

TRANSPORT FOR LONDON

BOARD

SUBJECT: LONDON OVERGROUND IMPACT STUDY

DATE: 2 FEBRUARY 2012

1 PURPOSE AND DECISION REQUIRED

- 1.1 The purpose of this paper is to advise the Board of the results of TfL's analysis of demand patterns on the London Overground (LO) network. Demand growth has been faster than expected in recent years, with a doubling of demand on the existing LO network. This has led to increasing levels of crowding on parts of the network, despite investment in new capacity. This is attached as Appendix 1.
- 1.2 The paper was presented to the meeting of the Rail and Underground Panel on 16 November 2011. The Panel asked for the paper to be submitted to the Board. Demand has continued to grow since the paper was presented to the Panel and the data has been updated to take account of recent results.
- 1.3 The paper is written in two parts. The first part looks at the network that transferred to TfL in 2007 and explains the growth in demand on that network. The second part looks at the extended East London Line (ELL) and its impact on transport in London.
- 1.4 The Board is asked to note the paper.

2 BACKGROUND

- 2.1 TfL took over the concession to operate the LO network in November 2007. Since then, it has transformed the network from a neglected railway into the best performing train operator in Great Britain. This has been achieved through a major infrastructure upgrade to deliver increased train frequency, new trains, station enhancements, better management and service quality improvements.
- 2.2 The extended ELL was opened in May 2010, with new trains and new and refurbished stations. It was further extended to Highbury & Islington in February 2011 and now forms an integrated part of the LO network.

3 LONDON OVERGROUND IMPACTS

- 3.1 LO passenger volumes are now three times the level when TfL took over management of the concession. The opening of the extended ELL has contributed a large part of the growth but the existing LO network also experienced an increase in demand of 110 per cent.
- 3.2 Economic and demographic factors, fares and service levels are key drivers of rail demand and demand would normally be flat during an economic

slowdown. However, London and South East rail demand has grown strongly over the last two years despite the lack of growth in the economy and this forms the background to strong LO demand growth. The other main drivers of growth on the LO network are: service frequency; operational performance; service quality, including stations and rolling stock; connectivity and marketing. These factors contributed to extremely strong growth in demand during 2010/11.

- 3.3 0.7 million passengers per week use the ELL. Demand on the route is in line with forecasts despite the poor economic situation. Peak services are already crowded from the south of the route in to Canada Water.
- 3.4 Operational performance is excellent and customer satisfaction on LO is rated 'very good' at 82 out of 100. LO had a National Passenger Survey score of 89 in spring 2011, compared with the London and South East average of 83.

4 IMPACTS ON OTHER OPERATORS

- 4.1 Market research conducted after ELL opening showed that at least 46 per cent of passengers had previously used national rail services. Most used Southern Trains services on the Sydenham corridor into London Bridge. 21 per cent of passengers had previously used bus and 16 per cent used London Underground (LU) or Docklands Light Railway (DLR) services. Despite changes in journey patterns, many passengers continue to interchange onto LU/DLR services for one leg of their journey. Nine per cent of passengers had previously used car and eight per cent used other modes or made new journeys.
- 4.2 When ELL services were introduced, Southern services on the corridor were reduced by a third and peak passenger volumes reduced by a similar amount. Many peak trains were lengthened so that crowding was reduced and passengers in excess of capacity on the corridor fell sharply.
- 4.3 By autumn 2011, total peak passenger volumes on the corridor had increased by over a third as improved services generated additional demand.

5 CONCLUSION AND NEXT STEPS

- 5.1 Enhancements to the LO network resulted in a dramatic increase in passenger demand in 2009/10 and 2010/11. Demand continues to grow with the full effects of the infrastructure upgrade still to impact fully. Crowding is already a concern on part of the West London, East London and Gospel Oak Barking routes and, as no further capacity enhancements are planned, this is likely to become an increasing problem.
- 5.2 TfL's report *Delivering the Mayor's Transport Strategy: National Rail in London* sets out the case for enhancement in capacity on the routes including train lengthening on North and West London Lines, ELL and Gospel Oak Barking route and additional peak services where feasible. The recommendations are reflected in Network Rail's London and South East Route Utilisation Strategy and the Initial Industry Plan. TfL continues to make the case for enhancements through the Department for Transport's High Level Output Specification process and through TfL's Business Planning process.

6 RECOMMENDATION

6.1 The Board is asked to NOTE the paper.

7 CONTACT

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London Overground Impact Study

Part 1 Existing London Overground network

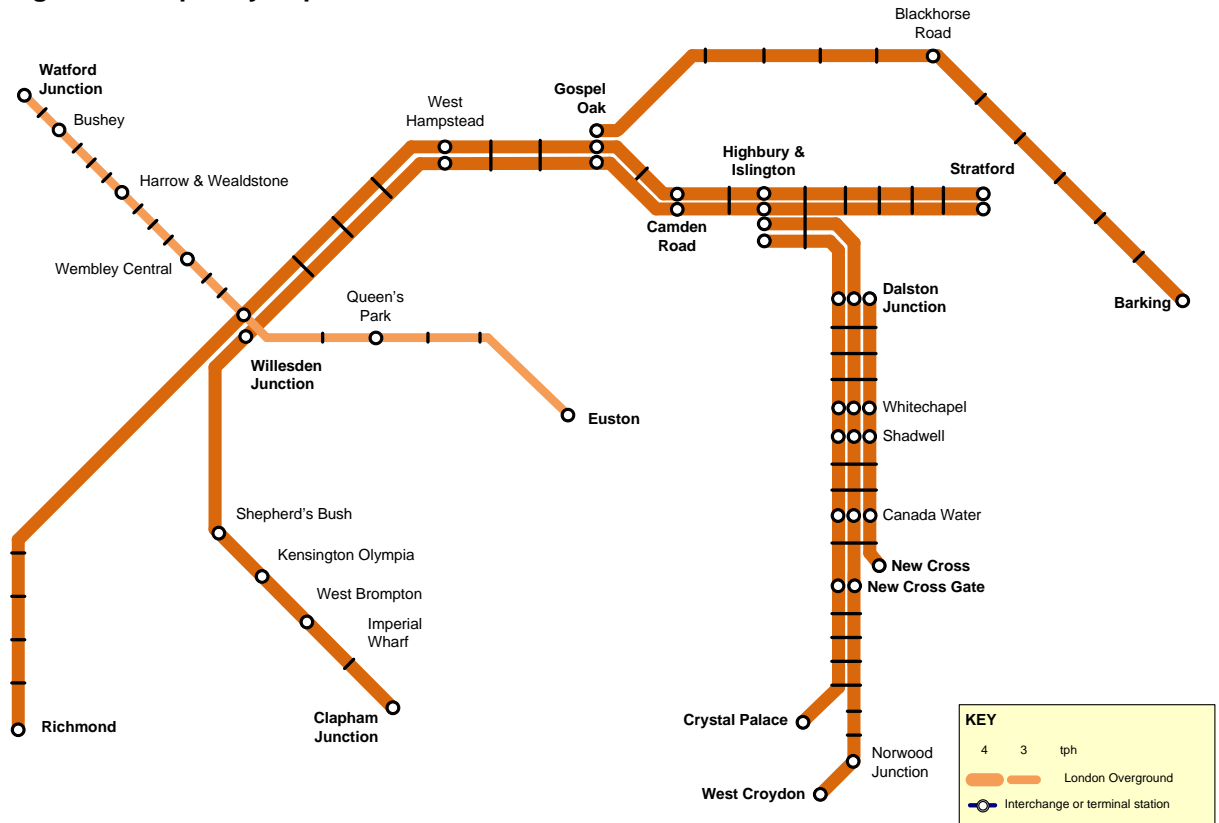
1 Introduction

- 1.1 TfL took over the management of the London Overground (LO) concession (formerly Silverlink Metro services) in November 2007. Services at the time were of low quality with old rolling stock, neglected stations and low levels of customer service. Since taking over the network, TfL has made significant enhancements to the level and quality of services through a programme of introducing new rolling stock, upgrading infrastructure to deliver more frequent services, refurbishing stations and delivering higher standards of customer service. The extended East London Line was opened in May 2010 and a further phase to run services from Dalston Junction to Clapham Junction will be completed in 2012 completing the orbital network.
- 1.2 This paper describes the changes that have taken place and the impact of those changes on demand and customer satisfaction.

