

THE INFRASTRUCTURE COMMISSION

World class infrastructure for a world city

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The London First Infrastructure Commission

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Foreword from the Chairman

Infrastructure has always been central to London's economic and social development. In the 19th Century, major projects such as Bazalgette's sewer system improved the health and well-being of the city, while the London underground reduced congestion and provided greater access to employment opportunities. In the 20th Century, the Thames Barrier and the Docklands Light Railway have, in their different ways, improved London's security and connectivity.

The challenges for London's infrastructure in the 21st Century are the same as those that have always faced the city. Major projects take many years to plan, build and develop; they are often disruptive to everyday life; and the impacts of their creation are not felt within one electoral cycle or immediately understood by the public. Given the constraints on public financing, one of the largest challenges currently facing London is to ensure the efficiency and maintenance of the city's existing infrastructure.

Over the past year, London First's Infrastructure Commission has met with dozens of business leaders and government stakeholders to canvas their opinions as owners, investors, advisers and users of London's infrastructure. These discussions focused on the challenges facing London and what could be done to remedy or improve the framework supporting London's infrastructure for the betterment of the city. All of the respondents agreed that ensuring the quality of London's infrastructure is essential to maintaining its position as a leading world city, particularly given its importance to the UK's economy.

The Infrastructure Commission's report is the outcome of these discussions. It contains a series of practical recommendations covering a range of sectors aimed at short, medium and long-term improvements to infrastructure planning, financing and delivery. Taken together, the Infrastructure Commission believes these recommendations could make a practical and real difference to the way London operates now and in the future.

The report was made possible by the many people and organisations who have contributed to the debate. Most particularly, the Infrastructure Commissioners who have generously offered their collective knowledge of London's infrastructure to refine the report in to a comprehensive assessment of the options facing the city. All of the Commissioners are very grateful for the support and work of the London First secretariat.

The challenge now is to translate the report's recommendations into action. Infrastructure has always required vision, foresight and ongoing investment. With this report, London First has a well-considered proposition for London's infrastructure, to ensure the development and prosperity of the city for the 21st Century and beyond.

Martin Stanley

Chairman, London First Infrastructure Commission

Global Head of Macquarie Infrastructure and Real Assets Group

Executive summary

Well-functioning infrastructure networks are essential to London's competitiveness and future economic growth. Infrastructure – by which we mean water and sewerage, waste, transport, energy and telecoms – enables the city to function. It provides the underpinnings for successful commerce, the foundations for improved productivity and is a critical component of London's global competitiveness.

London is a world city and the gateway to international investment in Britain. Its unique concentration of economic activity is at the heart of the country's economy; the capital generates more in tax than it receives in public spending by a margin of £14-19 billion a year. Maintaining the infrastructure which enables London to continue to make this contribution is vital to maintaining its competitiveness and to the prosperity of the UK's economy as a whole.

London First members – London's larger businesses – have expressed concerns that London's infrastructure is not adequate for a world city; a view which a number of studies have reinforced. With population forecast to grow by 1.3 million by 2031 the pressures are set to increase. London First, in response, established this expert Infrastructure Commission in early 2010 to examine both private and public sector provision and consider how London's infrastructure can continue to support its status as a world class business location and driver of the UK economy.

Our approach has been to seek the right level of infrastructure provision, balancing costs with the capacity, reliability, quality and resilience needed to support our global competitiveness. As well as considering new infrastructure for London, we also believe that we can get better value from existing networks through improved efficiency, coordination and management. We make a series of practical recommendations, covering a range of industry sectors, to deliver short, medium and long term improvements to the way London's infrastructure is run, planned, financed and delivered. These recommendations are summarised below; some common themes are:

- the need for better long-term planning by government, at both a national and London level, coupled with practical policy frameworks which take into account London's distinctive concentration of economic activity and give the private sector the clarity and certainty it needs to invest;
- a greater understanding, on the part of London's utilities, of London's businesses' requirements of the infrastructure they provide; and
- a more transparent and devolved approach to the delivery of London's infrastructure by the public sector, notably in transport. The future of London's transport provision should be decided and funded at a London level, with political and governance structures which reflect this responsibility and which enable the Mayor to be the unambiguous champion of Londoners, while Transport for London (TfL) focuses on delivering better value.

Planning for long-term infrastructure investment

Joined up policy

Infrastructure assets tend to have long lives, be expensive to develop and, thus, require a combination of planning and revenue certainty to support their delivery. In the UK, there are essentially three forms of provision:

- privately provided monopoly network infrastructure, which is subject to economic regulation and effectively guaranteed a return when efficiently provided;
- privately provided infrastructure which is subject to market and policy risk; and
- publicly provided infrastructure, principally for this report, in London's transport.

We believe that the provision of network infrastructure by the private sector has broadly been fit for purpose, with the significant caveat that the national regulatory framework has not always taken sufficient account of central London's distinctive economic characteristics or the long term nature of infrastructure investment: these points are explored below.

With regard to private infrastructure subject to market risk, there can be a disconnect between wider public policy objectives and the detailed frameworks which underpin infrastructure provision by the private sector. An example is the targets set out by government for carbon reduction which have been established through primary legislation but have not been accompanied by the right incentives and policy certainty to support private sector investment.

Private sector investment in infrastructure subject to market and policy risk requires greater policy certainty from government. This requires clear up-front statements of government policy in key strategic areas, better coordination within government and more rapid implementation of the detailed policy frameworks which can provide the certainty and longevity which the private sector needs to make the business case for infrastructure investment.

Recommendation 1

We welcome the establishment by government of Infrastructure UK (IUK), which has the potential to play an important role in meeting the objectives set out in Recommendation 1 above, and its publication of the National Infrastructure Plan. The utilities' economic regulators should have a statutory duty to have regard to the Plan when conducting their periodic reviews and to set out clearly their reasons if they do not comply with its timescales or objectives.

Recommendation 2

Improving land use planning policy for infrastructure

Planning consistently ranks as one of the main concerns to companies looking to invest in UK infrastructure. The land-use planning framework has made the provision of much infrastructure slow, expensive and, in some cases, has prevented any provision at all.

Recommendation 3

The Government must ensure that its reforms to national and local planning frameworks for infrastructure maintain timeliness and predictability for infrastructure providers as well as improving democratic accountability.

New approaches to financing and funding infrastructure

Recommendation 4

The Commission welcomes action by Government to reduce the policy risks that the market cannot price. Where market risks remain, which deter investment that Government believes is justified in terms of social benefits, Government should provide transparent and targeted subsidy, either directly or via network utilities.

A way of financing infrastructure that has been mooted by a number of bodies, including the Mayor of London, is Tax Increment Financing (TIF). This mechanism involves the private or public sectors financing infrastructure which is then funded by the increased tax receipts which flow from development.

Recommendation 5

The forthcoming review of local government finance should explore creating the flexibility for local authorities to finance infrastructure improvements through new mechanisms such as TIF.

In London decisions about public expenditure on infrastructure investment are not taken in such a way that the costs are borne by the people who benefit. Londoners pay taxes to central government which are part-recycled back in grants to London government, sometimes decided on an annual basis, often accompanied by restrictions on how they are spent. This reliance on central government grant undermines London's ability to plan and fund infrastructure investment.

Recommendation 6

Tax, spending and decision making for London should be aligned. The Government should give the Mayor flexibility over how he spends the grant he receives, so that he is able to direct his resources to meet the priorities of London rather than central government. The Government has announced a review of local government finance and this should explore ways of rebalancing the tax system so that central government raises less in tax from London, with the Mayor raising more of his own resources in a manner that is transparent and equitable between London's residents, visitors and businesses.

London-wide strategic planning

The Mayor should play a greater strategic role in the planning and delivery of London's infrastructure:

Recommendation 7

- **first, as a pan-London client in regulators' periodic reviews. The Mayor, given his own regulatory functions of land planning and the role his other strategies play in London's economic development, should be a statutory consultee in the economic regulators' periodic reviews. Given the Mayor's electoral mandate, his views on the levels of provision that London needs should carry particular weight. The economic regulators should have a duty to comply with the Mayor's position, or, if deemed inappropriate, to explain why; and**
- **second, there should be greater coordination between investment programmes in different sectors. The Mayor should make representations on London's overall needs to IUK as it updates its National Infrastructure Plan and IUK should, similarly, have a duty to comply or explain.**

Infrastructure provided by the private sector

London's energy, communications, water and sewerage utilities moved into the private sector in the 1980s and 1990s. The network infrastructure the utilities provide, which is typically characterised by natural monopoly, is subject to oversight by economic regulators, who protect customers from the abuse of monopoly power, either by promoting competition or acting as a proxy for the market.

The Commission believes that the regulatory processes for striking a balance between service levels and prices across regulated networks have broadly worked well and provided a fit-for-purpose network infrastructure. There is due process to determine the balance between affordability, through the prices consumers pay, and outputs, with independent scrutiny of the efficiency with which the two are linked, and there has been substantial investment in the UK and London's infrastructure networks post privatisation. The evidence we have taken suggests that regulator-sanctioned investment, funded from consumers' bills, can continue to be financed in this way in future.

However, the various regulatory regimes do not always take sufficient account of the unique economic characteristics and core functions of London's central area, or the needs of businesses (in terms of security of supply, resilience and so forth) when determining the balance between service standards and prices.

Recommendation 8

The utilities need to understand more clearly the service levels that business users in London, particularly in central London, want and are willing to pay for. In conjunction with their regulators the utilities should devise ways in which business users' preferences can be reflected in the outcomes of their periodic reviews.

While the five year review processes have broadly worked well, we believe that they should be accompanied by longer term strategic direction statements, say for 25 years (which currently exist in water), which fit better with the long lead times required for infrastructure investment.

Recommendation 9

Economic regulators should determine long term strategic direction statements for network utilities and each periodic review determination should state how the shorter, typically five year investment programme ties in with this longer term statement.

Electricity transmission and distribution

Rather than building new capacity in anticipation of future demand, energy distribution companies currently are only able to earn a return on new capacity where demand is immediate. This approach works well where future growth is uncertain. In areas with high concentrations of economic activity, such as central London - where growth is more certain and ad-hoc additions to the distribution network are difficult, time-consuming and expensive - providing capacity in line with forecast demand would support development.

Recommendation 10

The licensed electricity distributor should consult with central London businesses to establish the level of anticipated demand and establish proposals to build capacity to meet this need on a more integrated, forward-looking basis. Ofgem should establish a mechanism to permit the forward funding of capacity enhancement against reasonable demand forecasts.

Similarly, the resilience of the UK's energy networks is uniformly set.

Recommendation 11

The licensed electricity distributor should also consult with central London businesses to explore the costs of reinforcing the distribution network to improve resilience and establish the willingness, in practice, to pay for this reinforcement. Ofgem should have regard to this evidence when conducting its periodic reviews.

Connecting new customers to London's distribution network is a complex process because of the legacy characteristics of the network and the ways in which capacity is added.

The Key Performance Indicators for electricity distribution should be amended to capture connection metrics from a customer perspective, based on consultation between business and the distribution provider, and subject to determination by Ofgem.

Recommendation 12

The Mayor has a policy for a quarter of London's energy to be supplied via local generation - decentralised energy - from facilities such as combined heat and power (CHP) by 2025.

We welcome district-wide decentralised energy schemes where they make economic sense, but question whether it is sensible for London to have a distinctive energy policy around electricity generation, with London-specific targets. It is right that the Mayor has a view of London's energy needs, and what should be done locally both to support carbon reduction efforts and maintain security of supply, but this should be integrated with national energy policy. In this area, as in others, the Mayor's power lies at least as much in exhortation as in regulation.

Recommendation 13

Water and sewerage

The road congestion caused by the large scale renewal programme is not included by economic regulator Ofwat as a cost when it determines an acceptable level of leakage. As argued below, the utilities should face time-based charges for digging up those strategic roads which cause the most congestion.

Ofwat should allow within its periodic review determination sufficient revenues to enable an efficient operator to meet permit charges levied by London government, to incentivise the swift completion of road works and thus reduce the road congestion they cause.

Recommendation 14

Water shortages are not unusual in London and the South East. Any changes to the regulatory system must be carefully judged so as not to undermine investors' confidence or to prejudice the industry's ability to finance its substantial investment programme.

There is also a need to improve London's performance in disposing of waste water.

And while water and sewerage companies have a statutory duty to produce 25 year strategic plans, it is unclear how these currently reconcile with the outcomes funded from the five year price controls.

Recommendation 15**Ofwat should:**

- review regulatory mechanisms to remove disincentives to bulk trading between water companies and, with this model in place, look at what new infrastructure is required;
- allow the funding required, on a commercial risk basis, to construct the Thames Tideway Tunnel to reduce sewerage discharge into the Thames; and
- explain more transparently how each five year price control period's programme fits with Thames Water's 25 year strategic direction statement and its statutory water resource management plan.

Much of London is on a flood plain. The risk of tidal flooding in London is mainly managed by the Thames Barrier, and the Environment Agency's work suggests that this will provide sufficient protection through to 2070. Planning Policy Statement 25 sets out the mitigation measures to guard against local flooding which new development must take. This typically requires the provision of flood compensation storage which, in London, is very expensive.

Recommendation 16

The Environment Agency should adopt a more flexible approach to dealing with flood risk mitigation from new development in London in order to deliver high flood resilience at lowest long term cost.

Waste

The planning system can be an important barrier to the provision of capacity to meet London's waste disposal needs. While the Mayor has the power to take over applications for waste facilities that treat over 20,000 tonnes of waste per annum, affect more than one borough and are of strategic interest, this would not necessarily cover the smaller scale waste from energy facilities that he wishes to encourage through his waste strategy.

Recommendation 17

The reluctance by local authorities to grant planning permission for waste facilities increases the costs of their development and undermines the Mayoral strategy of London becoming self-sufficient in waste disposal by 2031. Planning powers for waste in London therefore sit best at the Mayoral level and the referral threshold for planning applications for waste treatment facilities should be reviewed and reduced to support the development.

London's transport

London's transport infrastructure is struggling to cope with current peak demand and this problem will be compounded by population growth. Meeting this capacity challenge requires a combination of greater investment, changes in policy and improvements in efficiency, supported by increased transparency.

Transport for London (TfL) should be reformed to ensure a clearer and consistent delineation between its client and delivery functions. The Mayor, as the elected representative of London, should not be the defender of TfL's operations but, rather, its overall client. He should set overall strategic policy which it is TfL's role to implement, either by delivering services directly or commissioning services effectively. The Mayor should be the unambiguous champion of Londoners' interests.

Recommendation 18

London's underground

The tube is vital to London. Over half (56% in 2008) of people entering central London during the weekday morning peak, 7am to 10 am, use the underground. Modelling developed by TfL estimates that 47% of commuters travel in crowded conditions in the morning rush hour. Without investment in modernisation, the tube will be unable to cope with the growth in demand.

