of how any future expansion of the network, such as completion of the long-delayed East-West Crossrail, is to be either financed or funded nor how London's rising water table which threatens the underground is to be managed.

In this chapter we look first at the structure of the concession agreement, then address the finance to be raised by the private sector and the financial obligations that would be taken on by LU and, by extension, the Mayor if the PPP goes ahead. We next examine the Infrastructure Service Charge, the fee to be paid by LU to the PPP companies and provide an estimate of the likely level of the charge in the early years of the contract. We point out that on the most optimistic projections of LU's fare revenues, it is hard to see how the charge could be afforded without external support, either from the Mayor/GLA or central government.

Structure of the scheme

Box 3.1 Proposed distribution of lines and employees between PPP companies

PPP Infrastructure Company 1 **Sub-surface**	PPP Infrastructure Company 2 **BCV**	PPP Infrastructure Company 3 **JNP**
Circle	Bakerloo	Jubilee
District	Central	Northern
East London Line	Victoria	Piccadilly
Hammersmith and City	Waterloo and City	
Metropolitan		
Employees transferred	**Employees transferred**	**Employees transferred**
2,223	2,153	1,978

The proposed scheme involves outsourcing the infrastructure maintenance, renewals and capital investment part of LU's operations under three separate 25-30 year concession agreements. Insofar as the aim is to separate the operational control of passenger services from that of the infrastructure, this may appear similar to the breaking up of the railways into separate infrastructure, rolling stock and passenger services companies. However, the differences between these proposals and rail privatisation are important. The PPP is intended to be a *concession* rather than an outright privatisation on the model of the railways and the privatised utilities. This has consequences in terms of the balance of liabilities between the public and private sectors, which are explored below. Moreover, as a concession the PPP will not transfer ownership of the infrastructure to the private sector, although it does involve the transfer of some 6,000 public sector employees to the new private sector Infracos. Finally, the PPP is based on a contractual relationship between PPP companies and the public sector in the form of London Underground, which will retain responsibility for passenger services.

Under the concession agreements, each PPP company will charge London Underground a basic 'Infrastructure Service Charge' (ISC) which will be fixed for the first eight-year period. The agreements are to be subject to periodic reviews at roughly 8 year intervals, where the level of the charges for the next period will be negotiated. Although little detail has been made available on the intended form of the concession agreement, it seems clear that the review process is *not* intended to allow LU to end the concession agreements or to award them to other contractors within the 25-30 years of the agreement. For example, in the event that LU and a PPP company fail to agree a level for the ISC, it will be set by a Statutory Arbiter. In other words, it does not seem to be envisaged that the Mayor, TfL or LU will be able to end any of the 30 year agreements, unless of course a PPP operator fails to perform adequately against the performance specifications.

8 *Briefing document p. 21*

Each PPP Company will be responsible for providing full infrastructure services for a set of lines, stations and depots (box 3.1). (There may not, in fact, be three companies: of the five bidders shortlisted in 1999, three were bidding to take on both the JNP and BCV contracts.) Among the infrastructure assets to be included in the arrangement are: rolling stock (with the exception of some Northern Line stock which is already subject to a separate PPP arrangement), track, signalling, tunnels, bridges, lifts and escalators. There is considerable overlap of infrastructure between the three sets of lines, for example where stations or track are used by more than one line, as well as a number of network wide services such as track renewal which will be allocated to individual PPP companies. This means that as well as providing services to LU, the PPP companies will be providing services to each other.

The Public Private Partnership sounds like a simple enough idea. But it will involve an immensely complex set of interacting relationships: LU will sign three separate contracts with the PPP companies, which in turn will have to agree contracts with each other for the provision of network wide services and the sharing of infrastructure. Moreover, each of the short-listed bidders is a consortium consisting of four or more members, and apart from the agreements linking the consortium members, there will be further contracts linking each company to the providers of finance.

Finance

Along with the outsourcing of infrastructure services, the scheme is intended to move the financing of capital expenditure on the infrastructure from government to the private sector. The issue of financing, rather than the transfer of 6000 employees to the private sector and the potential fragmentation of infrastructure services, has been the main area of controversy. Insofar as borrowing for investment in the Underground will be undertaken by the private rather than the public sector, it is hoped that it will not count towards the Public Sector Borrowing requirement. The decision to take the radical step of breaking up LU into separate public and private sector companies is widely seen as being motivated by fiscal policy rather than the needs of the network. Government has in fact encouraged this perception of the policy by arguing that the PPP allows greater investment to take place than would have been possible in the public sector[9].

The distributional consequences of the PPP proposals have received less comment. As the private sector will recover its financing costs through the charges it makes on London Underground, and as LU is not expected to receive any government grant to meet these costs, this effectively means that the cost of financing investment has been shifted from government (taxation) to passengers.

There has been some confusion about the amount of investment projected under the PPP. Government and others have presented various figures, ranging from £7.5bn to £12.5bn as to the levels of investment projected under the PPP. The estimated expenditure to be made by the PPP companies over the 15 year period is £12.53bn. Of this, however, £4.15bn consists of day to day maintenance and other operating costs. The planned *investment* is, on the most recent projections, £8.38bn, an average of around £560m a year.

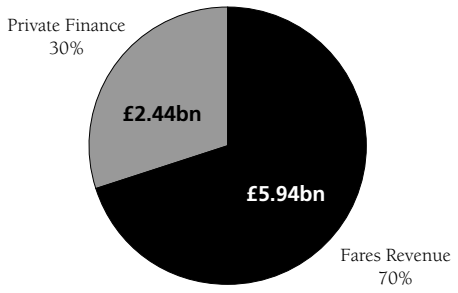
Box 3.2 Projected PPP expenditure

	£m
Maintenance	£4,150
Investment	£8,380
Total	£12,530

There has been a further, understandable, confusion between the amount of investment and the amount of capital to be raised by the private sector. Private finance is to be used only for the gap between what can be directly funded through fares revenue and such investment as is required to meet the contract terms. In fact, on the projections of LU's financial advisors, most of the investment is to be funded directly by fares without any borrowing, as fares revenue is expected to increase by 40% over the 15 year period (these are still, of course, projections). The capital to be raised by the private sector is therefore projected to be £2.44bn.[10]

The PPP proposals are thus based on the assumption that most of the planned investment will be paid for directly through increased fares revenue. The level of investment over the 15 year period depends less on the PPP than on the assumed increase in revenues. However, the borrowing to be undertaken by the PPP, which is effectively substituting for government grant, will have a significant impact on London Underground's costs (see below).

Figure 3.1: Investment in London Underground



9 *John Prescott, letter of 20 March 1998 in* Briefing document appendix 3.

10 *PricewaterhouseCoopers,* Briefing note

The infrastructure service charge

This section concerns the funding gap which emerges when London Underground's projections of expenditure by the PPP companies (or 'Infracos') are compared with their projections of available revenue. We derive an estimate of the likely infrastructure service charge in year 2 of the first eight year period of the project based on PwC's estimates of income and expenditure and our own estimates of debt repayment.

