Mayor's Transport Strategy – Part one

Vision and context

Chapter one – Introduction

1.1 About this document

1 This document sets out the Mayor's Transport Strategy for London for the period up to 2031. It supersedes the first version published in July 2001 (including its revisions).

2 The six goals the MTS seeks to achieve are:

- To support economic development and population growth
- Enhance the quality of life for all Londoners
- Improve the safety and security of all Londoners
- Improve transport opportunities for all Londoners
- Reduce transport's contribution to climate change, and improve its resilience
- Support delivery of the London 2012 Olympic and Paralympic Games and its legacy

3 The document is set out in three parts:

- **Part one:** Outlines the vision, goals and outcomes that the strategy shall seek to achieve, and the context for the strategy
- **Part two:** Examines the main transport challenges facing London and sets out the policies and proposals required to achieve the goals
- **Part three:** Sets out how the Mayor proposes his policies and proposals will be delivered by the GLA, TfL, the London boroughs, the Department for Transport (DfT), Network Rail, the train operating companies and other delivery agencies; and sets out how the achievement of his main transport outcomes will be monitored and reviewed

4 The transport strategy is for both people and goods. Freight and servicing is considered throughout the MTS and most policies and proposals apply to the transportation of people and goods. For ease of reference, those areas of the strategy which make direct mention of freight and servicing are listed at the end of the document.

1.2 The role of the Mayor's Transport Strategy

5 The MTS is the principal policy tool through which the Mayor exercises his responsibilities for the planning, management and development of transport in London, for both the movement of people and goods. It takes into account the emerging policies in the London Plan[1] and the Mayor's EDS[2]. It provides the policy context for the more detailed plans of the various transport-related implementation bodies, particularly TfL and the London boroughs.

6 The legislative framework for the MTS is laid down by the GLA Act 1999 as amended by the GLA Act 2007. The GLA Act 1999 sets out the general transport duties of the Mayor and the GLA. It specifies that the transport strategy must contain policies for 'the promotion and encouragement of safe, integrated, efficient

[1] The London Plan: Spatial Development Strategy for Greater London, consultation draft replacement plan, October 2009

[2] Rising to the Challenge: The Mayor's Economic Development Strategy for Greater London, public consultation draft, October 2009

and economic transport facilities and services to, from and within Greater London', and proposals for securing the transport facilities and services needed to implement the Mayor's policies over the lifetime of the MTS, with regard to the movement of people and goods. His transport body, TfL, is under a duty to use its powers to facilitate and implement the MTS. The 33 London boroughs (including the Cities of London and Westminster) must formulate plans to implement the strategy in their areas. Every person or body exercising statutory functions with respect to the Greater London area, including the boroughs and the City, must have regard to the MTS wherever relevant to do so.

7 The MTS must also contain the Mayor's proposals for providing transport that is accessible to mobility impaired people and may contain any other proposals which he considers appropriate. Mobility issues are addressed in the policies, proposals and the Accessibility Implementation Plan.

1.3 Considerations for the revision of the strategy

8 The Mayor set up the Outer London Commission to review the opportunities to improve the economy, quality of life and transport in Outer London. This strategy reflects the interim findings of the Commission: that the development of Outer London should be based upon a 'hub and spoke' approach making particular use of the existing town centre network, and recognising other strategic business locations; that transport should meet the needs of people to access places with a competitive choice of goods and services; that the solutions for Outer London vary across London and need to be applied flexibly at a local level.

9 In preparing the MTS and in formulating his policies and proposals, the Mayor has had regard to: promoting equality; to preventing crime and disorder; to the promotion of economic development and wealth creation; social development and the improvement of the environment; to the effect that the strategy would have on health and health inequalities between people living in Greater London; and on climate change and the consequences of climate change; and the achievement of sustainable development.

10 He has also considered the likely contribution of the MTS to the promotion of equality of opportunity for all Londoners, the promotion of good relations between them, and the elimination of unlawful discrimination.

He has also had regard to the need to ensure that the strategy is consistent with national policies, certain international obligations and his other strategies; to the resources available for its implementation; and to the desirability of promoting and encouraging the use of the Thames for safe passenger and freight transport.

11 In accordance with the statutory requirements, the Mayor has included in the MTS those transport-related policies and proposals he considers are best calculated to promote improvements in the health of, and the reduction in health inequalities between, Londoners; and to contribute to the mitigation of, or adaptation to, climate change in the UK; and to improve sustainable development.

12 The Mayor, in accordance with the 1997 Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1998 Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental matters, and the Copenhagen Accord on Climate Change, has included policies and proposals on climate change and environmental matters he considers would meet the requirements of these treaties.

1.4 Integration with the development of other Mayoral strategies

13 The Mayor has a statutory duty to ensure consistency between adopted Mayoral strategies. Several of his strategies are currently being revised, including the London Plan and EDS. In preparing this MTS, the Mayor has had regard to these strategies and to the emerging policies in the draft London Plan and draft EDS.

14 The draft MTS was published and consulted upon contemporaneously with similar documents for the London Plan and EDS. However, the extended process for the new London Plan, including an Examination in Public, means that the MTS could consider only draft London Plan policies.

15 The Mayor has had regard to the policies in the emerging draft Air Quality Strategy, Climate Change Mitigation and Energy Strategy, Climate Change Adaptation Strategy, Waste Strategy and Health Inequalities Strategy.

Chapter two – Mayor's vision

2.1 The Mayor's vision for London

16 The Mayor's vision for London is set out in the public consultation draft of the London Plan, which states:

17 Over the years to 2031 and beyond, London should:

18 'Excel among global cities – expanding opportunities for all its people and enterprises, achieving the highest environmental standards and quality of life and leading the world in its approach to tackling the urban challenges of the 21st century, particularly that of climate change.'

19 'Achieving this vision will mean making sure London makes the most of the benefits of the energy, dynamism and diversity that characterise the city and its people; embraces change while promoting its heritage, neighbourhoods and identity; and values responsibility, compassion and citizenship.'

20 This high level, overarching vision is supported by six detailed objectives in the London Plan:

21 (a) 'A city that meets the challenges of economic and population growth in ways that ensure a good and improving quality of life for all Londoners and helps tackle the huge issue of inequality, including inequality in health outcomes

22 (b) An internationally competitive and successful city with a strong and diverse economy and an entrepreneurial spirit that benefits all Londoners and all parts of London; a city which is at the leading edge of innovation and research, while also being comfortable with – and making the most of – its rich heritage

23 (c) A city of diverse, strong, secure and accessible neighbourhoods to which Londoners feel attached, which provides all of its residents, workers, visitors and students – whatever their origin, background, age or status – with opportunities to realise and express their potential; and a high quality environment for individuals to enjoy, live together and thrive

24 (d) A city that delights the senses and takes care over its buildings and streets, having the best of modern architecture, while also making the most of London's built heritage and which makes the most of open and green spaces and waterways, realising its potential for improving Londoners' health, welfare and development

25 (e) A city that becomes a world leader in improving the environment locally and globally, taking the lead in tackling climate change, reducing pollution, developing a low carbon economy and consuming fewer resources or using them more effectively

26 (f) A city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities, with an efficient and effective transport system which places more emphasis on walking and cycling and makes better use of the Thames; and which supports delivery of all the objectives of the London Plan'

27 The MTS, which must be consistent with the London Plan and other Mayoral strategies, responds specifically to the last of these objectives. However, in so far as better transport is not an 'end' in itself, but a means to improving broader economic, environmental and social outcomes, the MTS seeks to respond to, and support the delivery of, all the London Plan objectives. It is also consistent with national transport policy objectives[1].

2.2 The vision for London's transport system

28 The vision for the Capital is that:

29 'London's transport system should excel among those of global cities, providing access to opportunities for all its people and enterprises, achieving the highest environmental standards and leading the world in its approach to tackling urban transport challenges of the 21st century.'

30 Achieving this vision will mean making sure the transport system offers enhanced capacity and connectivity, is more efficient, integrated, safe and secure, supports London's growth and economic development and is fair to all users. It should also encourage a cycling revolution and mode shift to walking, public transport and use of the river, and offer better value for money to fare and taxpayers. Moreover, it should contribute to improving Londoners' quality of life, opportunities and the environment in all parts of London.

31 Six goals are set out for the achievement of this overarching vision. These goals are ambitious, given that availability of funding over the short and medium terms will be particularly constrained. The goals of the MTS are set out below.

Supporting economic development and population growth

32 Achieving the vision requires a transport system that connects people to jobs and meets the needs of a larger London in 2031 with a population of almost nine million, employment at almost five and a half million and over three million more trips being made each day. The strategy therefore proposes:

- An expanded National Rail network, better integrated with the rest of the transport system
- Greater Mayoral influence over National Rail service standards and service planning and development
- Crossrail, Thameslink and the Chelsea Hackney line to improve connectivity and capacity
- Increased capacity on all other National Rail lines and new orbital rail services on London Overground
- An upgraded Tube service including a separation[2] of services on the Northern line to increase service frequencies through the City, an extension of the Northern line to Battersea, providing greater capacity and

[1] National transport policy objectives are outlined in DfT (2008) 'Delivering a Sustainable Transport System (DaSTS) '

[2] A simplified train service pattern on the Northern line, enabling more trains to be run through the central sections thus increasing capacity on the crowded City branch

more reliable journeys, and consideration of an extension of the Bakerloo line

- A bus network that is developed to provide an even better value for money service, building on its success and expansion over the last decade
- Support for more efficient movement of freight
- Renewed efforts to make the most of the public transport system, including better and more comprehensive information provision, with better integrated fares and ticketing
- Improved interchange and customer service standards
- Better linkages between transport and land use planning to ensure the transport system can meet demand from new developments and that the best use of existing capacity and connectivity is made
- Improve network connectivity in areas of London, for example, a package of river crossings in east London

33 The car will continue to have a role to play for journeys that cannot efficiently be catered for by public transport, walking or cycling, and the transport system will allow for car use where appropriate (where cars are used these should be fuel efficient, low emission including electric). The movement of freight by rail and water is encouraged, though most freight will continue to be carried by road, requiring break-bulk facilities for the transfer of freight to smaller, lower emission vehicles in sensitive areas. The MTS also promotes better management of the road network to make the most of available road space and to smooth traffic flows, manage congestion (potentially using road user charging, should other policy measures be insufficient to meet the strategy's goals), improving reliability and resilience.

34 Improved national and international links from London will be achieved with development of high-speed rail services in the UK and to more destinations in Europe, and seeking better use of existing capacity at Heathrow (and other airports) while resisting further expansion of the airport, due to resulting environmental, public transport overcrowding and traffic congestion impacts.

