Mayor's Transport Strategy – Part two

Challenges, policies and proposals

Chapter four – Challenges and strategic policies

4.1 Introduction

107 Chapter three has set out the context for the transport strategy: London's transport system provides international, national, London-wide, sub-regional and local connections. The way in which different modes are used reflects the land use pattern of London, with marked differences between the CAZ, Inner and Outer London. London is forecast to experience significant growth in population and employment which have implications for the transport strategy.

108 This chapter describes the main challenges facing the transport system within that context, and sets out the policies required to meet the strategy's six goals. The chapter considers each goal and its related challenges, as identified in Figure 2, in turn.

109 This and the following chapter set out a number of policy commitments or requirements, which have implications for TfL and a range of other delivery partners, including the London boroughs, the GLA, LDA, ODA, Network Rail, the police and DfT. These commitments and requirements fall into two categories: policies and proposals. Policies are shown in red boxes, and proposals in green. The proposals that are directly related to the delivery of the policy are listed under it. These proposals are then set out in chapter five. It should be noted, however, that the strategy forms a complete package and all proposals contribute to some extent to achieving each of the strategy's goals. Details of proposals that are currently funded or unfunded are set out in chapter seven[1].

4.2 Supporting economic development and population growth

4.2.1 Supporting sustainable population and employment growth

London's growth

110 As highlighted in chapter three, London's economy and population have expanded significantly since the early 1990s, and are projected to grow further in future. In 2007, the city was home to 7.6 million people and 4.7 million jobs, generating about 24 million trips a day. In spite of the current economic conditions, around 1.25 million more people – and more than 750,000 additional jobs – are expected to be accommodated in London by 2031, which in turn, will lead to at least three million more trips each day.

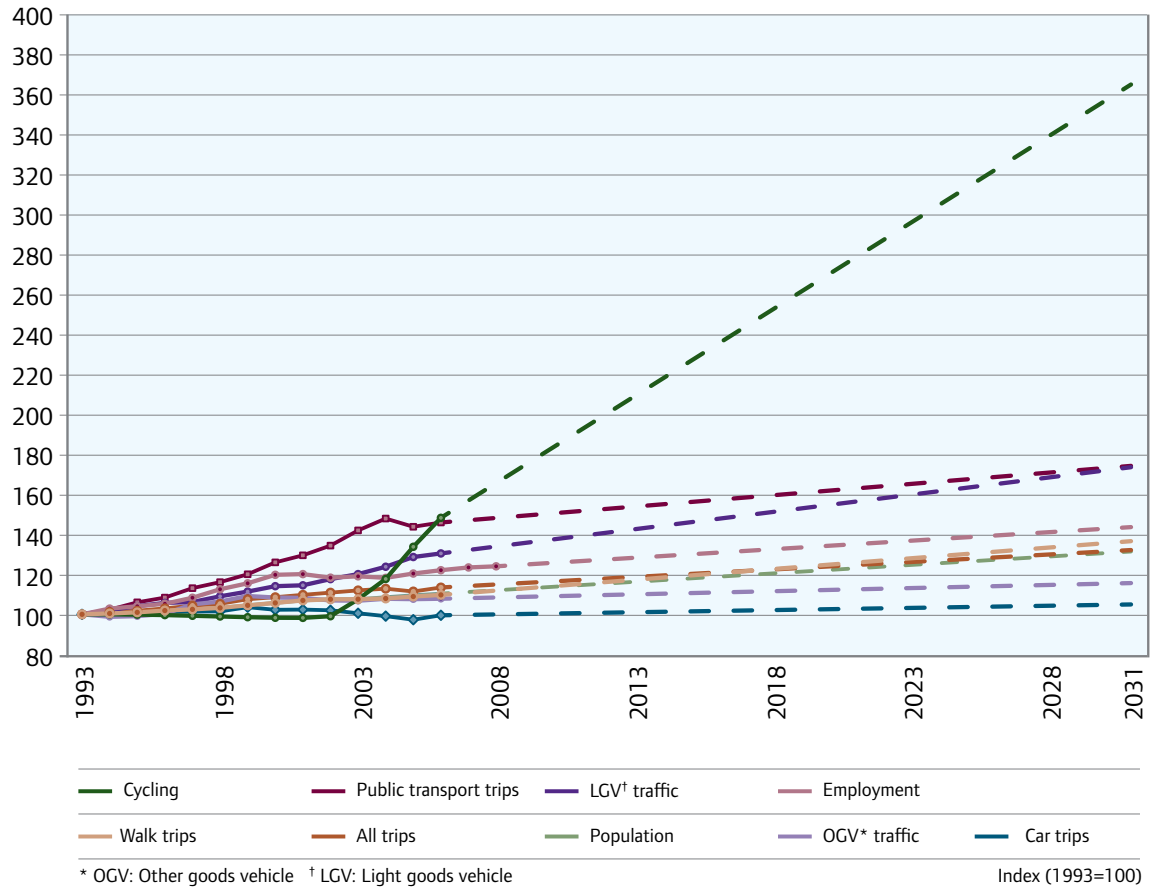
111 Figure 17 shows recent trends in travel demand and the forecast levels to 2031, assuming delivery of the current TfL Business Plan and National Rail High Level Output Specification (HLOS) investment. Use of public transport and cycling will rise at a faster rate than population growth, while car use (for London as a whole) increases only marginally[2].

112 Growth in freight movement is also expected, with the number of LGVs forecast to grow by up to 30 per cent between 2008 and 2031, accounting for 15 per cent of traffic

[1] Links between the MTS and London Plan policies can be found in Annex B

[2] Travel in London 2, Table 2.1, TfL 2010. Trips are indexed to show relative differences in growth rates. They originate from data for complete one-way movements to, from or within London on an average day. In the base year (1993) there were 20.9 million trips daily in total (5.1 million public transport, 10.3 million private motorised transport, 0.3 million cycle, 5.2 million walk trips)

Figure 17: London trends and forecast in population, employment and trip making, index from 1993



London trends (since 1993) and 2031 projections for population, employment and trip-making – with TfL Business Plan and HLOS National Rail investment. The MTS package, including currently unfunded policies, will affect the trends in trips including achieving the Mayor's aim of a 400 per cent increase in cycling from 2000. This assumes constant trip rates. However, trip rates may vary and hence these forecasts should be considered as indicative

on London's roads. Freight tonnage carried by rail is expected to increase by 30 per cent nationally between 2006 and 2015, although some 85 per cent of all freight movement will remain carried by road.

Growth in demand for travel between London and neighbouring regions

113 Increases in trips in all areas are forecast, however, there is likely to be strong growth in trips from outside the London area, reflecting the strong linkage between the economies of London and the Greater South East and population and employment growth in these neighbouring regions. Rail demand (passenger kilometres) is projected to grow by approximately 35 per cent between 2006 and 2031. Many parts of the network are already at capacity or will reach it long before 2031. However, while planned improvements will alleviate crowding on many routes, significant crowding will remain in certain key locations. If no action is taken to increase London's national connectivity by rail, growth will be constrained and more traffic will be forced on to already congested roads.

Growth in demand for travel within London

114 Strong growth in demand will occur in Inner London as a result of significant increases in population and jobs in this part of the city. This will exert pressure on the already congested roads and more crowded public transport in this area.

115 Demand increases on radial routes to central London puts pressure on the rail and Tube networks and increases crowding, while increases in travel in Outer London tends to put pressure on the road network (cars and buses) and hence increases congestion.

116 If London is to develop more sustainable patterns of growth and development, a more effective integration of land use and transport planning is needed. CAZ and the Docklands will remain the focus for the most significant employment growth, and radial transport links will continue to be essential for commuting into central London. This growth will put further pressure on these radial links and increases the need for investment in new rail, the Underground; and to make best use of the bus network and manage the limited road space even better.

117 The London Plan also seeks to support the development and growth of Outer London in appropriate locations, such as the town centres (and thus closer to where people live) and strategic development centres. This requires improvement in radial connectivity to central London as well as improving transport links into metropolitan and other Outer London town centres.

Policy 1

The Mayor, through TfL, and working with the DfT, Defra and other government agencies, regional development agencies, Network Rail, train operating companies, London boroughs and other stakeholders, will seek to develop London's transport system in order to accommodate sustainable population and employment growth.

This policy is taken forward by the proposals in chapter five.

4.2.2 Improving transport connectivity

4.2.2.1 Supporting and developing London's international, national and inter-regional transport connectivity

118 London is an international city, rivalled only by New York in its role in the global economy, and as such it is reliant on the international trade of skills, goods and services. It is a leading city destination in the world for international travel, attracting around 15 million international and 11 million UK overnight visitors every year. London also makes a vital contribution to the UK economy, generating 18 per cent of the country's Gross Value Added from only 13 per cent of the population. It is also the centre of the Greater South East, the fastest developing area in the country, and the 2012 Games will showcase the city to a global audience.

119 Sufficient, fast, efficient and reliable international, national and inter-regional links are therefore essential for continued success of the London and UK economy. Expanding access to business and employment markets and improving the speed and reliability of passenger and freight movements will maximise the efficiency of business operations and improve productivity. A number of improvements are being delivered over the next 10 years and further improvements beyond 2017 will be required to ensure London remains a premier world city. Improved international, national and inter-regional links also form part of the DfT's national transport strategy, 'Delivering a Sustainable Transport System'.

120 The Mayor recognises the important role of aviation in providing international connectivity vital for London's economy. However, he believes the aviation industry should meet its full environmental and external costs, as set out in the draft replacement London Plan, policy 6.6c.

Policy 2

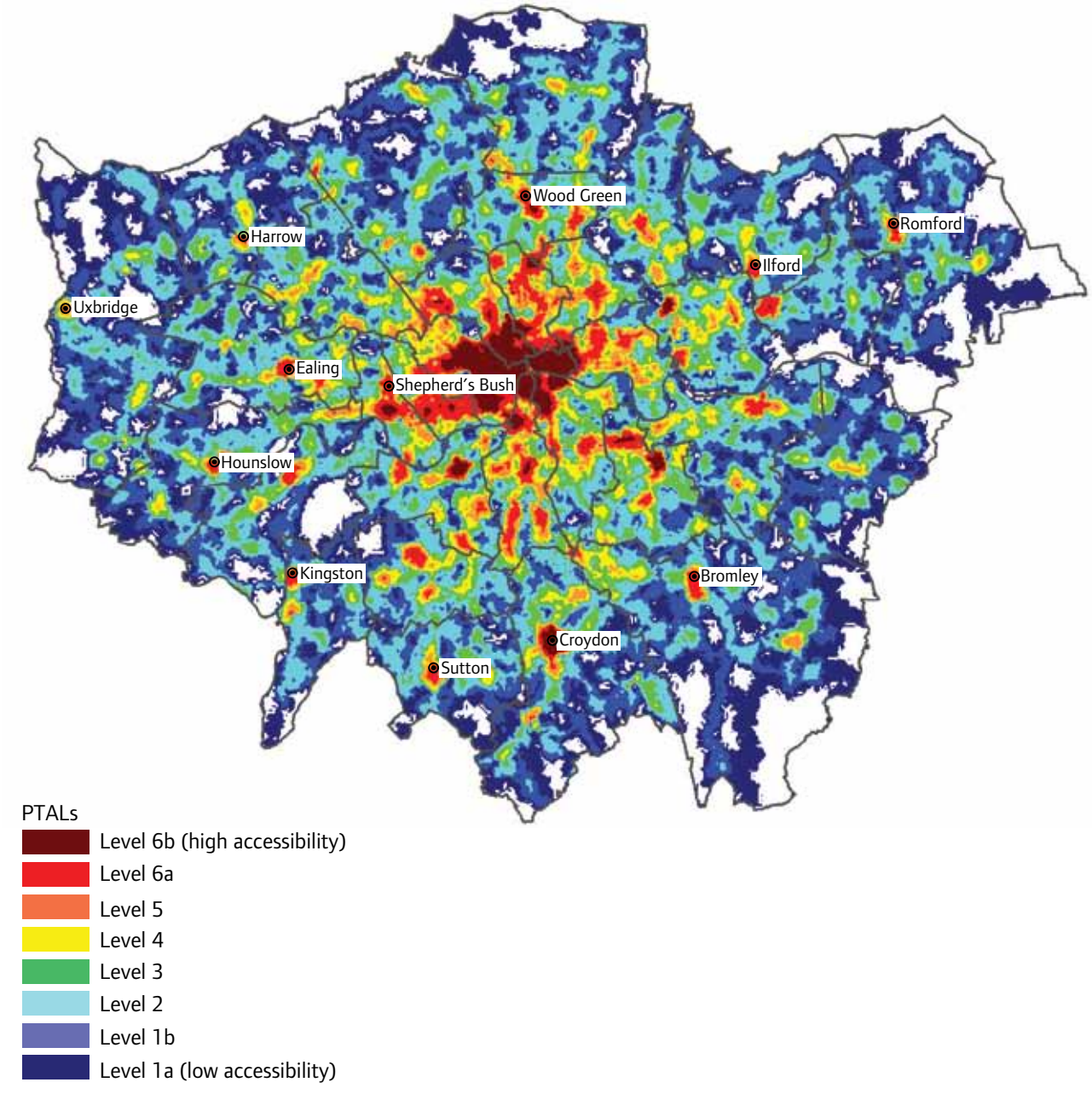
The Mayor, through TfL, and working with the DfT, government agencies, Network Rail, train operating companies, London boroughs, coach operators and other transport stakeholders, will support sustainable capacity enhancements to inter-regional, national and international rail and coach services, high-speed rail hubs and the strategic road network serving London.

