Contents

1. Introduction

1.1 Purpose of this Report

This report is one of five covering the five sub-regions in London, as identified in the draft London Plan (June 2002). The purpose of these reports is twofold.

- First, to provide a review of transport and development interactions from a sub-regional perspective.
- Second, to develop a compendium of transport and land use data relating to the sub-region, the first time data has been collated on this basis.

As described in more detail below, the reports are part of the wider process of revising the Mayor's Transport Strategy and Spatial Development Strategy (London Plan). They report on the first phase of this process identifying problems and opportunities, for testing and evaluation and strategy development in the next work phases.

1.2 Report Context: Sub-Regional Development Frameworks

The draft London Plan (June 2002) sets out a number of key spatial development priorities for London, as outlined below:

- Development in the Central Activity Zone and Central London Opportunity Areas to intensify and accommodate substantial growth, especially in economic activity.
- Major development to the east of London, along the Thames Gateway with an expansion of some central London functions into the City fringe, Isle of Dogs and Stratford.
- Enhancement and diversification of the role of town centres across London.
- Significant improvements in access, services and sustainability in suburban areas.
- A focused integration of spatial policies, including neighbourhood renewal, better health, improved learning and skills, greater safety and better employment and housing opportunities in the Areas for Regeneration.
- Appropriate intensification and mix of uses with a special focus on the Areas for Intensification.

The draft London Plan notes that these are strategic policy directions that will shape London's future. They need to be pursued in a manner that reconciles London-wide strategy with local aspirations and implementation. The development of sub-regional frameworks, considering the future strategic role of each particular sub-region, is seen as critical to this process. Transport for London commissioned Llewelyn-Davies to prepare transport inputs to these sub-regional frameworks. The broad aims of this project, as shown in Figure 1.1, are to:

- Stage 1: analyse problems, opportunities and key trends
- Stage 2: develop objectives and targets
- Stage 3: develop an integrated transport and land use strategy
- Stage 4: provide a costed and prioritised programme of schemes
- Stage 5: appraise and test packages of measures against the objectives and targets

Each of these stages provides information by sub-region consistent with the pan-London revision of the Transport Strategy.

Figure 1.1*: Project Stages*

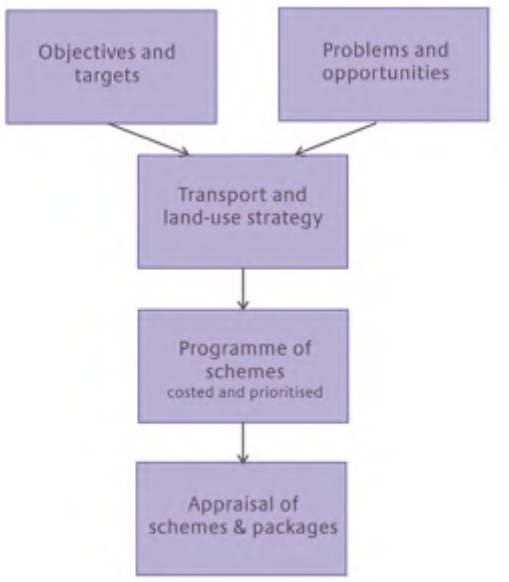
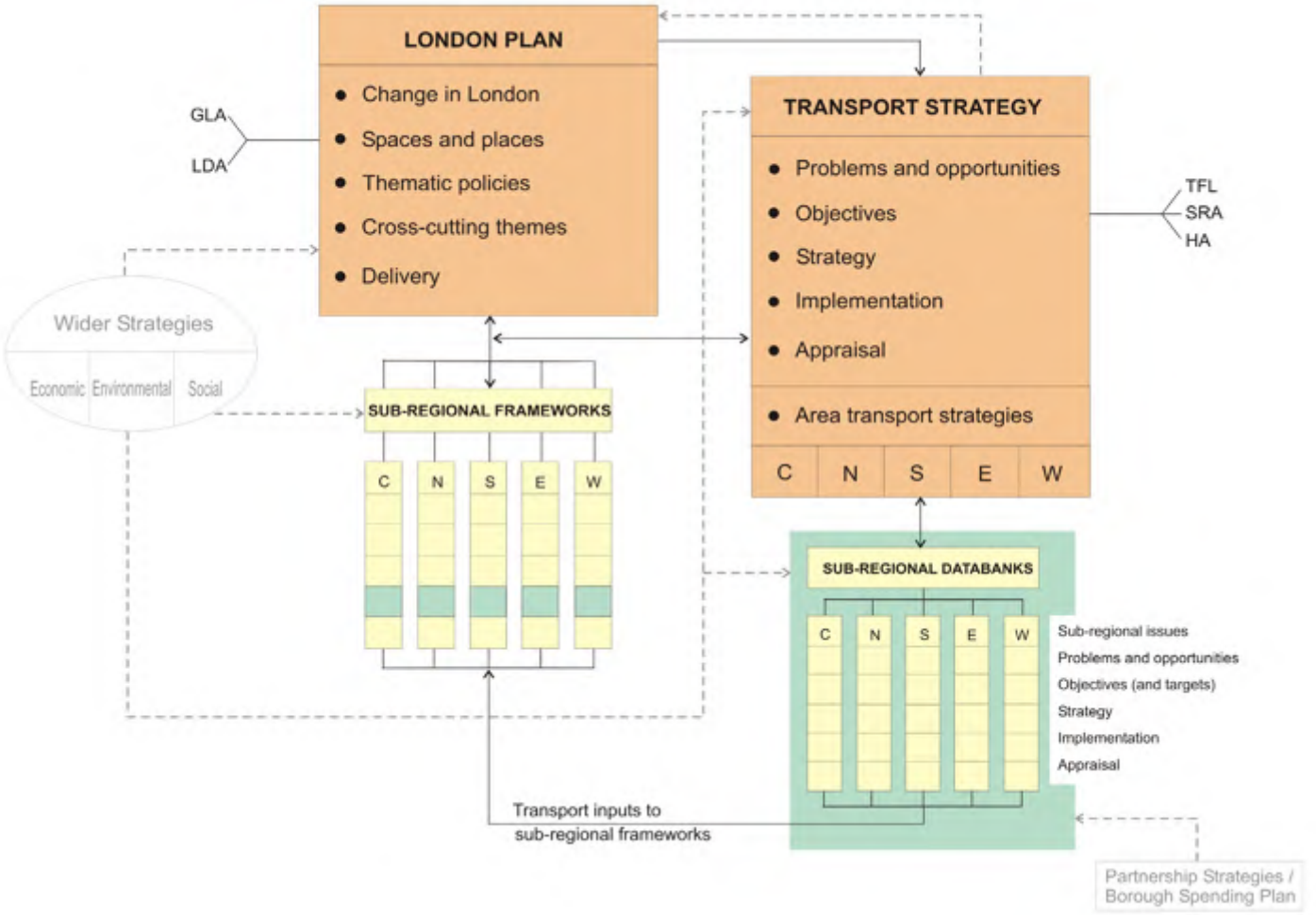


Figure 1.2 shows the relationship of the work with the ongoing development of the Transport Strategy and London Plan. This report provides a sub-region databank – an assessment of the problems and opportunities for the East Sub-Region – and will be used as context to the future development of objectives and targets, a transport strategy and programme and appraisal, for each sub-region.

Figure 1.2 *Transport Inputs to the Sub-Regional Frameworks*



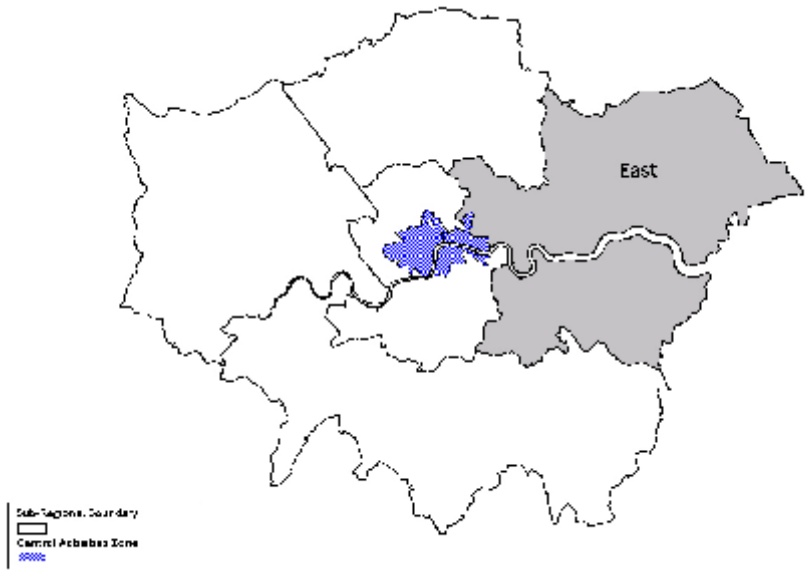
(Source: Llewelyn-Davies)

1.3 The Sub-Regions

The sub-regions within London are defined in the London Plan (June 2002) as follows:

- East London – Barking & Dagenham, Bexley, City of London, Greenwich, Hackney, Havering, Lewisham, Newham, Redbridge and Tower Hamlets.
- Central London – Camden, Islington, Kensington & Chelsea, Lambeth, Southwark, Wandsworth and City of Westminster.
- North London – Barnet, Enfield, Haringey and Waltham Forest.
- South London – Bromley, Croydon, Kingston upon Thames, Merton, Richmond upon Thames and Sutton.
- West London – Brent, Ealing, Hammersmith & Fulham, Harrow, Hillingdon and Hounslow.

Figure 1.3: *The Sub-Regions in London*



(Source: Hannah Shrimpton)

The sub-regions reflect the administrative areas of a number of agencies, such as the Learning and Skills Councils, Business Links and Local Authorities, and areas which are practical in terms of data collection. The sub-regions are also the focus of area-based partnerships, with key roles in the co-ordination of transport, economic development and regeneration activities.

In terms of data presentation within this report, disaggregated data for the East Sub-Region is provided. Wherever possible, this data is trend based, and compared to London as a whole.

1.4 Report Structure

The remainder of this East Sub-Regional report is structured as follows:

- Section 2: reviews problems and opportunities and the degree of "fit" between these and identified transport actions.
- Section 3: is a compendium of transport and land use data organised into three parts. The first gives a brief overview of the sub-region, the second discusses the key drivers of change, and the third describes travel patterns and trends both quantitatively and qualitatively.

Two annexes provide further detail:

- Annex 1: Submissions to the Examination in Public
- Annex 2: Useful references

2. Transport and Development Interactions

2.1 Introduction

This section of the report reviews the transport and land use problems and opportunities for the sub-region, particularly concentrating on interactions at the sub-regional level. First, we consider the broad characteristics of the sub-region, then summarise stakeholder aspirations, perceived problems and opportunities, and conclude with a synthesis of key policy issues.

2.2 The East Sub-Region: Broad Characteristics

The East Sub-Region is the largest of London's sub-regions and includes a major part of the Thames Gateway. The Draft London Plan (2002) identifies the sub-region as the Mayor's priority area for development, regeneration and infrastructure improvement. It is expected to accommodate almost a third of the total population growth in London up to 2016. In line with regional guidance this is seen as part of a key drive to shift development pressure to the East of London.

The sub-region incorporates the City of London, which is part of the Central Activities Zone (CAZ) and also London Docklands. Both areas attract a significant amount of inward commuting from throughout south-east England, and this dominates the pattern of peak hour travel, especially by rail. Public transport in this part of the sub-region is intensive, both in terms of routes and service frequencies. Recent and planned rail schemes (such as JLE and DLR) are tending to shift the area of high public transport accessibility eastwards beyond Canary Wharf to parts of Greenwich and Newham (see PTAL map in Section 3).

In the boroughs further east, the density of jobs and homes decreases, deprivation is less apparent and the public transport network is less developed, especially in non-radial directions. There is a heavier reliance on bus than in the inner boroughs. This is reflected in the relatively low public transport accessibility scores for areas around some of the sub-region's centres, such as Catford and Ilford. In some centres it appears that the public transport accessibility offers potential for more intensive use. For example, Barking has more areas with good public transport accessibility than Ilford, yet Ilford is designated (and functions) as the Metropolitan centre. In a similar vein, Woolwich has higher accessibility than would be anticipated from its relatively weak position as an employment and retail centre. The point is also relevant at a smaller scale, with reasonable accessibility to public transport in Erith failing to counteract the economic decline of its centre.

North-south movement is restricted by the severance effect of the River Thames and the lack of any river crossing for either car or public transport between the Blackwall Tunnel and the Dartford crossings beyond the London boundary. Local travel in the outer areas is on foot or by bus and, predominantly, by car. The Underground and National Rail networks do serve parts of the sub-region, extending out to Romford, Upminster and beyond, but lack the scale and integration of the Underground network found in the North and West sub-regions and the rail network of the South.

The sub-region contains a number of opportunity sites, forming zones of change, including the Royal Docks, London Riverside, Greenwich Peninsular and the Lower Lee Valley. These underused areas are planned to be the sites of future employment and household increases. Development in the sub-region will

continue well beyond the London Plan period as the impact of new transport infrastructure and programmes of land assembly come together.
Current Transport Strategy schemes are shown in Figure 2.1.

2.3 Stakeholder Aspirations

A number of issues have been highlighted during the Draft London Plan Examination in Public as important to the future of the East Sub-Region. Below we show a summary of the key aspirations[1] (further details are shown in the Annex).

GLA family comments:

- The Thames Gateway should continue to be a focus of public and private investment to support regeneration and growth.
- The DLP identifies the eastern sub-region as a priority for development, regeneration and infrastructure investment.
- Significant growth in population and employment is forecast in the sub-region.
- A number of the major public transport schemes are included in the DLP which will serve the east sub-region.
- The DLP also includes proposals for river crossings, which together with the planned public transport improvements, will significantly improve local accessibility.
- Improvements needed to public transport to maximise housing numbers.

Borough comments:

- Improved accessibility, in conjunction with the proposals to regenerate the town centre will result in Barking town centre establishing itself as one of the Thames Gateway's key centres.
- Need to make connections. Transport requirements within and to areas outside to improve access are needed. Extension of Crossrail to Ebbsfleet is suggested as is the completion of Thames Gateway Bridge and dualling of Thames Rd, Crayford.
- Growth in Thames Gateway should be supported by substantial new and improved infrastructure.
- London Riverside needs a step change in the quality of the public transport network (the Communities Plan does this).
- Scale of development proposed likely to increase commuting in the region needs to be addressed (Crossrail not until 2016).
- Support East London as a priority area needing the most significant transport improvements.
- Transport links need to be improved, support River Crossings, improvements are needed urgently to support developments.

Other Stakeholder comments:

- East London has the River Thames as a major barrier, hence proposed river crossings are essential.
- The package of river crossings is essential to the regeneration of East London and there is no justification for East London to have a lower level of north-south connectivity than West London.
- Gallions Reach bridge proposal, which as the only fixed road crossing between Blackwall and Dartford, would inevitably generate new traffic and concentrate traffic from a wide catchment area.
- Lack of Underground south of river could lead to a scenario where road or rail based transit is relied upon. Hence bringing forward high quality transit links

[1] Source: Chris Hyde's Summary of Borough Submissions to the EIP (2003)

between the existing residential areas in Outer London and the Thames Gateway would support and maintain the investment needed.

2.4 Transport Problems

A key purpose of this report is to address the transport issues associated with growth and change. In the East, it could be stated that the existing transport system is inadequate in serving the sub-region at present. The PTAL map (see section 3) shows how substantial parts of the sub-region experience relatively poor access to public transport, particularly alongside the River Thames and on the periphery.

A set of problem indicators has been used for all of the sub-region reports. The situation in the East Sub-Region is set out in Table 2.1, together with commentary on how problems will develop, and whether these justify any consequent intervention. Some of the problems are London wide and need to be addressed as such by the Transport Strategy. Where the sub-region has distinctive characteristics this is highlighted.

Table 2.1: *Transport Problems*

Problem indicator	East sub-region performance	Projection and strategy intervention
Walking difficulties and quality of street environment	▪ Barriers to walking are summarised in the draft Walking Plan – people are discouraged by factors such as traffic volume, poor air quality, road safety issues, personal security, poor quality of street environment and a lack of information. ▪ Road safety issues should be paramount in improving quality and reducing risks. In 2002, 17% (1,370) of all casualties in the sub-region involved pedestrians (see Table 3.16). ▪ Parts of the East Sub-Region offer a relatively good walking environment e.g. in privately managed public spaces such as Broadgate and Canary Wharf, and in pedestrianised centres such as Barking and Ilford (Mayor's Walking Plan). Future data needed to inform the following: ▪ Generally, walking difficulties, conditions are poor due to heavy traffic on main radials, infrequent crossings, and poor quality footway provision.	▪ Congestion Charge in the City, and extension eastwards could create opportunities for reallocation of road space and additional capacity for pedestrians. ▪ Rest of sub-region likely to get worse as traffic increases, unless counter-action is taken. ▪ In common with other sub-regions, higher priority to pedestrians in traffic management will require hierarchy and scheme development.
Cycle difficulties	▪ It can be assumed that poor safety and complex traffic conditions suppress demand for cycling. In 2002, 6% (484) of all casualties in the sub-region involved cyclists (see Table 3.16). Further data needed:	▪ Improved LCN+ routes are proposed on commuter routes, with safe, high quality, high capacity facilities. ▪ New projects aim to transform the cycling experience e.g. new cycle

	▪ Cycling conditions may deteriorate further unless traffic reduction is achieved. ▪ Use is likely to be poor, especially in the more central areas and main traffic routes. ▪ Current trends are at odds with target for increased cycle use.	crossings on the TLRN, a TfL road safety campaign, improved cycle parking at train stations. ▪ Inner part of sub-region (City, Hackney, Tower Hamlets) should give priority to walking and public transport. Cycling should be promoted only to the extent that it does not compromise those priorities. ▪ In the rest of the East Sub-Region, cycling should be promoted as a key alternative mode. ▪ Specific programmes need development such as Cycle and Ride at rail stations and safe routes to school. ▪ Policy choice: use of street capacity for cycling or for public transport and walking.
Bus unreliability	▪ Buses less reliable in the inner boroughs. (See Figure 3.21) ▪ It is assumed that this could deteriorate, with increasing traffic generated by Thames Gateway developments.	▪ Bus use within the CC zone has increased by 14%, in part suggesting that reliability has improved. ▪ Priority measures needed to protect buses from congestion due to increased traffic generated by new development. ▪ This is especially necessary in the major Thames Gateway regeneration areas. ▪ East London Transit and Greenwich Waterfront Transit should address this issue.
Inadequate bus service routes or frequencies	Future data need: ▪ Variation in service levels, time of day, day of week. ▪ Emphasis on full coverage important in East Sub-Region because of heavy reliance on bus, and lower than average incomes and car ownership. ▪ This is a social inclusion and traffic “avoidance” issue.	▪ As before, bus use within the CC zone has increased by 14%. ▪ Are current schemes and proposals sufficient?
Bus crowding	▪ Sub-region may benefit from increases in bus capacity and expansion of the network (TfL). Further data needed: ▪ Assumed: crowding in areas less	▪ ELT and GWT should address issue of crowding. ▪ Underground and rail feeder services could be enhanced in peak hours? ▪ TfL’s planned 50%

	accessible to the Underground/ DLR. ▪ Especially commuter peak hours. ▪ School hours where coincident with commuter peaks.	capacity increase by 2016 will reduce capacity problem.
Bus routes	▪ Access to the sub-region by bus or other forms of public transport, from the south east of London is difficult (SELTRANS).	▪ Ensure that existing bus routes meet the needs of future development, otherwise new routes need to be considered as part of TfL's planned 50% increase in capacity.
Rail unreliability	▪ SRA public performance measures are available by train operator (see Figure 3.27 and 3.28). Further data needed	▪ Key pan-London indicator ▪ Issue of lack of control of National Rail, accounting for substantial proportion (75%?) of East Sub-Region rail provision.
Rail crowding	▪ Jubilee Line into Canary Wharf ▪ Central Line ▪ Capacity problems on some of the DLR network (TfL) ▪ National rail crowding in peak commuter hours on radial routes.	▪ Crossrail will address in long term. ▪ Jubilee upgrading of service to full capacity. ▪ DLR extension to Dagenham – insufficient paths to bring trains to Bank or Canary Wharf issue?
Station and passenger environment and facilities	See customer satisfaction section below.	▪ Are existing programme of upgrades adequate? ▪ Access to stations security issue to be addressed in East Sub-Region.
Road crashes and casualties	▪ Marginally lower proportion of pedestrian casualties than London as a whole (see Table 3.16). ▪ Casualties of powered two wheeler riders seem disproportionately high (see Table 3.16).	▪ Pan-London issues. ▪ Two wheeler problem may be exacerbated by CC, and its proposed extension in East Sub-Region.
Environmental problems	▪ Air pollution generally average for London (See Tables 3.17 and 3.18). ▪ It can be assumed that deterioration greatest where traffic growing fastest (outside peaks, outside CA, and residential "rat runs").	▪ Large scale developments in Thames Gateway make this sub-region vulnerable to increased noise and pollution from traffic sources ▪ Strengthens need for high non-car mode share of new and existing trips.
Road congestion (delays and unreliability)	▪ Second worst sub-region for traffic speeds, only Central sub-region worse (see Table 3.32). Future data need: ▪ Problem will deteriorate further as development occurs. ▪ Speeds may increase in CCZ (and potential expansion) due to Congestion Charge.	▪ Need to alter development patterns and formats to suit and encourage use of non-car modes. ▪ This represents a major shift of planning approach in much of East Sub-Region. ▪ Substantial public transport investment will address this issue, but only to the extent of

		slowing the growth in congestion (see Table 3.25).
Parking difficulties	▪ Residential parking difficulties, especially in the inner boroughs: non residential parking relatively difficult in district and major centres. ▪ Potentially will worsen with intensification of such centres. ▪ Parking in City ameliorated with CC reduced demand.	▪ Further extensions of controlled parking schemes required. ▪ Station commuter parking issue could be addressed with "station access plans" including cycle and ride and feeder bus services. ▪ Out of centre retail and leisure facilities compete and undermine district and major centres with excessive free parking provision. Parking strategy needed to address this issue.
Costs of public transport for those on low incomes	▪ Particularly relevant in parts of this sub-region where incomes are low. Future data need: ▪ Improvements with ticketing and fare initiatives. ▪ High costs of public transport use by international comparison	▪ Social exclusion issue of premium pricing on new public transport services (Crossrail, ELT, GWT) and tolling of Thames Gateway Bridge
Lack of transport payment integration	▪ User data required: ▪ Pan-London problem ▪ Problem especially marked in East Sub-Region with mixing of TfL and National Rail services?	▪ Travelcards have helped. ▪ Will partly improve with oyster card. ▪ Still no integration with National Rail, parking, taxi, car clubs.
Accessibility to PT for disabled people	User data required: ▪ Most rail services inaccessible.	▪ New Transit systems will need to address. ▪ Crossrail will address. ▪ At present 79% of buses are wheelchair accessible.
Risk and fear – personal security	▪ User data required: ▪ Fear influence on mode or destination choice? ▪ Fear of assault and anti-social behaviour perceived to be major deterrent to off-peak public transport use, e.g. District Line east of Barking	▪ Not sub-region issue? ▪ Trends? ▪ Better or worse than other sub-regions?
Customer satisfaction	▪ Underground: little sub-regional evidence, but London-wide customers are least satisfied with cleanliness of stations and helpfulness of staff and more satisfied by factors such as information, the services and safety and security (Transport Statistics for London, 2001). ▪ Buses: London-wide customers are least satisfied with service reliability and cleanliness of buses and slightly more satisfied with personal safety	

	issues and staff behaviour (Transport Statistics for London, 2001). ▪ Data by sub-region required:	

2.5 Development and Transport Opportunities

The previous section sets out transport problems in the East Sub-Region as they now exist, or might develop. The Transport and Spatial strategies, however, can go further and set out ways of getting better outcomes and should show how development opportunities will be supported by appropriate transport actions. This section therefore tackles this issue of how to capitalise on transport and development opportunities.

To some extent it is difficult to separate "problem solving" from "opportunity utilisation". For example, if a new transport facility is provided to help regenerate an area, it may also go some way towards solving existing transport problems.