Enhancing the quality of life for all Londoners

35 A better journey experience will be achieved through more attentive staff, better information, newer and cleaner trains and buses (including the New Bus for London), less crowding and smoother flowing traffic, and greater use of the Thames and other waterways. Enhancements to the built and natural environment will improve perceptions of the urban realm, streets and town centres and deliver a step change in the appeal of walking and cycling as healthy, active travel options. London will have 'better streets' that are free from clutter and unnecessary signs, are vibrant, attractive and enjoyable places to use. Improved air quality, with health benefits for Londoners – will be achieved through LEZ enhancements, a cleaner, greener London vehicle fleet including a new greener bus for London, lower emission taxis, lower emission heavy goods vehicles (HGVs) and lower emission cars, such as EVs.

Improving the safety and security of all Londoners

36 The strategy will seek to continue the trend of reducing road traffic casualties and injuries. Increasing levels of cycling will lead to a virtuous circle of increased awareness among other road users and a reduced injury rate. Safety for public transport passengers will continue to be paramount. Implementation of best practice design guidance and improved surveillance (through police officer patrols, staff visibility and CCTV) will reduce crime rates and improve perceptions of personal safety and security.

Improving transport opportunities for all Londoners

37 The strategy will help deliver equal life chances for all. Improved availability and helpfulness of staff, together with better information provision, will provide more reassurance, help and advice to passengers. A 'whole journey approach' will deliver increased step-free access and other accessibility improvements to the bus, Tube and rail networks. Improvements to the streetscape will improve physical accessibility. Targeted fare concessions and door-to-door services will continue for specific user groups.

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

38 The strategy will promote an increased attractiveness of low carbon modes of public transport, walking and cycling leading to further mode shift away from the car, and consequently lower emissions. An uptake of low carbon vehicle technologies and fuels will make significant reductions in CO_2 emissions across all modes. Decarbonised electricity supply will make electric-powered transport more environmentally advantageous. Electric charging infrastructure will help support the use of EVs. A greater public awareness of the environmental impact of travel choices and driving style, together with targeted travel planning and car clubs will further reduce transport-related CO_2 emissions and tackle car dependency. Working with the freight industry, the Mayor will seek to ensure that freight movement in London is made as efficient as possible, including greater use of rail and water. Road user charging may be considered if required to meet the CO_2 emission reduction target (subject to technology enabling a fair scheme to be developed). Climate change adaptation measures will ensure London's transport system becomes more resilient to extreme weather events and rising sea levels.

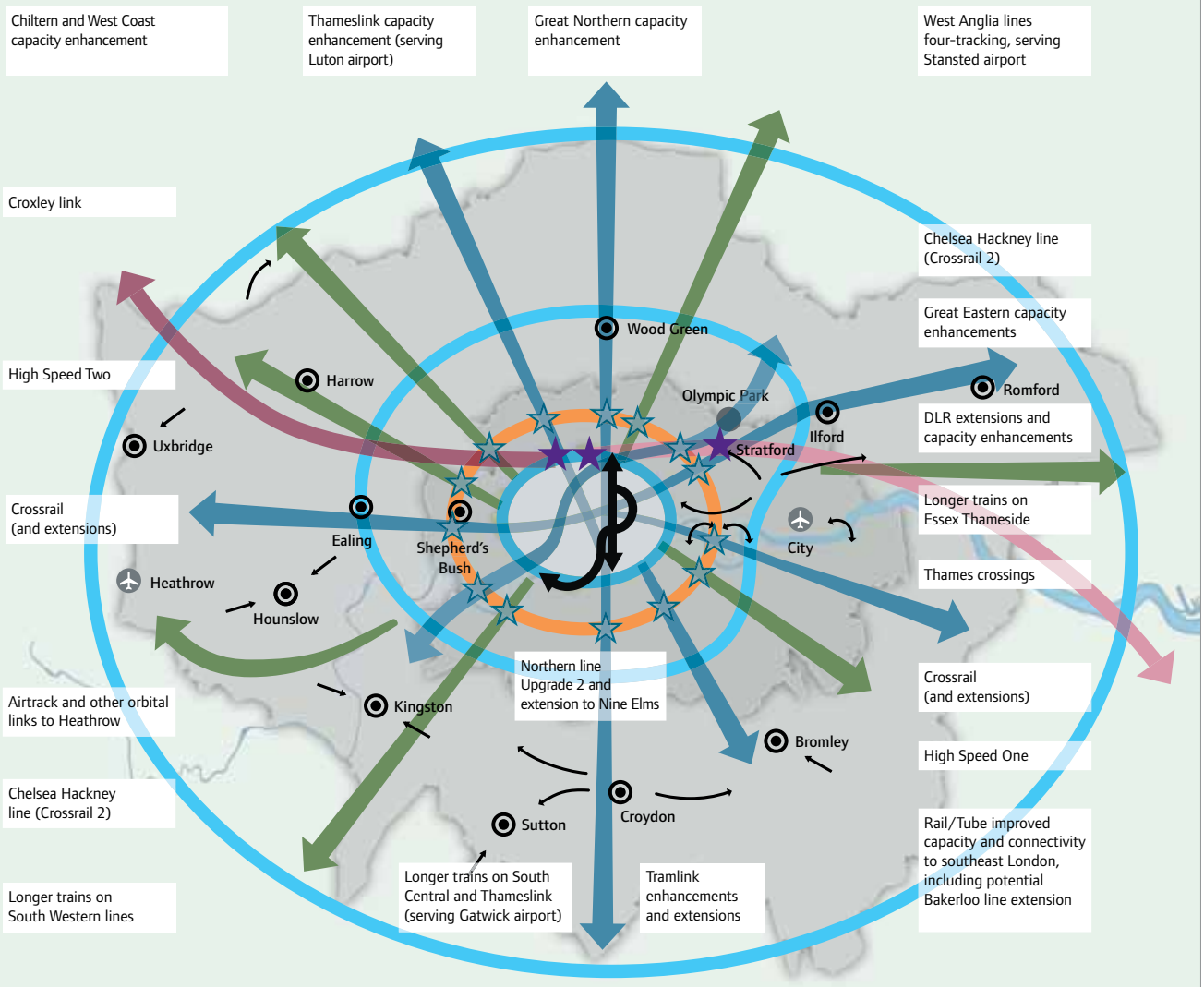
Supporting delivery of the London 2012 Olympic and Paralympic Games and its legacy

39 The strategy will support the successful delivery of the 2012 Games Transport Plan, and the physical and behavioural legacy of the Games.

2.2.1 Transport network infrastructure enhancements

40 Figure 1 shows a number of key transport network improvements envisaged by the strategy (whether funded or not). London-wide improvements, such as the efficiency of the bus network, are not shown in this figure.

Figure 1: Enhancements to London's transport infrastructure



Key

- Strategic interchange
- High-speed/international station
- Metropolitan town centres
- Town centre/sub-regional
- Orbital road
- Orbital rail
- Cross-London
- Radial
- High-speed/international rail
- Airport

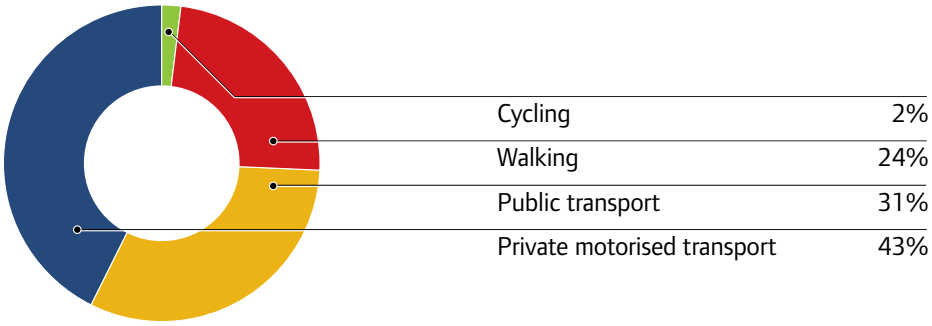
London-wide improvements:
An upgraded Tube system, bus service enhancements, measures to smooth traffic flow, walking and cycling improvements, more use of the Thames, accessibility improvements, and measures to further integrate the transport system

Town centre improvements:
Better streets, including better provision for freight and servicing, and improved urban realm

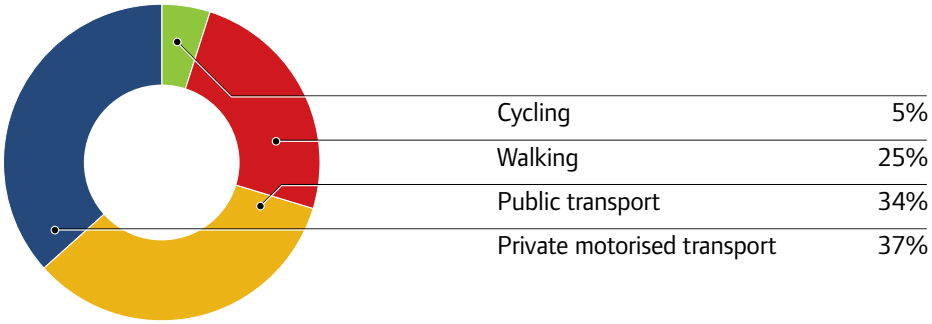
Note: Not all lines or networks are shown. This is a conceptual rather than a geographical representation of the future transport system in London

Figure 2: Mode share[1]

2006



2031



Note: Do not add up to 100 due to rounding

Assuming no significant changes to road user charging apart from removing the charge in the Western Extension

2.2.2 Proposed outcomes

41 Analysis indicates that the change in mode share which could be achieved from the implementation of the MTS is shown in Figure 2, above.

42 The overall number of trips[2] in London is forecast to increase from the current level of 24 million per day to more than 27 million by 2031.

43 The six goals embraced by the MTS are consistent with national policy including Planning Policy Guidance (PPG) note 13 and DfT's Delivering a Sustainable Transport System (DaSTS), and will further the Mayoral strategies' achievement of sustainable development in the period of the London Plan. The transport vision for London recognises the important links between the goals. Individually, the achievement of each goal will deliver tangible benefits, while the achievement of the vision will be greater than the sum of its parts.