This policy is taken forward by proposals: 1, 2, 3, 4, 5, 6, 7, 8, 11, 28, 48, 49 and 50.

4.2.2.2 Increasing transport accessibility (London-wide)

121 Better transport provision is key to improving accessibility to jobs, services, education and training opportunities and social networks. Currently, more than 90 per cent of Londoners live within 400 metres of a bus stop or station. A standard measure of accessibility in London is the public transport accessibility level (PTAL) which uses the range, proximity and frequency of public transport services for any given location to score accessibility to the transport system at peak times. Figure 18 shows that the areas of the Capital with highest PTAL are in central

Figure 18: Public transport accessibility levels (PTALs), 2006



London and town centres. Those with the lowest are generally areas with low population densities in Outer London. Parks, green belt, metropolitan open land and the Lea Valley appear as pockets of low public transport accessibility.

122 The implementation of rail schemes including Crossrail, Thameslink and the East London line extension will mean the percentage of Londoners with high levels of accessibility to the public transport network (PTAL 4 or above) will rise from 31 per cent in 2009 to 38 per cent in 2020. Improved accessibility will continue to be a consideration[1] for the planning of the bus network, while there will be investment to encourage a step change in walking and cycling. This will improve accessibility at a local level, improve access to, and from, public transport services, increase levels of physical activity and improve access for people on lower incomes.

123 London is increasingly becoming a '24/7' city and Londoners and visitors to the Capital expect public transport services to be provided accordingly. Much has been done over the last decade to increase off-peak and weekend service levels although service frequencies are still, in many cases, lower reflecting lower levels of demand. This is particularly the case on parts of the National Rail network where service frequency can be lower at off-peak times and weekends.

124 The planning system may be able to determine the overall pattern of land uses, but the way both the public and private sector provide their activities and facilities, can have a considerable impact on how people access their services, with consequent demands for travel. The way healthcare, education and retailing is provided, for example, in terms of transport accessibility can be changed without necessarily having to change land use patterns or requiring planning permissions. Joint working between service providers is therefore essential to ensure investment decisions are made that promote maximum accessibility for all, and make the best use of available capacity and connectivity of the transport system.

Policy 3

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will seek to improve public transport accessibility and conditions for cycling and walking in areas of lower PTAL, where there is an identified need for improving accessibility; and to improve access to economic and social opportunities and services for all Londoners.

This policy is taken forward by proposals: 9, 15, 16, 22, 23, 36, 45, 46, 51, 52, 54, 57, 58, 59, 60, 83, 84 and 85.

4.2.2.3 Delivering radial capacity and connectivity improvements into central London

125 Although the Mayor is keen that London's economic success is shared throughout the city, he fully supports the continued success of the

[1] Bus service planning guidelines are to provide services which are: comprehensive, frequent, simple, reliable, accessible and value for money

central London in order to maintain London's position as a leading global centre. Due to an unrivalled range of services, from museums to shops, and a growing number of jobs, the CAZ will remain the largest trip destination in London. As it continues to grow, the Docklands area is increasingly generating similar 'radial' trips which need to be supported by the strategy. It is therefore important that all areas of London have appropriately sufficient connectivity to central London (as well as to Docklands).

126 Figures 19 and 21 show the extent of Tube, DLR and National Rail crowding on the current networks in 2006. Crowding can be seen on radial routes to the City and West End and on the broad northeast-southwest and north-south corridors and between the City and Docklands.

127 Figures 20 and 22 show the extent of Tube, Docklands Light Railway (DLR) and National Rail crowding in 2031, following the delivery of Crossrail and other committed investment (for analysis, known as the 'reference case'[1]) across the Underground and National Rail network. Despite a public transport capacity increase of above 30 per cent to 2031, the increase in demand for travel resulting from population and employment growth (and the spatial pattern of that growth) will in many areas match the increase in capacity. Crowding on some links improves; on others it worsens when the effect of demand growth (from higher population and employment) to 2031 is greater than the investment to 2018. Overall,crowding – measured as the proportion of Tube/rail passenger kilometres which are in excess of Passenger Guideline Capacity – is expected to be lower in 2031 than 2006. But, crowding will persist, continuing to make journeys uncomfortable for the individual and restricting economic growth. In particular, crowding persists on the broad northeast-southwest and north-south corridors and links in the vicinity of the City and Docklands. These conditions will persist unless there is further intervention. This strategy is the Mayor's response to this crowding, as well as other transport challenges.

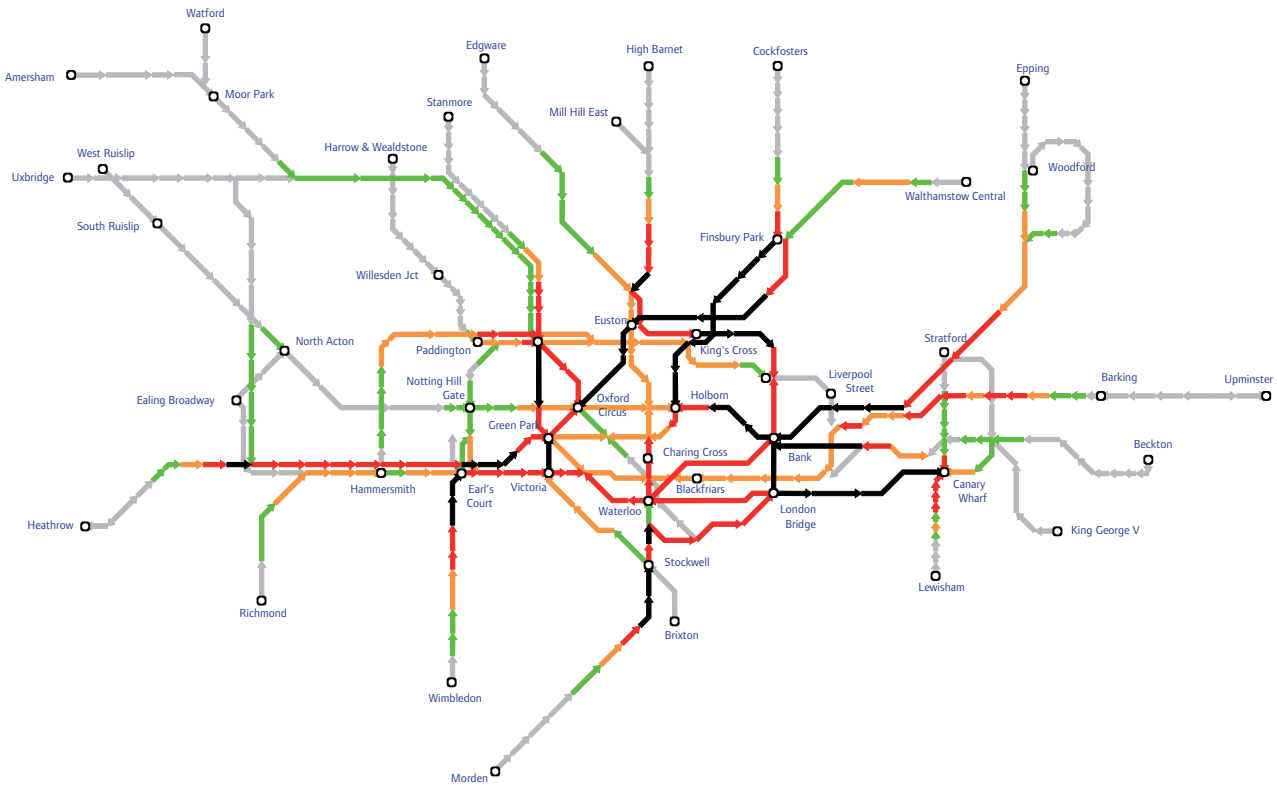
Policy 4

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will seek to improve people's access to jobs, business' access to employment markets, business to business access, and freight access by seeking to ensure appropriate transport capacity and connectivity is provided on radial corridors into central London. In particular, the Mayor will seek to maximise public transport connectivity and capacity benefits on the two main east-west and north-south corridors (incorporating the Crossrail and Thameslink projects respectively). The Mayor will also explore opportunities to make greater use of the Thames for east-west passenger and freight transport across the city.

This policy is taken forward by proposals: 5, 6, 7, 8, 9, 11, 15, 17, 19, 22, 23, 36, 37, 38, 54 and 128.

[1] The 'reference case' is defined in section 6.1 and the glossary

Figure 19: Tube and DLR crowding, 2006

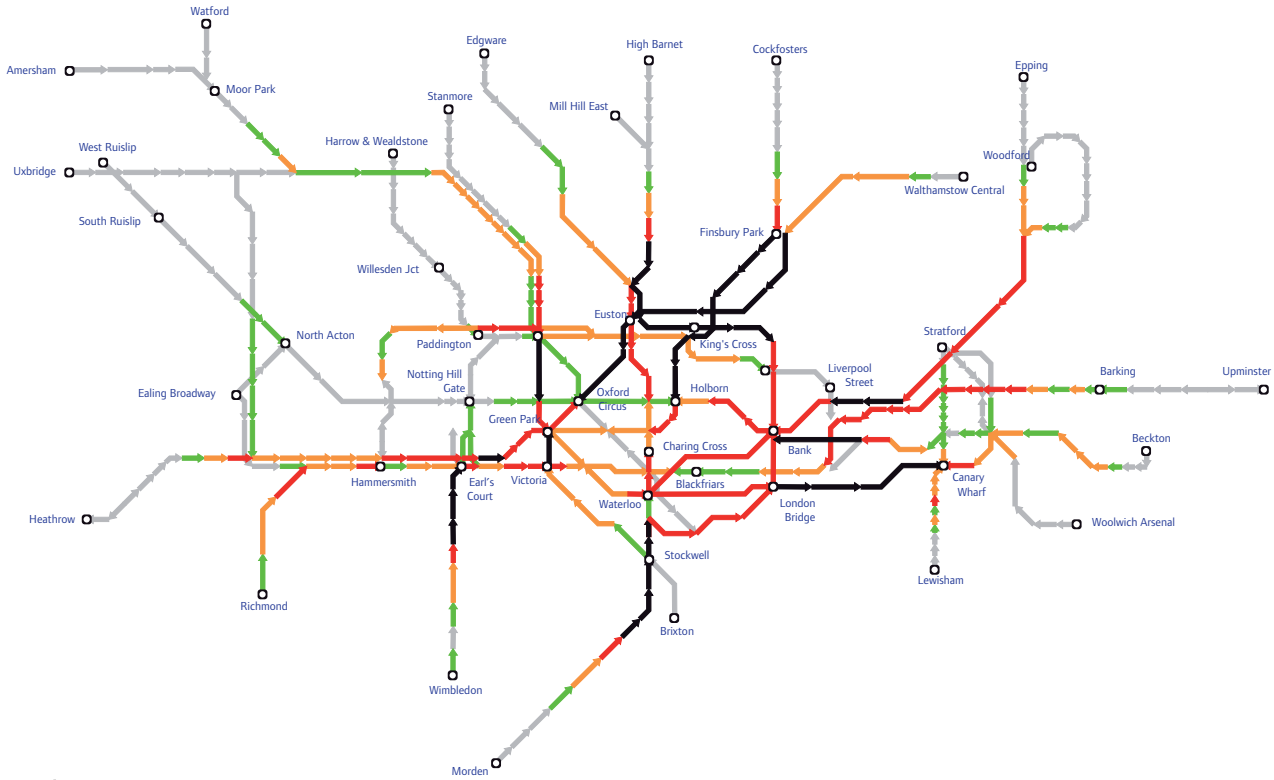


Standing passengers per sq metre

- < 1 standing per sq metre
- 1–2 standing per sq metre
- 2–3 standing per sq metre
- 3–4 standing per sq metre
- > 4 standing per sq metre

This schematic map does not include all details of the network

Figure 20: Tube and DLR crowding, 2031 (with committed funding/reference case)