Improving accessibility and the potential for intensification provide the key land use and transport opportunity for the East Sub-Region. A number of opportunities are included in Table 2.2 that are not included in the DLP, but which could also be considered.

Table 2.2: *Development and Transport Opportunities*

Opportunity	Related transport interventions	Comment on transport – development "fit" (An "OK" entry is given where the fit is judged to be clear)
Opportunity Areas		
Bishopsgate/ South Shoreditch (Inbound access for 16,000 jobs. Outbound for 800 homes)	▪ Crossrail (Liverpool Street) ▪ East London Line extension	▪ Timing?
Whitechapel/ Aldgate (14,000 jobs. 700 homes)	▪ Crossrail ▪ East London Line extension ▪ Major Strategic Interchange	▪ Timing?
Isle of Dogs (100,000 jobs, 3,500 homes)	▪ Crossrail ▪ DLR upgrade ▪ JLE upgrade?	▪ Timing?
Stratford (30,000 jobs. 4,500 homes)	▪ Crossrail ▪ CTRL ▪ JLE upgrade? ▪ DLR to Royals ▪ Major Strategic Interchange	▪ DLR to Royals needed? ▪ Timing of Crossrail ▪ Can it be upgraded in the hierachy of centres or is it to function more as an interchange with services?
Lower Lee Valley (11,000 jobs. 5,500 homes)	▪ Major Strategic Interchange at West Ham ▪ New stop on c2c ▪ DLR extension	▪ Local site access requirements?
Barking Reach (200 jobs. 10,000 homes)	▪ DLR ▪ ELT	▪ Consider alternative public transport to serve this area? E.g. tram transit instead of DLR/Bus mix
Dagenham	▪ DLR	▪ See above re. tram alternative

Riverside (4,000 jobs. 3,000 homes)	▪ ELT ▪ New stop on c2c?	▪ Crowding on c2c to be addressed?
Deptford Creek/ Greenwich Peninsular (5,500 jobs. 1,000 homes)	▪ Major Strategic Interchange ▪ GWT	▪ Better local site connections needed? (E.g. extension of GWT)
Greenwich Peninsular (15,000 jobs. 7,500 homes, plus major venue)	▪ Silvertown Link ▪ JLE upgrade ▪ GWT ▪ Bus links to south Greenwich for access to labour market	▪ Silvertown link specification and business case? Issues include public transport connection (ELT/GWT), traffic generation including through or strategic traffic and rat runs, tolling and social exclusion. ▪ Has regeneration case been made?
Belvedere/ Erith (5,000 jobs. 1,400 homes)	▪ Crossrail?	▪ Inadequate transport response so far for inward accessibility for this level of employment. ▪ Issues are Crossrail stop at Belvedere; local bus or transit need to be integrated with rail stations and town centres. ▪ Potential for GWT extended east from Abbey Wood, and further east to integrate with NKT Fastrack? ▪ Further development potential at Erith marshes – new "linear city" with current employment sites integrated. ▪ Generally this area considered to require major planning input.
Thamesmead (1,500 jobs. 3,000 homes)	▪ GWT ▪ Thames Gateway Bridge ▪ Crossrail at Plumstead/Abbey Wood?	▪ Timing? ▪ Need for more sustainable development formats than currently being developed. ▪ Need for much better public transport offer. Is GWT sufficient? ▪ What specific help does TGB provide?
Ilford (0 jobs. 5,500 homes)	▪ ELT ▪ Crossrail	▪ OK
Intensification Areas		
Beckton (1,500 jobs. 500 homes)	▪ EWT ▪ Thames Gateway Bridge ▪ DLR extension	▪ ELT does not link this area to local job catchment areas such as East Ham. Further local links needed?
Woolwich Arsenal (1,000 jobs. 1,000 homes)	▪ Major Strategic Interchange ▪ Crossrail ▪ DLR extension ▪ GWT	▪ With such huge increase in accessibility, and growth in homes within catchment, isn't the aspiration for job growth at Woolwich rather tame?
Kidbrooke (0 jobs. 2,200 homes)	▪ Believed to be proposed bus links to north Greenwich	▪ Social exclusion and access to jobs issue. ▪ Has GWT extension to Kidbrooke been considered in conjunction with Kidbrooke masterplan?
Major Centres intensification		
Romford	▪ ELT	▪ Identified as a regeneration area in

	▪ Crossrail	DLP. ▪ Potential for reducing car use through lower car parking in new development. ▪ Town centre strategy required for East London north of the river?
Ilford	▪ ELT ▪ Crossrail	▪ Identified as a regeneration area in DLP. ▪ Comments as Romford.
Barking	▪ ELT	▪ Identified as a regeneration area in DLP. ▪ Comments as Romford.
Bexleyheath	▪ None	▪ Identified as a regeneration area in DLP, but in view of high degree of car dependence, this potential may be or should be limited. ▪ See Erith below.
Erith	▪ Crossrail?	▪ Not identified in DLP as a centre. ▪ Current bus routes and station do not serve main retail element (Morrisons). ▪ Consider potential for creation of new centre, integrated with present superstore, and attracting custom from major potential growth at Erith and Belvedere. ▪ Potential for extension of both GWT and Fastrack with Erith as the meeting point. ▪ Potential for relocating station with Crossrail to underpin major centre regeneration.
Woolwich (See above)	▪ See above	▪ Underplayed potential (see above)?
Eltham	▪ None	▪ Identified as having a neutral trend in the DLP. ▪ Need to address links in relation to Kidbrooke? Social exclusion and regeneration issue.
Dalston	▪ East London Line extension ▪ Crossrail 2	▪ Identified as a regeneration area in DLP. ▪ OK?
Lewisham	▪ Major Strategic Interchange – high priority	▪ Identified as a regeneration area in DLP. ▪ Is bus strategy for Lewisham adequate to support regeneration potential?
Catford	▪ Local interchange (high priority)	▪ Identified as a regeneration area in DLP. ▪ Is bus strategy for Catford adequate to support regeneration potential? ▪ Interchange potential between rail lines and buses.
East Ham	▪ None	▪ Identified as a regeneration area in DLP – mostly housing? ▪ Links to Beckton and Royals need further consideration?
Other opportunities not identified in DLP. (Accessibility and	Would need new or redeveloped interchange stations	

Intensification)		
Finsbury Park (On borders of East, Central and North sub-regions)	▪ East London Line Extension ▪ Thameslink 2000 ▪ Major Strategic Interchange	▪ Most underdeveloped, highly accessible location in London – rail services from 8 directions and 16 bus services. ▪ Potential for intensification e.g. employment and retail
Forest Hill	▪ East London Line Extension	▪ Masterplanning currently being undertaken to strengthen role as a district centre. ▪ Potential Underground extension could provide justification for more jobs and housing.
Transport opportunities		
CTRL	▪ Will provide two new international stations. One at Stratford (in sub-region) one at Ebbsfleet (outside sub-region). Ebbsfleet is nearest station for outer parts of sub-region	▪
ELT and GWT	▪ Support further development opportunities	▪ To what degree do they support these opportunities? ▪ What type of development? ▪ Much depends on the form these transport proposals take. Developers prefer "fixed" transport.
DLR extensions	▪ A "regeneration railway" serving vacant or underused areas. Role can continue eastward serving City Airport, Woolwich, Barking and Dagenham Riverside	▪ How far is extension functionally credible? ▪ Is it the best rail based option further east? ▪ Severance and noise issues through development areas.
Interchange improvements	▪ Intensification at interchange nodes in the rail network Specific opportunities exist at: ▪ Catford Bridge (Buses from 22 directions plus rail from 4) ▪ Brockley (2 lines crossing, one of which is East London line extension) ▪ St John's, Lewisham	▪ Services can be increased to Metro frequencies (10 mins headway or better). ▪ Development helps fund the interchange infrastructure

2.6 Modelling Transport and Development Interactions

LTS modelling (programmed for May/June 2003) is to be based around the following scenarios:

1. Assumed development scenario (new homes and new jobs to 2016)
- Lower development aspiration (-50% London Plan)
- Current agreed development aspiration (London Plan)
- Higher development aspiration (+50% London Plan)

2. Transport scenarios
- 2001 Base: committed schemes (e.g. funding committed)
- 2011 model run: reference case and planned schemes
- 2016 model run: reference case and planned schemes

NB. Model runs to follow in May/June. Results by borough/sub-region (LTS cannot robustly go down to a finer level, e.g. opportunity area). Standard LTS model outputs.

2.7 Strategic Policy Issues

2.7.1 Growth and transport links

The East Sub-Region has some of London's largest development sites and also has the largest number of transport schemes planned. Huge growth is expected with the draft London Plan (2002) setting a sub-regional housing target of 142,000 additional homes (30% of the London total) and a further 255,000 jobs (40% of the London total), by 2016. Transport schemes such as Crossrail, ELLX, ELT, GWT and extensions to the DLR are proposed. CTRL is due for completion in 2007, linking Stratford with central London and the continent. The key issue is the extent to which these schemes are sufficiently well aligned, in terms of scale, type and timing, to the growth and development programme.

The current forecasted employment growth figures exceed household growth, meaning that there may be an increase in travel to work from outside as well as inside the sub-region. A substantial proportion of the employment increase will be in Central London (including the City) and Docklands, requiring additional radial commuter (peak hour) rail capacity. This will be addressed by the major strategic rail schemes, especially Crossrail. The travel to work within the sub-region and from sub-regions to the north and south is harder to address, as it will create tangential patterns of movement, currently mostly served by buses. The severance effect of the River Thames also raises the issue of the extent to which the north and southern halves of the sub-region should be linked.

The density, housing type and mix of other uses are all issues that need to be addressed and all will have an impact on public transport. For example, the housing capacity of Barking Reach will be reduced without investment in major public transport facilities. Light rail and local transit here can potentially increase the potential from well under 5,000 to well over 10,000 homes.

There are development capacity issues elsewhere in the sub-region. A key example is Greenwich / Bexley Riverside which has potential for considerable growth extra to that identified in the DLP. Large scale growth in this area has the potential to create a new "linear city" which could enable the revitalisation of Woolwich, Thamesmead and Erith town centres. This extra development

potential would exploit the extra rail capacity provided by Crossrail to Dartford and Ebbsfleet, by linking the new local transit system into the Crossrail stations at Woolwich, Abbey Wood, Belvedere and Erith. This in turn will help to stimulate flagging employment prospects at Belvedere. This development would depend on substantial extra local transit provision, and potentially major re-designation of parts of Erith marshes and Belvedere from Metropolitan open land and nature conservation.

2.7.2 Growth and road traffic

The rate of traffic generation is currently the lowest of the sub-regions. By 2016 changes will have pushed it into second place behind Central Sub-Region. Even so, despite being earmarked for the largest amount of population growth, the additional traffic generated will be little more than the West and South sub-regions, whose growth will amount to less than half that in East Sub-Region. If this scenario can be achieved, it means that the East Sub-Region will play a disproportionately beneficial role in meeting the objective of transport sustainability across London.

2.7.3 Severance

The sub-region is divided by the River Thames. The extent and nature (road, rail, public transport) of further crossings is a key issue for the sub region. Without further river crossings the sub-region as a whole does not really exist as a single entity east of the Blackwall Tunnel, although this in itself does not provide any policy justification for further river crossings.

2.7.4 Transport and areas of deprivation

Tackling social exclusion in the region will require not just the creation of additional suitable jobs, but also transport facilities to link these with the housing with high unemployment. An example is linking Kidbrooke to the employment regeneration areas on the Greenwich peninsular. There are also areas which suffer from deprivation despite having high levels of public transport accessibility, such as Barking, and consideration should be given to what such places could achieve in terms of employment and housing.

2.7.5 Road network

The large amount of development forecast in this sub-region will have a notable impact upon its road infrastructure and its capacity to cope with the extra trips generated. The network potentially has the ability to cope with a certain level of increased usage (apart from the area in and around the City of London). Highway schemes so far identified (such as A13 junction improvements) are designed in response to existing problems rather than to accommodate traffic growth generated by new housing and employment. The anticipated level of development growth in the sub-region can be accommodated only if a substantial proportion of new trips, especially work trips, are undertaken by non-car modes. Especially in outer east London this represents a huge challenge.

Main priorities of the road network should be for improved public transport (such as the new ELT and GWT transit systems). The scope for minimising road freight through transfer to rail and water is an issue of special relevance to this sub-region.

Provision for cycling could be made as a major potential alternative to the car for short to medium distance travel. Pedestrian severance caused by both major roads and railways is noticeable in the sub-region. Some major schemes are

likely to exacerbate this problem locally, for example CTRL, DLR extensions and Thames Gateway Bridge.

An issue for this sub-region (and others) is what priority to attach to different roads users, and how to resolve these through design and traffic management. Priorities will need to be decided in relation to the defined road hierarchy.

2.7.6 Network integration

Due to the integration of the financial centre within the East Sub-Region, it is inevitable that there is a significant amount of in commuting to the sub-region. Many of these commuters arrive by rail, to Liverpool Street and Fenchurch Street stations in the City, requiring “integration” with walking routes. However, the development of further substantial employment nodes in the East will require considerable improvements to network integration with the existing transport interchanges. Stratford is a key example.

Crossrail will integrate the commuter rail lines north and south of the Thames, as indeed will the DLR extension to Woolwich and the ELLX. Two major new transit systems (ELT and GWT) are designed to link opportunity areas and intensification areas into rail stations and to town centres. They are currently envisaged as bus-based systems, but they have the potential to be upgraded to tram systems. The relationship between density and the appropriate transport technology for these systems is an important issue for the sub-region. In addition there is the issue of whether a bus-based transit system will have sufficient credibility with investors and end users to compel high density mixed use developments. It may be noted that growth in more economically robust areas is expected to be served by rail-based transit (West London and Cross River transit schemes). East London has considerable more disadvantages in terms of development attraction, and it could be argued that bus systems, of whatever quality, may be insufficient to counteract these disadvantages.

2.7.7 Olympic Games 2012

If London were to win the hosting of the 2012 Olympic Games, this would have major implications for the East Sub-Region including the transport investment required and its timing/phasing. A study will be commissioned by the Government to examine the transport implications.

A general issue at this stage is whether the bid would affect the nature and timing of both development and transport proposals. For example, location of the Olympic Village would affect the sites that are available for other uses in the interim period (housing and employment). The imperative of providing any additional transport facilities to serve the Games would inevitably have an impact on the priority attached to other schemes in the sub-region, if not in London as a whole.

3. A Compendium of Data for the Sub-Region

3.1 Introduction

This section of the report provides a compendium of transport and land use data for the East Sub-Region. Such a sub-regional disaggregation has not previously been provided in London. There are four key parts as outlined below:

- Drivers of change - key demographic, economic, social and environmental changes in the sub-region over recent years.
- Travel patterns and trends – key transport data such as mode share, weekday travel patterns, travel forecasts, etc.
- Major transport schemes.
- Key development sites and areas.

3.2 Drivers of Change

3.2.1 Population

The post-1945 decline in London was reversed during the 1980s, increasing from 6.81 million in 1981 to 7.19 million in 2001. The East Sub-Region's population has also grown from just over 1.84 million in 1981 to over 1.96 million in 2001. It is forecast that by 2016 the population of the East Sub-Region will be almost 2.19 million. This will take the overall sub-region's population to levels higher than found in 1961. At the borough level there is significant variation; the City and Tower Hamlets are forecast to receive major growth beyond even 1961 totals, whilst Lewisham, Hackney and Havering, although above their 1981 and 1991 nadirs, are not yet back to 1961 totals. Table 3.1 shows the population figures and projections by borough and for the sub-region since 1961.

Table 3.1: *East Sub-Region and Borough Population*

Sub-Region Borough	1961 Census (000s)	1971 MYE (000s)	1981 MYE (000s)	1991 MYE (000s)	2001 MYE (000s)	2011 (000s)	2016 (000s)
City of London	5	4.2	5.4	5.4	7.2	8.8	9.3
Barking and Dagenham	177	161.5	151.6	155.5	164.3	174.5	179.3
Bexley	210	219.7	217.1	218.1	218.8	224.2	228.0
Greenwich	230	220.1	215.6	210.9	215.2	233.5	242.3
Newham	265	238.9	212.9	216.3	244.3	267.1	276.8
Redbridge	250	242.7	229.3	222.0	239.3	253.2	260.0
Tower Hamlets	206	166.5	145.2	166.3	196.6	238.6	257.7
Lewisham	291	271.9	236.4	240.2	249.5	266.9	275.3
Hackney	258	223.2	185.1	185.0	203.4	217.9	224.2
Havering	246	249.3	242.2	230.9	224.7	230.4	236.3
East Sub-Region Total	**2,138**	**1,998.0**	**1,840.8**	**1,850.6**	**1,963.3**	**2,115.1**	**2,189.2**
London Total	7,994	7,529.4	6,805.6	6,829.4	7,187.9	7,679.3	7,899

Source: 1961 Census and ONS mid-year population estimates are Crown Copyright. Note: Data for 1961 to 1981 use 1991 boundaries. Data for 1991 and 2001 use 2001 boundaries. Source for 2011 and 2016 GLA 2002 Round of Demographic Projections (GLA SDS Technical Report 23, Copyright GLA 2003)

Figure 3.1 graphically shows the population trend and forecasts for the East Sub-Region.

Figure 3.1: *East Sub-Region Population Trend and Forecasts*

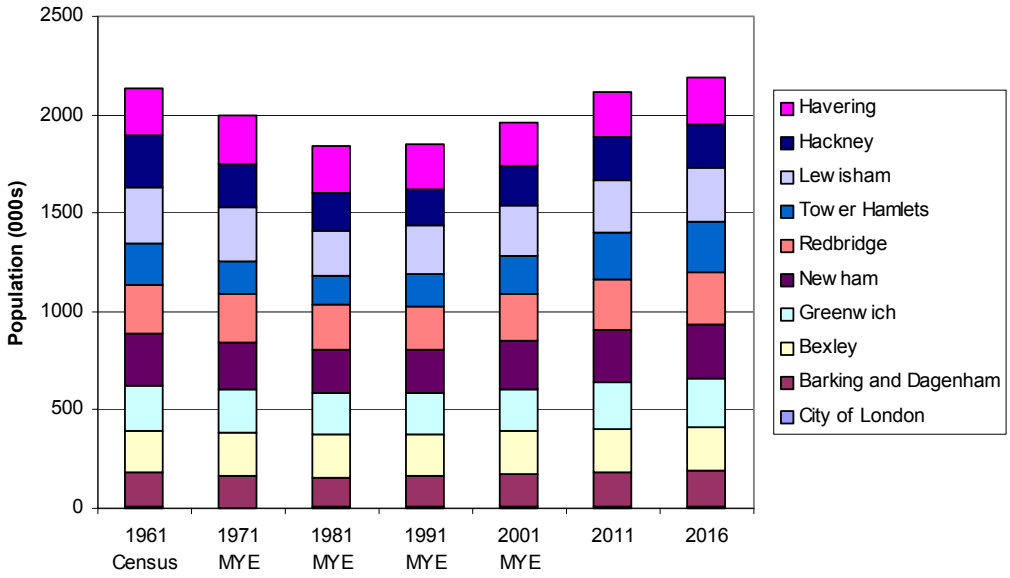


Table 3.2 highlights recent population increases, using mid-year population estimates, for the East Sub-Region in 2001, 2002 and 2003. The 2003 mid-year population estimate for the sub-region is just over 1.99 million people, with all boroughs, apart from Bexley and Havering contributing to this increase.

Table 3.2: *Recent Population Change*

Sub-Region Borough	2001	2002	2003
City	7,216	7,562	7,886
Hackney	203,352	206,124	208,932
Tower Hamlets	196,630	200,643	204,740
Lewisham	249,451	251,000	252,576
Greenwich	215,238	216,947	218,769
Bexley	218,756	218,438	218,198
Newham	244,291	247,605	250,924
Barking & Dagenham	164,346	166,061	167,864
Redbridge	239,329	240,538	241,832
Havering	224,720	223,366	222,122
East Sub-Region Total	**1,963,329**	**1,978,282**	**1,993,841**
London Total	7,188,006	7,238,366	7,290,174

Source: ONS (2003) 2001 Mid year estimates. GLA (2002) Round of demographic projections (GLA SDS Technical Report 23)

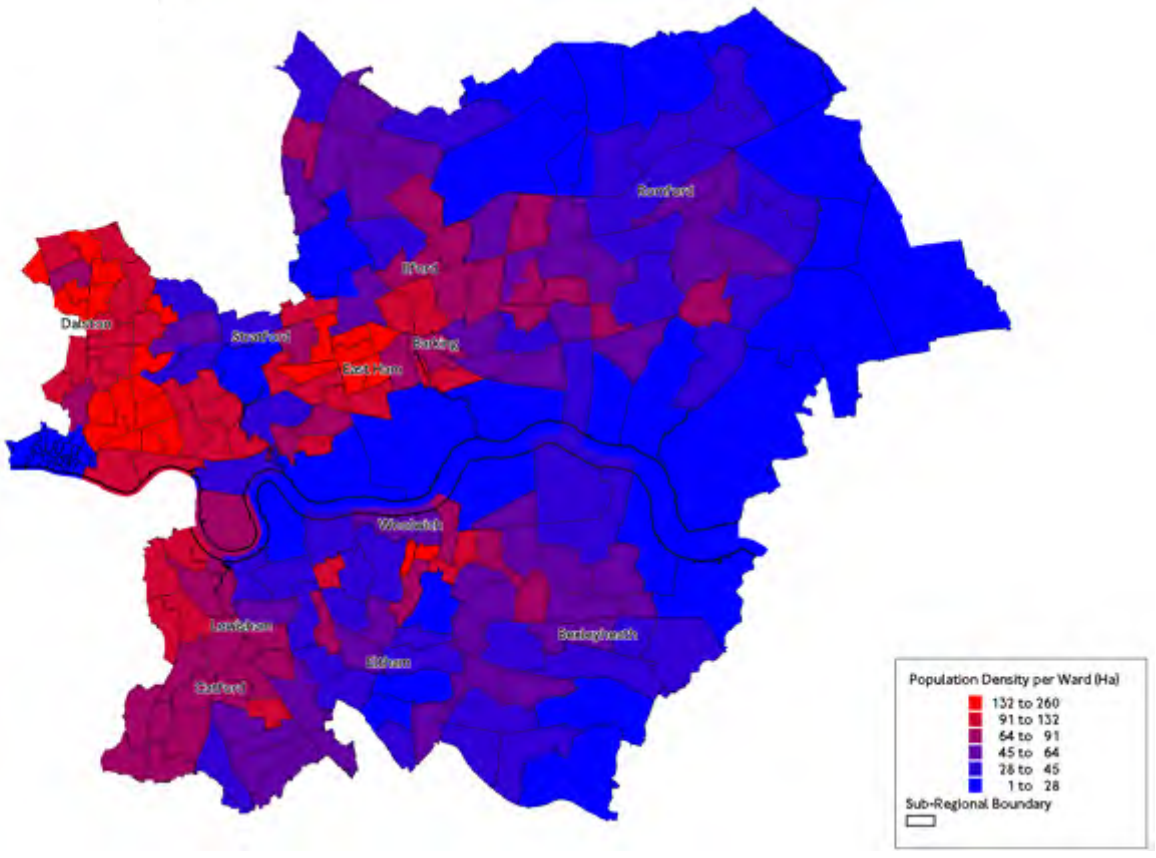
Table 3.3 and Figure 3.2 show the population densities for each of the London boroughs in the East Sub-Region. The average population density for the sub-region is 47people/ha gross, slightly higher than the London average. The least densely populated borough is the City of London with 27 people/ha. The most densely populated borough is Hackney with 110 people/ha. Future developments will need to be at relatively high densities in order to accommodate forecast population growth rates.