Under the concession agreement each of the three Infraco PPP companies will receive an regular payment, referred to as the Infrastructure Service Charge or ISC, from LU/TfL. The charges will be set for the first 8 year period, but will be 'stepped up' when major enhancements to the network are delivered[11]. According to LU's financial advisers, the effect of these step up payments, given the expected phasing of 'major enhancements', is likely to be that the total charge to LU will increase several times during the first eight years. At the end of the first 8 year period a new ISC will be negotiated.

Any estimate of the level at which the ISCs will be set can only be rough because the information being placed in the public domain is not intended to allow interested parties - such as PPP bidders - to divine LU's estimate of what it can afford to pay. Thus the most recent projections of the costs of the PPP, published by Pricewaterhouse Cooper's in December 1999 do not, and are not intended to, give an estimate of the ISC and PWC were unable to provide us with the assumptions used in constructing their financial models. However, the figures given by PwC do include LU's own estimates of the funding available for the PPP and the annual expenditure of the PPP companies. PwC also give indicative projections of some of the financing costs which makes it possible to give a rough estimate for the ISC at the beginning of the first 8 year period.

PwC's revenue projections are given in table 3.1. The funding available for the PPP is the 'operating cashflow' (shown in line 3), and represents the difference between London Underground's operating costs (line 2) and fares revenue (line 1). Borrowing (line 5) bridges the gap between this available funding and the PPP's expenditure on the infrastructure (line 4).

The ISC will be set so as to recover the costs of the PPP companies. The main costs to be recovered are those of maintenance and investment in the network (line 4) and the costs of debt service: interest (line 6) and repayment of principal (not shown). On top of the costs recovered will be a return on the capital contributed by the PPP shareholders (also in line 6). PwC combine the interest rate and the return on shareholders' capital in order to arrive at an annual 'cost of capital' of 10%.

PwC's figures imply an affordability gap: the sources of funding do not match the costs of the PPP in each year up to year 14. In other words, there is a shortfall equivalent to the interest and dividend payments in each of the 15 years.

In fact PwC's figures include only the expected infrastructure expenditure (maintenance and investment) and 10% cost of capital (interest payments and dividends). PwC does not include debt principal repayments for each year, as the aim was to produce a figure for total costs over the period, not annual payments.[12] (PwC's model does include assumptions concerning principal repayments, as these affect the amount of interest to be paid, but PwC did not wish to make the assumptions public.)

We have estimated the cost of repayment of debt principal taking year 2 of the contract as representative of the first 8 years. In year 2 of the contract, PwC calculates interest and dividend payments of £110m (table 3.1). If as PwC assumes this represents a 10% cost of capital, the capital raised by year 2 is around £1.1bn. Assuming 20% of this is in the form of equity, this leaves a gross debt of £980m. If this debt is paid off evenly over 15 years, then in year 2 £65m is required in addition to interest and dividend payments of £110m.

11 Briefing document *p. 29; PwC, personal communication*

12 *If principal payments were included for each year, this would lead to double counting*

Table 3.1 PricewaterhouseCoopers' projections of PPP (£m)

	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTAL
1	LU Resources	1,170	1,200	1,230	1,250	1,280	1,290	1,310	1,330	1,340	1,360	1,380	1,400	1,420	1,440	1,460	19,860
2	LU Operating Cost	(680)	(660)	(650)	(630)	(630)	(640)	(650)	(650)	(650)	(650)	(650)	(650)	(660)	(660)	(660)	(9,770)
3	Operating Cashflow	490	540	580	620	650	650	660	680	690	710	730	750	760	780	800	10,090
4	Infra-structure spending	900	900	880	840	780	810	870	880	810	900	880	820	760	720	780	12,530
5	External funding requirement	410	360	300	220	130	160	210	200	120	190	150	70	0	(60)	(20)	2,440
6	Interest & dividends cost net of repayment	30	110	140	110	110	110	110	110	110	110	110	170	210	230	200	1,970

Source: PricewaterhouseCoopers, Briefing (December 1999)

Box 3.3: Estimate of LU infrastructure charge in year 2

PPP total expenditure (infrastructure costs	(£900)
and costs of borrowing	(£110+65)
Total costs to PPP	£1075m
External borrowing by PPP	£360m
Infrastructure service charge	**£715m**

The ISC will be set to recover the costs of the PPP companies of £1075m. In year 2, the ISC has to cover the Infracos' costs of £1075m which are made up of financing costs of £175 million and projected infrastructure spending of £900m. Of the £1075 million total expenditure required £360 million will be covered by external borrowing leaving £715 million to be raised through the infrastructure charge (box 3.3).

Box 3.4 PPP expenditure, sources of funding and funding shortfall in year 2 of PPP

PPP annual infrastructure costs	£900m
PPP financing costs	£175m
Total Costs	**£1075m**
funded by	
borrowing by PPP	£360m
LU operating cashflow	£540m
Funding shortfall	**£175m**

The funding streams identified by PwC are not enough to cover the Infrastructure Service Charge required. In year 2 for example, PwC predict operating cash flows of 540 million and borrowing of £360m. This leaves an affordability gap of £175 million (see box 3.4) This does not take account of the extra costs of financing and legal fees incurred by the private sector in undertaking the PPP and securing investment, which they would seek to recover through the Infrastructure Service Charge. Nor does it take account of the requirements of the PPP companies to build up reserves. In other words, it is likely to be an underestimate. The PPP might be able to defer some of this cost, through a longer repayment schedule for debt for example. The point remains that the cost will have to be recovered at some point through the available funding, which is all already allocated to other uses. In short, the funding problem could be deferred, but can not be resolved, by the use of sophisticated financing mechanisms.

To summarise, the projections of LU's financial advisers suggest that the PPP is not affordable to LU on the basis of available revenue. By year 2 there is a gap of nearly £175m between available revenues and the level at which the PPP charge would have to be set to allow for debt service and returns to shareholders at the beginning of the contract period, and there is no reason to expect that gap to diminish as the private sector takes out more debt.

To make matters worse, the projections of future revenues are themselves optimistic in that they assume constantly rising income from fares without any increase in the fares level (price). It should be borne in mind that under the PPP contracts, the total ISC is expected to rise on an approximately annual basis as debt builds up in the PPP companies. In LU's projections, it is assumed that this will be affordable because of increased fares revenue. However, up until the first review period, the ISC will rise *whether fares revenue rises or not*. The ISC will be the first claim on LU's revenues, so any shortfall will be borne by LU, not by the PPP companies.

Can revenues continue to rise?

The revenue generated by fares depends on four factors: the demand for the service, the capacity of the network, the level at which fares are set and the structure of the fares system. The two last factors will, once the GLA takes over TfL, no longer be within LU's control.