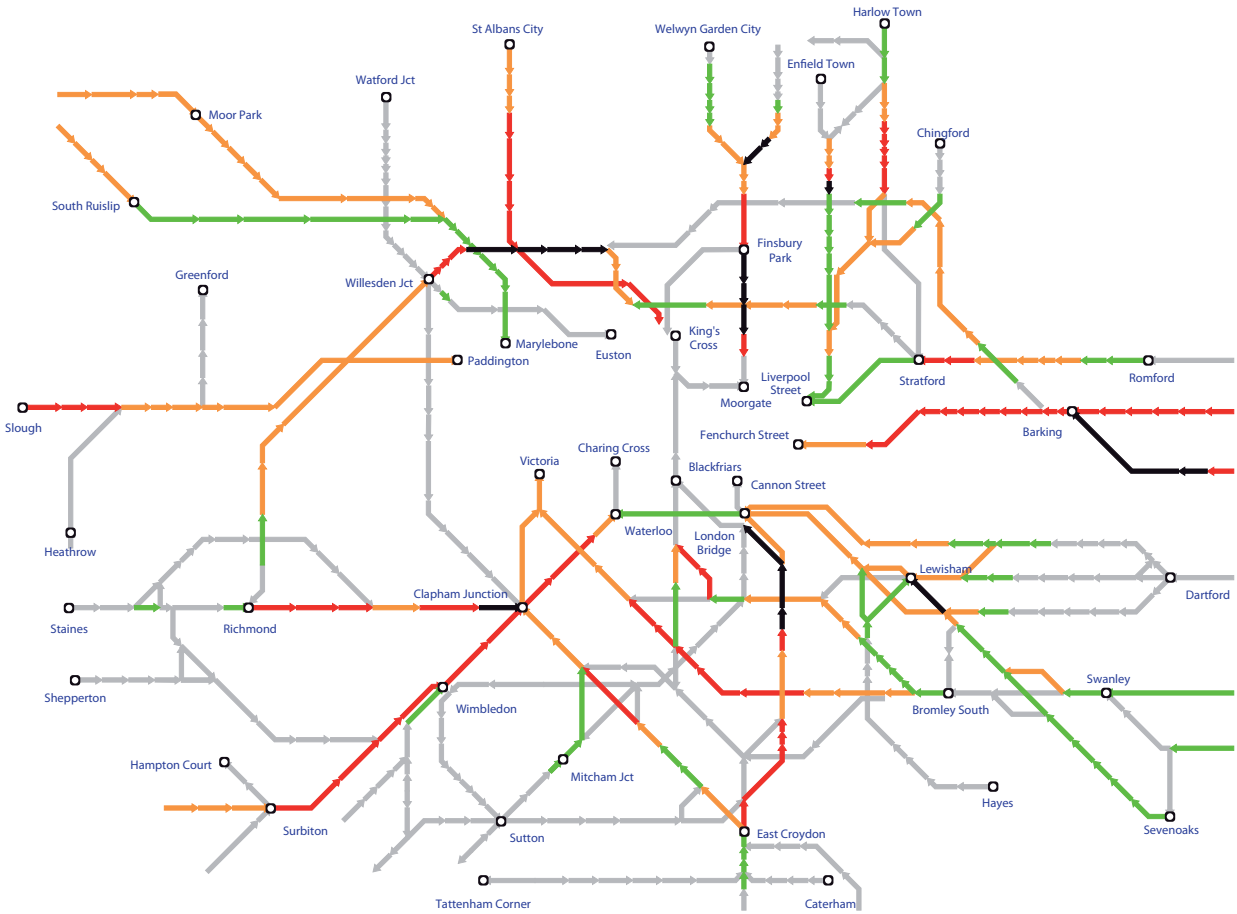


Standing passengers per sq metre

- < 1 standing per sq metre
- 1–2 standing per sq metre
- 2–3 standing per sq metre
- 3–4 standing per sq metre
- > 4 standing per sq metre

This schematic map does not include all details of the network

Figure 21: Rail crowding, 2006

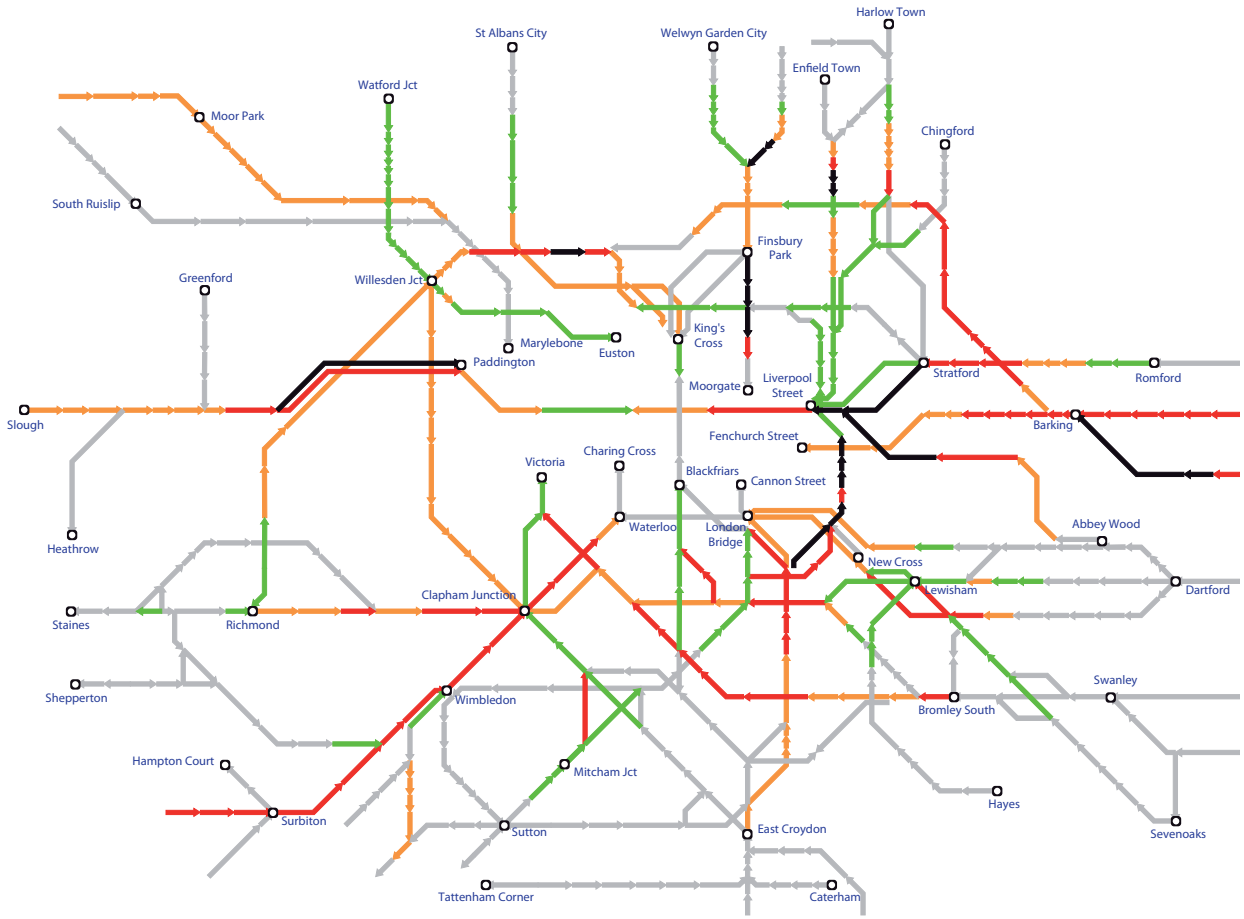


Standing passengers per sq metre

- < 1 standing per sq metre
- 1–2 standing per sq metre
- 2–3 standing per sq metre
- 3–4 standing per sq metre
- > 4 standing per sq metre

This schematic map does not include all details of the network

Figure 22: Rail crowding, 2031 (with committed funding/reference case)



Standing passengers per sq metre

- < 1 standing per sq metre
- 1–2 standing per sq metre
- 2–3 standing per sq metre
- 3–4 standing per sq metre
- > 4 standing per sq metre

This schematic map does not include all details of the network

4.2.2.4 Delivering transport improvements within central London

128 Given the high levels of demand and the pressures on transport infrastructure and space, it is unsurprising that there remain significant transport challenges within the CAZ, despite the high levels of investment. It is essential that the currently planned capacity investment in Crossrail and the Tube is delivered; however, this will also pose challenges in terms of managing the disruption caused during construction.

129 The demands for road space for public transport, freight, private cars, taxis, coaches cycling and walking and for the public realm are very acute in the CAZ due to the density of activity in the area. The quality and management of streets and public spaces is becoming ever more important to the boroughs within central London, whose decisions deliver many of the transport improvements. This is further reinforced by the need to access the utility infrastructure beneath the roads and the need for space for waiting and loading (including cycling, coaches, taxis, buses and freight) and transport facilities. Balancing these different demands and managing the road network effectively is a major challenge within the CAZ. Improving the quality and experience of the central area and its public realm will be a prime objective in this regard, particularly for pedestrians.

130 Another key focus for the CAZ is the maintenance and enhancement of the capacity of termini and interchanges and the ability to disperse passengers to their onward destinations. Elsewhere, the strategy sets out the importance of radial links into central London. While this will help commuters and others to access the CAZ effectively, the stations and transport system within the area need to be able to cope with these additional pressures. The rail termini in the CAZ currently experience very high levels of crowding, particularly during the morning peak. Many lines and stations on the Underground and bus services, and the areas around stations, also experience significant congestion and crowding where passengers interchange to continue their journeys.

131 Many of these onward journeys across the CAZ are short distance journeys that could be walked, particularly if passengers are aware of alternative options. The strategy will seek to relieve the pressure on central London termini by developing strategic interchanges to facilitate orbital movement and help people to avoid travelling through central London if they do not need to (this is set out in section 5.10).

132 Beyond this, the priority challenges for the CAZ include alleviating crowding more widely on the public transport network and ensuring greater resilience; maximising access to business and employment markets (on a London-wide, national and international scale); and addressing environmental concerns including air quality.

133 Alignment between transport and regeneration priorities will also be of fundamental importance to achieving sustainable growth within central London. There are a number of

areas at the fringes of, or surrounding, the CAZ where improving accessibility and supporting regeneration is of particular concern; for example, Vauxhall/Nine Elms, Elephant & Castle, Peckham, Brixton, Earls Court and the City fringe. In many cases, investment in public transport will be key in terms of enhancing accessibility and supporting development opportunities. It will also be important to ensure that the Opportunity Areas, areas for intensification and strategic development centres are well served by transport to enable their sustainable development.

Policy 5

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will seek to ensure efficient and effective access for people and goods within central London through providing improved central London connectivity and appropriate capacity. This will include improving access to major public transport interchanges for pedestrians, cyclists and by public transport.

This policy is taken forward by proposals: 5, 7, 9, 11, 15, 17, 19, 22, 23, 26, 30, 31, 32, 33, 36, 37, 45, 54, 56, 60, 124, 126 and 129.

4.2.2.5 Delivering radial capacity and connectivity improvements to Strategic Outer London Development Centres and metropolitan town centres

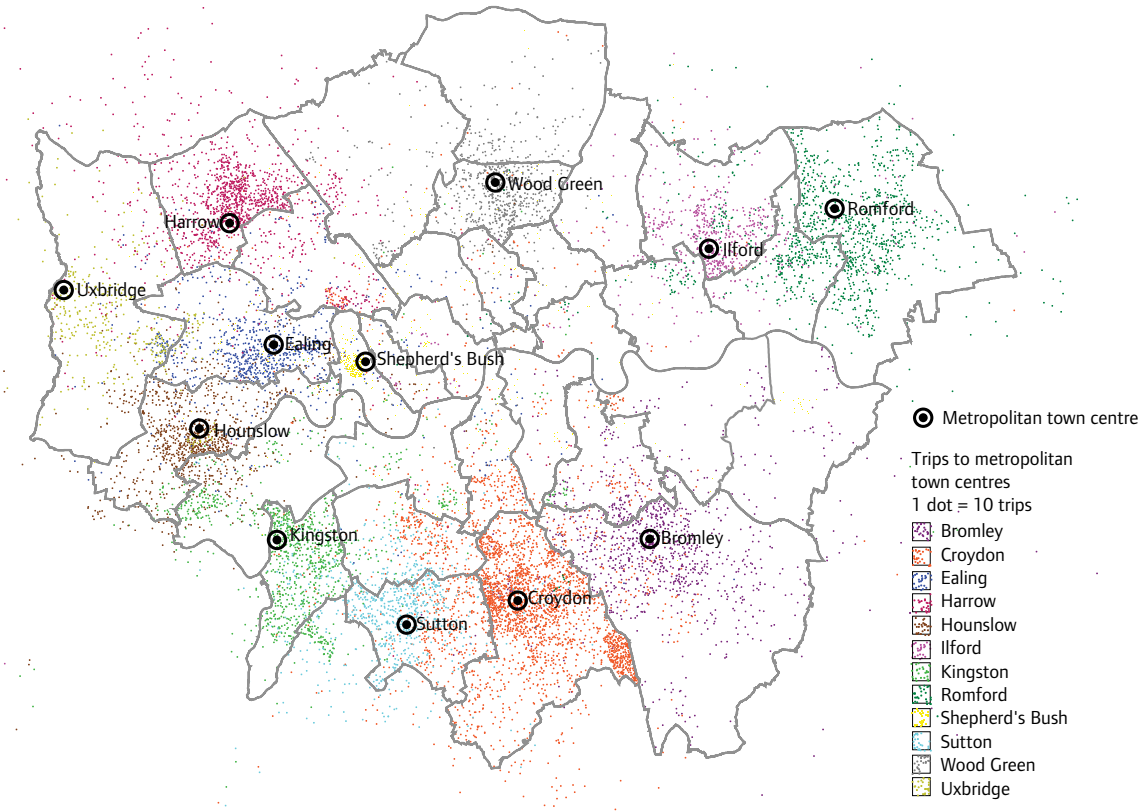
134 Supporting the sustainable growth and continued viability and vitality of the 12 existing and three potential metropolitan town centres and the emerging Strategic Outer London Development Centres are spatial priorities in the London Plan.