Table 3.3: *Population Density*

Sub-Region Borough	Area (Ha)	Population 2003	Household Density (Household/Ha)	Population Density (Population/ha)
City of London	290	7,886	15.0	27.2
Hackney	1,906	208,932	45.3	109.6
Havering	11,227	222,122	8.2	19.8
Redbridge	5,641	241,832	16.4	42.9
Bexley	6,056	218,198	14.8	36.0
Greenwich	4,735	218,769	19.7	46.2
Lewisham	3,515	252,576	30.6	71.9
Newham	3,622	250,924	25.4	69.3
Tower Hamlets	1,977	204,740	39.8	103.7
Barking and Dagenham	3,609	167,864	18.7	46.5
East Sub-Region Total	**42,578**	**1,993,841**	**18.9**	**46.8**
London Total	157,209	7,290,174	19.2	46.4

Source: 2001 Census Key Statistics Table KS01

Figure 3.2: *Population Density*



(Source: Hannah Shrimpton)

Figure 3.3: *Population Density and Travel Behaviour*
CORRELATION/awaiting LTS output from Atkins
(Source:2001 Census Key Statistics and LTS)

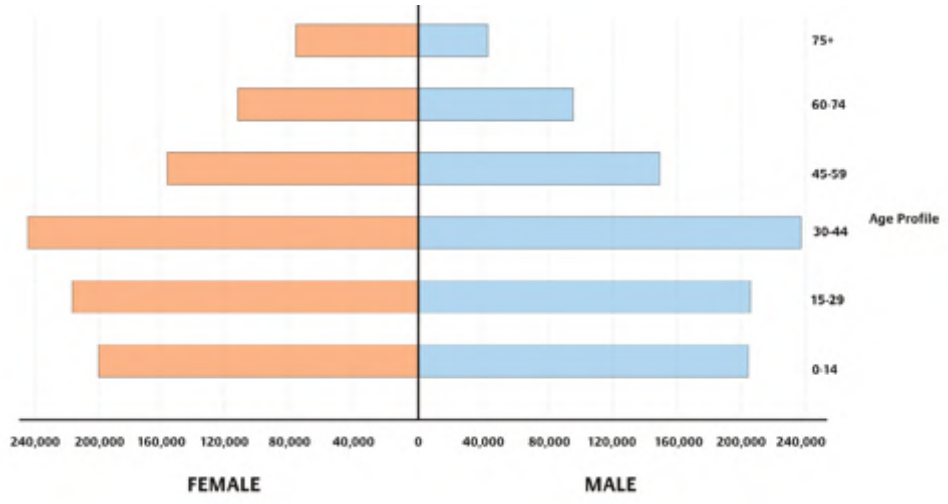
Table 3.4 and Figure 3.4 show the population age profile for the sub-region. The most notable statistic shown here is the proportion of the population between 0-14. Almost 22% of the sub-region's population are in this age bracket compared to 19.6% across London as a whole. The proportion of the population in the 30-44 age bracket in the East Sub-Region (24.7%) is smaller than in Greater London (25.7%) as a whole.

Table 3.4: *Population Age Profile*

Sub-Region Borough	Age Profile												
	0-14		15-29		30-44		45-59		60-74		75+		Total
	M	F	M	F	M	F	M	F	M	F	M	F	
City	324	311	840	842	1,128	867	945	687	415	404	195	258	7,216
Hackney	22,730	22,260	22,588	26,746	26,890	29,080	13,477	14,056	8,550	8,438	3,071	5,466	203,352
Lewisham	24,937	24,563	27,876	29,153	34,595	36,004	17,586	18,629	10,587	12,358	4,759	8,404	249,451
Newham	30,712	28,961	30,822	31,916	29,573	30,394	15,797	16,292	9,639	10,413	3,697	6,075	244,291
Tower Hamlets	21,346	20,795	29,333	31,477	25,170	21,612	10,942	11,285	8,614	8,250	3,115	4,691	196,630
Barking & Dagenham	18,520	17,639	15,746	17,746	18,748	20,030	12,735	12,976	8,198	10,007	4,336	7,665	164,346
Bexley	21,839	21,183	19,052	19,442	25,157	26,089	19,857	21,095	13,456	15,273	6,035	10,278	218,756
Havering	21,343	20,308	19,474	19,063	24,268	25,276	21,365	22,769	14,861	17,440	6,900	11,653	224,720
Greenwich	22,807	21,142	22,910	24,722	25,795	27,720	16,756	17,246	10,162	12,012	4,841	9,125	215,238
Redbridge	24,602	23,410	24,579	24,376	27,240	28,692	21,064	21,995	12,929	14,062	5,890	10,490	239,329
East Sub-Region Total	**209,160**	**200,572**	**213,220**	**225,483**	**238,564**	**245,764**	**150,524**	**157,030**	**97,411**	**108,657**	**42,839**	**74,105**	**1,963,329**
London Total	696,652	668,534	801,301	842,328	909,530	939,651	561,090	594,857	355,799	394,474	155,088	268,702	7,188,006

(Source: ONS mid-year estimates; GLA, John Hollis)

Figure 3.4: *Population Age Pyramid*



(Source: John Hollis, GLA)

Table 3.5 shows the growth in households in the East Sub-Region, between 1991 and 2001, with projections to 2016. Between 2001 and 2016, household numbers are predicted to increase by over 130,000.

Table 3.5: *Household Growth*

Sub-Region Borough	Households 1991	Households 2001	*Households 2011	*Households 2016
City of London	2,094	4,357	4,400	4,700
Havering	89,774	91,915	95,900	100,000
Hackney	76,993	86,266	95,400	99,300
Lewisham	100,997	107,640	119,700	125,400
Newham	80,840	91,972	103,900	109,800
Tower Hamlets	64,874	78,740	101,900	112,100
Barking & Dagenham	58,123	67,438	69,800	73,200
Bexley	86,131	89,635	94,900	98,200
Greenwich	85,707	93,149	100,500	106,400
Redbridge	89,501	92,556	103,700	108,500
East Sub-Region Total	**735,034**	**803,668**	**889,100**	**937,600**
London Total	2,809,056	3,022,674	3,322,700	3,469,800

Source: 1991 and 2001 data from GLA 2002 Round of Demographic Projections (GLA SDS Technical Report 23) Copyright GLA 2003. 2011 and 2016 projections from GLA, John Hollis

3.2.2 Economy and Employment

Table 3.6 shows that employment in the East Sub-Region is forecast to increase by 29% overall between 2001 and 2016. Several boroughs in the sub-region are predicted to have an increase in employment above the average increase for London (17%). The highest increases are forecast to be in Tower Hamlets (51%) and Newham (49%), and both the City of London and Greenwich are forecast to increase by 38%. Barking and Dagenham, Lewisham, Redbridge, Havering and Hackney all have much lower forecasts for employment growth, between 3% and 9%.

Table 3.6: *Employment Forecasts*

Sub-Region Borough	2001	2016	Change	Change %
Barking and Dagenham	48,109	49,753	1,644	3%
Greenwich	61,654	85,276	23,622	38%
Hackney	92,189	100,632	8,443	9%
Bexley	63,461	70,951	7,490	12%
City of London	306,368	424,053	117,685	38%
Havering	75,073	82,164	7,091	9%
Newham	64,241	95,831	31,590	49%
Redbridge	67,987	73,916	5,929	9%
Lewisham	62,756	66,446	3,690	6%
Tower Hamlets	149,770	226,694	76,924	51%
East Sub-Region Total	**991,608**	**1,275,716**	**284,108**	**29%**
*East Sub-Region total (GLA, London Plan Data)	1,087,000	1,336,000	249,000	23%
London Total	4,014,206	4,690,799	676,593	17%

Source: Annual Business Inquiry, 2001/ Roger Tym & Partners Projections (GLA Economics, Damien Walne)
** Draft London Plan (TfL, 2003, Analysis of the Transport Programme to Support the Draft London Plan)*

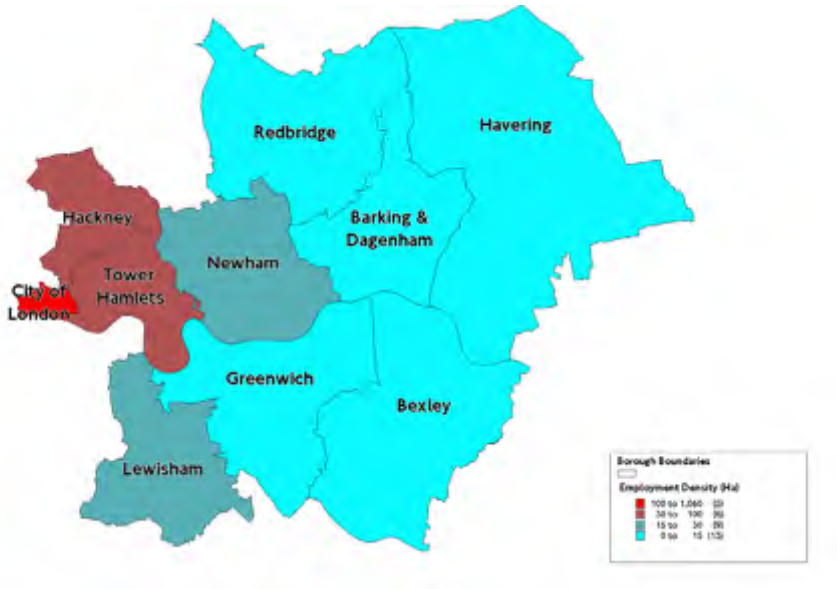
Table 3.7 shows the employment densities of the individual boroughs and the overall densities for the East Sub-Region in 2001. The average for the region is just below the London average. The highest density is in the City of London, which has the highest employment density in the whole of Greater London (1,056 employees/ha). Hackney also has higher than average densities for the sub-region, as does Tower Hamlets, the latter due to the presence of Canary Wharf and London Docklands within the borough.

Table 3.7: *Employment Density*

Sub-Region Borough	Number of Employees	Area (ha)	Employees/ha
Barking and Dagenham	48,109	3,609	13
Greenwich	61,654	4,735	13
Hackney	92,189	1,906	48
Bexley	63,461	6,056	10
City of London	306,368	290	1,056
Havering	75,073	11,227	7
Newham	64,241	3,622	18
Redbridge	67,987	5,641	12
Lewisham	62,756	3,515	18
Tower Hamlets	149,770	1,977	76
East Sub-Region Total	**991,608**	**42,578**	**23**
London Total	4,014,206	157,209	26

Source: Annual Business Inquiry, 2001 and Roger Tym & Partners Projections (GLA Economics, Damien Walne)

Figure 3.5: *Employment Density*



(Source: TfL, Hannah Shrimpton)

Figure 3.6: *Employment Density and Travel Behaviour*
CORRELATION/awaiting for LTS data from Ian Wright

Table 3.8 shows the types of employment in the East Sub-Region. In 2001, the East Sub-Region accounted for almost 25% of London's total employment. In terms of employment sector, business services and finance accounted for 44% of the sub-region's jobs. Distribution, hotels and restaurants, which made up a further 17%, was however, under-represented when compared to London-wide figures. Another notable sector was manufacturing, which accounted for 28% of all manufacturing jobs in London.

A key factor is the high employment density found in the City of London and also Tower Hamlets and Hackney (as shown in Table 3.7 and Figure 3.6). This results in large scale inward commuting.

Table 3.8: *Type of Employment*

Sub-Regional Borough	Agriculture and fishing	Energy and water	Manufacturing	Construction	Distribution, hotels and restaurants	Transport and communications	Business Services	Finance	Public administration, education & health	Other services	TOTAL
Barking and Dagenham	3	85	10,261	2,354	11,111	5,040	4,974	1,370	10,802	2,109	48,109
Greenwich	40	87	5,396	3,221	14,156	3,854	7,900	584	21,254	5,162	61,654
Hackney	20	28	10,009	2,723	13,780	7,647	19,800	13,997	19,665	4,520	92,189
Bexley	11	564	8,699	4,212	16,625	3,588	8,691	2,744	14,915	3,412	63,461
City of London	91	457	4,455	995	24,113	10,790	111,164	133,887	12,767	7,649	306,368
Havering	73	519	5,302	5,360	20,398	5,182	11,476	4,152	19,139	3,472	75,073
Newham	9	244	6,488	3,336	14,466	5,485	12,210	4,665	14,214	3,124	64,241
Redbridge	26	67	3,904	3,758	18,842	4,795	15,500	2,041	15,926	3,128	67,987
Lewisham	58	11	3,601	2,925	13,794	4,047	11,691	2,143	21,077	3,409	62,756
Tower Hamlets	96	4	15,491	4,414	22,072	10,130	28,938	36,895	24,486	7,244	149,770
East Sub-Region Total	**427**	**2,066**	**73,606**	**33,298**	**169,357**	**60,558**	**232,344**	**202,478**	**174,245**	**43,229**	**991,608**
London Total	3,809	11,877	260,360	134,395	891,710	321,623	1,000,889	324,437	780,081	285,025	4,014,206

Source: Annual Business Inquiry 2001 – Damien Walne GLA

3.2.3 Incomes and Car Ownership

Table 3.9 shows the gross average weekly earnings for full time jobs in the East Sub-Region. (Data relates to the workplaces and not residents who work outside of the sub-region). Working categories are as follows:

- "High" skill refers to managers, professionals, senior officers, associate professionals and technicians.
- "Medium" skill refers to secretarial/administration, skilled and personal service.
- "Low" skill refers to sales/customer service, operatives and elementary occupations.

The table also benchmarks sub-regional earnings against the GB average, which is indexed at 100. In the East Sub-Region, average weekly earnings are 14% higher than Great Britain, but 7% lower than Greater London.

Table 3.9: *Average Gross Weekly Earnings*

Area	Average Weekly Earnings (Index)	High Skilled Workers	Medium Skilled Workers	Low Skilled Workers
East Sub-Region	370 (114)	530 (110)	279 (113)	278 (112)
Greater London	392 (121)	545 (113)	282 (114)	279 (112)
Great Britain	324 (100)	482 (100)	247 (100)	248 (100)

Source: New Earnings Survey, Office for National Statistics (NOMIS) PACEC

Table 3.10 and Figure 3.7 show car ownership in the East Sub-Region in 2001. Car ownership rates are just below the London average: 39.5% of households in the sub-region do not have access to a car, 62% of the households in the City of London have no car, whilst Tower Hamlets (57%) and Hackney (56%) also have high non-car ownership. 17.5% of households in the sub-region have more than one car, compared to the Greater London average of 19.5%. These figures are reflective of relatively low income levels, and potentially – in the inner boroughs - also better public transport accessibility, proximity to services and a lack of car parking space compared to other areas in London.

Table 3.10: *Sub-Region Car Ownership*

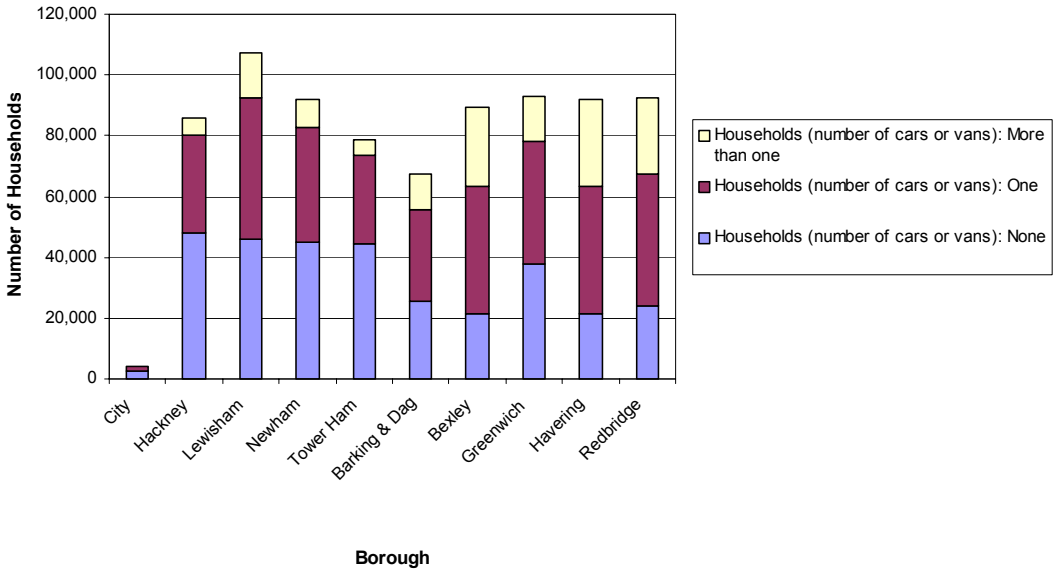
East Sub-Region Borough	All households*	Households (number of cars or vans): None*	Households (number of cars or vans): One*	Households (number of cars or vans): Two*	Households (number of cars or vans): Three*	Households (number of cars or vans): Four or more cars*	All cars or vans in the area**
City of London	4,338	2,691	1,417	184	29	17	1,941
Hackney	86,042	48,219	31,876	5,018	689	240	45,068
Lewisham	107,412	45,941	46,679	12,484	1,831	477	79,270
Newham	91,821	44,866	37,811	7,789	1,089	266	57,855
Tower Hamlets	78,530	44,582	28,997	4,250	545	156	39,839
Barking and Dagenham	67,273	25,511	30,279	9,688	1,441	354	55,516
Bexley	89,451	21,217	41,958	20,986	4,160	1,130	101,302
Greenwich	92,788	37,883	40,160	12,260	1,976	509	72,889
Havering	91,722	21,374	42,078	22,131	4,734	1,405	106,653
Redbridge	92,288	24,198	43,047	20,140	3,856	1,047	99,404
East Sub-Region Total	**801,665**	**316,482**	**344,302**	**114,930**	**20,350**	**5,601**	**659,737**
Total London	3,015,997	1,130,649	1,298,481	476,185	86,470	24,212	2,616,328

Source: Census 2001

* *Includes any company car or van if available for private use.*

** *'All cars or vans in the area' includes only those cars and vans owned by, or available for use by, households*

Figure 3.7 *East Sub-Region Car Ownership*



Source: Census 2001. Includes any company car or van if available for private use.

3.2.4 Tourism and Culture

London is one of the world's most popular destinations for international travellers and tourists. In 1998 it attracted 13.5 million visitors who stayed for an average of seven nights, an increase of 30 per cent since 1990. The East Sub-Region does not have a high number of hotels or rooms. In terms of proportion of bedspaces it accounts for only 8% of the London total. Table 3.11 shows the total number of hotels in the sub-region. In terms of visitor attractions, the sub-region is well-placed. The most popular visitor attractions are the Tower of London and St Paul's Cathedral, both of which are in London's top 20 tourist attractions (The London Tourist Board, 2002).

Table 3.11: *Hotels in the East Sub-Region*

East	Establishments	Rooms	Bedspaces
Barking and Dagenham	7	384	857
Bexley	16	332	682
City of London	8	1,454	2,841
Greenwich	39	477	972
Hackney	16	657	1,280
Havering	17	411	786
Lewisham	25	259	520
Newham	13	880	1,802
Redbridge	24	578	1,324
Tower Hamlets	7	1,812	3,844
East Sub-Region Total	**172**	**7,244**	**14,908**
London Total	1,509	93,286	186,067

Source: BTA/LTB November 2002

Table 3.12 shows that the East Sub-Region accounts for only a small proportion of people on the Underground whose origin of travel was a hotel. Only 6.8% of those on the Underground who started at a hotel in London did so from the East Sub-Region.

Table 3.12: *Underground Passengers Travelling from a Hotel*

Area	Number of passengers
East Sub-Region	2,510
London Total	37,181

Source: London Underground Rolling Origin and Destination Survey
NB. Efinition of 'Underground Passengers Staying at a Hotel': number of London Underground passengers whose journey origin was from a hotel in the sub-region.

3.2.5 Drivers of Change

The trends in employment, population and tourism identified above are all leading to a growth in travel. A number of other drivers of change are likely to influence future travel patterns. These include information technology/home working/flexible working, environmental protection policies and extension of opening hours. Table 3.13 shows the extent of working at home for employed residents in the sub-region.

Table 3.13: *Extent of Working from Home*

East Sub Region Boroughs	People who work at or mainly from home	% of employed residents in each borough
City of London	432	10.1%
Hackney	6,937	8.8%
Lewisham	8,350	7.3%
Newham	7,053	8.2%
Tower Hamlets	5,658	7.7%
Barking and Dagenham	4,010	6.1%
Bexley	7,537	7.3%
Greenwich	6,581	7.2%
Redbridge	8,967	8.5%
Havering	7,500	7.2%
Central Area Total	**63,025**	**7.6%**
London Total	285,935	8.6%

Source: Census 2001 KS15 (GLA, John Hollis)

3.2.6 Social Inclusion and Regeneration

Deprivation
Transport links are critical to supporting regeneration and promoting social inclusion by improving access for people in deprived areas to employment and other opportunities. Thirteen of the twenty most deprived boroughs and districts in the UK are in London (ONS, 2000).

Each of England's 8,414 wards is ranked according to its level of overall deprivation on the Index of Multiple Deprivation (IMD). The most deprived ward is ranked 1 and the least deprived ward is 8,414. The median rank for England is 4,208. Table 3.14 shows, for each given area, the median rank of its wards on each of the indices of deprivation and on the overall measure, the IMD. The

calculation of IMD is based on a weighted summary figure of the rankings of the various indices.

The overall IMD figure for the East Sub-Region is well below the London average, showing that, overall, deprivation is worse in this sub-region. The East Sub-Region scores worse than the rest of London in all areas of deprivation, except for access, where it is marginally better than the Greater London area as a whole, mainly due to the City of London score, reflecting high levels of public transport accessibility.

Table 3.14: *Index of Deprivation*

Area	IMD	Income	Employment	Health	Education	Housing	Access
East Sub-Region	**1,197**	**1,159**	**1,399**	**2,099**	**1,487**	**545**	**7,550**
Greater London	2,418	2,444	2,555	3,457	3,347	564	7,483
England	4,208						

Source: Neighbourhood Statistics, Index of Multiple Deprivation 2000, ONS, PACEC

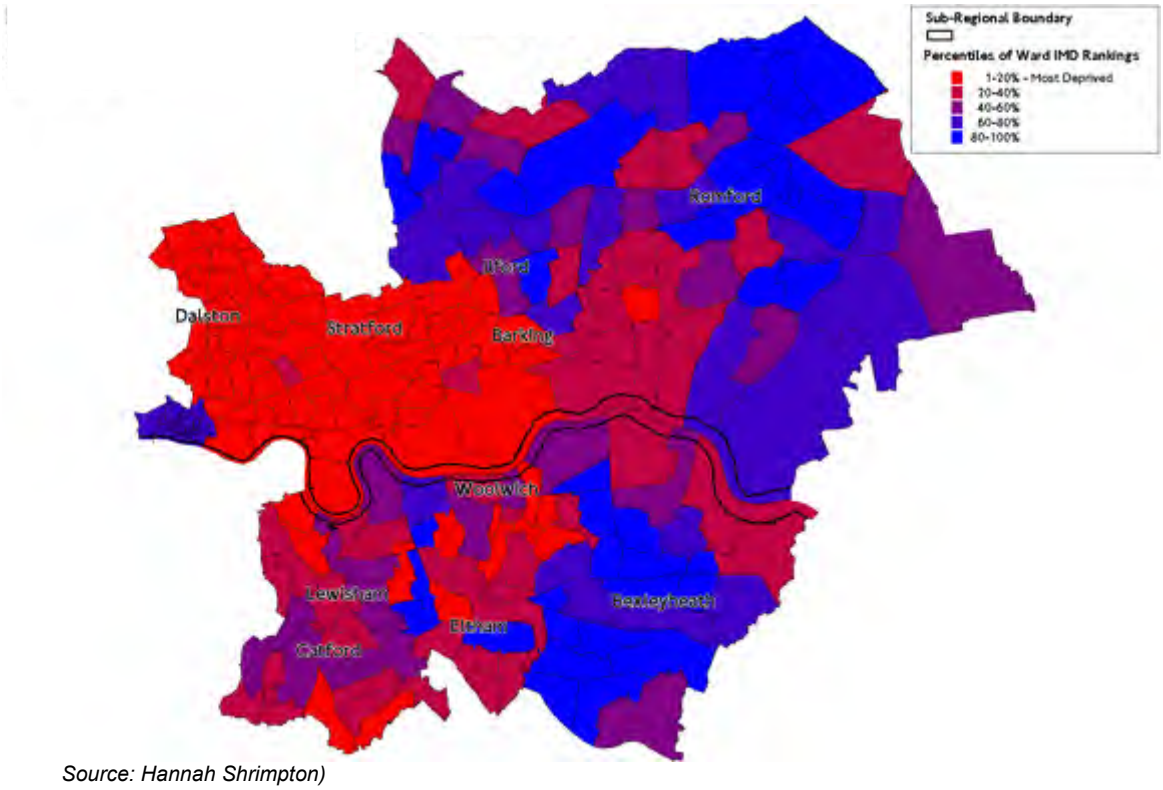
Table 3.15 shows the average ward scores in terms of deprivation. High figures indicate higher deprivation. The East Sub-Region is home to London's most deprived borough, Tower Hamlets (61.3), with Hackney (57.2) and Newham (56.1) also averaging high scores. The least deprived borough is the City of London (16.0). Havering and Bexley also have low average ward scores.