The fundamental challenge in getting the tube network to deliver the outputs that London needs is that, unlike the privatised utilities, it is not self-funding. The revenue from consumers does not meet the total costs of provision and thus public subsidy is required. There are good public policy reasons why this should be the case however the reliance on subsidy (which until the creation of the tube public private partnership (PPP) was generally determined on an annual basis) has led to a necessarily short term approach to investment planning and delivery. This has resulted in a significant backlog of maintenance work and a pressing need for capacity improvements.

Significant public investment in the underground will remain necessary for the foreseeable future. Key priorities in the medium term are the underground capacity upgrades agreed in the tube PPP and Crossrail. Looking beyond those, detailed planning work should begin now on further medium to long term projects to increase capacity in line with forecast growth in demand, including Crossrail 2.

Recommendation 19

Following the collapse of the tube PPP, the best features from this model – namely greater transparency, independent scrutiny and certainty over long-term investment and outcomes – need to be incorporated into a new structure, drawing on the experience of other sectors.

Recommendation 20

The transparency and efficiency of London Underground would be improved by governance reforms to create a Regulated Asset Base model, overseen by an economic regulator. While this would not provide additional funding for the underground, it would set out clearly, for the medium-term, the level of resources required based on independent verification of capital and operating expenses. It would thus provide a solid platform for London to argue its case to the Treasury for investment – or to make the fare increases or service provision cuts – necessary to keep the system functioning.

Rail

Much of London's commuter rail network is now operating at capacity in peak hours. The capital needs additional capacity to tackle existing overcrowding and, critically, to support future growth. However, existing projects will not in themselves sufficiently address the capital's transport needs over the coming decades. In the light of current spending constraints serious consideration needs to be given to the prioritisation of Network Rail's spending programme on lines, trains and stations for the current and next five year control periods. The Department for Transport (DfT) is currently reviewing the rail franchising model.

Recommendation 21

The Mayor should engage with the DfT and train operators to ensure that any reforms to rail franchises and structures, and future investment programmes, reflect London's priorities of rail services which meet rising demand, are more responsive to passengers' needs, and perform safely and efficiently. The DfT should be placed under a statutory duty to have regard to the Mayor's views on franchise specifications and his willingness to pay for additional services and, as with the economic regulators, either act on his proposals or explain why not.

Roads

London's 13,800km of roads serve two equally important functions: they enable people and vehicles to go about their business; and they are conduits for other infrastructure, with water, energy and IT infrastructure running beneath them. Fundamentally, London's roads lack the capacity to meet demand; and, even were funding no object, it is generally impracticable to provide significant additional new capacity. Accordingly, we see two principal areas for action to improve travel on London's roads, both of which would be supported by allocating responsibilities in a more coherent way. The first is better management of the existing road network, the second increased demand management through road pricing.

The Mayor's Transport Strategy needs to have a more proactive and realistic approach to network management in the context of the growing demands being placed on roads. This includes greater transparency about future demand and its projected impact on congestion, together with a clearer process for assessing and choosing between competing options for utilising scarce capacity, recognising the equal importance of roads as conduits for utilities infrastructure.	Recommendation 22
TfL's essential role should be as strategic commissioner of services on the road network; as part of this TfL should explore the scope for securing further service improvements and efficiencies through long-term integrated network management contracts.	Recommendation 23
TfL's responsibility should be extended to the whole of London's strategic road network and the Mayor and London boroughs should be given greater powers from central government over traffic control and signs.	Recommendation 24
TfL and London's boroughs should devote more resource and give a higher priority to detailed measures to improve traffic flows, including more active management of traffic lights, better management of road works and more support for freight consolidation.	Recommendation 25
In the medium to long term, a more sophisticated system of demand management, extending beyond the central London congestion charge zone, should be implemented.	Recommendation 26
TfL should consider targeted tolling schemes as a means of relieving congestion and supporting investment in additional capacity.	Recommendation 27

Maximising the use of scarce resources

Against a backdrop of tough public expenditure constraints it is doubly important that everything is done by TfL to maximise its output from its resources.

Exploiting assets more effectively

TfL should consider placing all of its property assets in a new body, Property for London, to enable a more focused and vigorous management drive on efficient asset utilisation.	Recommendation 28
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Recommendation 29

TfL should undertake a systematic assessment of its small scale and operationally self-contained transport assets. In each of these cases an assessment should be made of the relative benefits of public as against private sector ownership on key issues such as long-term asset management and investment, day-to-day operations and financing costs – as well as taking into account the potential value of any sale receipt.

Managing demand

Recommendation 30

Building on recent initiatives to encourage travel alternatives and spur innovation by making its data publicly available, TfL should support initiatives to take pressure off its congested networks at peak, such as low cost cycle infrastructure, better local travel information and tailored travel advice for local residents and businesses.

Recommendation 31

TfL should take advantage of the greater cost transparency and flexibility provided by smartcards to use its tariff structure more efficiently to shift demand when its networks are operating at, or beyond, peak capacity. This may in time require more sophisticated technology to be deployed.

Prioritising services

A number of TfL services have expanded significantly by increment over recent years.

Recommendation 32

TfL should implement a transparent process to review the scope for scaling back on lower priority requirements on public transport service quality, frequency and coverage, to optimise services and costs.

Fares and concessions

Recommendation 33

The overall level of subsidy across TfL's operations is unaffordable in the current economic climate and would arguably be less necessary in a more efficient operational and investment model. The Mayor should continue to increase fares in real terms on the underground linked to a suitable affordability measure, such as real earnings growth, and should align London bus fares more closely with those of other UK cities. Similarly, the Mayor should review the structure of London's fares and concessions to strike a better balance between social equity and transport efficiency.

Changing TfL's culture over the medium term

TfL's savings programme has doubled since its previous Business Plan, with £1.3 billion in savings now assumed to 2011-12, and more than £5 billion in total over the period of the Plan. This is welcome and should be accompanied by greater transparency.

The current lack of transparency or independent scrutiny of TfL's operations makes difficult any firm assessment of the scope for further efficiency gains. However the privatisation and subsequent regulation of UK utilities has revealed that substantial efficiencies can be realised from large, public sector monopoly service providers with many characteristics similar to TfL.

TfL should put mechanisms in place that provide greater transparency over its efficiency programme and that monitor actual progress being achieved.

Recommendation 34

The Commission welcomes the recent creation of the Independent Investment Programme Advisory Group which will provide an independent, impartial source of expert advice to the TfL Board on all aspects of the delivery of the TfL investment programme. However, we see this as a first step.

Building on the recent creation of the Independent Investment Programme Advisory Group, TfL needs to take further steps to increase transparency and comparability within TfL. This includes: independent benchmarking; reformed project and risk management; and a revised approach to procurement, service standards and specifications; to secure safe and efficient world class operations, assets and services.

Recommendation 35

CHAPTER 1

Introduction

Context

Infrastructure – by which we mean water and sewerage, waste, transport, energy and telecoms – is essential for London to work. It allows lights to go on, computers to work, water to come out of a tap, people to move about and the city to function. It provides the underpinnings for successful commerce, the foundations for improved productivity and is a critical component of London’s global competitiveness.

London First’s members have expressed concerns that London’s infrastructure is not adequate for a world city – views which a number of studies have reinforced. For example the Institution of Civil Engineers (ICE) produces an annual state of the nation briefing on the UK’s infrastructure, which this year stated that London’s infrastructure “is at its limit”.¹ The ICE goes on to say that “sources of funding are scarce and there are a number of urgent challenges to address, including an historic underinvestment in infrastructure, a growing population and the transition to a low carbon economy.” Accordingly, this Commission was established, with a public call for evidence, at the start of 2010.

The challenges are clear. London is home to 7.6 million people and acts as the heart of a wider South East region of around 21 million. The UK’s government is in London, as are the headquarters of major private corporations, and it is a world centre for trade and commerce, media and culture. London is set to grow, with the Mayor forecasting a population increase, driven by demographic trends rather than economic migration, of over 1.3 million by 2031 which will create 790,000 new households and 750,000 new jobs.² This increase will place further pressures on what is often already stressed infrastructure:

- by 2026 public transport demand is expected to increase from 10 million daily journeys to 12.8 million daily journeys, with a 30 per cent increase during peak hours;³
- Transport for London (TfL) forecasts an increase of 40 per cent more rail trips per day into and around London by 2025;⁴
- road congestion is likely to rise by 17 per cent by 2031;⁵
- demand for water in the South East is forecast to rise, with Thames Water planning to meet an increase of around 12 per cent in demand in London by 2035;
- the amount of waste London produces per annum is forecast to rise by at least 55 per cent to 34 million tonnes by 2031;⁶ and
- by 2025 the UK will need to increase electricity generation by 47 per cent to meet demand.⁷

A recent report by think tank Policy Exchange estimated that the UK would need to invest around £500 billion in infrastructure over the next decade.⁸ The Government's National Infrastructure Plan plans for UK infrastructure investment to be some £200 billion over the next five years. To put this in context, in the last five years an estimated £150 billion has been invested, predominantly by the private sector, according to Infrastructure UK (IUK), the body created by HM Treasury to advise government on the UK's long-term infrastructure needs. The Office of Fair Trading recently announced a stock-take of the ownership and control of economic infrastructure across the UK, which it intends to complete in autumn 2010.⁹

London already has substantial investment programmes in train: Figure 4 in Chapter 3 sets out some of the main planned private sector investments, while for the public sector, the recent Comprehensive Spending Review (CSR) confirmed continued funding for Crossrail and the tube upgrades. But more will be needed.

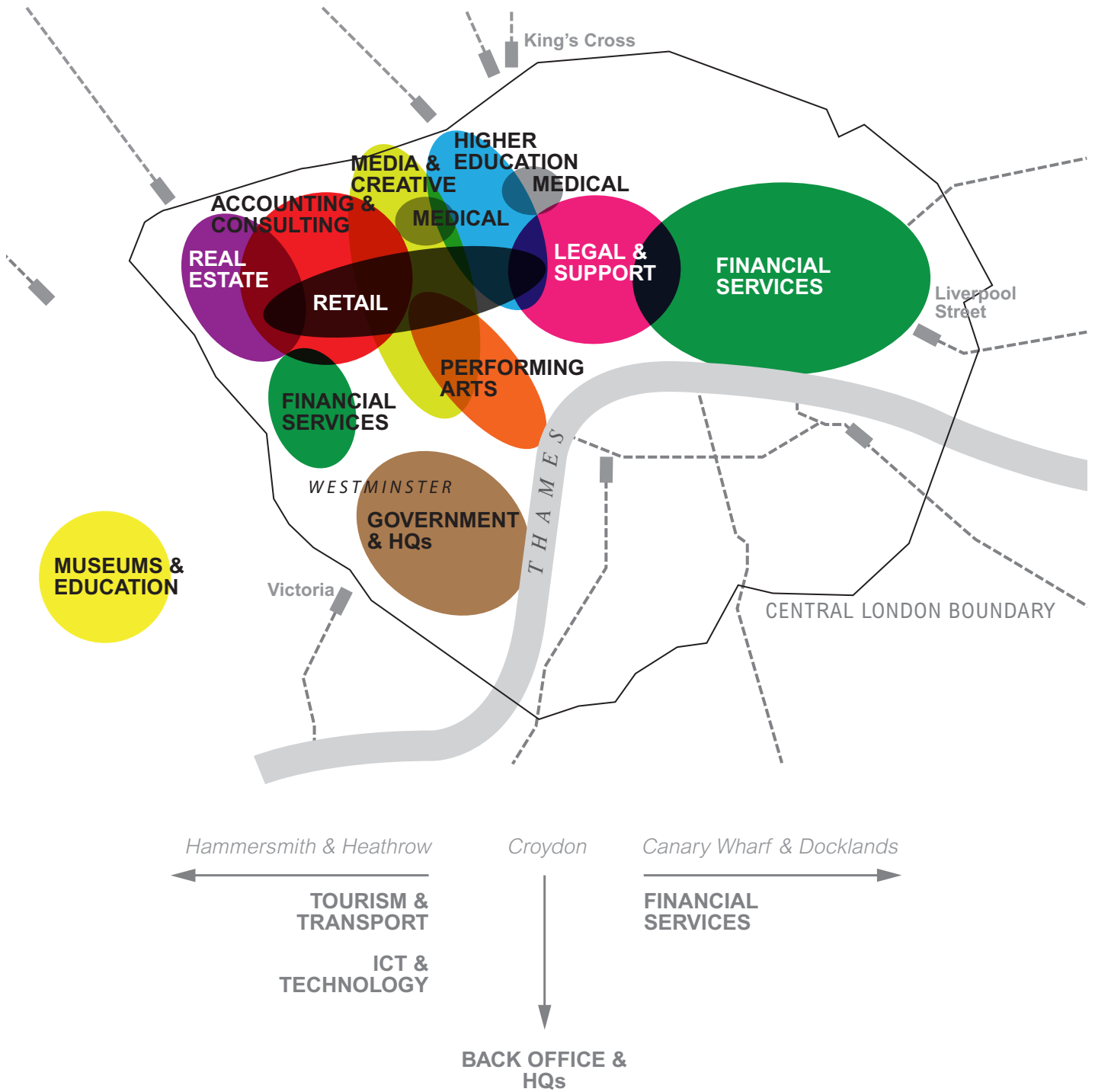
Infrastructure and competitiveness

London has much in common with other UK cities, and there are a number of recommendations within this report which have wider applicability to national public policy. However London also has distinctive characteristics. Foremost amongst these, from the perspective of infrastructure needs, is the uniquely dense concentration of economic activity in the centre of London. Around 30 per cent of all of London's employment occurs in the centre and two London councils, the Cities of Westminster and London, between them account for over four per cent of the UK's GDP¹⁰, while inner London contributes around 14 per cent.¹¹

The economic benefits of this concentration and the clustering of different business sectors around the city, as illustrated in Figure 1, are known as agglomeration benefits, and include:

- labour market pooling, which draws both human capital and firms demanding labour;
- increased communication flows, creating better co-ordination of economic activities and creating conditions that are conducive to knowledge-based economic activities; and
- reduced costs of transportation.¹²

Figure 1. Business clusters in London



London has high levels of productivity: most industry clusters are around a quarter to a third more productive in London when compared to the UK average for that industry¹³. Inner London has the largest GVA per head at £52,857; the UK average is £18,945.¹⁴

The economic activity in central London supports economic activity across the country; in 2007 London purchased goods and services worth approximately £123 billion and sold £130 billion to the rest of the country. London is the gateway to international investment in Britain and contributes more in tax than it receives in public spending by a margin of between £14 billion and £19 billion a year.¹⁵ And of course much of the infrastructure investment that takes place in London – in trains or signalling for example – supports manufacturing elsewhere in the UK.

