

# TfL's Games plans

Extract from TfL's Investment Programme  
December 2007

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## Key

FP = Finance and Planning

LR = London Rail

LU = London Underground

ST = Surface Transport

■ = Programme

■ = Portfolio

■ = Project

# London, 2012 and beyond

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Transport for London (TfL) is investing over £10bn in the five years to 2010 to upgrade and extend London's transport network, £5.6bn of these projects are specifically Games related. A further £484m will be invested after 2010, bringing the total Games related capital investment to £6.1bn. The majority of TfL's Investment Programme projects are already underway and all will be completed in time for the summer of 2012.

This investment is a key element of London's preparations for the London 2012 Olympic Games and Paralympic Games and will deliver the extensive, accessible and reliable transport network that will be needed both to host the Games and secure the longer-term prosperity of the capital.

London is forecast to grow by over 800,000 people and around 900,000 new jobs in the next 20 years. Informed by the Mayor of London's Transport Strategy and the London

Plan, TfL's Investment Programme is designed to deliver an integrated transport system that will enable this growth, driving the regeneration of key areas of the city.

Winning the right to host the Games has further focused TfL's attention on delivery. Key projects have been accelerated, including improving the accessibility of the Tube network and capacity improvements at strategically important stations such as King's Cross. There are numerous other projects across London Underground (LU), London Buses, the Docklands Light Railway (DLR), the road network, and the capital's walking and cycling facilities. These will be needed to meet the unprecedented scope of the Games transport challenge.

The Olympic Games is the world's largest sporting event and the Paralympic Games the second. On average for each of the 16 days of the Games, there will be 500,000 spectators

and 50,000 Olympic family members who must be transported to their events. For the 12 days of the Paralympic Games TfL must move up to 145,000 spectators.

A cohesive transport strategy was a key element of the successful 2012 bid and formed the basis of the Olympic Delivery Authority's (ODA's) October 2007 Transport Plan for the London 2012 Olympic Games and Paralympic Games (the OTP).

The OTP identifies five main Games transport objectives:

- Provide safe, secure, inclusive, fast and reliable transport for the Olympic Family and Paralympic Family client groups
- Provide frequent, reliable, friendly, inclusive, accessible, environmentally friendly and simple transport for spectators and visitors from all around the UK and overseas

- Leave a positive legacy and facilitate the regeneration of east London
- Keep London and the rest of the UK moving during the Games, and thus make hosting the Games a positive experience
- Achieve maximum value for money for every pound spent on transport

To achieve these objectives, the ODA has proposed a transport strategy that aims to:

- Transport the Olympic and Paralympic families by a dedicated fleet of low emissions vehicles that will use Olympic and Paralympic Route Networks along London's major roads
- Encourage 100 per cent of spectators to travel to events by using public transport, walking or cycling

In order to help deliver the OTP, TfL is working closely with the Mayor of London, the ODA, the London 2012 Organising

Committee for the Olympic Games and Paralympic Games (LOCOG), the London boroughs and a wide range of other stakeholders and operators.

In the run up to 2012, TfL's role is to ensure the delivery of its Investment Programme projects and additional Games-specific operational enhancements that are guaranteed as part of London's Host City contract with the International Olympic Committee (IOC) and assumed by the OTP. During the Games, TfL will be responsible for providing services across its network to a specification agreed with the ODA, LOCOG and the Department for Transport (DfT).

TfL's proven ability to deliver major projects on time and to budget will be needed to ready London in time for the immovable deadline of 27 July 2012, the opening ceremony of the Olympic Games. £5.53bn is being spent on works that are already part of the £10bn

Investment Programme, the majority of which are already underway, and all will be completed in time for the Games.

TfL is also delivering £548m of additional specific Games-related capital projects, with funding of approximately £241m from the ODA and LOCOG. Work across all these key projects remains on schedule and on budget.

These capital improvement projects are illustrated in the maps on the following two pages.

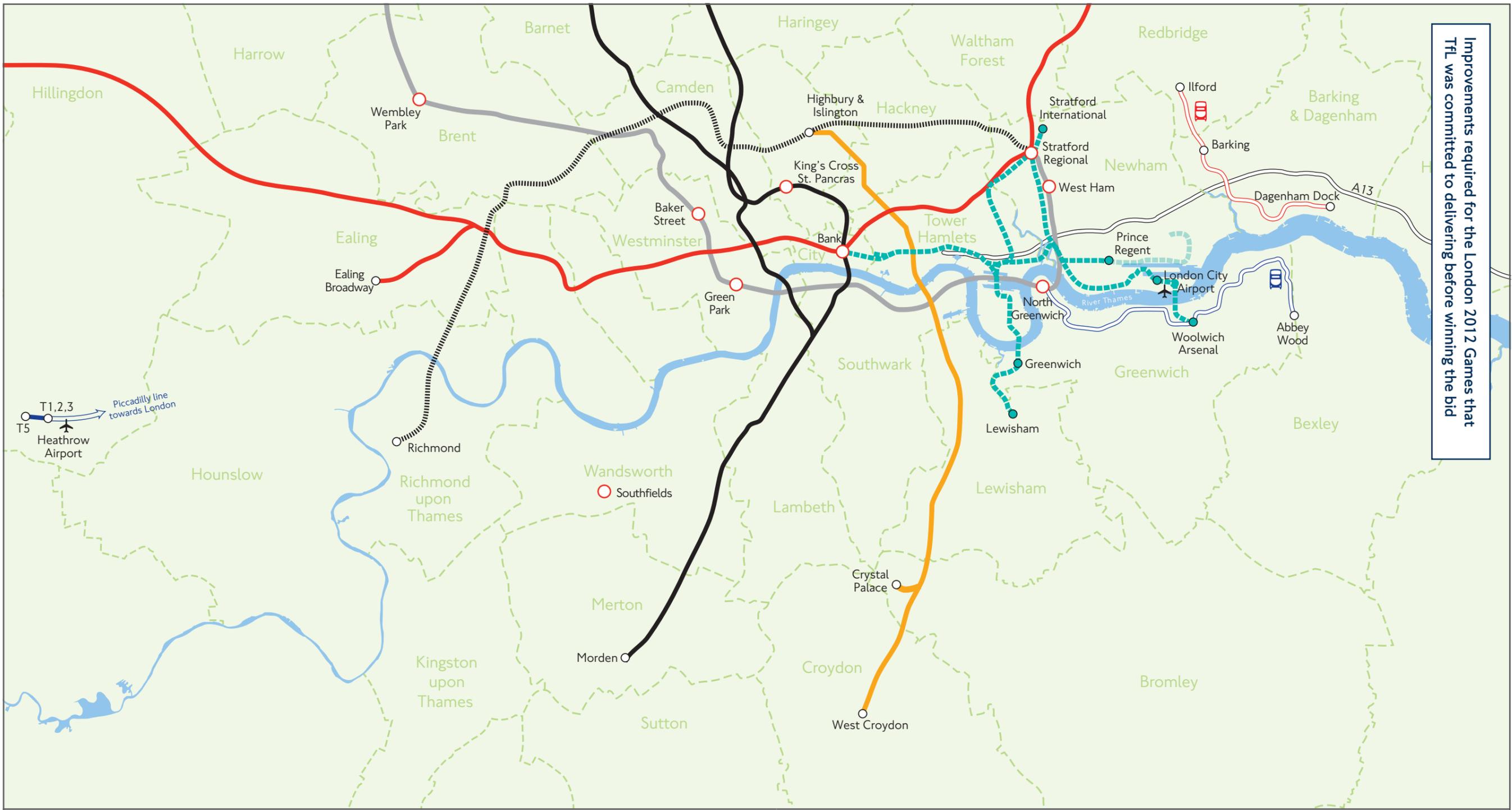
A further £94.1m of operational enhancements, fully funded by the ODA and LOCOG, will supplement the capital investment to ensure the effective running of the network during Games time.

Details of the specific schemes that make up these programmes are shown in tables 1 to 3, along with their funding.

**'London 2012 will provide the best transport to and from the Games in Olympic history. The reliability of the transport will be an incentive for almost all those going to the Games to use public transport; and that public transport will provide a legacy to benefit Londoners for generations to come.'**

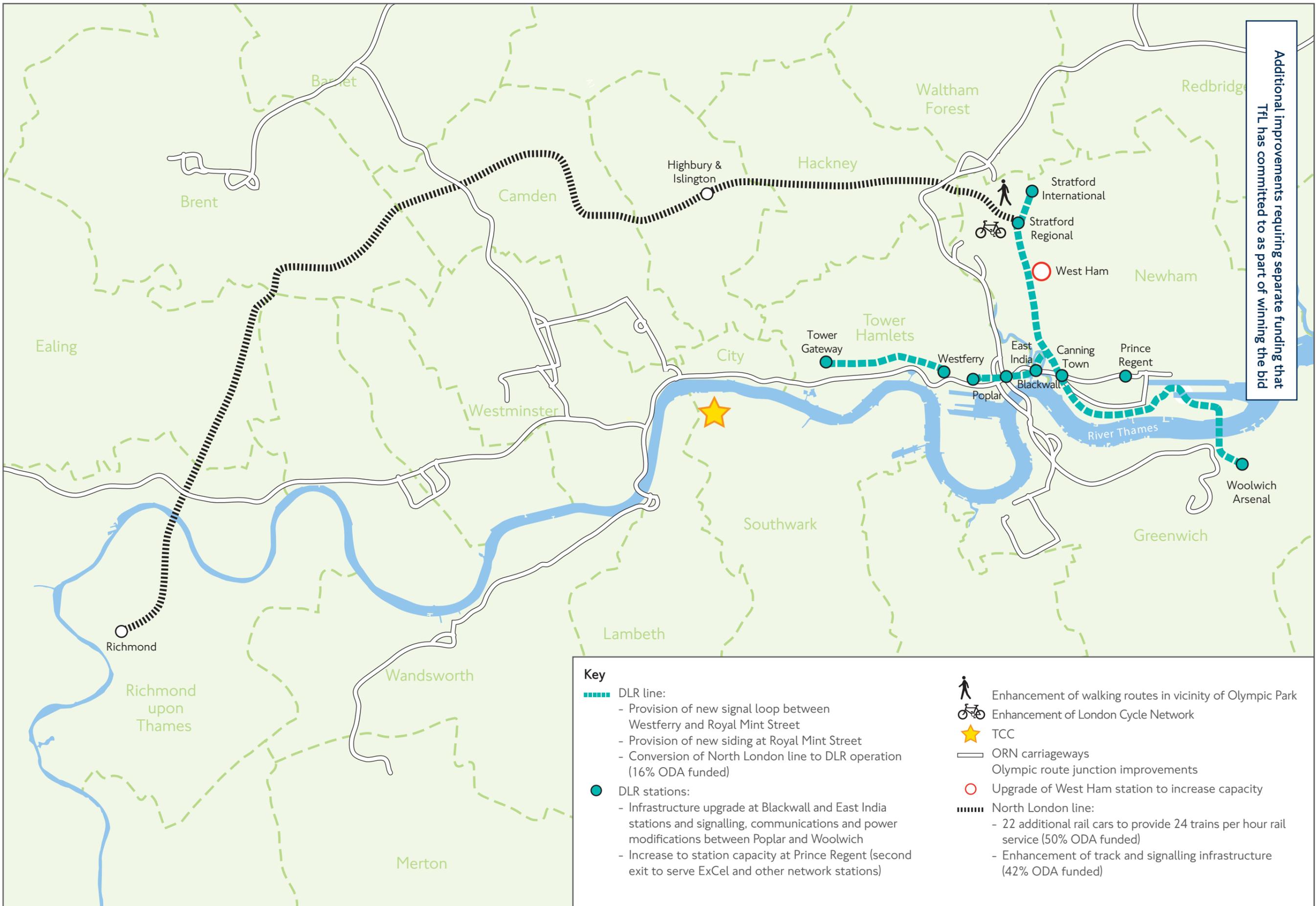
Olympics Minister Tessa Jowell, 2006, Transport for London

Improvements required for the London 2012 Games that TfL was committed to delivering before winning the bid



**Key**

- DLR line:
  - London City Airport extension in service
  - Woolwich Arsenal extension
  - 24 additional railcars (18 for three-car train service Bank-Lewisham, six for two-car train service to Woolwich Arsenal)
  - 15 trains per hour on Bank-Lewisham section
  - Three-car north route
  - DLR railcar refurbishment
- DLR stations: Second platform at Stratford Regional station
- Central line upgrade – journey time improvement
- Northern line upgrade – journey time improvement of 18 per cent
- Jubilee line upgrade – journey time improvement of 22 per cent
- Conversion of NLL to DLR operation (84 per cent TfL funded)
- Piccadilly line extension to Heathrow Terminal 5
- Refurbishment/modernisation programme for all LU stations (main Games stations shown)
- Improvements to the A13
- ELT – phase 1
- GWT – phase 1
- ✈ Network instrumentation to support the ORN (not shown on map)
- ELL extension
- - - - - NLL:
  - LRC stations upgrade
  - 22 additional railcars to provide 24 trains per hour rail service (50 per cent TfL funded)
  - Enhancement of track and signalling infrastructure (58 per cent TfL funded)



Additional improvements requiring separate funding that TfL has committed to as part of winning the bid

**Key**

- DLR line:
  - Provision of new signal loop between Westferry and Royal Mint Street
  - Provision of new siding at Royal Mint Street
  - Conversion of North London line to DLR operation (16% ODA funded)
- DLR stations:
  - Infrastructure upgrade at Blackwall and East India stations and signalling, communications and power modifications between Poplar and Woolwich
  - Increase to station capacity at Prince Regent (second exit to serve ExCel and other network stations)
- Enhancement of walking routes in vicinity of Olympic Park
- Enhancement of London Cycle Network
- ★ TCC
- ORN carriageways
- Olympic route junction improvements
- Upgrade of West Ham station to increase capacity
- ..... North London line:
  - 22 additional rail cars to provide 24 trains per hour rail service (50% ODA funded)
  - Enhancement of track and signalling infrastructure (42% ODA funded)

## LU

By 2010, a total of £7.8bn will have been spent on the modernisation and renewal of the Tube network, funded through both the PPP and TfL Investment Programme. Games-pertinent highlights are detailed below.