2 Background

- 2.1 TfL manages the operation of services on the LO under a seven year concession. Unlike a standard franchise, TfL takes revenue risk on LO services and works closely with the concessionaire, LOROL to manage service quality and performance.
- 2.2 At the time of takeover, LO operated up to six peak trains per hour between Stratford and Richmond and three peak trains per hour between Willesden and Clapham. In the off peak, frequencies were lower at four trains per hour between Stratford and Richmond and two trains per hour between Clapham and Willesden. The timetable was improved in 2010 to provide three Stratford-Clapham trains per peak hour serving the increasingly popular Willesden Clapham section of route, and three trains per hour from Stratford to Richmond. This improved performance and helped generate additional demand.
- 2.3 A major infrastructure upgrade project led to the introduction of the May 2011 timetable, which enables provision of four trains per hour from Stratford to Richmond and four trains per hour from Stratford to Willesden. This timetable has resulted in a further increase in demand as all parts of the route have a turn up and go service and the central section benefits from eight peak trains per hour.
- 2.4 Gospel Oak Barking services had a service frequency of two trains per hour when TfL took over the concession. Frequency has now increased to four trains per hour on the route with extra early morning services and an additional peak train has recently been introduced.

Figure 1: Frequency of peak LO services



2.5 LO provides both radial routes into central London on the Watford Euston route and orbital services around London allowing passengers to make local journeys or to travel without interchanges in central London. It serves locations which have historically been poorly served by public transport.

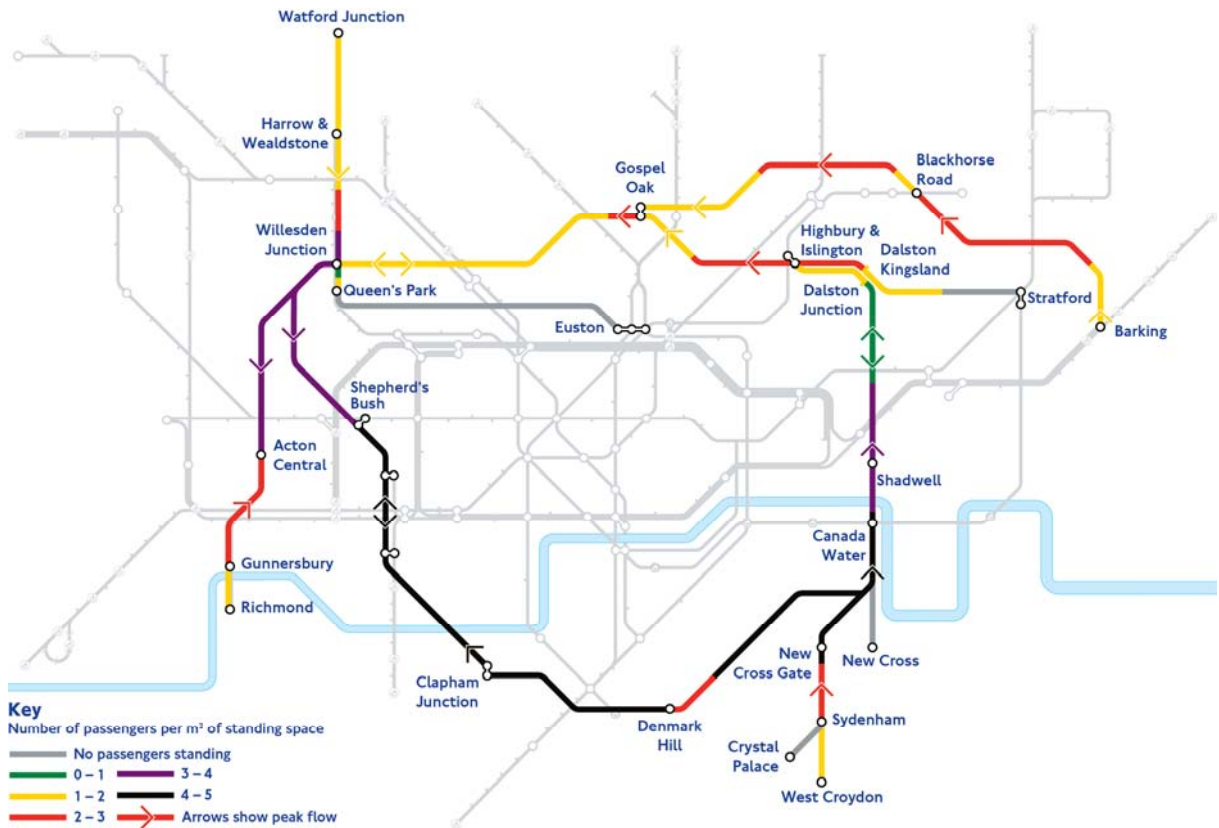
2.6 In 2007, Silverlink Metro carried 0.6 million passengers per week. That figure has now increased to 1.2 million, excluding East London Line services which add a further 0.7 million journeys. In 2011/12, a total of 100 million journeys are expected to be made on LO services.

3 Capacity

3.1 LO services are increasingly becoming crowded despite increased capacity from new and longer trains and higher frequency as more passengers are attracted to the improved services. The busiest parts of the network in the morning peak are between Clapham Junction and Shepherds Bush, Barking and Blackhorse Road and Sydenham and Canada Water.

3.2 Figure 2 shows forecast crowding on the Overground network in 2016, where black and purple lines show demand exceeding TfL's planning standard of three passengers per square metre standing in the morning peak. TfL is looking at options for relieving crowding.

Figure 2: Forecast crowding in 2016



3.3 Most LO routes are served by new four-car Class 378 trains with longitudinal seating and high capacity layout. Trains have capacity of 700 and are designed to carry large numbers of passengers comfortably over relatively short distances. Walk-through carriages and wide doors ease passenger flow onto and through the train. The new trains are popular with passengers as reflected in high customer satisfaction scores for train attributes. Trains were introduced in three-car formation first on North and West London Lines and extended to four cars in 2010. They represent a 33 per cent increase in capacity compared with the old rolling stock. On Watford Euston services, class 378s were introduced as four car trains.



- 3.4 On the Gospel Oak Barking line, new two-car class 172 trains were introduced in 2010 with capacity of up to 400 people per train, a third higher than the original rolling stock. Demand for Gospel Oak Barking services has increased rapidly and services are crowded.