LU's revenue projections for the next 15 years assume no above-inflation rises to fares after 2001/2. However, they do assume an after -inflation increase in fares revenue of 40% due to increases in passenger traffic. Fare receipts are expected to rise from £997m in 1998-99 to £1,170m in two years time and to keep rising every year thereafter (table 1.9). The case for the financial viability of the PPP proposals turns on this increase in revenue from passengers.

Unless all this extra demand is confined to off-peak times, these revenue projections clearly depend on increases in network capacity. At current capacity levels, LU has difficulty meeting existing demand at peak hours. The increase in the number of passenger places has fallen far short of the increase in the number of passenger journeys (table 1.2), leading to severe overcrowding.[13] Overcrowding in turn reduces capacity through the delays it introduces at stations. It can also contribute to injury rates. In public transport (bus or rail), injury-producing accidents can occur without vehicle or train collisions. Sudden or sharp breaking and acceleration can cause accidents as passengers fall, particularly in overcrowded trains with standing passengers. In this context it is worth noting that serious injury rates have doubled in the last 6 years (table 3.2).

Table 3.2: London Underground's Safety Record

Year	Fatalities	Major injuries	Major injury rate per million passenger journeys
1993-4	5	50	0.07
1994-5	6	57	0.07
1995-6	4	62	0.08
1996-7	7	95	0.12
1997-8	4	108	0.13
1998-9	1	123	0.14

Source: London Transport annual report and accounts (various years)

13 *This data, being aggregated, masks the peaks and troughs through the day and between the different days of the week.*

The Central London Study commissioned in 1988 concluded that LU's investment programme at the time 'would not by itself be enough to cater for the forecast increase in demand and provide acceptable standards of quality'[14]: in order to increase capacity to meet forecast demand in the central area, two new lines would be required. It is important therefore to bear in mind that the PPP proposals do not involve any significant expansion of the network. The new lines which, at least until recently, have been regarded as essential to reducing unacceptable levels of congestion in the central area would have to be funded separately, and no plans to undertake this work have been announced.

How then do the PPP plans envisage dealing not only with existing congestion but the greatly increased demand which is so central to the scheme's viability? LU's advisors, PwC, have explained that a number of initiatives already in place, will increase both capacity and generate the increase in passenger receipts between 1998-99 and the start of the PPP. These include the opening of the Jubilee Line Extension, the new rolling stock on the Northern Line and a number of measures being taken to alleviate bottlenecks. They also believe that the planned capital expenditure, and improved asset management, will increase capacity by reducing journey times, time spent in stations etc. The performance regime under which the PPP companies will operate, it is argued, will tie their payments directly to increases in capacity resulting from improvements of this kind. The assumption on which the plans turn is thus that extra demand can be accommodated by a more intensive use of the existing network.

There is an implicit assumption in these projections that, as with new roads, increased capacity on the Underground will itself generate increased ridership, thus securing the extra fares revenue needed for the commercial viability of the scheme. There are two problems with this. As we have seen (chapter 1) analysis of LU fares revenues over the last 15 years shows that the Underground is an industry in which patterns of demand are closely tied to movements in the economy. If there is a downturn in the economy, passenger numbers may decrease, as they did during the last two recessions (table 1.2). Secondly, if it is assumed that passenger numbers will rise to meet all available capacity, how is existing overcrowding on the network to be relieved?

In the event that demand fails to rise in accordance with LU's projections, or the network is unable to absorb sufficient demand, the Mayor will be faced with the choice of increasing fares or providing subsidy. Any significant increase in passenger fares - coming on top of fare rises of more than twice the rate of inflation in the last 10 years – would be deeply unpopular and politically difficult- quite apart from the risk of choking off demand. If LU is entirely dependent on its passengers for revenues, either scenario could be disastrous. This has implications for the financial viability of any long-term recurrent expenditure commitments.

In the context of the transfer of responsibility for LU/LT to the Mayor, the question arises of who will bear the cost of any affordability gap? Will the DETR commit itself to meeting the gap through grant over the concession period of 30 years? Or- as is surely more likely - will the Mayor and the GLA have to choose between fare increases (for which they will be responsible under the GLA Act) or diverting resources from other uses?

Who bears the risk?

It is also worth considering what the position of LU, and by implication the Mayor and the GLA will be in the event of the PPP failing to deliver the required improvements.

The bulk of the finance to be raised will in all probability be in the form of debt, with a minor contribution (10%-20%) contributed by shareholders in the PPP companies. (In the view of LU's financial advisers, who are keeping an open mind on the subject, anything from 50% to 10% of the finance could be contributed by shareholders: we have based our assumptions on previous PFI/PPP contracts.) Debt service and returns to shareholders constitute completely new claims on LU's revenues, and the nature of these claims needs to be understood. One of the main arguments in favour of the PPP policy is that it allows the risk of things going wrong to be privatised. In other words, all the claims on LU's revenues arising from the PPP are held to be conditional on the performance of the PPP companies. This only gives part of the picture.

Firstly, it needs to be borne in mind that PPP and PFI deals involve a three way relationship between the public sector, the PPP contractor and the lenders providing debt to the contractor. The interest of the lenders is to ensure that there is an assured stream of future revenues to meet the cost of debt service. It is not, therefore, in their interest to make it easy for the PPP contract to be terminated due to poor performance by the PPP company. Under Treasury guidance, public sector bodies should take account of this in drawing up contracts: 'The Contract must achieve a fair balance between the (Public Sector) Authority's desire to be able to terminate for inadequate service provision ..... and the Contractor's and its financiers interest in restricting termination to the severest of defaults'.[15] Thus, for example, contracts should make provision for sufficiently generous 'rectification periods' where the PPP companies have a chance to put things right rather than having the contract terminated immediately.

Furthermore, if previous Private Finance arrangements are anything to go on, LU/TfL will, implicitly or explicitly, guarantee that most of the debt taken out by the PPP companies will be paid back to the lenders even in the event

14 *See CM 1555, Monopolies and Mergers Commission* London Underground Limited: a report on passenger and other services supplied by the company *HMSO 1991 p.120*

15 *Treasury Taskforce,* Standard Contract Terms *20.2.1.1*

that the contract *is* terminated due to default on the part of the PPP. Some earlier PFI contracts have guaranteed debt by simply including compensation clauses in the contract specifying that debt will be repaid. The agreement for London Underground will take a different form but will have to achieve a similar effect: if the PPP company loses the contract, and if the lenders fail to find another contractor to take it on, London Underground will have to buy the contract back. While the lenders may lose out to a certain extent under this arrangement, they can count on LU meeting most of the cost of the outstanding debt.

There is a powerful financial incentive on LU to take this approach, as an implicit acceptance of liability by the public sector allows PPP companies to force down interest rates and thus reduces the overall cost of the arrangement. There is also a commercial logic to these provisions. If the public sector client could simply walk away from PPP debts, there would be the possibility of 'windfall' gains where the public sector would benefit from any investment undertaken by the PPP companies without, in effect, having to pay for them.