Critically, London's principal competitors as a location for economic activity are other world cities. Poor infrastructure which undermines London's competitiveness will lead to new investment and jobs going overseas, not elsewhere in the UK. Maintaining the infrastructure which enables London to deliver its high level of agglomeration benefits is vital to maintaining its competitiveness and to the prosperity of the UK's economy as a whole. This is not to discount the contribution or needs of other UK cities. It is simply to recognise that London's size and concentration of economic activity presents particular infrastructure challenges.

Approach

This report seeks to look at how London's infrastructure will continue to support its status as a world class business location and driver of the UK economy. Our approach is to seek the right level of provision: balancing the costs with the capacity, reliability, quality and resilience that a world city needs. In doing so we are conscious that London is a densely populated city where the costs of disruption are high and the impact of legacy systems – for example narrow tunnels in the underground built for steam trains – often constrain options today. However while these constraints can be substantial, we believe that we can do much better in driving value from our legacy systems and a number of recommendations below relate to improving efficiency, coordination and management.

Some parts of the infrastructure on which London relies, such as major electricity generation, gas supply or airport capacity, are determined and provided nationally for the country as a whole. While this report has regard to these essential pieces of infrastructure, it focuses on those networks and services that principally serve the city. We make little comment on either gas or communications infrastructure provision in London as few substantive concerns were raised through our consultation process.

The previous Government established, and the present Government has reaffirmed, stretching statutory greenhouse gas reduction targets, whereby the UK will cut its emissions by at least 80 per cent by 2050 relative to 1990 levels. The Government is putting in place the practical measures which will support meeting this goal. As these emerge, the Mayor will have a critical role in ensuring that London plays its part: through those areas where he directs services, notably transport; through his regulatory powers in planning; and through his powers of exhortation. London must be in the vanguard of world cities in driving sustainability programmes which support competitiveness; and policies around infrastructure investment and operation will have a key role to play in ensuring that this is the case.

London's infrastructure is overseen by several central government departments; and sector-specific economic regulators for water, energy, telecommunications and rail; and delivered by a range of private sector businesses and public sector agencies, as Figure 2 below sets out. Each actor has its own priorities, investment plans and timescales and the level of coordination between policy formulation, economic regulators' decisions and delivery, within and between sectors, is variable.

The Commission's approach to navigating through this complexity has been to begin with a call for evidence which resulted in written evidence¹⁶ from nearly 50 parties (which is published on London First's website¹⁷), followed by evidence sessions with 15 expert witnesses, roundtables with the main economic regulators and discussions with a number of London First members at the beginning and towards the end of the process. Appendix 2 contains further detail.

The Commission has sought to make recommendations to strengthen London's infrastructure. Chapter 2 looks at generic issues around infrastructure planning and provision. Chapter 3 considers the infrastructure provided by the private sector – energy, communications, waste, water and sewerage – while Chapter 4 looks at transport, the principal area of public sector provision.

Figure 2 London's infrastructure

Sector	Government department	Regulator	Type	
ENERGY	Treasury / Infrastructure UK	DECC	Ofgem	Electricity – <i>generation</i>
			Electricity – <i>transmission</i>	
			Electricity – <i>distribution</i>	
			Gas – <i>transmission</i>	
			Gas – <i>distribution</i>	
WATER / WASTE		Defra, Environment Agency	Ofwat	Water – <i>potable</i>
				Water – <i>foul*</i>
			n/a	Waste – <i>including recycling</i>
TRANSPORT		DfT	n/a	London Underground
			n/a	DLR, Croydon Tramlink
				London Overground
			ORR	Rail
			n/a	Roads
			CAA	Air
			n/a	River services
ICT	DCMS, BIS	Ofcom	Telecoms – <i>wired</i>	
			Telecoms – <i>wireless</i>	

*Responsibility for drainage currently rests with many agencies, including Thames Water, the London boroughs (for land drainage and the local road network), Transport for London and the Highways Agency (for

Ownership	Market features
Various in and around London, including EDF and EON and renewable projects	Monopoly networks (with some competition where new build) regulated through five yearly price controls which, inter alia, determine the level of investment in networks. Competitive generation market – shaped by regulator/government market structure decisions eg low-carbon and security of supply
National Grid	
UK Power Networks (as of 1 Nov 2010)	
National Grid	
Principally Thames Water with some water-only companies	Integrated monopolies for most users, regulated through five yearly price controls which, inter alia, determine investment programme.
Private and councils for domestic waste	The London boroughs responsible for domestic waste collection and disposal
TfL, owned and operated	Central government grant to TfL and user charges
TfL owned	Central government grant to TfL and user charges. TfL contracts out operations
TfL, owned and operated	Central government grant to TfL and user charges
Network Rail	Not for profit owner and operator of national rail infrastructure, funded primarily through government grants and access charges paid by the train operating companies (TOCs) (who also receive some public subsidy). 5 year control periods with outputs specified by Government and funding agreed by the Office of Rail Regulation (ORR). Rail stations in London are either owned by TOCs, Network Rail or TfL.
Highways Agency – own and manage motorways and trunk roads	Largely publicly funded with some user charging (congestion charge, fines). Effectively the network infrastructure for private vehicles, bus services, taxis, cyclists.
TfL – own and manage Transport for London Road Network (580 km of red routes) and have a network management duty for the strategic road network	
London boroughs – own the Strategic Road Network (500 km of roads that are strategically significant) and own and manage all other roads	
BAA (Heathrow and Stansted), Gatwick, Luton, City and private airports (such as Biggin Hill)	Airports in the London area largely privately owned, and subject to varying levels of price regulation depending on market power
Private companies	Activity is overseen by Port of London Authority, with TfL playing a coordinating role over passenger services provided by private companies
BT Openreach, Virgin Media and others	Competitive service provision, liberalised infrastructure provision with regulation of legacy networks in fixed; competitive but spectrum constrained licensed networks in mobile.
Mobile phone network operators	

for their road networks) and private landowners. No one agency is responsible for reporting or recording surface water flooding.

CHAPTER 2

Planning for
long-term
infrastructure
investment

Joined up policy

Infrastructure assets tend to have very long lives, be expensive to develop and, thus, require a combination of planning and revenue certainty to support their operation, renewal and enhancement. In the UK, there are essentially three forms of provision:

- privately provided monopoly network infrastructure, which is subject to economic regulation and effectively guaranteed a return when efficiently provided;
- privately provided infrastructure which is subject to market and policy risk; and
- publicly provided infrastructure, principally for this report in London's transport.

As set out in Chapter 3 below, the Commission believes that the provision of network infrastructure by the private sector has broadly been fit for purpose, with the significant caveat that the national regulatory frameworks have not always taken sufficient account of long term investment needs and central London's distinctive economic characteristics, as described above.

However there can be a disconnect between wider public policy objectives and the detailed frameworks which underpin infrastructure provision by the private sector. An example is the tough targets set out by government for carbon reduction. These have not been accompanied by detailed guidance for regulators, in the case of network infrastructure, with the consequence that there has not been the right incentive to support private sector investment.

Similarly, there has not been the detailed policy certainty to support private investment in infrastructure subject to market and policy risk. A good example is electricity generation, where credible commitments over the long term to measures such as carbon pricing are required to support private investment in new, efficient low carbon generation capacity. Co-ordination failures have similarly delayed the introduction of electricity smart meters and smart grid technology¹⁸, despite widespread agreement about their desirability.

Indeed a common theme that emerged from the Commission's evidence-gathering process was the need for greater co-ordination within government over its longer term infrastructure priorities and for better engagement with the private sector. Much of the investment in UK infrastructure is undertaken by international businesses which have a choice of markets and projects for their scarce capital, and they will naturally choose those jurisdictions with effective policy frameworks which provide certainty over the longer term over jurisdictions which do not.

Private sector investment in infrastructure subject to market and policy risk requires greater policy certainty from government. This requires clear up-front statements of government policy in key strategic areas, better coordination within government and more rapid implementation of the detailed policy frameworks which can provide the certainty and longevity which the private sector needs to make the business case for infrastructure investment.

Recommendation 1

We welcome the recent establishment of Infrastructure UK (IUK) by HM Treasury. IUK's role is to advise government on long-term national infrastructure needs and provide commercial expertise to support major projects and programmes. It will look across all key infrastructure networks, in both the public and private sectors, to identify and address key cross-cutting issues. It is also responsible for: identifying and attracting new sources of private sector investment in infrastructure; supporting HM Treasury in prioritising the Government's investment in infrastructure; and helping to build stronger infrastructure delivery capability across government.

The Government recently published a National Infrastructure Plan setting out its broad vision of the infrastructure investment required to underpin the UK's growth. The Plan provides an analysis of key infrastructure challenges, describes the specific policy and regulatory changes the Government is proposing in order to remove barriers to infrastructure investment, and identifies key investments in individual sectors.

The Commission welcomes the establishment by government of Infrastructure UK, which has the potential to play an important role in meeting the objectives set out in Recommendation 1 above, and its publication of the National Infrastructure Plan. The utilities' economic regulators should have a statutory duty to have regard to the Plan when conducting their periodic reviews and to set out clearly their reasons if they do not comply with its timescales or objectives.

Recommendation 2

Improving land use planning policy for infrastructure

Complaints about the UK's planning system, in particular the high transaction costs, have in recent years been voiced frequently by businesses and by a range of independent commentators. Planning consistently ranks as one of the main concerns of companies looking to invest in UK infrastructure. It has also been cited by the OECD as a drag on UK productivity.¹⁹

Independent reviews of planning and transport by Kate Barker and Rod Eddington recommended reforms to the planning system for major infrastructure projects, which were taken up by the previous Government through the Planning Act 2008. The Act included: the creation of National Policy Statements (NPS), to set out national policy on a particular area of national infrastructure; a definition for Nationally Significant

Infrastructure Projects (NSIP); and the introduction of the Infrastructure Planning Commission (IPC) to speed the process of reviewing NSIP.

The Government has set out its commitment to a planning system for major infrastructure which is “rapid, predictable and accountable”.²⁰ To this end it has made two major commitments. First, to abolish the IPC and return planning decisions regarding major infrastructure projects to Ministers in order to maintain democratic accountability. The IPC will be replaced by April 2012 with a Major Infrastructure Planning Unit which will form part of the existing Planning Inspectorate. Second, NPS will be subject to more detailed parliamentary scrutiny.

Not all infrastructure that is important to London is sufficient in scale to be captured by the NPS framework. The Government is planning a radical restructuring of local planning policy which may involve both a reduction in the right to appeal over local planning committee decisions and a rebalancing of the planning powers from the Mayor of London to the London boroughs. We are concerned that both of these moves could make it more difficult in practice to gain permission for facilities of London-wide importance likely to be unpopular with some local residents.

Recommendation 3

The Government must ensure that its reforms to national and local planning frameworks for infrastructure maintain timeliness and predictability for infrastructure providers as well as improving democratic accountability.

New approaches to financing and funding infrastructure

Utilities investing in network infrastructure via the regulated asset base model (RAB – see Chapter 4.1) appear generally to be able to finance their investment programmes which, over time, are funded by their customers. Indeed their regulators have a statutory duty to enable the providers to finance their functions. The constraint on public infrastructure provision is the overall spending envelope determined by Government and the priority that infrastructure spending has therein.

However as noted above, private infrastructure outside regulated networks is subject to policy and market risk, and these are often risks that the market cannot price. As Recommendation 1 sets out, the right way for Government to tackle this problem is to provide the policy certainty which will enable the market to price the risks.

There may be areas where the Government determines that there are wider social benefits from infrastructure provision which the market would deem too risky given expected returns. Where this is the case, the Government can either provide some form of direct subsidy, as debt, equity or grant, which reduces this risk or can put in place policy measures which create subsidy from the network utilities’ customers.

The Commission welcomes action by Government to reduce the policy risks that the market cannot price. Where market risks remain, which deter investment that Government believes is justified in terms of social benefits, Government should provide transparent and targeted subsidy, either directly or via network utilities.

Recommendation 4

Another way of financing infrastructure that has been mooted by a number of bodies, including the Mayor of London, is Tax Increment Financing (TIF). In essence, TIF involves forward funding the infrastructure that an area needs to develop through raising debt which is then repaid by the increased tax receipts which flow from development. It has proved a successful mechanism for supporting regeneration in the United States.

In the UK, local authorities do not retain the increased tax receipts which flow from development. Locally collected taxes, business rates and the council tax, are set nationally and pooled in the case of business rates or, in the case of council tax, increases in the local tax base lead to reductions in government grant. Other taxes that will result from successful development, such as income tax, corporation tax and VAT, are collected nationally.

The Government has proposed that local authorities (in London the boroughs) should in future be allowed to retain the receipts from council tax and business rates for new development for an initial period of years. It has also announced that local authorities will be given new borrowing powers to undertake TIF so they can borrow against predicted growth in these locally raised business rates. This will require legislation.

Calculations of current revenues from an area, receipts post-investment in infrastructure and the funding stream that this creates are innately subjective. While some TIF models do involve risk transfer to the private sector, so that the infrastructure provider receives the incremental tax revenues to repay their investment, many rely on a local authority committing to meet the funding costs of up-front financing irrespective of the actual revenues generated. This latter approach would require a change in the way in which UK local authorities are funded which is currently very reliant on central government funding and with tight controls on borrowing.

The forthcoming review of local government finance should explore creating the flexibility for local authorities to finance infrastructure improvements through new mechanisms such as TIF.

Recommendation 5

Although not a major focus of this report, the Commission was struck that in London decisions about public expenditure on infrastructure investment are not taken in such a way that the costs are borne by the people who benefit. Of the overall Greater London Authority (GLA) budget in 2010-11, some £14 billion, 50 per cent is from government grants, 40 per cent from charges (principally

from transport) and just seven per cent from local taxation, the precept levied on the Council Tax (the balance, three per cent, is from reserves). This is much less than in other world cities: in Tokyo only eight per cent of the city's budget comes from central government grant, while the much larger New York City budget is also largely locally raised, as Figure 3 below sets out for 2009.

Figure 3: Financing the Mayoral Budgets of New York and London

	Mayor of New York	Mayor of London
	£m	£m
General property tax	9,705.6	919.1
Other taxes	14,833.1	0
Other income	5233.8	5011.7
State grants (NY only)	8116.9	0
Central / Federal Govt grant	3778.9	6300.9
TOTAL	41,668.3	12,231.7
% funded by Central / Federal Govt grant	9.1%	51.5%

Source 2009 Budget Plans (Assumes Dollar to Sterling Rate of 1.42)

Thus, Londoners pay taxes to central government which are part-recycled back in grants to London government, sometimes decided on an annual basis, and often accompanied by restrictions on how they are spent. As noted above, in total tax terms, London's net contribution to the exchequer is c.£14-£19 billion per annum.

The reliance of London government on central government grant undermines its ability to plan and fund investment in the city's infrastructure. One consequence is that investment strategies for London are often bidding documents to central government, rather than settled plans which represent London government's views of the right balance for Londoners between tax and investment.