- The modernisation and/or refurbishment of all LU stations by 2012 as part of the PPP contract
- A total increase in train kilometres on the Jubilee line of 48 per cent by 2009
- The Piccadilly line extension to Heathrow Terminal 5, scheduled to open in March 2008
- The upgrade of the Northern line signalling, communication and control systems, with a complete line upgrade finished by 2012, delivering a capacity increase of 21 per cent
- An increase in train kilometres of nine per cent on the Central line – completed in 2006
- Capacity enhancements to relieve congestion at King's Cross, Wembley Park and North Greenwich stations (the latter two are now completed)
- The completion of step-free access at 25 per cent of stations by 2010. Green Park, Southfields and Baker Street sub-surface lines will also be step-free by 2012
- Capacity enhancements at West Ham station to accommodate Games traffic

- Improved resilience to run enhanced service patterns
- Enhanced service patterns through the day, demand-driven extended hours running and selective 24-hour running

LU are also working with the ODA to deliver capacity enhancements at Stratford Regional station that will significantly increase the station's capacity in time for Games operation. Scope includes a new platform for the westbound Central line, with connections to the existing Jubilee ticket hall mezzanine level and a new mezzanine deck and gateline to connect with the town centre link bridge. Enabling works are already under way, including moving signalling, power and communication cabling, with the main works to be procured in early 2008.

## DLR

The DLR will play a particularly important role during the Games. A number of major projects will increase the total capacity of the DLR network by around 50 per cent by 2012. The DLR London City Airport extension was already well advanced at the time the Games was awarded and opened in December 2005, on budget and ahead of schedule.

The Canning Town to Stratford International station extension was awarded powers to proceed in October 2006 and construction has

now started. Due to open in 2010, and funded by TfL and the ODA, this will provide a vital rail link for the Games. It will allow passengers arriving at Stratford International station to quickly and easily access the Olympic Park at Stratford and other Games venues using the DLR and its connections to the rest of London's transport network. The extension will involve converting part of the North London line to DLR operation, between Royal Victoria and Stratford, and the laying of track to the new Channel Tunnel Rail Link (CTRL) station at Stratford International. It will then serve existing stations at Stratford, West Ham, Canning Town and Royal Victoria, which will be converted to DLR specifications with improved accessibility and step-free access. In addition, three new, intermediate, fully accessible stations will be built at Star Lane, Abbey Road and Stratford High Street.

The Woolwich Arsenal extension will connect Greenwich with the London City Airport line at King George V station. With tunnelling on the second pass under the Thames completed in July 2007, the line is due to open in early 2009. The new route under the river resurfaces near the existing Woolwich Arsenal National Rail station, with entrances accessible via Greens End and Woolwich New Road. The new, fully accessible station will be constructed on three levels underground and will integrate south-eastern services on the North Kent line, bus services via Charlton, Thamesmead, Plumstead, Abbey Wood and Bexleyheath and

the planned Greenwich Waterfront scheme. During the Games, the station will serve the Royal Artillery Barracks, which will hold the shooting events and in legacy will serve an area identified as a key priority for regeneration in the Thames Gateway region.

To increase capacity, DLR has 31 new carriages on order costing £50m and due to go into service across the network in 2009. This will help to meet anticipated passenger demand for the Games and support the regeneration of the areas served by the DLR.

## London Overground

On 11 November 2007, TfL took over responsibility from the DfT for the administration of the former Silverlink Metro franchise, which runs on the North London line. The Mayor of London has announced that this route will be combined with the East London line to form the London Overground, a new Tube-style frequency service with new trains, staffed stations and Oyster ticketing. The London Overground will also include the London Euston-Watford Junction local line, the West London line from Willesden Junction to Clapham Junction via Kensington Olympia and the Gospel Oak-Barking line. This will give TfL the ability to deliver more frequent, reliable and higher quality rail services. It will also make the London Overground a vital part of TfL's integrated transport network, and

help towards providing sufficient capacity on those rail routes needed for the Games. One of the largest single Investment Programme projects is the £1.1bn extension of the East London line. This will deliver a new railway line between West Croydon, Crystal Palace and Dalston Junction, and the upgrade of the existing Tube line running between Whitechapel and New Cross/New Cross Gate and intermediate stations at Shadwell, Canada Water and Surrey Quays. Phase one will extend the existing East London line south to Crystal Palace/West Croydon and north to Dalston Junction. It will provide frequent, Metro-style train services. The main work started in October 2006 and TfL recently awarded a £363m 'main works' contract to a consortium comprising Balfour Beatty and Carillion. The East London railway will re-open in June 2010 and connect with the North London railway when the Dalston link is completed in January 2011, enabling the service to terminate at Highbury & Islington. Connecting 20 London boroughs, the London Overground will bring huge regeneration opportunities to some of the most deprived areas of the Capital by providing a key transport link between north-east, east and south-east London.

The main construction work will consist of:

- Replacing approximately 7.4km of track and signalling equipment on the existing East London line (Whitechapel-New Cross) to convert it to National Rail operation

- Installing about 3.6km of new track and signalling equipment for the northern extension from Whitechapel to Dalston Junction
- Constructing four new stations with step-free access at Dalston Junction, Haggerston, Hoxton and Shoreditch High Street
- Providing a railway flyover just north of New Cross Gate to connect the southern end of the line to the existing Network Rail line (New Cross-West Croydon)
- Building a new train maintenance depot at New Cross

## Surface Transport

Surface Transport is delivering a number of schemes that will not only support the Games, but will also contribute to regeneration and leave London with a lasting legacy:

- **Olympic Route Network (ORN):** The ORN is a requirement of the London 2012 Host City contract, and will be used to transport the Olympic Family (athletes, officials, sponsors and media) between accommodation and sporting venues during Games time. The Host City bid included a schedule of challenging guaranteed journey times for these journeys. In order to achieve these journey times, TfL is a key delivery partner with the ODA and has established a portfolio of projects that includes improvements to the ORN junctions and carriageways.

The junctions and carriageways projects will deliver both legacy and temporary alteration and improvement schemes along the ORN. Schemes will also be delivered on side roads to reduce any adverse effects on non-Games traffic, thereby seeking to maintain close to normal traffic conditions and keep London moving. TfL is working in partnership with the ODA and other highway authorities to plan, design and deliver these projects in order to ensure a successful Games and leave a lasting legacy for Londoners

- **Transport Co-ordination Centre (TCC):** The TCC will extend the capability of the London Traffic Control Centre with multi-modal representation to deliver the following three functions:
  - To maintain and control movement across the ORN – providing real-time interventions to ensure Games journey times are consistently achieved
  - Oversight of spectators and mass movements – A multi-modal approach to dealing with the complexities of controlling mass movements

- Oversight of Olympic Family vehicles
  - Tracking of Olympic Family vehicles to see where problems are being encountered so real-time interventions can be implemented.
- **Olympic Route Instrumentation:** The Olympic Route Instrumentation project will result in more than 170 traffic signal sites being upgraded to dynamic control to meet the demands of the Olympic Family transport operation. Additional CCTV cameras will also be installed to ensure full visibility in the TCC of key locations on the network. This project will be run in parallel with the highway improvements being made as part of the junctions and carriageways project
- **Walking and cycling:** TfL is developing a forward-looking plan for improving walking and cycling for Games venues which meets the demands of spectators and also provides lasting value in terms of sustainable transport provision. Early engagement with user groups and boroughs is central to the strategy for walking and cycling, which will see a

mixture of traffic-free routes, services and promotion to complement the ongoing and unprecedented investment in these modes in recent years. In particular, the Games proposals will add value to existing TfL programmes, including the London Cycle Network Plus and the six Strategic Walks. As such, the investment channelled through TfL by the ODA will help London meet the Mayor's targets of 200 per cent growth in cycling by 2020 and 10 per cent growth in walking by 2015

- **Improvements to the A13**
- **East London Transit and Greenwich Waterfront Transit schemes:** The provision of fast, frequent and reliable bus transit services to encourage modal shift to public transport in these rapidly developing areas
- **Travel Demand Management (TDM):** TfL will deliver a programme of TDM measures to support sustainable travel choices and reduce the level of background traffic in order to keep London moving prior to, during and after the period of the Games

# London 2012 Games

The awarding of the 2012 Olympics Games and Paralympic Games to London will have a major impact on the delivery of transport schemes to meet the needs of the Olympic family and spectators at the Games. TfL played a substantial part in securing the Games for London through the creation of a transport strategy showing how spectators and participants would be safely and reliably transported across the Capital.

The schemes were enshrined in a Memorandum of Understanding (MoU) with the IOC, which formed an integral part of London's bid. The schemes were split into three parts:

- **Table 1:** Schemes that already formed part of TfL's Investment Programme and would be delivered in time for the Games
- **Table 2:** Additional improvements, requiring separate funding, that TfL committed to deliver in the event of a successful bid

- **Table 3:** Operational enhancements, requiring separate funding from the ODA and LOCOG, that TfL committed to deliver in the event of a successful bid

Funding for those additional improvements required comes under the auspices of the ODA. Tables 1 and 2 show the particular capital schemes involved, along with their funding and where further details can be found in this document.

**Table 1: Improvements required for the 2012 Games that TfL was committed to delivering before winning the bid**

£m	ODA funded?	TfL mode responsible	Page	IP code	2005/06	2006/07	2007/08	2008/09	2009/10	Total 2005/06-2009/10	2010/11	2011/12	Total 2005/06-2011/12
DLR London City Airport extension in service	No	LR	17	LR-PJ08 + LR-PJ502	22.2	1.0	0.3	0.2	0.0	23.7	0.0	0.0	23.7
Second DLR platform at Stratford Regional station	No	LR	18	LR-PJ07	3.6	10.0	5.1	0.2	0.0	18.8	0.0	0.0	18.8

£m	ODA funded?	TfL mode responsible	Page	IP code	2005/06	2006/07	2007/08	2008/09	2009/10	Total 2005/06-2009/10	2010/11	2011/12	Total 2005/06-2011/12
DLR Woolwich Arsenal extension	No	LR	19	LR-PJ09 + LR-PJ503	73.9	62.3	50.2	13.5	1.4	201.3	0.0	0.0	201.3
18 additional DLR railcars (6 for 2-car train service to Woolwich Arsenal, 12 for 3-car train service on Bank-Lewisham section)	No	LR	20	LR-PJ04 + LR-PJ501	7.2	5.5	33.0	6.1	0.0	51.8	0.0	0.0	51.8
15 tph 3-car DLR service on Bank-Lewisham section	No	LR	21	LR-PJ06	4.6	17.5	65.3	117.0	15.2	219.6	24.5	0.0	244.1
Central line upgrade. Journey time improvement (from 9% increase in train km)	No	LU	22	LU-PF20 (part of)	0.0	0.0	31.3	31.3	0.0	62.6	0.0	0.0	62.6
Piccadilly line extension to Heathrow Terminal 5	No	LU	23	LU-PF45	0.0	0.1	0.3	3.8	5.5	9.6	7.7	0.0	17.4
Jubilee line upgrade: Journey time improvement of 22% (from increase in service frequency from 24 tph to 33 tph and 48% increase in train km)	No	LU	24	LU-PF21 (part of)	84.0	77.0	67.8	54.0	44.1	326.8	14.7	0.0	341.5
Northern line upgrade: Journey time improvement of 18% (from increase in service frequency from 30 tph to 33 tph and a 21% increase in train km)	No	LU	25	LU-PF21 (part of)	41.9	67.8	54.0	55.0	45.0	263.6	44.3	30.9	338.8
Improvements to the A13	No	ST	26	ST-PJ168	14.2	12.6	28.3	29.4	28.8	113.3	29.4	29.7	172.5
ELT – phase 1	No	ST	27	ST-PJ24	0.9	0.9	3.3	12.1	5.0	22.3	0.0	0.0	22.3
GWT – phase 1	No	ST	28	ST-PJ25	0.0	0.1	2.4	0.6	12.7	15.8	19.0	9.5	44.3