135 Strategic Outer London Development Centres, as described in the London Plan in policy 2.16, could play a significant role in achieving a step change in the economic performance of Outer London. They potentially or already function above the sub-regional level and therefore have broad catchment areas.

136 Competition from regional shopping centres and the ease of access to areas such as the Thames Valley and Cambridge/Stansted corridor for high tech employers has placed great pressure on London's town centres. Each of the metropolitan town centres have a distinct catchment area which is illustrated in Figure 23. In some cases, this includes areas outside London.

137 Good transport links from the surrounding areas, including outside London, are required to allow easy, efficient access to jobs and services to enable Strategic Outer London Development Centres to grow in strength, metropolitan town centres to compete and to remain successful, and for the potential metropolitan town centres to fulfil their role. Potential enhancements

Figure 23: Local trips to metropolitan town centres



includes those shown in Figure 24. There are also potential opportunities to continue to improve bus, cycling and walking accessibility to all of these centres.

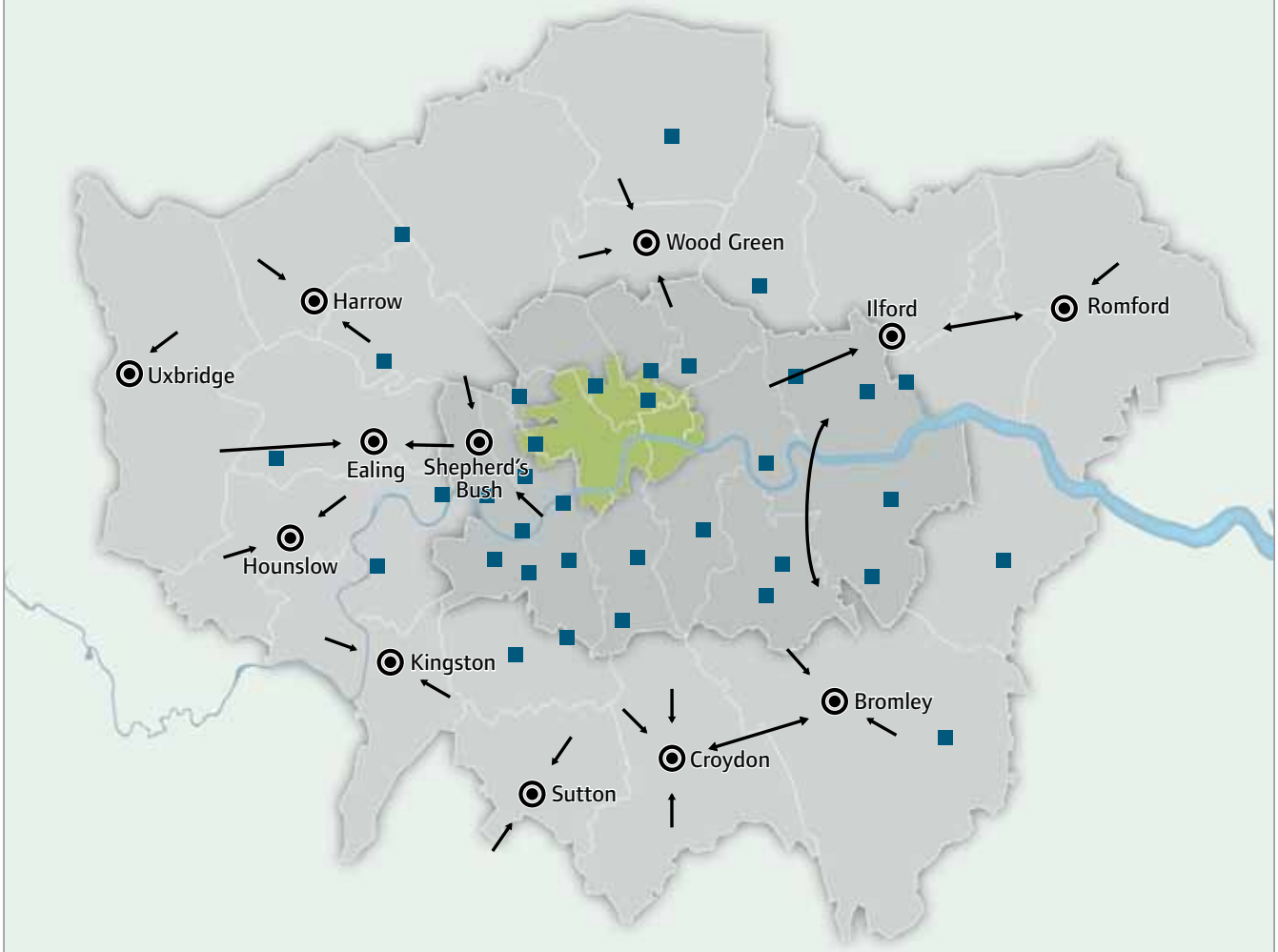
138 Detailed transport proposals for Strategic Outer London Development Centres and town centres will be developed, taking into account connectivity and crowding on radial corridors to, and from, the town centres as part of the London sub-regional transport plan process. These will be encouraged through other work, all of which will acknowledge the important role of the London boroughs in determining local priorities.

Policy 6

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other transport stakeholders, will seek to provide appropriate connectivity and capacity on radial transport corridors into current and potential metropolitan town centres and to Strategic Outer London Development Centres.

This policy is taken forward by proposals: 16, 23, 30, 31, 34, 45, 52, 54 and 127.

Figure 24: Enhanced links to, and between, metropolitan town centres



Key

- Metropolitan town centre
- Major centre
- Illustrative enhanced link

Enhancements will reflect local need and travel characteristics, and include:

- Better information and marketing for bus and rail links
- Improved bus, walking and cycle routes to/from town centres
- Maximising the benefits of existing public transport services

4.2.2.6 Orbital connectivity

139 London's transport system provides for orbital travel through existing orbital bus services, orbital London Overground and National Rail suburban services and orbital roads such as the North and South Circulars. However, planning and undertaking orbital journeys can still be difficult. The strategy will seek to improve Londoners' awareness of orbital public transport options as well as making improvements to the services themselves where value for money can be demonstrated. The strategy will also seek to improve orbital road links.

140 Because of the relatively low demand for orbital public transport, particularly in Outer London (compared to radial transport to central London), the most value for money approach will be (following the delivery of the London Overground investment which will significantly improve orbital public transport connectivity in London) to invest in better journey planning information and improved interchange quality. This will involve focusing on strategic interchanges, and better integration of the National Rail network with other transport modes; and bringing stations, service frequency and quality to minimum standards.

141 The Mayor will also review opportunities to improve orbital travel opportunities by better linking radial services to Outer London town centres, for example, by combining two separate services or by improving interchange between the services.

Policy 7

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other transport stakeholders, will seek to increase public awareness of existing and planned orbital public transport connectivity in Inner London; and seek to improve orbital connectivity in Outer London, particularly between adjacent metropolitan town centres, where shown to be value for money.

This policy is taken forward by proposals: 14, 15, 16, 23, 34, 39, 45 and 46.

4.2.2.7 Delivering transport improvements within metropolitan town centres

142 London's town centres are a spatial priority in the London Plan. They provide access to a wide range of services and are central to the achievement of integrated transport and land use planning. They also enable all parts of London to make more of a contribution to the city's economic success, complementing the role of the CAZ and underpinning a balanced 'polycentric' structure.

143 In accordance with the 'lifetime neighbourhoods' principle set out by the London Plan (policy 7.1), town centres should be welcoming, accessible and inviting for everyone, regardless of age, health or disability.

144 Protecting and enhancing the vitality and viability of London's town centres is therefore

Spotlight

Transport and town centres

In addition to London's 12 metropolitan town centres, there are 115 other important major and district town centres. These each provide their own mix of employment, retail, cultural and social activities for the people and businesses located there, or that travel to them.

The importance of these centres is illustrated by the fact that 18 of the top 20 destinations in Outer London are town centres, with shopping and employment the main reason for travelling to them. Despite almost a third of people travelling to town centres on foot or bicycle, the majority, around half, travel by car. For instance, only one in eight trips to district centres in Outer London is made by public transport.

When travelling to town centres of all sizes, approximately two thirds of people travel less than three kilometres. These journeys are an ideal length to walk and cycle, or take public transport. Providing convenient, good quality bus access to town centres and improving walking and cycling links will encourage mode shift away from the car and ensure that more people have access to the opportunities they need.

In addition to strategic improvements to the transport network, the Mayor and TfL will work with the boroughs to develop a package of improvements within local town centres. This will focus on providing better streets and facilities to make walking and cycling easier and to improve the public realm making town centres more attractive places to live, work and visit and helping to deliver 'lifetime neighbourhoods'.

a priority for the strategy, through better access for people and freight, improving the public realm and security, and making them more attractive places to live and for businesses to locate. This will complement policies in the London Plan and EDS and will help town centres to compete with out-of-centre business parks, shopping centres and new housing developments beyond London's boundary. As a result, they will contribute to a compact city, reduced emissions and traffic congestion, making it easier for all to access jobs, services and leisure opportunities.

145 The Mayor's manifesto commitment was to work much more closely with the boroughs and recognise that decisions on local transport needs are often best made by those closest to them. Each town centre is different and therefore a package of measures will be required. Interventions could include improved public realm in the retail and leisure core, improvements in freight access, loading and unloading, introducing cycle hire and cycle superhighway schemes, improving bus access to the town centre, better pedestrian wayfinding through Legible London, park and ride/park and bike, and improved car parking with priority given to low emission or electric vehicles.

Policy 8

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other transport stakeholders, will support a range of transport improvements within metropolitan town centres for people and freight that help improve connectivity and promote the vitality and viability of town centres, and that provide enhanced travel facilities for pedestrians and cyclists.

This policy is taken forward by proposals: 24, 26, 27, 30, 40, 45, 54, 57, 60, 61, 79, 80, 84, 85, 115, 119, 124 and 126.

4.2.3 Delivering an efficient and effective transport system for people and goods

4.2.3.1 Integrating land use development with transport planning

146 Using land use policies contained within the London Plan, the Mayor will encourage patterns and forms of development that improve accessibility of services and reduce the need to travel. High trip generating development will be encouraged in areas with good public transport access and sufficient existing or planned public transport capacity. In east London, in particular, a priority is to maximise development opportunities around existing or committed transport infrastructure, making the best use of available capacity (for example, the Royal Docks).

147 Through setting appropriate parking standards, encouraging smarter travel planning and making public transport more attractive, the Mayor will encourage the use of public transport, walking, cycling and car sharing.

148 The Mayor will also ensure that land for transport is safeguarded where necessary in accordance with London Plan policy 6.2, to allow for efficient operation and future expansion of the transport network, for passengers and freight.

149 Although the borough is the local planning authority for development proposals in London, major planning applications that meet certain criteria are referred to the Mayor for his consideration. As part of this process, TfL provides advice on transport impacts and mitigation to ensure that new developments are fully integrated with the transport network. This includes ensuring that transport accessibility, capacity and connectivity is sufficient to cater for new residential and commercial development. Where necessary, improvements to the transport network are secured as part of this process. TfL offers a pre-application advice service that enables developers to identify transport issues at an early stage in the planning process.

150 For all planning applications that meet the criteria for referral to the Mayor, comprehensive transport assessments, travel plans, delivery and servicing plans (DSPs) and construction logistics plans (CLPs) will need to be submitted in accordance with TfL best practice guidance. These documents should demonstrate how the application complies with transport policies in the London Plan and include measures to address likely impacts on the transport network.

151 The proposals contained within the MTS and sub-regional transport plans will need to be included in borough core strategies in their Local Development Frameworks and will inform the use of section 106 agreements and/or tariffs to secure transport improvements or mitigation as part of the development control process.

Policy 9

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other transport stakeholders, will use the local and strategic development control processes to seek to ensure that:

a) All high trip generating developments are located in areas of high public transport accessibility, connectivity and capacity (either currently or where new transport schemes are committed)

b) The design and layout of development sites maximise access on foot, cycle and to public transport facilities, for example, via safe walking and cycling routes and provision of secure cycle parking

c) Access for deliveries and servicing, maximise the opportunities for sustainable freight distribution where possible

d) Land for transport use is safeguarded in line with London Plan policy and Supplementary Planning Guidance

e) Planning contributions are sought for transport improvements where appropriate

This policy is taken forward by proposals: 2, 9, 15, 22, 36, 37, 38, 39, 45, 48, 49, 50, 51, 54, 57, 58, 60, 97, 99, 119 and 126.