4 Stations

- 4.1 TfL has undertaken a major programme of refurbishment at stations along the Overground network. It manages most of the stations it serves and has a policy of staffing stations to ensure that staff are visible and available to help passengers, improving personal security.
- 4.2 Passenger facilities at stations have been improved with the installation of ticket machines, help points, cycle parking and passenger information. Eleven stations were gated shortly after the concession started to reduce fraudulent travel and to improve security and over 95 per cent journeys pass through a gated station at one or both ends. The volume of passenger journeys made without valid tickets fell from 10 per cent to three per cent within a year of the network being under TfL management. The volume of passenger journeys made without a valid ticket is currently two per cent.
- 4.3 Two new stations were opened on the Clapham to Willesden route. Shepherd's Bush station was opened in 2008 to serve the Westfield shopping centre and to provide interchange with the Central Line; and Imperial Wharf was opened in 2009. This section of line has been the fastest growing part of the network with increasing peak loads despite an increase in capacity.

5 Operational Performance

- 5.1 LO performance across all routes has increased dramatically from Public Performance Measure (PPM) of 91 per cent at the time TfL took over the concession to the current level of 96 per cent. PPM measures the percentage of trains arriving within five minutes of scheduled time. This is the highest performance level of all train operators and represents a turnaround from below average to excellent performance, which is exceptional on a mixed use railway.

6 Fares

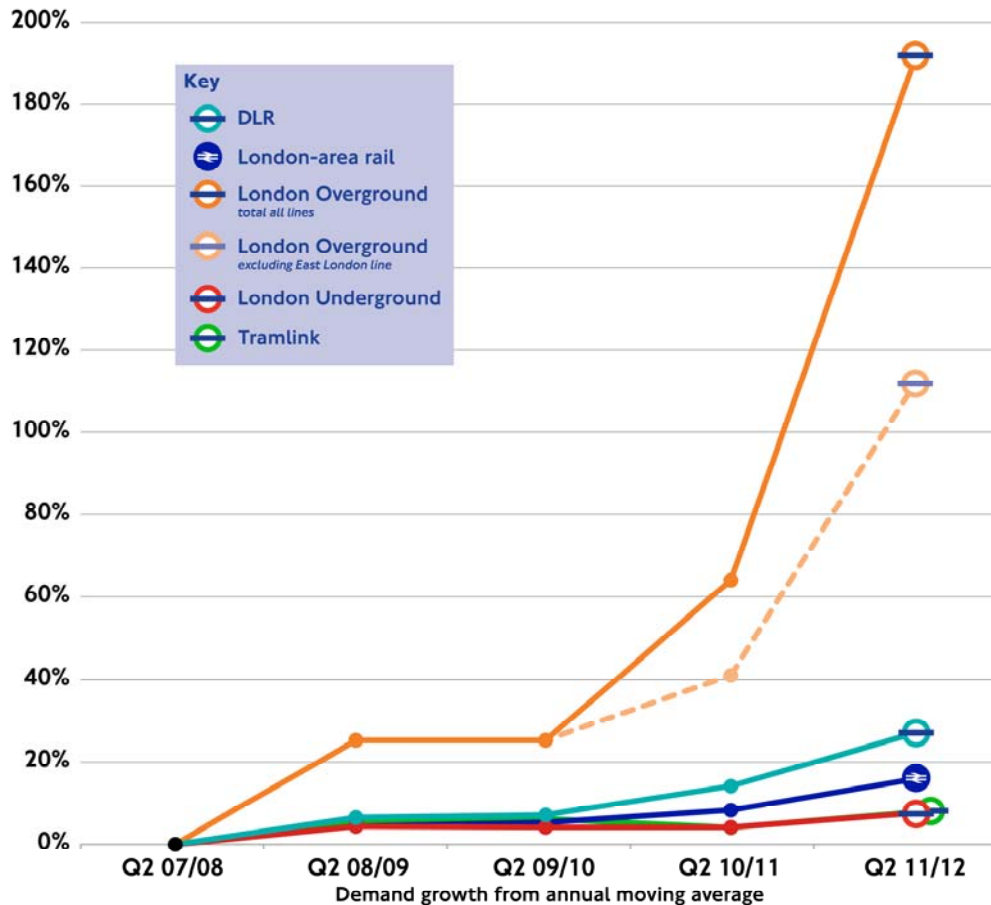
- 6.1 Oyster Pay as You Go (PAYG) was introduced on LO in 2007 making travel easier and cheaper. The product gained popularity and now accounts for almost 40 per cent of journeys on LO. PAYG was rolled out to National Rail services in London in January 2010, allowing passengers to make through journeys on LO and other National Rail operators' services such as South West Trains services with an interchange at Clapham Junction. Through ticketing for Overground and London Underground (LU) means that a fully integrated journey can be made at no extra cost.
- 6.2 Euston and Shoreditch High Street are the only LO stations in Zone 1. Passengers are able to reach a range of destinations without travelling into Zone 1 and pay lower fares than people travelling via central London.

Use of the route

7 Passenger numbers

7.1 190 million passengers have used LO since its opening. Figure 3 shows growth in demand since 2007/08 compared with growth on other TfL services and London and South East National Rail services.

Figure 3: Growth in LO demand

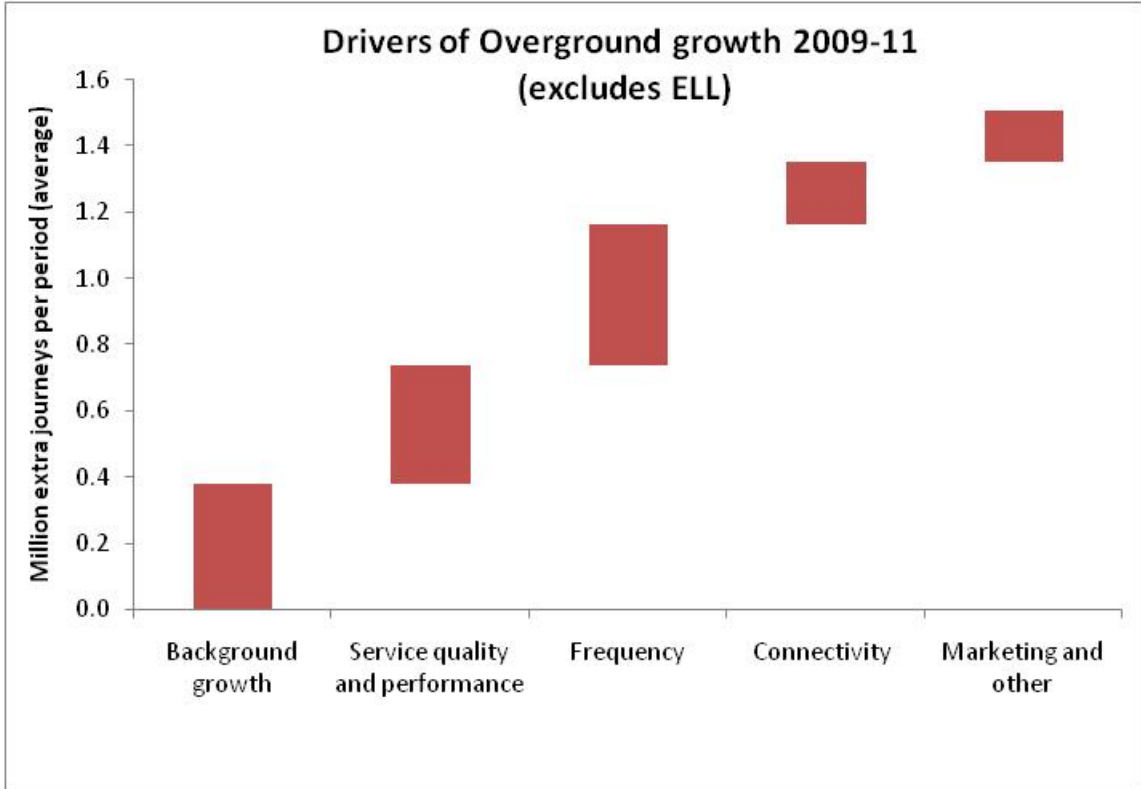


7.2 LO growth has been consistently higher than that on other services but a step change took place in 2010/11. Passenger volumes are three times the level when TfL took over services. Excluding the East London Line, demand has increased by 110 per cent.