However while this type of arrangement may be commercially fair, it is not unreasonable to question the fairness of the distribution of political costs it implies. Even if the PPP failed to meet any of the performance targets set out in the contract LU would still have to maintain debt service on loans it has not itself taken out. In this event, the decision on how the cost was to be handled would rest with the Mayor and the GLA who will not, of course, be party to the negotiations between LU and the PPP companies. The concession agreement is expected to run for 25 to 30 years. Any notion that the PPP will not impose long term liabilities on the Mayor and GLA should be dispelled.

4 Bond issues

Alternatives to the PPP - funding

The only alternative to the PPP which has attracted public attention is the proposal that investment could be financed through revenue bonds which, have been used successfully in New York. It is argued that this would be cheaper than the PPP proposals, as bonds issued by a public body would incur lower interest charges than borrowing by a private company, and there would be no need to fund returns to shareholders.

Any discussion of revenue bonds needs to be based on the sources of funding for the Underground. As we have seen, government grant for LU is to be withdrawn under current DETR expenditure plans, leaving fares as the only significant source of revenue. The only other source of revenue likely to emerge after the Mayoral election is some form of tax on road use.

We deal first with the arguments against bonds presented by government and others, and then look in greater detail at the arguments advanced by PricewaterhouseCoopers, London Underground's financial advisers. The figures presented by PwC did not involve a like for like comparison between bond issues and a PPP. We then compare the financing costs of a bond issue with those projected for the PPP, assuming that the public sector would spend as much as the PPP companies. The difference in financing costs is significant (over £1bn). We then address the central issue of funding. We look at the funding arrangements for the New York system. We then look at the financial and legal feasibility of revenue bonds in London. We conclude that bonds can only be a practical option if they are secured against sources of revenue other than fares. The possibility may exist of using the proceeds of a congestion or a parking tax, but future revenues are uncertain and increased Underground capacity would be almost certainly be required before the tax was introduced. While bond finance may have a role, it is unlikely to serve as the primary way of securing increased investment.

The case against bond issues

There are three principal arguments that have been offered against the proposals for bond finance by government and others. Firstly, that efficiencies under the PPP would easily outweigh the higher cost of finance. Secondly, that bond finance would expose LU/the Mayor to cost overrun risks which would rest with the private sector under the PPP. Finally, that revenue bonds would leave LU with £8bn to £10bn of debts. The basis for these arguments needs to be examined.

The claim that bond finance is more expensive than the PPP rests on the briefing issued by London Underground's financial advisers, PricewaterhouseCoopers, in December 1999, which modelled the relative costs of the PPP and a bond financed alternative (Box 4.1) This document does not make the case to support the government's argument. It *assumes* from the start greater inefficiency on the part of the public sector, leading to higher costs over the contract period and thus the need to borrow more than would be necessary under the PPP. As the briefing assumes what it is held to demonstrate - the lower cost of the PPP option - it provides no evidence to support the argument.

Box 4.1 PricewaterhouseCoopers' Model – comparison of PFI and PPP costs

Bond issue –	**£m**	**PPP –**	**£m**
Total expenditure	15,550	Total expenditure	12,530
Borrowing required	**5,460**	**Finance required**	**2,440**
Cost of borrowing	3,570	Cost of borrowing*	1,970

**interest and dividend payments*

Government has further argued that bond finance would risk leaving the public sector (and thus passengers and/or the Mayor) with the bill for any cost overruns. The example of the Jubilee Line extension is frequently cited to this effect. Given that the PPP does not involve any developments remotely as ambitious as the JLE, this is scaremongering rather than argument. Risk can be shared between the public sector and contractors by means of contracts with penalty terms, without any need for private finance. In the case of London Underground, it could even be argued that the presence of private finance militates against efficient transfer of risk: even if cost overruns occur due to incompetence or negligence on the part of the PPP, it is *not* the case that LU can simply walk away from the debt taken out by the PPP companies, as we have seen. It also needs to be remembered that cost overruns can occur for many different reasons, many of which are unpredictable, such as new safety requirements and environmental factors- the latter including, just by way of example, London's rising water table. It is very unlikely that the PPP companies will be taking on all such risks (and it would be prohibitively expensive if they did). It is therefore unwise of ministers to imply that there is no question of cost overruns under the PPP.

The argument that bond issues would leave LU burdened with debt is surprising, as this is exactly what would happen under the PPP, where LU will have to meet the PPP companies' debt service costs as well as funding returns to shareholders. This is simply a question of choice of words: PPP borrowing is 'investment', whereas borrowing through revenue bonds is 'debt'.

In other words government's response to proposals for bond issues has so far consisted of begging the question, scare mongering and sowing semantic confusion: while there are

good arguments against bond issues -we present one ourselves below - they have not been presented so far, perhaps because they would tell equally against the proposed PPP.

Relative costs

What would the cost of financing investment through bond issues be if the assumptions on public sector inefficiency used to make the case for the PPP were dropped? PricewaterhouseCoopers were unable to provide us with all the assumptions used in their financial models on the grounds, which we acknowledge, that this might involve divulging information which could be of use to the bidders for the PPP contract. In order to see what their model might look like if it was assumed that the public sector would spend the same amount as the private sector, we have used the assumptions on spending used in PwC's PPP model, but have replaced their 10% private sector cost of capital with a public sector borrowing rate of 5%. (It is likely that LU would be able to borrow at lower rates than this). The approach taken is otherwise similar to PwC's in that rather than trying to specify the cost of the investment programme on a year by year basis, we have tried to provide an estimate of the effect of financing on the total costs over the 15 year programme. This is intended to make clear the extent to which the case for the PPP depends on assuming what needs to be proved, the greater efficiency of the private sector.

The figures should not be taken as predictions of the cost of the investment programme, any more than the models produced by PwC should be taken as predictions of the cost of the PPP. They are crude estimates based on the interest payments on the accumulated debt in each year. It is assumed that all debt is taken on as and when required and paid off evenly over 15 years.

Assuming the same investment as under the PPP option, the difference in total costs over the 15 year period is around £1bn. on capital raised of £2.4bn (table 4.1). In other words, as one might expect given the interest rate assumptions, the financing costs are approximately twice as great under the PPP as they would be with public sector borrowing. This is in all likelihood an underestimate of the difference, as the interest rates at which the Mayor could borrow are likely to be lower than 5%.

The New York model

Revenue bonds may involve lower financing costs, but they should not be seen as an alternative mechanism to achieve an undesirable and in all probability unfeasible policy aim: that of making passengers meet the full cost of the Underground infrastructure. The common assumption that the Underground currently generates a surplus, which could be used to fund debt service, makes this seem a plausible option: unfortunately, as we have seen (chapter 1), it is incorrect. Bond issues have to be secured against future revenue streams, and no such revenue stream is currently available. Securing debt against fares revenue alone is not a realistic option. In the absence of government grants, fares would almost certainly have to increase to meet the cost of debt service, if possibly to a lesser extent than under the PPP.