Table 3.15: *Indicies of Deprivation – Average Ward Scores*

Borough	Indices of Deprivation 2000 (average of ward scores)
City of London	16.0
Barking and Dagenham	37.9
Bexley	17.0
Greenwich	37.9
Havering	16.6
Hackney	57.3
Newham	56.2
Redbridge	21.9
Tower Hamlets	61.3
Lewisham	36.8
Average East Sub-Region ward score	**35.9**
London	28.7

Source: ONS

Figure 3.8 *Indices of Deprivation*



Source: Hannah Shrimpton)

Figure 3.9: Deprivation and Travel Behaviour
CORRELATION/awaiting data from LTS/Ian Wright/Atkins

Safety and Security

London-wide, 24,836 road crashes involving personal injury were reported to the Metropolitan and City police during the first nine months of 2002. This is a 9% decrease compared with 2001. However casualties in 2002 have shown a decrease of 8% compared with 2001.

These 24,836 crashes resulted in 30,228 casualties. Of these 203 were fatal, 3992 were seriously injured and 26,033 were slightly injured. Fatalities decreased by 3% from 209 to 203 compared with the first nine months of 2001. Serious injuries decreased by 5% and slight injuries decreased by 9%.

Figure 3.10 shows casualties in the East Sub-Region, and Table 3.16 type of casualties, both showing data for the first nine months of 2002. In terms of total casualties, the East Sub-Region accounts for 27% of the total for London. Only Greenwich (-7.4%) had a lower percentage decrease in casualties from 2001 than the average for London (-8.4%). Tower Hamlets had a very large decrease (-26.7%). The East Sub-Region generally reflects the pan-London picture, with slightly less pedestrian and cycle casualties, but slightly more car occupant casualties.

Figure 3.10: *Total Casualties in the Sub-Region (January to September, 2002)*

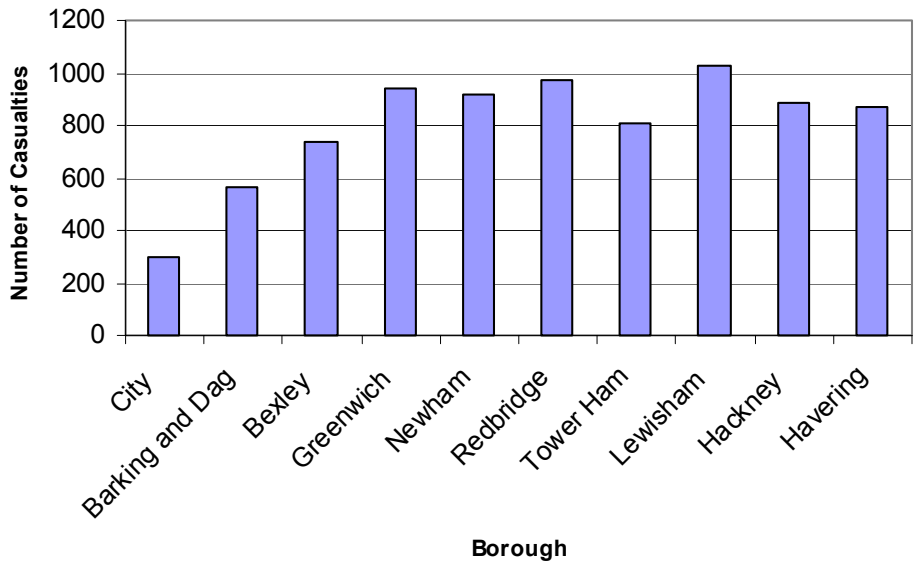


Table 3.16: *Casualties in the Sub-Region (January to September, 2002)*

East Sub-Region borough	Total casualties		Pedestrians		Pedal cyclists		Powered two wheelers		Car occupants		Total vehicle occupants	
	Jan - Sept 2002	% change over 2001	Jan - Sept 2002	% change over 2001	Jan - Sept 2002	% change over 2001	Jan - Sept 2002	% change over 2001	Jan - Sept 2002	% change over 2001	Jan - Sept 2002	% change over 2001
City	298	-14.1	85	1.2	59	-4.8	76	-17.4	41	-36.9	213	-19
Barking and Dagenham	567	-10.4	90	9.8	30	-6.3	74	10.4	317	-19.5	477	-13.4
Bexley	739	14.8	97	-4.0	31	-14	98	4.3	435	23.2	642	18.2
Greenwich	945	-7.5	152	9.4	36	-32	155	-3.7	511	-8.6	793	10.2
Newham	918	-14.8	207	-0.5	51	-24	97	-15.7	494	-18.5	711	-18.3
Redbridge	975	-17.0	123	-4.7	32	-41	126	-9.4	633	-18.6	852	-18.5
Tower Hamlets	806	-26.7	153	-22.3	66	-15	203	-24.3	309	-31.9	653	-27.6
Lewisham	1,026	-13.4	198	-3.4	60	-26	210	-10.3	453	-16.3	828	-15.5
Hackney	889	-17.8	173	-19.2	88	-12	134	-31.3	399	-11.7	716	-17.4
Havering	868	-8.9	92	-20.7	31	24	99	22.2	562	-13.4	776	-7.3
Total for East Sub-Region	**8,031 (100%)**		**1,370 (17%)**		**484 (6%)**		**1,272 (16%)**		**4,154 (52%)**		**6,661 (83%)**	
Total for London	30,228	-8.4	5,472	-7.8	2.351	-8.5	5,225	-10.7	14,341	-8.1	24,756	-8.5

Source: TfL Street Management Factsheet, London Accident Analysis Unit, Quarterly summary year 2002 (first nine months) January 2003

3.2.7 Environment and Health

Air Quality

London's air quality is the poorest in the UK and amongst the worst in Europe. Poor air quality is a significant cause of ill health and early death in London. The Government's National Air Quality Strategy[2] sets out air quality objectives for eight air pollutants, all of which have adverse effects on health. Table 3.17 shows air emissions by borough in the sub-region, with projections for 2005 in Table 3.18. Substantial reductions are expected for all the noxious pollutants. Carbon dioxide emissions are expected to increase however.

The Mayor wishes London to make a contribution to meeting the UK target of reducing CO_2 emissions by 20% below 1990 levels, by the year 2010. London's transport system is responsible for around 20% of the CO_2 emissions in the city. For transport-related $C0_2$ emissions, road traffic accounts for 65%, rail and Underground for 25%, and aviation for the remaining 10%.

Table 3.17 *Air Emissions (1999)*

East Sub-Region	Sulphur Dioxide	Oxides of Nitrogen	Carbon Monoxide	Carbon Dioxide	Non-Methane Volatile Organic Compound	Benzene	Butadiene	Particulate Matter
City of London	10.1	376	832	253,273	457	7.5	1.8	13.7
Hackney	18.0	718	2,161	373,381	1,367	20.9	5.2	31.0
Lewisham	41.0	1,549	3,865	721,727	1,637	37.8	9.5	54.1
Newham	66.4	1,420	3,207	593,424	1,869	32.8	8.2	60.0
Tower Hamlets	33.8	996	2,698	453,940	1,893	25.7	6.4	58.0
Barking and Dagenham	308.7	2,064	3,332	3,420,067	1,772	42.4	6.5	141.0
Bexley	66.1	1,526	3,600	704,365	1,726	34.4	8.3	59.6
Redbridge	42.6	1,688	4,888	659,343	1,885	44.7	12.2	67.5
Greenwich	174.4	2,089	4,453	682,746	1,698	36.1	8.8	116.7
Havering	113.2	2,333	5,137	714,829	2,008	47.8	13.8	97.6

Source GLA (Lucy Sadler)

Table 3.18 *Projected Air Emissions (2005)*

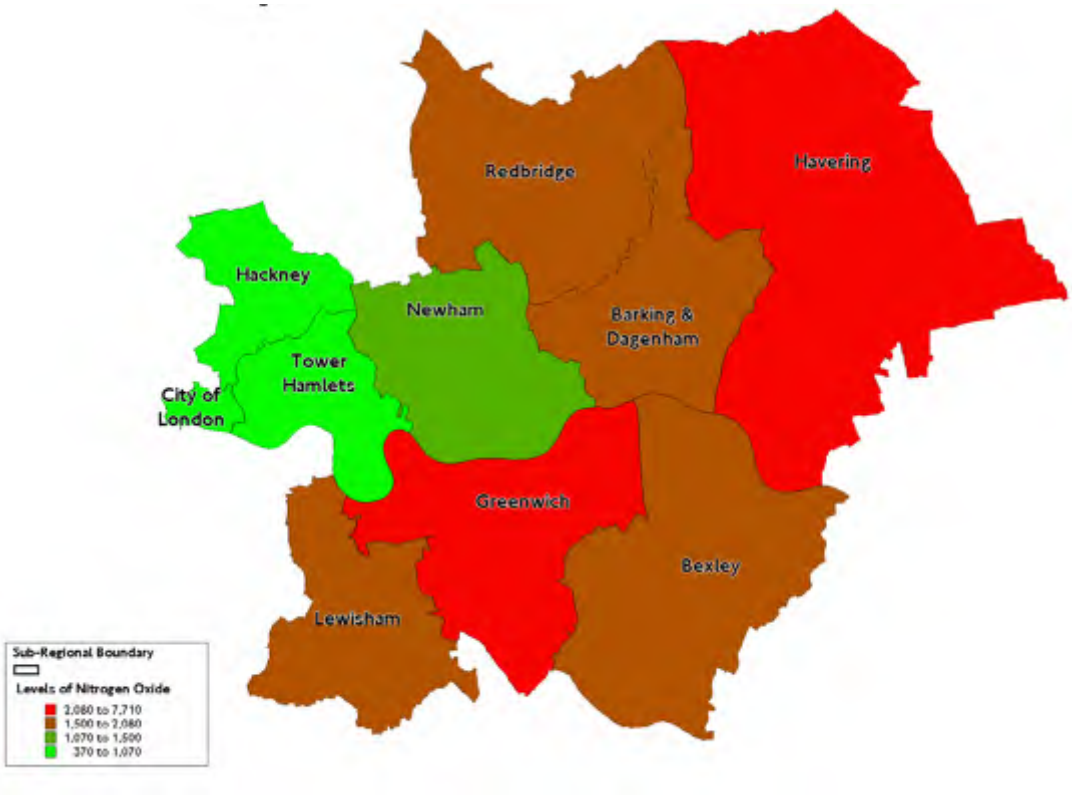
East Sub-Region	Sulphur Dioxide	Oxides of Nitrogen	Carbon Monoxide	Carbon Dioxide	Non-Methane Volatile Organic Compound	Benzene	Butadiene	Particulate Matter
City of London	6.5	416	587	307,962	538	5.9	0.9	11.5
Hackney	4.7	686	1,185	458,666	1,483	13.4	2.1	27.4
Lewisham	16.7	1,329	1,749	761,601	1,378	20.4	3.2	37.5
Newham	92.8	1,278	1,676	717,010	1,807	19.7	3.2	51.5
Tower Hamlets	20.2	905	1,575	537,660	1,942	16.5	2.7	48.4
Barking and Dagenham	295.6	1,885	2,077	3,470,836	1,681	31.7	2.5	130.4
Bexley	50.8	1,193	1,734	743,374	1,508	18.8	2.8	45.3
Redbridge	8.4	1,282	2,109	702,439	1,548	21.3	3.9	39.6
Greenwich	208.3	1,978	2,798	865,065	1,598	22.1	3.4	109.4
Havering	73.5	1,862	2,502	801,370	1,629	24.1	5.5	78.7

Source GLA (Lucy Sadler)

[2] DETR (2000) Air Quality Strategy for England, Scotland, Wales and Northern Ireland

Nitrogen oxide emissions are shown in Figure 3.11, with highest levels in Greenwich.

Figure 3.11: *Air Quality: Concentration of Nitrogen Oxide (1999)*



(Source: Hannah Shrimpton)

Health

Health and environmental issues are closely linked. Tackling safety and security, air pollution, noise and stress arising from crowding and traffic delay, are necessary to improve health in the East Sub-Region. By contributing to the regeneration of deprived areas, better transport can also address the aspects of social exclusion and poverty which strongly correlate with poor health.

The London Health Commission has identified health improvement through transport measures as one of four key priorities for health improvement in London. Table 3.19 reports on a number of high-level indicators identified as important determinants of health in the sub-region.

Table 3.19: *Indicators of Health in the Sub-Region*

Sub-Region Borough	Unemployment Rate (%)	% of Pupils (aged 15) Achieving 5 or More GCSE Grades A*-C or Equivalent	Proportion of Homes Judged Unfit to Live In (%)	Burglary Rate/ 1000 Resident Population	Road Traffic Casualty Rate / 1000 Resident Population (killed, Injured or Slightly Injured)	Life Expectancy at Birth		Infant Mortality Rate/1000	Proportion of People with Self Assessed Good Health (%)
						Male	Female		
City of London	3.0%	N/A	0.0%	N/A	N/A	N/A	N/A	N/A	73.8%
Tower Hamlets	12.0%	43.6%	8.6%	9.7	7.2	72.6	78.6	6.1	67.9%
Hackney	9.0%	31.1%	8.3%	15.3	7.2	73.5	79.5	7.9	68.4%
Barking and Dagenham	4.4%	42.3%	8.1%	7.8	5.4	74.2	79.5	5.7	65.5%
Redbridge	3.7%	63.7%	9.2%	7.8	6.5	76.5	81.4	5.4	69.8%
Greenwich	5.9%	33.3%	8.9%	8.1	6.6	74.3	79.7	6.0	68.4%
Lewisham	6.8%	38.7%	4.9%	10.5	6.2	73.3	78.7	8.6	69.2%
Newham	8.2%	42.4%	18.3%	9.5	5.6	72.5	78.5	7.4	68.0%
Havering	2.0%	57.3%	3.7%	4.9	5.8	76.7	81.0	4.7	69.7%
Bexley	2.4%	52.6%	5.9%	4.8	4.1	77.1	81.0	4.3	70.3%

(Source: London Health Commission, Health in London, 2003)
Unemployment: GLA & ONS Claimant Count (2002)
Life Expectancy ONS 1999-2001
Infant Mortality ONS 1996-2001
Road Casualties: Transport for London (accident figures). ONS (mid-year estimates 2001) based on 2001 Census
Burglary: Metropolitan Police Statistics: 2000/2001. ONS: mid-year estimates, 2001 based on 2001 Census
GCSEs: DfES (provisional figures); January 2003
Housing: GLA: HIP data for London, April 2001
Good Health: ONS 2001
Note: NO2 and PM10 are one of the 10 indicators. They have not been included in this table as the figures are shown in Tables 3.17 and 3.18

3.3 Travel Patterns and Trends

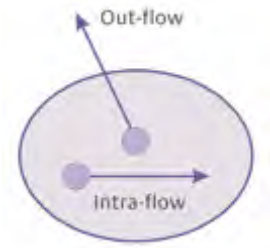
This section of the report draws together the key changes in travel patterns and trends in the East Sub-Region over recent years. It includes data on current travel patterns, traffic congestion, public transport, walking, cycling and private vehicles.

3.3.1 Mode Share

The following tables and diagrams based on Census and Railplan data, show the mode share patterns for weekday journeys to work in the East Sub-Region.

Journeys to Work

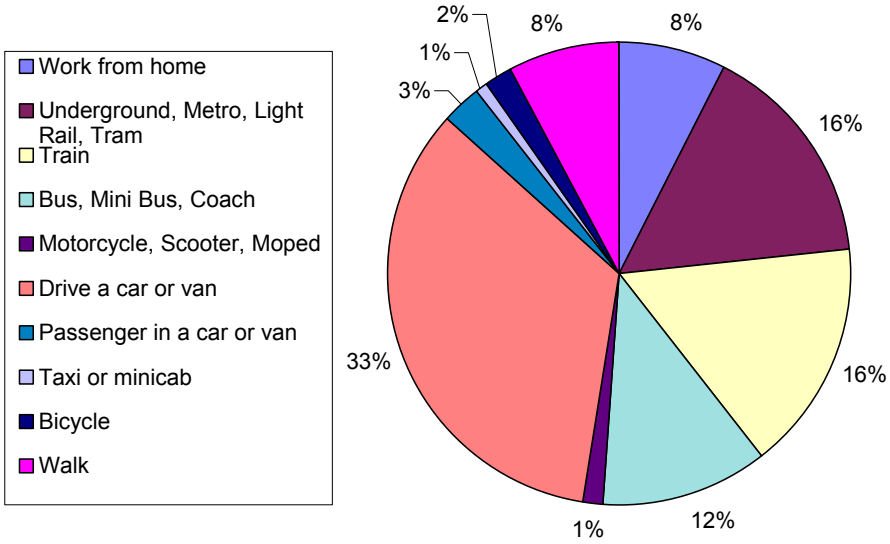
Figure 3.12 shows journeys to work by main mode for people living in the East Sub-Region (Census, 2001). Just under half travel by public transport and 1 in 3 go by car.



Key comparisons with London-wide data are as follows:

- 33% of East London residents drive to work, similar to London-wide (34%).
- 16% of residents use the Underground or DLR, slightly lower than London-wide (19%).
- 16% travel to work by train, higher than London-wide (12%).
- 12% travel to work by bus, similar to London-wide (11%).
- Of the remainder, 8% walk to work, another 8% work from home, and only 2% cycle to work.

Figure 3.12: *Journeys to Work by Main Mode for Employed Residents in the East Sub-Region*

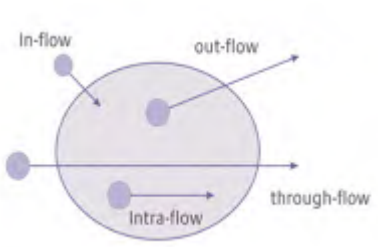


Source: Census 2001 (GLA, John Hollis)

Currently there is no data source available which shows an accurate picture of journey type by mode by sub-region in London. London Area Transport Survey data for 2001 will however be available towards the end of April/May 2003 and this will provide an accurate breakdown for 2001. There are also plans to introduce an annual household survey, starting from 2002, which again should provide a greater understanding of travel for purposes other than work.

Public Transport Usage

Table 3.20 is based on 2001 Railplan runs for various public transport modes in the East Sub-Region and includes journeys originating or terminating in the East Sub-Region and through journeys.



- 63% of all public transport journeys in the sub-region are by National Rail, significantly higher than London-wide (56%).
- The Underground has the second largest share of public transport journeys in the East Sub-Region. 22% of trips take place by Underground, lower than London-wide (28%).
- Bus usage at 11% is substantially lower than either National Rail or Underground in the sub-region, but is similar to London-wide (14%).
- The DLR accounts for 4% of public transport journeys in the sub-region, obviously higher than London-wide (1%).

Table 3.20: *Public Transport Travel in the East Sub-Region 2001 (Passenger kms, 1000s)*

Borough	LUL		Rail		DLR		Bus	
	Count	%	Count	%	Count	%	Count	%
The City	686	43%	679	43%	62	4%	170	11%
Tower Hamlets	600	36%	786	48%	181	11%	78	5%
Hackney	135	18%	437	60%	-	-	162	22%
Newham	425	30%	795	56%	120	9%	69	5%
Redbridge	123	23%	356	66%	-	-	61	11%
Barking & Dagenham	135	18%	576	75%	6	-	51	7%
Havering	15	2%	771	88%	-	-	88	10%
Bexley	-	-	145	79%	-	-	39	21%
Greenwich	-	-	351	72%	11	2%	123	25%
Lewisham	-	-	1,113	85%	27	2%	176	13%
Total East	2,119	22%	6,009	63%	407	4%	1,017	11%
Total London	9,356	28%	18,653	56%	407	1%	4,510	14%

Source: 2001 Railplan (TfL, Richard Hopkins)
The values are passenger kms inside the borough for all services that pass through the associated borough. Thus the shown values have a through service and a stopping service component.

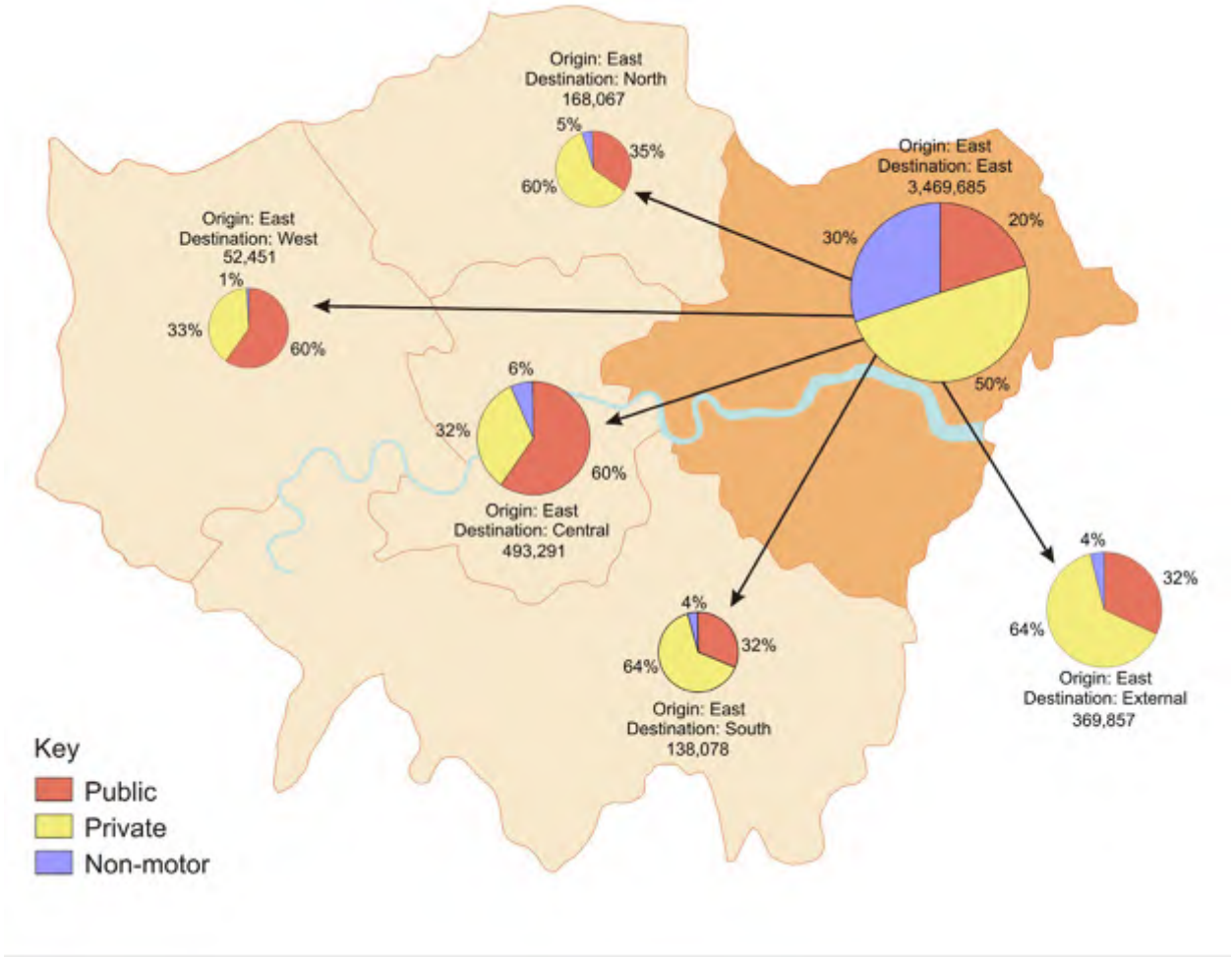
3.3.2 Weekday Travel Patterns

Figure 3.13 shows weekday travel patterns in the East Sub-Region, based on LATS data. Trips originating in the sub-region are shown by main mode.