4.2.3.2 Reliability and resilience

152 A significant challenge in ensuring the reliability and resilience of the transport system is its age. London has some of the oldest, and most intensively used, transport infrastructure in the developed world. This, coupled with a substantial inheritance of long-term under-investment and deferred renewals, presents some exceptional infrastructure challenges. Breakdowns and system failures as a result of deferred maintenance and life-expired assets can significantly undermine the efficiency of transport operations. Although good progress has been made in recent years in reducing maintenance backlogs, substantial programmes of further investment will be required into the future.

153 The reliability of the Capital's transport networks is important to both businesses and individuals. Congestion, both on the road and public transport networks, represents a significant cost to businesses which rely on transport not only so their workforce and customers can reach them, but also to ensure their goods can be transported quickly and cheaply. Surveys show that businesses rate the reliability of transport journeys (both passenger and freight) as being of greater significance than absolute journey time, hence the importance of 'smoothing' traffic flows and, in particular, improving journey time reliability. Figures 25 and 26 show the extent of highway congestion (in terms of average delay per vehicle kilometre travelled – it is currently not possible to forecast journey time reliability) in 2006 and 2031, following implementation of the TfL Business Plan, Crossrail and HLOS investment. It can be seen that congestion is widespread in central and Inner London, and extends to Outer London town centres and large areas of south London.

154 The impact of system failures and breakdowns is greatly increased the more the Capital's transport systems are operated at, or beyond, their designed capacities, reducing the resilience of the network to cope with delays or unforeseen events. Lack of resilience puts London's economic growth at risk as even relatively minor incidents can cause disruption for large numbers of users.

155 Much is already being done to deal with incidents and disruptions. However, population and employment growth, coupled with ageing assets and continuing utilities works, will continue to put pressure on the already congested road network and, consequently, the probability of delays will rise. Increases in road freight will mean that more of the network will have to function at or beyond peak capacity, potentially reducing resilience to delays. A key challenge is therefore to manage and maintain the transport network, as well as

Figure 25: Highway congestion, average vehicle delay, 2006

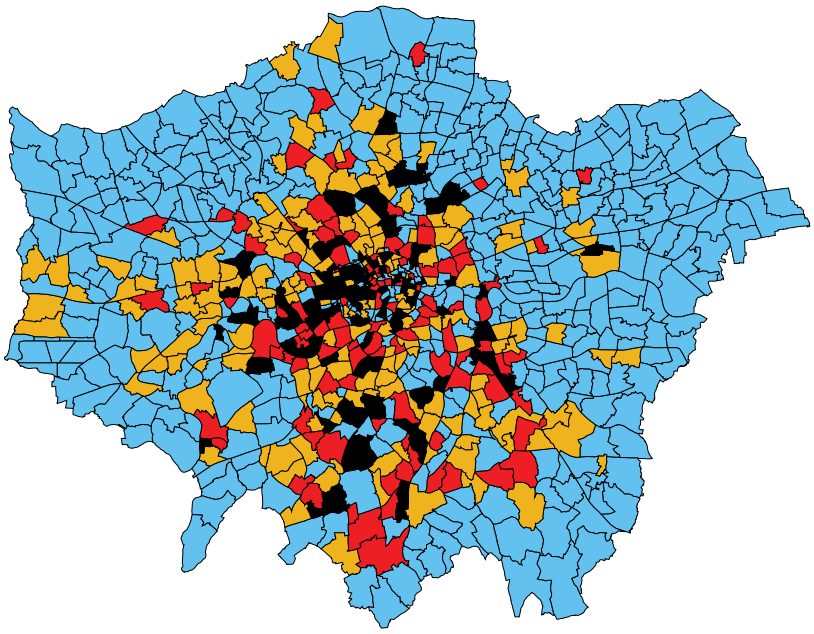
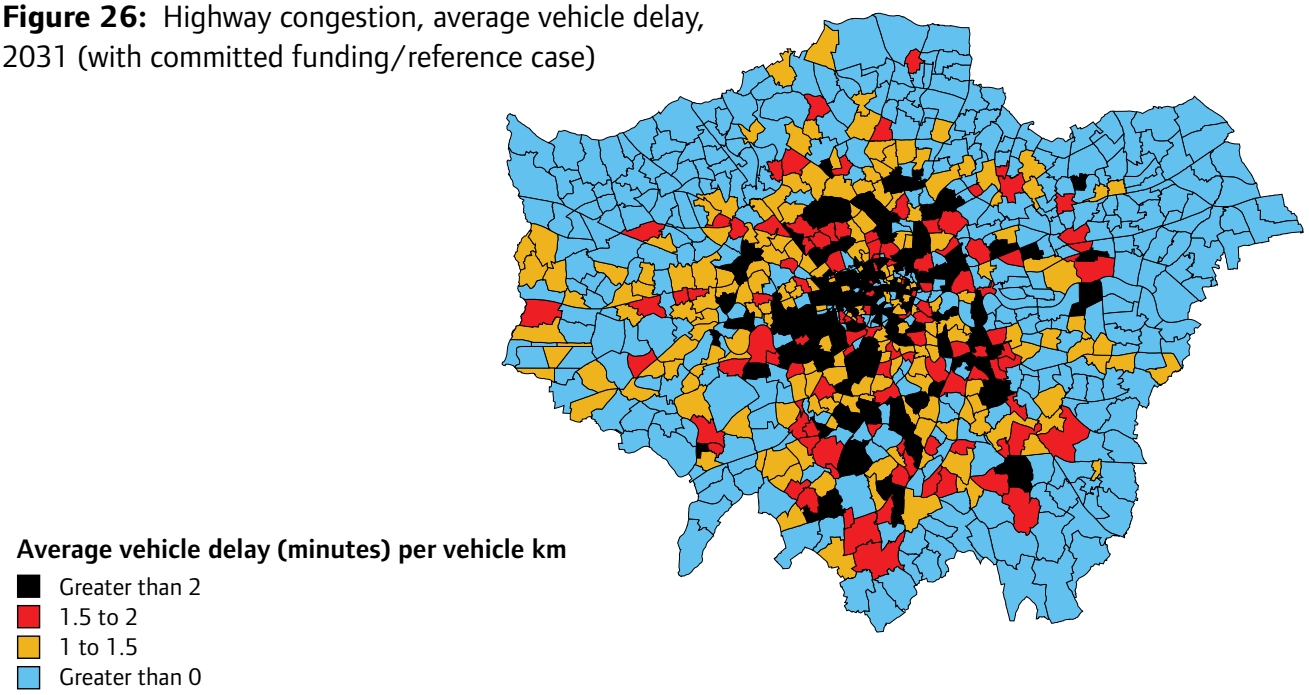


Figure 26: Highway congestion, average vehicle delay, 2031 (with committed funding/reference case)



Average vehicle delay in the morning peak compared to free flow times

managing demand if required, in such a way as to continue to provide a reliable service.

156 Between them tax and farepayers bear the cost of providing London's transport system. While the transport network should deliver a fast, reliable, efficient and safe service, it should also do so in a cost-effective way. This means tightly controlling operating costs and capital expenditure, while optimising the use of existing infrastructure.

157 To minimise the costs borne by the fare and taxpayer, TfL will continue to review its operations to identify and implement further worthwhile measures to reduce costs and deliver greater efficiency.

Policy 10

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders including the private sector, will seek to improve the efficiency and effectiveness of the operation of the transport system, bring transport assets to a good state of repair, and then maintain them in that condition.

This policy is taken forward by proposals: 10, 11, 12, 13, 17, 18, 19, 21, 23, 24, 30–39, 45, 46, 115, 116, 117, 118, 119, 121, 122, 123, 129 and 130.

4.2.3.3 Changing travel behaviour

158 In order to make the best use of London's limited road space, encouragement of more efficient modes of transport in terms of road space will continue, in particular buses, cycling and walking. Alongside this, TfL will continue to work with the boroughs to deliver a smarter travel initiatives to encourage people to choose between the full range of travel options and increase the share of journeys made by walking, cycling and public transport.

159 To achieve the desired economic and other strategy outcomes, challenging mode shifts are necessary. The strategy intends to build on the significant achievements to date, with an aim of increasing the mode share[1] of public transport, walking and cycling from 57 per cent to 63 per cent[2] (34 per cent public transport, 25 per cent walking, five per cent cycling)[3] or further should road user charging be required to meet the strategy's goals. This means that between 3.5 and 4.5 million extra trips each day will need to be made by public transport, walking and cycling to support the growth envisaged in the London Plan (allowing for mode shift as well as population and employment growth). The mode shifts are challenging but achievable with the investment and policies set out by the strategy.

1 In terms of trips, there has been about a five per cent increase in public transport mode share between 2000 and 2008. In terms of journey stages, there has been a seven per cent increase in public transport mode share between 2000 and 2008. See mode share in glossary

2 The projected mode share change from the strategy is set against a 2006 baseline

3 Numbers rounded to the nearest one per cent

Policy 11

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will seek to reduce the need to travel, encourage the use of more sustainable, less congesting modes of transport (public transport, cycling, walking and the Blue Ribbon Network), set appropriate parking standards, and through investment in infrastructure, service improvements, promotion of smarter travel initiatives and further demand management measures as appropriate, aim to increase public transport, walking and cycling mode share.

This policy is taken forward by proposals: 51, 52, 53, 54, 57, 59, 61, 83, 115, 116, 120, 125 127, 129 and 130.

4.2.3.4 Improving efficiency of freight distribution

160 Freight and servicing is vital for ensuring London is able to function as a dynamic world city. Freight accounts for 17 per cent of all London's traffic and is the second largest user by mode on London's streets. The London Freight Plan (2007) specifies a number of projects to improve the distribution of freight across London. DSPs are one such example, which aim to help increase the operational efficiency of the highway network, reduce conflicts with other street users and contribute to a reduction in CO_2 emissions, congestion and collisions. DSPs will also help increase the availability and use of safe and legal loading facilities and will eventually be integrated into the travel plan process, and monitored in the same way. Consolidation centres and break-bulk facilities – facilitating the use of low carbon vehicles for the movement of freight in sensitive areas – will also be needed to improve the efficiency of freight distribution. In addition, TfL aims to increase the number of freight operators adhering to best practice guidance, and promoting FORS (see section 5.24).

161 These measures, coupled with the projects in the London Freight Plan, will all work together to greatly help improve the efficiency of the distribution of freight across London. Further implementation of the schemes will contribute to an improvement in road network efficiency (see section 5.6), including measures to smooth traffic flow. Road user charging may also be needed to help meet the goals of the strategy depending on the success of these measures (see section 5.27).

162 The London Plan identifies a number of SILs each of which requires suitable access for people and for freight transport to ensure they can be developed to support sustainable economic growth.

Policy 12

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders including business and the freight industry, will seek to improve the distribution of freight through the provision of better access to/from Strategic Industrial Locations, delivery and servicing plans, and other efficiency measures across London.

This policy is taken forward by proposals: 3, 2, 30, 31, 32, 33, 38, 39, 50, 117, 118, 119, 124, 129 and 130.

4.3 Enhancing the quality of life for all Londoners

4.3.1 Introduction

163 Transport has a fundamental impact on the quality of life for all Londoners. In many cases, these impacts are very positive. Over the last 200 years, first through mass access to public transport systems (trains, buses, etc), and secondly, with the increasing availability of private cars and road freight vehicles, transport improvements have enhanced personal freedom, education, social and life opportunities.

164 However, it is also well understood that an ever increasing ability and desire for mobility brings with it significant negative impacts. Some of these are so substantial, for example, safety hazards and climate change as to warrant specific challenges for the strategy in their own right. Others, however, such as transport's impact on air quality and noise, also present significant challenges to which the strategy must respond in tandem with the Mayor's other strategies. London's air quality remains the poorest of any English region and improvements will directly contribute to improved health for all Londoners, especially younger people. Exposure to transport noise is higher than in many other parts of the country. Easy access to mechanised transport and a more sedentary way of life has, at least in part, created a significant negative effect on overall levels of fitness and obesity. However, promoting more physically active forms of transport like cycling and walking has tremendous potential to reverse this.

165 Good transport planning can connect communities, enhance streetscapes through development of 'better streets' initiatives and encourage active travel. It can also protect and support the natural environment. TfL alone manages a substantial proportion of the Capital's wildlife habitats. However, bad planning can marginalise or sever communities, create eyesores or harm the urban landscape. It can also pollute, damage or destroy delicate eco-systems and hugely undermine the quality of life.

166 Finally, the Mayor has made it a particular priority to improve the quality of Londoners' overall daily travel experiences whether as drivers, pedestrians, cyclists or public transport users.

167 Although 'quality of life' may mean different things to different audiences, this section presents five key aspects of quality of life upon which transport has an impact. Many of the policies and proposals elsewhere in this strategy will also impact positively upon quality of life and provide for a more sustainable future for London.