44 For each of the goals there is a set of related transport challenges which the strategy will need to tackle.

45 The outcomes sought from the MTS, in relation to each of the goals and challenges, are set out in Figure 3.

1 Based on TfL counts and modelling

2 A trip is a complete door-to-door movement, such as from home to the office, and can include several stages within it, such as a walk from home to the station, the journey on a train and then a further walk from the end station to the office

Figure 3: Proposed outcomes

Goals	Challenges	Outcomes
Support economic development and population growth	Supporting sustainable population and employment growth	• Balancing capacity and demand for travel through increasing public transport capacity and/or reducing the need to travel
	Improving transport connectivity	• Improving people's access to jobs • Improving access to commercial markets for freight movements and business travel, supporting the needs of business to grow
	Delivering an efficient and effective transport system for people and goods	• Smoothing traffic flow (managing delay, improving journey time reliability and resilience) • Improving public transport reliability • Reducing operating costs • Bringing and maintaining all assets to a state of good repair • Enhancing the use of the Thames for people and goods
Enhance the quality of life for all Londoners	Improving journey experience	• Improving public transport customer satisfaction • Improving road user satisfaction (drivers, pedestrians, cyclists) • Reducing public transport crowding
	Enhancing the built and natural environment	• Enhancing streetscapes, improving the perception of the urban realm and developing 'better streets' initiatives • Protecting and enhancing the natural environment
	Improving air quality	• Reducing air pollutant emissions from ground-based transport, contributing to EU air quality targets
	Improving noise impacts	• Improving perceptions and reducing impacts of noise
	Improving health impacts	• Facilitating an increase in walking and cycling
Improve the safety and security of all Londoners	Reducing crime, fear of crime and antisocial behaviour	• Reducing crime rates (and improving perceptions of personal safety and security)
	Improving road safety	• Reducing the numbers of road traffic casualties
	Improving public transport safety	• Reducing casualties on public transport networks
Improve transport opportunities for all Londoners	Improving accessibility	• Improving the physical accessibility of the transport system • Improving access to services
	Supporting regeneration and tackling deprivation	• Supporting wider regeneration
Reduce transport's contribution to climate change, and improve its resilience	Reducing CO_2 emissions	• Reducing CO_2 emissions from ground-based transport, contributing to a London-wide 60 per cent reduction by 2025
	Adapting for climate change	• Maintaining the reliability of transport networks
Support delivery of the London 2012 Olympic and Paralympic Games and its legacy	Developing and implementing a viable and sustainable legacy for the 2012 Games	• Supporting regeneration and convergence of social and economic outcomes between the five Olympic boroughs and the rest of London • Physical transport legacy • Behavioural transport legacy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UNDERGROUND

Chapter three – Context

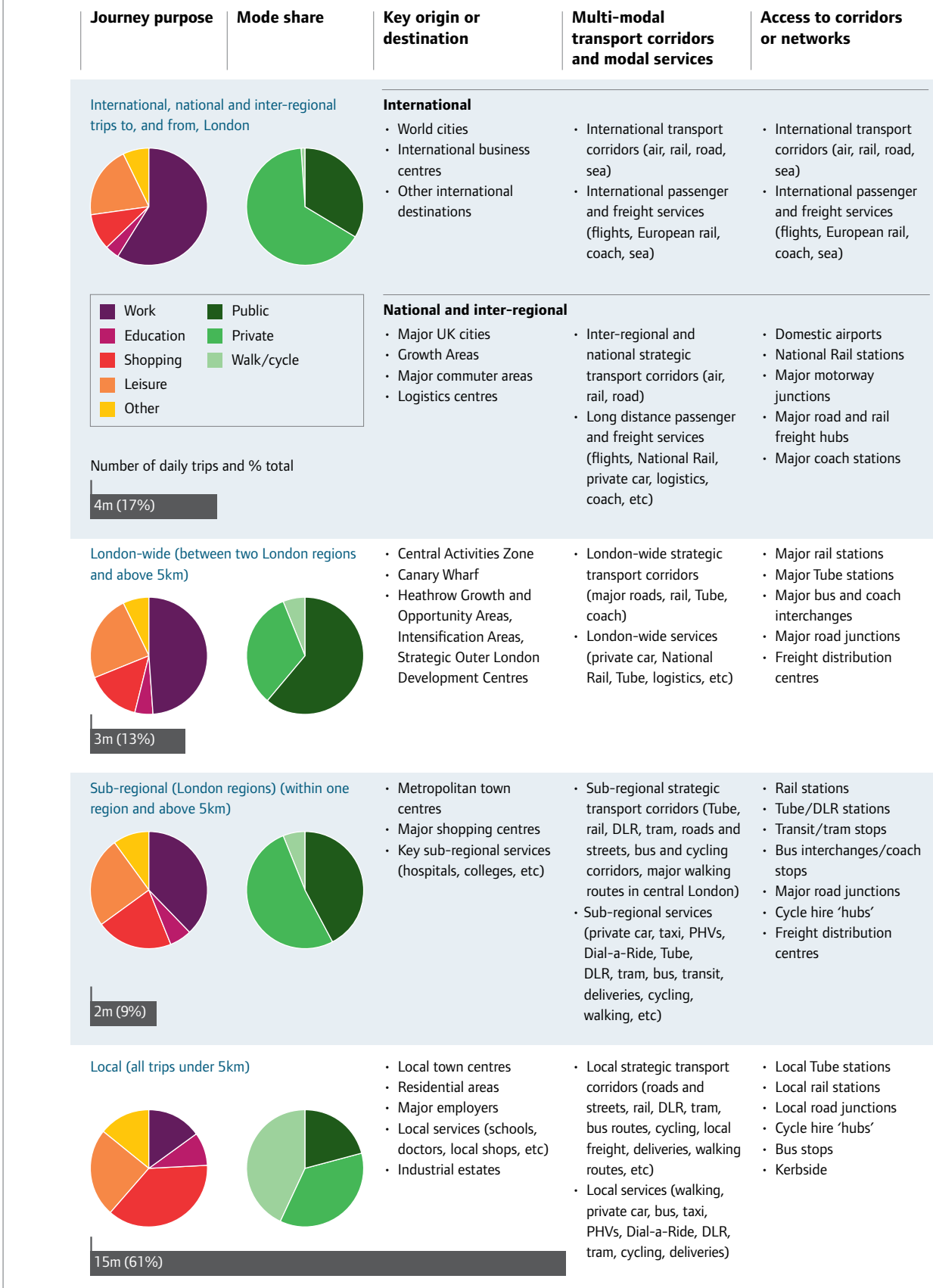
3.1 London's transport geography

46 In order to develop a strategy that will achieve the six goals set out in chapter two, it is essential to have an understanding of London's transport connectivity in a wider spatial context. London's 'transport geography' exists on a number of levels: international, national, regional, sub-regional and local.

47 On a global scale, access to, and from, London to international air, sea, coach and rail services are important in economic and geo-political terms. Nationally, access to motorways and National Rail networks provides essential connectivity to, and from, the rest of the UK. Some 70 per cent of all rail travel is to, from or within London, while some 30 per cent of all National Rail journeys take place wholly within London. At a regional London-wide level, the Underground and rail networks provide fast and frequent connections between London's suburbs and the central area. Locally, transport networks provide for trips to work, visit friends, go shopping, access local amenities and other services including health facilities. The types of journeys people make and the modes of transport used reflect this 'transport geography'. The same is true of freight movements, with long distance journeys made on national and international networks by air, sea, rail and road, for example by HGVs and/or container, and local deliveries on local roads by vans and smaller goods vehicles (LGVs).

48 It is essential that the strategy addresses the nature, location and scale of the transport issues arising at each of these levels, and

Figure 4: Travel demand and levels of transport networks serving London



ensures that those organisations best placed to develop solutions to these challenges are enabled to do so. Figure 4 sets out the scale of demand, journey purpose and modes used for each of these levels of travel, and the interchanges between each level – for example, to interchange from the London-wide network to the national network.

49 Across London, and at each of these levels, it is possible to identify networks of transport corridors, together with key interchange hubs where they meet or intersect. In central London, many of these routes converge to form a single central hub of huge transport and economic significance. Defining the structure of London's transport geography at each of these levels, through the identification of networks of multi-modal strategic transport corridors, gateways and interchanges, has been important in designing a transport strategy to achieve the outcomes, priorities and solutions needed at each level.

50 The strategy requires a coordinated approach to ensure London's transport networks function effectively at all these levels, and to maximise the contribution of each level to the achievement of the goals of the strategy. However, they often share the same transport infrastructure, with different trips and priorities 'competing' for the use of the network. The interplay between these networks is an important factor in the challenges set out in this strategy and solutions will need to address the different types of trips.

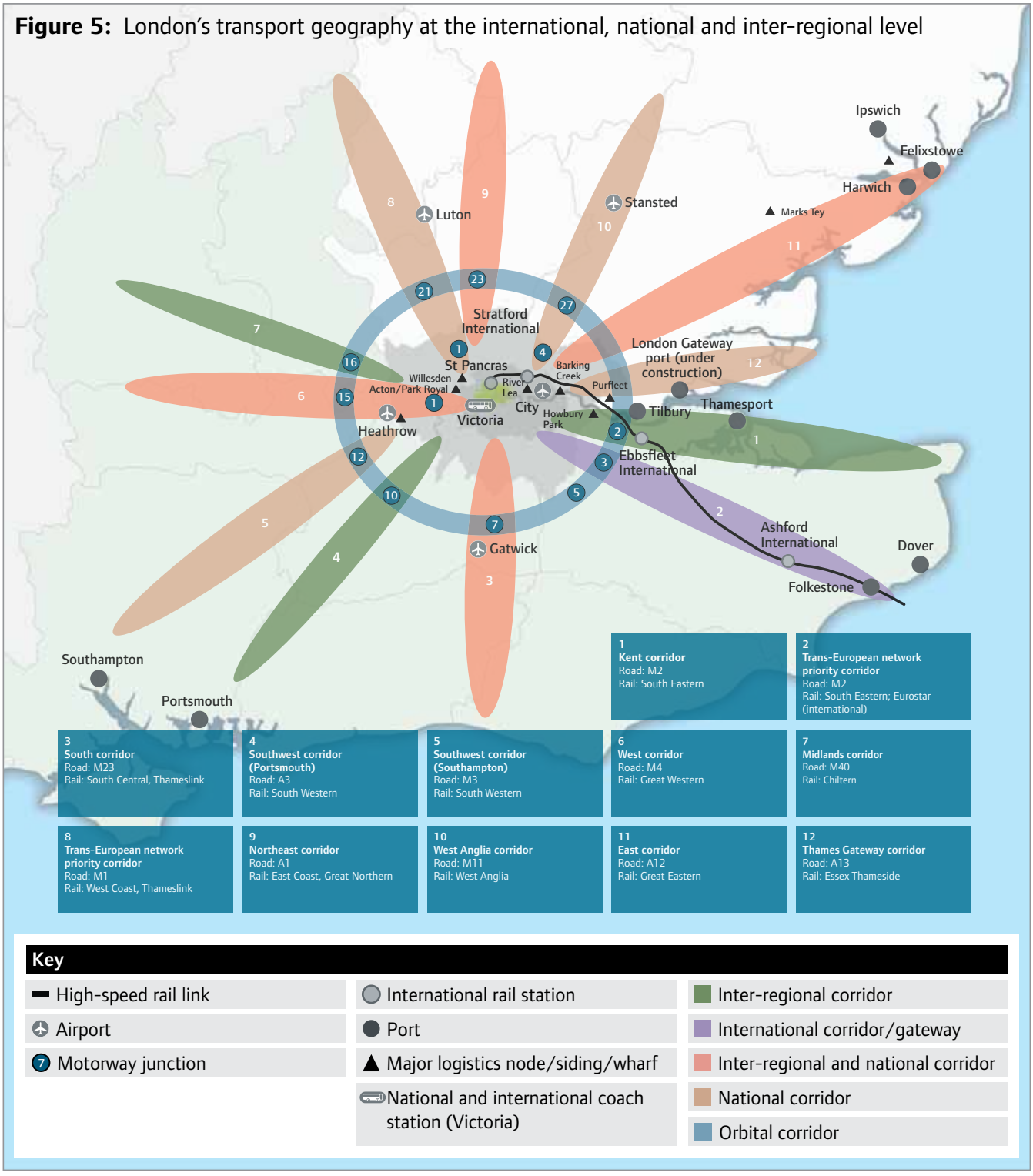
51 Figure 5 illustrates London's transport geography at the international, national and inter-regional levels.