The Crossrail funding model is interesting in that it brings together a number of sources of funding and financing. Most notably in terms of alternative funding mechanisms it includes a supplementary business rate on larger London businesses of two pence in the pound for approximately the next 30 years. This approach was largely welcomed by London business, which is broadly supportive of the principle that tax and spending decisions should be better aligned. For the foreseeable future, however, Crossrail consumes the additional contribution that could reasonably be made through a supplementary business rate.

Tax, spending and decision making for London should be aligned. The Government should give the Mayor flexibility over how he spends the grant he receives, so that he is able to direct his resources to meet the priorities of London rather than central government. The Government has announced a review of local government finance and this should explore ways of rebalancing the tax system so that central government raises less in tax from London, with the Mayor raising more of his own resources in a manner that is transparent and equitable between London's residents, visitors and businesses.

Recommendation 6

London-wide strategic planning

Re-establishing a London-wide tier of democratic government, through the GLA, led by the Mayor of London and scrutinised by the London Assembly, has led to a step-change in the quality and accountability of strategic planning for the capital since 2000.

The Mayor currently is involved in London's infrastructure delivery in four principal ways: the London Plan, the long term spatial development plan for London which sets strategic planning policy for the city (see box); his transport strategy and control of the principal delivery agency, TfL; his other relevant statutory strategies where he possesses a mix of powers and resources, such as the economic development strategy (EDS); and through his powers of exhortation, lobbying providers and policy-makers.

A number of points were made to the Commission about lack of coordination between the Mayor's plans and those of the utilities; and between the separate utilities in London. We believe the Mayor's role in coordinating city-wide infrastructure provision should increase.

The Mayor should play a greater strategic role in the planning and delivery of London's infrastructure:

Recommendation 7

- **first, as a pan-London client in regulators' periodic reviews. The Mayor, given his own regulatory functions of land planning and the role his other strategies play in London's economic development, should be a statutory consultee in the economic regulators' periodic reviews. Given the Mayor's electoral mandate, his views on the levels of provision that London needs should carry particular weight. The economic regulators should have a duty to comply with the Mayor's position, or, if deemed inappropriate, to explain why; and**
- **second, there should be greater coordination between investment programmes in different sectors. The Mayor should make representations on London's overall needs to IUK as it updates its National Infrastructure Plan and IUK should, similarly, have a duty to comply or explain.**

The London Plan

The Mayor has a long term strategic spatial development strategy, known as The London Plan. The Plan is typically revised every four years and undergoes a lengthy public examination process by a planning inspector before it finally becomes public policy.

The London Plan gives a broad indication of the location of anticipated growth and puts in place supporting policies to assist development in those areas where additional infrastructure is likely to be needed. It contains specific policies that focus on infrastructure issues such as water quality, supply and sewerage infrastructure; decentralised and renewable energy; and transport.

These policies support utilities connections to new homes but the plan is not, and is not intended to be, a strategic infrastructure planning document, although it does contain exhortative statements such as, “It will be important for the whole range of utility providers to work together and with the capital’s government to make sure London has the infrastructure it needs, in the places it is needed.”

The next version of the London Plan will, for the first time, be complemented by an Implementation Plan which, amongst other things, will identify wider strategic infrastructure issues that will affect the approach to meeting the London Plan targets. This is likely to be in place in 2012.

CHAPTER 3

Infrastructure
provided by the
private sector

London's energy, communications, water and sewerage utilities moved into the private sector in the 1980s and 1990s. Privatisation was typically accompanied by liberalisation; the supply chains for the sectors are very different but, in general, those areas where competition is practicable, for example in the supply of electricity or telecommunications services, have been opened to competition in the years following privatisation. The network infrastructure the utilities provide, which is typically characterised by natural monopoly (it is inefficient to have competing wires providing electricity or pipes carrying water), is subject to oversight by economic regulators established by statute but operationally independent from Government.

The regulators' role over the natural monopoly infrastructure they oversee is to protect customers from the abuse of monopoly power, either by promoting competition or acting as a proxy for the market. They weigh the proposals from the utilities for, typically, five year periods (Ofgem has recently announced an intention to move to eight year review periods; other regulators might consider the merits of this for their sector) to assess what revenues an efficient operator would need to receive in order to meet those service levels – in terms of quality, quantity and resilience – they deem appropriate, given their interpretation of their statutory duties.

How network infrastructure meets London's needs

The Commission believes that the processes for striking a balance between service levels and prices across regulated networks have broadly worked well and have provided fit-for-purpose network infrastructure. There is due process to determine the balance between affordability – through the prices consumers pay – and outputs, with independent scrutiny of the efficiency with which the two are linked. As a result, there has been substantial investment in the UK and London's infrastructure networks post privatisation.

The evidence we have taken suggests that regulator-sanctioned investment, funded from consumers' bills, can continue to be financed in this way in future. However policy-makers must appreciate that market reforms have the potential to deter investment if investors, who choose to invest in the UK against opportunities globally, perceive them as policy shocks, or they create process uncertainty, rather than carefully planned, communicated and credible changes to current practice. In particular, regulators must carefully weigh demonstrable benefits from market reform initiatives against the risk of triggering covenant breaches in existing finances and prejudicing future fund raising. When considering structural change to markets, regulators must place the maintenance of investor confidence in financing investment at the forefront of their deliberations.

The table below sets out some of the major elements of investment currently planned by the private utilities.

Figure 4: Planned investment by private utilities

	UK	London Projects
Energy	Ofgem price control announcements allow £5.1 bn to be invested in electricity and gas transmission networks in 2007-12, £5.3 bn in gas distribution networks in 2008-13 and £6.5 bn in electricity distribution networks in 2010-15.	EDF had a projected investment programme of almost £2 bn over five years. National Grid has a scheme to build cable tunnels in London. Phase 1 will cost an estimated £600 m.
Water & sewerage	Ofwat's final charges for 2010-15 allow for £22 bn to be invested in England and Wales over the next five years.	Thames Water investment includes: <ul style="list-style-type: none"> • London Ring Main extensions (£90 m) • Mains replacement programme (£650 m already invested so far) • London Tideway Improvements – £1.31bn of works underway, with £3.6 billion for the Thames Tunnel in the longer term.
Waste		Cory Environmental has spent £570 m on their Riverside Resource Recovery facility at Bexley. Veolia has started to build an integrated waste system at Southwark as part of their £665 m PFI with the council. A number of waste to energy plants are being planned for the capital, such as at Dagenham Docks.
Communications	BT is investing £2.5 bn in rolling out Fibre to the Cabinet (FTTC) and Fibre to the Premises (FTTP) services to facilitate the roll out of high speed broadband across the country.	By 2011 95% of London will have access to high speed broadband and 87% will have access to super-fast broadband.

The various regulatory regimes do not always take sufficient account of the unique economic characteristics and core functions of London's central area, or the needs of businesses (in terms of security of supply, resilience and so forth) when determining the balance between service standards and prices. Specific points for individual sectors are set out below.

A common theme is that the efforts which the utilities have rightly put into understanding the preferences of domestic consumers need to be matched by a similar understanding of the service levels that business users want and for which they are willing to pay. If businesses want to pay for higher levels of, say, resilience than domestic consumers, then the utilities and their customers, subject to determination by the regulator, need to establish practical and equitable ways that this can be realised.

Recommendation 8

The utilities need to understand more clearly the service levels that business users in London, particularly in central London, want and are willing to pay for. In conjunction with their regulators the utilities should devise ways in which business users' preferences can be reflected in the outcomes of their periodic reviews.

While the five year review processes have broadly worked well, we believe that they should be accompanied by longer term strategic direction statements, say, for 25 years (which currently exist for water) which fit better with the long lead times required for infrastructure investment. Each five year review process would then have to take the 25 year strategic direction statement into account, measuring progress towards the statement's goals and allowing appropriate investment towards meeting them. These statements will, themselves, change as circumstances change but will give greater certainty to utilities over how to develop and bring forward investment for projects which cross multiple periodic reviews; and will provide greater clarity, and opportunity for challenge, for their customers.

Recommendation 9

Economic regulators should determine long term strategic direction statements for network utilities and each periodic review determination should state how the shorter, typically five year investment programme ties in with this longer term statement.

Areas where London needs change

Electricity transmission and distribution

Currently energy distribution companies are only able to earn a return on new capacity where there is an immediate demand. This works well where growth is uncertain and the risk and cost of making network improvements ahead of need would otherwise be passed to existing consumers. However in central London, where growth is more certain and ad hoc additions to the distribution network are

difficult, time-consuming and expensive, providing capacity in line with forecast demand would support development.

The licensed electricity distributor should consult with central London businesses to establish the level of anticipated demand and establish proposals to build capacity to meet this need on a more integrated, forward-looking basis. Ofgem should establish a mechanism to permit the forward funding of capacity enhancement against reasonable demand forecasts.

Recommendation 10

Similarly, the resilience of the UK's energy networks is uniformly set. Businesses in central London would, our discussions suggest, be willing to pay for a higher level of distribution resilience as the costs to them of an outage would be higher than the average cost for other parts of Britain both in direct terms and, for some businesses, in reputational terms. The US had two major blackouts at the start of the decade: the New York City Comptroller estimated the economic impact of the 2003 blackouts in the North East to cost the city \$1 billion in 2003, while the State of California calculated the loss from multiple large scale blackouts to be as much as \$45 billion over two years in higher electricity costs, lost business, and a slowdown in economic growth. While such calculations are illustrative, they confirm London businesses' concerns that the impact of blackouts on the city's reputation would be substantially greater than their immediate cost.

The licensed electricity distributor should also consult with central London businesses to explore the costs of reinforcing the distribution network to improve resilience and establish the willingness, in practice, to pay for this reinforcement. Ofgem should have regard to this evidence when conducting its periodic reviews.

Recommendation 11

Connecting new customers to London's distribution network is a complex process because of the legacy characteristics of the network and the ad hoc way in which capacity is added. The physical environment and local network characteristics mean that timetables for getting a new connection vary and can be expensive. This can prove particularly difficult for business critical but energy intensive developments such as data centres.

The Key Performance Indicators for electricity distribution should be amended to capture connection metrics from a customer perspective, based on consultation between business and the distribution provider, and subject to determination by Ofgem.

Recommendation 12

The Mayor has a policy for a quarter of London's energy to be supplied via local generation – decentralised energy – from facilities such as combined heat and power (CHP) by 2025. Meeting this target requires generation capacity of around 1800MW, the equivalent to the electricity demand of around two million homes, to come from decentralised energy. The current level of generation is approximately 200MW.²¹ A number of schemes have recently been completed or are in train, for example the Olympic Energy Centre which will deliver 3MW and has capacity for 15MW. London government

encourages decentralised energy by supporting borough-level energy masterplanning (underpinned by a London-wide mapping exercise identifying opportunities and supply ‘anchor loads’), CHP feasibility studies and a £16 million fund to develop and bring forward schemes.

Recommendation 13

We welcome district-wide decentralised energy schemes where they make economic sense, but question whether it is sensible for London to have a distinctive energy policy around electricity generation, with London-specific targets. It is right that the Mayor has a view of London’s energy needs, and what should be done locally both to support carbon reduction efforts and maintain security of supply, but this should be integrated with national energy policy. In this area, as in others, the Mayor’s power lies at least as much in exhortation as in regulation.

Water and sewerage

Decades of underinvestment in London’s water infrastructure by the public sector has led, post-privatisation, to the current large scale programme of renewal and replacement of London’s water mains. The external costs caused by this programme from the impact on congestion of digging up roads are not taken into account by the regulator when setting its price control incentives. As argued below in Chapter 4.3, the utilities should face time-based charges for digging up those strategic roads where road works cause the most congestion. This would provide the utility with an incentive to complete the works quickly. An appropriate allowance for these charges could be included within the periodic review determination. The need for this incentive is particularly acute in the water sector given the level of works.

Recommendation 14

Ofwat should allow within its periodic review determination sufficient revenues to enable an efficient operator to meet permit charges levied by London government, to incentivise the swift completion of road works and thus reduce the road congestion they cause.

The drought experienced in London and the South East in 2006 highlighted the pressure on water resources in the region. There has been recent investment in London to improve security of water supply, notably the Beckton desalination plant which can provide extra water at periods of drought. In the long term, Thames Water considers that a strategic resource is required to meet the future need for water throughout the region and has proposed a reservoir in Oxfordshire as part of its long term water resources plan. This was considered at a public inquiry held in summer 2010.

However, other regions of Great Britain have more than sufficient water to meet their needs. Whilst we recognise that water companies do currently trade water through bulk supplies, we support the current review led by Government and Ofwat to consider options for more collaborative planning of water resources and opportunities for

sharing water resources, and the infrastructure that this would require. Looking at market reform more broadly, Ofwat must ensure that changes to the regulatory system do not undermine investors' confidence or prejudice the industry's ability to finance its substantial investment programme.

Demand management has an important role to play in the sustainable management of water resources, and we note that Thames Water has ambitious targets to increase the number of its customers who have metered supply as opposed to paying a fixed charge based on historic rateable values.

There is a need to improve London's performance in disposing of waste water and it is important that consent is given to the planned Thames Tideway Tunnel, part of the London Tideway Improvements programme, which will reduce discharges of untreated sewage and rain water run-off into the Thames (see box).

Water companies, including Thames Water, have a statutory duty to produce 25 year water resource management plans. However the Commission notes that it is unclear how the outcomes funded from the five year price controls reconcile with these plans.

Ofwat should:

- **review regulatory mechanisms to remove disincentives to bulk trading between water companies and, with this model in place, look at what new infrastructure is required;**
- **allow the funding required, on a commercial risk basis, to construct the Thames Tideway Tunnel to reduce sewerage discharge into the Thames; and**
- **explain more transparently how each five year price control period's programme fits with Thames Water's 25 year strategic direction statement and its statutory water resource management plan.**

Recommendation 15

Much of London is on a flood plain and active management of flooding risk is important to London business. The risk of tidal flooding in London is mainly managed by the Thames Barrier, and the Environment Agency's study TE2100²² suggests that this level of protection will be sufficient until 2070, by which time new measures will be required. The way in which local flooding is managed through water infrastructure is set nationally via Planning Policy Statement 25 which sets out the mitigation measures that new development must undertake; usually through Sustainable Urban Drainage systems (SUDs). SUDs can be difficult and more expensive to implement in London and require long term maintenance, so coordination and flexibility is required to ensure the best local solution is put in place.

The Environment Agency should adopt a more flexible approach to dealing with flood risk mitigation from new development in London in order to deliver high flood resilience at lowest long term cost.