4.3.2 Improving journey experience

168 Transport provides access to employment and other enriching activities. However, the experience of travelling itself can sometimes be, at best, unpleasant and at worst affect our health and wellbeing. Congestion, litter strewn streets, and poorly-maintained roads can be uncomfortable and hazardous for pedestrians, cyclists and motor vehicle occupants, while delays and crowding can contribute to a poor quality of service on public transport. Making systems easier to use and more comfortable will reduce stress and discomfort and improve health, wellbeing and quality of life.

169 The strategy will promote and improve the journey experience for all Londoners by, for example, delivering new trains, some of which will be air-conditioned, refurbishing stations and improving interchanges following best practice guidelines. It will also provide better information (helping people make best use of their time), increased rail and Tube capacity to tackle crowding, improved reliability (reducing the stress and frustration it can cause), improved public transport staff service and will create 'better streets' and town centres.

Policy 13

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will expand the capacity and quality of public transport services, improve passenger comfort and customer satisfaction, reduce crowding, and improve road user satisfaction.

This policy is taken forward by proposals in sections: 5.2, 5.3, 5.4, 5.5, 5.6, 5.9, 5.10, 5.13, 5.14, 5.15, 5.16, 5.17, 5.18, 5.19, 5.24, 5.25, 5.26 and 5.27.

4.3.3 Enhancing the built and natural environment

170 London's built and natural environment with its special character and diversity makes an important contribution to people's quality of life, the Capital's economy, culture and it enriches our living and working environment. Furthermore, London's open spaces provide opportunities for exercise and relaxation and so contribute to Londoners' health and wellbeing.

171 The built environment encompasses not just designated heritage assets such as listed buildings, but buildings, public spaces and other features that are not statutorily protected yet make an important contribution to the character, distinctiveness and cultural identity of London. The natural environment ranges from residential gardens and squares, through to great parks, the Thames and wild spaces that include ancient woodland, heath and downland.

172 The Mayor has the responsibility to balance the new with the old, delivering well-designed transport and public spaces, be they streets, passages, broadways or squares. Streets should be clean, liveable, healthy places which make a big difference to people's quality of life. They should encourage people to walk and cycle, providing space to move in densely populated areas, and where appropriate, provide inspiring places where people want to stay.

173 Traffic and street infrastructure can have a significant effect on the setting and amenity of the historic and built environment which in turn affects people's enjoyment and wellbeing. Improving the built environment will work to address this while other aspects of the transport strategy will also contribute, for example, proposals that moderate traffic volume, speed, noise and emissions, and declutter the street.

174 Land that is owned or managed as part of London's transport system forms an excellent network of green spaces throughout the Capital comprising a variety of habitats, chiefly woodland, scrub and rough grassland. There are opportunities for enhancing the biodiversity of these line and roadside areas without compromising the operation of the transport system, and through the design, maintenance and setting of walking routes, cycle Greenways, and riverside areas.

175 London's strategic network of water spaces, the Blue Ribbon Network, is an important element of London's natural environment. It not only provides opportunities for sustainable transport but also for the preservation and enhancement of biodiversity, recreation, and the protection of important landscapes and views.

176 All policies and proposals promoted or brought forward by the strategy will not adversely affect the integrity of any European site of nature conservation importance[1], either alone or in combination with other plans and projects. Where an assessment is more appropriate at sub-regional or local level planning, it will be undertaken in accordance with best practice to ensure the aims of the objectives of the strategy are upheld. Any policies and proposals which have the potential to improve accessibility to such European sites will be assessed to ensure the effect of increased visitor pressure does not adversely affect their integrity.

Policy 14

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will seek to improve transport's contribution to the built and natural environment.

This policy is taken forward by proposals: 83, 84, 85, 90 and 113.

[1] Such sites include 'Special Areas of Conservation', 'Special Protection Areas' and 'Ramsar sites' as listed under the EC Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora). These sites make a significant contribution to conserving designated habitats and species

4.3.4 Improving air quality

177 Air quality is critical for health and wellbeing. It has been estimated that Europeans each lose an average of eight months of life expectancy due to the impact of air quality. Many vulnerable people, such as children, older people and those with existing heart and lung conditions, are restricted in the range of activities they can undertake as a result of air pollution. Approximately 690,000 people in London have asthma, which is exacerbated by high levels of air pollution.

178 The highest concentrations of particulates (PM_{10}) and oxides of nitrogen (NO_x), the two main types of harmful air pollutants in London, are found around busy roads, diesel railways and Heathrow. Transport is responsible for more than two thirds of PM_{10} emissions in London and nearly half of NO_x emissions.

179 The Mayor has a legal obligation to achieve meeting national and European targets for air quality in London, and a statutory duty to have an Air Quality Strategy. To protect human health, the EU has set 'limit values' for PM_{10} and nitrogen dioxide (NO_2). Despite improvements in recent years, London's air quality does not meet PM_{10} 2005 limit values, and is at risk of not meeting PM_{10} limit values by 2011 at some central London locations. Longer-term, the Mayor has an ambition for London to have the cleanest air of any major European city. Due to road transport in particular being a large source of these air pollutants, the MTS will play a key role in supporting the Mayor's Air Quality Strategy, thereby enabling London to meet these limit values and improving quality of life for all Londoners.

180 Poor air quality is known to have adverse effects on habitats including European designated sites of nature conservation importance. The Mayor's commitment to a reduction in polluting emissions from transport also aims to reduce the adverse impact of poor air quality on such sites.

Policy 15

The Mayor, through TfL, and working with Defra, the DfT, Network Rail, train operating companies, freight operators, London boroughs and other stakeholders, will seek to reduce emissions of air pollutants from transport.

This policy is taken forward by proposals: 25, 91 – 100, 103, 105, 108, 109, 113, 129 and 130.

4.3.5 Improving noise impacts

181 Noise is a quality of life issue as it can significantly affect health and wellbeing. It can lead to increased annoyance, anxiety, sleep disruption and can be associated with cardiovascular disease through increased blood pressure. More people in London are more bothered by noise from transport than by loud neighbours. The Mayor has a legal duty to address ambient noise (ongoing unwanted sound in the environment such as transport and industry) and is required to have an Ambient Noise Strategy. The MTS thus can contribute

Case study

Working with the NHS to improve access to health services

TfL works in partnership with the NHS and the London boroughs to ensure that its policies are integrated with the wider objectives of promoting active lifestyles, sustainable transport and reducing health inequalities. Around one million journeys taken in London every day are health-related, so TfL has been working closely with the NHS to improve both organisations' understanding of the issues around access to healthcare.

TfL, in partnership with NHS London, has developed an analysis tool, the Health Services Accessibility Tool (HSTAT) which analyses the travel implications of altering patterns of health service provision. It can assess the impact of new and altered services on travel time by public transport, car, walking and cycling at peak and non-peak times, and can consider the impact on particular demographic groups, using data from the Census together with TfL's CAPITAL transport model. This analysis helps TfL work with the boroughs and health providers to plan good public transport to hospitals and other healthcare facilities to improve access to these essential services.

One example is the re-routing of the 493 bus route between Wimbledon and St. George's Hospital (Tooting) to run through an area with a low level of bus service. Views of hospital staff, patients and visitors were taken into account when planning the service and the changes also benefitted local residents.

TfL will continue to work with the NHS to share best practice and ensure that transport and health strategies are mutually supportive wherever possible.

to a better noise climate within London, enhancing the health and wellbeing of all.

Policy 16

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, freight operators, London boroughs and other stakeholders, will seek to reduce noise impacts from transport.

This policy is taken forward by proposals: 48, 86, 87, 88, 89 and 113.

4.3.6 Improving health impacts

182 Transport is a key determinant of health and wellbeing both directly and indirectly. The transport strategy therefore represents an opportunity to improve health and remove some of the adverse impacts on health. Ill-health significantly affects people's quality of life and also has implications for their communities and the wider economy (through the direct costs of providing health services and public support), as well as the indirect costs of absenteeism and unemployment. Ill-health costs the UK economy approximately £100bn annually and 175 million working days are lost each year.

183 Ill-health is unevenly distributed within London. In a single London borough average life expectancy can vary by as much as 10 years between people living in the most and least deprived neighbourhoods.

184 Transport affects both physical and mental health, in several ways. For example, it has a direct and adverse effect through road traffic collisions, while air pollutant emissions are harmful to health. Conversely, it can offer an opportunity for physically active travel – walking and cycling – and this can provide a clear health benefit by reducing the risks of developing heart disease and diabetes.

185 The Mayor has a duty to address health inequality and will do so partly through this transport strategy. For example, this strategy will seek to improve health outcomes for neighbourhoods close to major arterial roads which bear a disproportionate amount of adverse health effects from air pollution, noise and road traffic injuries.

186 In addition, there is a significant opportunity for the MTS to help combat increasing levels of obesity in London's population. The latest available records suggest that two-thirds of adults in England do not meet the Chief Medical Officer's recommendation for physical activity, and almost as many are classified as overweight or obese. The rise of childhood obesity is a particular cause for concern with more than 10 per cent of London's four to five-year-olds being classed as obese, rising to more than 20 per cent of 10 to 11-year-olds.

187 Nearly one in 10 early deaths in the UK is due to excess weight and, on average, obese people die 11 years earlier. Increased levels of walking and cycling will help to reduce obesity levels in London and ultimately help to reduce the number of early deaths it can cause.

188 Walking and cycling can benefit mental as well as physical health. Moderate exercise has been found to reduce levels of depression and stress, improve mood and raise self-esteem.

Policy 17

The Mayor, through TfL, and working with the DfT and other government agencies, the London boroughs, health authorities and other stakeholders, will promote healthy travel options such as walking and cycling.

This policy is taken forward by proposals: 51, 52, 53, 54, 55, 57, 58, 59, 60, 61, 62, 68, 115 and 116.

4.4 Improving the safety and security of all Londoners

4.4.1 Introduction

189 The safety and security of all Londoners is of paramount importance to the Mayor. His goal is to make London a safer place to live, work and visit. Lack of safety and security (perceived or actual) is a barrier to travel for some and reduces their ability to access services and opportunities. Improving safety and security will also help to address wider challenges, including improvements to the quality of life and making London a fairer and more prosperous city.

190 Safety on public transport services is good with passenger fatality rates low. Even so, fear of crime and antisocial behaviour remains a significant issue.

191 Notwithstanding the tremendous reductions that have been achieved in road casualties in recent years, London's road network still has an unacceptable number of road casualties and much more remains to be done.

192 A safe, well-designed and maintained public realm also determines perceptions of safety for pedestrians and cyclists. It is an important factor in encouraging take-up of these modes, for example, with regard to children walking and cycling to school. Fear of crime and personal security concerns are key issues in determining whether people will combine walking or cycling with longer journeys by public transport. It is also important to ensure journeys by taxi and private hire vehicle (PHV) are as safe as possible for passengers and drivers.

4.4.2 Reducing crime, fear of crime and antisocial behaviour

193 Crime levels on public transport services are low, although fear of crime and antisocial behaviour remain a significant issue. Ensuring the personal security of all those travelling in London, as well as public transport staff, remains extremely important to the Mayor. This strategy seeks to continue reducing the rate of crime on the transport network as the overall volume of travel increases. Policies and proposals that aim to reduce the crime rate should also reduce the fear of crime, delivering wider benefits to society.

194 Much progress has been made over the past five years in reducing the crime rate, however, maintaining and building upon these improvements is a resource-intensive process. Therefore, it remains important to ensure that expenditure on staff, technology, design and other programmes to reduce crime and the fear of crime is focused and targeted at those areas where needs are greatest.

Policy 18

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will seek to reduce the rate of crime, the fear of crime and antisocial behaviour on London's transport system.

This policy is taken forward by proposals: 13, 18, 21, 26, 27, 41, 42, 60, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83 and 84.

4.4.3 Improving road safety

195 The last decade has seen improvements in reducing deaths and injuries on London's roads, but reducing casualties still remains a significant challenge and the benefits have not been shared equally between communities and road users. This strategy seeks to ensure all Londoners benefit from the improvements proposed to make roads safer.

Policy 19

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders including the police and road safety partnerships, will seek to improve road safety for all communities in London and implement measures that contribute to any targets that may be set by the Mayor from time to time.

This policy is taken forward by proposals: 54, 60, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 83, 84, 129 and 130.