Key points are:

- The great majority of trips (74%) are internal to the sub-region.
- The main movement out of the sub-region, unsurprisingly, is to Central Sub-Region, reflecting the high proportion of jobs and other facilities located there. The majority of this travel is undertaken by public transport, reflecting the high costs and difficulties associated with private motorised transport.
- The next largest inter sub-regional movement is to areas outside London, and the majority is undertaken by private motorised transport, probably reflecting a diversity of origins and destinations.
- There is relatively much less travel to the North and South sub-regions, for which private motorised transport is predominant.
- There is relatively little movement to the West Sub-Region, though the majority is made by public transport.

Figure 3.13: *Weekday Travel Patterns in the East Sub-Region*



Source: 1991 LATS data (TfL, Mike Collup)
Reverse flows are assumed as equal over a full 24-hour day

Table 3.21 shows trips originating in the East Sub-Region, classified by the main mode of transport. It shows all trips taking place on a weekday, based on the 1991 LATS survey. The daily mode share patterns are shown, together with the percentage of trips for work and in the peak period. (It should be noted that the results are not comparable with Figure 2.12 of the *Mayor's Transport Strategy*, which uses trip stages rather than main mode for public transport trips, with every interchange being taken as defining a new stage of the journey.)

- The mode with the highest share of daily trips made in the sub-region is car/motorcycle at 2.34 million. 24% of these are for work, of which 43% are made in the peak period.
- Walking has the second highest share of daily trips, of which 31% are to work.
- 32% of daily trips made in the sub-region are to work. 49% of these are made in the peak period.
- Rail trips are roughly evenly split between Underground and National Rail services, each accounting for around 5% of total trips. Trips to work account for a high proportion of rail trips, 82% of National Rail trips and 60% of Underground trips
- Rail trips are noticeably more peaked than trips by other modes. 81% of trips to work by National Rail are made in the peak period, and 62% of those made by Underground. The average of all work trips made in the peak is 49%

Table 3.21: *Travel in the East Sub-Region (Trips by Origin Sub-Region)*

Main mode of transport	Daily Trips (Millions)	% for Work	% of Work Trips in Peak Period
Underground (including DLR)	0.28	60%	62%
National Rail	0.30	82%	81%
Bus	0.51	23%	45%
Walk	2.06	31%	51%
Car/motorcycle	2.34	24%	43%
Bicycle	0.05	35%	51%
Taxi	0.03	24%	36%
Total	5.58	32%	49%

Source: Underground, rail, car/motorcycle, taxi - 1991 LATS combined trips files
Bus, walk, bicycle - LATS 1991 Household survey (London residents)
'Peak period' includes both morning (7-10am) and evening (4-7pm) peaks.
(TfL, Mike Collop)

Figure 3.14: *Key Highway Flows*
**DESCRIPTIVE TEXT/DIAGRAM/waiting for LTS data/Ian Wright/Atkins

3.3.3 Summary Traffic Data and Forecasts

Table 3.22 shows the highway vehicle and public transport passenger trips originating in and terminating in the East Sub-Region by period of the day. The sub-region attracts more public transport trips in the morning peak than it exports, but this is due in large part to the presence of the City of London within the East Sub-Region boundary. The City accounts for less than 1% of the sub-region area but for 46% of peak hour public transport arrivals. The City is far less dominant, however, in terms of highway vehicle trips, which in most of the constituent boroughs are more balanced as between origins and destinations.

The highway vehicle trip generation rate was 231 per 1,000 residents of the sub-region, 15% below the London average of 265, and the lowest trip generation rate of all the sub-regions (derived from Tables 3.1 and 3.22 am peak period for trips within London).

Table 3.22: *Summary Highway and Public Transport Data for the Sub-Region (2001)*

Area	2001 Morning Peak Period				2001 Inter Peak Period				2001 Evening Peak Period			
	Highway Vehicles		Public Transport Persons		Highway Vehicles		Public Transport Persons		Highway Vehicles		Public Transport Persons	
	Origs	Dests	Origs	Dests	Origs	Dests	Origs	Dests	Origs	Dests	Origs	Dests
City	12,511	24,958	6,708	199,014	37,921	39,361	50,798	50,352	25,349	15,092	178,028	18,048
Barking and Dagenham	36,623	38,415	28,292	12,589	69,939	69,820	25,566	25,034	42,367	41,387	12,402	18,027
Bexley	64,352	55,878	35,627	11,204	122,195	121,698	28,180	26,186	75,450	79,184	8,032	36,768
Greenwich	44,435	52,420	43,886	25,115	93,136	93,333	49,006	48,165	60,720	54,491	21,389	43,493
Newham	46,308	49,179	50,150	25,308	94,236	91,760	50,049	43,791	52,747	48,373	24,960	37,446
Redbridge	62,648	58,380	45,658	18,462	111,622	112,300	36,002	34,061	66,849	69,691	15,449	33,924
Tower Hamlets	33,822	44,986	39,568	67,237	75,984	75,366	55,653	51,601	42,922	34,502	64,501	33,690
Lewisham	47,375	45,669	58,627	22,822	87,202	86,244	51,679	48,256	50,833	52,054	19,900	50,690
Hackney	35,330	40,716	44,171	33,321	69,540	68,175	46,219	43,222	40,268	36,377	31,601	34,950
Havering	70,082	68,747	38,993	17,551	138,862	139,161	37,532	38,124	80,311	83,551	15,040	30,230
East	453,486	479,347	391,680	432,623	900,636	897,217	430,684	408,791	537,816	514,702	391,301	337,267
Central	362,470	437,281	428,326	904,716	831,796	835,164	756,373	838,196	440,903	398,607	880,924	531,035
West	400,262	436,097	265,013	163,904	756,064	755,216	278,877	252,635	464,302	433,138	171,454	219,126
South	423,564	403,232	232,378	128,684	755,023	748,520	203,207	199,245	456,818	469,819	114,518	187,164
North	266,793	254,549	197,485	87,441	454,091	455,494	182,022	169,582	273,680	280,154	82,780	156,989
Internal	1,906,575	2,010,507	1,514,883	1,717,368	3,697,611	3,691,610	1,851,163	1,868,449	2,173,519	2,096,419	1,640,977	1,431,581
Annulus	327,783	312,370	69,440	32,253	577,100	580,406	54,674	52,800	344,074	362,139	28,686	61,681
External	967,263	878,745	295,742	130,443	1,193,611	1,196,305	182,150	166,737	877,992	937,026	135,619	312,020
Total	3,201,622	3,201,622	1,880,065	1,880,065	5,468,321	5,468,321	2,087,987	2,087,987	3,395,584	3,395,584	1,805,282	1,805,282

Source: London Transportation Studies LTS model (Ian Wright, TfL & Atkins)

Table 3.23 shows the forecast situation in 2016. The key changes to note are the predicted increases in public transport arrivals in the key employment growth areas, namely the City of London, predicted to be almost a third (31%), and Tower Hamlets, where an 82% increase is forecast. In the sub-region as a whole the number of people arriving by public transport is expected to increase by 158,000, more than a third higher than in 2001. The increase in vehicle arrivals is not far short of this at 124,000 extra in the morning peak (+8.6%), although of course none of this is accounted for by the City. Vehicle trips generated by the East Sub-Region (Origins) are forecast to increase by 10% in the morning peak. The equivalent increase in the inter-peak period is forecast to be slightly lower than this (9%). This could be due to work trips forming a higher proportion of the total in 2016, or relatively unconstrained peak hour driving conditions that allow for further growth (in the other sub-regions rates of traffic increase tend to be higher in the inter-peak period).

The highway vehicle trip generation rate is expected to decrease from 231 per 1,000 residents in 2001 to 227 in 2016, a decrease of 2% taking it 16% below the forecast London average of 263. (Derived from Tables 3.1 and 3.23 am peak period for trips within London) The trip generation rate is forecast to fall, this will not be sufficient to prevent the sub-region generating a large sub-regional increase in highway vehicle trips (44,000 trips, slightly more than in the South and West sub-regions). However, given that the East Sub-Region is to accommodate almost one third of London's projected population increase, this would represent a significant achievement in terms of reducing the rate of trip generation by car.

Table 3.23: *Summary Highway and Public Transport Data for the Sub-Region (2016 on London Plan Assumptions)*

	2016 Morning Peak Period				2016 Inter Peak Period				2016 Evening Peak Period			
	Highway Vehicles		Public Transport Persons		Highway Vehicles		Public Transport Persons		Highway Vehicles		Public Transport Persons	
	Origs	Dests	Origs	Dests	Origs	Dests	Origs	Dests	Origs	Dests	Origs	Dests
City	14,910	24,879	8,772	261,652	43,031	44,059	73,628	75,350	26,710	16,542	236,413	26,161
Barking and Dagenham	41,359	39,845	38,095	14,957	74,233	74,573	31,417	30,214	44,213	45,741	14,488	25,521
Bexley	68,378	60,786	44,012	11,973	129,455	128,467	32,177	29,538	80,039	83,290	9,309	43,717
Greenwich	51,751	60,388	66,572	31,483	107,413	107,949	66,206	64,856	70,046	63,095	28,038	61,777
Newham	51,459	57,284	70,098	34,985	106,774	104,386	66,769	59,371	60,863	54,208	35,271	53,963
Redbridge	70,644	63,669	58,993	22,242	122,318	122,877	44,683	42,004	71,819	76,917	18,881	44,609
Tower Hamlets	38,829	50,764	63,911	121,674	87,041	86,942	95,334	96,177	49,204	40,345	116,461	59,921
Lewisham	48,692	47,740	74,105	27,018	90,439	89,361	61,606	57,154	52,699	53,321	24,327	62,815
Hackney	36,054	41,826	56,188	42,196	71,719	70,312	57,319	53,455	41,412	37,393	40,477	45,130
Havering	75,433	73,672	47,196	21,497	147,892	147,591	44,450	43,692	84,838	88,512	18,329	37,316
East	497,507	520,852	527,942	589,676	980,314	976,518	573,589	551,812	581,842	559,364	541,994	460,930
Central	375,322	444,771	546,964	1,084,008	872,857	873,980	950,639	1,045,055	452,986	414,584	1,071,738	681,679
West	444,234	478,757	336,959	214,585	839,856	841,314	348,453	318,087	510,015	480,304	223,047	283,956
South	466,039	432,696	284,617	150,093	816,069	810,016	242,776	237,793	487,844	511,522	135,649	231,508
North	297,459	276,185	250,504	104,233	498,255	500,028	220,467	206,363	296,542	309,873	100,059	202,067
Internal	2,080,562	2,153,261	1,946,986	2,142,595	4,007,351	4,001,855	2,335,924	2,359,111	2,329,229	2,275,647	2,072,487	1,860,140
Annulus	362,182	360,168	92,663	51,121	655,725	657,631	83,879	78,277	393,153	402,571	46,694	83,766
External	1,175,540	1,104,856	333,111	179,045	1,508,273	1,511,863	225,749	208,165	1,107,197	1,151,361	180,730	356,005
Total	3,618,285	3,618,285	2,372,760	2,372,760	6,171,349	6,171,349	2,645,553	2,645,553	3,829,579	3,829,579	2,299,911	2,299,911

Source: London Transportation Studies LTS model (Ian Wright, TfL & Atkins)

Table 3.24: *Public Transport Forecasts for the East Sub-Region*

Highway Performance	2001 Base	2011				2016			
		Reference Case	% Change	Planned	% Change	Reference Case	% Change	Planned	% Change
East Sub-Region									
National Rail									
Passenger km	3,746,232			4,621,456	23%			6,007,894	60%
Total seats km	5,590,167			6,948,695	24%			10,068,911	80%
Crowded hours	37,386			58,424	56%			49,844	33%
Uncrowded hours	75,644			92,344	22%			126,141	67%
Underground/DLR/CTL									
Passenger km	2,093,352			2,848,813	36%			2,524,757	21%
Total seats km	2,216,918			2,674,023	21%			2,905,623	31%
Crowded hours	26,828			40,764	52%			24,864	-7%
Uncrowded hours	63,726			84,864	33%			72,608	14%
Bus									
Passenger km	887,987			1,142,717	29%			1,017,082	15%
Total seats km	3,387,308			4,307,391	27%			4,594,649	36%
Total passenger hours	65,449			84,051	28%			73,964	13%
London									
National Rail									
Passenger km	12,571,279			15,508,087	23%			18,648,337	48%
Total seats km	19,681,200			24,160,423	23%			31,929,688	62%
Crowded hours	97,896			154,823	58%			126,154	29%
Uncrowded hours	234,305			287,196	23%			359,289	53%
Underground/DLR/CTL									
Passenger km	8,045,830			10,015,507	24%			9,879,511	23%
Total seats km	9,044,660			10,169,533	12%			11,385,886	26%
Crowded hours	88,532			124,996	41%			89,501	1%
Uncrowded hours	243,818			298,296	22%			274,303	13%
Bus									
Passenger km	3,713,015			4,824,633	30%			4,511,483	22%
Total seats km	12,216,038			15,573,514	27%			16,352,963	34%
Total passenger hours	272,468			350,775	29%			324,574	19%

Source: Morning Peak Data, Railplan (Richard Hopkins, TfL)

Table 3.25 shows the highway performance summary statistics for the East Sub-Region for 2001, 2011 and 2016. The predicted changes by 2016 are consistent with the large amount of growth in both homes and jobs in the sub-region. There is a substantial forecast increase in flow (17%) which is greater than the pan-London increase of 11%. Vehicle travel time is forecast to increase by 22% (compared to 16% London-wide), vehicle speeds to decrease by 4% (the same as 4% London-wide) and delays increase by 34% (compared to 27% London-wide).

Table 3.25: *Highway Forecasts for the East Sub-Region (Average Morning Peak Hour)*

Highway Performance	2001 Base	2011				2016			
		Reference Case	% Change	Planned	% Change	Reference Case	% Change	Planned	% Change
Vehicle travel distance (km)									
East Sub-Region	1,373,088							1,602,227	17%
London	5,114,774							5,694,543	11%
Vehicle travel time (hours)									
East Sub-Region	47,581							58,018	22%
London	203,642							237,095	16%
Vehicle speeds (km/h)									
East Sub-Region	28.9							27.6	-4%
London	25.1							24.0	-4%
Free-flow vehicle time (hours)									
East Sub-Region	30,735							35,375	15%
London	125,861							138,396	10%
Delay vehicle time (hours)									
East Sub-Region	16,846							22,643	34%
London	77,780							98,699	27%
Delay rate (mins/km)									
East Sub-Region	0.74							0.85	15%
London	0.91							1.04	14%

NB. DRAFT data including interim 2016 forecasts, further data to fill following modelling
(Source, LTS data, Ian Wright, Atkins & TfL)

3.3.4 Public Transport Accessibility

Figures 3.15 to 3.17 highlight the levels of public transport accessibility in the sub-region.

Figure 3.15 shows the 0-30 minutes and 30-45 minutes public transport travel time catchments for the Metropolitan centres in the East Sub-Region: Romford and Ilford. Both centres have relatively large catchment areas within 30 minutes travel time. Much of the sub-region north of the River Thames falls within a 45 minute journey time, but much of the sub-region south of the River Thames is over 45 minutes from a Metropolitan centre. This applies to virtually the whole of Greenwich and Bexley boroughs. Lewisham is best served by Bromley in the neighbouring South Sub-Region. Overall about half of the geographical area of the sub-region is more than 45 minutes from a Metropolitan centre by public transport.

Figure 3.15 shows that the opportunity and intensification areas are more than 30 minutes from a Metropolitan centre, and most are more than 45 minutes away. However, this picture will change with the introduction of transport schemes including the DLR extension to the Royals and Woolwich, and potentially with Greenwich Waterfront Transit. Opportunity areas in Barking riverside would be served by public transport schemes being promoted in relation to development.

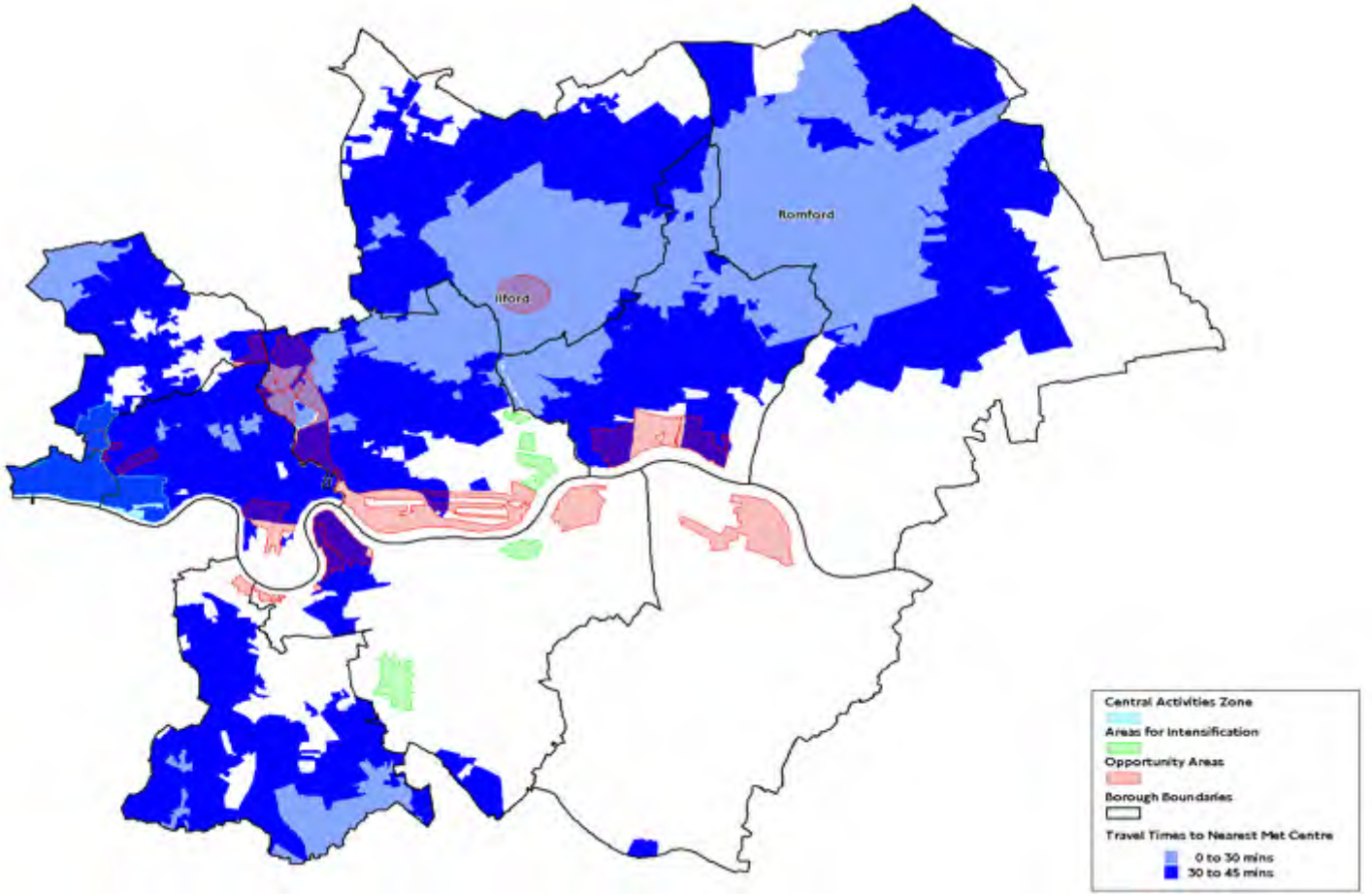
Figure 3.16 illustrates the 0-30 minutes public transport travel time catchment for the Major centres in the East Sub-Region: Barking, Bexleyheath, Woolwich, Eltham, Dalston, Lewisham, Catford, East Ham and Stratford. Most of the sub-region is within the 30 minute catchment area of these centres. However, the northern parts of Redbridge and almost the whole of the borough of Havering is beyond this catchment. The easternmost parts of Havering may to some extent be served by centres outside Greater London, such as Lakeside, although this will mostly be dependent on car access.

It is noticeable that the opportunity and intensification areas of north Bexley, and parts of Greenwich and the Royals are more than 30 minutes by public transport to their nearest major centre. There are schemes that will address this issue including the Greenwich Waterfront Transit and the DLR extension through the Royals.

Figure 3.17 shows accessibility to public transport throughout the sub-region (PTAL scores). It grades each area by the quantity of public transport available to people. Not surprisingly the highest PTAL scores tend to occur where public transport services come together, such as at the main centres. Even so there are big variations. Romford has a relatively large area with high PTAL scores, compared to the other Metropolitan centre Ilford, which has a much smaller area with high PTAL scores.

Barking is noticeable for having a relatively large area with high PTAL scores. At Stratford, Lewisham and the areas close to the City rail and bus services combine to produce high scores. The least accessible areas are those on the eastern extremes of the sub-region, especially in Havering and Redbridge which have PTAL scores of around 1. London Riverside also has relatively poor access to public transport, especially (and unsurprisingly) from the opportunity and intensification areas.

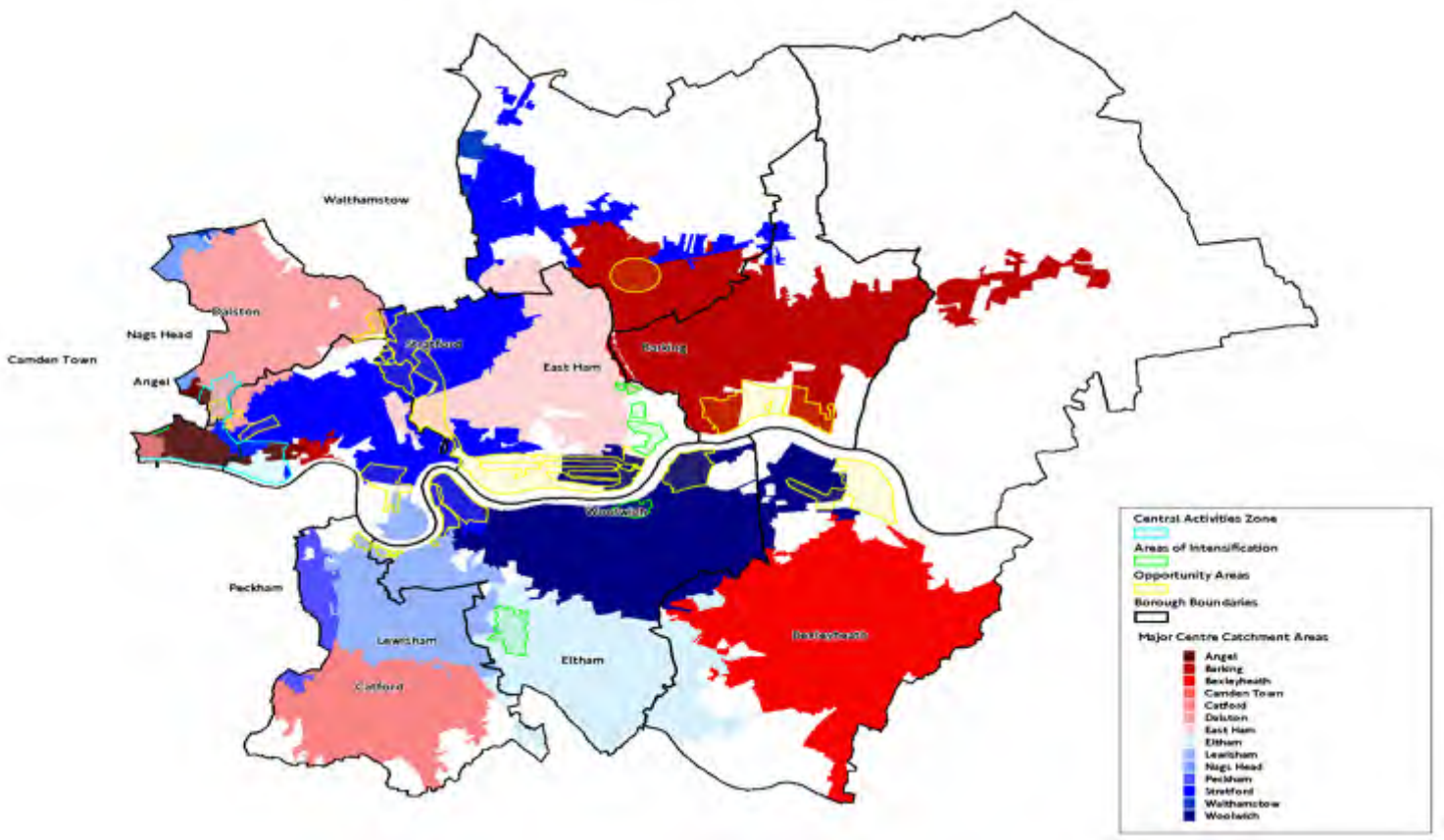
Figure 3.15: *Public Transport[3] Accessibility to Metropolitan Centres in the East Sub-Region*



Source: CAPITAL (TfL, Richard Hopkins)

[3] CAPITAL is a hybrid GIS/ transportation modelling tool which can assess travelling times to or from specific locations at a enumeration district level.