7.3 Since 2009, average demand on the existing Overground network (North and West London Lines, Gospel Oak Barking and Watford Euston) has increased by 1.5 million journeys per four week period. The main drivers of rail demand are economic factors, service quality and performance and fares. The impact of these drivers on demand has been calculated using industry elasticities where possible to generate a waterfall chart of demand drivers (figure 4).

- 7.4 Despite the recent downturn in the economy, rail demand in London and the South East has remained buoyant and LO has benefitted from that growth. However, background growth only accounts for a quarter of the growth experienced. Between 2009 and 2011, service frequency was the largest contributor to demand. Service quality was another significant driver. New trains, higher capacity, station upgrades and performance improvements all contributed to better service quality. Connectivity was another important factor with the ending of a long programme of engineering works which had disrupted travel, especially at weekends, and the opening of the East London Line enabling orbital journeys to be made between north, east and south London.
- 7.5 Other factors such as marketing also contributed to demand and this was most apparent around the time of the East London Line opening when demand on the rest of the LO network increased by more than the growth in interchanging passengers.

Figure 4: Drivers of Overground Growth



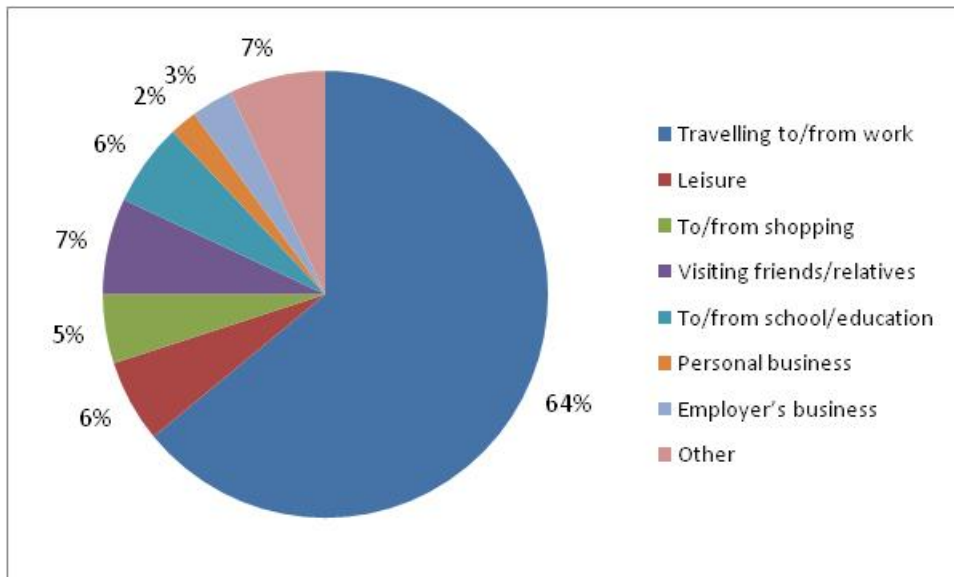
8 Journey purpose

- 8.1 LO has a high proportion of regular passengers. 64 per cent of passengers on the route are using it to travel to or from work and the breakdown of journey purposes is shown in Figure 5. The Watford Euston Line serves employment centres in central London with interchange at Queen’s Park or Euston. The orbital routes serve central London via interchanges at key locations such as

Blackhorse Road, Highbury & Islington and Shepherd's Bush as well as serving Docklands via an interchange at Stratford. In addition, Stratford and other locations along the routes are employment centres in their own right. Shopping centres at Shepherd's Bush and Stratford are important leisure destinations.

- 8.2 LO has a higher proportion of educational travel than most rail operators with schoolchildren using the routes and five per cent of passengers travelling to or from education. This means the evening peak period is extended with high volumes of travel in the late afternoon.
- 8.3 Average journey length is relatively short at 7 kms, reflecting the metro style nature of the service.

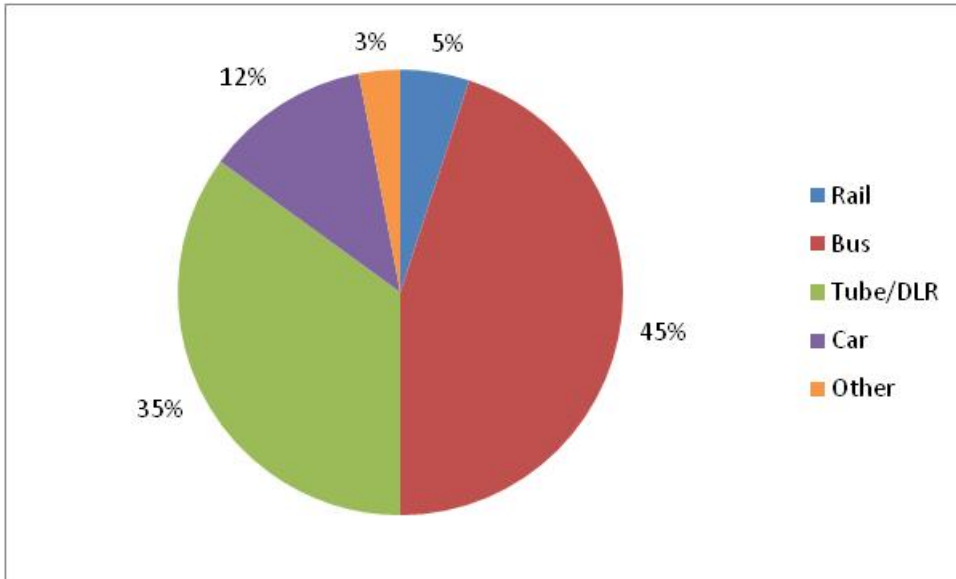
Figure 5: LO journey purpose



9 Integration

- 9.1 20 per cent of LO passengers interchange with Underground or Docklands Light Railway (DLR) and a further 20 per cent use bus and Overground. This compares with 50 per cent of National Rail passengers arriving in London in the morning peak who use Underground or DLR for their onward journey.
- 9.2 TfL has estimated that, of the increase in passengers using LO since 2007, the largest share have switched from bus or LU helping to reduce congestion on radial routes into Central London. Around 12 per cent have switched from car or are making new journeys.