Debt financing of public transport does not replace public subsidy, it requires it. The frequently cited example of New York's Metropolitan Transportation authority provides a useful example.

As we have seen (chapter 2) the New York system is funded though both fares revenue and public subsidy - funded by state and city rather than national (federal) taxation. The total value of grants and subsidies was equal to 46% of the revenue of the Metropolitan Transportation Authority in 1997. Much of this subsidy is earmarked to fund debt service obligations.

The revenues against which the bonds issued by the MTA are secured include both fares and subsidies (in the form of hypothecated local taxes). Because some of the MTA bonds are secured against fares, there has been a misconception that it meets the costs of its investment programme at least in part through fares revenue, and this has encouraged comparison with London. However, while it is true that of the bonds issued by the MTA, about half (in the last year we have figures for) are secured against and payable out of fare revenues it is also the case that fares revenue in New York is not even enough to meet the running costs of the network (chapter 2). In other words, the fares against which bonds are issued are themselves subsidised, and without subsidy, fares would have to rise to meet the costs of debt service.

Due to the lack of an assured stream of public funding to supplement fares revenue, the Underground is in no position to take on the financing costs of an investment programme. This is all the more true for the more expensive PPP option,

Table 4.1: Comparison of PPP and bond financing costs (£m)

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTAL
Funding requirement	410	360	300	220	130	160	210	200	120	190	150	70	0	(60)	(20)	2440
Bond Interest @5%	17	30	38	48	53	60	69	77	83	90	97	100	94	75	60	991
PPP	30	110	140	110	110	110	110	110	110	110	110	170	210	230	200	1970

of course, which is equally dependent on debt finance. However, the importance of public funding, rather than the advantages of bond issues, is the lesson to be learnt from New York.

Alternative financing: tax revenues

Under the GLA Act, revenues from proposed congestion and workplace parking taxes would be earmarked for public transport. To the extent that these provide a predictable stream of future revenues their benefit could be maximised by borrowing against them. Bond issues on a similar model to New York model might then be possible.

Three aspects of such taxes need to be borne in mind: firstly, their successful implementation requires increased capacity on public transport, which means that capacity would have to increase *before* the revenues from the taxes began to come in. In other words, there would still be a problem in funding investment in the early years of such a scheme. Secondly, the currently favourable public mood with regard to congestion charges can not be expected to be maintained once concrete proposals with a likelihood of being implemented are in place. Introducing these charges will be politically difficult, although it should be borne in mind that the difficulty will be increased if it is felt that the revenues will be used to fund returns to PPP shareholders. Thirdly, it should not be assumed that the aim of reducing motor traffic dovetails neatly with that of bringing in revenue for public transport - the more successful road taxes are in reducing traffic, the less they may bring in. Moreover, if the revenues from road taxes become the main source of funding for transport other than fares, other measures for reducing traffic which do not yield revenue such as pedestrianisation and reduced speed limits - may come to be unfairly neglected.

Alternative financing: could the mayor finance investment through bond issues?

The interest in revenue bonds in the context of the mayoral election is partly attributable to the possibility they seem to offer of allowing the Mayor a certain independence from the Treasury in making investment decisions. However, no function is more jealously guarded by the Treasury than the power to borrow. It therefore important to note that there is no question of either the GLA or TfL being able to borrow to finance investment without approval by central government. GLA and its functional bodies (which include TfL) will be subject to the local government financial regime and will therefore require credit approvals from the Secretary of State for the Environment, transport and the Regions before undertaking any borrowing. Revenue bonds would not allow the Mayor to evade the tight controls on expenditure maintained by central government.

Borrowing will therefore be limited to the credit approvals set by the Secretary of State. The possibility of extending those approvals by finding a formula under which the borrowing would not count towards the Public Sector Borrowing Requirement or the General Government Financial Deficit may appear attractive. However, the frequently cited example of the Channel Tunnel Rail Link is irrelevant here. In that case, government argued that its guarantee of a loan to Eurotunnel should not count towards the PSBR because of the limited risk of the guarantee being called in. The important point here is that government was guaranteeing a loan on the part of the private sector. No such arrangement is possible with TfL because TfL will itself be a local authority and therefore part of the general government sector. As such its borrowing will count towards any measure of government debt (PSBR or GGFD) whether guaranteed by central government or not.

It is of course possible for government to make an exception to its own accounting rules in order to allow LU to undertake borrowing without affecting the PSBR/GGFD. This has already been done for investment in local authority owned airports. However, this is option is only available to central government, not the GLA.

Thus while revenue bonds might allow the future Mayor of London to maximise the benefits of new forms of taxation, this will only be possible if central government agrees to relax its control over the finances of devolved administrations.

The apparent popularity of the bond issue option is no doubt largely a reflection of the unpopularity of the PPP. But the PPP/bonds debate is also the vehicle of discontent over the tight expenditure controls exercised by the Treasury, which prevent any public sector body from raising finance for investment other than through the private finance initiative or the increasingly limited public sector capital budget. The powers of the Mayor to determine transport strategy should be central to any debate on transport in London. As in the financial settlement for the devolved assemblies in Scotland, Wales and Northern Ireland, the nominally extensive powers of the mayor are restricted by the existing public expenditure control system.

5. Lessons from other infrastructure industries

This section examines some of the experiences of privatisation and the Private Finance Initiative (PFI), the financial characteristics of other network industries such as the utilities and the national railways, and draws out the implications for the Underground.

Privatisation and PFI

Although the proposals for the London Underground do not involve privatisation as it is normally understood, the experience of earlier privatisations and the Private Finance Initiative (PFI) is pertinent in several ways. After privatisation, the utilities had to generate surplus cash from their activities to cover the cost of dividends to their new owners. Under conditions where nearly all operated with stagnant demand, the increased 'efficiencies' to pay for this were either achieved by squeezing their suppliers or their own workforce. (In effect, it was simply a question of whose workforce was to bear the burden of adjustment.) The generators, gas and telecoms cut back on their workforce by 43%, 38% and 38% respectively (table 5.1). The amount saved on labour costs was approximately equal to the amount paid out in dividends[16]. But the utilities are more cash generative than either the railways or LU and had labour intensive retail showrooms that could be sold. There are fewer such possibilities for shedding labour in the Underground, unless recourse is had to outsourcing to companies that can access a cheaper workforce.