3.1.1 International travel

52 International transport corridors include air, rail and sea modes that bring passengers and freight into and out of the UK. Major international gateways include the five international airports (Heathrow, Gatwick, Stansted, Luton and City), with Heathrow catering for more international trips than any other airport in the world. While many of these gateways are outside the GLA area, they are still vital for London's economy. London is also directly connected to the European high-speed rail network via Eurostar services from St Pancras International. International coach services are accessible via Victoria Coach Station.

53 International freight trains, for example, from the Ford plant at Dagenham, link London to the Continent (and other international freight trains from elsewhere in the UK pass through London's rail system en route to mainland Europe). Principal UK international sea ports are also within easy reach of London, including Southampton, Felixstowe, Tilbury and Thamesport. Freight trains compete for rail paths with passenger trains and thus growth in rail freight will limit opportunities to expand passenger rail services. The strategy therefore seeks to remove unnecessary movement of freight by rail through London by supporting enhancements to the rail network outside the Capital to allow more use to be made of alternative routes where there are fewer conflicts.

Figure 5: London's transport geography at the international, national and inter-regional level



54 To sustain its global economic position, it is essential that London maintains these high levels of international connectivity, and continues to improve access to international gateways across and beyond the Capital that connect to international transport networks. Linking these gateways more effectively to regional and local networks and ensuring efficient onward distribution of passengers and goods is equally important.

3.1.2 National and inter-regional travel

National

55 London is the centre of a 'mega-city region' in the South East of some 24 million people. Commuters from outside the Capital fill almost one in five of the city's jobs. It is estimated that the average value of output per worker in Inner London is £54,200 compared to £39,500 across the UK. At the national and inter-regional levels, multi-modal transport corridors incorporate the long distance passenger and freight services that connect London with major cities and other destinations across the UK.

56 Considerable improvements have been delivered in recent years, with upgrades to existing intercity railway lines, notably the West Coast Main Line, reducing average journey times from London to Manchester and Glasgow by 30 minutes. In addition, domestic services on the new international high-speed rail line are set to reduce commuting time from large parts of Kent to London, increasing central London's employment catchment area.

57 Proposals for a new high-speed rail line between London and Birmingham and beyond are currently being considered by the DfT. These proposals set out in the DfT's High-Speed Command Paper, published in March 2010, have been developed by High Speed Two, the company set up by the DfT to investigate options for a new high-speed rail line to relieve crowding on the West Coast Main Line, Britain's most intensively-used intercity route, by 2025. There is scope to shift a considerable number of motorway trips to rail, relieving the M1–M6 (London–Birmingham–Manchester) corridor. Further extensions to Manchester and Leeds would see significant journey time savings, improving connectivity between London and other densely populated regions. Business travellers would be some of the key beneficiaries.

58 The Mayor is supportive in principle of the development of a new high-speed rail line to the north and locating the London terminus in the central area would maximise access to jobs and London's population, and enable efficient onwards dispersal of high-speed line passengers. The proposals allow access to Heathrow via a connection with Crossrail in west London, though there is a need for further research before the final location of any such interchange can be confirmed

London and its neighbouring regions

59 London is unique among the British regions in that a significant proportion of its workforce resides in neighbouring regions. Coordination of the development of transport networks in London and its surrounding regions is essential

to ensure employers located in London have access to the widest possible labour markets. Therefore the economic success of London and the Greater South East (GSE) are inextricably linked (Figures 6 and 7).

60 Figure 6 shows London within the context of the GSE, showing neighbouring areas which house the majority of London's non-resident workforce, located within approximately an hour's travel time from central London by rail. Radial trips from areas to the west tend to be less concentrated as there are a number of free-standing, sub-regional employment centres, such as Basingstoke, Reading and Milton Keynes which have experienced strong growth in recent years. Areas to the east of London, such as Kent and Essex, tend to have smaller employment bases, contributing to a greater net out-flow of residential labour, leading to more concentrated flows along radial corridors to London.

61 London has two adjoining regional bodies; the South East England Partnership Board (formerly South East England Regional Assembly, SEERA) and the East of England Regional Assembly (EERA). The Regional Transport Strategy for South East England is contained within the South East Plan, published by the Government in May 2009, and that for the East of England is contained within the East of England Plan, published in May 2008. The significant forecast levels of employment and population growth in the GSE will increase demand for transport to London and need to be catered for in the MTS.

3.1.3 London-wide travel

62 At a London-wide level, strategic transport networks play an important role in London's economy. Radial connections into central London are important for commuters and other travellers as are radial connections into and out of metropolitan town centres, Growth and Opportunity Areas, Strategic Outer London Development Centres[1] (SOLDCs), employment and service hubs and residential areas. Orbital transport corridors are also important to overall levels of connectivity. In Inner London, these are relatively well-developed and will be enhanced further through the development of the London Overground network. However, in Outer London they are less developed: current services and priority levels for orbital public transport reflect current demands which have tended to be lower in Outer London.

63 As can be seen from Figure 7, the key origins and destinations include the Central Activities Zone (CAZ) and other major employment and growth areas identified in the London Plan. The CAZ and Isle of Dogs are the focus for London's high density, high value office employment, specialising in sectors such as financial and business services. Croydon and Heathrow are the two most significant employment locations in Outer London, generating a significant number of orbital commuting trips from elsewhere in the Capital as well as the outer metropolitan area.

64 Figure 8 shows multi-modal strategic transport corridors across London to include major roads,

[1] The draft replacement London Plan puts forward the concept of 'Strategic Outer London Development Centres' as places with specialist economic functions of greater than sub-regional importance. They are intended to be the locations for strategically significant specialist growth which will not undermine the prospects of town centres or other business locations

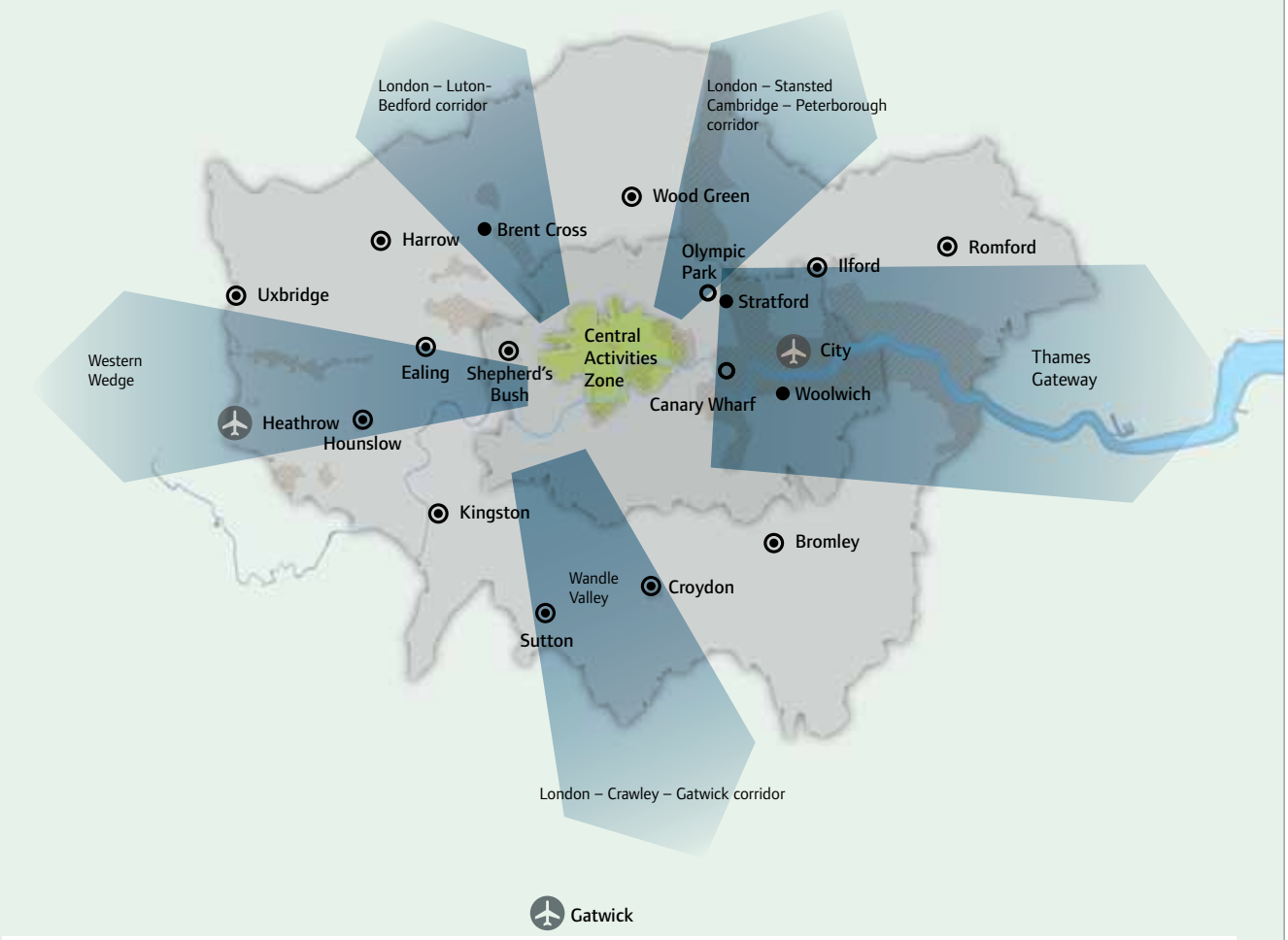
Figure 6: London's economic inter-relationship with the Greater South East

regional rail lines, the Underground and key bus corridors connecting the origin and destination hubs. Existing road and rail corridors are predominantly radial into the CAZ, but there are also major orbital links including the North and South Circular Roads, the emerging London Overground orbital rail route and the M25. Gateways include the rail stations that provide access to the regional rail lines. Major road and rail freight hubs could also act as gateways at the regional level and provide linkages nationally and locally, for example, the planned Howbury Park rail terminal and consolidation centre in Bexley, southeast London.