£m	ODA funded?	TfL mode responsible	Page	IP code	2005/06	2006/07	2007/08	2008/09	2009/10	Total 2005/06-2009/10	2010/11	2011/12	Total 2005/06-2011/12
ELL extension	No	LR	29	LR-PJ01 + LR-PJ301 + LR-PJ19	44.6	93.8	232.4	444.4	123.8	938.9	18.4	0.2	957.5
*Olympic Route instrumentation	No	ST	30	ST-PJ93	0.1	(0.0)	1.1	5.8	3.1	10.1	1.6	1.6	13.3
*LRC stations upgrade	No	LR	31	LR-PJ33 + LR-PJ304	0.0	0.5	4.2	18.0	11.3	34.1	6.8	0.0	40.9
*DLR 3-car north route	No	LR	32	LR-PJ05	0.3	1.3	1.6	9.5	5.2	17.8	0.0	0.0	17.8
*DLR railcar refurbishment	No	LR	33	LR-PJ15	7.6	2.2	1.5	2.3	0.0	13.6	0.0	0.0	13.6
*CTRL at King's Cross (northern ticket hall)	No	LU	34	LU-PF41	96.0	108.3	82.3	90.6	83.9	461.0	19.6	0.0	480.6
Refurbishment/modernisation programme for all LU stations	No	LU	35	LU-PR09	420.7	496.7	540.3	411.4	493.7	2,362.8	N/A	N/A	2,362.8
*Wembley Park congestion relief	No	LU	36	LU-PJ34	Financial figures for these schemes are included under station programme (LU-PR09) above						0.0	0.0	0.0
*North Greenwich congestion relief	No	LU	37	LU-PJ30							0.0	0.0	0.0
*Green Park step-free access	No	LU	38	LU-PJ219							56.0	17.1	73.1
*SSL step-free access – Baker Street	No	LU	39	LU-PJ335							26.6	0.0	26.6
*SSL step-free access – Southfields	No	LU	40	LU-PJ336							0.1	0.0	0.1
<b>Pre-existing TfL funded schemes (£m)</b>					<b>821.7</b>	<b>957.5</b>	<b>1,204.7</b>	<b>1,305.1</b>	<b>878.6</b>	<b>5,167.6</b>	<b>268.7</b>	<b>89.0</b>	<b>5,525.4</b>

**Table 2: Additional improvements, requiring separate funding, that TfL has committed to as part of winning the bid**

£m Funding agreement scheme description	ODA funded?	TfL mode responsible	Page	IP code	2005/ 06	2006/ 07	2007/ 08	2008/ 09	2009/ 10	Total 2005/06- 2009/10	2010/ 11	2011/ 12	Total 2005/06- 2011/12
Conversion of NLL to DLR operation, including 4 new stations, extension to Stratford International station and platform for revised National Rail NLL service at Stratford (£29.1m total ODA funding)	Partial	LR	41	LR-PJ10	3.5	13.4	45.2	46.8	51.3	160.2	22.4	0.0	182.6
50% of cost of 22 additional railcars to provide 24 tph 2-car train service for the 2012 Games on converted NLL, and 3-car train service for the Games to Woolwich Arsenal (50% ODA funded)	Partial	LR	42	LR-PJ20	0.0	6.7	0.8	11.7	25.4	44.7	0.0	0.0	44.7
Signalling and infrastructure works for NLL (£106.9m ODA funding)	Partial	LR	43	LR-PJ32 + LR-PJ302	0.0	3.0	9.4	56.9	92.2	161.4	72.6	6.0	240.0
Infrastructure upgrade at Blackwall and East India stations and signalling, communications and power modifications between Poplar and Woolwich Arsenal to allow 3-car train operation during the Games	Yes	LR	44	LR-PJ22	0.0	0.0	0.3	4.8	3.9	9.0	4.2	0.0	13.2
Increase to station capacity at Prince Regent (2nd exit to serve ExCel) and other network stations	Yes	LR	45	LR-PJ25	0.0	0.0	0.5	2.1	3.7	6.3	0.0	0.0	6.3

£m Funding agreement scheme description	ODA funded?	TfL mode responsible	Page	IP code	2005/ 06	2006/ 07	2007/ 08	2008/ 09	2009/ 10	Total 2005/06- 2009/10	2010/ 11	2011/ 12	Total 2005/06- 2011/12
Provision of new signal loop between Westferry and Royal Mint Street to improve perturbation recovery time	Yes	LR	46	LR-PJ23	0.0	0.0	0.0	0.4	0.0	0.4	0.0	0.0	0.4
Modification to junction at Royal Mint Street to improve system recovery time	Yes	LR	47	LR-PJ27	0.0	0.0	0.0	3.7	6.2	9.9	0.0	0.0	9.9
Enhancement of London Cycle Network to provide cycling opportunity for spectators and workforce	Yes	ST	48	ST-PJ163	0.0	0.0	0.3	1.1	5.3	6.7	0.8	0.0	7.5
Enhancement of walking routes in vicinity Olympic Park and venues	Yes	ST	49	ST-PJ164	0.0	0.0	0.0	0.4	1.7	2.1	0.4	0.0	2.5
^TCC	LOCOG	ST	50	ST-PJ162	0.0	0.0	0.0	4.7	4.7	9.4	0.0	0.0	9.4
^Temporary and permanent works required to the ORN	LOCOG	ST	51	ST-PJ165	0.0	0.0	0.0	0.0	0.0	0.0	3.5	3.5	7.0
Junction improvements to TLRN to support planned ORN	Yes	ST	52	ST-PJ161	0.0	0.0	0.0	0.0	0.0	0.0	5.5	5.5	11.0
LU stations: Upgrade of West Ham station to increase capacity and upgrade of station operations rooms at key interchanges	Yes	LU	53	LU-PJ218	0.0	0.2	1.0	5.5	4.3	11.0	2.2	0.0	13.2
LU resilience: Construction of two new sidings on Central line to enhance system recovery time (discontinued in favour of operational solution)	Yes	LU	54	LU-PJ217	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total ODA funded schemes (£m)</b>					<b>3.5</b>	<b>23.4</b>	<b>57.5</b>	<b>138.1</b>	<b>198.6</b>	<b>421.1</b>	<b>111.6</b>	<b>15.0</b>	<b>547.6</b>

**Table 3: Operational enhancements funded by the ODA (or LOCOG) that TfL has committed to deliver**

£m	TfL mode responsible	2005/06	2006/07	2007/08	2008/09	2009/10	Total 2005/06-2009/10	2010/11	2011/12	Total 2005/06-2011/12
Additional DLR staff required to operate the London 2012 Games service plan	LR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	2.9
Provision of DLR network-wide signage for London 2012 Games wayfinding	LR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
Signalling and infrastructure works for North London line	LR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	2.2
Enhanced service patterns through the day, demand-driven extended-hours running and selective 24-hour running	LU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.4	21.4
Recruitment and training of LU volunteers	LU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3
Additional station and train cleaning	LU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.5
Provision of network-wide signage for London 2012 Games wayfinding	LU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.5
Operational resilience on the Central line to enhance system recovery time in the event of an incident, and additional network maintenance to improve resilience	LU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	12.5
Rescheduling of planned LU network enhancements to minimise risk of disruption to the Games services	LU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	10.5
Provision of enhanced bus services and bus station management at Greenwich for the Dome	ST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3
Shuttle buses for workforce and volunteers	ST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.8
TCC	ST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
Enforcement required for ORN (LOCOG funded)	ST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	1.9
Enhancements to existing TfL bus services for specific transport requirements during the Games period (LOCOG funded)	ST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	4.9

£m	TfL mode responsible	2005/06	2006/07	2007/08	2008/09	2009/10	Total 2005/06-2009/10	2010/11	2011/12	Total 2005/06-2011/12
Background TDM (initiatives to suppress background transport demand during the Games period) (all modes)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	12.5
Transport arrangements (all modes) for those attending opening/closing Ceremonies		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4
Transport arrangements (all modes) for test events prior to the Games period		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5
<b>Total ODA funded schemes (£million)</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>81.5</b>	<b>94.1</b>

Project locations: London Borough of Newham

Manager: Jonathan Fox – Director, DLR

### Outputs

This activity covers the extension of the DLR to London City Airport and onward to King George V, including intermediate stations at West Silvertown and Pontoon Dock. This includes passive provision for two further stations to be opened in line with future development. It has been let as a 30-year design, build, finance and maintain concession.

### Justification

The extension delivers passenger (journey time) benefits totalling £218.8m (present value) over 30 years, plus road decongestion valued at £13.1m. A good quality public transport link is essential for sustainably facilitating airport growth.

The route also serves the major regeneration area of Docklands/Thames Gateway. The extension will regenerate the southern part of the Royal Docks, which is currently served by two trains per hour in each direction throughout the day. The extension will also connect the southern part of the Royal Docks to the London rail network and offer major reductions in passenger journey times, as well as significant improvements in public transport accessibility to Canary Wharf, the City and the West End.

### Outcomes

- Faster and higher-quality link to the airport and through Royal Docks regeneration zone
- Revenue generation (increasing with demand) £1.57m per year, present value £28.6m over 30 years
- Will help to reduce the number of road-based journeys to the airport by about one million vehicles per year by 2020

### Key milestones

**November 2005:** Complete viaduct structure

**November 2005:** Complete station construction

**December 2005:** Completion date

### Environmental impacts

- The resulting modal shift from car and taxi use will have an indirect impact on reducing air emissions
- Increased energy use will be offset by modal shift, and increased noise will be addressed by mitigation measures

### E&I impacts

- Bringing a fully accessible railway to an area with lowest 10% ranking indices of deprivation (income and employment), and where 55% of households do not have a car
- Will support development such as Silvertown Quays (London Development Agency), which will have a high proportion of social housing (as determined by Mayoral and borough policy)

### Benefit cost ratio

1.6:1

### Net financial effect

-£144.9m (present value terms)

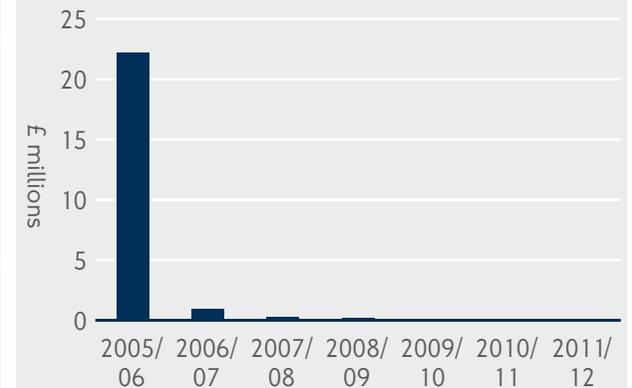
### Estimated final cost

This project is financed via a 30-year design, build, finance and maintain PFI concession. Total construction cost amounts to approximately £150m.

Primary category: Accommodating London's growth

Programme: DLR new services/line extensions

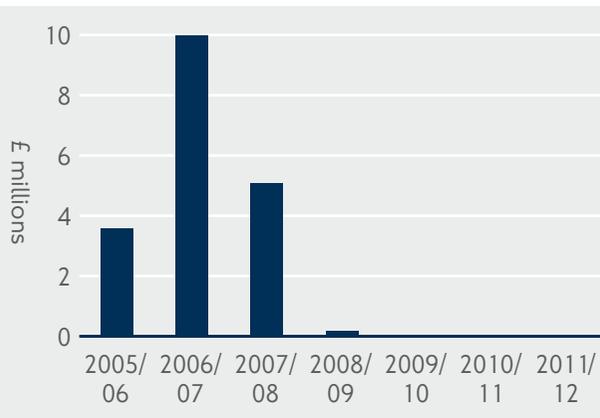
Portfolio: DLR new services/line extensions



**Primary category:** Meeting demand growth

**Programme:** DLR stations

**Portfolio:** DLR major modernisation



**Project locations:** Stratford, London Borough of Newham

**Manager:** Jonathan Fox – Director, DLR

### Outputs

This activity covers the provision of double-track DLR platforms at Stratford Regional station to replace existing single narrow platform. Double track allows the potential to increase service frequency on the Stratford branch.

### Justification

Provision of additional passenger and operational capacity at Stratford station to reduce platform crowding and improve safety, against a background of continuing increases in passenger traffic.

This is required to mitigate increasing safety (crowding) risk at an already very cramped and busy platform. This will also improve operational flexibility and recovery of service.

### Outcomes

- Longer platforms will greatly improve passenger circulation and platform capacity, reduce crowding and minimise the risk of accidents at the platform edge
- Allows an increase in service frequency from seven to five minute intervals in the peak, and additional flexibility in removing any failed rolling stock from service
- Provision for future three-car upgrade
- New interchange link to platforms 3 and 5 and a link directly into mezzanine level of Stratford station allows dual access to platforms

### Key milestones

- September 2004:** Secure planning approvals
- August 2005:** Start works
- June 2007:** Completion of phase 1 (south platform)
- October 2007:** Overall completion

### Environmental impacts

The resulting modal shift from private car use will have an indirect impact on reducing CO<sub>2</sub> emissions.

### E&I impacts

Accessibility, safety and personal security improved by reducing crowding.

### Benefit cost ratio

2.0:1

### Net financial effect

£7.8m (present value terms)

### Estimated final cost

Total project cost: £20.4m (£18.8m 2005/06–2009/10)

**Project locations:** London Borough of Greenwich

**Primary category:** Accommodating London's growth

**Manager:** Jonathan Fox – Director, DLR

**Programme:** DLR new services/line extensions

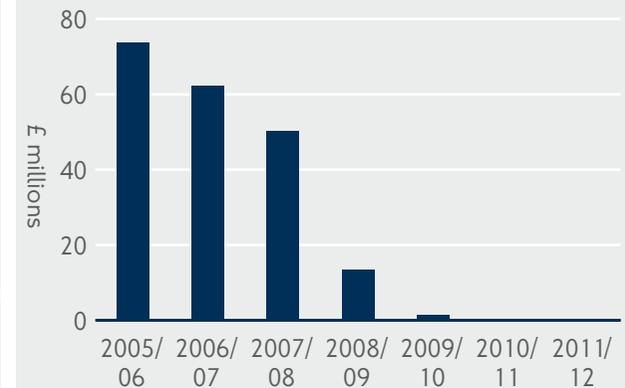
## Outputs

Extension of the railway under the Thames from King George V to Woolwich Arsenal, with new combined station at Woolwich Arsenal linking with town centre, buses, South Eastern rail services and Waterfront Transit. Length of track delivered – 2.5km.