Recommendation 16

London Tideway Improvements

The capital's sewerage network dates from the 19th Century and was designed as a combined system. This means a single pipe carries London's sewage, waste water and rainwater run-off to sewage works for processing. Though the infrastructure is in good condition, increased population and more paved surfaces due to development now mean that the system is operating over capacity, with 39 million tonnes of untreated sewage flushed into the Thames every year through combined sewer overflows, which risks contravening the European Urban Wastewater Treatment Directive. With the London Plan forecasting an extra million people living in London in the next 20 years, a long term solution is required.

Working with the Environment Agency, Thames Water has looked at a number of possible solutions, the preferred option being a package called the London Tideway Improvements, which consists of the Thames Tunnel, the Lee Tunnel and five sewage treatment works upgrades. The Lee Tunnel and sewage works upgrades are underway. The Thames Tunnel, which is estimated to cost around £3.6 billion, will intercept overflows along the length of the Thames, and will transport sewage up to 20 miles from West London to treatment works in East London, in tunnels the width of three London buses.

The Thames Tunnel has in-principle support from Government and is currently subject to public consultation, which will help decide the final route and detailed specifications of the tunnels. Thames Water's target date for submitting the planning application is 2012, with construction provisionally due to commence in 2013 and completion by 2020.

The London Tideway Improvements are of strategic importance to London and the South East, beyond the areas immediately affected during construction. The project will be funded through customer bills, with finance expected from the private sector. Given the size of the project and associated risk, it will require construction and project risk to be allocated where it can best be managed via an investment structure which insulates the core business from any substantial shock.

Waste

Each London borough collects domestic waste and is responsible for its disposal, either directly (12 from the 33) or, in the case of the other boroughs, through one of five regional consortia. The framework for disposal is driven by EU legislation and UK government policy. The historic reliance on landfill outside London is shifting as a result of increasing taxes on this method of disposal.

The London Plan establishes broad policy for the provision of waste facilities across the capital. The location of individual facilities is a matter for the boroughs in their local development frameworks. The Mayor has set out projected levels of municipal and commercial waste and the proportion of it to be managed in London by each borough.²³ Based on this, and the most recent data from the Environment Agency, London is forecast to export 3.5 million tonnes of waste to other areas of England in 2011, falling to 2.6 million in 2016, 1.8 million in 2021, 0.9 million in 2026, with the aim of ‘self-sufficiency’ (no exports) by 2031.²⁴

Taken together, waste collection and disposal in England represent the third largest local government expenditure after education and social care. Costs excluding capital investment are forecast to increase from £3.4 billion in 2010-11 to £4.3 billion by 2014-15.²⁵

As noted in Figure 4 above, there is currently substantial private sector and PPP investment in new waste disposal facilities within London, with further proposals in the pipeline. The transaction costs for large schemes can be high. For example, the energy from waste plant that Cory is developing in east London at Belvedere took nearly eight years to gain approval, with two public inquiries and two judicial reviews, and at a cost of millions of pounds to the company.

The Mayor’s waste strategy supports small-scale waste disposal, in keeping with his strategy for decentralised energy (energy from waste being an important potential source). Such schemes can also face delay and high costs because of the reluctance of local authorities to give planning permission to new sites.

It is unclear from the evidence that we received whether planned capacity will be sufficient to meet London’s forecast needs or there will be a shortfall. However, any shortfall will lead to London’s waste authorities facing higher disposal charges and will thus serve to stimulate further entry. The planning system can be a significant barrier to the provision of such capacity. While the Mayor has the power to take over applications for waste facilities that are of potentially strategic importance - those that would treat over 20,000 tonnes of waste per annum and affect more than one borough - this would not necessarily cover the smaller scale waste from energy facilities that he wishes to encourage.

The reluctance by local authorities to grant planning permission for waste facilities increases the costs of their development and undermines the Mayoral strategy of London becoming self-sufficient in waste disposal by 2031. Planning powers for waste in London therefore sit best at the Mayoral level and the referral threshold for planning applications for waste treatment facilities should be reviewed and reduced to support the development.

Recommendation 17

CHAPTER 4

London's transport

Most transport infrastructure in London is provided by the public sector, largely by Transport for London (TfL), with private companies supplying the buses, taxis and trains which use the networks. (see Figure 2)

The Commission has focused on the transport infrastructure within London – the roads, underground and overground rail services which enable people to move around the city. It has not considered in detail national transport which affects London - such as the motorway network; national rail services (although we note the importance of these to intra London commuting); proposals to build a high speed rail network; and airports, which are largely in private ownership. While Heathrow is in London it is also, as the UK's only hub airport, a national asset and air capacity planning is subject to national determination.

TfL is the strategic transport authority for London, accountable to the Mayor of London. It is responsible for implementing the Mayor's Transport Strategy, providing transport services across the capital and maintaining those parts of the infrastructure which are in its ownership, while contracting with the private sector on other services. In exercising its strategic responsibilities, TfL is often reliant on networks that lie under the control of other entities, such as London boroughs and the Highways Agency for their parts of the road network, and Network Rail and the train operating companies for the rail network.

London's transport infrastructure is struggling to cope with current peak demand and this will be compounded by population growth:

- by 2026 public transport demand is expected to increase from 10 million daily journeys to 12.8 million daily journeys, with a 30 per cent increase during peak hours;²⁶
- TfL forecasts a 40 per cent increase in rail trips per day into and around London by 2025;²⁷ and
- Road congestion is likely to rise by 17 per cent by 2031.²⁸

Meeting these challenges requires a combination of policy changes, more investment and increased efficiency: Chapter 4.1 below looks specifically at the tube, 4.2 at rail, 4.3 at roads, while 4.4 explores ways in which TfL can maximise the efficient use of its resources.

There are however common themes, the most central of which is the need to reform TfL to ensure a clearer delineation between its client and its delivery functions; and to make the Mayor the unambiguous champion of Londoners, not a defender of the provider. The restructuring of the governance of the underground, discussed below, would strengthen TfL's client role by increasing transparency over long-term funding and specified outcomes, while supporting more challenging efficiency comparisons between different delivery units.

Similarly, the recommendations on roads and rail are aimed at focusing TfL on its core client role, while strengthening its ability to secure efficient outcomes. The Commission believes that such measures would not only reveal efficiency savings which could be recycled back into transport services, but would also help to effect a culture change at TfL, shifting its approach from that of a monopoly provider to an organisation focused more on value. Chapter 4.5 considers in more detail the need to change TfL culture in the longer term.

TfL should be reformed to ensure a clearer and consistent delineation between its client and delivery functions. The Mayor, as the elected representative of London, should not be the defender of TfL's operations but, rather, its overall client. He should set overall strategic policy which it is TfL's role to implement, either by delivering services directly or commissioning services effectively. The Mayor should be the unambiguous champion of Londoners' interests.

Recommendation 18

4.1 London's underground

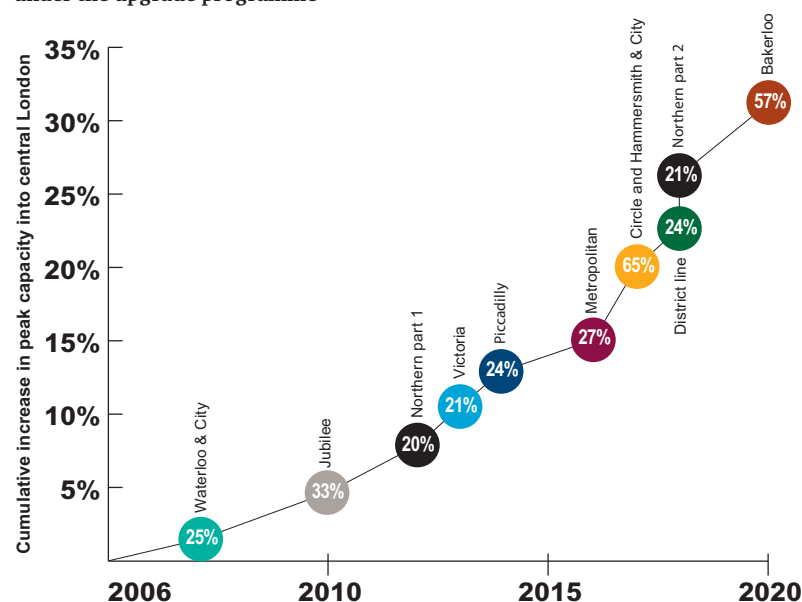
The tube is vital to London. Over half (56 per cent in 2008) of people entering central London during the weekday morning peak, 7am to 10am, use the underground.²⁹ Modelling developed by TfL estimates that 47 per cent of tube commuters travel in crowded conditions in the morning rush hour, 8am to 9am, with almost a quarter of the total travelling in very crowded conditions – the spatial equivalent of four people in a telephone box.³⁰ Without investment in modernisation, the tube will be unable to cope with the growth in demand predicted above.

The fundamental challenge in getting the tube network to deliver the outputs that London needs is that, unlike the utilities covered in the previous chapter, it is not self-funding: the revenue from consumers does not meet the total costs of provision and so public subsidy is required.

We are unaware of any similar underground system that covers its full costs from its fare box revenues, and there are good reasons why governments provide subsidy (typically based on the policy objective of shifting travel from cars to public transport, maximising the utilisation of capacity and the wider economic benefits that flow from the agglomeration of workforces in dense urban areas). The investment in upgrading London's transport infrastructure delivers positive economic returns for the country as a whole.³¹

However the reliance on subsidy, determined on an annual basis for most of the post-war period, has led to a necessarily short term approach to investment planning and delivery, and resulted in a significant backlog of maintenance work and a pressing need for capacity improvements. The figure below summarises the capacity increases of the original upgrade programme and London needs this outcome to be delivered, although it is clear there will be slippage on some of the line timescales.

Figure 5. Cumulative increases in peak tube capacity into central London under the upgrade programme



Note: Circles show percentage increase from 2006 in peak capacity for individual lines

The tube public private partnership (PPP) was set up by Government in 2003 to manage the 30-year investment programme. For a variety of reasons the PPP model proved unsustainable; however its core purpose, namely certainty of public funding for the underground coupled with a medium-term upgrade programme, remains vital.

The tube capacity upgrades and modernisation programme was complemented by the decision in 2007 to proceed with the long-discussed Crossrail project, which will link Heathrow, the West End, the City and Docklands, deliver a 10 per cent increase to London's rail capacity, and add an estimated £42 billion to the economy.³² The Crossrail project's budget is funded principally from a mixture of central government grant to TfL, supplemental business rate contributions from London businesses, borrowing against Crossrail's future fare box, and individual private sector contributions.

The recent spending review confirmed continued funding for Crossrail and the tube upgrades. While these two programmes are essential for London's continued economic success they are not sufficient and further capacity is needed to meet future demand in the period after 2020. Given the lead-times, work in designing this new capacity needs to start now.

Significant public investment in the underground will remain necessary for the foreseeable future. Key priorities in the medium term are the underground capacity upgrades agreed in the tube PPP and Crossrail. Looking beyond those, detailed planning work should begin now on further medium to long term projects to increase capacity in line with forecast growth in demand, including Crossrail 2.

Recommendation 19

Given current spending constraints, it is also essential that London government demonstrates it is taking every possible step to maximise the efficient use of resources in transport provision, including the tube. This is discussed below in Chapter 4.4.

The right structure for the tube

For a variety of reasons the PPP programme did not work as originally envisaged. The two private sector partners, Metronet and Tube Lines, have been acquired by TfL and the whole programme management has been brought in-house. This report's purpose is not to explore why this failure occurred, or to allocate blame, but to seek to make sure that the strengths that the PPP did bring – greater certainty over long-term investment; a clear specification of outcomes; effective independent scrutiny and evaluation of the management of major infrastructure work; transparency of cost and performance information based on detailed metrics; and benchmarking between lines and with rail and underground networks elsewhere – continue under the regime that oversees the tube modernisation work going forward. This remains unfinished business.

In considering the most appropriate future structure for the tube to provide a transparent, efficient and properly scrutinised upgrade programme, the Commission also drew on experience in other sectors. The network infrastructure companies in the private sector typically have a regulated asset base (RAB) which holds the value of their assets, underpinned by an asset register so that the physical condition of assets maps onto their financial value. A similar model applies to Network Rail and Scottish Water who are non-profit distributing.

At each periodic review, the relevant independent economic regulator scrutinises the utility's business plan and determines the efficient levels of investment and operating expenses (having regard to the trade-offs between the two) for, typically, a five year period. Allowed investment is added to the RAB and repaid over time through depreciation, which is factored into the charges the company is allowed to levy on its customers. The company also receives its cost of capital as an annual return on the investment it has made in its RAB. For a more detailed explanation of this model, see box overleaf.

Importing elements of this model to the way the tube is governed would bring important transparency, scrutiny and thus efficiency benefits. In essence, the Mayor would set the outputs that he wanted delivered over the period together with the revenues he would provide (which would include a five-year fare policy). LU would then set out the costs of delivery, based on its operating and capital requirements and these would be independently assessed and benchmarked by an economic regulator as to their efficiency (with the Office of Rail Regulation (ORR) being the obvious candidate). This would provide an evidential basis for considering whether certain operations might be undertaken more efficiently if contracted out. Chapter 4.5 looks further at the benefits of transparent benchmarking of TfL performance.

Given the reliance of the tube network on subsidy provided by central government, there is likely to be a gap between the Mayor's resources and the outputs that he has set. A RAB-based approach will not, of course, provide this cash but it will provide transparency and independent verification to all stakeholders about the choices that have to be made. The Mayor will be under pressure to strike an appropriate balance between service levels and fares; he will have a strong platform to make a reasoned case to the Treasury; and any consequences of under-funding will be clear. The Government recently committed to consider extending the use of the RAB model to other sectors. This review should consider the tube as a priority.

Recommendation 20

The transparency and efficiency of London Underground would be improved by governance reforms to create a Regulated Asset Base model, overseen by an independent economic regulator. While this would not provide additional funding for the underground, it would set out clearly, for the medium-term, the level of resources required based on independent verification of capital and operating expenses. It would thus provide a solid platform for London to argue its case to the Treasury for investment – or to make the fare increases or service provision cuts – necessary to keep the system functioning.

Encouraging long-term investment

Infrastructure businesses are asset heavy and, unlike other businesses, their growth usually occurs through investment in their asset base. Such investment, if successful, will deliver improved asset performance and/ or service reach.

As in other businesses, finite cash means choices need to be made. In the case of infrastructure businesses, this choice is between spending to maintain today's level of service and investing to deliver improved future performance.

Operating expense is spent to operate the infrastructure business today. It includes the cash required to pay for both the day to day costs of running the business (including wages and salaries) and the maintenance expenditure required to keep the network running in reasonable order. Capital expenditure is the cash invested to expand the scope of the network, or improve its future performance, for example through quality and reliability of service. Hence, the benefits of capital expenditure predominantly accrue in the future. The balance between an infrastructure company's operating expense and capital expenditure determines the balance between short term efficiency and long term investment.