3.1.4 Sub-regional travel

65 TfL has been working closely with the GLA, the LDA and London boroughs to develop an integrated approach to sub-regional transport and land use planning. In recognition of the fact that journeys rarely end at administrative boundaries, the boundaries of sub-regions are intentionally flexible or fuzzy. This also facilitates collaborative working on issues of shared concern, including across the GLA boundary and along growth corridors. The sub-regions and their transport connectivity are set out in Figure 9.

Figure 7: Places which are dominant in the London economy



66 Historic growth and development patterns have resulted in significant differences in land use and transport infrastructure across London, presenting different challenges, opportunities and priorities for its sub-regions. The transport challenges that affect sub-regional ambitions need to be considered, in keeping with the approach outlined in the London Plan.

67 Improving connectivity will be a key priority for metropolitan and town centres and Opportunity and Growth Areas, where accessibility for business, retail opportunities and freight, as well as education, health and other services, is important for social and economic development.

68 Improvements are already being made in sub-regional transport. The bus network has been significantly developed, and the London Overground upgrade will deliver additional capacity and better connectivity. However, connectivity remains strongest on corridors into central London; links into centres not lying within these radial corridors are in many cases poorer.

Figure 8: London-wide transport geography

I
A404 corridor
LU: Metropolitan, Jubilee, Bakerloo
Rail: London Overground Watford – Euston, Chiltern
Termini: Marylebone, Euston

J
M1 corridor
LU: Northern, Jubilee
Rail: Thameslink; East Midlands
Terminus: St Pancras
Road: M1, A41, A5

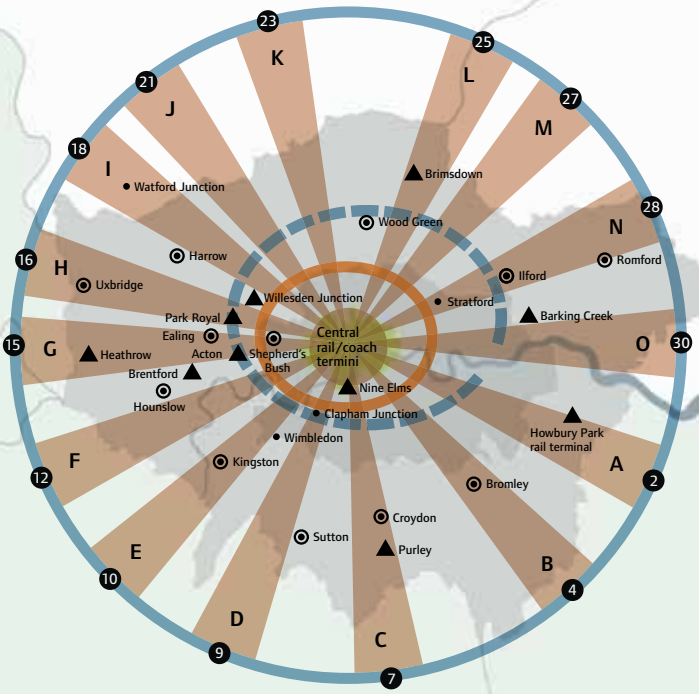
K
A1 corridor
LU: Northern, Piccadilly
Rail: Great Northern,
Termini: King's Cross, Moorgate
Road: A1

L
A10 corridor
LU: Victoria
Rail: West Anglia
Road: A10
Waterway: River Thames
Terminus: Liverpool St

M
M11 corridor
LU: Central
Rail: West Anglia
Road: A11, M11
Terminus: Liverpool St

H
A40 corridor
LU: Bakerloo, Jubilee, Piccadilly, Central
Rail: Chiltern
Road: A40, M40
Terminus: Marylebone

N
A12 corridor
LU: Central
Rail: Great Eastern
Road: A12
Terminus: Liverpool St



G
M4 corridor
LU: Piccadilly, District, Central
Rail: Great Western
Road: A4, M4, A40, A30
Termini: Waterloo, Paddington

O
A13 corridor
LU: District, Hammersmith & City, Jubilee to Canary Wharf
Rail: Essex Thameside
Road: A13
Waterway: River Thames
Terminus: Fenchurch St

F
M3 corridor
LU: District
Rail: South Western
Road: M3, A31
Terminus: Waterloo

A
A2 corridor
LU: n/a
Rail: South Eastern
Road: A20, A2, A206, Blackwall Tunnel
Waterway: River Thames
Termini: London Bridge, Cannon St, Charing Cross

E
A3 corridor
LU: District
Rail: South Western
Road: A3
Terminus: Waterloo

D
A24 corridor
LU: Northern
Rail: South Central, South Western, Thameslink
Road: A24
Termini: London Bridge, Charing Cross, Victoria, Blackfriars

C
A23 corridor
LU: Victoria
Rail: South Central, Thameslink
Road: A23, A22
Termini: London Bridge, Victoria, Blackfriars

B
A21 corridor
LU: n/a
Rail: South Eastern
Road: A21
Termini: London Bridge, Cannon St, Charing Cross, Victoria

Key

- Metropolitan town centre
- Major freight node
- Radial corridor
- Orbital rail
- Outer London
- Outer orbital road (M25)
- Inner London
- Inner orbital road
- Central Activities Zone
- Outer orbital road junction

69 Figure 9 illustrates the transport connections across London that serve the key places in the sub-regions, and also shows Opportunity and Growth Areas. Issues on these connections, and 'missing' connections will tend to require careful consideration as they play a crucial role in sustaining the sub-regions' development.

South London sub-region

70 South London primarily consists of the boroughs of Bromley, Croydon, Kingston, Merton, Richmond, Sutton and Wandsworth. It is mostly suburban in nature, with large areas of green space, lower density housing and strong town centres. The population of the region is forecast to grow by seven per cent to around 1.8 million in 2031[1]. South London is especially reliant on the National Rail network for access into central London as there is limited access to the Underground network. Orbital travel within the region is mainly catered for by buses, with some orbital rail services, and Tramlink serving areas around Croydon.

East London sub-region

71 East London primarily consists of the boroughs of Tower Hamlets, Hackney, Newham, Greenwich, Bexley, Barking & Dagenham, Redbridge, Lewisham and Havering. It incorporates many communities and town centres, including the metropolitan town centres of Romford and Ilford. The region's population is forecast to grow by 28 per cent to 2.6 million in 2031[2]. Much of the region lies within the Thames Gateway Growth Area. The 2012 Games will also create legacy opportunities. The Thames has significantly influenced the pattern of land use and still presents both opportunities and transport challenges. The decline in the use of London's docklands for the movement of freight has led to significant regeneration initiatives and opportunities – with Docklands showing the potential for transformational redevelopment.

West London sub-region

72 West London primarily comprises the boroughs of Hillingdon, Harrow, Brent, Ealing, Hounslow and Hammersmith & Fulham. It is home to four metropolitan town centres (Ealing, Harrow, Hounslow and Uxbridge), the largest industrial park in London, and the largest urban shopping mall in Europe. The population of the region is forecast to grow by 10 per cent to 1.6 million in 2031[3]. While trips to central London are well-served by public transport (though often crowded), orbital links are far more limited. The region also includes Heathrow airport, the destination for more than 45,000 trips daily by London residents, of which over half are made by car.

North London sub-region

73 North London primarily comprises the boroughs of Barnet, Enfield, Haringey and Waltham Forest, but also considers transport issues in the parts of Camden, Hackney and Islington which lie outside central London. It is polycentric, with one metropolitan town centre

[1] Based on GLA forecasts, 2010
[2] Based on GLA forecasts, 2010
[3] Based on GLA forecasts, 2010

Figure 9: London-wide transport connectivity

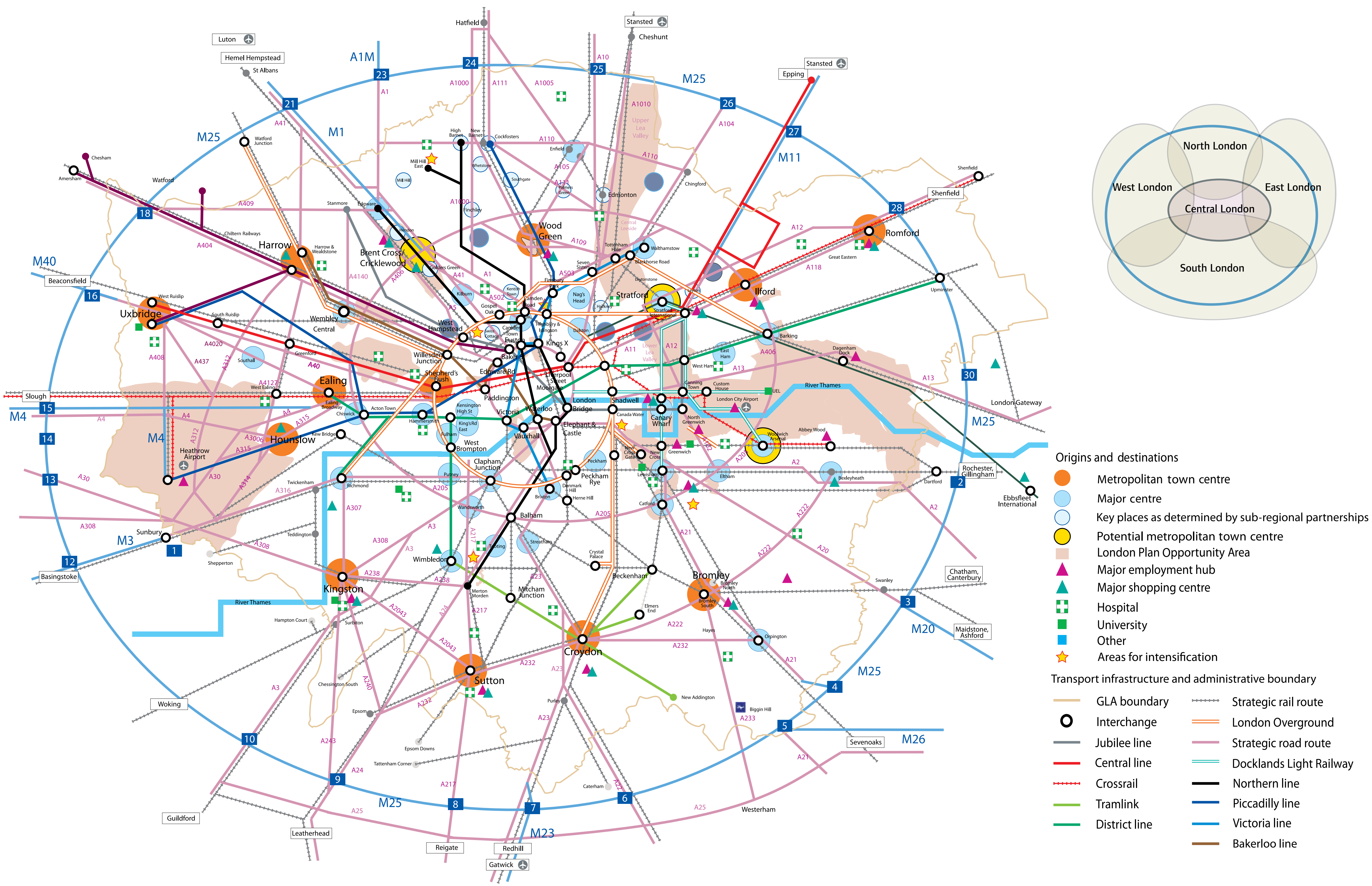


Figure 9: London-wide transport connectivity

(Wood Green) but many district centres. Barnet has more district centres than any other borough. The population of the region is forecast to grow by 15 per cent to over 1.2 million in 2031[1], with the most growth in Brent Cross/Cricklewood, Colindale and Upper Lea Valley. Many of these areas lie adjacent to transport infrastructure, but ensuring capacity for sustainable population and employment growth remains a challenge.