**Portfolio:** DLR new services/line extensions

## Justification

The scheme will create a new, strategic, cross-river public transport link, reduce the severance effect of the Thames, lead to a modal shift towards public transport and aid the physical and social regeneration of Woolwich in support of the London Plan. It will promote the provision of new housing in the Woolwich area, improve residents' access to suitable jobs and services across the inner Thames Gateway and central London, sustain and increase economic activity, particularly in the retail and leisure sector in Woolwich town centre, and accelerate and change the nature of inward investment through commercial development and local jobs.



## Outcomes

- Trains could run up to every four minutes in the peak periods to and from Woolwich Arsenal
- An estimated 500,000 passenger trips per year would divert from car to public transport
- Physical regeneration of Woolwich – 1,000 permanent jobs by 2017
- Journey times from Woolwich to: City Airport – five minutes; Canning Town – 16 minutes; Canary Wharf – 18 minutes; and Bank – 26 minutes
- Forecast revenue by March 2011 – approximately £12m

## Benefit cost ratio

1.7:1

## Key milestones

- September 2004:** Tender documents returned
- May 2005:** Appoint concessionaire
- June 2005:** Commence construction
- April 2006:** Tunnel boring commenced
- June 2007:** Commence trackwork
- July 2007:** Completion of tunnelling
- February 2008:** Trackwork complete
- March 2008:** Systems testing
- December 2008:** Systems complete
- February 2009:** Project completion

## Environmental impacts

- Resulting modal shift will have an indirect impact on reducing air emissions
- Increased energy use will be offset by modal shift, and increased noise will be addressed by mitigation measures
- Positive impact on the local built environment

## E&I impacts

- Station will be fully accessible
- Increasing social inclusion by attracting investment in Woolwich and improving access to employment and growth in Docklands

## Net financial effect

-£112m (present value terms)

## Estimated final cost

Project will be financed via design, build, finance and maintain PFI concession.

Direct cost: £30.1m (£24.3m 2005/06–2009/10)

PFI capital: £177.1m (2005/06–2009/10)



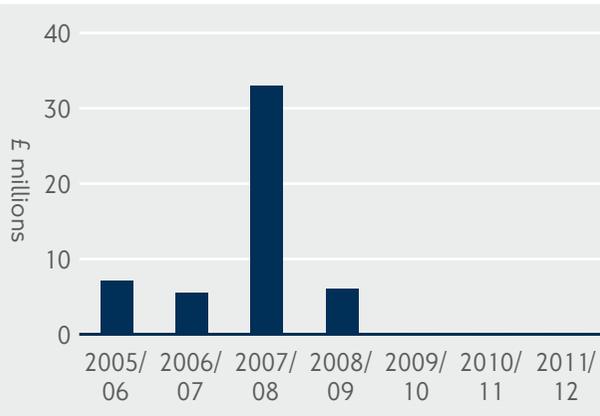
**Primary category:** Accommodating London's growth

**Project locations:** Bank–Lewisham/Woolwich

**Programme:** DLR rolling stock

**Manager:** Jonathan Fox – Director, DLR

**Portfolio:** DLR major procurements



## Outputs

- Capacity enhancements (three-car) – procurement of 18 new vehicles
- Woolwich Arsenal extension – procurement of six new vehicles

## Key milestones

- April 2005:** Contract let
- February 2007:** First painted car body
- December 2007:** First train delivered
- June 2008:** 18th car in service
- July 2008:** Last train delivered
- September 2008:** All cars in service

## Justification

### Capacity enhancements (three-car)

Continuing increase in demand arising from commercial and residential growth in the Canary Wharf area, plus an increase in the number of events held at ExCel, mean more capacity is required on the Stratford to Crossharbour/Lewisham route to reduce passenger congestion and overcrowding. This project offers best value-for-money compared to other options, such as infrastructure/signalling works to increase train frequency.

## Environmental impacts

- The resulting modal shift from private car use will have an indirect impact on reducing air emissions
- Increased energy use will be offset by efficiencies, and increased noise will be addressed by mitigation measures

### Woolwich Arsenal extension

Increases the use of public transport for cross-river journeys, and facilitates the physical regeneration of Woolwich. It is anticipated that trains could run up to every four minutes in the peak periods to and from Woolwich Arsenal.

## E&I impacts

Increased social inclusion through the development of the Isle of Dogs and Woolwich town centre.

Six additional vehicles are required to operate the planned service to and from Woolwich Arsenal.

## Estimated final cost

Direct costs: £2.1m (£1.8m 2005/06–2009/10)  
PFI capital: £50m (cost of railcars to be funded via a finance lease)

## Outcomes

A sufficient fleet of railcars to operate three-car services between Bank and Lewisham, and services to the new Woolwich Arsenal extension.



Project locations: Poplar, Lewisham, Bank and Tower Gateway

Manager: Jonathan Fox – Director, DLR

## Outputs

This activity covers the structural works (platform extensions, track realignment and viaduct strengthening) necessary for three-car operations between Bank/Tower Gateway and Lewisham. The project now also includes the junction at Canning Town to the Stratford International extension (formerly reported under LR-PJ10).

## Justification

Continuing increase in demand, arising from commercial and residential growth in the Canary Wharf area, necessitates provision for more capacity on the Bank/Tower Gateway to Lewisham route to reduce passenger congestion and overcrowding.

This option offers best value-for-money compared to others, such as infrastructure/signalling works to increase train frequency.

## Outcomes

- Increased morning peak capacity from 17 trains per hour (two-car) to 15 trains per hour (three-car)
- Crowding reduced
- Reliability maintained by keeping dwell times short
- Additional capacity allows accelerated regeneration
- Additional cross-river public transport capacity

## Key milestones

- November 2005:** TWA powers confirmed – packages 1 and 2 (Bank-Lewisham)
- December 2006:** Tender documents returned
- May 2007:** Contract award – packages 1 and 2 (Bank-Lewisham) and package 7 (Canning Town Flyover)
- October 2007:** Construction work starts – package 7 (Canning Town Flyover)
- January 2010:** Construction work complete – packages 1 and 2 (Bank-Lewisham)
- January 2010:** Service operational

## Environmental impacts

- The resulting modal shift from private car use will have an indirect impact on reducing CO<sub>2</sub> emissions
- Increased energy use will be offset by efficiencies, and increased noise will be addressed by mitigation measures

## E&I impacts

Increased social inclusion through supporting regeneration that provides more homes and jobs.

## Benefit cost ratio

1.4:1

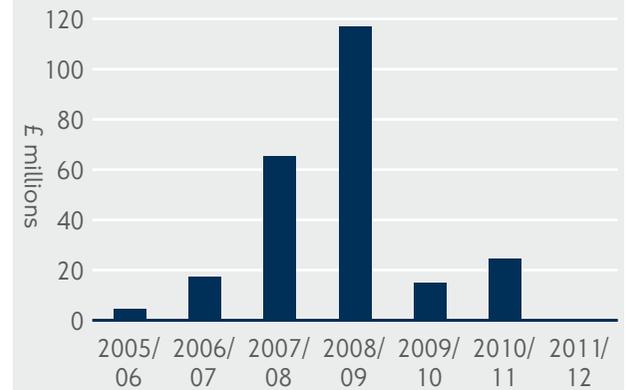
## Estimated final cost

Total project cost £251.7m (£219.6m 2005/06–2009/10)

Primary category: Meeting demand growth

Programme: DLR line upgrades

Portfolio: DLR line upgrades



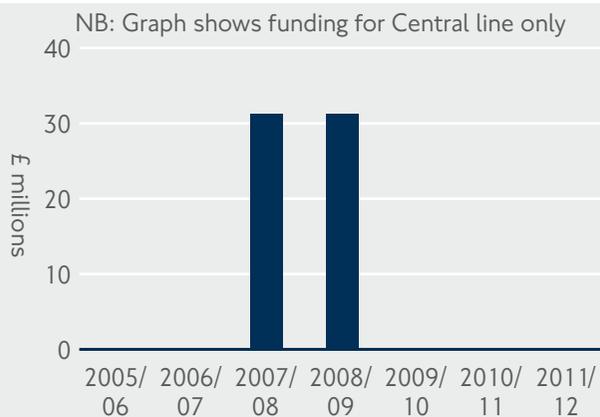
**Primary category:** Meeting demand growth

**Project locations:** Bakerloo, Central, Victoria and Waterloo & City lines

**Programme:** LU line upgrades

**Manager:** Saleem Mohammad – Programme Manager

**Projects:** Various



## Outputs

An upgrade project intended to increase capacity on an existing line. The infracos are required to provide the capability for reduced journey times, enabling increased capacity. This is achieved by coordinated renewal and replacement of assets, typically signals and rolling stock, delivering a step-change in performance.

Lines affected:

- Central
- Waterloo & City
- Victoria
- Bakerloo

Details of works on specific assets are captured under the relevant asset portfolios.

## Key milestones

- 2006:** Central line upgrade complete, 5% capability improvement (equivalent to capacity increase of approximately 29%)
- 2006:** Victoria – interim line upgrade complete, 5% capability improvement
- 2007:** Waterloo & City line upgrade complete, 12% capability improvement (equivalent to capacity increase of approximately 30%) (achieved)
- 2013:** Victoria – full line upgrade complete, 16% cumulative capability improvement (equivalent to cumulative capacity increase of approximately 35%)
- 2020:** Bakerloo line upgrade complete, 18% capability improvement (enables a capacity increase of approximately 23%)

The exact capacity increase depends on how the improved capability is delivered and used.

## Justification

To provide increased capacity to meet growing customer demand over the next 20 years.

## Outcomes

- Reduced average journey times:
  - Bakerloo 18%
  - Central 5%
  - Victoria 16%
  - Waterloo & City 12%
- Increased capacity (service volumes) approximately:
  - Bakerloo 23%
  - Central 29%
  - Victoria 35%
  - Waterloo & City 30%
- Improved reliability as a result of new assets

## Environmental impacts

- The line upgrades are expected to deliver a 25% increase in capacity by 2016, enabling modal shift in favour of public transport
- Overall increased services and new trains will require more power. This is partly offset by new technologies, eg regenerative braking

## E&I impacts

All customer groups benefit from line upgrades.

## Narrative on cost changes

A line upgrade involves investment in a number of asset categories, including rolling stock and signalling. Cost data for upgrade activities is, therefore, included under the relevant asset portfolios, and not repeated here.



**Project locations:** Heathrow Airport

**Primary category:** Accommodating London's growth

**Manager:** Andy Mitchell – PPP Contract Director JNP

**Programme:** LU extensions

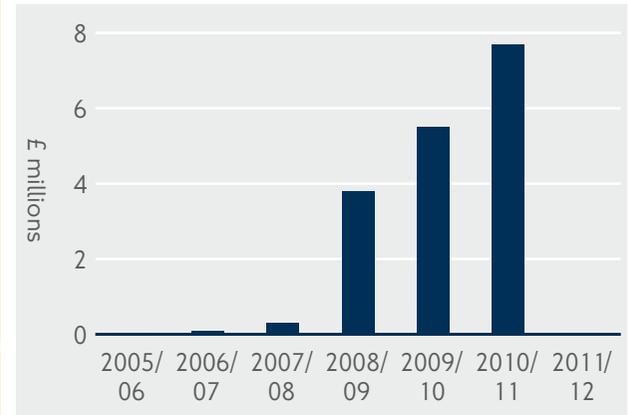
## Outputs

- Terminal 5 – extension to Piccadilly line west of the existing Heathrow airport Terminal 4 loop, via twin-bored tunnels to serve a new station at Heathrow Terminal 5. The work is funded by BAA, with LU contributing to the cost through a 30-year revenue sharing agreement
- Terminals 1, 2 and 3 – complementary works to the existing station are being considered. BAA is making a contribution of £17m to these works

**Projects:** LU Terminal 5

## Justification

Heathrow currently handles around 65 million people per year, and is the busiest international airport in the world and the largest in Europe. The Piccadilly line was extended to Heathrow Central Terminal Area in 1977 and to Terminal 4 in 1986, providing direct access between the airport and central London. Terminal 5 will provide an additional capacity of up to 40 million people per year. By extending the Piccadilly line to Terminal 5, LU will be connecting to a world-class air-rail-bus interchange, supporting a project of local and national significance, both economically and politically.



## Outcomes

- Piccadilly line extension finished prior to opening of Terminal 5
- Three million passengers per year demand for Terminal 5 route by 2010
- Providing a recognised alternative to car travel to the airport and helping to reduce road use around Heathrow – supporting BAA's objective of 50% public transport modal share

## Key milestones

- 2006:** Terminal 4 loop re-opening after 20 months of closure
- 2008:** Terminal 5 extension works are led by BAA. The extension is scheduled to open in April 2008, in tandem with the new terminal
- Station works at the existing Terminal 1, 2 and 3 station (subject to outcome of feasibility studies into proposed solutions):
- 2006:** Detailed design completed
- 2009:** Work starts on site
- 2011:** Project completed

## Environmental impacts

- The resulting modal shift from car usage will have an indirect impact on reducing air emissions and noise
- There would be some increases in energy use and waste creation due to the increase in service provision

## E&I impacts

- New station will have step-free access to airport terminal
- Improvements in step-free provision for the Terminals 1, 2 and 3 station

## Narrative on cost changes

Project at scoping phase.