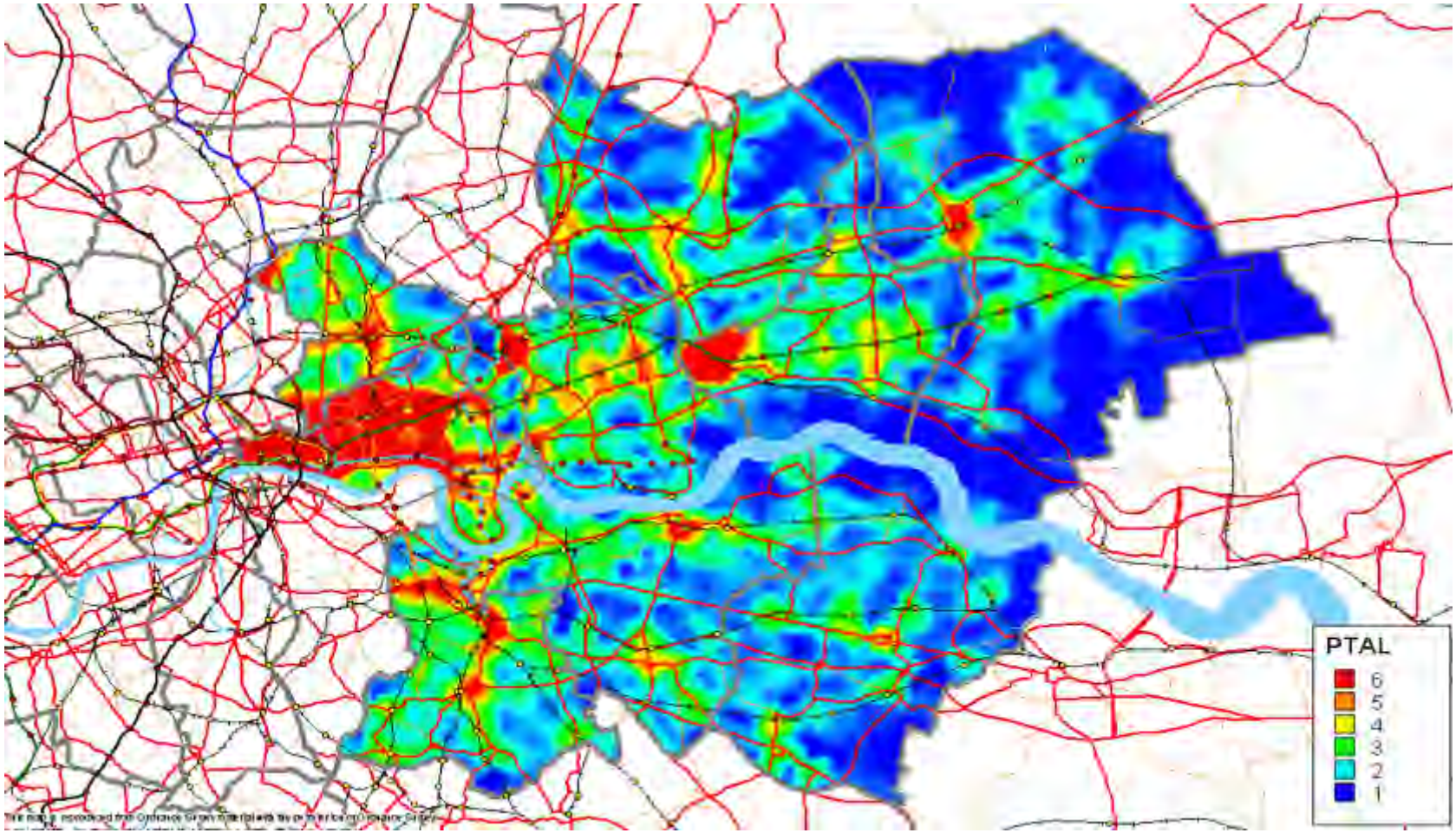
Figure 3.16: *Public Transport[4] Accessibility to Major Centres in the East Sub-Region (30 minute catchments)*



Source: CAPITAL (TfL, Richard Hopkins)

[4] CAPITAL is a hybrid GIS/ transportation modelling tool which can assess travelling times to or from specific locations at an enumeration district level.

Figure 3.17: *Accessibility to Public Transport[5] in the East Sub-Region*



Source: PTALS (TfL, Richard Hopkins)

[5] The Public Transport Accessibility Level (PTAL) method measures the amount of public transport service available, taking account of the proximity of stops and stations, the number of services available and the frequency of the services. The higher the value, the greater access provided by the public transport network.

NB. Repeat Brook Lyndhurst work: regression accessibility and employment density once LTS data available from Atkins

3.3.5 Public Transport

Table 3.26 shows public transport trips originating in the East Sub-Region over a weekday. Both internal trips within the sub-region and external trips (to other sub-regions and areas outside London) are shown.

- Weekday public transport trips are greatest within the East Sub-Region, estimated as 702,143 (56% of the total movements). It must be remembered that this includes trips to the City of London, which will account for a substantial proportion of public transport trips originating in the sub-region.
- There is considerable movement from the East Sub-Region to the Central sub-region (24%) and from the East Sub-Region to areas outside London (9%).

Table 3.26: *Weekday Public Transport Trips by Origin and Destination*

Origin	Destination													
	Central		East		North		South		West		External		Total	
East	293,331	24%	702,143	56%	58,368	5%	43,528	3%	31,352	3%	117,975	9%	1,246,698	100%
All London	2,227,790	40%	1,230,163	22%	471,305	8%	560,213	10%	684,713	12%	445,815	8%	5,620,000	100%

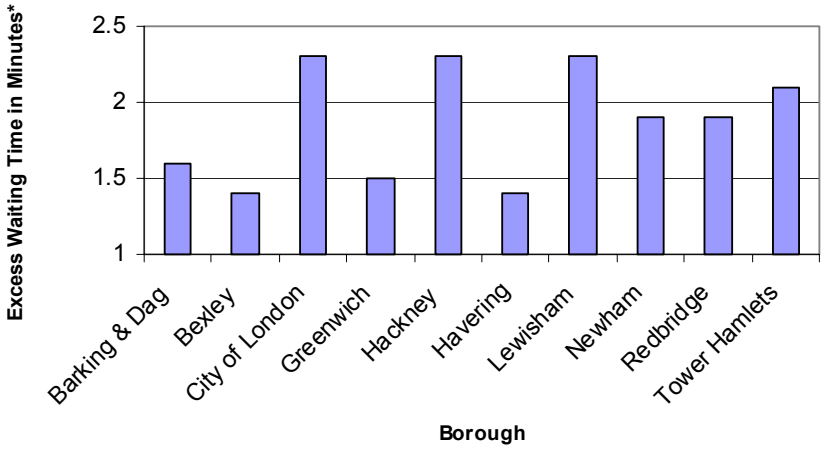
Source: LATS data (TfL, Mike Collop)
NB. The matrices are not exactly balanced, because (1) all estimates are from a sample, and (2) there are small timing differences for which adjustments have not been made. The data refers to a 16-hour survey day (6 am to 10 pm). Over a full 24-hour day, flows in the opposite directions are assumed to be equal.

Buses

Every weekday, 6,000 London buses carry four and a half million passengers on 500 different routes. Despite deteriorating reliability of services over the past few years, the number of bus passengers has risen 22% since 1993/94.

Figure 3.18 shows the reliability of high frequency buses in the East Sub-Region. Lewisham, Hackney and the City of London have the least reliable bus services, with an average excess waiting time of 2.3 minutes. Havering and Bexley have the best with excess waiting times of 1.4 minutes.

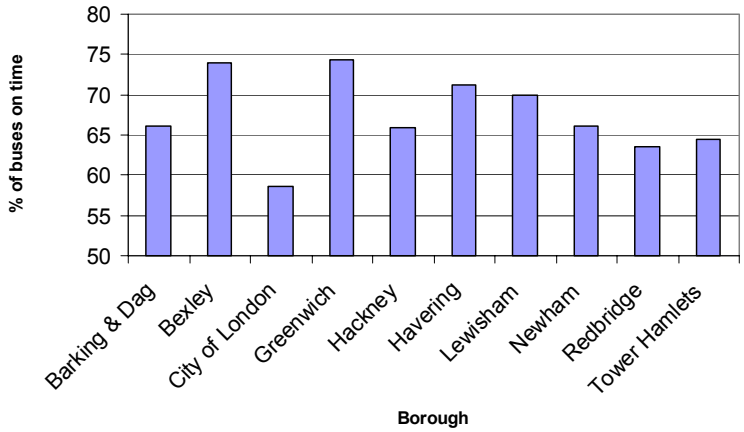
Figure 3.18: *Reliability of High Frequency Bus Services*



Source: TfL, Chris Kershaw

Figure 3.19 shows the reliability of low frequency bus services. Greenwich and Bexley have the most reliable low frequency bus services. Nearly 74% of Greenwich's low frequency bus services are on time. The worse performing services are in the City of London with only 59% on time.

Figure 3.19: *Reliability of Low Frequency Bus Services*



Source: TfL, Chris Kershaw

Underground

Figures 3.20-3.21 show current (2001) and forecast (2016) crowding on the Underground network in the sub-region in the morning peak hour. The current most crowded sections of the network are the Central Line westbound between Stratford and Bank. The Northern Line into the City is also very crowded from both north and south.

Underground crowding forecasts for 2016 illustrate that much of the inner parts of the Underground network will still be crowded at the peak hour, including the Northern line into the City. There will be an improvement on the Central Line between Stratford and Bank (due to the impact of Crossrail), but a new element of crowding will occur on the Jubilee Line eastbound between London Bridge and Canary Wharf. The outer parts of the Underground network in the East Sub-Region will continue to enjoy little crowding.

Figure 3.20: *Underground Crowding 2001, AM peak hour (8.15-9.15 am)*

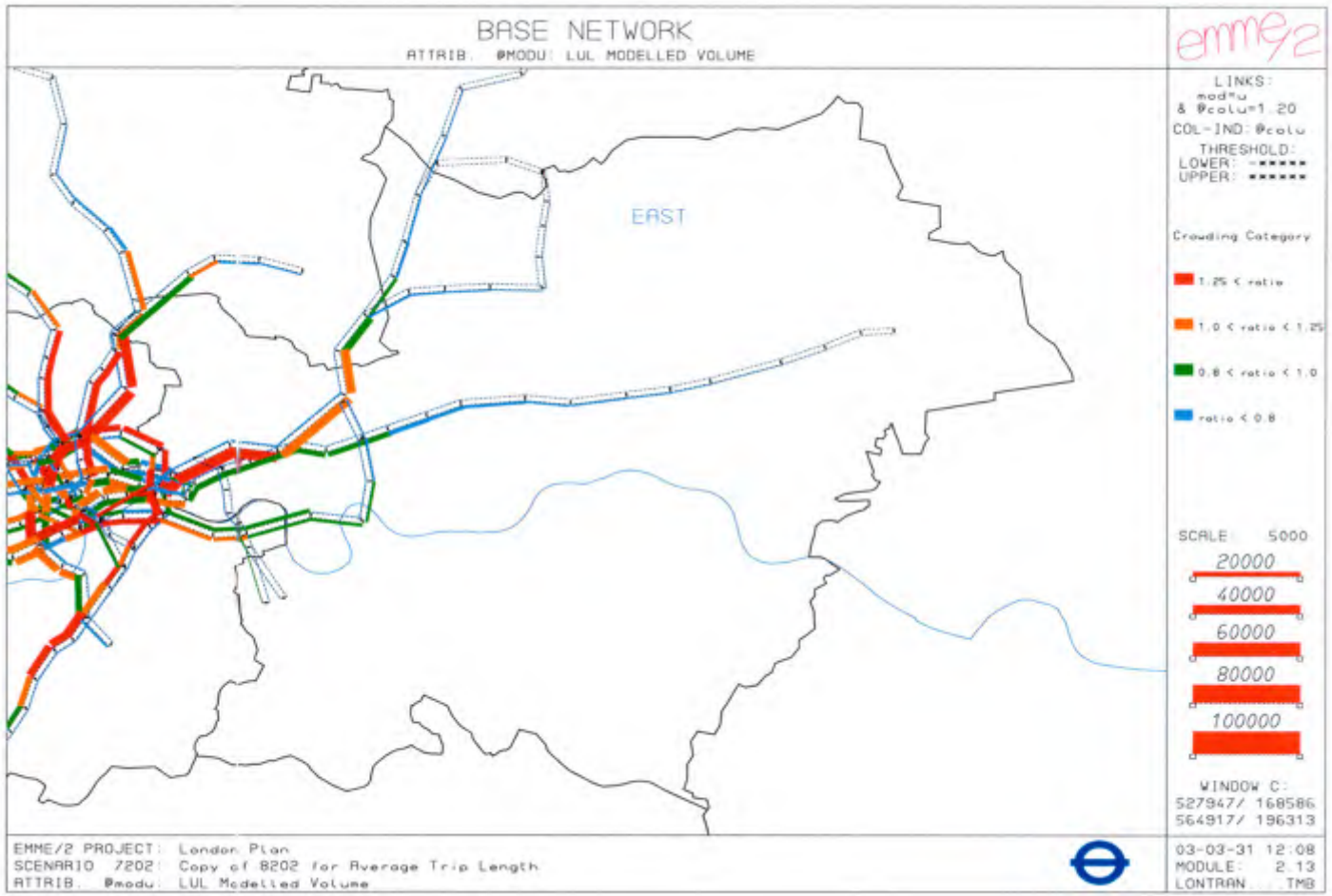


Figure to be graphically enhanced (Source: TfL, Richard Hopkins)

Figure 3.21: *Projected Underground Crowding 2016 with Transport Strategy (8.15-9.15 am)*

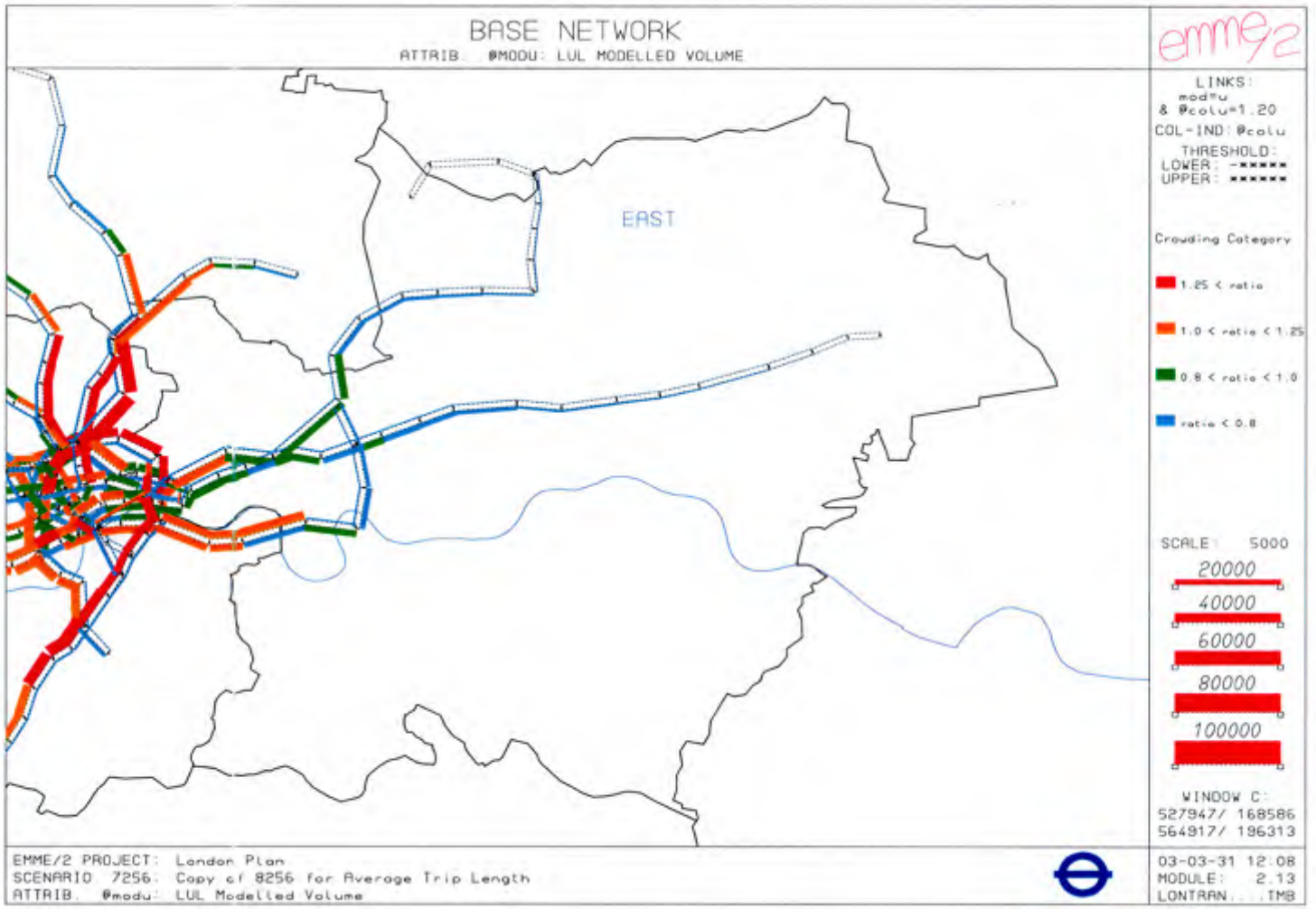
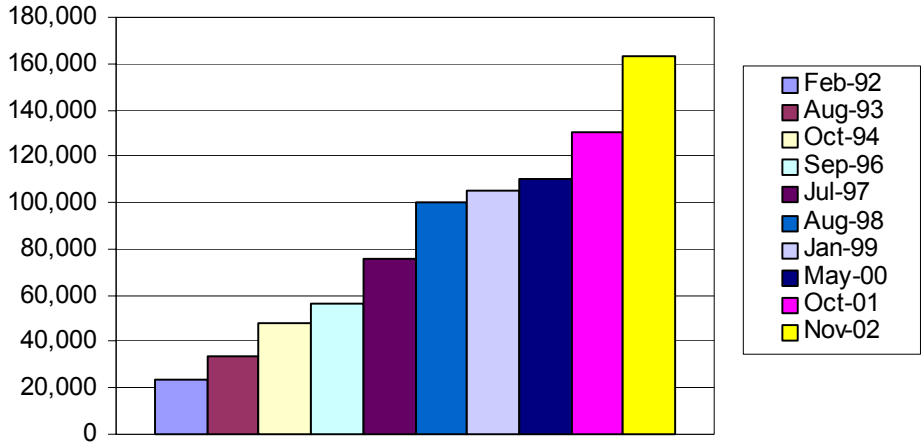


Figure to be graphically enhanced (Source: TfL, Richard Hopkins)

Docklands Light Railway

The DLR has been linked to the regeneration of parts of the East Sub-Region, particularly in making development sites more accessible and allowing residents to reach employment areas. Figure 3.22 shows a steady increase in average passenger journeys per day on the DLR. In 2002, there were around 160,000 daily passenger journeys on the DLR, compared to 20,000 journeys in 1992.

Figure 3.22: *Average Passenger Journeys per Day on the DLR*



Source: TfL – DLR Market Plan Report 2001-2002

National Rail

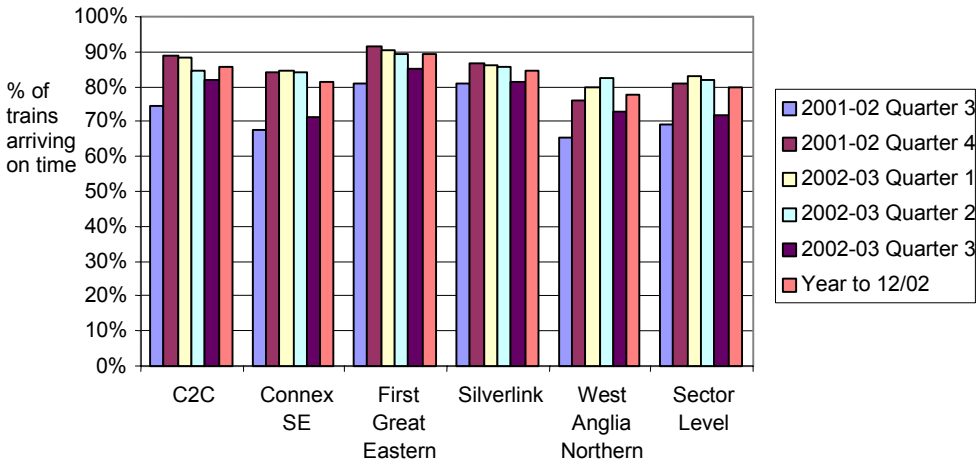
Reliability is marginally better in the East Sub-Region than the London average. Table 3.27 shows the *all day* reliability of National Rail services in London. Operators with services in the East Sub-Region are highlighted. Services provided by other operators in London are shown as a comparison. In the most recent quarter (2002-03, Quarter 3), Connex SE and WAGN have the least reliable services in the sub-region, with less than 73% of trains arriving on time. Figure 3.23 shows in diagrammatic form the reliability of trains all day for operators with services in the East Sub-Region, and the London average.

Table 3.27: *Trains Arriving on Time 2001-02 to 2002-03 (All Day)*

Operator	2001-02 Quarter 3	2001-02 Quarter 4	2002-03 Quarter 1	2002-03 Quarter 2	2002-03 Quarter 3	Year to 12/02
C2c	74.5%	88.9%	88.1%	84.4%	81.7%	85.8%
Chiltern	90.6%	89.6%	89.8%	88.0%	84.2%	88.0%
Connex SE	67.8%	84.0%	84.7%	84.1%	71.2%	81.2%
First Great Eastern	80.7%	91.3%	90.6%	89.6%	84.9%	89.2%
Silverlink	80.7%	86.5%	86.0%	85.5%	81.5%	84.8%
South Central	67.3%	81.1%	84.8%	81.7%	66.5%	78.7%
South West Trains	59.9%	71.2%	75.1%	75.9%	65.4%	72.0%
Thames Trains	76.9%	84.5%	84.1%	79.9%	73.3%	80.5%
Thameslink	60.4%	75.7%	80.8%	75.8%	64.3%	74.3%
WAGN	65.4%	75.9%	79.8%	82.7%	72.7%	77.9%
Sector Level	69.3%	81.1%	83.1%	81.9%	71.9%	79.6%

(Source: SRA)

Figure 3.23: *Trains Arriving on Time 2001-02 to 2002-03 (All Day)*



(Source: SRA)
Note: "Sector Level" represents average of all London services

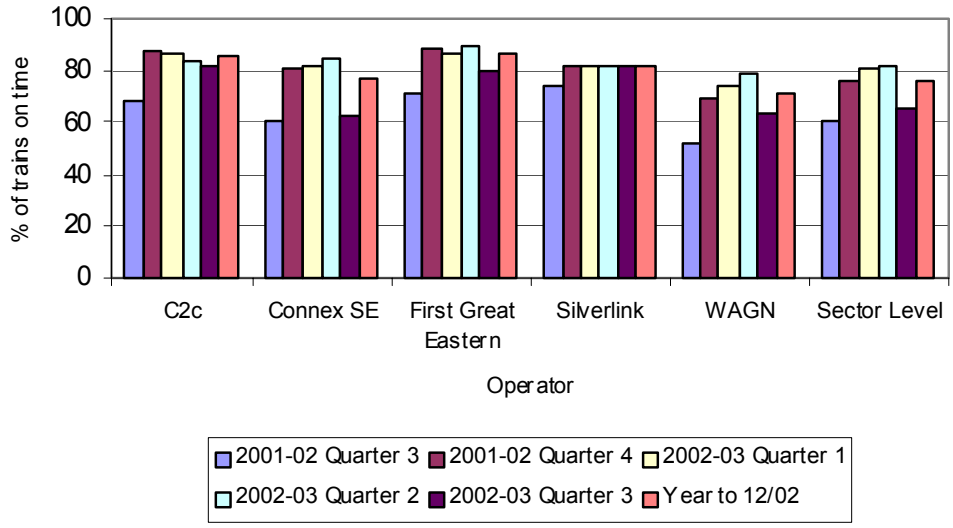
Table 3.28 shows the percentage of trains arriving on time in the *peak period*. Operators which have services in the East Sub-Region are highlighted. The worst performing operators in the most recent quarter (2002-03, Quarter 3) are Connex SE and WAGN, with less than 64% of trains arriving on time. These operators therefore perform badly both in the peak period and throughout the day. In comparison, First Great Eastern has 79% of its trains arriving on time in the peak period. C2C and Silverlink also perform well, although it should be noted that they operate fewer services and have a relatively small share of the network. Figure 3.24 shows the reliability of trains in the peak for operators with services in the East Sub-Region, together with the London average.