Table 5.1 Employment and Dividends since Privatisation (Utilities)

	Period	Fall in Employment	Dividends (£m)
British Gas	1987-95	-33,675 (-38%)	4,354
British Telecom	1988-95	-89,000 (-38%)	6,745
10 water and sewerage companies	1990-95	-3,000 (-8%)	6,862
Electricity generation	1992-96	-8,996 (-43%)	1,262
Railtrack	1996-99	-520 (-5%)	434

Source: Annual report and accounts (various years)

The privatisation of the railways was, like the Underground PPP, presented as a way to secure the investment in the public infrastructure that the public sector could not afford. It has led to higher subsidies, higher fares, cuts in jobs, wages and conditions, and a reduction in levels of service, comfort and safety. Service levels, however defined, have declined and are well below the already poor levels existing prior to privatisation and those in other comparable industrial countries. The winners have been the owners of the infrastructure and train leasing corporations. The train operators' profit margins average three pence in the pound, and more than half are making losses[17]. Given that LU will occupy a very similar position to the train operating companies under the PPP, this does not augur well for LU's financial viability. The train operators have largely been the conduit for passing on the increased fares and subsidies to Railtrack and the leasing companies. Infrastructure investment by Railtrack has not risen commensurate with need, expectations or commitments[18]. It is now becoming clear that investment will only rise if Railtrack's rate of return on capital employed, and hence track access charges and passenger fares, are allowed to rise.

The water industry was also privatised to access investment funds. In the event, the investment was funded by higher charges to consumers. The much vaunted 'efficiency savings' that were assumed to follow privatisation came not so much from lower operating costs but from a lower level of capital expenditure on both renewals and investment than that predicted at privatisation[19]. The LU PPP considers that private sector operators can make similar savings in investment and maintenance expenditure. While some performance targets were set for the water companies, many of the targets were not achieved[20], as the failure of the public water supply to West Yorkshire in 1995 and leakages running at a higher level than pre-privatisation testify. Thus the 'efficiency savings' were made at the expense of consumers and the public at large.

Finally, the failed PFI Information Technology projects for the Home Office and the Department of Social Security provide a warning. All PFI projects are predicated upon risk transfer to the private sector corporations. In the event of failure, the private sector is assumed to carry the cost of failure. Both the Passport Agency and Social Security computer projects have gone massively over budget and over time, yet the private sector will pay fines that are nothing more than loose change in the context of the additional costs to the public sector. In the case of the Passport Agency, Siemens Business Systems will be fined £250,000 (as opposed to the maximum £400,000 possible), whereas the costs to the public sector are estimated at about £15m[21]. Additional staff will have to be taken on and the public will have to bear the cost of higher fees for a new passport. In other words, the risk has been transferred back to the public sector, as the Public Accounts Committee noted. Thus while it is possible to specify the risks to be transferred on an *a priori* basis, it is an entirely different matter to transfer the risks in a legally enforceable contract. While the PPP is not a PFI contract, many of these contractual issues are the same. There is no reason to assume that London Underground's lawyers will be any more successful than those of government departments.

The characteristics of rail as a business

Our analysis shows a picture of an industry running to standstill in financial terms. The decline in government grants has meant that prices, and therefore the relative attractiveness

16 *Froud J, Haslam C, Johal S, Shaoul J, Williams K, "Stakeholder Economy?", Capital and Class, Vol 60, Autumn 1996, pp119-134.*

17 *J. Shaoul, "Railpolitik: A Stakeholder Analysis of the Railways in Britain", Manchester University, paper presented at the CIMA Public Sector Accounting Workshop, University of Edinburgh, September 1999.*

18 *Booz Allen and Hamilton "Railtrack's Performance in the Period 1995-2001, report to the Office Rail Regulator, 1999*

19 *J. Shaoul, "A Critical Financial Analysis of the post-Privatisation Performance of the Water Industry in England and Wales", Critical Perspectives on Accounting, 1997, Vol 8, pp479-505*

of private (road) transport, have risen. Labour productivity increases, however great, are insufficient in an industry where most of the costs and investment relate to the cost of the basic infrastructure.

This is because London Underground is a high fixed cost industry where a high proportion of the Underground's cost are associated with providing the rail network as distinct from running the trains. Like the former public utilities (gas, electricity, telecoms, and water), its main costs relate to the distribution network. In effect, all these industries operate two businesses, the distribution network and the supply of services. Because of the high cost of maintaining the network, the supply side of the utilities is more profitable than the distribution as the rail, gas and electricity industries demonstrate.

However the utilities differ on the demand side. They supply an (almost) universal, essential and unavoidable service in ways that are reasonably predictable. It is therefore possible to devise methods of payment (monthly direct debit, pre-payment cards, social security allowances, etc.) that spread the burden over time and do not require consumers to pay up at the point of use. Thus, both their pattern of demand and method of payments allow full cost recovery from consumers.

In contrast, while many people do use rail services, not all do, or do so very infrequently. Furthermore, pre-payments, season tickets and other payment devices that spread the cost of user charges through time are not as well developed in the rail industry. As a result, most people pay at the point of use. LU also faces competition from other forms of transport. In the absence of adequate demand, full cost pricing may be self-defeating in that it chokes off demand, quite apart from the implications for equity. Thus the essential problem for the Underground is that it is unable to generate the revenues that cover the full costs of the network *and* the train operations, even without the requirement to provide a return on capital employed. Operating costs and the (inadequate) annual capital spending on the underground network exceed total revenue, and the Underground currently depends on annual grants to make up the difference. The use of public grants to support rail networks and operations in this way is the norm in industrialised countries.

Railways have been hampered by government-instituted funding, commercial and charging policies that prevented the development of an appropriate cost structure that could be used to apportion costs and set prices. Given that rail is essentially two businesses which combined are unable to make a profit or breakeven, the solution is to set prices to cover only passenger services. Public funding, paid for from taxation, would cover the cost of maintaining and enhancing the network which would be free at the point of use to the travelling public in the same way as roads. (The fact that road infrastructure is free is, of course, why road haulage and commercial bus services are able to run at a profit.) While this would not be cheaper, it would lead to lower fares, passenger traffic and receipts, a more rational service, greater accountability, and train operations that at least broke even, with all the associated environmental and social benefits. This pattern is adopted in five Western European countries, where the state owned railways are funded as two distinct entities.

While the PPP proposals in effect split the Underground into its two constituent parts, the network and passenger services, it does so in completely the opposite way. Instead of providing a network at a lower (or no) cost that will enable the Underground to operate efficient passenger services, the PPP will raise the infrastructure costs and hence the cost of passenger services, and exacerbate the existing problems.

The development of a modern, safe and efficient Underground depends upon significantly expanding expenditure on the existing lines and building new ones. As the Acheson Report on health inequalities showed, public transport is not simply a transport issue but an economic, social, environmental and public health issue that affects the lives not simply of those who use the services but of those who do not[22]. The basic economic realities of this industry, both in Britain and overseas, show that this can only be done by funding the full cost of the infrastructure through taxation, which may be local, national, or as in most other countries, a mixture of both. The most important issue facing the Underground is therefore that of funding, not of finance and this issue has been obscured rather than resolved by the government's PPP proposals.