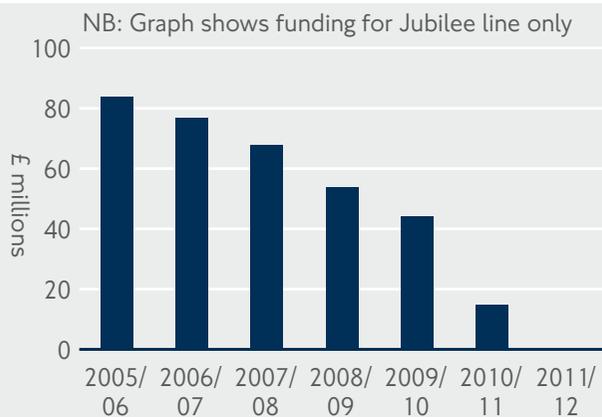
**Primary category:** Meeting demand growth

**Project locations:** Jubilee, Northern and Piccadilly lines

**Programme:** LU line upgrades

**Manager:** Andy Mitchell – PPP Contract Director JNP

**Projects:** Various



## Outputs

An upgrade project intended to increase capacity on an existing line. The infracos are required to provide the capability for reduced journey times, enabling increased capacity. This is achieved by coordinated renewal and replacement of assets, typically signals and rolling stock, delivering a step-change in performance.

Lines affected:

- Jubilee
- Northern
- Piccadilly

Details of works on specific assets are captured under the relevant asset portfolios.

## Key milestones

**2008:** Jubilee line dual fitted area available for LU use

**2008:** Migration of Jubilee areas (known as J2 and J3) available

**2009:** Jubilee line upgrade completed, 22% capability improvement (enables a capacity increase of approximately 48%)

**2012:** Northern line upgrade completed, 18% capability improvement (enables a capacity increase of approximately 21%)

**2014:** Piccadilly line upgrade completed, 19% capability improvement (enables a capacity increase of approximately 35%)

The exact capacity increase depends on how the improved capability is delivered and used.

## Justification

To provide increased capacity to meet growing customer demand over the next 20 years.

## Outcomes

- Reduced average journey times
  - Jubilee 22%
  - Northern 18%
  - Piccadilly 19%
- Increased capacity (service volumes) approximately:
  - Jubilee 48%
  - Northern 21%
  - Piccadilly 35%
- Improved reliability as a result of new assets

## Environmental impacts

- The line upgrades are expected to deliver a 25% increase in capacity by 2016, enabling modal shift in favour of public transport
- Overall increased services and new trains will require more power. This is partly offset by new technologies, eg regenerative braking

## E&I impacts

All customer groups benefit from line upgrades.

## Narrative on cost changes

A line upgrade involves investment in a number of asset categories, including rolling stock and signals. Cost data for upgrade activities is, therefore, included under the relevant asset portfolios, and not repeated here.



**Project locations:** Jubilee, Northern and Piccadilly lines

**Primary category:** Meeting demand growth

**Manager:** Andy Mitchell – PPP Contract Director JNP

**Programme:** LU line upgrades

## Outputs

An upgrade project intended to increase capacity on an existing line. The infracos are required to provide the capability for reduced journey times, enabling increased capacity. This is achieved by coordinated renewal and replacement of assets, typically signals and rolling stock, delivering a step-change in performance.

Lines affected:

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- Northern
- Piccadilly

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## Key milestones

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**2008:** Migration of Jubilee areas (known as J2 and J3) available

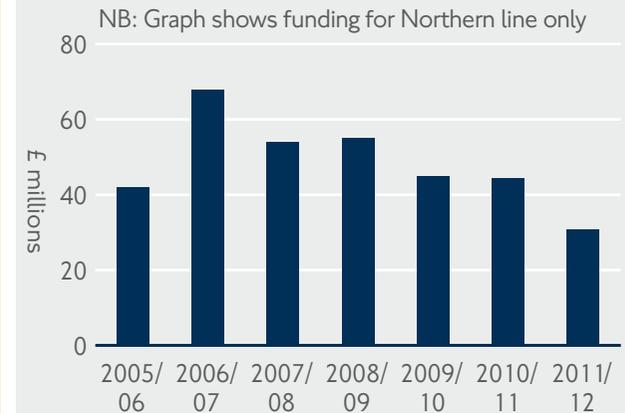
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**2014:** Piccadilly line upgrade completed, 19% capability improvement (enables a capacity increase of approximately 35%)

The exact capacity increase depends on how the improved capability is delivered and used.

**Projects:** Various



## Justification

To provide increased capacity to meet growing customer demand over the next 20 years.

## Environmental impacts

- The line upgrades are expected to deliver a 25% increase in capacity by 2016, enabling modal shift in favour of public transport
- Overall increased services and new trains will require more power. This is partly offset by new technologies, eg regenerative braking

## Outcomes

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  - Piccadilly 35%
- Improved reliability as a result of new assets

## E&I impacts

All customer groups benefit from line upgrades.

## Narrative on cost changes

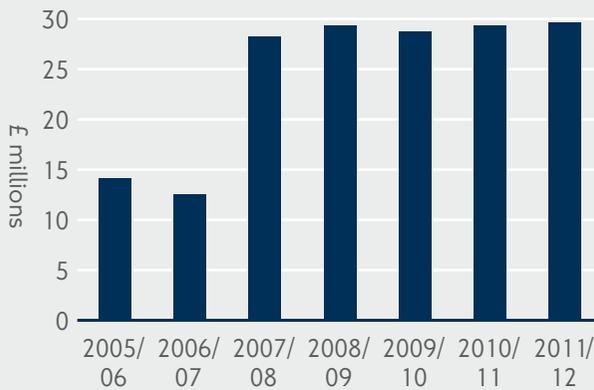
A line upgrade involves investment in a number of asset categories, including rolling stock and signals. Cost data for upgrade activities is, therefore, included under the relevant asset portfolios, and not repeated here.



**Primary category:** Current service

**Programme:** Major route and safety improvements

**Portfolio:** Major route improvements



**Project locations:** East London

**Manager:** Brian Thomas – DBFO Manager

### Outputs

A13 from Butcher Row to Wennington, including improvements to major junctions and other works.

The contract includes: New low-noise road surfacing, safe crossing points; provision for high maintenance standards for 30 years; improved street lighting; upgraded facilities and CCTV; improved highway, footpaths and cycleways; new road signage; and new communication systems.

### Justification

Project improves accessibility, enabling regeneration and new development in the Thames Gateway corridor.

The current works programme includes monitoring works carried out under the A13 DBFO contract. The contract includes five major new schemes within the 20km section of the A13 between Limehouse and Wennington (Havering) and the operation and maintenance of the A13 and A1261 for 30 years.

### E&I impacts

- Improved accessibility for residents and commuters, safer road crossings and cycleways, and reduced congestion
- Will assist local regeneration of the A13 corridor, which will improve employment opportunities
- Increased security due to improved lighting to footways, upgraded subways and significant coverage by CCTV cameras for more vulnerable user groups
- Improved ramps to subways and footbridges, improved footways/cycleways and crossings with tactile paving, ensuring adequate access for trips on foot or for mobility-impaired people
- Improved bus facilities providing transport for all ages and abilities, with access to facilities, employment and amenities

### Key milestones

- August 2004:** Woolwich Manor Way complete
- August 2004:** Prince Regent Lane scheme complete
- October 2004:** Canning Town scheme complete
- September 2006:** A13 communications systems complete
- April 2031:** Operation and maintenance of the A13 project road complete

### Outcomes

- Personal injury accidents reduced – 2,400 personal injury accidents saved over 30 years
- Improved bus journey times and reliability (new bus lanes)
- Junction improvements to improve journey time reliability and relieve congestion
- Encourages walking and cycling by improving conditions – new and improved footpaths and crossing facilities, new segregated cycle facilities and new cycle tracks

### Environmental impacts

- Major improvement schemes include significant lengths of environmental barriers for the benefit of local residents
- Traffic noise and visual impact reduced
- Reduced congestion and improved traffic flows, improving air quality and reducing CO<sub>2</sub> emissions
- Significant lengths of new cycle tracks along the A13 to encourage cycling, which will assist in improving air quality
- Improved lighting standards along the A13, with reduced light intrusion to adjacent properties
- Improved streetscape and landscape as part of the major improvement scheme, in line with urban design guidance

**Project locations:** Ilford-Barking-Dagenham Dock

**Manager:** Matthew Albiges – Programme Manager, Surface Transport Strategy

## Outputs

Upgrade of Ilford-Barking-Thamesview Estate corridor with high levels of bus priority, improved stops and information. Includes new dedicated access through Barking town centre and a package of highway measures. Corridor extended from Thamesview Estate to Dagenham Dock.

## Justification

Provision of a high quality (fast, frequent and reliable) bus transit service to encourage modal shift to public transport in a rapidly developing area. ELT will deliver attractive public transport links between sub-region, town centres and neighbouring zone within Thames Gateway regeneration area. The introduction of ELT phase 1A is expected to give strong support to the previously identified regeneration aspirations for the Ilford, Barking and Dagenham Dock areas.

## Outcomes

Achieves at least a 5% reduction in journey time for route 369 between the nearest stops to Abridge Way and Ilford station, and 5% increase in customer satisfaction by second quarter post-scheme opening, compared with last quarter before construction commences.

## E&I impacts

- Low-floor vehicles, and improved stop and kerb designs allow easy access to vehicles for all passengers, including older and disabled people
- Improved facilities at stops, such as lighting and CCTV, enhance the passenger waiting environment and increase perceptions of personal security at night
- Improved accessibility to Barking town centre

## Key milestones

- November 2005:** ELT preliminary design published
- August 2007:** ELT public consultation report complete
- August 2007:** ELT detailed design complete
- January 2008:** Invitation to tender
- July 2008:** Contract awarded
- October 2008:** Construction starts
- January 2009:** Commence Barking town centre
- September 2009:** ELT infrastructure works complete
- October 2009:** ELT service starts

## Environmental impacts

- The resulting modal shift from private car usage will have an indirect impact on reducing air emissions and noise. The reduction in the use of private vehicles in the area is likely to result in a slight decrease in emissions such as CO<sub>2</sub>, HC, NO<sub>x</sub> and PM<sub>10</sub>. The introduction of newer, cleaner, quieter buses along existing routes will contribute to reduced noise and vibration levels
- Improvements to the built environment through the development of a high quality public transport system

## Benefit cost ratio

2.1:1 (phase 1A)

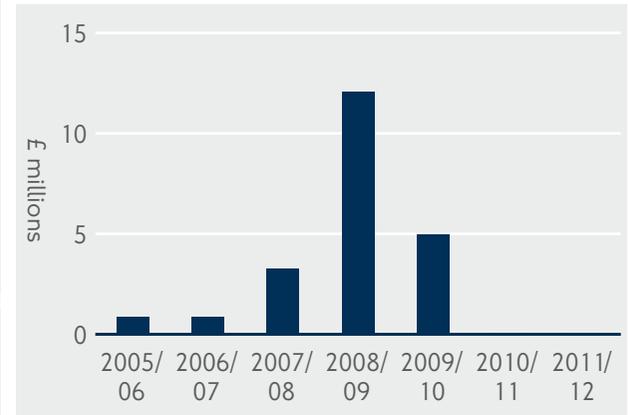
## Estimated final cost

£22.6m

**Primary category:** Enhancing quality of service

**Programme:** Bus transit schemes

**Portfolio:** Bus transit schemes



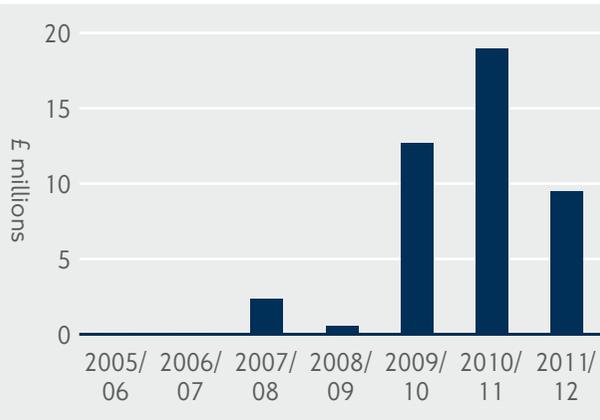
**Primary category:** Enhancing quality of service

**Project locations:** North Greenwich–Abbey Wood

**Programme:** Bus transit schemes

**Manager:** Penny Rees – Programme Manager, Surface Transport Strategy

**Portfolio:** Bus transit schemes



## Outputs

In summary, the GWT route provides:

- On-street running, as a conventional bus service, between North Greenwich and Woolwich Ferry roundabout
- Operation using a combination of new bus lanes, new segregated alignment and sections mixed with regular traffic from Woolwich Ferry roundabout to Abbey Wood
- SVD at some junctions to give priority to GWT vehicles when passing through traffic signals

## Key milestones

- July 2006:** GWT handover to Surface Transport
- December 2007:** Public consultation
- January 2008:** Preliminary design
- January 2008:** Sign-off by boroughs
- August 2008:** Complete tender documents
- August 2008:** Detailed design
- August 2009:** Construction commences
- August 2011:** Construction completed
- October 2011:** Service commences

## Justification

High quality bus transit service to encourage use of public transport in a rapidly developing area. More attractive public transport links between sub-region town centres and neighbouring zones within the Thames Gateway regeneration area will be provided. GWT will also be a catalyst to regeneration in the area.