Table 3.28: *Trains Arriving on Time 2001-02 to 2002-03 (Peak Period)*

Operator	2001-02 Quarter 3	2001-02 Quarter 4	2002-03 Quarter 1	2002-03 Quarter 2	2002-03 Quarter 3	Year to 12/02
C2c	68.0	88.1	87.2	83.9	81.7	85.1
Chiltern	87.8	85.3	89.3	88.1	79.8	85.7
Connex SE	59.8	80.2	81.9	84.4	62.5	77.5
First Great Eastern	70.7	88.3	87.0	89.4	79.3	86.1
Silverlink	74.2	82.4	81.4	81.9	81.1	81.7
South Central	56.7	75.4	83.2	83.1	60.2	75.6
South West Trains	54.4	66.7	75.5	79.5	62.9	71.3
Thames Trains	72.9	79.7	79.7	76.4	65.0	75.2
Thameslink	54.6	69.6	79.4	74.4	57.7	70.5
WAGN	52.2	69.4	73.6	78.8	63.6	71.5
Sector Level	60.8	76.6	80.7	82.1	66.2	76.6

(Source: SRA)

Figure 3.24: *Trains Arriving on Time 2001-02 to 2002-03 (Peak Period)*



(Source: SRA)

Figures 3.25-3.26 show current (2001) and forecast (2016) crowding on the National Rail network in the sub-region in the morning peak hour. Much of the current rail network is shown to be crowded, particularly westbound services between Romford and Liverpool Street and between Upminster and Fenchurch Street. All three of the North Kent lines into London Bridge are also crowded, especially from where services converge at Lewisham.

Figure 3.26 shows the projected crowding situation on the National Rail network in the morning peak hour in 2016, including Crossrail and CTRL domestic services. The introduction of these new services will clearly help to contain crowding on the radial lines in the face of planned growth in the East Sub-Region. Many of the lines show a reduction in crowding compared with 2001, mostly as a result of Crossrail, including westbound between Romford and Stratford and on the Fenchurch Street line north of the Thames, and all of the Kent lines south of the Thames.

Figure 3.25: *National Rail Crowding 2001, AM peak (8.15 – 9.15 am)*

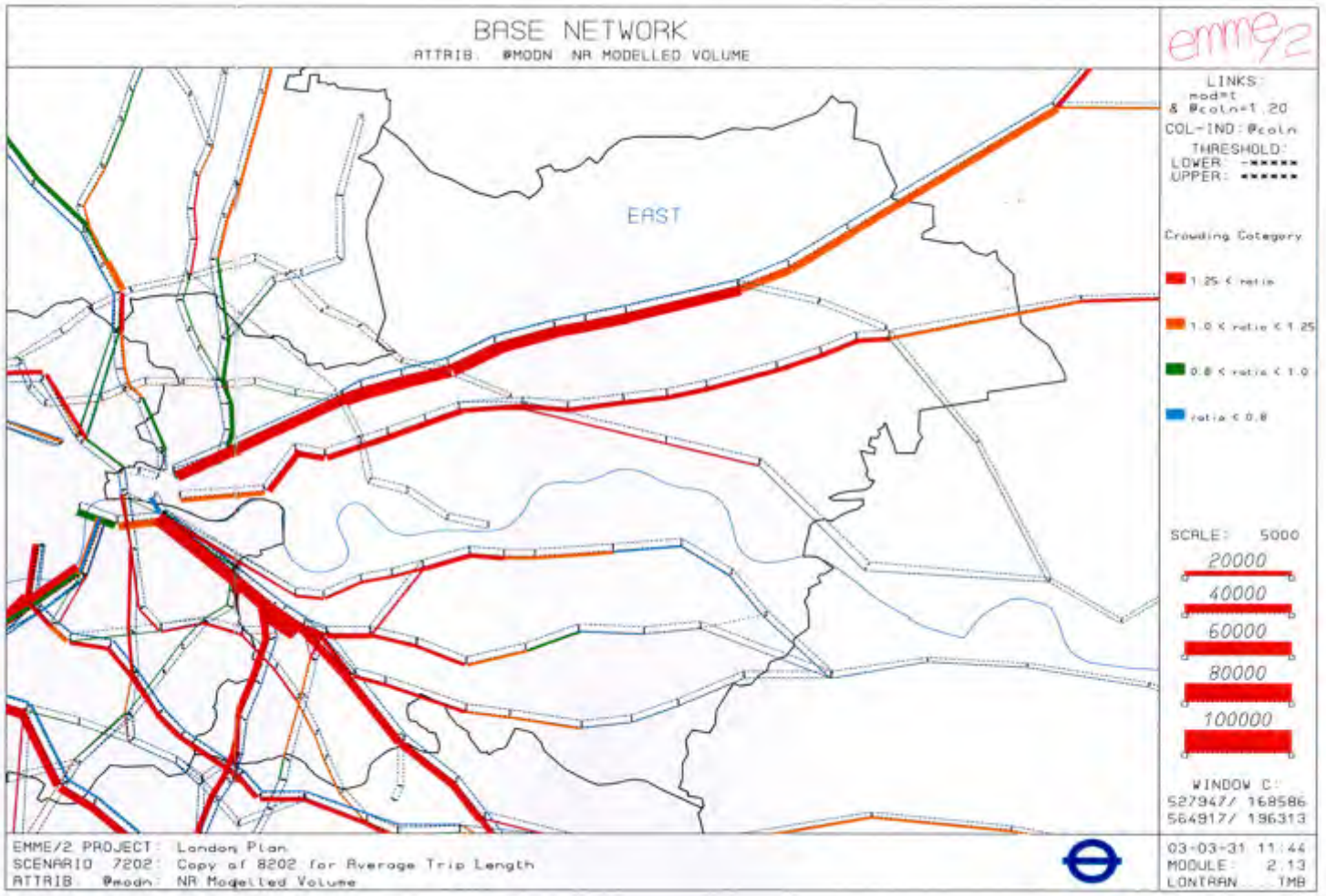


Figure to be graphically enhanced (Source: TfL, Richard Hopkins)

Figure 3.26: *Projected National Rail Crowding 2016 with Transport Strategy, (8.15 – 9.15 am)*

Figure to be graphically enhanced (Source: TfL, Richard Hopkins)

3.3.6 Walking

Data showing walking patterns in London by sub-region is presently extremely limited, although London-wide data is available in the consultation draft version of the *Walking Plan for London* published in January 2003. In London as a whole, walk only trips account for 29.5% of 'main mode' trips (National Travel Survey, 2001). Evidence suggests that walking trips are in decline and have declined significantly over the past decade. In the absence of other information on walking, LRTS data is shown at Table 3.29. It shows the frequency of travel by those resident in the East Sub-Region over the period 2000-02. However, some of these results are clearly 'suspect', i.e. the proportion of people who state that they have never walked.

Table 3.29: *Frequency of Walking by Residents of East Sub-Region (2000/02)*

Frequency of Travel by Walking	East		London	
	Count	%	Count	%
No answer	11	0.4%	31	0.3%
Don't know	19	1%	46	0.4%
5 days a week or more	1,550	56%	5,863	56%
3 or 4 days a week	301	11%	1,208	11%
2 days a week	205	7%	795	8%
1 day a week	134	5%	590	6%
About once a fortnight	38	1%	133	1%
About once a month	32	1%	117	1%
Less often than once a month	77	3%	267	3%
Not used in last 12 months/never	406	15%	1,455	14%
Group Total	2,773	100%	10,505	100%

Combination of data from 2000 – 01 Q1-Q4 and 2001 – 02 Q2 + Q3
Source: LRTS data (TfL, Henry Burroughs)

3.3.7 Cycling

Data showing cycling patterns by sub-region is also extremely limited. The only available data obtained from LRTS results is shown in Table 3.30. This shows the frequency of travel by cycling by those resident in the East Sub-Region.

Table 3.30: *Frequency of Cycling Residents of East Sub-Region (2000/02)*

Frequency of Travel by Cycling	East		London	
	Count	%	Count	%
No answer	89	3%	258	2%
Don't know	2	0%	4	0%
5 days a week or more	100	4%	251	2%
3 or 4 days a week	42	2%	226	2%
2 days a week	53	2%	252	2%
1 day a week	56	2%	214	2%
About once a fortnight	39	1%	157	1%
About once a month	42	2%	236	2%
Less often than once a month	97	3%	387	4%
Never	2,252	81%	8,135	77%
Group Total	2,772	100%	10,503	100%

Source: 2001/02 Q1-Q4 LRTS data, by residency (TfL, Henry Burroughs)

3.3.8 Private Motor Vehicles

Private Transport Trips

The road hierarchy in the East Sub-Region is shown in Figure 3.26. The main roads within the sub-region include the M25 and the southern end of the M11 motorway. Major east-west routes include the A13, A12 and the A2 and the A205 South Circular. The major north-south routes are via the Blackwall Tunnel, between Greenwich and Poplar.

Figure 3.26: *Road Network in the Sub-Region*

(Source: TfL, Hannah Shrimpton)

Table 3.31 shows all weekday private transport trips by origin (East Sub-Region) and destination (other sub-regions and external to London). Columns of the matrices refer to destinations. Over a full 24-hour day, the flows in opposite directions are assumed to be equal.

- Thus, for example, within the East Sub-Region there are 1,721,195 trips (74% of the total movements).
- From the East Sub-Region to the Central sub-region there are 168,095 weekday trips (7%) and to areas outside London 237,947 trips (10%).
- The smallest number of trips generated is in the East-West direction within London (just 1%), perhaps due to the difficulties of movement in this direction by private transport.

Table 3.31*: Weekday Private Transport Trips by Origin and Destination*

Origin	Destination													
	Central		East		North		South		West		External		Total	
East	168,095	7%	1,721,195	74%	102,093	4%	88,788	4%	20,590	1%	237,947	10%	2,338,708	100%
Total	1,713,762	16%	2,330,653	22%	1,332,328	13%	2,103,122	20%	2,001,425	19%	1,012,669	10%	10,493,959	100%

Source: LRTS data (TfL, Mike Collop)
The matrices are not exactly balanced, because (1) all estimates are from a sample, and (2) there are small timing differences for which adjustments have not been. The roadside data refer to a 16 hour survey day (6 am to 10 pm). Estimates of travel during the non-survey hours are not available.

3.3.9 Traffic Congestion and Speed

Table 3.32 gives the time-series of average traffic speeds on the Transport for London Road Network (TLRN) in the East Sub-Region. It shows that over the period 1986 to 2003, average traffic speeds have slowed down. In particular:

- In the AM peak, although speeds rose in 1990/94 (to 19.1 mph), they have decreased steadily since, and in 2000/03 they are slower (15.3 mph) than in 1986/90 (17.7 mph).
- In the off-peak period, the average speed has slowed from 20.9 mph in 1986/90 to 18.2 mph in 2000/03.
- Likewise in the PM peak, the average speed has slowed from 17.3 mph to 14.3 mph over the period.

Table 3.32: *Average Traffic Speeds in the Sub-Region (TLRN network)*

Time period	1986 to 1990	1990 to 1994	1994 to 1997	1997 to 2000	2000 to 2003
AM peak (7am to 10am)	17.7	19.1	17.4	16.4	15.3
Off-peak (10am to 4pm)	20.9	22.1	20.6	19.7	18.2
PM peak (4pm to 7pm)	17.3	17.4	17.4	15.4	14.3

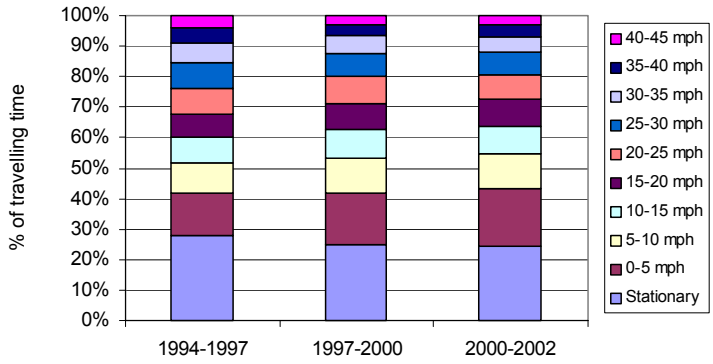
Average speed in miles per hour
Source: TfL Traffic Speed Surveys (TfL, Mike Rowland)

Figure 3.27 shows the percentage of travelling time spent on the TLRN at different traffic speeds in the AM peak period (7 am to 10 am). It indicates that over the period 1994 to 2002, congestion and delays have marginally increased in the East Sub-Region.

- Travel speeds have deteriorated marginally over the period 1994 to 2002.
- The proportion of time that cars were stationary marginally reduced over the period.

- However, in 2000/2002, cars were moving at 10 mph or less for over 50% of their travelling time.

Figure 3.27: *Travelling Time Spent on TLRN by Speed (AM Peak)*

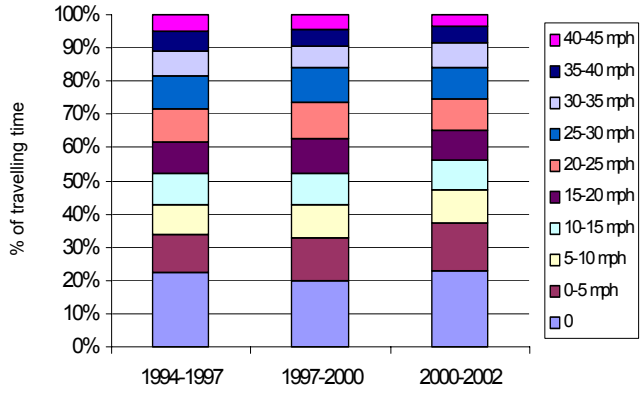


Source: TLRN Traffic Speed Surveys (TfL, Mike Rowland)

Figure 3.28 shows the percentage of travelling time spent on the TLRN at different traffic speeds in the off peak period (10 am to 4 pm). In the East Sub-Region, off peak speeds have again marginally deteriorated over the period 1994 to 2002.

- In 2000/02, 48% of travelling time is spent at 10 mph or less. This has changed from 42% of travelling time in 1994/97.
- In 2000/02, around 55% of travel time is spent at 15 mph or less, again, more than in 1994/97. The percentage of travel time at faster speeds has also decreased over the period.

Figure 3.28: *Travelling Time Spent on TLRN by Speed (Off-peak 10am to 4pm)*

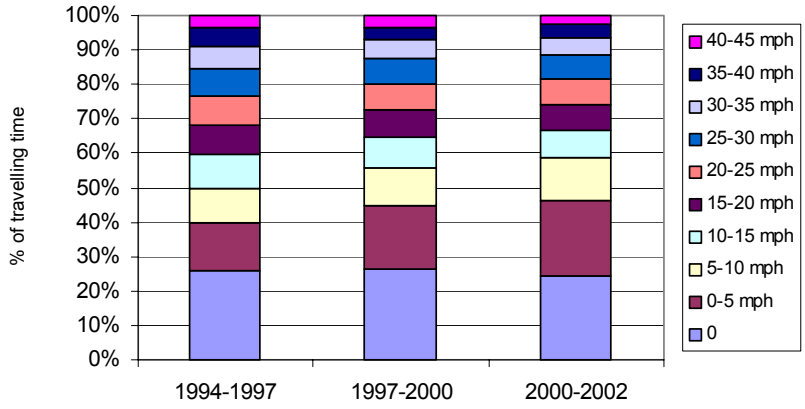


Source: TLRN Traffic Speed Surveys (TfL, Mike Rowland)

Figure 3.29 shows the percentage of travelling time spent on the TLRN at different traffic speeds in the PM peak period (4 pm to 7 pm).

- Drivers are stationary for around 24% of their travel time in 2000/02, showing little change since 1994/97.
- In 2000/02, drivers travel at speeds up to 10 mph for just under 60% of their travel time, deteriorating considerably since 1994/97, when 50% of travel time was spent at these speeds.
- The percentage of travel time at faster speeds has also decreased over the period.

Figure 3.29: *Travelling Time Spent on TLRN by Speed (PM Peak 4pm to 7pm)*



Source: TLRN Traffic Speed Surveys (TfL, Mike Rowland)

3.4 Major Transport Schemes

The Mayor's Transport Strategy sets out the proposals for major improvements to the existing Underground, rail and bus networks across the sub-region. Table 3.33 shows the major planned transport projects for the East Sub-Region.

Table 3.33: *Major Transport Projects in the Sub-Region*

Transport Scheme Major Schemes	Description	Status	Opening Date	Cost (£million)	Capacity Provided by 2016	BCR
Crossrail 1	*High capacity rail link with the City, Isle of Dogs, the West End and Heathrow.*	*The scheme is currently undergoing a technical and financial review and will report in February 2003.*	*2011*	*9,000*	*24tph*	*Under review*
Crossrail 2	High capacity rail link between Victoria and Kings Cross. In addition, would allow existing north-east and south west suburban rail services to be linked across London.	*N/A*	*2016*	*3,000*	*24tph*	*Under review*
East London Line	The project will integrate national rail services north and south of the Thames. The project involves a northwards extension from the current LU terminus of Shoreditch to Dalston, where the route will link with the North London Line. At a later stage the route will be extended south to link with the national rail network.	The scheme is currently undergoing further design and development work.	2009	1,000	16tph	Not Available
Thameslink 2000	This project will greatly enhance the existing Thameslink service linking north and south London. It includes capacity increases between Kings Cross and Blackfriars, platform extensions to accommodate 12 car trains and linking of the Great Northern Route into the central Thameslink section.	The scheme subject to a Transport and Works Act inquiry which if approved by the Secretary of State will result in works beginning in 2003.	2008	3100	24tph	Not Available
CTRL 2	A 39km extension from the existing high speed rail link between London and the Channel Tunnel. This route linking London St Pancras to the Channel Tunnel will further reduce journey times	Works began in July 2001 and the scheduled completion date is the end of 2006.	2007	3600	8tph in each direction	Not available

	between London and Europe.					
Thames Gateway Bridge	Six lane dual carriageway bridge between Barking and Thamesmead. Four general traffic lanes and two busway lanes.	12 months of detailed planning, consultation and environmental assessment to begin from Dec' 2002.	2010	430	8000vph private + 2 lanes for public transport	1.3
Silvertown	A single carriageway tunnel between North Greenwich and Silvertown.	Project Manager to be appointed in 2003.	2013/15	240	4000 vph private	Depends on tolling option.
DLR Woolwich	A 2.5km extension mainly in bored tunnel from King George V station to Woolwich Arsenal.A new interchange station with Network Rial would aslo give access to the town Centre and new development in the Royal Arsenal site.	Consultation concerning the preferred route option has recently been completed with further analysis programmed for 2003.	2007	150	74.7mn pax pa 2 car, 112mn pax pa 3 car	2.0
DLR Stratford International	A 4.5/5km extension from Custom House to Stratford Internatioanl and possibly Temple Mills via Canning Town and West Ham. Utilising parts of the existing North London Line rail corridor serving the development sites of the Lower Lea Valley(ARC of Opportunity), Stratford International CTRL station and railway lands development. Up to 6 new stations to be provided and 3 existing stations to adapted to DLR use.	The scheme is currently at the feasibility and planning stage.	2008	85	50mn pax pa 2 car train 77mn pax pa 3 car train	4.5
DLR Dagenham Dock	A 5.5 km mainly elevated extension of the DLR from Gallions Reach through Barking Reach to Dagenham Dock station. Up to 5 new stations to be provided including an interchange with National Rail at Dagenham Dock	The scheme is currently at the feasibility and planning stage.	2010	130	50mn pax pa 2 car train	1.3
DLR City Airport	A 4.4km mainly elevated extension from Canning Town to North Woolwich (King George V). Via West Silvertown and London City AirportUp to 5 new stations to be provided.	Construction is due to begin in early 2003 with the scheme opeing scheduled for mid 2005.	2005	120	74.7mn pax pa 2 car, 112mn pax pa 3 car	1.6
DLR 3 Car Upgrade	Structural Works (platform extensions, track realignment, viaduct strengthening) necessary for 3 car operations between Bank/Tower Gateway and Lewisham. Also, include purchasing of new vehicles to allow all Bank - Lewisham line services to be 3 car.	The scheme is currently at the feasibility and planning stage.	2007	115	99.5mn pax pa	2.2

East London Transit	A bus based transit scheme to be implemented in phases. The first phase will operate between Ilford, Barking, Barking Reach and Dagenham Dock Station.	The scheme is currently at the feasibility and planning stage.	2006	40	12-18 vehicles /hr peak hour (vehicle capacity is 120 pax)	1.7
Greenwich Waterfront Transit	Phase one of the bus based transit scheme will operate between North Greenwich and Abbey Wood using 1.8km of busway already in place on the Greenwich Peninsula and 6km of new busway to be built from Woolwich Town Centre through Thamesmead to Abbey Wood.		2008	30	12 vehicles /hr peak hour (vehicle capacity is 120 pax)	2.1
Other Schemes						
Interchanges	Improvements to capacity of a hierarchy of public transport interchanges including Victoria, Barking, Whitechapel, Woolwich Arsenal and Belvedere/ Erith.	An Interchange Development Strategy is currently underway which is due to report in February 2003. This will firm up interchange programme.	2006+	1630		Not available
Buses	The BusPlus improvements have been established to improve routes across London through a range of measures including clearer passenger time information, upgrading of bus fleet, more bus priority measures, increased enforcement of bus lanes, kerbside and bus shelter improvements and improved passenger and bus information.	Ongoing programme of improved bus services and infrastructure.	2002+	100	N/A	N/A
A206 Thames Road	Widening of existing road to provide increased capacity.		2007	22		
Lea Valley Spine Road	New access road to improve linkages to an industrial area in the Lea Valley.		2010	98		
Walking and Cycling	Programme of measures that aim to increase the levels od walking and cycling in the capital on both TLRN and borough roads.	Ongoing programme of improvement.	2002+	0.2	N/A	N/A
Road Safety	Road Safety Plan aimed at establishing targets for reducing the number of road accidents in London as well implementing measures to achieve these targets.	Ongoing programme of improvement.	2002+	255	N/A	N/A

(Source: London Plan Appraisal Summary Sheet v.6, Martin Oaten)

3.5 Key Development Sites and Areas

The East Sub-Region's Opportunity Areas and Areas for Intensification are shown in Table 3.34. The draft London Plan (2002) notes that development opportunities within these and the major town centres should be maximised. In addition, the areas for regeneration should be prioritised for accessibility improvements.

Opportunity, Intensification and Regeneration Areas
The sub-region represents the single largest source of brownfield land for new development in London as a whole. Opportunity and intensification areas are on the whole located along the Thames Gateway. Development at a number of significant sites in the Royal Docks and at Stratford is underway while development at other sites such as Thamesmead and Belvedere is yet to take place. Apart, from Stratford, which is currently well served by public transport and will also link with the CTRL and Cross Rail, public transport accessibility to other sites needs to improve dramatically if the area is not to rely solely upon the car to reach them. A number of schemes are proposed, for instance, the East London Transit, the Greenwich Waterfront Transit, the new DLR route, Cross Rail and of course the Thames Gateway Bridge. The issue is whether these schemes will be in place on time to serve the new developments.