20 *Schofield R., and Shaoul J., "Regulating the Water Industry: By Any Standards?", Utilities Law Review, Vol 8, Issue 2, Mar-April 1997, pp56-70.*

21 *National Audit Office, "The United Kingdom Passport Agency: the passport delays of Summer 1999", report by the Controller and Audit General, HC 812 27, October 1999.*

22 *Sir Donald Acheson, "Independent Inquiry into Inequalities in Health", The Stationery Office, November 1998.*

Table 1.1 Income and External Purchases

(£m)	Passenger Receipts	Other Income	Grants taken to profit & Loss account	Total income including grant taken to P&L	Purchases/ income
1985-6	326	18	120	478	0.14
1986-7	351	20	86	476	0.12
1987-8	370	30	51	482	0.12
1988-9	435	35	54	521	0.15
1989-90	466	42	103	601	0.20
1990-1	536	46	188	765	0.18
1991-2	563	51	167	777	0.16
1992-3	565	53	416	1,058	0.04
1993-4	642	51	286	974	0.10
1994-5	722	47	308	1,073	0.16
1995-6	772	51	213	1,029	0.17
1996-7	822	57	116	970	0.19
1997-8	926	62	88	1,049	0.22
1998-9	1,009	68	108	1,153	0.23

Source : London Underground annual report and accounts (various years)

Table 1.2: Passenger Receipts

	Passenger Receipts (£m)	Passenger Journeys (m)	Passenger kms (m)	Train kms (m)	Passenger places (m)	Route kms	Ave fare per passenger km (£)
1984-5	333	563	4,320	46	39,520	386	0.077
1985-6	326	672	5,344	47	39,840	386	0.061
1986-7	351	732	5,936	47	40,160	386	0.059
1987-8	370	769	6,179	49	41,440	392	0.060
1988-9	435	815	6,256	51	43,360	392	0.070
1989-90	466	765	5,981	51	42,741	394	0.078
1990-1	536	775	6,164	53	44,989	394	0.087
1991-2	563	751	5,895	53	45,257	394	0.096
1992-3	565	728	5,758	53	45,257	394	0.098
1993-4	642	735	5,814	53	45,552	392	0.110
1994-5	722	764	6,051	55	49,432	392	0.119
1995-6	772	784	6,337	57	51,564	392	0.122
1996-7	822	772	6,153	58	52,162	392	0.134
1997-8	926	832	6,479	62	55,458	392	0.143
1998-9	1,009	866	6,716	61	54,779	392	0.150
% Change since 1984-5	203%	545	55%	32%	39%	-	95%

Sources: London Transport annual report and accounts (various years), Transport Statistics (various years)

Table 1.3 Government Grants

	London Transport Accounts					London Underground Accounts	
(£m)	Grants taken to profit and loss account	Capital grants New lines	Capital grants Core business	Total grants	Grant for existing lines after subsidies	Grants taken to P&L Accounts	Total grants
1990-1	305	2	533	535	228	188	355
1991-2	364	65	570	635	206	167	372
1992-3	622	83	800	883	178	416	681
1993-4	385	120	572	692	187	286	630
1994-5	398	413	273	686	125	308	820
1995-6	289	447	456	903	167	213	802
1996-7	171	667	275	942	104	116	878
1997-8	182	506	127	633	-55	88	543
1998-9	160	267	143	411	-17	108	313
Total	**2,876**	**2,570**	**3,749**	**6,320**	**1,123**	**1,890**	**5,394**

Sources: London Transport annual report and accounts (various years), London Underground annual report and accounts (various years)

Note: It is unclear why LT and LU report substantially different figures, and in different ways, given that most of LT's investment appears to be going on the rail network

Table 1.4: Labour Data

	Labour costs	Labour's share of value added	Number employed				Average wage costs (£)	Labour productivity (Million passenger kms/no. employed
			Passenger services	Engineering	Police & other depts	All staff		
1985-6	246	0.60				21,598	11,390	0.247
1986-7	259	0.62	13,568	6,322	722	20,612	12,565	0.288
1987-8	284	0.67	12,705	5,561	726	18,992	14,954	0.325
1988-9	307	0.70	11,762	6,526	1,357	19,645	15,627	0.318
1989-90	352	0.73	13,080	7,426	1,673	22,179	15,871	0.270
1990-1	441	0.70	12,641	7,736	1,710	22,087	19,666	0.279
1991-2	468	0.72	11,622	7,859	1,703	21,184	22,092	0.278
1992-3	581	0.57	10,742	6,613	1,659	19,014	30,556	0.303
1993-4	524	0.60	11,335	5,029	1,534	17,898	29,277	0.325
1994-5	489	0.54	11,246	4,362	1,133	16,741	27,935	0.346
1995-6	452	0.53	11,109	4,169	733	16,011	28,099	0.394
1996-7	461	0.59	11,476	3,795	739	16,010	28,689	0.383
1997-8	466	0.57	11,676	3,431	733	15,892	29,484	0.410
1998-9	488	0.55	12,247	3,042	743	16,032	30,769	0.423

Sources : London Underground annual report and accounts (various years), Transport Statistics Great Britain (DETR)

Note: labour costs and average wage costs include national insurance contributions, pensions and any restructuring costs

Table 1.5 PricewaterhouseCoopers' projections of PPP (£m)

	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTAL
1	LU Resources	1,170	1,200	1,230	1,250	1,280	1,290	1,310	1,330	1,340	1,360	1,380	1,400	1,420	1,440	1,460	19,860
2	LU Operating Cost	(680)	(660)	(650)	(630)	(630)	(640)	(650)	(650)	(650)	(650)	(650)	(650)	(660)	(660)	(660)	(9,770)
3	Operating Cashflow	490	540	580	620	650	650	660	680	690	710	730	750	760	780	800	10,090
4	Infra-structure spending	900	900	880	840	780	810	870	880	810	900	880	820	760	720	780	12,530
5	External funding requirement	410	360	300	220	130	160	210	200	120	190	150	70	0	(60)	(20)	2,440
6	Interest & dividends cost net of repayment	30	110	140	110	110	110	110	110	110	110	110	170	210	230	200	1,970

Source: PricewaterhouseCoopers, Briefing (December 1999)

Table 1.6: Investment Expenditure

(£m)	Total renewals expenditure	Capital expenditure			Investment expenditure			
		Rolling stock	Other	Total	Core business (existing lines)	Jubilee Line Extension	Crossrail	Total investment expenditure (renewals plus capital)
1986-7	105.4	19.0	69.7	88.7	171.2			171.2
1987-8	82.5	18.5	119.7	138.2	206.1			206.1
1988-9	79.3	24.2	111.0	135.2	214.5			214.5
1989-90	71.8	73.5	162.0	235.5	307.3			307.3
1990-1	87.1	82.1	289.6	371.7	413.6	40.4	4.8	458.8
1991-2	70.3	96.2	203.1	299.3	298.3	59.6	11.7	369.6
1992-3	217.6	175.2	335.1	510.3	631.6	67.5	28.8	727.9
1993-4	159.3	159.0	476.5	626.5	479.9	260.9	45.0	785.8
1994-5	184.2	135.8	608.5	744.3	502.5	396.4	29.6	928.5
1995-6	275.3	54.8	757.6	812.4	485.1	587.0	15.6	1,087.7
1996-7	198.3	n/a	n/a	836.2	371.0	695.5	4.0	1,034.5
1997-8	190.5	n/a	n/a	609.5	324.2	475.8	-	800.0
1998-9	244.3	n/a	n/a	453.2	415.3	282.2	-	697.5