## Environmental impacts

- The resulting modal shift from private car usage will have an indirect impact on reducing air emissions and noise
- Reduced use of private vehicles in the area is likely to result in a slight decrease in emissions such as CO<sub>2</sub>, HC, NOx and PM<sub>10</sub>
- Improvements to the built environment

## Outcomes

The following performance targets are in place:

- Journey time between Woolwich town centre and Thamesmead town centre – GWT to achieve at least a 10% reduction over the second quarter after implementation, compared to that quarter in the previous year for route 472
- Customer satisfaction – achieve a 5% improvement in the overall customer satisfaction rating over the second quarter after implementation, compared to that quarter in the previous year for route 472

## E&I impacts

- Improved social inclusion through the development of the bus network, which is proportionally under-used by disadvantaged groups
- Low-floor vehicles and improved stop and kerb designs allow easy access to vehicles for all passengers
- Improved facilities at stops, such as lighting and CCTV, enhance the passenger waiting environment and improve perceptions of personal security at night

## Benefit cost ratio

Under review

## Estimated final cost

£44.3m (project complete 2011)



**Project locations:** Dalston to Crystal Palace and West Croydon

**Primary category:** Accommodating London's growth

**Manager:** Peter Richards – Project Director

**Programme:** New services

## Outputs

- Rail link between Dalston Junction, Crystal Palace, West Croydon and New Cross
- Four new stations
- Six stations refurbished
- Track length: 3km new, 7km converted, 14km existing
- Other major civil works: Three major bridges and a new viaduct
- Interchange works at Dalston
- Development enabling at Shoreditch High Street station (subject to funding)
- Maintenance facility at New Cross Gate

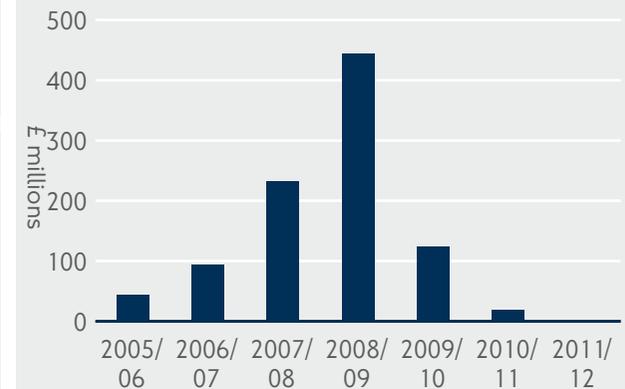
## Key milestones

- December 2004:** Commence procurement process
- October 2006:** Award main works contract
- December 2007:** Close existing ELL
- January 2010:** Test running
- June 2010:** Completion

**Portfolio:** New services and extensions

## Justification

Reduces journey times, improves connectivity, improves transport access to regeneration areas and assists in the regeneration of Dalston. The project is a component of the 2012 Games transport strategy.



## Environmental impacts

- Road decongestion benefits
- The modal shift from car usage will have an impact on reducing air emissions and noise
- Reuse of substantial brown field sites
- Safety and ambience improvement
- Increased noise from Shoreditch to Dalston and at New Cross Gate

## E&I impacts

- Step-free access at all new stations
- Significant transport enhancement to two of the most deprived boroughs in the UK
- Main works contractor that will encourage supplier diversity

## Outcomes

- Extra revenue of £6m per year
- Opex £13m per year
- Nine million new users to public transport
- £60m journey time savings
- 12 trains per hour in centre section
- Three million train kilometres per year

## Benefit cost ratio

2.54:1

## Net financial effect

-£890m

## Estimated final cost

Total project cost £971.6m (£938.9m 2005/06–2009/10))



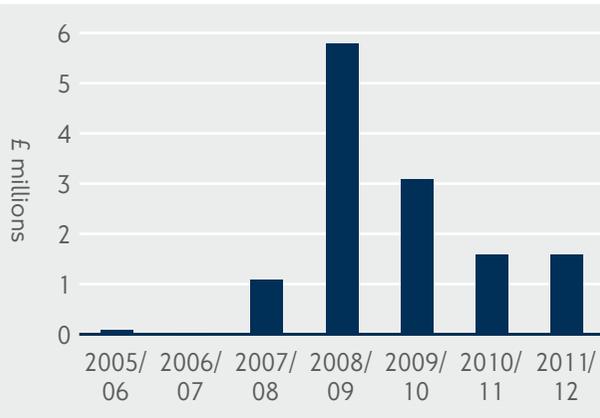
**Primary category:** Accommodating London's growth

**Project locations:** ORN

**Programme:** Traffic operations

**Manager:** Tony Earl – Head of UTC

**Portfolio:** Network instrumentation



## Outputs

- New CCTV sites associated with ORN
- Local traffic signal control junctions and pedestrian installations to UTC SCOOT central control on the ORN
- Existing UTC central control fixed-time traffic signal junctions and pedestrian installations to SCOOT on the ORN
- Local and fixed-time UTC junctions and pedestrian installations to SCOOT and changes to methods of control at some junctions off the ORN needed to control the ORN tactically
- Prior to 2012, additional works will be required costing £7m. This will include additional technology street infrastructure to manage contingency routes, and additional infrastructure to control junctions adjacent to the ORN

## Key milestones

- May 2008:** CCTV design and installation
- November 2008:** UTC SCOOT design and installation – first batch
- January 2010:** UTC SCOOT design and installation – final batch

## Outcomes

- Delivers agreed resilient journey times on the ORN required by the Olympic Family members
- Manages the surrounding network in real time, in order to mitigate any adverse impacts associated with the provision of the ORN
- Work planned and programmed such that some benefits for the travelling public in managing and controlling London's traffic are delivered ahead of the 2012 Games
- Provides a positive, policy-responsive traffic control legacy following the Games

## Justification

The ability to manage traffic flows in the most appropriate manner during the 2012 Games will enhance London's reputation as a world city capable of hosting events of this magnitude. It will also provide a legacy benefit, as the entire infrastructure will be permanently installed and capable of being policy responsive to support the delivery of Mayoral objectives.

Installation of technology street infrastructure is an essential part of providing operational readiness of the ORN to support the 2012 Games transport operation. This infrastructure will help to support the additional demands on TfL to both monitor and react in real time to the needs of the Olympic Family for transport movement.

## E&I impacts

Supports the movement of people on modes such as buses, often used by more disadvantaged members of society.

## Environmental impacts

- Balanced network operation supports sustainable modes of transport, such as buses, cycling and walking
- Reduced stops, delays and congestion, improving air quality and reducing noise

## Benefit cost ratio

8:1

## Net financial effect

To be confirmed.

## Estimated final cost

2007/08–2009/10: £10.1m



**Project locations:** North and east London

**Primary category:** Enhancing quality of service

**Manager:** Howard Smith – Chief Operating Officer, London Rail

**Programme:** London Rail line upgrades

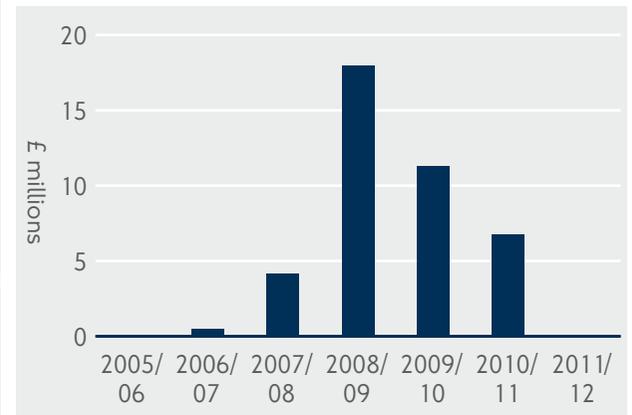
## Outputs

The LRC stations upgrade will provide the required facilities on the entire network of LRC stations of which London Rail will be the station facility owner (excluding the East London Line extension).

The upgrade will include the provision of additional lighting, CCTV, Help points, signage, public address systems, real-time customer information systems and passenger waiting facilities, and restoration of toilet facilities.

In addition, some stations may be subject to greater enhancements to the station design and fabric to improve staff utilisation, passenger experience and security.

**Portfolio:** NLR upgrades



## Justification

Those stations transferring to the LRC that are not being upgraded as part of the ELL extension must be upgraded to the standards required by London Rail – similar to those required under the ELL extension in terms of facilities, assets and quality of presentation. This will provide passengers with levels of comfort, security and experience in line with TfL's objectives.

## Key milestones

- October 2006:** Complete feasibility study
- November 2007:** Start enhancement work
- May 2008:** Complete initial station repairs
- November 2009:** Complete installation of station systems (NLR)
- November 2010:** Complete enhancement to existing fabric on stations (NLR)
- November 2012:** Complete enhanced redesign for selected stations (NLR)

## Environmental impacts

- Road decongestion benefits
- Modal shift from car use will have an impact on reducing air emissions and noise

## E&I impacts

- Significant enhancements to improve security at stations in some of the most deprived boroughs in the UK
- Improved employment in regeneration area

## Outcomes

Reduced operational cost on stations, increased passenger usage and improved security, in line with TfL's objectives.

## Benefit cost ratio

1.7:1

## Net financial effect

-£22.1m

## Estimated final cost

£40.9m (£34.1m 2005/06–2009/10)



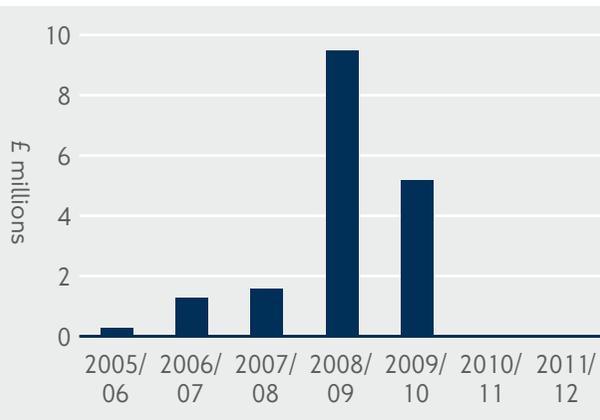
**Primary category:** Meeting demand growth

**Project locations:** London Borough of Tower Hamlets

**Programme:** DLR line upgrades

**Manager:** Jonathan Fox – Director, DLR

**Portfolio:** DLR line upgrades



### Outputs

The project will increase the capacity on the north route to/from Stratford by upgrading the stations and viaducts for three-car operation.

### Key milestones

- July 2006:** Complete feasibility and planning work
- July 2007:** TWA planning approval/powers granted
- March 2010:** Construction work complete
- June 2010:** Service operational

### Justification

Continuing increase in demand arising from commercial and residential growth in the Canary Wharf area, plus an increase in the number of events held at ExCel mean more capacity is required on the Stratford to Crossharbour/ Lewisham route to reduce passenger congestion and overcrowding. This project offers best value-for-money compared to other options, such as infrastructure/ signalling works to increase train frequency.

### Environmental impacts

- The resulting modal shift from private car use will have an indirect impact on reducing air emissions
- Increased energy use will be offset by efficiencies, and increased noise will be addressed by mitigation measures

### Outcomes

- Increase capacity of each Stratford-Crossharbour/ Lewisham train by 50%
- Crowding reduced
- Reliability maintained by keeping dwell times short
- Allows accelerated regeneration
- Accelerated works not dependent on Crossrail

### E&I impacts

Increased social inclusion through supporting regeneration that provides more homes and jobs.

### Estimated final cost

£17.8m



Project locations: East London (DLR network)

Manager: Jonathan Fox – Director, DLR

### Outputs

DLR railcar refurbishments – 94 DLR cars to be refurbished by Alstom to a standard layout, including measures to improve reliability and enhancements to enable DLR railcars to meet DDA requirements.

### Justification

All existing railcars entered service around 1991, so are now due for mid-life overhaul (cars have an estimated life of 30 years). However, due to very high demand increases, and late/problematic opening of the Jubilee line extension, usage has been much heavier than anticipated (train kilometres and passengers).

Overhaul at this point will reduce future maintenance needs, extend the life-span of the vehicles, reduce the risk of failures in service, enhance facilities in line with the DDA and improve passenger ambience.

### Environmental impacts

The resulting modal shift from private car use will have an indirect impact on reducing air emissions.