Table 3.34 *Key Development Areas in the Sub-Region*

Key Development Areas			
Opportunity Areas	Area (ha)	New Jobs to 2016	New Homes to 2016
Bishopsgate/ South Shoreditch	35	16,000	800
Whitechapel/ Aldgate	31	14,000	700
Isle of Dogs	100	100,000	3,500
Stratford	124	30,000	4,500
Lower Lee Valley	250	8,500	6,000
Royal Docks	368	11,000	5,500
Barking Reach	210	200	10,000
Dagenham Riverside	99	4,000	3,000
Deptford Creek/ Greenwich Riverside	72	5,500	1,000
Greenwich Peninsular	104	15,000	7,500
Belvedere/Erith	242	5,000	1,400
Thamesmead	121	1,500	3,000
Ilford	56	-	5,500
Areas for Intensification	Area (ha)	New Jobs to 2016	New Homes to 2016
Beckton	80	1,500	500
Woolwich Arsenal	40	1,000	1,000
Kidbrooke	103	-	2,200

*Jobs and housing forecast numbers shown as minimum targets for growth (Draft London Plan, June 2002)**

Annexes

Annex 1: Submissions to the Examination in Public

A. Greater London Authority Submission

Draft London Plan, Examination in Public, March/ April 2003
Sub Matter 3c
East London
Date Published: 17 February 2003
(Source: SDS Team, Kevin Reid)

East London
What are the implications of the scale of development, both housing and employment, envisaged for the Thames Gateway area, including development in flood plain areas and proposals for new River crossings?

Introduction
The main implication for the scale of development envisaged in the draft London Plan (DLP) in the Thames Gateway area and the wider East London sub –region is the need to identify suitable locations and relate those to transport improvements to enable the scale of development to happen in the timescale envisaged. Proposals for new river crossings will assist in maximising the scale of development and are a necessary part of the package of transport improvements needed in East London. Development in the flood plain areas will not be problematic for the various reasons given below.

Regional Planning Guidance for the South East [6] recognises the regeneration of the Thames Gateway as both a regional and national priority and states that implementation of RPG9a [7] remains a priority. This means that the Thames Gateway should continue to be the focus of public and private investment in regeneration and growth. RPG 9 also states that an early review of RPG9a is required [8] and the DLP takes this forward for London, with its emphasis on population and employment growth in the sub region.

The East is the Mayor's main priority area for development, regeneration and infrastructure improvement both in line with its national importance and because it has many of the capital's largest development sites and a large number of areas showing multiple deprivation.

Implications for scale of housing development
The minimum housing provision figure for East London is 142,000 dwellings. This is 30% of the London total. Over and above this the Government's Communities Plan [9] suggests that 200,000 new dwellings can be built in the Thames Gateway area. The distribution of these between London, Kent and Essex has not been defined, but the challenge will be to maximise the numbers delivered within the London boundaries. Internal research carried out by the LDA and shared with ODPM has demonstrated that around 80,000 homes could be delivered on large sites in the London Thames Gateway area.

Development on this scale has a number of implications. First, improvements would be needed to public transport to maximise the housing numbers. Secondly, there is an important need to address the issue of 'social infrastructure' (schools, health care and community services) necessary to build sustainable

[6] DLTR RPG, March 2001
[7] RPG9a The Thames Gateway Planning Framework, 1995
[8] Para 12.3
[9] ODPM, Sustainable Communities: building for the future, 2003

communities, not just homes. Thirdly, an environmental strategy is needed to overcome the currently poor image and environmental condition of the area.

These implications are currently being examined and addressed through work being carried out jointly by the GLA Group, Thames Gateway London Partnership and ODPM. In relation to the first two issues, the Prime Minister is to chair a Cabinet sub-committee to examine the scale of investment needed. Our statement on sub-matter 2a details some of the ongoing work the GLA is engaged in analysing London's heath and education requirements. On the environmental side, there are a number of projects underway. These implications will be addressed in more detail in the East London Sub-Regional Development Framework (SRDF).

The key strategic issue is that East London, including the Thames Gateway area could and should play a leading role in providing the housing capacity London needs. In order to maximise the scale of development, the implications outlined above do need to be addressed and tackled.

Implications for employment
The DLP identifies a forecast 23% growth in employment in the East London sub-region including the City and the Isle of Dogs. This represents 249,000 jobs, nearly 40 per cent of London's total projected growth in jobs. Although forecasts indicate that the City and Isle of Dogs will be the predominant focus of this increase, 56,000 jobs are projected for the wider East London sub-region. Much of that growth is likely to be in Stratford - up to 30,000 jobs.

To help build sustainable communities and particularly to ensure both that outer East London in particular does not become a 'dormitory' area, and that existing concentrations of un- or under- employment are reduced, economic development is also key to the sustainable future of the sub-region.

In the past, manufacturing was the predominant economic activity there, hence was highly susceptible to the national decline in manufacturing employment. This decline is forecast to continue but at a slower rate than in the last decade (see response to Matter 1a). Therefore, the LDA has an active intervention strategy in this area aimed both at maximising and sustaining the remaining manufacturing opportunities at the same time as supporting diversification into other sectors including creative industries and green industries [10]. Research by the GLA [11] shows that in outer London, increases in residential populations support economic growth, particularly in the 'other services' and 'leisure / hospitality' sectors, so these will be increasingly important economic sectors in future. In inner East London Thames Gateway, financial and business services will continue to be the dominant sector.

Like housing development, maximising economic development does depend on the provision of new transport infrastructure and an overall improvement in environmental quality to encourage investment and raise confidence and aspirations, especially in areas further East. The LDA has been active already in acquiring land and remediating sites to help address some of these issues, especially in the Lower Lea, Royal Docks and London Riverside areas.

Transport implications

[10] LDA, Mayor's Economic Development Strategy, 2001
[11] GLA, Spreading Success, 2003

The DLP identifies East London as a priority for investment. It is also forecast to have the highest percentage increase in peak period trips of all the sub-regions, with a 17% increase from 2001 to 2016. This priority is being followed through in the development and implementation of a transport strategy in East London that will support regeneration and a large scale of housing development. This will be aimed at improving public transport accessibility where it is currently deficient or enhancing capacity where this is a constraint.

The bus network provides a significant proportion of overall public transport capacity across London. The proposed increase of 50% in total capacity on the bus system will provide benefits in the East. The capacity on the bus system has already significantly increased - by 11% since 2001. The main schemes programmed for implementation to 2016 impacting on accessibility and capacity in East London are:

(a) Crossrail Line 1 – will increase accessibility to Whitechapel, Stratford, Ilford, Woolwich and the Isle of Dogs. The core scheme includes service options on the Great Eastern Line Corridor and the North Kent Line via either the Royals or Charlton by 2012.

(b) Jubilee Line upgrade - over 40% increase in capacity from PPP by 2010.

(c) East London Line extensions - will improve accessibility to a high proportion of Areas for Regeneration and provide alternative access to Opportunity Areas in Thames Gateway avoiding Central London.

(d) East London Transit - a bus based transit, Phase 1 between Ilford, Barking, Barking Reach and Dagenham Dock planned for completion 2006.

(e) Greenwich Waterfront Transit - Phase 1 is planned to operate between North Greenwich and Abbey Wood by 2008. These transit schemes will both increase accessibility and capacity to a number of town centres and Opportunity Areas north and south of the Thames, and will link with each other using the Thames Gateway Bridge.

(f) DLR extensions to City Airport 2005 with extension to Woolwich Arsenal by 2007. Further extensions currently under investigation include Gallions Reach to Dagenham Dock and the Lower Lea Valley spine extension.

(g) Thames river crossings – dealt with below.

As outlined above, the Government has established a special committee chaired by the Prime Minister to examine these issues and to report by May 2003 on the investment needed and the scale of development that that will unlock in the Thames Gateway area. The GLA Group is actively involved with ODPM and the boroughs in discussions about these issues and will continue to press Government for commitments to those schemes which are currently without such.

The SRDF will provide a vehicle to consider and promote transport schemes that are of sub-regional, but not London-wide, significance (and therefore not appropriate to the London Plan as specified in Circular 1/2000). It will also give an opportunity to look at transport proposals that may form part of the first Review of the London Plan.

Development in the Flood Plain
Policy 4A.13 and Annex 2 Policies BR5, 6 and 7 of the DLP recognise that the management of flood risk is extremely pertinent to London. Within the Thames Gateway the Environment Agency has identified an area with a 0.1% per year risk of flooding. Within this area flood risk assessments will be required in accordance with PPG25 (table1). The assessment will take into account the existing flood defences which offer amongst the highest level of flood protection in the country. Nevertheless the need to take a precautionary approach to flood risk will affect the form, layout and design of many sites and not just those adjacent to the river. Suitable measures will need to be identified on a site-by-site basis as a result of flood risk assessments; this will include provision for future maintenance, repairs or upgrades of flood defences (Policy BR6). Therefore at the strategic level, following PPG25 and DLP policies, the issue flood risk will not adversely impact on the scale of development envisaged for the Thames Gateway or the wider East London area.

Proposals for river crossings
The proposals for river crossings in the DLP carry forward those in existing regional planning guidance (RPG3)[12] :

(a) The Thames Gateway Bridge - will be road/public transport crossing linking Beckton and Thamesmead, and the Greenwich Waterfront and East London Transit schemes.

(b) The Silvertown Link - will be local crossing between North Greenwich and Silvertown addressing the issues around the Blackwall crossing identified by Government and supporting regeneration of the Greenwich peninsula and the Lower Lee Valley.

(c) The Woolwich crossing – will be a DLR link from the Royal Docks to Woolwich town centre.

The crossing proposals are designed to complement the other transport proposals for the area by significantly improving local accessibility by public transport and by road, providing better access to markets and workers for firms in the area and enhancing the potential for additional employment [13]. The crossings will boost accessibility to Opportunity Areas in southern Thames Gateway (Woolwich Arsenal, Thamesmead, Belvedere) and Greenwich, supporting their regeneration and development and linking deprived local communities with job opportunities north of the Thames.

The river crossings strategy is an integral element in the strategy for the economic regeneration of East London and in promoting optimum development patterns and densities[14] . Research commissioned by TfL [15] shows that by enhancing accessibility, the crossings will boost the potential for new jobs in the area and enable residents in East London to access opportunities on both sides of the river. East London's development has been constrained, amongst other factors, by its poor connections across the Thames. Improving access for people, goods and services between the north and south of the Thames is a key priority in the regeneration and development of the Thames Gateway.

[12] Insert clause in RPG that says this
[13] Brook Lyndhurst Ltd, Thames Gateway River Crossings: Accessibility and Regeneration, 2002
[14] Symonds/ATIS Real, Thames Crossings: The Regeneration Case-Social and Economic Impacts, 2002
[15] Brook Lyndhurst Ltd, Thames Gateway River Crossings: Accessibility and Regeneration, 2002

The implications of failure to deliver the package of crossings, or part of it, are first that the overall scale of development in the Gateway would be reduced and secondly that people living in existing communities south of the river would continue to be constrained in taking advantage of new or existing jobs in the north.

Does the Plan deal adequately with the issues affecting the East London sub-region outside the Thames Gateway area?

The Thames Gateway area, to which the question refers, is defined in RPG9a and shown on Map 3.7.1 attached. For the purposes of the DLP, this is seen as part of, not separate from, the wider East London sub-region and the policy approach to development is the same.

The DLP provides a generic policy approach across London while recognising that each sub-region will need a tailored approach. The Thames Gateway part of the East London sub-region is specifically identified in Regional Guidance as an area of regional and national significance. The Mayor has identified the need for preparation of an SRDF for East London that will cover both Thames Gateway and the wider area. The Transport schemes already described both serve and impact on accessibility and transport capacity in the wider East London sub region as well as the Thames Gateway.

In addition to the Opportunity Areas specially identified, the DLP promotes a stronger and wider role for town centres to meet the full range of local needs (including shopping, leisure, housing and local services and jobs) and to strengthen their identity. This particularly impacts on the wider East London sub-region and includes the centres at Romford, Ilford and Barking. Areas for Regeneration identified in the DLP make no distinction between those within and those outside the Thames Gateway in East London.

Conclusion
The DLP gives more than adequate recognition to the role the whole of the sub-region can play in delivering the regional and national priorities identified for the wider Thames Gateway. The DLP recognises that to deliver the nature and scale of development envisaged by Government requires the provision of transport infrastructure in a timely manner. The need for the East London SRDF is widely supported by the Thames Gateway London Partnership and the boroughs. It will provide both the detailed implementation framework for the East London sub-region and a significant element of the London input to a review of RPG9a identified as an early requirement by RPG9[16] .

[16] Paragraph 12.3

B. Transport for London Summary of Submissions

Draft London Plan EIP Written Submissions – Transport Issues arising from Sub Matter 3c
Sub Matter 3c: East London
(Source: Chris Hyde)

What are the implications of the scale of development, both housing and employment, envisaged for the Thames Gateway area, including development in flood plain areas and proposals for new River crossings?

Does the Plan deal adequately with the issues affecting the East London sub-region outside the Thames Gateway area?

Summary of the written submissions:
In creating the summaries the reviewer has read through each organisation's submission and summarised all comments that refer to transport, or infrastructure when it implies the inclusion of transport. The reviewer has then made a comment on how he views the overall tone of the submitters' comments. For those of you that just want a very brief summary the key points for each grouping are bulleted. A more detailed summary of the organisations' submissions follows in the boxes.

The submissions have been summarised in more detail under the following five groupings:

1. The GLA Family
2. London Assembly and Governmental Bodies
3. Local Authority Related Bodies
4. Key Stakeholders

1. The GLA Family

- The Thames Gateway should continue to be a focus of public and private investment to support regeneration and growth
- The DLP identifies the eastern sub-region as a priority for development, regeneration and infrastructure investment.
- Significant growth in population and employment is forecast in the sub-region.
- A number of the major public transport schemes are included in the DLP which will serve the east sub-region
- The DLP also includes proposals for river crossings, which together with the planned public transport improvements, will significantly improve local accessibility.
- Improvements needed to public transport to maximise housing numbers

TRANSPORT FOR LONDON
Significant growth is expected in the Thames Gateway area. This area is recognised by Government as a regional and national priority. Regional Planning Guidance for the South East (RPG9) states that the Thames Gateway should continue to be a focus of public and private investment to support regeneration and growth. The DLP identifies the eastern sub-region as a priority for development, regeneration and infrastructure investment. Significant growth in population and employment is forecast in the sub-region. To support the regeneration of this area investment in new transport infrastructure is required.

▪ A number of the major public transport schemes are included in the DLP which will serve the east sub-region, including: ▪ Crossrail line 1, which will improve access and capacity to/from Thames Gateway from the west and east ▪ Jubilee line frequency and capacity improvements ▪ East London line extensions providing additional access capacity to the Thames Gateway region ▪ DLR extensions to City Airport and Woolwich Arsenal ▪ East London Transit ▪ Greenwich Waterfront Transit
▪ In addition the sub-region will benefit from increases in bus capacity and anticipated expansion of the bus network in the Thames Gateway area
▪ Analysis carried out by TfL – see Technical Report for the London Plan – shows that these transport improvements will provide sufficient capacity overall to support the growth in the region, although there will continue to be pressures on capacity of some parts of the transport system including the Docklands Light Railway (DLR).
▪ The DLP also includes proposals for river crossings, which together with the planned public transport improvements, will significantly improve local accessibility. Improving access between the north and south of the east Thames is a key priority in the development of the Thames Gateway. The river crossings will improve accessibility to opportunity areas and areas for intensification in the Thames Gateway, including Woolwich Arsenal, Thamesmead, Belvedere and Greenwich
▪ The planned transport improvements will be considered in more detail as part of the development of the SRDF and the review of the Transport Strategy. For example this will include consideration of DLR extensions and bus network improvements.
▪ TfL supports the need for the East London sub-regional development framework which will provide both the detailed implementation framework for the East London part of the Plan and a significant element of the London input to a review of RPG9a identified as an early requirement by RPG9

MAYOR OF LONDON
▪ Improvements needed to public transport to maximise housing numbers
▪ East London is a priority for transport investment; this is being followed through in the development and implementation of a transport strategy in East London
▪ Bus network provides a significant proportion of overall transport capacity across London (and there is a proposed 50% increase)
▪ Main schemes programmed for 2016 to improve accessibility and capacity in the East are: ▪ Crossrail 1 ▪ Jubilee Line Upgrade ▪ East London Line Extension ▪ East London Transit ▪ Greenwich Waterfront Transit, Phase 1 ▪ DLR extension to City Airport ▪ Thames River Crossings (Thames Gateway Bridge, Silvertown Link & Woolwich Crossing)
▪ Government established a special committee chaired by the PM to examine these issues and report by May 2003 on the investment needed
▪ SRDF will provide a vehicle to consider and promote transport schemes that

are of sub-regional, but not London-wide significance

2. London Assembly and Governmental Bodies

GOVERNMENT OFFICE FOR LONDON
▪

3. Local Authority Related Bodies

- Improved accessibility, in conjunction with the proposals to regenerate the town centre will result in Barking town centre establishing itself as one of the Thames Gateway's key centres
- Need to make connections. Transport requirements within and to areas outside to improve access are needed. Extension of Crossrail to Ebbsfleet is suggested as is the completion of Thames Gateway Bridge and dualling of Thames Rd, Crayford
- Growth in Thames Gateway should be supported by substantial new and improved infrastructure
- London Riverside needs a step change in the quality of the public transport network (the communities plan does this)
- Scale of development proposed likely to increase commuting in the region – needs to be addressed (Crossrail not until 2016)
- Support East London as a priority area needing the most significant transport improvements
- Transport Links need to be improved, supporting river Crossings and fact that improvements are needed urgently to support developments

LONDON BOROUGH OF BARKING AND DAGENHAM
▪ BTC has traditionally been a highly accessible location in terms of public transport. According to Transport for London's own studies, Barking Station and its environs currently ranks as one of London's highest scoring in terms of its Public Transport Accessibility Level. Given LBBD and Transport for London's on-going commitments to enhance BTC's accessibility further with such developments as the East London Transit, Barking's accessibility will be greatly enhanced. This improved accessibility, in conjunction with the proposals to regenerate the town centre will result in BTC establishing itself as one of the Thames Gateway's key centres

LONDON BOROUGH OF BEXLEY
▪ Need to make connections. Transport requirements within the Zone and to areas outside to improve access are needed Extension of Crossrail to Ebbsfleet is suggested as is the completion of Thames Gateway Bridge and dualling of Thames Rd, Crayford

LONDON BOROUGH OF HACKNEY
▪ River Crossings essential

LONDON BOROUGH OF HAVERING
▪ Growth in Thames Gateway should be supported by substantial new and improved infrastructure
▪ London Riverside needs a step change in the quality of the public transport network (the communities plan does this)
▪ Strategic transport priorities for London Riverside are: ▪ Improving the C2C to a frequent Metro service;

▪ New stations to serve Barking Reach and CEME; ▪ Extension of the Dockland Light Railway (DLR) to Rainham (already planned to Dagenham Dock); ▪ Phase 1 of East London Transit to Rainham (already committed to Dagenham Dock); ▪ Connection via DLR to Crossrail 1; ▪ Thames Gateway Bridge; ▪ Interchanges at Dagenham Dock and Rainham; ▪ Early provision of a comprehensive bus network for London Riverside; ▪ A well designed network of cycle and pedestrian routes.

LONDON BOROUGH OF LEWISHAM
▪ Scale of development proposed likely to increase commuting in the region – needs to be addressed (Crossrail not until 2016)
▪ Support East London as a priority area needing the most significant transport improvements

LONDON BOROUGH OF NEWHAM
▪ No major issues identified

LONDON BOROUGH OF REDBRIDGE
▪ Transport Links need to be improved, supporting river Crossings and fact that improvements are needed urgently to support developments
▪ LP needs to explore possibility of unsustainable aspects in creating new linkages / connections (congestion)

LONDON BOROUGH OF TOWER HAMLETS
▪ In direct conflict with the policies set out in the London Plan, Transport for London have been unable and reluctant (due to matters of potential commercial confidentiality) to share with the Borough strategic transport planning data which would enable officers to respond to the planning applications in the way envisaged in the London Plan. This must be resolved urgently and a mechanism for sharing robust information developed in order that growth issues can be properly addressed and managed through the planning system ▪
▪ River crossings package should include: ▪ The proposed extension of the DLR from London City Airport to Woolwich Arsenal; ▪ A shared-use Thames Gateway bridge from Beckton to Thamesmead; ▪ A bridge or tunnel between Silvertown and the Greenwich Peninsula, providing a local highway connection between North Greenwich and development in the Royal Docks and Lower Lea Valley; ▪ The development of Crossrail from the Isle of Dogs to Ebbsfleet

4. Key Stakeholders

- East London has the River Thames as a major barrier – hence proposed river crossings are essential.

- The package of river crossings is essential to the regeneration of East London and there is no justification for East London to have a lower level of north-south connectivity than west London
- Gallions Reach Bridge proposal, which as the only fixed road crossing between Blackwall and Dartford, would inevitably generate new traffic and concentrate traffic from a wide catchment area.
- Lack of Underground South of River could lead to a scenario where road or rail based transit is relied upon. Hence bringing forward high quality transit links between the existing residential areas in Outer London and the Thames Gateway would support and maintain the investment needed.

BARTON WILLMORE
▪ Improving accessibility and increasing capacity requires an increase in the provision of public services, both in terms of new routes and greater frequency of services
▪ Crossrail 1 goes no further east than Stratford & Isle of Dogs. Potential corridors to Woolwich / Ilford / Romford fail to penetrate the heart of the proposed regeneration areas. Proposed and potential routes of major rail and light transit schemes needs to be reviewed in light of the identified Opportunity Areas
▪ East London has the River Thames as a major barrier. Only 4 opportunities (QE2 bridge/tunnel, Rotherhithe Tunnel, Blackwall Tunnel & Woolwich Ferry) for vehicles to cross this

ELLG
▪ Not listed as a participant

ENVIRONMENT AGENCY
▪ All proposed river crossings need to respect existing flood defences and future flood defence needs, navigation on the river, ecology of the river, hydrology and should be suspect to EIA. Also consider Policy BR26 on bridges and structures over the Blue Ribbon Network

LDA
▪ No major points other than stating that most schemes referred to in plan are in either planning or development stage with DLR extension to Barking Reach/Dagenham Dock and extension of DLR from Canning Town to Stratford International (complementary schemes) are included in TfL Business Plan on provisional basis

LONDON FIRST
▪ No new issues. Focus on accessibility and scheme deliverability (timescale of Crossrail)
▪ River Crossings vital and needs to be accelerated
▪ 3C.2 remove/amend

LONDON THAMES GATEWAY FORUM
▪ Not listed as participating but have provided a submission. Various views, most contentious is that Gallions Reach Bridge proposal, which as the only fixed road crossing between Blackwall and Dartford would inevitably generate new traffic, and concentrate traffic from a wide catchment area

PARC
▪ TfL to circulate this document with ELLG, as it contains interesting points

SELTRANS
▪ Concerned that DLP is not clear enough on the way the SE boroughs will be able to easily access the Thames Gateway
▪ Lack of Underground South of River could lead to a scenario where road or rail based transit is relied upon. Buses rarely generate modal shift whereas schemes such as Croydon Tramlink have. Hence bringing forward high quality transit links between the existing residential areas in Outer London and the Thames Gateway would support and maintain the investment needed. This would also support decentralised growth, reducing travel need.

TGLP
▪ TGLP believes a package of river crossings is one of the components of new transport infrastructure vital to improve accessibility to jobs, encourage investment, and provide a boost the economy of the region. This package should include: ▪ the development of Crossrail from the Isle of Dogs to Ebbsfleet ▪ the proposed extension of the Docklands Light Railway from London City Airport to Woolwich Arsenal, connecting with the North Kent Line ▪ a shared use Thames Gateway Bridge from Beckton to Thamesmead, comprising a local highway link and a public transport connection, providing a step-change in cross-river accessibility ▪ a bridge or tunnel between Silvertown and the Greenwich Peninsula, the Silvertown Link, providing a local highway connection between North Greenwich and development in the Royal Docks and the Lower Lea Valley
▪ This package of river crossings is essential to the regeneration of East London and there is no justification for East London to have a lower level of north-south connectivity than west London

Annex 2: References

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