Severe funding constraints can force management to treat capital expenditure as optional and, where budgets are reduced, longer term investment will thus be deferred. This approach is unlikely to be in the best interests of the wider community because management will focus less on the underlying efficiency of the business and the value of its assets. As the value of the infrastructure asset depreciates, a progressively greater proportion of capital expenditure will need to be spent on maintenance, rather than on growing the network.

The sounder approach is to recognise the importance of cash earnings to an infrastructure business, whilst also protecting its long-term asset value. To encourage this approach, the existing infrastructure asset base needs a value ascribed to it. That value is reduced by depreciation of the infrastructure asset in use and, conversely, increases in value as capital expenditure is invested in the asset base. Private sector infrastructure businesses operate in this way: they have a regulated asset base and/or a balance sheet upon which the current holding value of the infrastructure asset base sits. This creates a very strong incentive for the business to protect, or at least to take into account, the value of the existing asset when making short term trade-offs between capital expenditure and operating expense. It also provides a strong incentive to reduce costs to maximise operational efficiency.

The creation of an asset valuation for infrastructure companies in this way changes the behaviour of the business owners and can help to maximise the use of resources in the longer term. It is good for the business and for the wider community.

Such an approach would help generate clear public commitments on outcomes so that passengers know which upgrades are happening and when. It would also bring greater transparency and accountability to decisions about line closures. At present TfL faces competing operational and policy pressures in delivering its upgrade programme. Operationally its task is clear – to run a safe, reliable railway, undertaking maintenance and renewal work efficiently and with minimal disruption. However, the scale of the upgrade work is such that the disruption from line closures is inevitably widespread and significant. Choices about the pattern of closures – which sections of line to close, when, and with what frequency – are essentially distributional ones, more suited to an elected politician. TfL should provide the Mayor with advice on options for line closures on which the Mayor, as client, would then make a decision, taking account of wider externalities such as the impacts on groups of individuals and businesses.

4.2 Rail in London

Since privatisation, passenger rail services in Britain have largely been operated by private sector Train Operating Companies (TOCs) through franchises containing specifications set by the public sector. These franchises are generally let and managed by the Department for Transport (DfT), though the Mayor of London also has a role. The rail infrastructure is largely owned and operated by Network Rail.

London is the origin or destination for around half of all rail journeys in Great Britain (with over a third occurring entirely within London).³³ Rail's role in moving commuters to and from London is closely tied to the tube: in the morning peak 45 per cent of all rail journeys in the capital involve transfer to the underground or Docklands Light Railway (DLR).³⁴ Rail is proportionately more important in outer London than other parts of the capital, especially for south London where there is less tube coverage.³⁵

Much of London's commuter rail network is now operating at capacity in peak hours. Indeed, in 2008 a third of trains arriving into London during the morning peak (7 – 10am) were at or above their designated capacity; between 8 – 9am this rises to one in two.³⁶

The fundamental challenge facing rail is similar to that on the tube – the capital's urgent need for additional capacity to tackle existing overcrowding and, critically, to support future growth. There is then an important secondary challenge to ensure that the trade-offs and interfaces between different commuter and inter-urban rail services are made and managed sensibly and that there is effective integration of ticketing between national rail and TfL services.

On capacity, the Thameslink programme has the potential to make a major contribution to north-south commuter services into and out of London: by 2012 it could increase capacity by 50 per cent through longer trains and more services during morning and evening peaks.

However, existing projects will not in themselves sufficiently address the capital's transport needs over the coming decades. In the light of current spending constraints serious consideration needs to be given to the prioritisation of Network Rail's spending programme on lines, trains and stations for the current and next five year control periods.

The Mayor has called for greater control over suburban rail franchises which extend beyond the GLA's geographical boundary into the Home Counties.³⁷ At present, the Mayor is a key consultee for the DfT in the franchise specification process and can purchase additional service improvements, as he chose to do in the recent South Central franchise. In future, the Mayor would like franchise awards on suburban lines to be made jointly by the Secretary of State for Transport and himself.

The DfT is currently reviewing rail franchising more fundamentally and the train operators have also made proposals for more integration between track and train. While there will always be issues around managing the interfaces between local and

national rail infrastructure and the services that run on them, the Mayor's role should be strengthened and the DfT, as with the economic regulators, should be required by statute either to act on his proposals or explain why not.

Recommendation 21

The Mayor should engage with the DfT and train operators to ensure that any reforms to rail franchises and structures, and future investment programmes, reflect London's priorities of rail services which meet rising demand, are more responsive to passengers' needs, and perform safely and efficiently. The DfT should be placed under a statutory duty to have regard to the Mayor's views on franchise specifications and his willingness to pay for additional services and, as with the economic regulators, either act on his proposals or explain why not.

4.3 London's roads

London has 13,800km of roads³⁸ which serve two equally important functions.

The first, and more obvious, is that they enable people and vehicles to go about their business. 62 per cent of the population's daily journeys – including car, bus and taxi - and 82 per cent of freight movements³⁹ are made by road. Travel patterns vary considerably between different parts of London, reflecting London's functional geography and the provision of transport networks. While public transport dominates access to the centre, the private car is the most significant individual mode in most parts of outer London. On a consistent basis since 2001, the mode shares for car are 21 per cent for central and inner London combined, compared to 56 per cent for outer London (by contrast, the mode shares for rail and underground were 53 per cent in central and inner London, 10 per cent for outer London).⁴⁰

The second, and perhaps less obvious, role roads fulfil is as conduits for other infrastructure, with water, energy and IT infrastructure running beneath them. Public policy needs to be conscious of the needs of both uses and, where there is a conflict, strike an effective balance.

The map below shows how London's roads are owned and managed. Responsibility for managing London's road network is shared between the Highways Agency, TfL and the London boroughs. TfL manages traffic signals on all roads throughout London and has a general Network Management Duty for the capital as a whole.

Figure 6: Map of London's road networks



Transport for London Road Network (TLRN) and Strategic Road Network (SRN)

The issue for business concerning London's roads is that they are congested. The economic cost of congestion is difficult to estimate and ranges between £2 billion⁴¹ and £4 billion⁴² in lost productivity. Congestion also adversely affects Londoners' quality of life and contributes to pollution.⁴³

Fundamentally, London's roads lack the capacity to meet demand; and, even were funding no object, it is generally impracticable to provide additional new capacity. London is a dense city and widening or building new roads would require what the public would inevitably see as unacceptable damage to the public realm, reducing green space and/or demolishing buildings. While a major programme is underway to widen the orbital M25 motorway around London, it is difficult to see similar capacity increases commanding popular support within the capital.

Accordingly, we see two principal areas for action to improve travel on London's roads. The first is better management of the existing road network, the second increased demand management through road pricing.

Better management of the existing road network

London's road network serves a variety of users and purposes and there is considerable scope for conflict between these in determining how London should use and manage its scarce road capacity. Is the objective additional journeys, faster average speeds or more reliable journeys? What priority should be given to individual modes of travel, such as bus, coach, bike and car? What weight should be given to improving the public realm and air quality? And how can the need of utilities to access their sub-surface infrastructure be more effectively met? Individual decisions – taking out general capacity through a bus lane here, adding pedestrian capacity there – can appear to be taken in isolation and not against strategic objectives for the network as a whole.

London needs a more transparent road management regime, focused on clearly defined and quantified outcomes, with the trade-offs being made more explicitly. The Commission believes the central objective should be free flowing traffic – giving quicker journeys, with greater reliability and lower pollution.

Recommendation 22

The Mayor's Transport Strategy needs to have a more proactive and realistic approach to network management in the context of the growing demands being placed on roads. This includes greater transparency about future demand and its projected impact on congestion, together with a clearer process for assessing and choosing between competing options for utilising scarce capacity, recognising the equal importance of roads as conduits for utilities infrastructure.

With a clear strategy for the road network in place, TfL's essential role should be that of strategic commissioner of services. Building on experience to date in London and other major cities, TfL should examine the scope for driving further service improvements in

its highway management, as well as realising further efficiencies, through long-term network-wide integrated contracts with the private sector. Birmingham City Council, for example, has recently agreed a 25 year £2.7 billion highways maintenance and management contract with its contractor, covering everything from road repairs, footway maintenance, street lighting and traffic signals to the upkeep of street furniture.

TfL's essential role should be as strategic commissioner of services on the road network; as part of this TfL should explore the scope for securing further service improvements and efficiencies through long-term integrated network management contracts.

Recommendation 23

Placing TfL in a more strategic, commissioning role should be supported by allocating responsibility for the road network in a more coherent way. As noted above, strategic roads are currently split between TfL and the 33 boroughs, limiting the scope for efficient network-wide management. Separately, the DfT exercises tight control over large areas of traffic control and signage, inhibiting the ability of TfL and the boroughs to develop traffic solutions on the roads they are responsible for and know best.

TfL's responsibility should be extended to the whole of London's strategic road network and the Mayor and London boroughs should be given greater powers from central government over traffic control and signs.

Recommendation 24

London First has previously identified a series of detailed areas where more active management of the network by TfL and the boroughs would improve traffic flows,⁴⁴ for example:

- *More active management of traffic lights.* These are managed by TfL and, building on recent work by GLA Economics,⁴⁵ should be recalibrated in line with recent traffic patterns and overall objectives more frequently.
- *Better road works management.* Whether conducted by highway authorities to maintain their assets, or by utilities to access their assets underground, road works are a major source of congestion. There is currently little incentive on either party to do their works quickly. As London First has recently argued in *Road Sense*,⁴⁶ a lane rental system on the critical parts of the Strategic Road Network (SRN) that drive the bulk of congestion would provide this incentive. Complemented by a permit system on the rest of the SRN to support the coordination of road works, this has the potential to reduce substantially the congestion they cause. It is a mark of the weakness of the powers that London government currently possesses that lane rental schemes have been debated for decades, command widespread support but have yet to be implemented.
- *Establishing freight consolidation centres to reduce road freight traffic.* Freight represents 17 per cent of London road transport kilometres⁴⁷ and is responsible for 23 per cent of ground-based CO2 emissions.⁴⁸ TfL forecasts a 25 per cent increase

(eight per cent HGV and 30 per cent LGV) in freight kilometres by 2030. Freight consolidation centres, linked to rail facilities, allow suppliers to deliver products to a strategically located warehouse either by road or rail. Products can then be consolidated to maximise vehicle utilisation on the 'final mile'. Centres have already been introduced in places such as Regent Street and Heathrow, but more needs to be done to spur private sector take-up given the externalities caused by congestion in London. TfL should therefore resource additional site identification and provide appropriate facilities to stimulate their introduction. TfL should also ensure appropriate loading space is provided to prevent lane blockages.

Recommendation 25

TfL and London's boroughs should devote more resource and give a higher priority to detailed measures to improve traffic flows, including more active management of traffic lights, better management of road works and more support for freight consolidation.

Demand management and road pricing

London introduced the UK's first congestion charging scheme in 2003. As set out in the box below, the initial congestion reduction benefits from charging for access to central London have diminished over time (though direct comparability is difficult because of the complexity of assessing changes in road use over the period and the impact of utilities digging up roads).

Congestion charging in London

In 2003 the Mayor introduced congestion charging into central London, with vehicles being charged £5 to enter the charging zone between 7am and 6pm each weekday (with a number of exemptions, e.g. for electric cars and public transport). The charge is now £8 and set to rise to £10. In 2007 the original zone was extended westwards; the current Mayor was elected on a platform of consulting local residents on the merits of this extension and concluded that the extension should be abolished. This will take effect in December 2010.

In 2009, revenues were £326 million and costs £177 million. The surplus, £148 million, was reinvested in public transport. TfL's Fifth Annual Impacts Monitoring Report concluded that there had been no discernible impact on overall business performance or the central London economy from congestion charging.

The immediate impact of the scheme was a reduction in traffic by 18 per cent and in congestion by 30 per cent. However recent results have shown that congestion is similar to pre-congestion charge levels although there are 80,000 fewer vehicles entering the congestion zone per day.

The economic arguments for moving, in the medium to long term, to a more sophisticated charging scheme are strong. A scheme covering a greater area of London, incorporating variable tariffs that changed with congestion levels, could deliver considerable benefits in terms of reduced and more certain journey times. Implementing such a system would be relatively straightforward in technical terms, as has been demonstrated in Singapore, where rates are raised or lowered at different locations over the course of the day. However, the political challenges are formidable. There is little public support for the implementation of road pricing outside the original congestion charging zone, although the Mayor’s Transport Strategy notes that in the longer term “road user charging may be considered”.

In the medium to long term, a more sophisticated system of demand management, extending beyond the central London congestion charge zone, should be implemented.

Recommendation 26

In the nearer term, there may be opportunities to utilise targeted charging schemes to address localised congestion problems with revenues being used to support capacity enhancements. TfL is currently considering options for a new east London river crossing at Silvertown which is likely to cost approximately £350 million. Delivery of such a scheme could be funded by developing an integrated congestion relief package which would see a new river crossing part-funded through a toll on the existing overloaded Blackwall tunnel, complementing the charging regime for the Dartford Crossing.

TfL should consider targeted tolling schemes as a means of relieving congestion and supporting investment in additional capacity.

Recommendation 27

4.4

Maximising the use of scarce resources

Against a backdrop of tough public expenditure constraints it is doubly important that everything is done by TfL to maximise its outputs from its resources. This includes:

- exploiting property and other assets more effectively;
- managing demand, to reduce the pressure on peak services;
- scaling back on lower priority requirements on public transport service quality, frequency and coverage; and
- using fares to support investment and services that would otherwise be cut.

Exploiting assets more effectively

We believe that TfL could do more to extract value from its asset base. More value could be created from TfL's operational assets, for example through increasing development above and around stations; and striking a better balance between income and operational flexibility from station retail leases. The TfL business plan currently forecasts revenues of £600 million over the next 10 years from property, but is not transparent about how this total is calculated.

Recommendation 28

TfL should consider placing all of its property assets in a new body, Property for London, to enable a more focused and vigorous management drive on efficient asset utilisation.

In an era of constrained resources, to ensure continued provision of cost-effective, quality services TfL will need to focus on where it has relative advantage in providing services directly and on what it does best. To this end, TfL should review its small scale and operationally self-contained assets, like the DLR, East London Line (ELL) and Croydon Tramlink, to assess whether full or partial disposal of those businesses might represent value for money, while ensuring core public policy objectives continue to be met.