### E&I impacts

- Improved facilities, with better colour contrasts for handrails, holds, floors and doorways, and better wheelchair bays. These improvements will greatly benefit disabled and older people
- Improved ergonomic design and vehicle availability will enhance comfort and journey quality for all passengers

### Key milestones

- July 2004:** First refurbished car delivered
- March 2007:** Final refurbished car delivered

### Outcomes

- Full audio and visual announcements, colour contrasting fittings and extended contrasts for visually impaired passengers
- Compliant wheelchair bay with call aid
- Upgrading the vehicle interior will increase vehicle capacity by an estimated 10 passengers per railcar
- Reduced delays (five minutes per passenger)
- Improved passenger comfort through the use of a new ergonomic design

### Benefit cost ratio

19.4:1

### Net financial effect

-£0.9m

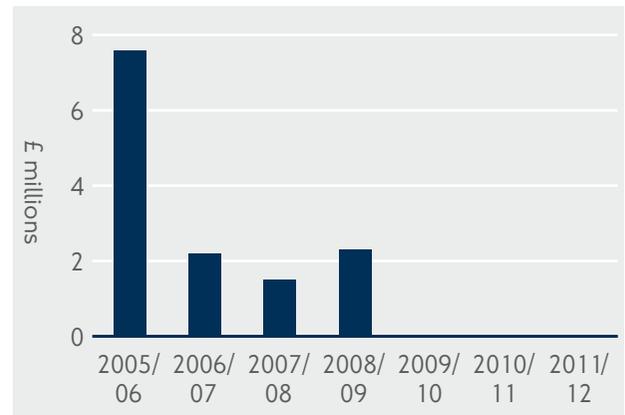
### Estimated final cost

Total project cost: £23.9m (£13.6m 2005/06–2009/10)

Primary category: State of good repair

Programme: DLR rolling stock

Portfolio: DLR refurbishment



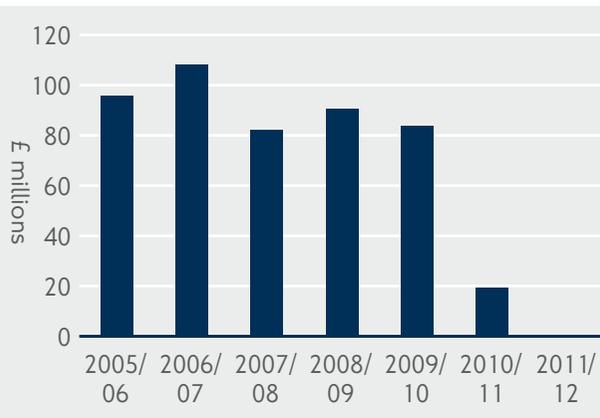
**Primary category:** Meeting demand growth

**Project locations:** King’s Cross St. Pancras station

**Programme:** LU interchanges

**Manager:** Andy Eastaugh – Programme Manager, Major Projects

**Projects:** Various



### Outputs

- Integration with Network Rail proposed western concourse
- Increased capacity at King’s Cross St. Pancras station (LU) in the form of an expanded Tube ticket hall, new western ticket hall, and northern ticket hall integrated with the Network Rail western concourse
- Links to the new Channel Tunnel terminal and improved accessibility with integrated step-free access to six LU services
- New staff facilities
- Additional access points to the deep Tube platforms to allow better passenger distribution

### Key milestones

- 2005: Reinstate Euston Road
- 2005: New subway under the Euston Road opening
- 2006: Handover of western and Tube ticket hall to LU
- 2010: Handover of northern ticket hall to LU

### Environmental impacts

Increased energy requirements to be partly mitigated by higher building standards.

### E&I impacts

A fully step-free station, with all Underground platforms accessible from King’s Cross St. Pancras station.

### Justification

King’s Cross is one of the most congested interchanges on the LU network. A significant increase in passengers using King’s Cross is expected after the opening of the CTRL, and express commuter services running directly from Kent. Local development plans will also exacerbate congestion. Providing secondary means of escape is the final outstanding recommendation of the Fennell Report into the King’s Cross fire.

### Narrative on cost changes

All spend under this project is fully recoverable from the DfT. Costs reduced due to restated works agreement.

### Outcomes

- The LU King’s Cross St. Pancras station will be able to cater for an increase in passengers from 65,000 currently using the station during morning peak to a forecast 92,000 by 2011
- Step-free access from street to all platforms



**Project locations:** Entire network

**Manager:** Geoff Virrels – Chief Programmes Officer

## Outputs

Station modernisations and refurbishments – the main element of the stations programme – focus on restoring asset health and enhancing quality through the PPP component.

- Cyclical modernisation or refurbishment of 250 stations
- Station enhancements to deliver improved customer facilities
- Renewal of lifts and escalators to deliver improved reliability

In addition to this core programme, there will be investment in the following areas:

- Congestion relief – many stations experience severe congestion at certain times of the day. The capital programme includes major works to rebuild the worst affected stations
- Accessibility – at present only 16% of stations provide step-free access. The plan is to achieve 25% by 2010 and develop a network of accessible stations

## Justification

The PPP station enhancement regime will tackle ambience, and update systems such as CCTV, Help points and public address systems. Current station infrastructure has pinch-points, where crowding has an adverse effect on journey times, and also does not allow for step-free access from street to platform level. Congestion relief and step-free programmes address these constraints to:

- Improve customer journey times
- Improve step-free accessibility
- Provide common standards for customer-facing facilities
- Improve the condition of the assets

## Environmental impacts

- Improved ambience and environment
- Some increased energy consumption from new equipment

## Key milestones

**2007:** 60 station enhancement projects complete (achieved)

**2010:** Provision of step-free access (street to platform) at 25% of stations served\*

**2010:** Six congestion relief schemes complete\*

**2012:** 250 station enhancement projects complete

\*Subject to planning consent

## Outcomes

- Arrest asset condition decline and deliver enhanced facilities, including:
  - Comprehensive CCTV
  - Help points
  - High-quality audio and visual information
- 25% of network with step-free access from street to platform by 2010
- Reduced journey times and fewer station closures through renewed lifts and escalators
- Increased station capacity from congestion relief works. Providing additional station capacity also contributes to supporting economic development and population growth in London

## E&I impacts

- Step-free access from street to platform (lifts) and platform to train (humps) benefits mobility-impaired passengers and/or those escorting them
- Visually impaired passengers may also find lifts easier to use than escalators or fixed stairs

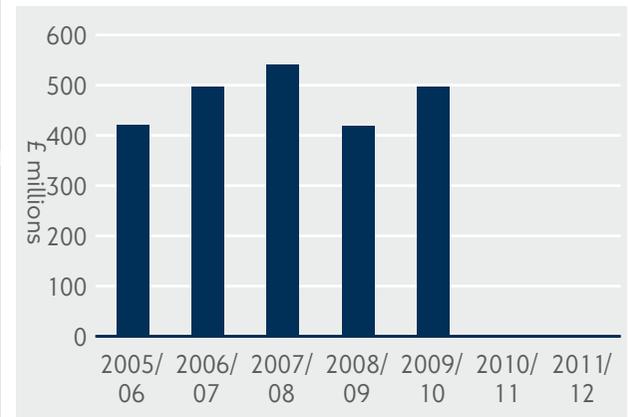
## Narrative on cost changes

Note that the PPP cost figures included here are indicative only of the level of investment.

**Primary category:** State of good repair

**Portfolios:** LU stations – BCV, JNP, SSL and LU managed

**Projects:** Various



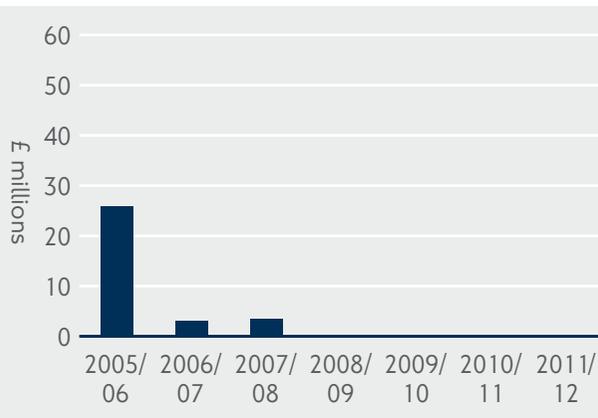
Primary category: Meeting demand growth

Project locations: Wembley Park

Programme: LU stations

Manager: Andy Mitchell – PPP Contract Director JNP

Portfolio: LU managed congestion relief



### Outputs

The scheme includes:

- An enlarged ticket hall concourse
- Widening of the existing staircase from Olympic Way to the ‘events’ ticket hall, plus provision of a step-free access lift
- A new overbridge to the rear of the commuter ticket hall, with relocated staircases, plus new step-free access lifts to all platforms
- A relocated supervisory suite, giving enhanced station command and control capability
- An additional emergency escape route from the existing auxiliary overbridge

### Key milestones

- 2004: Detailed design and enabling works
- 2005: Platforms structurally completed and emergency escape route finished
- 2005: Completion of first milestone, bringing capacity enhancement works into operational use
- 2006: Delivery into service/practical completion of the works

### Environmental impacts

No significant impacts.

### E&I impacts

The station will be more accessible to mobility-impaired customers, in line with TfL policies on E&I.

### Benefit cost ratio

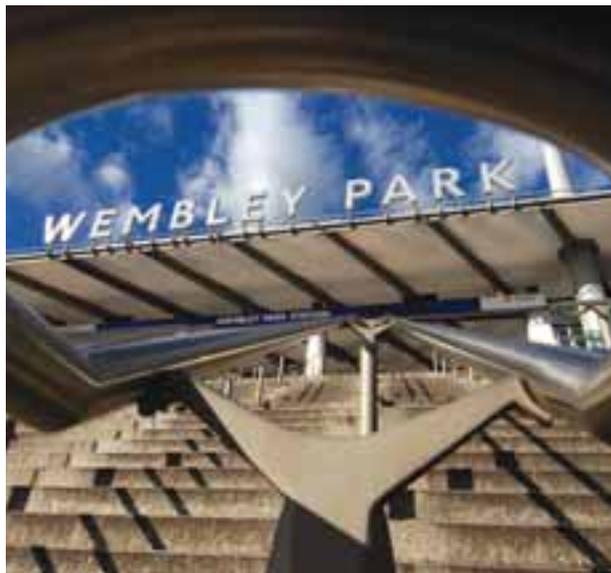
Financially positive over 30 years.

### Justification

The primary case for the works at Wembley Park is reduction of congestion and journey time within the station, and of queuing time outside the station after major stadium events. The project has a financially positive business case and thus remains justified in economic terms, with passenger benefits estimated at about £11m per year.

### Outcomes

- Station capacity on major event days will be increased from about 22,000 passengers per hour to 37,500 passengers per hour (a 70% increase)
- Easy access to the station for mobility-impaired passengers



Project locations: North Greenwich (Millennium Dome)

Manager: Andy Mitchell – PPP Contract Director JNP

**Outputs**

A significant increase in passenger vertical circulation capacity in key congested areas of the station.

**Justification**

The case for the project to enhance vertical capacity at North Greenwich is that increasing demand associated with events at the arena and the regeneration of the Greenwich Peninsula will cause significant station congestion. The enhancement is being funded externally on behalf of the developer.

**Outcomes**

- Reduced future congestion through increased station capacity
- Reduced risk of unplanned station closures

**Key milestones**

- 2004: Requirement statement
- 2004: Financial approval
- 2004: Contracts placed
- 2004: Project start date
- 2005: Work on site
- 2007: Completion date (achieved)

**Environmental impacts**

Increased energy needed to run additional escalators.

**E&I impacts**

Station is already step-free.

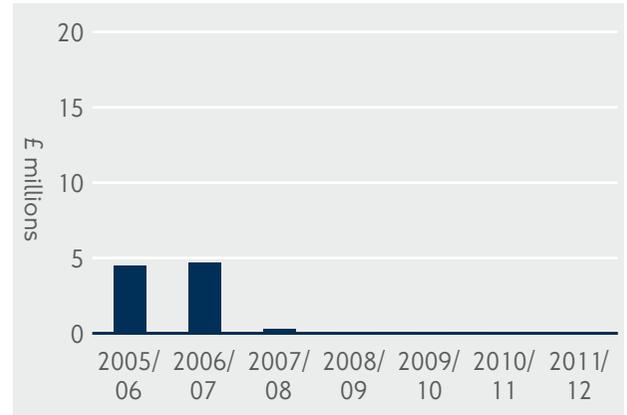
**Benefit cost ratio**

Financially positive.

Primary category: Meeting demand growth

Programme: LU stations

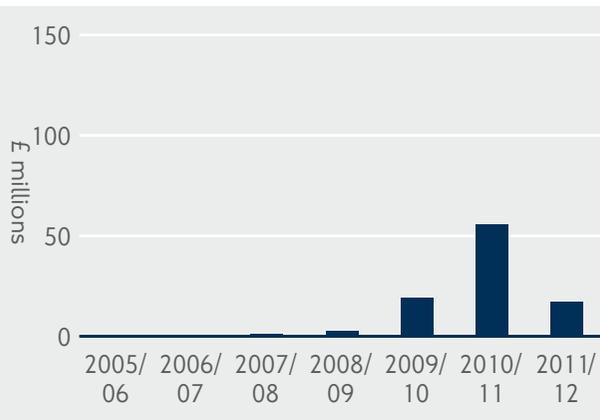
Portfolio: LU managed congestion relief



**Primary category:** Enhancing quality of service

**Programme:** LU stations

**Portfolio:** LU managed accessibility



**Project locations:** Green Park station

**Manager:** Simon Nunn – Head of Project Development

## Outputs

Step-free access by lift between street level ticket hall and all platforms at Green Park station. Will support the 2012 Games.

## Justification

LU is committed to making the Underground system more accessible to all customers. An important part of this is a programme to make a key network of stations step-free between street and platform levels.

Green Park is identified as a priority station for providing step-free access because it is at the heart of the West End and provides key interchange between the Jubilee, Piccadilly and Victoria lines. As such, completion in time for the 2012 Games is sought.

## Outcomes

Contributes to LU's vision of a network accessible to all.

## Key milestones

**2006:** Completion of feasibility

**2008:** Completion of scheme design

**2008:** TWA application (if required)

**2009:** Completion of detailed design

**2009:** Start on site

**2011:** Completion

Milestones are subject to planning consents and feasibility.

## Environmental impacts

To be determined at completion of feasibility.

## E&I impacts

- Step-free access from street to platform benefits mobility-impaired passengers and/or those escorting them
- Visually impaired passengers may also find lifts easier to use than escalators or fixed stairs

## Benefit cost ratio

1.4:1

Project locations: Network-wide

Primary category: Enhancing quality of service

Manager: Simon Nunn – Head of Project Development

Programme: LU stations

### Outputs

Provision of step-free access from street to Circle and Metropolitan line platforms.

### Key milestones

- 2006: Completion of feasibility
- 2008: Scheme design complete
- 2009: Detailed design complete (design and build)
- 2009: Start on site
- 2011: Completion

### Justification

LU is committed to making the Underground system more accessible to all customers. An important part of this is our programme to make a key network of stations step-free between street and platform levels.