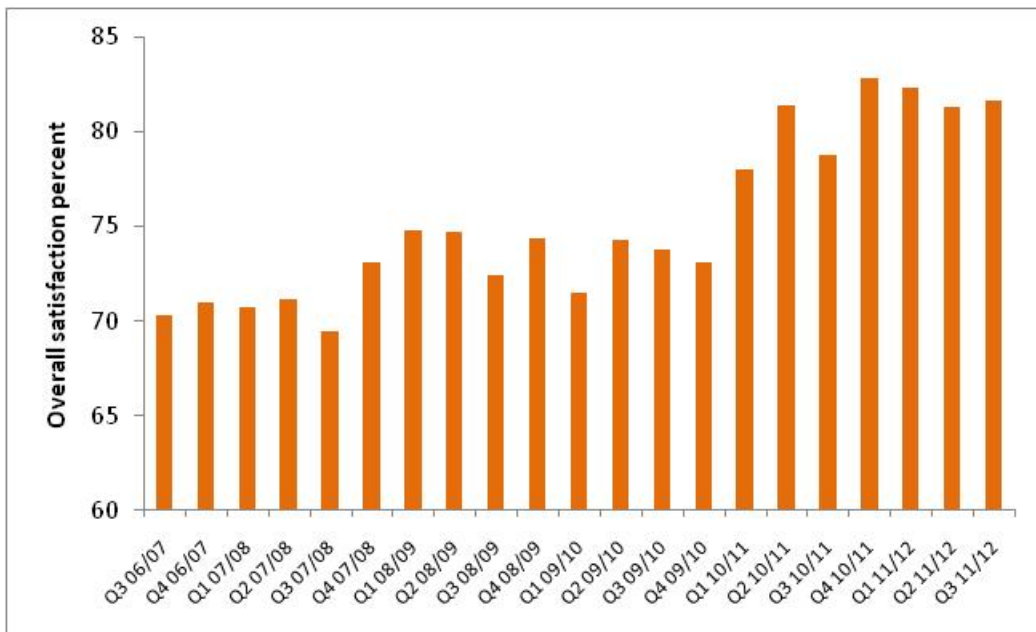
Figure 6: Modes previously used by additional LO passengers



10 Customer satisfaction

10.1 Current performance following TfL's investment has delivered an overall customer satisfaction rating on LO of 82 out of 100, with particularly high scores for train and service level attributes. This compares with a rating of 71 out of 100 in 2007 and reflects the step change in quality that has taken place. A satisfaction rating of over 80 means the perception of service quality is 'very good'.

Figure 7: LO Customer Satisfaction



- 10.2 The National Passenger Survey undertaken by Passenger Focus compares satisfaction with train operators' performance on a consistent basis. During its last year of operation, Silverlink Metro scored 71 per cent for overall satisfaction under this survey. Contrastingly LO scored 89 per cent for overall satisfaction under the most recent National Passenger Survey conducted during Spring 2011, demonstrating the impact of the improvements delivered by TfL.

11 Equality and inclusion

- 11.1 LO has improved accessibility to public transport through works to implement step free access. Step free access from street to platform is available at 44 per cent of stations, and trains are designed to be accessible. This compares with 22 per cent of LU stations and 31 per cent of National Rail stations in London which are step free from street to platform. The new LO trains have accessibility features such as on board audio and visual train running information, wider doors for improved accessibility and more grab rails and handles. Staff are trained to assist people using wheelchairs. Seven per cent of passengers surveyed have a long term mental or physical disability and one per cent passengers are wheelchair users.

12 Conclusions on the existing LO network

- 12.1 Enhancements to the existing Overground network including better management and service quality resulted in a dramatic increase in passenger demand in 2009/10 and 2010/11. Demand continues to grow with the full effects of the 2011 North London Railway Infrastructure Project (NLRIP) timetable still to be reflected in demand. Peak crowding is a concern on part of the West London and North London Lines and Gospel Oak Barking routes and, as no further capacity enhancements are planned, this is likely to become an increasing problem.
- 12.2 TfL's report *Delivering the Mayor's Transport Strategy: National Rail in London* sets out the case for enhancement in capacity on the routes including train lengthening on Gospel Oak Barking and North and West London Lines and additional peak services where feasible. The recommendations are reflected in Network Rail's London and South East Route Utilisation Strategy.
- 12.3 TfL continues to monitor demand patterns on LO for management reporting and results are published in *Travel in London*.

Part 2 East London Line one year after opening

1 Background

- 1.1 The extended East London Line carries 0.7 million passengers per week, almost four times as many as the old East London Line that it replaced and more than double the volume of usage in June 2010. Passenger revenue has also doubled and this year is forecast to be £32m in 2011/12. This report describes the key impacts of the extended line on passengers and on London.
- 1.2 The East London Line operated as a LU service between Shoreditch and New Cross/New Cross Gate until it was closed in 2007. The route has been enhanced through a combination of conversion to National Rail standards, extension and use of existing tracks to create a new rail route. TfL upgraded the route at a total cost of approximately £1 billion and provided new electric trains and new and refurbished stations. This was followed by the second phase which extended the route to Highbury & Islington in February 2011 and will be followed by a third phase in late 2012. The first two phases of the project were completed several months ahead of schedule.
- 1.3 The East London Line runs from Highbury & Islington in the north to New Cross, West Croydon and Crystal Palace in the south. Five per cent of London's population live within a kilometre of an East London Line station and this figure will increase to over seven per cent with the extension to Clapham Junction. The route passes through some of the most deprived areas of London, serves a station at Shoreditch with direct access to the City, and provides interchanges with LU at Highbury & Islington, Whitechapel and Canada Water and with DLR at Shadwell.
- 1.4 The extended route reopened as far as Dalston Junction in May 2010 and was further extended to Highbury & Islington in February 2011. LU's East London Line operated 10 trains per hour between New Cross/New Cross Gate and Shoreditch until 2006 when Shoreditch station was closed. In 2007 the route operated as far as Whitechapel and carried nine million passengers per year before its closure. The new route carried around approximately 16 million passengers in its first year to May 2011, a figure that will increase to 38 million passengers in the financial year 2011/12.



2 Improved accessibility

- 2.1 The East London Line serves parts of northeast London that were previously poorly served by public transport and links them to key employment centres in the City, Docklands and West End as well as leisure and social facilities. Services are fast and frequent and integrated with the TfL network.
- 2.2 On the central section of the route, passengers have a greater choice of public transport routes and interchanges to reach their destinations. The route also provides an important river crossing linking north east and south east London.
- 2.3 The new route forms part of an orbital network allowing passengers to travel around London without having to travel through the centre. From stations in the Boroughs of Bromley, Croydon and Lewisham, passengers can travel without needing to interchange at London Bridge or Victoria, helping to relieve crowding on radial rail routes into central London and at congested London termini.
- 2.4 Passengers from the north, including those travelling on National Rail services from Hertfordshire and Essex, can travel to the City and Docklands without travelling through central London. Use of orbital routes also relieves crowding on LU services and at stations. The final link in the orbital network, from Clapham Junction to Surrey Quays will be completed in late 2012 enabling passengers to travel between east and west London to the south of the city.

3 Capacity provision

- 3.1 Rail services on the Sydenham corridor were crowded before the East London Line opening with over five per cent passengers in excess of capacity in the morning peak. Southern services on the route now experience lower levels of crowding. The route provides much needed rail capacity for commuters from south London to help them access jobs in central London and Docklands and has increased capacity of services to London by 70 per cent.
- 3.2 The East London Line is served by new four car Class 378 trains with longitudinal seating and high capacity layout. Trains have capacity of up to 700 and are designed to carry large numbers of passengers comfortably over relatively short distances. Walk-through carriages and wide doors ease passenger flow onto and through the train. The new trains are popular with passengers as reflected in high customer satisfaction scores for train attributes.

4 Stations

- 4.1 TfL managed stations along the route are either refurbished or new. Four new stations were built as part of the project: Dalston Junction, Haggerston, Hoxton and Shoreditch High Street which will contribute to regeneration of a deprived part of east London.
- 4.2 Stations between West Croydon, Crystal Palace and Surrey Quays transferred to LO management in September 2009. These stations already served Southern Trains passengers on services into London Bridge but now offer a choice of operators and destinations with Overground providing 60 per cent of services and Southern 40 per cent. The former LU stations on the central section were refurbished during a two year closure period and four new stations opened north of the river. Stations meet TfL's standards of customer services, information and security. Most stations on the route are gated to ensure revenue is collected in full and to improve passenger security.