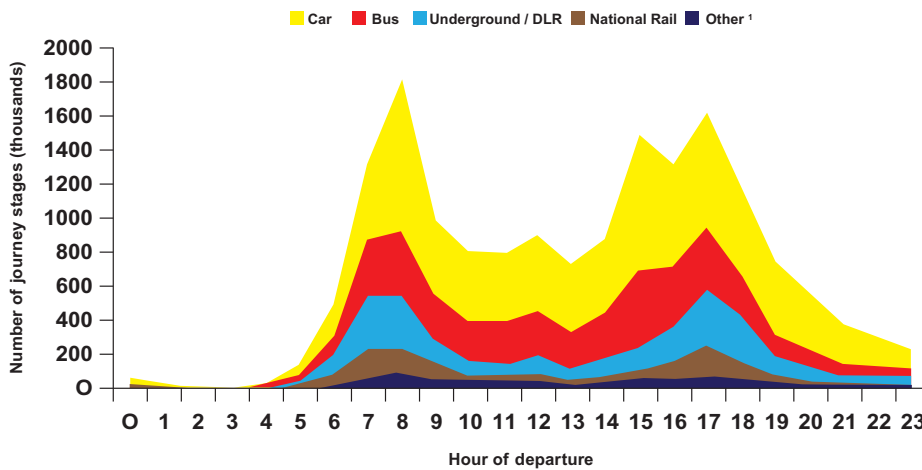
Recommendation 29

TfL should undertake a systematic assessment of its small scale and operationally self-contained transport assets. In each of these cases an assessment should be made of the relative benefits of public as against private sector ownership on key issues such as long-term asset management and investment, day-to-day operations and financing costs – as well as taking into account the potential value of any sale receipt.

Managing demand

The demand pressures TfL face, coupled with the state of its infrastructure, make further investment essential. However, much investment in capacity is required to meet peak demand, with significantly less pressure existing outside of these peaks. Figure 7 below shows a clear increase in demand at peak hours across all transport types in London. In parallel with its investment programme, TfL should do more to encourage transport users to find alternatives to travelling on its services at the most congested times.

Figure 7. Daily transport demand in London across all modes



¹ Includes motorcycle, pedal, tram, taxi, school bus, coach, boat, plane and other

Source: LTDS 2006/07 Household Survey

This requires a mix of measures, including: better low cost cycle infrastructure, such as superhighways, cycle hire and better storage facilities at rail stations; enhanced local information such as the roll-out of Legible London, which uses consistent street signage and printed maps to encourage people to make their journey by foot;⁴⁹ and tailored travel advice for local residents and businesses, as is being done through the Smarter Travel Sutton scheme. As Policy Exchange has argued, more could also be done to improve public transport services on the River Thames, for example through better traffic management, integrated ticketing and improved pier accessibility.⁵⁰ The recent creation of the London Datastore, to make all GLA data publicly available, should enable further innovation in the provision of travel information.

Recommendation 30

Building on recent initiatives to encourage travel alternatives and spur innovation by making its data publicly available, TfL should support initiatives to take pressure off its congested networks at peak, such as low cost cycle infrastructure, better local travel information and tailored travel advice for local residents and businesses.

Pricing also has a role to play in encouraging passengers to travel outside peak times. Figure 8 below shows a range of 2010 fares for tube journeys in zones 1-6. As can be seen, the starkest differential is between cash and electronic fares, via the Oyster smartcard. This has had the desired effect of shifting passengers from cash to electronic fares, which brings both cost savings and data capture benefits to TfL. However, the differentials between peak and off-peak fares offer a much weaker incentive to change behaviour.

Figure 8. 2010 tube fares

Zones	Cash single fares	Oyster single fares Peak (off peak*)	1 day Travelcard / Oyster daily price cap** Peak (off peak***)
1	£4.00	£1.80 (£1.80)	£7.20 (£5.60)
1-2	£4.00	£2.30 (£1.80)	£7.20 (£5.60)
1-3	£4.00	£2.70 (£2.40)	£8.60 (£6.30)
1-4	£4.00	£3.10 (£2.40)	£10.00 (£6.30)
1-5	£4.50	£3.80 (£2.40)	£12.60 (£7.50)
1-6	£4.50	£4.20 (£2.40)	£14.80 (£7.50)

Zones	Weekly adult travelcard	Monthly adult travelcard	Yearly adult travelcard
1	£25.80	£99.10	£1032
1-2	£25.80	£99.10	£1032
1-3	£25.80	£116.00	£1208
1-4	£25.80	£141.40	£1472
1-5	£25.80	£169.00	£1760
1-6	£25.80	£182.80	£1904

* Off-peak single fares on Oyster are only available for journeys which are completed before 7am or started after 7pm on a weekday, or which are made at any time at weekends or bank holidays.

** The Oyster daily price cap is the maximum you will pay if you use your Oyster card to make journeys during the day

*** Off-peak daily travelcards can only be used after 9.30am during the week, or any time at weekends or bank holidays.

Widespread take up of smartcards (Oyster is now used for some seven million journeys a day) offers the potential for more sophisticated pricing models to be developed in future. In addition, the shift to a RAB-based model would bring greater transparency to cost drivers on the tube, which would assist TfL to increase the efficiency of its pricing structures. In practice of course, the current fares structure is the product of a host of historic decisions and compromises. The challenge therefore is to make pricing more efficient without sacrificing either public understanding or public confidence that the system as a whole remains fair.

TfL should take advantage of the greater cost transparency and flexibility provided by smartcards to use its tariff structure more efficiently to shift demand when its networks are operating at, or beyond, peak capacity. This may in time require more sophisticated technology to be deployed.

Recommendation 31

Scaling back on lower priority service requirements

Increased financial pressures will also require TfL to explore the scope for cost savings across its service base, which has expanded significantly, though incrementally, in recent years (see box on buses, for example). Responding to reductions in public subsidy, while maintaining essential public transport services, is likely to require TfL to look beyond traditional efficiency measures and to review options for scaling back on lower priority requirements on service quality, frequency and coverage, in light of its core objectives.

TfL should implement a transparent process to review the scope for scaling back on lower priority requirements on public transport service quality, frequency and coverage, to optimise services and costs.

Recommendation 32

Buses

London's buses have been a success story for the past decade, with passenger kilometres rising by 74 per cent to 7.7 billion annually between 2000 and 2008. Such success has come at a price, however. Public subsidy for London's buses has increased from some £41 million in 1999-2000 to £653 million in 2007-08. Subsidy was projected to rise to £721 million in 2017-18 but, under the Mayor's most recent business plan, is now projected to fall to £452 million, 40 per cent lower than previously planned.⁵¹

Fares and concessions

The Mayor will need to consider the appropriate contribution from the farebox towards essential investment in London's transport network by reducing the subsidy that currently supports loss making services. TfL's current planning assumption is for annual increases of RPI+2 per cent, although decisions on actual fare levels are currently made by the Mayor on an annual basis. Following the 2010 spending review, the Mayor confirmed that fares will increase by RPI+2 as planned for 2011.

Londoners spend over twice as much on fares and other travel costs as the UK average.⁵² However, average tube fares (the average amount received by TfL per journey from those who pay, either by pass or per journey) have increased by only two per cent in real terms since 2000, which is well below the rise in average earnings. The average bus fare paid by adults in London is now around 69p per journey, compared with 71p in 2000 after adjusting for inflation. Furthermore, almost all under 18s now travel free on buses while in 2000 children typically paid half fares; resulting in a substantial dilution in the 69p per journey average. Direct comparisons are difficult but the average bus fare in other UK cities is now estimated by TfL to be close to £1.⁵³

It is therefore appropriate in the current spending climate to consider whether fares should make an additional contribution to help support investment and services that would otherwise be cut.

Equally, the Mayor must consider the cumulative impact of concession schemes (see box overleaf). At present around 40 per cent of London's bus passengers travel free or at a substantial concessionary rate,⁵⁴ and London councils have issued over 1.1 million Freedom Passes. There can be good arguments for concessions on equity or social inclusion grounds, but they of course come with a cost. In particular, TfL should examine the impact on peak travel journeys from those travelling on concessions.

The Mayor has a choice as to whether to spend his scarce resources on investment or subsidising consumption through concessions. This raises important efficiency issues. Choosing to subsidise consumption at peak does not just reduce the resources available for investment but exacerbates overcrowding which, in turn, increases the pressure for additional capital expenditure to expand capacity. There are also issues of equity: council tax payers are subsidising the travel in peak of those over 60, irrespective of their income.

London travel concessions

The Freedom Pass, provided and paid for by London's borough councils, enables the over 60s and those registered disabled to travel free at all times of day on TfL services. TfL also provides free bus and tram travel for children under 16 and 16-17 year olds in full-time education, as well as free tube travel for children under 11 accompanied by an adult. Since 2009, half adult-rate bus and tram travel has been provided to London residents receiving Income Support, Jobseekers' Allowance or the Employment and Support Allowance. War veterans also qualify for free travel on TfL and National Rail services in the London area.

Discounts are also available to travellers who purchase weekly, monthly or annual travelcards. In setting prices for travelcards, TfL must strike a balance between revenue maximisation and the certainty and cashflow benefits of forward funding. TfL should now assess whether the level of discount applying to annual travelcards in particular strikes the right balance in the current financial climate.

The overall level of subsidy across TfL's operations is unaffordable in the current economic climate and would arguably be less necessary in a more efficient operational and investment model. The Mayor should continue to increase fares in real terms on the underground linked to a suitable affordability measure, such as real earnings growth, and should align London bus fares more closely with those of other UK cities. Similarly, the Mayor should review the structure of London's fares and concessions to strike a better balance between social equity and transport efficiency.

Recommendation 33

4.5

Changing TfL's culture over the medium term

There has been a step-change in the accountability of transport provision in London since the creation of the Mayor and TfL in 2000. Even before the recent spending review TfL has demonstrated determination to improve its performance and efficiency and has established a savings programme which has more than doubled since its previous Business Plan, with £1.3 billion in savings now assumed to 2011-12, and more than £5 billion in total over the period of the Plan. This will be realised through around 250 initiatives, ranging from reductions in back office staff and costs, cuts to temporary workers and consultants, and a reduction in marketing and customer research activity.

While this is clearly a substantial programme, the experience of UK utilities over past decades has shown the scale of efficiencies that can be realised from large, public sector monopoly service providers with many characteristics similar to those of TfL. The current lack of transparency or independent scrutiny of TfL's operations makes difficult any firm assessment of the true potential for ongoing efficiency gains.

Recommendation 34

TfL should put mechanisms in place that provide greater transparency over its efficiency programme and that monitor actual progress being achieved.

Following the 2010 spending review, TfL's overall grant funding from the DfT has been reduced by £2.17 billion in total over four years, or 21 per cent in real terms in 2014-15, when compared to 2010-11. However, the overall DfT grant is just one element of TfL's funding, which also includes fares, borrowing and commercial sources of revenue. Taking account of this wider context, TfL has stated that by 2014-15 this cut represents less than eight per cent of their planned expenditure on capital investment (excluding Crossrail) and frontline services. TfL has committed to publish a revised Business Plan in spring 2011.

Realising efficiencies over and above the current targets requires a change of culture which, in turn, requires changes to TfL structures and governance. As a first step, the Commission welcomes the recent creation of the Independent Investment Programme Advisory Group (IIPAG) by the Mayor and DfT. IIPAG will provide an independent, impartial source of expert advice to the TfL Board on all aspects of the delivery of the TfL investment programme, including all maintenance, renewal, upgrades and major projects across its modes.

However, we see this as a first step. TfL's approach to project management, risk management and procurement needs strengthening and standardising. Its service standards and specifications require a similar reassessment. In addition, there needs to be independent benchmarking across the TfL estate so that efficiency comparisons can be made between different tube lines, with overground, DLR and ELL services, and with other comparable rail and underground services in the UK and overseas.

Building on the recent creation of the Independent Investment Programme Advisory Group, TfL needs to take further steps to increase transparency and comparability within TfL. This includes: independent benchmarking; reformed project and risk management; and a revised approach to procurement, service standards and specifications; to secure safe and efficient world class operations, assets and services.

Recommendation 35

CHAPTER 5

Summary of recommendations

Recommendation 1

Private sector investment in infrastructure subject to market and policy risk requires greater policy certainty from government. This requires clear up-front statements of Government policy in key strategic areas, better coordination within government and more rapid implementation of the detailed policy frameworks which can provide the certainty and longevity which the private sector needs to make the business case for infrastructure investment.

Recommendation 2

The Commission welcomes the establishment by government of Infrastructure UK, which has the potential to play an important role in meeting the objectives set out in Recommendation 1 above, and its publication of the National Infrastructure Plan. The utilities' economic regulators should have a statutory duty to have regard to the Plan when conducting their periodic reviews and to set out clearly their reasons if they do not comply with its timescales or objectives.

Recommendation 3

The Government must ensure that its reforms to national and local planning frameworks for infrastructure maintain timeliness and predictability for infrastructure providers as well as improving democratic accountability.

Recommendation 4

The Commission welcomes action by Government to reduce the policy risks that the market cannot price. Where market risks remain, which deter investment that Government believes is justified in terms of social benefits, Government should provide transparent and targeted subsidy, either directly or via network utilities.

Recommendation 5

The forthcoming review of local government finance should explore creating the flexibility for local authorities to finance infrastructure improvements through new mechanisms such as TIF.

Recommendation 6

Tax, spending and decision making for London should be aligned. The Government should give the Mayor flexibility over how he spends the grant he receives, so that he is able to direct his resources to meet the priorities of London rather than central government. The Government has announced a review of local government finance and this should explore ways of rebalancing the tax system so that central government raises less in tax from London, with the Mayor raising more of his own resources in a manner that is transparent and equitable between London's residents, visitors and businesses.

Recommendation 7

The Mayor should play a greater strategic role in the planning and delivery of London's infrastructure:

- first, as a pan-London client in regulators' periodic reviews. The Mayor, given his own regulatory functions of land planning and the role his other strategies play in London's economic development, should be a statutory consultee in the economic regulators' periodic reviews. Given the Mayor's electoral mandate, his views on the levels of provision that London needs should carry particular weight. The economic regulators should have a duty to comply with the Mayor's position, or, if deemed inappropriate, to explain why; and
- second, there should be greater coordination between investment programmes in different sectors. The Mayor should make representations on London's overall needs to IUK as it updates its National Infrastructure Plan and IUK should, similarly, have a duty to comply or explain.

Recommendation 8

The utilities need to understand more clearly the service levels that business users in London, particularly in central London, want and are willing to pay for. In conjunction with their regulators the utilities should devise ways in which business users' preferences can be reflected in the outcomes of their periodic reviews.

Recommendation 9

Economic regulators should determine long term strategic direction statements for network utilities and each periodic review determination should state how the shorter, typically five year investment programme ties in with this longer term statement.

Recommendation 10

The licensed electricity distributor should consult with central London businesses to establish the level of anticipated demand and establish proposals to build capacity to meet this need on a more integrated, forward-looking basis. Ofgem should establish a mechanism to permit the forward funding of capacity enhancement against reasonable demand forecasts.

Recommendation 11

The licensed electricity distributor should also consult with central London businesses to explore the costs of reinforcing the distribution network to improve resilience and establish the willingness, in practice, to pay for this reinforcement. Ofgem should have regard to this evidence when conducting its periodic reviews.