Central London sub-region

74 Central London comprises the Cities of London and Westminster, the boroughs of Camden, Islington, Southwark and Lambeth and the Royal Borough of Kensington & Chelsea. The population is forecast to grow by 18 per cent to around 1.6 million by 2031[2].

75 The variety and intensity of activity in the area, reliance on public transport, and continuing growth in journeys to, from and within it, place significant strains on the transport network, requiring efficiency and reliability. While most of central London has high levels of accessibility, there are areas at its fringes where this is not the case, and improving accessibility and supporting regeneration is important. In addition, Opportunity and Intensification Areas have the potential to change and expand the CAZ further, with opportunities for new development and employment growth.

3.1.5 Local travel

76 Ensuring good door-to-door journey time and facilitating local movement in town centres, residential areas, and to local employers, services and leisure opportunities is essential for London's economy, and for the maintenance and improvement of people's quality of life. Representing more than 70 per cent of trips made by London residents, local trips are those millions of trips under five kilometres which are made daily to schools, local shops, leisure centres, health facilities, banks, etc. It is important to note that all journeys – whether seeking to access international or sub-regional transport networks – tend to start and end on the local transport network. For freight deliveries, for example, the ability to access premises and load and unload is vital.

77 Shopping (and personal business) is the most common trip purpose for a local trip, accounting for more than a third of trips[3]. This is followed by leisure, which represents around a quarter of trip purpose. It is more sustainable and less costly for people to access goods and services which meet their needs locally. This saves journey time and reduces demand on the transport system. It is therefore beneficial for individuals and the transport system as a whole by reducing costs and congestion. As a majority of local trips are made by walking, cycling and public transport, their encouragement would support the achievement of CO_2, PM_{10} and NO_2 emission reduction

1 Based on GLA London Plan forecasts, 2010

2 Based on GLA London Plan forecasts, 2010

3 Based on local trips made within a region (Travel In London, report number 1)

objectives. Local trips form the vast majority of journeys: everyone makes local journeys almost every day. It is therefore essential to facilitate local trip making, especially by walking, cycling and public transport.

78 More specifically, local trips in London are predominantly made by walking and cycling if the distance is less than half a kilometre. The car and bus are used for longer local trips between one and five kilometres, with lower levels of walking and cycling. A challenge will therefore be to encourage further modal shift towards walking, cycling and the bus network for those short distance trips. In central London, where the average trip distance is smaller than in other London sub-regions, walking is the dominant mode of travel for almost half of all trips. However, further modal shift from the car and the Underground towards the bus, walking and cycling should be encouraged as some local trips are faster by bus, foot or cycle than Tube or private car.

79 To facilitate local travel, some improvements have already been made, for example, the bus network has been developed to improve local connectivity, with an increase in service volume of about 40 per cent in the last 10 years. However, more could be done to improve local movements, especially with regard to the urban realm and the provision of cycle parking, kerbside loading and delivery bays. A better allocation of surface space between pedestrians, cyclists and motorised modes is also required to cope with increased pressure on space and demand for a better journey experience for all.

80 Longer distance trips also entail local movement such as a walk to the bus stop, rail station, and sometimes a further local journey stage to the final destination. Improving access to stations, to buses, taxis and, when relevant, to private car users will also play an important role in improving door-to-door journey time.

81 At the local level, local, sub-regional and London-wide transport priorities are delivered through the borough LIPs and through Local Area Agreements, providing linkages between transport improvements and local economic and community development priorities. Further details of this process are given in part three, chapter seven, Delivery processes (Implementation plan).

3.2 Integrating transport and land use planning

82 One of the Mayor's guiding principles, set out in 'Way to Go!' and underpinning the development of the new MTS, is to improve the integration of transport and land use planning. The combined review of the London Plan and the MTS, together with the parallel review of the Mayor's EDS, provides a major opportunity to achieve this.

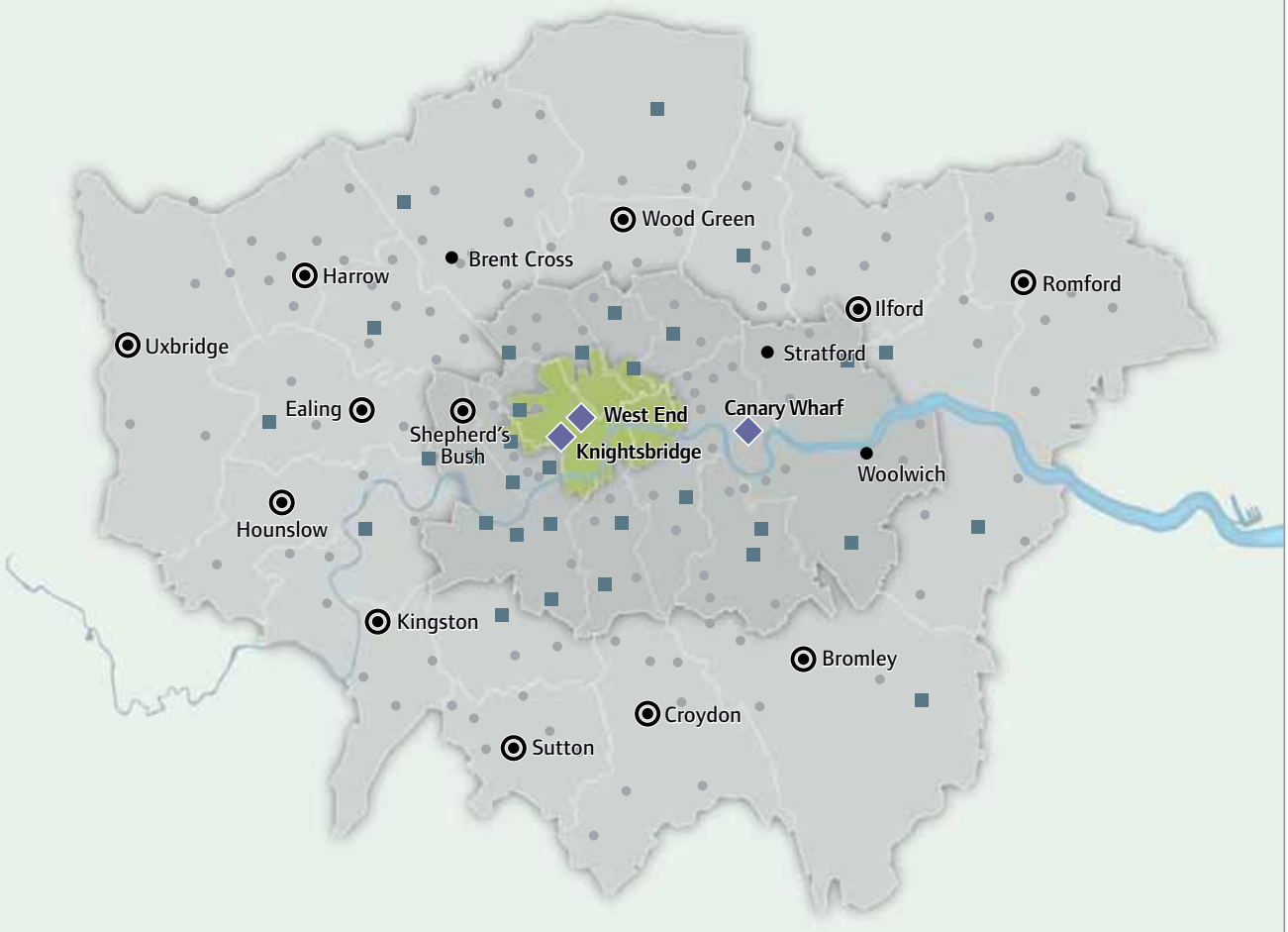
83 London's land use planning geography can be divided into three discrete areas: the CAZ and Inner and Outer London, shown in Figure 10. While these areas can of course be further sub-divided in terms of specific land uses, they have a number of defining features that characterise them and help shape the transport challenges and priorities that the MTS must address.

3.2.1 Central Activities Zone

84 The CAZ comprises the City of London, the majority of the City of Westminster and parts of the London boroughs of Camden, Hackney, Islington, Lambeth, Southwark, Tower Hamlets and Wandsworth and the Royal Borough of Kensington & Chelsea. Canary Wharf is outside the CAZ, however, the linkages between the Isle of Dogs and the CAZ are critical to the business located in those areas.

85 The CAZ, while relatively small in area and home to less than four per cent of London's population (see Figure 13), currently contains more than a quarter of all London's jobs and is

Figure 10: Town centres in the CAZ, Inner and Outer London



Key	
Central Activities Zone	Metropolitan town centre
Inner London	Potential metropolitan town centre
Outer London	Major centre
International centre	District centre

the most economically productive part of the city. Uniquely (in London and the UK generally) much of this economic activity is global in scale, requiring high quality national and international connectivity to sustain it.

86 Morning peak travel into the CAZ is predominantly by public transport, with around 90 per cent of journeys made by bus, rail, or Underground. Within central London, walking is the predominant means of getting about, making up three quarters of trips wholly within the area, and plays a key role in the onward dispersal of passengers. While cycling makes up only a small proportion of the trips into and within the CAZ, it has increased significantly by around 90 per cent between 2000 and 2007[1]. The world city functions within the CAZ also require significant freight and servicing activity, for example, in the original central London Congestion Charging zone, LGVs and HGVs make up about 25 per cent of the circulating traffic. The CAZ is intensively used and the trend is for more and more demands to be placed on it through the day and, in many areas, into the night. All these different demands mean that there are significant challenges facing the transport network in the CAZ and around its fringes.