5 Service patterns

- 5.1 LO operates a minimum of four trains per hour on any East London Line route for most of the day and 12 trains per hour run on the central section from Surrey Quays to Dalston Junction. On weekdays and Saturdays, first trains start before 06.00 and last trains are around 23.30.
- 5.2 The new route has improved accessibility from areas such as Hackney which were previously relatively poorly served by public transport, providing access to a high quality, high frequency rail service. Passengers have benefited from greatly reduced journey times on many journeys since the opening of the route.
- 5.3 Shoreditch High Street is within walking distance of the City and Bishopsgate and the station enables some commuters from north and south London to reach the City without travelling through Central London.

5.4 The route provides a convenient Thames river crossing. Half of passengers cross the river on the East London Line, significantly increasing accessibility between north and south London and allowing more direct journeys to be made.

6 Fares

6.1 A range of TfL and National Rail tickets are accepted on the East London Line. PAYG is retailed and accepted along the route. PAYG usage is particularly high on the northern and central sections and accounts for 40 per cent journeys overall on the East London Line. Travelcards account for the majority of other journeys.

6.2 Although Shoreditch High Street is in Zone 1, the rest of the line is in Zones 2-5. This means that many journeys between south London and Docklands or east London can be made without passing through Zone 1, reducing the cost of travel. Journeys on Overground, Underground and DLR are charged at TfL fares which are lower than equivalent rail plus Underground fares.

Table 1 2012 Oyster peak fares from Sydenham

Destination	Zone	LO	LO/LU	Rail	Rail/LU	Season fare per journey
London Bridge	123			3.00		2.20
Shoreditch High Street	123	3.10				3.42
Green Park	123		3.10		4.40	3.42
Canary Wharf	23		1.50			2.20
Canary Wharf	123				4.40	3.42

Season fare assumes 10 journeys per week

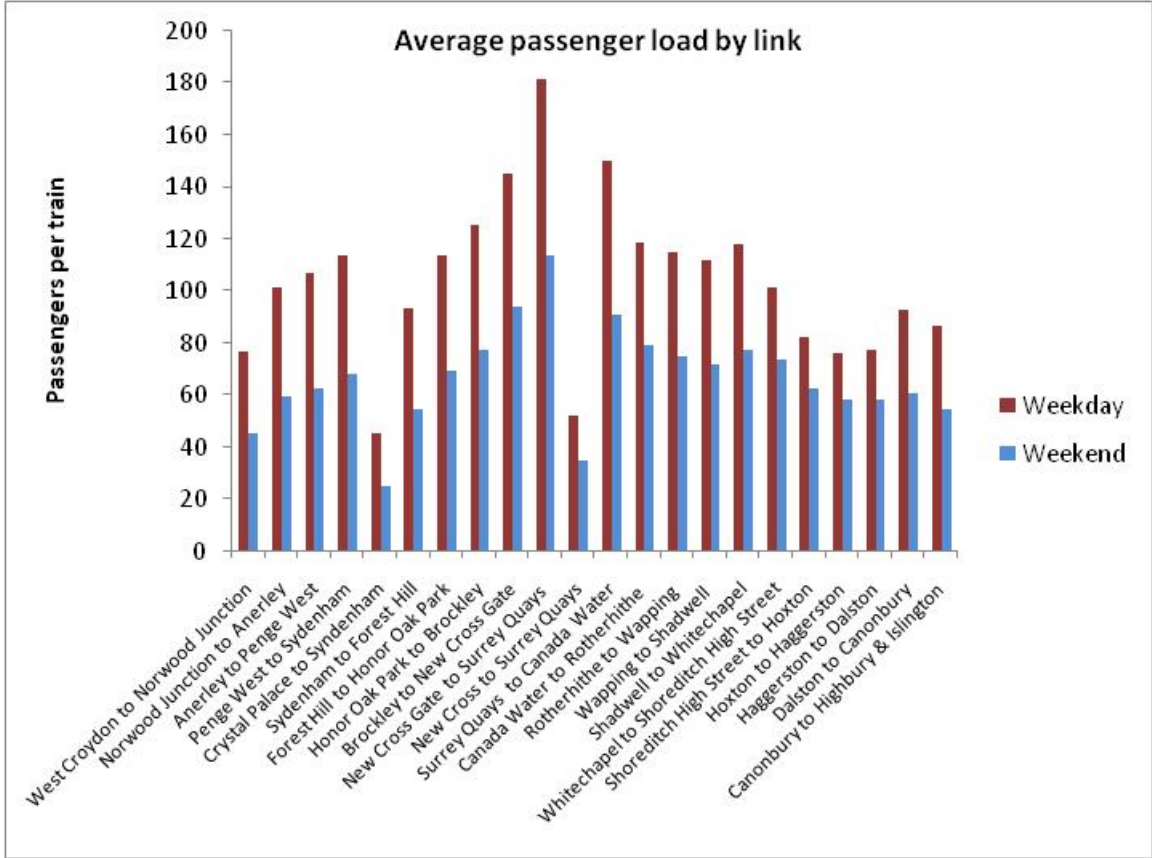
Use of the route

7 Passenger numbers

7.1 33 million passengers have used the extension since its opening. Volumes are expected to continue to grow as people become aware of new journey opportunities and as regeneration takes place. For an infrastructure project, TfL usually assumes 35 per cent of steady state demand is achieved in the first year and 75 per cent in the second year. Initial growth on the East London Line was much faster than the standard growth profile with 50 per cent of forecast demand achieved in the first year of operation. The annual forecast is 38 million passengers and the project is in line to achieve its forecast benefit cost ratio.

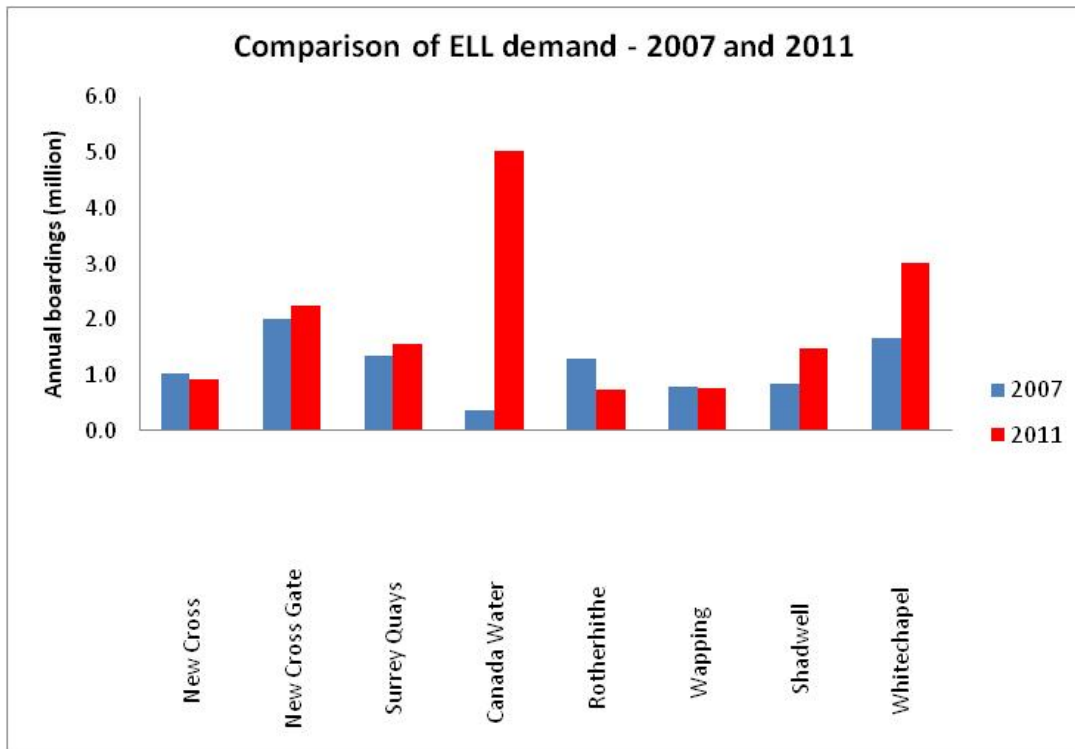
- 7.2 Demand has more than doubled since the first week of operation. 25,000 passengers per day use the newest section of the route between Dalston Junction and Highbury & Islington.
- 7.3 The busiest station is Canada Water with 30,000 Overground passengers per day, many of them interchanging with the Jubilee Line. This is followed by Whitechapel with 15,000, and Highbury & Islington and New Cross Gate with 12,000.