Source : Transport Statistics Great Britain (various years)

Note: Investment includes both renewals and capital expenditure

Table 1.7 Operating surplus and capital maintenance

(£m)	Depreciation charge	Renewals (maintenance)	Capital maintenance (D+R)	Value added less labour costs (including grant to P&L)	Gross operating margin	Cash flows from operating activities excl grants
1986-7	64	83	147	158	42	n/a
1987-8	64	68	152	140	71	n/a
1988-9	75	79	154	134	95	n/a
1989-90	82	72	154	133	89	n/a
1990-1	102	87	189	190	42	-62
1991-2	112	70	182	182	2	-46
1992-3	221	218	439	438	10	-262
1993-4	189	159	348	355	21	-138
1994-5	252	184	436	412	67	-125
1995-6	135	275	410	404	104	-53
1996-7	128	198	326	327	192	-5
1997-8	133	191	324	353	210	65
1998-9	135	244	379	396	288	67

Source: London Underground annual report and accounts (various years)

Note: value added = value created by LU after deducting the cost of external goods and services, but including grant

Table 1.8 Sources of Financing for Renewals (Maintenance) and Investment

(£m)	Expenditure on renewals	Expenditure on additional fixed assets	Total	Total grant (renewals and capital)	Self financing from cash flows
1993-4	162	526	688	1,078	
1994-5	188	765	953	1,084	
1995-6	280	827	1,107	1,194	
1996-7	203	865	1,068	1,114	
1997-8	196	647	843	761	107
1998-9	249	492	660	570	245

Source: London Transport annual report and accounts

Table 1.9 London Underground and PwC Projections of Maintenance and Investment Expenditure under the PPP

Year	PPP data (Annexe 4)		PwC (Table 1)		PwC assuming efficiencies (Table 2)		PwC assuming private sector efficiencies (Table 6)	
(£m)	Annual Maintenance	Annual Investment	Maintenance	Investment	Maintenance	Investment	Maintenance	Investment
1	286	490	370	650	350	610	350	550
2	286	520	360	730	350	680	320	580
3	286	550	350	720	340	670	320	560
4	286	590	350	680	340	630	310	530
5	286	700	340	700	320	650	280	500
6	286	590	330	750	320	700	270	540
7	286	410	330	830	310	770	270	600
8	286	550	330	840	310	780	270	630
9	286	480	320	810	310	750	250	560
10	286	540	320	930	310	870	260	640
11	286	550	320	900	310	840	250	630
12	286	580	320	820	310	760	250	570
13	286	550	320	730	310	680	250	510
14	286	470	320	670	310	630	250	470
15	286	500	320	760	310	710	250	530
Total	4,290	8,140	5,500	11,520	4,820	10,730	4,150	8,380

Sources: PwC: London Underground report (Dec 6th 1999), London Underground PPP Progress report

All figures in £m at 1999 prices

Table 1.10 PwC Projection of London Underground's revenues, costs and operating cashflow under the PPP

Year	Revenues	Costs	Cash flow
LU 1998-99	(1) **977**	(3) **757**	(4) **220**
	(2) **1,045**		(5) **280**
1	1,170	680	490
2	1,200	660	540
3	1,230	650	580
4	1,250	630	620
5	1,280	630	650
6	1,290	640	650
7	1,310	650	660
8	1,330	650	680
9	1,340	650	690
10	1,360	650	710
11	1,380	650	730
12	1,400	650	750
13	1,420	660	760
14	1,440	660	780
15	1,460	660	800
Total	19,860	9,770	10,098

Sources:

London Underground annual report and accounts, PwC

London Underground report (Dec 6th 1999) Table 3

All data in £m in 1999 prices

Note:

(1) Rail receipts only

(2) Total income excluding grants

(3) Operating expenditure before depreciation and renewals

(4) Rail receipts less operating expenditure

(5) Total income (excl grants) less operating expenditure

Table 2.1: London Transport Grant 1997/8 to 2001/2

	1997-98	1998-99	1999-2000	2000-01	2001-02
Total grant	629	592	399	85	102

Source: DETR Annual Report 1999

Table 3.1: PricewaterhouseCoopers' projections of PPP (£m)

	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
1	LU Resources	1,170	1,200	1,230	1,250	1,280	1,290	1,310	1,330	1,340	1,360	1,380	1,400	1,420	1,440	1,460	19,860
2	LU Operating Cost	(680)	(660)	(650)	(630)	(630)	(640)	(650)	(650)	(650)	(650)	(650)	(650)	(660)	(660)	(660)	(9,770)
3	Operating Cashflow	490	540	580	620	650	650	660	680	690	710	730	750	760	780	800	10,090
4	Infra-structure spending	900	900	880	840	780	810	870	880	810	900	880	820	760	720	780	12,530
5	External funding requirement	410	360	300	220	130	160	210	200	120	190	150	70	0	(60)	(20)	2,440
6	Interest & dividends cost net of repayment	30	110	140	110	110	110	110	110	110	110	110	170	210	230	200	1,970

Source: PricewaterhouseCoopers, Briefing Note (December 1999)

Table 3.2: London Underground's Safety Record

Year	Fatalities	Major injuries	Major injury rate per million passenger journeys
1993-4	5	50	0.07
1994-5	6	57	0.07
1995-6	4	62	0.08
1996-7	7	95	0.12
1997-8	4	108	0.13
1998-9	1	123	0.14

Source: London Transport annual report and accounts (various years)

Table 4.1 Comparison of PPP and bond financing costs (£m)

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Funding requirement	410	360	300	220	130	160	210	200	120	190	150	70	0	(60)	(20)	2440
Bond: Interest @5%	17	30	38	48	53	60	69	77	83	90	97	100	94	75	60	991
PPP	30	110	140	110	110	110	110	110	110	110	110	170	210	230	200	1970

Table 5.1: Employment and Dividends since Privatisation (Utilities)

	Period	Fall in Employment	Dividends (£m)
British Gas	1987-95	-33,675 (-38%)	4,354
British Telecom	1988-95	-89,000 (-38%)	6,745
10 water and sewerage companies	1990-95	-3,000 (-8%)	6,862
Electricity generation	1992-96	-8,996 (-43%)	1,262
Railtrack	1996-99	-520 (-5%)	434

Source: Annual report and accounts (various years)

0200-544 Designed and printed by PJ PrePress Ltd 020 8531 9105