3.2.2 Inner London

87 This area contains more than a third of London's population. Many of London's areas of deprivation and regeneration are concentrated in Inner London, particularly around central London in a band from the northeast to the southeast. The London Plan identifies a number of Opportunity Areas on the eastern and southern fringes of the CAZ, and also in the Lower Lea Valley, around Brent Cross/Cricklewood in the north and in inner east London along the Thames Gateway. Canary Wharf is located in Inner London, but has many characteristics of the CAZ in terms of employment and travel behaviour.

88 Inner London is also the location for many London 2012 Olympic and Paralympic Games events with the Olympic Park at Stratford, and events being held around Greenwich, Docklands, Earls Court and Wembley, among other places. Ensuring that there is a lasting transport legacy for Inner London, with improved infrastructure and opportunities, is an important challenge.

89 Although less densely developed than central London, the Inner London boroughs are characterised by higher population and land use densities than those in Outer London. Although car use is higher than in central London, travel is generally still highly dependent on public transport and walking. While public transport accessibility is much higher in Inner than in Outer London, there remain pockets (mainly away from the radial rail corridors and the Underground network) where accessibility is poor.

90 Around one quarter (24 per cent) of Londoners' trips are entirely within Inner London. Walking accounted for the majority of trips within Inner London (46 per cent) with

[1] On the Transport for London Road Network, ie excluding cycling on borough roads

journeys by car accounting for 26 per cent, journeys by bus 18 per cent and journeys by Underground and rail seven per cent[1].

91 One of the key challenges for Inner London is tackling public transport crowding and road congestion, which have negative impacts on quality of life and the economic development of town centres within the area. The rail network is dominated by radial lines into central London which mostly originate from Outer or 'out of' London. As a consequence, Inner Londoners often experience severe crowding on radial rail services, making journeys less reliable and significantly less comfortable. Highway congestion is also a major issue. This has a negative impact on the reliability and efficiency of bus services, taxi and car journeys and the movement of freight.

3.2.3 Outer London

92 Sixty per cent of Londoners live in Outer London, which tends to be characterised by lower density development and higher residential populations. Outer London contributes significantly to the city's economy, providing 42 per cent of its jobs[2]. Employment tends to be concentrated in the 12 metropolitan town centres which are the equivalent, in terms of the size of their economies, to many regional cities across the UK[3]. Heathrow airport is also a major centre of employment in Outer London. While there are, in general, fewer deprived areas than in Inner London, significant areas of deprivation exist, for example, in Barking & Dagenham and parts of Bromley and Enfield. A challenge for Outer London is therefore to improve access to jobs, services and opportunities to tackle deprivation and encourage inward investment and local job creation.

93 In Outer London, the car is the dominant mode of transport for trips originating there, accounting for 52 per cent of all trips by residents. London-wide, 48 per cent of all trips by residents are solely within Outer London. In 2006, around 70 per cent of London's road-freight mileage was in Outer London. Figure 11 shows the different modal split between journeys in Outer, Inner and central London and illustrates the higher mode share of car journeys in Outer London. Trip patterns tend to be more dispersed within the area due to larger distances between town centres. Much of this trip-making is radial to, and within, Outer London centres. Bus services provide an extensive network of local services into town centre hubs. However, with suburban trips being 'dispersed' and/or 'edge of centre' to 'edge of centre' in character, public transport connections therefore tend to be less direct, and take longer relative to car journeys. Many journeys in Outer London are short in distance and could be made by bicycle.

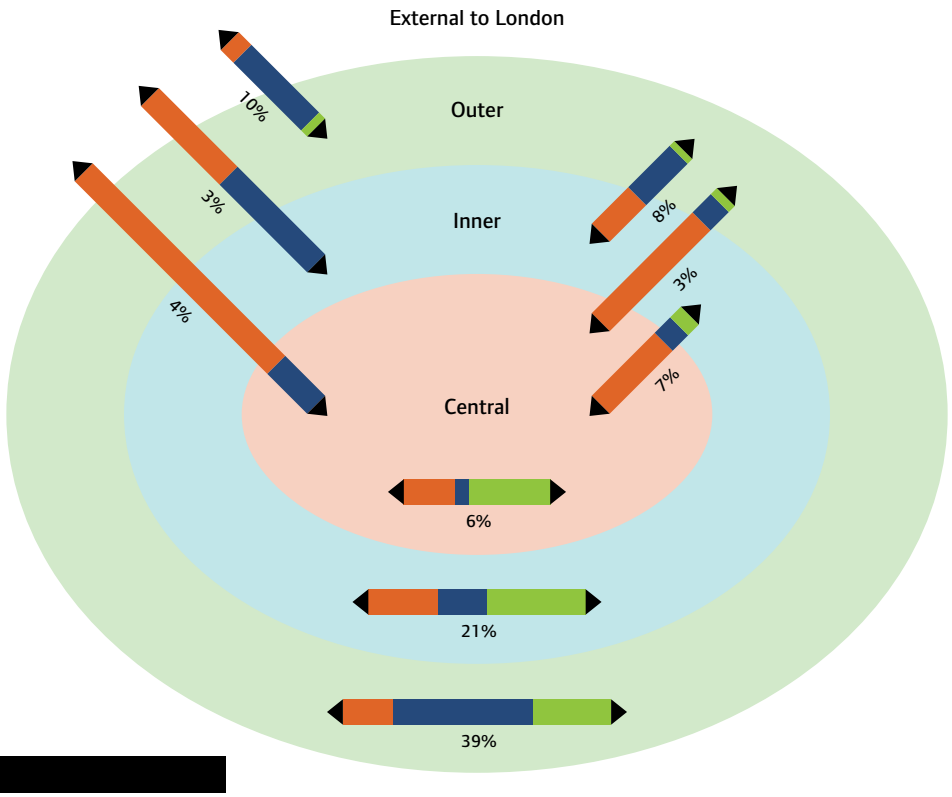
94 While average vehicle delays are lower in Outer London than Inner or central London, there are still areas where significant congestion

1 TfL Travel in London report, 2009

2 Planning for a better London, GLA, 2009

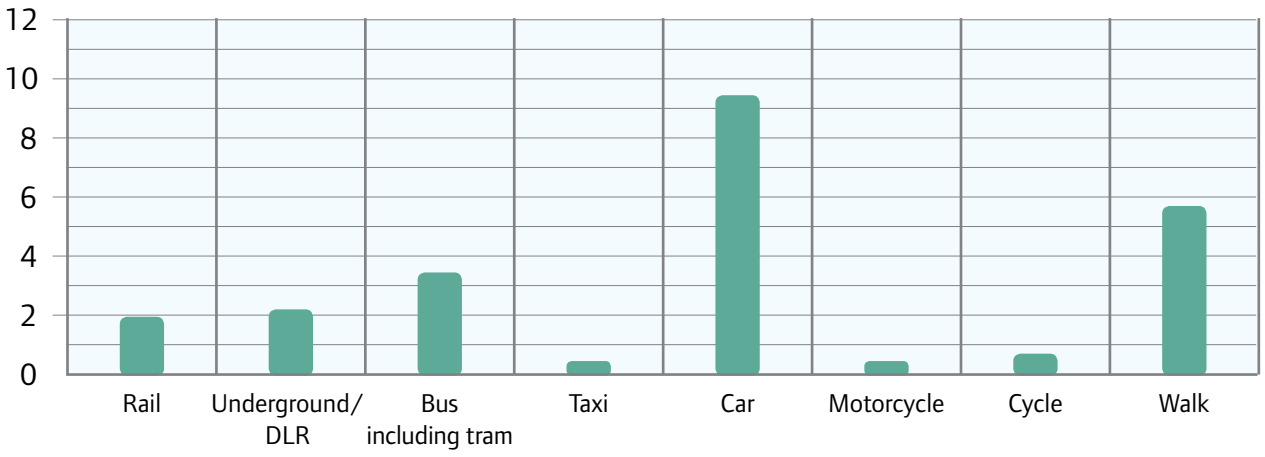
3 The new London Plan identifies Shepherd's Bush as a new metropolitan centre

Figure 11: Spatial pattern of travel across London, with mode shares



Note: Percentages are the daily 2005 to 2008 average proportion of all trips made to, and from, or within London. Figures include trips made by London and non-London residents and exclude freight. Data in this Figure is calculated using the Central Statistical Area. This covers a similar area to CAZ

Figure 12: Daily average number of trips (millions) in London, 2007



Note: Estimates of the daily average number of trips in London (including trips to, or from, London)

occurs, particularly in and around metropolitan town centres. Without adequate transport infrastructure improvements, as population and employment levels grow, delays to private, business, public transport and freight journeys are likely to increase, with journey time reliability deteriorating.

95 About one third of all trips within Outer London are made entirely by walking.

96 An aggregation of the trips shown in Figure 11 is shown in Figure 12. In terms of number of trips (though not necessarily total kilometres travelled), car is the dominant mode of transport, followed by walking, while bus is the third most used.

3.3 Planning for London's development

97 As set out by the London Plan, London is forecast to experience significant population and employment growth in the period to 2031. This is summarised in Figures 13, 14 and 15.

98 Historically, the spatial planning of London has reflected market developments and perpetuated an overall 'radial-centric' pattern of planning. Employment growth has largely been concentrated in central London (making the most of its economic productivity and agglomeration benefits) with some growth in metropolitan town centres and business parks, while housing development has been more dispersed. This has been an economically successful strategy, and the ability of public transport networks to more easily support such movements has contributed to a positive modal shift away from private car use that is unique in a city of London's size.