Figure 8: Passenger Loads



- 7.4 Figure 9 compares demand by station on the core section of the route which was served by LU until 2007. Demand at the key interchanges (Canada Water, Whitechapel and Shadwell) has increased significantly with passengers from the north and south of the route interchanging at these stations. This chart shows that, following a closure of over two years, demand has returned to above pre-closure levels.

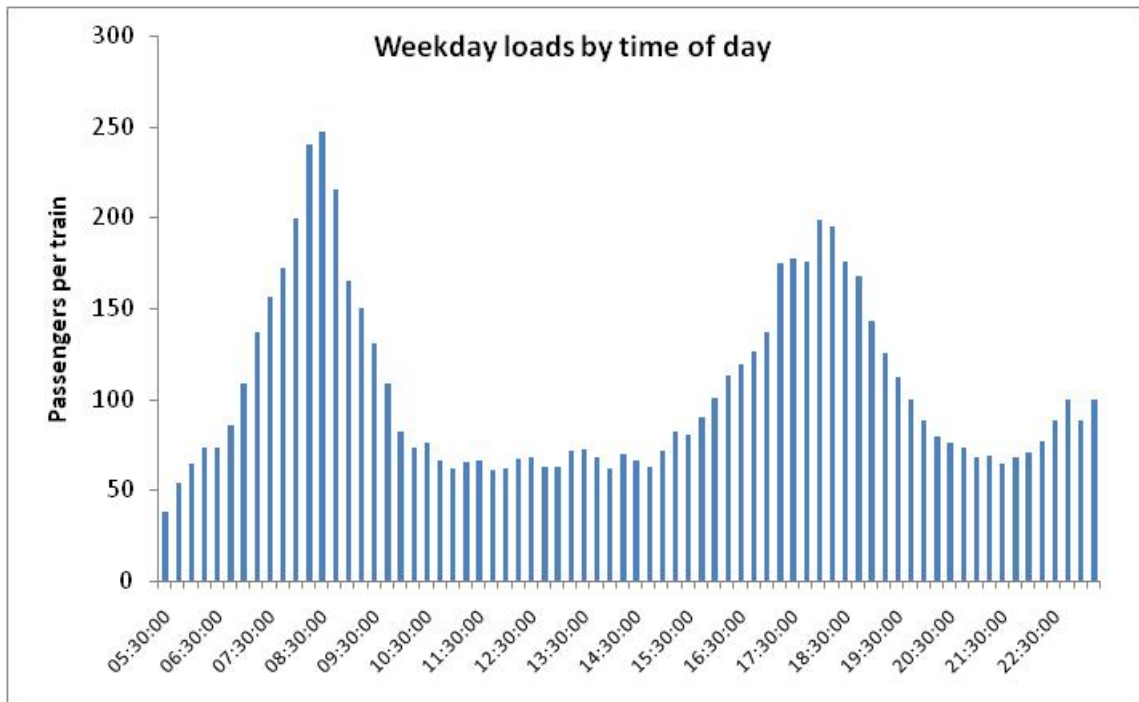
Figure 9: Comparison of East London Line demand



8 Time of travel

- 8.1 Average loads on the route are highest during the weekday peaks with the largest flows being into Canada Water from the south in the morning for interchange to the Jubilee Line service to Docklands and the West End and the reverse flow in the evening. Other key commuting flows are into Shoreditch High Street and from both directions to Whitechapel. The profile of demand is similar to that of radial rail routes into London.
- 8.2 The busiest section of line is between New Cross Gate and Canada Water where 50,000 people per day travel by LO in both directions. The route has already become crowded in peak periods with loads over three passengers per square meeting standing in the peak hour. The extension to Clapham Junction will provide more capacity on the central section of the route but not on the crowded section south of New Cross Gate.

Figure 10: Loads by time of day



9 Journey purpose

- 9.1 The route has a relatively high proportion of regular passengers. 66 per cent of passengers on the route are using it to travel to or from work, a similar proportion to that of the rest of LO. The East London Line serves employment centres both in central London and in Croydon although commuting accounts for a slightly lower share of demand than for other LO routes.
- 9.2 The route also serves a range of leisure destinations including Surrey Quays shopping centre, Geffrye Museum, Crystal Palace Park and Shoreditch. At weekends, shopping, leisure and visiting friends and relatives account for a large proportion of journeys on the line. Both the Geffrye Museum at Hoxton and the Brunel museum at Rotherhithe have reported increases in visitor numbers since the extended East London Line opened.
- 9.3 Average journey length is relatively short at 6 kms, reflecting the metro style nature of the service and the large number of interchanging passengers.

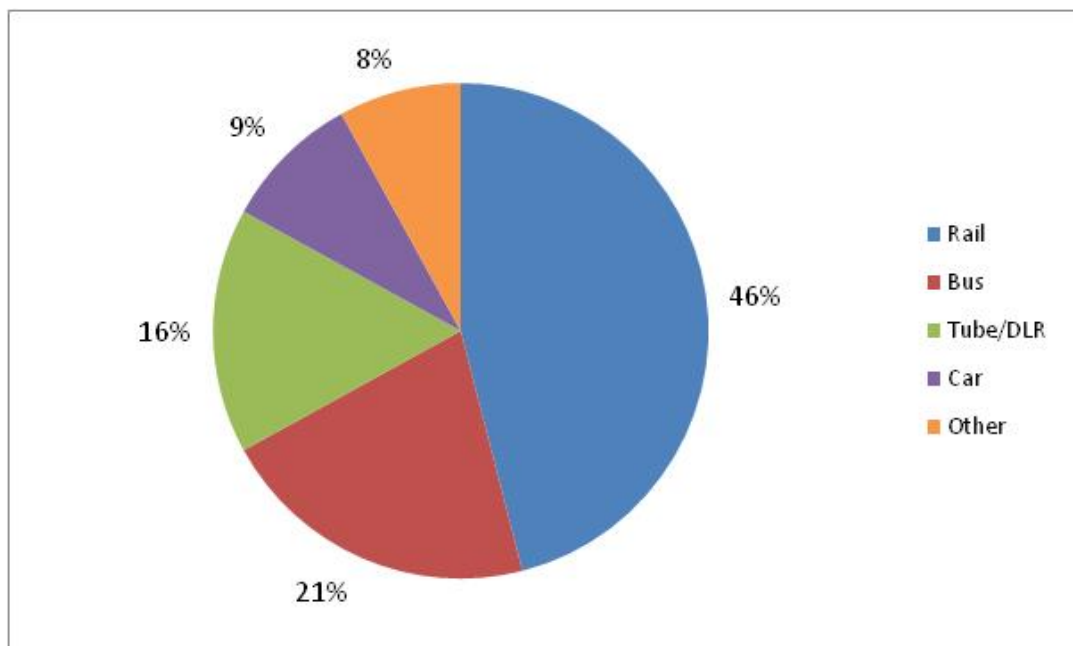
10 Integration

- 10.1 Integration between modes is key to the design of the East London Line. More than half of passengers on the route interchange with LU or DLR services. Canada Water is the largest interchange followed by Whitechapel, Highbury & Islington and Shadwell. National Rail passengers interchange at stations such as New Cross and Highbury & Islington and West Croydon provides an interchange with Tramlink. Research has also shown that passengers from south London interchange between Southern and

Overground services at intermediate stations along the route. A survey of passengers using the Highbury & Islington extension and interchanging to DLR showed that seven per cent had started their journey on other National Rail services. Some 15 per cent of passengers access LO services by bus.