4.4.4 Improving public transport safety

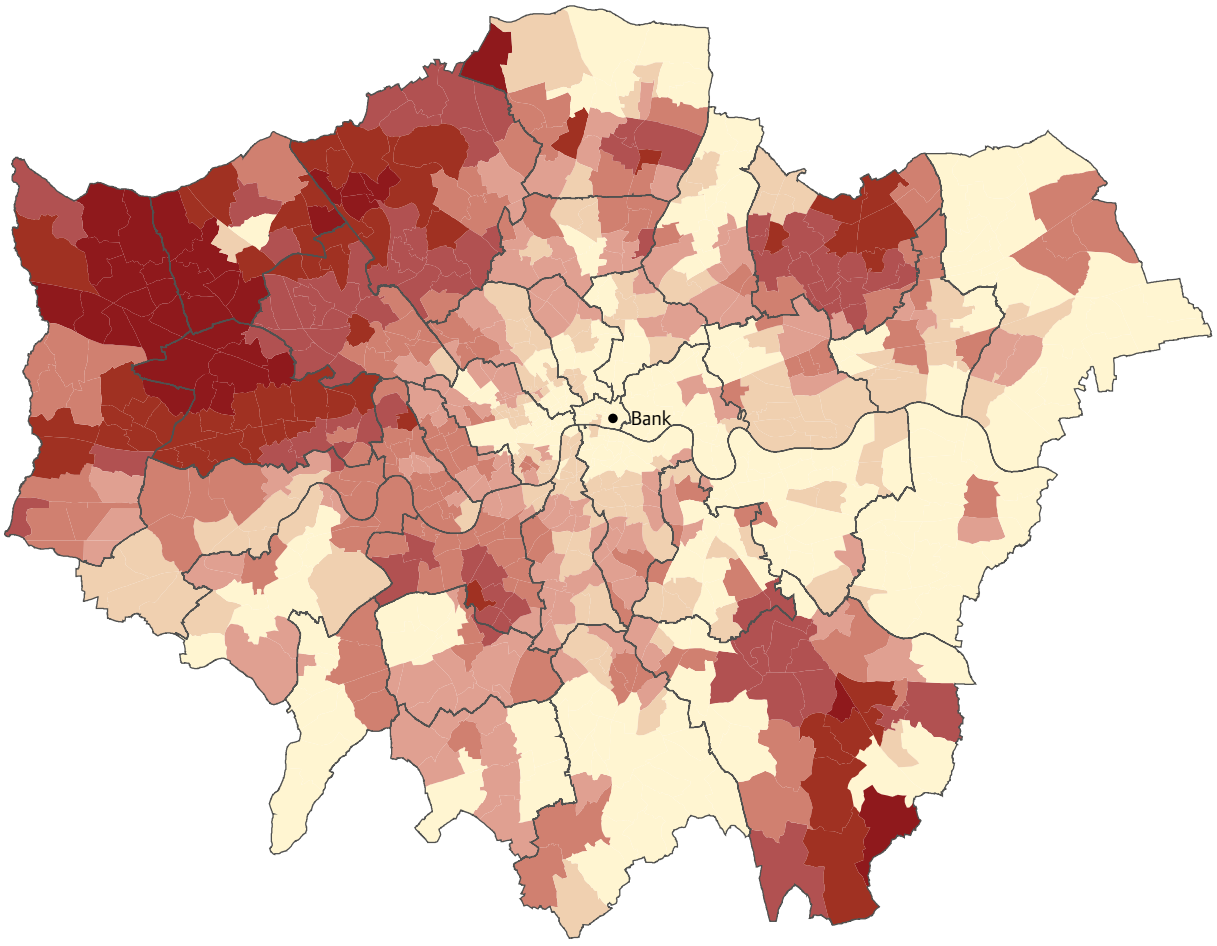
196 The injury risk posed to passengers and staff on London's public transport networks is already very low. The strategy seeks to ensure that high health and safety standards are maintained as public transport provision expands, and to reduce the risk of disruption from unpredictable events.

Policy 20

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will implement measures that seek to improve operational safety and security on public transport.

This policy is taken forward by proposals: 18, 20, 63, 110, 111 and 112.

Figure 27: Public transport journey relative time differential to/from Bank by physically accessible route in comparison to quickest route



This is an illustrative example and relative journey times will vary depending on destination. Journey times based on the network in 2006

4.5 Improving transport opportunities for all Londoners

4.5.1 Introduction

197 Despite London's economic success over the last few years, not everyone has benefited from its prosperity. Whether through lack of educational or employment opportunities, disability, personal mobility, age, ethnicity or other factors, many Londoners are still excluded from much of what the city has to offer. The Mayor's framework for equality is set out by 'Equal Life Chances for All'[1]. Meeting the needs and expanding opportunities for all Londoners – and where appropriate, the needs of particular groups and communities – is key to tackling the huge issue of inequality across the Capital. The provision of a more accessible transport system and improved transport connectivity and capacity is an important part of meeting this commitment.

198 In terms of the accessibility of transport services, much has been achieved in recent years: more than 90 per cent of Londoners now live within 400 metres of a bus stop (five minutes walk at an average walking speed) and all of the bus fleet, bar heritage Routemasters, are accessible. At bus stops which require it (45 per cent of the total at present), raised kerbs and improved layouts to help reduce the gap between pavement and bus have been provided. About a third of National Rail stations and 20 per cent of Underground stations are accessible from street to platform, and the DLR network and Tramlink are both fully accessible from street to carriage. However, improving accessibility is not just about physical measures, it also includes: providing better information and communications; improving staff and public attitudes towards disabled, older and young people; improving the actual and perceived safety and security of transport services and travel; and ensuring that fares – which provide a necessary financial contribution to the cost of providing public transport services – do not unduly exclude people from the opportunities the Capital offers.

199 While London boasts some of the wealthiest places in the country, it is also home to some of the most deprived. Some of these areas suffer from chronic deprivation including concentrations of low skilled and, in some cases, more vulnerable people, with few expectations and a lack of job opportunities. Experience shows that this decline also leads to degradation of the physical environment, increased crime levels, lower educational standards and can also affect people's health. Inevitably these factors contribute further to lessening economic opportunities and quality of life.

200 Poor transport is often a significant barrier in such situations, for example, in restricting access to jobs, services, education and training opportunities, and social networks. Poor land use planning can also contribute by designing and locating new developments and services remote from the local population and with little thought of how easily they can be accessed by a variety of modes of travel. Better transport,

[1] 'Equal Life Chances for All' is the Mayor's framework to address deprivation and inequality. Published by the GLA, 2009

combined with better land use planning (as well as initiatives to tackle other barriers such as cultural, safety, low aspirations or educational achievement) can break these spirals of decline by improving accessibility and raising aspirations. It can also act as a significant catalyst for regeneration, and play a role in widening the benefits of economic prosperity.

4.5.2 Improving accessibility

201 In spite of the great strides that have been made in improving the quality, quantity and accessibility of London's transport system, not all Londoners – particularly disabled Londoners – are able to take full advantage of the benefits the city offers.

202 Engagement with stakeholder groups has shown that disabled people want to make safe, reliable and accessible journeys and want access to the right information so they can plan their journey appropriately. However, disabled people, whether they have mobility or other impairments, face additional barriers to travel. These barriers can be physical such as uneven pavements or crossings, steps or steep inclines, and street furniture. They may also need assistance from staff, more information about services, assistance during service interruptions, while a positive and helpful approach from other transport users can also improve the journey experience.

203 The physical accessibility of the transport network can limit the journey opportunities for some people whose only option is to take accessible but longer routes. Figure 27 shows the additional journey time for physically accessible routes to Bank station in central London. From most areas beyond the immediate fringes of central London, journeys take up to an hour longer.

204 Ensuring the transport system is accessible from the start to the end of the journey, by overcoming the barriers that exist for some users, will enable more 'spontaneous' travel that will benefit the economy and help overcome some pressing social problems. The approach being taken by the strategy therefore is to ensure the whole journey is accessible. This has been termed the 'whole journey approach' to accessibility.

Policy 21

The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will seek to increase accessibility for all Londoners by promoting measures to improve:

a) The physical accessibility of the transport system, including streets, bus stops, stations and vehicles

b) Information provision, staff service and the travelling environment

This policy is taken forward by proposals: 5, 9, 13, 18, 19, 21, 22, 23, 24, 25, 26, 27, 29, 40, 41, 42, 43, 44, 45, 60, 83, 84 and 115.

Case study

Transport and the development of London Docklands

The former London docks have been transformed into a vibrant mixed-use area with a major new financial district at Canary Wharf, residential areas and leisure facilities, including The O2 Arena and ExCel. The 2012 Games will also have a major presence here with events taking place at ExCel and The O2. The introduction of new transport networks has been integral to the success of the area. Without the DLR opening in 1987 (and being extensively upgraded and extended ever since), the Jubilee line extension opening in 1999 and road connection improvements such as the Limehouse Link, the London Docklands would not have developed as it has.

Canary Wharf is now one of the most sustainable locations in the Capital in terms of travel demand with very high levels of public transport use and low car use. This is because development has been planned around the transport network to ensure maximum access to rail stations and bus links.

4.5.3 Supporting regeneration and tackling deprivation

Tackling deprivation

205 Some of London's most deprived areas are concentrated in areas with relatively poor access to employment and essential services, while others are located in very high PTAL areas, within easy reach of the City, West End and Isle of Dogs. This demonstrates the complex nature of the 'opportunities for all' challenge in London. The causes of deprivation are multi-faceted; therefore tackling it will require action to be taken not just in the field of transport, but across a number of policy areas and by a range of agencies.

206 Improving the availability of public transport services and providing better walking and cycling routes and facilities in deprived areas is the first step in giving people the opportunity to access jobs and services. However, measures which address specific concerns, such as the fear of using public transport and walking at certain times must be provided so more people can realise this opportunity.

207 Research on barriers to using the DLR has shown that a high proportion of people living in deprived areas do not use public transport through fear of crime or antisocial behaviour, or cannot access the places they want due to safety or severance issues. This is often due to concerns about the safety and security of the streets and public spaces that people need to use on their way to, and from, bus stops and stations, on public transport services and local walking journeys. Removal of physical barriers to travel, such as providing pedestrian crossings, will help reduce the severance effect of busy roads, railways and waterways. Better design and maintenance of the street environment, for example, removal of litter and graffiti, and increased presence of uniformed staff on the street, at the station or on the bus or train will help allay Londoners' and tourists' fears and encourage more people to use public transport, walk or cycle.

Policy 22

The Mayor, through TfL, and working with the LDA, DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will seek to enhance connectivity, reduce community severance, promote community safety, enhance the urban realm and improve access to jobs and services in deprived areas.

This policy is taken forward by proposals: 5, 6, 7, 8, 9, 12, 14, 15, 19, 22, 23, 34, 39, 50, 60, 74, 76, 77, 80, 83 and 85.

Targeting transport investment in regeneration areas

208 The London Plan identifies areas that have a greater need for investment to accommodate London's growth, to expand opportunities for all and address the significant issue of deprivation in London's poorest communities. The LDA and others, such as the Homes and Communities Agency, will also focus investment according to the spatial priorities contained within the EDS. It is therefore essential that transport funding decisions are linked to the activities of other regeneration bodies to maximise the return on public sector investment and to ensure that regeneration is sustainable in terms of travel choices.

209 Neighbourhoods in need of regeneration are found across London but are concentrated in Inner London, particularly to the east. These neighbourhoods represent the largest concentration of deprivation in the country. As mentioned above, there is no clear correlation between deprivation and public transport accessibility, however, investment in new transport links in these areas can make a positive contribution to local regeneration objectives when coordinated with the spatial planning process. The classic example is the development that has occurred in the last 20 years on the Isle of Dogs. The scale of this was only made possible by the DLR and Jubilee line extension (see the case study on transport and the development of London Docklands). However, regeneration can also be achieved through improved local transport, for example, bus services developed to better serve housing estates and local neighbourhoods.

210 London's Opportunity Areas have the greatest potential for brownfield development, each being typically capable of accommodating at least 2,500 homes and/or 5,000 new jobs. In order for this growth to be sustainable and not adversely impact on other desired outcomes, such as CO_2 emission reduction targets, it must be linked closely to existing or potential improvements in public transport capacity and accessibility. The development of Opportunity Area Planning Frameworks (OAPs) in partnership between the GLA Group and boroughs will be the mechanism of directly linking land use and transport planning in each Opportunity Area. This will ensure there will be the appropriate level of transport capacity and connectivity to support the growth targets set out in the London Plan.

211 London's Intensification Areas are built-up areas with good existing and potential public transport capacity and accessibility which can support significant redevelopment at higher densities. There is a need to closely link land use and transport planning through the preparation of Intensification Area Framework Plans, to ensure that transport capacity and connectivity can support the required levels of growth. The Mayor

recognises the important role of the boroughs in developing local solutions. As a result, further assessment of the transport measures that may be required to support growth in the Opportunity and Intensification Areas will be undertaken in partnership with the boroughs as part of the sub-regional transport plan process.

212 In addition, strategic assessment frameworks developed by TfL to assess the merits of proposed transport schemes will contain criteria concerning the potential contribution to supporting the development of Intensification Areas and Opportunity Areas. This process will therefore provide a direct link between the London Plan and transport investment decisions concerning these areas.

Policy 23

The Mayor, through TfL, and working with the LDA, DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will support regeneration of Opportunity Areas and Areas for Intensification as described in the London Plan.

This policy is taken forward by proposals: 2, 5, 8, 9, 14, 15, 16, 17, 19, 22, 23, 34, 38, 39, 46, 50, 54 and 60.