Figure 13: Population and employment distribution and forecast growth[1]

	Population				Employment			
	2007(m)	2031(m)	2007(%)	2031(%)	2007(m)	2031(m)	2007(%)	2031(%)
CAZ	0.3	0.3	4	4	1.2	1.4	26	25
Inner (excl CAZ)	2.7	3.4	36	38	1.5	1.9	32	35
Outer	4.6	5.1	60	58	2.0	2.2	42	40
Total	7.6	8.8	100	100	4.7	5.5	100	100

[1] These projections have been supplied by the GLA. They are consistent with the projections underpinning the draft London Plan and Economic Development Strategy. The GLA update population and employment projections for London usually on an annual basis. Significant changes would influence the forecast levels and patterns of travel demand

Figure 14: Spatial distribution of population growth, 2007 to 2031

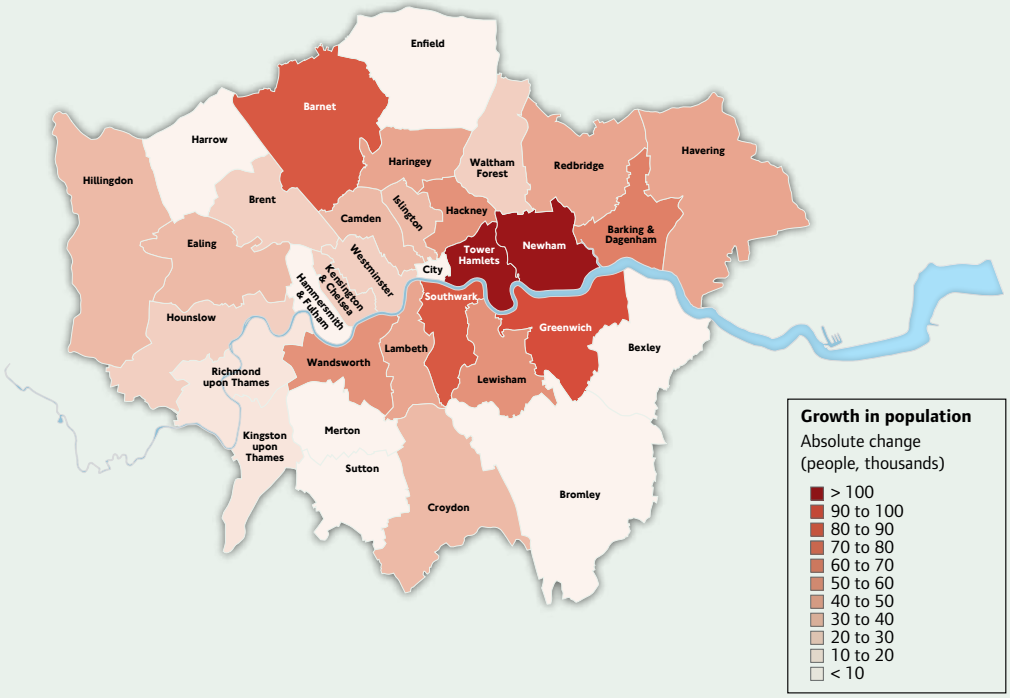
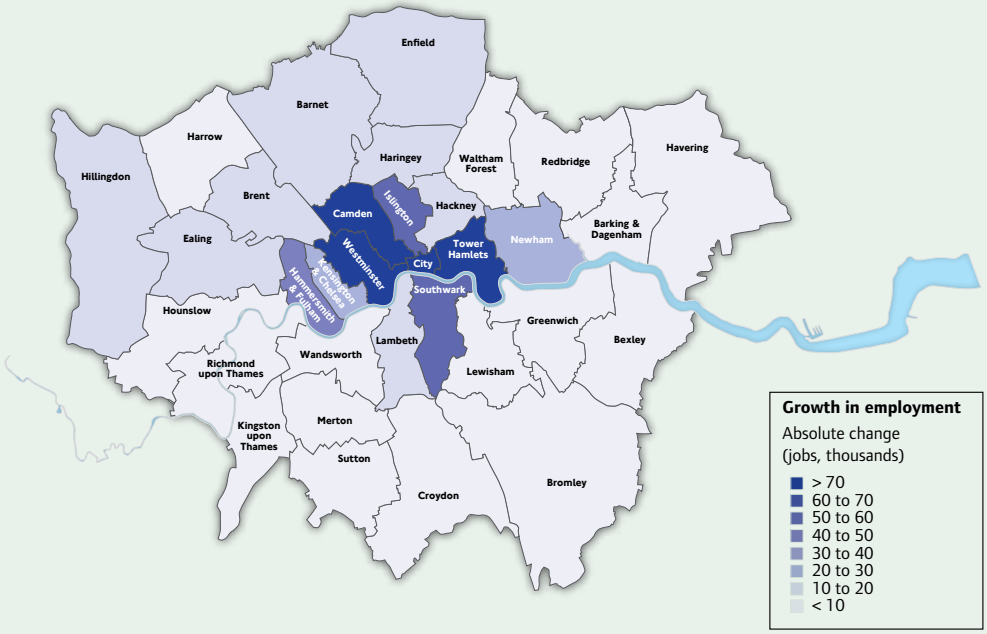


Figure 15: Spatial distribution of employment growth, 2007 to 2031



99 The trend of concentration of employment growth in central London is likely to persist: on current forecasts, over the next 20 years, 35 per cent of London's future employment growth is expected to be located within the CAZ and Canary Wharf. The CAZ will therefore continue to be important not only for London's economy, other areas of London and the surrounding regions, but for the UK as a whole.

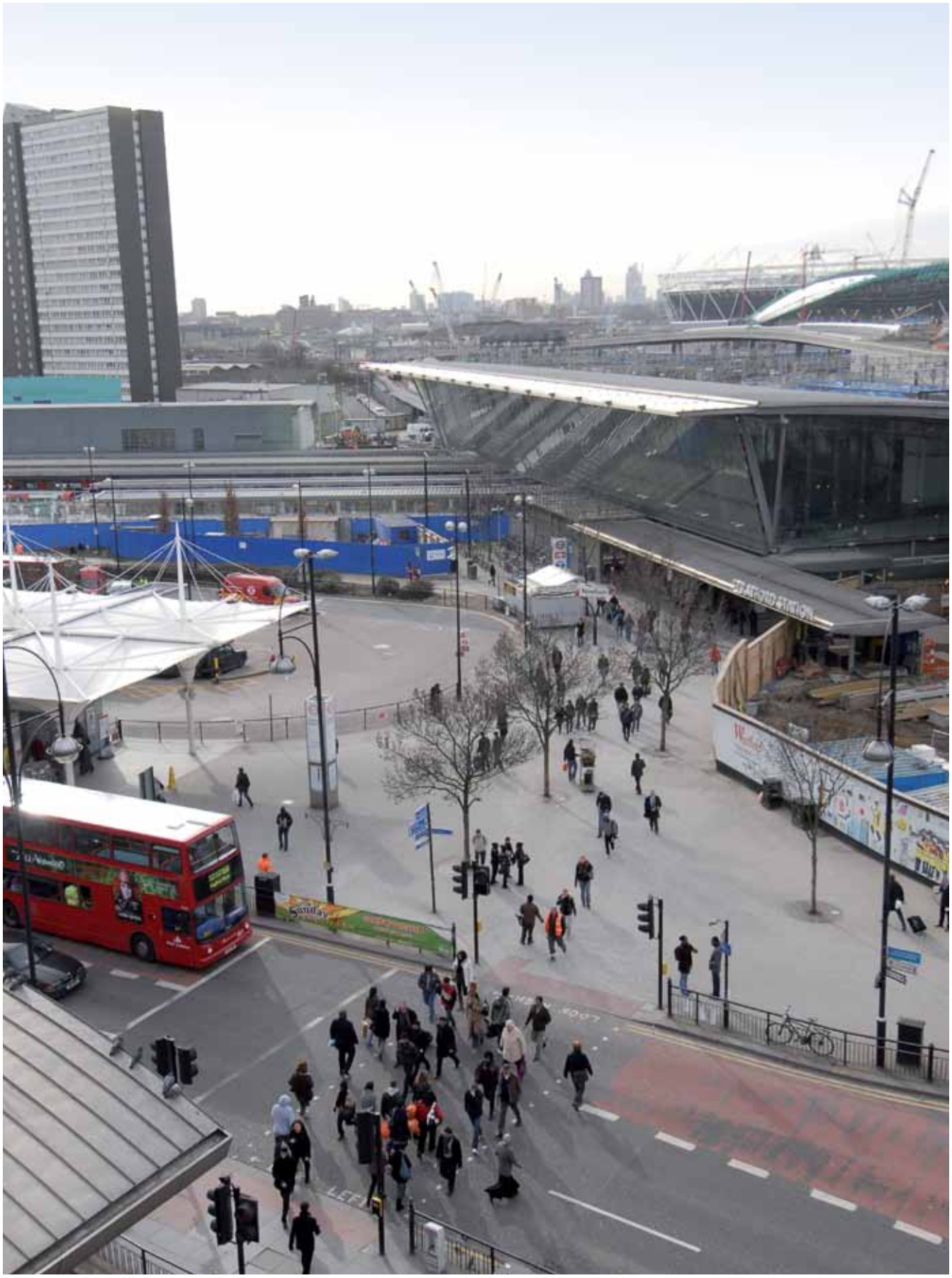
100 Housing growth, however, will be more dispersed, albeit with highest rates of growth in Inner London. This pattern of growth has, and will continue to, place ever greater strains on the capacity of the radial transport networks into and out of central London, requiring the provision of ever more radial transport capacity.

101 Although continuing support of the economic development of the CAZ will remain a priority, the Mayor is determined to improve the provision of public transport while also placing more emphasis on the economic development of Outer London. The Outer London Commission was set up specifically to investigate and report on how this might be achieved. To support this work, the GLA, LDA and TfL undertook extensive analyses of various land use, transport and economic development scenarios. These tested differing sets of assumptions about the pattern of future jobs and housing growth, with greater levels of employment assumed in the Outer London town centres and proportionally less in the centre. In particular, by using high level transport modelling, this work sought to understand the overall implications of such a shift of emphasis on the key challenges identified in chapter two.

102 In transport planning terms, this work identified a number of significant implications. Locating more employment growth in Outer London (assuming this is offset by central London employment growing at a slower rate than previously assumed) can reduce trip lengths and bring about reductions in central London crowding and congestion. However, higher growth in Outer London, without any change in transport provision, could lead to more congestion and a small overall rise in London-wide transport-based CO_2 emissions. This is because existing trip patterns within Outer London are more car-dependent and less public transport-focused than trips from Outer London to central London. On its own, therefore, such a change of development focus does not achieve a wholly better transport outcome. Also, the transport improvement required to support such development could not be sustained without significant growth in Outer London which would undermine the 'suburban character' of many areas that the boroughs wish to maintain.

103 The key conclusion of the interim report from the Outer London Commission was that raising the economic performance of Outer London does matter – to Outer London, to London as a world city and to UK economic performance[1]. However, the Commission considered that suitable levels of growth should be concentrated in already successful areas and not start from scratch; in particular, that the Outer London town centres should be the focus of transport investment to support

[1] Outer London Commission, 2009, Interim conclusions



this. MTS policies and proposals therefore reflect this approach.

104 The MTS will also support other growth and intervention areas identified in the London Plan, for example, Opportunity and Intensification Areas, regeneration areas, Strategic Outer London Development Centres, and Strategic Industrial Locations (SILs). There are very large increases in housing and employment planned for many of these specific locations in the fringes of central London, the Thames Gateway and also in Outer London including Croydon, Brent Cross and Heathrow. These developments will need to be supported by transport improvements to ensure they are integrated within London's transport network, including maximising opportunities for walking and cycling.

3.3.1 Regional population and employment growth

105 Regional growth in southeast England also has implications for London's transport strategy. Southeast and the east of England regional population growth is forecast to increase by three million by 2031, shown in Figure 16.

106 This growth can be expected to increase the volume of travel between the regions and London, placing further demands on the regional motorway and trunk road networks and regional rail services. The MTS seeks to address this by proposing improvements to inter-regional transport connectivity and capacity.

Figure 16: Growth areas in the Greater South East