- 10.2 Research has shown that simplification of the customer proposition makes services more convenient to use. Turn up and go services make interchange easier than with many traditional rail routes and through ticketing for Overground and LU means that a fully integrated journey can be made for no extra cost.

Figure 11: Modes used by passengers before the East London Line opening



- 10.3 Figure 11 shows the modes used by passengers before the East London Line opened following a survey of public transport users along the route. The largest switch was from rail use at the southern end of the route, followed by significant switches from LU/DLR and bus services. Almost 10 per cent of people have switched from car use.

- 10.4 There have been changes in demand on a number of bus routes in the Dalston and Shoreditch areas that suggest that changes in frequency and/or structure may be warranted. These are being reviewed by London Buses and appropriate schemes may be brought forward in due course.

11 Customer satisfaction

- 11.1 Customer satisfaction with the route averages 83 out of 100, higher than the results for other Overground routes and with particularly high scores for train and service level attributes. Figure 12 shows the overall customer satisfaction scores for the current and old East London Line. Customer satisfaction has increased from an average of 77 before closure.

Figure 12: Customer satisfaction



12 Operational Performance

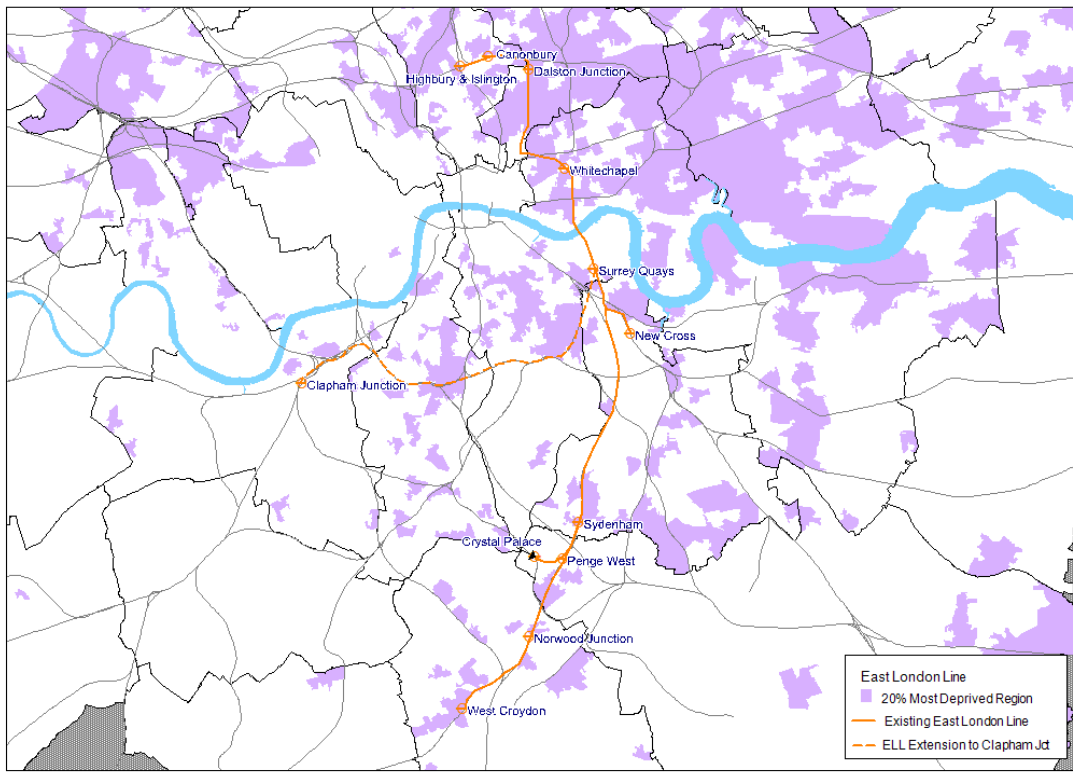
12.1 Operational performance on the whole of is a key driver of satisfaction and has increased since opening to reach 97.8 per cent by November 2011. The route's performance has contributed to LO being the best performing train operator.

13 Equality and inclusion

13.1 The route has increased accessibility of the public transport network in east London. Step free access is available at 52 per cent of stations served by the route and the trains have been designed to be accessible. This compares with 22 per cent of LU stations and 31 per cent of National Rail stations in London which are step free from street to platform. The new LO trains have accessibility features such as on board audio and visual train running information, wider doors for improved accessibility and more grab rails and handles. Staff are trained to assist people using wheelchairs. Research shows that eight per cent of users of the route have a long term mental or physical disability.

13.2 The route serves many of the most deprived boroughs in London, improving access to jobs and facilities, as shown in the map. Crystal Palace, Norwood and Croydon have areas of high deprivation as do New Cross and the area from Whitechapel to Dalston. This is reflected in passengers' incomes along the route with the most affluent passengers living in the area around Wapping and those with the lowest incomes just north of that area. The extension to Clapham Junction will also run through areas of high deprivation.

Figure 13: Opportunity areas and most deprived areas



14 House prices

- 14.1 Data from Land Registry shows that house prices have increased by more than the average for east and south east London over the last two years as a result of the impact of the East London Line on accessibility of the surrounding areas. A number of newspapers have featured articles on the growth in house prices. Particular property hotspots are at the northern end of the route where the line provides completely new journey opportunities, Wapping and the area around New Cross and New Cross Gate.

15 Progress against Mayor's objectives

Support economic development and population growth	⇒	High frequency services provide access to employment in central London and Docklands.
Enhance the quality of life for all Londoners	⇒	High quality trains, customer satisfaction of 85/100 and reduced journey times improve quality of life.
Improve the safety and security of all Londoners	⇒	New trains with CCTV and refurbished stations with CCTV and help points combined with staffing throughout hours of operation make services safer for customers.
Improve transport opportunities for all Londoners	⇒	Step free access at half of the stations on the route and accessible trains improve access for passengers with disabilities. The route also serves some severely deprived areas as shown in Figure 13.
Reduce transport's contribution to climate change and improve its resilience	⇒	Mode switch from car to rail has helped to reduce CO ₂ emissions.
Support the delivery of the London 2012 Olympic and Paralympic Games	⇒	The link to Highbury & Islington enables passengers on the route to access services to the Olympic Park at Stratford and forms part of the Olympic Transport Plan.

16 East London Line Conclusions

16.1 The East London Line has succeeded in meeting its objectives. Demand has grown faster than anticipated, despite the downturn in the economy and peak services are already crowded. Demand will continue to grow and further capacity will be needed in the next few years. TfL's report *Delivering the Mayor's Transport Strategy: National Rail in London* sets out TfL's recommendations for rail capacity in 2014-19. This includes a recommendation to increase the East London Line trains to five cars in length as well as lengthening Southern trains on the Sydenham corridor to provide sufficient capacity to meet demand. Recent trends show that this capacity increase is essential.