4.6 Reducing transport's contribution to climate change and improving its resilience

4.6.1 Introduction

213 Under the GLA Act 2007, the Mayor has a legal duty to have regard to climate change and to take action to address both the causes and its consequences. London, as a leading city in the developed world, intends to take a lead in establishing a pathway to a sustainable future for other cities to learn from and follow. The Mayor has responded to this first requirement by setting a specific target to reduce London's CO_2 emissions by 60 per cent from their 1990 levels by 2025. He is currently preparing a Climate Change Mitigation and Energy Strategy (CCMES) and also a Climate Change Adaptation Strategy to fulfil the second requirement.

4.6.2 Reducing CO_2 emissions

214 CO_2 is London's dominant greenhouse gas emission and ground-based transport is a significant source, accounting for around 22 per cent of overall emissions (currently almost 10m tonnes of CO_2 per year). Figure 28 illustrates the sources of ground-based transport CO_2 emissions in London.

215 The Mayor's target for London CO_2 emissions reductions is extremely challenging and will set London on a course to realise the Mayor's vision of London as one of the world's leading low carbon cities. The Climate Change Act

2008 defined national obligations for a 34 per cent reduction in greenhouse gas emissions by 2020, and 80 per cent reduction by 2050, both from 1990 levels. As a result, London is also on track to meet obligations under the interim UK carbon budgets (five-year, successively tighter, legally binding emissions caps set by the Government) that are defined for the period to 2022.

216 The draft Mayor's CCMES considers CO_2 emissions from homes, workplaces and transport. Although there is uncertainty concerning the precise potential contribution from each sector, research and analysis carried out in the preparation of CCMES has identified potential policies that are particularly effective in reducing CO_2 emissions from homes. The transport sector's necessary contribution to the Mayor's London-wide CO_2 emissions reduction target could therefore reduce accordingly. Given the uncertainty of the relative contribution of CO_2 emissions reductions from the three sectors, it is anticipated that the transport sector will need to reduce its CO_2 emissions by between 45 and 55 per cent by 2025 to contribute sufficiently to achieving the Mayor's overall CO_2 reduction target for London of 60 per cent by 2025 from a 1990 base.

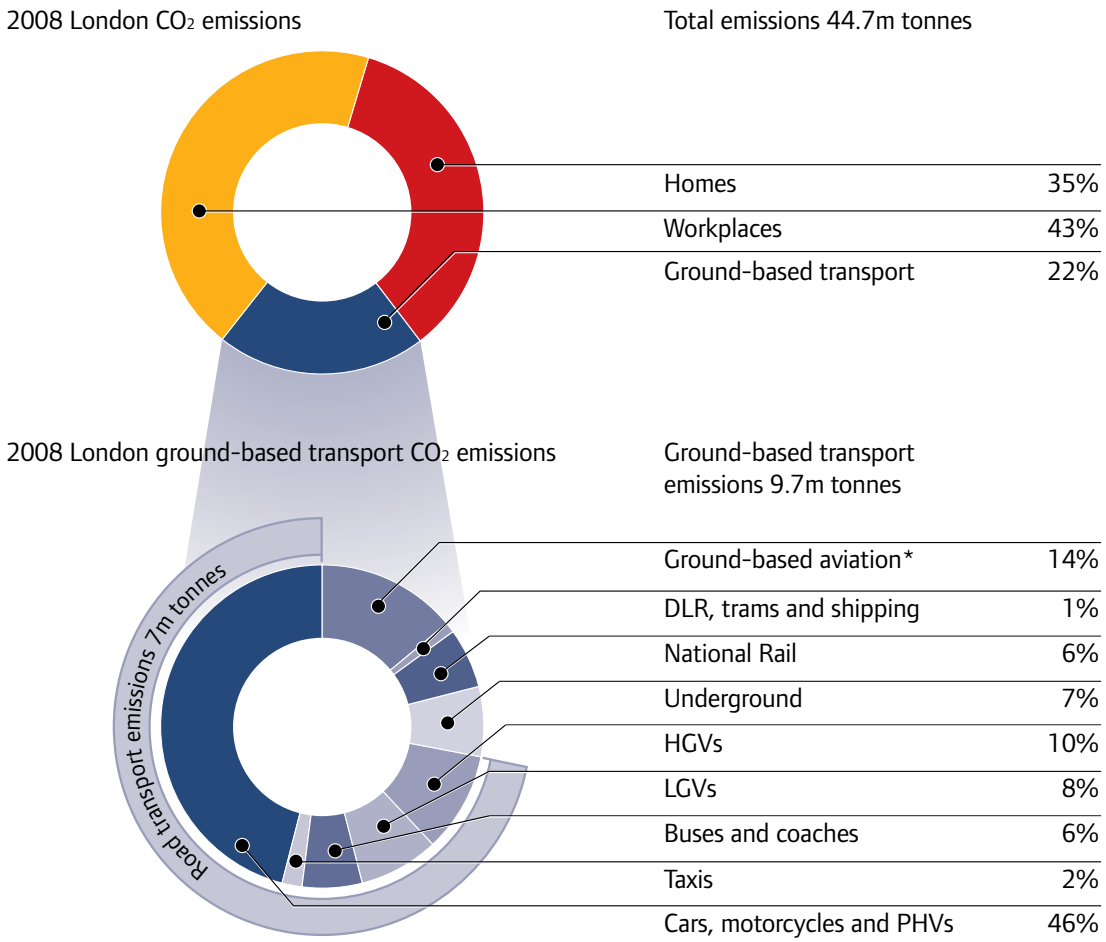
217 Since 1990, population and employment have increased by around 10 per cent and travel demand in London has increased by about 15 per cent. However, since 1990 CO_2 emissions from ground-based transport in London have remained largely constant, indicating that CO_2 efficiency and travel demand have increased at approximately equal rates. Accelerated population and employment growth is anticipated in London in the period to 2025, and beyond to 2031. It is clear that achievement of CO_2 emissions targets will require fundamental changes in transport CO_2 efficiency and/or our travel behaviour far in excess of that experienced by previous generations. It will require initiatives not just from the Mayor, TfL and the boroughs, but also from Government, the EU, motor manufacturers and the wider international community. Ultimately, the level of success in developing and implementing low carbon transport solutions will determine whether more stringent measures will be required to change travel behaviour to meet CO_2 target reductions.

Policy 24

The Mayor, through TfL, and working with the DfT, Defra and other government agencies, Network Rail, train operating companies, freight operators, London boroughs and other stakeholders, will take the necessary steps to deliver the required contribution from ground-based transport to achieve a 60 per cent reduction in London's CO_2 emissions by 2025 from a 1990 base; and to contribute to further targets that may be set by the Mayor from time to time.

This policy is taken forward by proposals: 1, 2, 4, 7, 8, 9, 12, 14, 17, 22, 25, 26, 27, 30, 31, 33, 38, 39, 45, 46, 47, 50–54, 57–62, 87, 91, 92, 93, 95–109, 113, 115–119, 125, 127, 129 and 130.

Figure 28: Transport's contribution to London's CO_2 emissions



Source: London Energy and Greenhouse Gas Inventory, 2008 (LEGGI)

* Including take-off and landing cycles to an altitude of 1,000 metres

4.6.3 Adapting to climate change

218 Some degree of climate change is now inevitable. The transport system will need to adapt to a changed climate of warmer and wetter winters and hotter and drier summers, with more frequent and intense extreme weather. The transport system's infrastructure and operation will need to be designed and developed to become more resilient to extreme weather such as intense periods of rainfall, drought, summer heat and higher sea levels. Londoners and London's transport system are vulnerable to the long-term changes in climate and the impacts of more frequent and intense extreme weather. While the changes

to the long-term trends can be responded to through gradual systemic improvements, the threats from extreme weather already present significant challenges.

219 The Climate Change Act 2008 requires the Secretary of State to provide updates, at a minimum of five-yearly intervals, on the risks to the UK posed by climate change and a programme setting out how the risks will be addressed. The Act empowers Government to require organisations to compile and publish reports on:

- The current and future predicted impacts of climate change
- Proposals for adapting to climate change

220 The first report from the GLA is required by the end of 2010 and TfL will be a major contributor.

Policy 25

The Mayor, through TfL, and working with the DfT, Defra and other government agencies, Network Rail, train operating companies, London boroughs and other stakeholders, will take necessary steps to adapt the transport system and improve its resilience and public safety to the anticipated impacts of climate change.

This policy is taken forward by proposals: 110, 111, 112, 113 and 114.

4.7 Supporting delivery of the London 2012 Olympic and Paralympic Games and its legacy

221 Hosting the 2012 Games is a great honour for London. It also presents a huge challenge, with more than seven million tickets available and at least 600,000 spectators expected in London on the busiest days. In addition, there will be around 16,000 athletes and team officials, and over 45,000 technical officials, press, broadcasters, marketing partners and members of the 2012 Games family.

222 The Mayor is committed to making the 2012 Games the most accessible, inclusive and environmentally friendly games ever. In terms of transport, the ODA has the aim of ensuring that every spectator travels to the Games by public transport, walking, cycling or temporary park-and-ride services where needed. The ODA has been consulted on this strategy and in preparing it, the Mayor has had regard to the Olympic Transport Plan.

223 A key challenge during the 2012 Games will be to minimise the impact on Londoners' everyday activities, and to ensure that businesses can continue to operate in central, Inner and Outer London. With the Olympic (and then Paralympic) Route Network in place, the delivery and servicing activity for London will need to continue to operate. Addressing this challenge will help to ensure that hosting the Games is a positive experience for all.

224 The ODA is committed to ensuring a lasting transport legacy. This includes providing new

infrastructure, enhanced and new public transport services, training and employment opportunities in the transport sector, and the regeneration of east London. This lasting legacy must be aligned with, and supportive of, the MTS vision and objectives.

225 The 2012 Games will mean that many Londoners are required to change the way they travel during the event. There is an opportunity to create a lasting legacy in terms of changes in travel behaviour of benefit to the Capital, either through reduced crowding and congestion, or the health and environmental benefits of an increase in walking and cycling, as well as through the inspiration of the athletes themselves.

226 The 2012 Games will be located in some of the most deprived communities in the country. In November 2009, the five host boroughs[1] published a Strategic Regeneration Framework (SRF) which outlined a shared Olympic legacy vision which goes beyond the Olympic Park and sporting arenas.

227 A 'principle of convergence' is at the centre of the vision. Namely, that within 20 years the communities in the five boroughs will enjoy the same social and economic chances as their less deprived neighbours across London. Key indicators of convergence include more local residents in jobs, fewer children living in poverty, higher educational attainment, fewer chronic health problems and higher levels of physical activity. Achieving this convergence will mean a pace of change that, in many cases, is two to three times the average London improvement rate.

228 The Mayor is committed to supporting the boroughs in achieving convergence as this will benefit the local area and the whole of London. Maximising the benefits of the Olympic Park is the Mayor's highest regeneration priority. His London Plan promotes the development and implementation of a sustainable legacy from the Games to deliver fundamental economic, social and environmental regeneration in east London. This includes new cycling connections within and around the Olympic Park; supporting a media and creative industry cluster; and, promoting the park and its venues as an international visitors' destination. It is crucial therefore that all stakeholders work together to realise the full potential of hosting the event.

Policy 26

The Mayor, through TfL, and working with the ODA, DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will ensure delivery of the committed transport infrastructure required for the London 2012 Olympic and Paralympic Games, and its successful operation during the Games; and will maximise the benefits of its physical and behavioural legacy to support the principle of convergence.

The behavioural legacy of the Games will be taken forward by proposals 1, 47, 54 and 116.

229 The delivery of the committed transport infrastructure upgrades is on schedule to support the 2012 Games. This includes upgrades to the Northern, Central and Jubilee lines, the DLR and London Overground, as well as walking and cycling improvements.

[1] The London boroughs of Tower Hamlets, Hackney, Greenwich, Newham and Waltham Forest

Spotlight

The London 2012 Olympic and Paralympic Games Transport Plan

The Olympic Transport Plan aims to ensure a successful, sustainable 2012 Games and leave a legacy that will benefit Londoners for many years to come. It has planned for three key groups of people to move around the Capital efficiently during the Games:

- The Games Family – around 50,000 people (especially athletes) will require transport on any one day for training, competition or recreational purposes
- Spectators – around 600,000 spectators will use public transport to travel to the Games on the busiest days of the competition. Every person with a ticket to an event will be given free public transport
- The Games workforce – around 100,000 will travel by public transport

The plan will aim to make the most of the new investment in public transport, walking and cycling that is being delivered across London in the run up to the 2012 Games.

The plan also seeks to ensure that increased demand for transport services during the Games has a minimal impact on existing transport networks and commuters' regular journeys within London. This will be managed through the Olympic Transport Operations Centre, established to manage all modes of transport for the Games Family, spectators, workforce and for all those travelling for reasons unconnected with the Games. This will help TfL, other transport operators, the police, local authorities and those running the event to keep London moving.