Recommendation 12

The Key Performance Indicators for electricity distribution should be amended to capture connection metrics from a customer perspective, based on consultation between business and the distribution provider, and subject to determination by Ofgem.

Recommendation 13

We welcome district-wide decentralised energy schemes where they make economic sense, but question whether it is sensible for London to have a distinctive energy policy around electricity generation, with London-specific targets. It is right that the Mayor has a view of London's energy needs, and what should be done locally both to support carbon reduction efforts and maintain security of supply, but this should be integrated with national energy policy. In this area, as in others, the Mayor's power lies at least as much in exhortation as in regulation.

Recommendation 14

Ofwat should allow within its periodic review determination sufficient revenues to enable an efficient operator to meet permit charges levied by London government, to incentivise the swift completion of road works and thus reduce the road congestion they cause.

Recommendation 15

Ofwat should:

- review regulatory mechanisms to remove disincentives to bulk trading between water companies and, with this model in place, look at what new infrastructure is required;
- allow the funding required, on a commercial risk basis, to construct the Thames Tideway Tunnel to reduce sewerage discharge into the Thames; and
- explain more transparently how each five year price control period's programme fits with Thames Water's 25 year strategic direction statement and its statutory water resource management plan.

Recommendation 16

The Environment Agency should adopt a more flexible approach to dealing with flood risk mitigation from new development in London in order to deliver high flood resilience at lowest long term cost.

Recommendation 17

The reluctance by local authorities to grant planning permission for waste facilities increases the costs of their development and undermines the Mayoral strategy of London becoming self-sufficient in waste disposal by 2031. Planning powers for waste in London therefore sit best at the Mayoral level and the referral threshold for planning applications for waste treatment facilities should be reviewed and reduced to support the development.

Recommendation 18

TfL should be reformed to ensure a clearer and consistent delineation between its client and delivery functions. The Mayor, as the elected representative of London, should not be the defender of TfL's operations but, rather, its overall client. He should set overall strategic policy which it is TfL's role to implement, either by delivering services directly or commissioning services effectively. The Mayor should be the unambiguous champion of Londoners' interests.

Recommendation 19

Significant public investment in the underground will remain necessary for the foreseeable future. Key priorities in the medium term are the underground capacity upgrades agreed in the tube PPP and Crossrail. Looking beyond those, detailed planning work should begin now on further medium to long term projects to increase capacity in line with forecast growth in demand, including Crossrail 2.

Recommendation 20

The transparency and efficiency of London Underground would be improved by governance reforms to create a Regulated Asset Base model, overseen by an economic regulator. While this would not provide additional funding for the underground, it would set out clearly, for the medium-term, the level of resources required based on independent verification of capital and operating expenses. It would thus provide a solid platform for London to argue its case to the Treasury for investment – or to make the fare increases or service provision cuts – necessary to keep the system functioning.

Recommendation 21

The Mayor should engage with the DfT and train operators to ensure that any reforms to rail franchises and structures, and future investment programmes, reflect London's priorities of rail services which meet rising demand, are more responsive to passengers' needs, and perform safely and efficiently. The DfT should be placed under a statutory duty to have regard to the Mayor's views on franchise specifications and his willingness to pay for additional services and, as with the economic regulators, either act on his proposals or explain why not.

Recommendation 22

The Mayor's Transport Strategy needs to have a more proactive and realistic approach to network management in the context of the growing demands being placed on roads. This includes greater transparency about future demand and its projected impact on congestion, together with a clearer process for assessing and choosing between competing options for utilising scarce capacity, recognising the equal importance of roads as conduits for utilities infrastructure.

Recommendation 23

TfL's essential role should be as strategic commissioner of services on the road network; as part of this TfL should explore the scope for securing further service improvements and efficiencies through long-term integrated network management contracts.

Recommendation 24

TfL's responsibility should be extended to the whole of London's strategic road network and the Mayor and London boroughs should be given greater powers from central government over traffic control and signs.

- Recommendation 25** TfL and London's boroughs should devote more resource and give a higher priority to detailed measures to improve traffic flows, including more active management of traffic lights, better management of road works and more support for freight consolidation.
- Recommendation 26** In the medium to long term, a more sophisticated system of demand management, extending beyond the central London congestion charge zone, should be implemented.
- Recommendation 27** TfL should consider targeted tolling schemes as a means of relieving congestion and supporting investment in additional capacity.
- Recommendation 28** TfL should consider placing all of its property assets in a new body, Property for London, to enable a more focused and vigorous management drive on efficient asset utilisation.
- Recommendation 29** TfL should undertake a systematic assessment of its small scale and operationally self-contained transport assets. In each of these cases an assessment should be made of the relative benefits of public as against private sector ownership on key issues such as long-term asset management and investment, day-to-day operations and financing costs – as well as taking into account the potential value of any sale receipt.
- Recommendation 30** Building on recent initiatives to encourage travel alternatives and spur innovation by making its data publicly available, TfL should support initiatives to take pressure off its congested networks at peak, such as low cost cycle infrastructure, better local travel information and tailored travel advice for local residents and businesses.
- Recommendation 31** TfL should take advantage of the greater cost transparency and flexibility provided by smartcards to use its tariff structure more efficiently to shift demand when its networks are operating at, or beyond, peak capacity. This may in time require more sophisticated technology to be deployed.
- Recommendation 32** TfL should implement a transparent process to review the scope for scaling back on lower priority requirements on public transport service quality, frequency and coverage, to optimise services and costs.
- Recommendation 33** The overall level of subsidy across TfL's operations is unaffordable in the current economic climate and would arguably be less necessary in a more efficient operational and investment model. The Mayor should continue to increase fares in real terms on the underground linked to a suitable affordability measure, such as real earnings growth, and should align London bus fares more closely with those of other UK cities. Similarly, the Mayor should review the structure of London's fares and concessions to strike a better balance between social equity and transport efficiency.
- Recommendation 34** TfL should put mechanisms in place that provide greater transparency over its efficiency programme and that monitor actual progress being achieved.
- Recommendation 35** Building on the recent creation of the Independent Investment Programme Advisory Group, TfL needs to take further steps to increase transparency and comparability within TfL. This includes: independent benchmarking; reformed project and risk management; and a revised approach to procurement, service standards and specifications; to secure safe and efficient world class operations, assets and services.

Appendix 1

London First Infrastructure Commission biographies

Martin Stanley, Macquarie Group (Chairman).

Martin Stanley is Global Head of the Macquarie Infrastructure and Real Assets Group which manages a global portfolio of over 100 leading infrastructure businesses in Europe, the Middle East, Africa, North America, Asia and Australia and New Zealand. The portfolio consists of businesses in a variety of sectors including airports, rail, road, utilities, renewable energy, power generation and telecommunications. In Europe, Martin is Chairman of Techem GmbH and a board member of Thames Water plc, Airwave Solutions Ltd and Arqiva Ltd. Martin has nearly 25 years' background in the utility and energy infrastructure sector.

Ann Bishop, Indepen.

Ann Bishop is Managing Director of Indepen, a consultancy that specialises in public policy and regulation of water, energy, transport and ICT sectors. She chairs the Indepen Forum for Chief Executives which facilitates discussion between investors, directors, politicians, civil servants and academics in order to progress to more informed, coherent public policy development. Before founding Indepen in 1990, Ann worked in the Strategy Group at Deloitte, working primarily in financial services, retailing and manufacturing. Previously she has also worked at Natwest Investment Bank, Chase Manhattan Bank and OCL, a subsidiary of P&O.

Terry Hill, Arup.

Terry Hill is Chair of the Transport Market for Arup Group, a global design and business consultancy, focusing on developing the Aviation, Maritime, Rail and Highways businesses. His role is to ensure the delivery of the best transport projects to clients throughout the world. Terry was previously Chairman of Arup (April 2004 – April 2009), with responsibility for the overall strategic direction of the firm. Terry has a background in civil engineering and economics, and previously led Arup's Infrastructure Division, where his role centred on consulting, infrastructure and managing major schemes.

Sir Adrian Montague, London First.

Adrian Montague is Chairman of London First, 3i, and Anglian Water Group Ltd. He is also Chairman of CellMark AB, the world's largest forest products marketing company, based in Gothenburg, Sweden, and a Director of Skanska AB, the Swedish international engineering and construction group. From 2001-2004 he was Deputy Chairman of Network Rail Limited, the successor to Railtrack as the operator of Britain's railway infrastructure, and from 2004-2005 Chairman of Cross London Rail Links Ltd, the company responsible for developing London's Crossrail project. From 1999-2001 he held senior positions connected with the implementation of the Government's policies to expand the use of private finance in the provision of public infrastructure, first as Chief Executive of the Treasury Taskforce, and then as Deputy Chairman of Partnerships UK plc. Before that, he was Global Head of Project Finance at Dresdner Kleinwort Benson, having joined the bank in 1993, after 20 years as a lawyer with Linklaters & Paines.

Nick Pollard, Bovis Lend Lease.

Nick Pollard was appointed as Chief Executive Officer of Bovis Lend Lease UK, a company focusing on project design and management, construction, and property, in October 2008 having joined as Chief Operating Officer in October 2007. He has extensive experience in the construction, rail and utilities sectors, abroad and in the UK. Nick previously was Executive Vice President at Skanska UK plc and prior to this he served as a regional director at Railtrack, responsible for the London North Eastern network, before leading the national programme of railway enhancements as Director, Network Developments, later being retained as part of the HQ directorate leading change in the then newly formed Network Rail. He chaired the London First group on 'Enabling Investment', looking at short term projects that needed unblocking. He is a member of TfL's Independent Investment Programme Advisory Group (reporting to the DfT and responsible for advising TfL over matters of performance improvement) and Chair of the Ministry of Justice Employers' Forum, reducing re-offence through successful employment of ex-offenders, and a steering group member of BIS Innovation Growth and Technology Group for Low Carbon Construction.

Dr Timothy Stone CBE, KPMG.

Dr. Timothy Stone is Chairman and founder of KPMG's Global Infrastructure and Projects Group and is the Expert Chair, Office for Nuclear Development, and Senior Advisor to the Secretary of State for Energy & Climate Change. As part of this work, he has undertaken a review of the Nuclear Installations Inspectorate and has led the work to develop the guidance for the Waste & Decommissioning of new nuclear power stations. He also advises the ministers on the 2050 program and on other large energy projects. He is also an expert non-Executive member of the board of the European Investment Bank and was a founder member of the CBI's Public Services Strategy Board and was Chairman of IFSL's PPP Export Group. He is currently the independent advisor to the Deputy Premier and to the Finance Minister of one of the Australian states on their entire infrastructure program and is the Chairman of the Strategic Capital Investment Panel in the Welsh Assembly Government. He has recently been appointed Visiting Professor in Infrastructure Economics & Finance at University College, London.

Professor Tony Travers, London School of Economics.

Tony Travers is director of LSE London, a research centre at the London School of Economics. His key research interests include local and regional government and public service reform. He is currently an advisor to the House of Commons Communities & Local Government Select Committee and has recently advised the former Children, Schools and Families Select Committee. He is an Honorary Member of the Chartered Institute of Public Finance & Accountancy. He was a Senior Associate of the King's Fund from 1999 to 2004, and also a member of the Arts Council's Touring Panel. From 1992 to 1997, he was a member of the Audit Commission. He was a member of the Urban Task Force Working Group on Finance. He has published a number of books on cities and government, including *The Politics of London: Governing the Ungovernable City*.

Appendix 2 Consultation process

Written evidence, which is available on London First's website, was received from:

Airwave Solutions Ltd
Arqiva
Arup
Association for Consultancy and Engineering
BAA Airports Ltd
British Transport Police
Buro Happold
CAA
Clifford Chance
Crossrail
EDF Energy
Environment Agency
E.ON UK
European Investment Bank
GE
Gensler
Grant Thornton
Greater London Authority
GVA Grimley
IBM UK Ltd
Imperial College London
Institute for Sustainability
Invensys Rail Group

Legal & General Group Plc
Lend Lease
London City Airport Ltd
London Councils
London Thames Gateway Development Corporation
Mace Ltd
Mobile Operators Association
National Grid plc
National Joint Utilities Group
Network Rail Infrastructure Ltd
Olympic Host Boroughs
Oxbridge Capital
Pinsent Masons
Places for People
Public Works Loan Board
Rail Freight Group
Thames Water
Transport for London
Treasury Holdings
University College London
West London Business
West London Partnership

Commission witnesses:

Peter Vernon, Chief Executive, Grosvenor

Bridget Rosewell, Chief Economic Advisor, GLA

Anthony Browne, Advisor for Economic Development, The Mayor's Office

Prof. David Begg, Chairman, Tube Lines

Peter Hendy, Commissioner of Transport, Transport for London

Michael Dyke, UK Construction Director, National Grid

Michael Woodhead, Head of Sustainability, E.ON

Vincent de Rivaz, Chief Executive, EDF Energy

Professor Dieter Helm, University of Oxford

Terry Morgan CBE, Chairman, Crossrail

Malcolm Ward, Chief Executive, Cory Environmental

Andrew Campling, General Manager London, BT

Martin Baggs, Chief Executive, Thames Water

Prof. Stephen Glaister CBE, Director, RAC Foundation

Will McKee, Chair, Outer London Commission

Discussion sessions were held with:

Abellio	Kesslers International Limited
AECOM	King's College London
Allen & Overy	KPMG LLP
Arup	Land Securities
Ashurst	Mace Ltd
Atkins plc	Mouchel
BAA Airports Ltd	Nabarro
Barclays Bank plc	Ofcom
British Chambers of Commerce	Office of PPP Arbiter
BT	Office of Rail Regulation
Buro Happold	Ofgem
CB Richard Ellis	Ofwat
CH2M HILL	Pinsent Masons
City of London Corporation	Powerday
Colin Buchanan	PricewaterhouseCoopers LLP
DLA Piper UK LLP	RPS Planning Transport & Environment
Eversheds	Sir Robert McAlpine Ltd
Freshfields Bruckhaus Deringer	Skanska
GE	The Nichols Group
Gensler	Think London
Gerald Eve	Tilfen Land
Goldman Sachs	Treasury Holdings
Grant Thornton	Turner & Townsend Group Plc
Hammerson plc	UCL
Herbert Smith	Veolia Environmental Services
Hogan Lovells	Veolia Transport UK
IBM UK Ltd	Vinci Plc
Institution of Civil Engineers	Wates Group Ltd
Invensys Rail Group	Westfield Group
Jones Lang LaSalle	

We are very grateful to all those who gave generously of their time and experience. In addition to the individuals and companies listed, we had a number of discussions with companies, utilities, regulators and others during the course of the investigation. The analysis and recommendations contained in this report are of course the Commission's own, and no agreement should be presumed from any of those referred to above. Similarly, so too are any omissions or errors.

Endnotes

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