This project permits the development of step-free access schemes beyond those that contribute to LU's target of 25% of stations providing street to platform step-free access by 2010.

### E&I impacts

- Step-free access from street to platform benefits mobility-impaired passengers and/or those escorting them
- Visually impaired passengers may also find lifts easier to use than escalators or fixed stairs

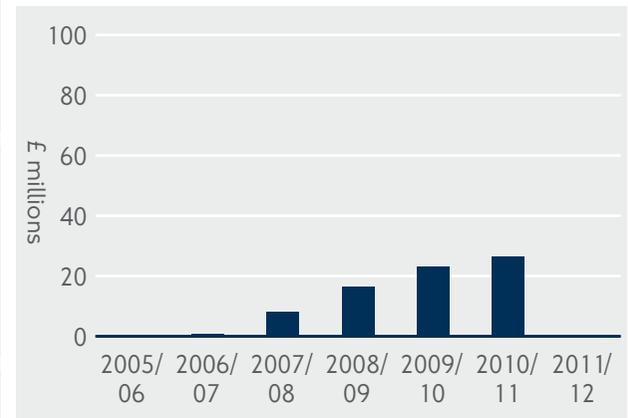
### Outcomes

- Improved social benefits resulting from the step-free facilities and reduced journey times, together with enhanced ambience, safety and corporate image
- Contributes to LU's vision of a network accessible to all

### Benefit cost ratio

1.4:1

Portfolio: LU managed accessibility



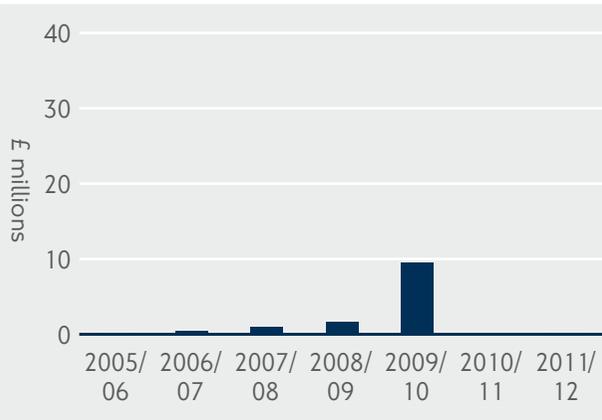
**Primary category:** Enhancing quality of service

**Project locations:** Network-wide

**Programme:** LU stations

**Manager:** Simon Nunn – Head of Project Development

**Portfolio:** LU managed accessibility



**Outputs**

Provision of step-free access from street to LU platforms.

**Key milestones**

- 2005: Completion of feasibility
- 2008: Detailed design complete
- 2009: Start on site
- 2010: Completion

**Justification**

LU is committed to making the Underground system more accessible to all customers. An important part of this is our programme to make a key network of stations step-free between street and platform levels.

This project permits the development of step-free access schemes beyond those that contribute to LU's target of 25% of stations providing street to platform step-free access by 2010.

**E&I impacts**

- Step-free access from street to platform benefits mobility-impaired passengers and those escorting them
- Visually impaired passengers may also find lifts easier to use than escalators or fixed stairs

**Outcomes**

Contributes to LU's vision of a network accessible to all.

**Benefit cost ratio**

1.4:1



Project locations: Stratford International-Canning Town

Manager: Jonathan Fox – Director, DLR

## Outputs

This project is for the extension of the DLR from Canning Town, using the existing NLL alignment to Stratford Regional station, with three new intermediate stations and new construction onwards to Stratford International station. This will provide access to international and high-speed domestic commuter services.

## Justification

- Journey time benefits, to the extent of becoming financially positive (net financial effect) over 30 years
- Serves an area identified for considerable development, currently with poor public transport connections, and also provides a high-frequency shuttle to Stratford International station
- Will stimulate development and regeneration (London Plan), and very effectively serve and interconnect sites for the 2012 Games

## Outcomes

- 10 trains per hour could be operated initially to and from Stratford International during peak periods
- The project has the potential to generate more than 12,000 public-per-day transport trips by 2015
- High quality development and regeneration of the corridor, supporting policies in the London Plan
- Will result in high public transport modal split for the Stratford rail lands development area (employees 87% rail/bus, residents 62% rail/bus)

## Net financial effect

Financially positive – £62.1m (present value terms)

## Key milestones

- September 2005:** Submission of TWA application
- October 2006:** TWA powers granted
- June 2007:** Works commence
- January 2008:** Completion of the western subway
- February 2009:** Completion of package 8 (Network Rail works)
- June 2010:** Completion of package 6 (conversion of NLL to DLR)
- July 2010:** Service operational

## Environmental impacts

- The resulting modal shift will have an indirect impact on reducing CO<sub>2</sub> emissions
- Increased energy use and noise will be offset by mitigation measures
- Improved built environment

## E&I impacts

- A fully accessible railway to the Lower Lea Valley
- Increased social inclusion through the development of key regeneration sites, and increased access to employment and opportunity in Stratford, the City and Docklands

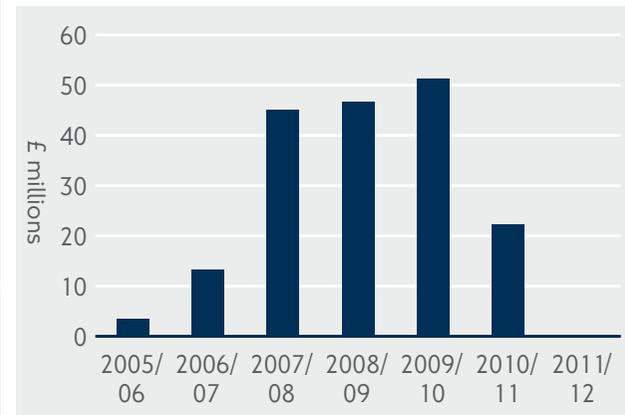
## Estimated final cost

Total project cost: £183.6m (£160.2m 2005/06–2009/10)  
 Note: Package 7 (Canning Town Flyover) works are now reported under LR-PJ06, and Stratford International railcars are now reported under LR-PJ39.

Primary category: Accommodating London's growth

Programme: DLR new services/line extensions

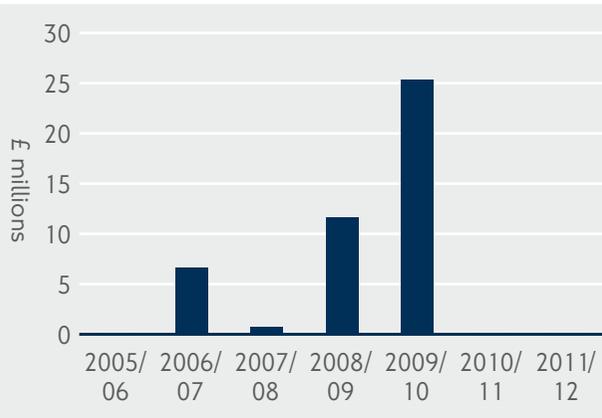
Portfolio: DLR new services/line extensions



**Primary category:** Meeting demand growth

**Programme:** DLR rolling stock

**Portfolio:** DLR major procurements



**Project locations:** Network-wide

**Manager:** Jonathan Fox – Director, DLR

**Outputs**

Procurement and delivery of 22 additional railcars to provide for additional services required during the 2012 Games to meet spectator demand.

**Justification**

22 additional railcars are required to provide service levels that will be necessary to accommodate 2012 Games-related demand.

**Outcomes**

- Increased capacity
- Maintain reliability and journey times
- 2012 Games demand can be accommodated
- Crowding reduced
- Legacy benefit of additional railcars for planned service upgrades and expansions

**Key milestones**

- April 2006:** Approve business case
- June 2006:** Order railcars
- November 2008:** First railcar delivered
- September 2009:** Final railcar delivered
- October 2009:** All cars in service

**Environmental impacts**

The 2012 Games transport strategy is designed to discourage private car use. The scheme will contribute to this and have an indirect impact on reducing CO<sub>2</sub> emissions.

**E&I impacts**

Additional capacity ensures that the system will remain fully accessible to all passengers.

**Estimated final cost**

£44.7m

**Project locations:** Richmond/Clapham to Stratford/Barking and Euston to Watford Junction

**Primary category:** Meeting demand growth

**Manager:** Peter Richards – Project Director

**Programme:** Line upgrades

## Outputs

Station and permanent way, power, signalling and civil infrastructure enhancements to facilitate the operation of 'Service Level Commitment 2' services to be introduced January 2011. Trains per hour: Richmond-Stratford – four; Caledonian Road & Barnsbury-Stratford – four; Euston-Watford – three; Clapham-Barking – two; Gospel Oak-Barking – two; and Clapham Junction-Willesden Junction – two. Scope includes platform and other rail infrastructure works to facilitate the introduction of new four-car electric multiple unit trains.

## Key milestones

**October 2007:** Confirm project scope (single option)  
**July 2008:** Completion of preliminary design  
**January 2011:** Project completion

**Portfolio:** NLR upgrades

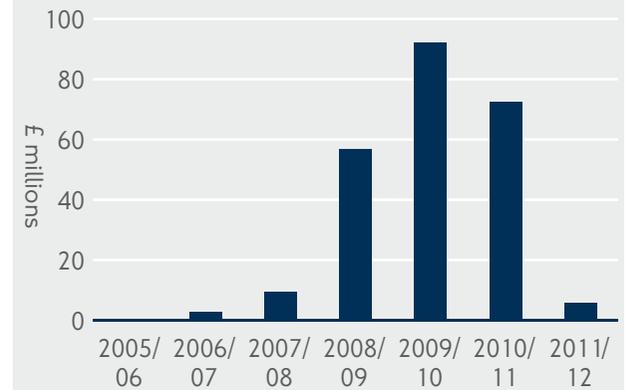
## Justification

The NLR is one of the key service groups where the Mayor is assumed to take responsibility for improvements/franchise specification. Services are severely overcrowded and stations are in a poor condition. Some 16% of London's population live within 15 minutes walk of a Silverlink Metro station. Additionally, it serves some 30% of London's top 20% most deprived wards.

Enhancement of track and signalling infrastructure on Network Rail network will enable LRC enhanced services to operate with new trains from January 2011, doubling the service volume across the network and enabling NLR to meet its requirements for the 2012 Games, as well as providing legacy benefits for communities served by this route.

## Outcomes

- Demand growth to 2021 adequately catered for on NLR and ELL
- 2012 Games capacity requirement on NLR met
- E&I, safety and environmental policy objectives met
- Passenger satisfaction improved
- Provision of 'turn up and go' (four trains per hour) train service frequencies between Clapham Junction and Barking
- NLR train service frequencies standardised for Monday–Friday, Saturday and Sunday
- Reduced passenger platform wait times and in-train congestion on NLR route network
- Reduced road congestion on adjacent highway network
- Reduced congestion on radial National Rail and LU routes



## Environmental impacts

New, longer trains and increased service frequencies should encourage modal shift from private car to public transport, reducing road congestion, traffic pollution and noise.

## E&I impacts

- Increased journey opportunities to and from wards with high index of deprivation
- New rolling stock would ease use for mobility-impaired passengers
- New direct services would minimise the need to change trains, providing more travel opportunities

## Benefit cost ratio

1.7:1

## Net financial effect

-£495m

## Estimated final cost

Total project cost £240m  
 (£161.4m 2005/06–2009/10)



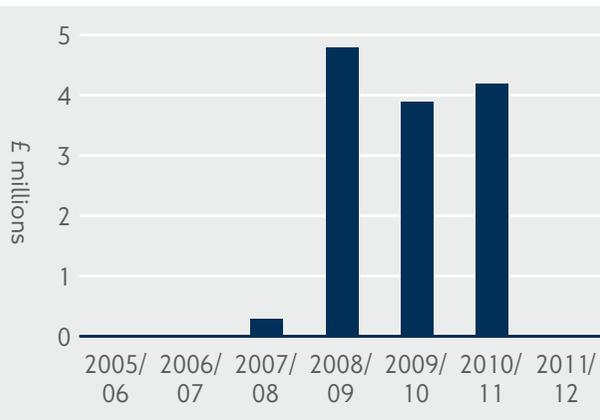
**Primary category:** Meeting demand growth

**Project locations:** Poplar-Woolwich Arsenal

**Programme:** DLR line upgrades

**Manager:** Jonathan Fox – Director, DLR

**Portfolio:** DLR line upgrades



## Outputs

This activity covers the infrastructure upgrade at Blackwall and East India stations, and signalling, communication and power modifications between Poplar and Woolwich stations to allow three-car operations to and from Woolwich Arsenal during the 2012 Games.

## Key milestones

- August 2006:** Submit TWA application
- July 2007:** TWA powers granted
- January 2008:** Start construction
- March 2010:** Construction work complete
- June 2010:** Service operational for 2012 Games test events

## Justification

Levels of demand expected during the 2012 Games will require three-car operations to and from Woolwich. With the exceptions of East India and Blackwall, all other stations on the Woolwich–Bank/Tower Gateway route will be able to accommodate three-car operations as a result of planned and ongoing schemes.

## Environmental impacts

- The 2012 Games transport strategy is designed to promote sustainable transport and reduce the need for private cars
- The scheme will contribute to this and have an indirect impact on reducing air emissions
- Increased energy use will be offset by efficiencies, and increased noise will be addressed by mitigation measures

## Outcomes

- The capacity of each train will be increased by 50%
- Crowding reduced
- Reliability maintained by keeping dwell times short
- Additional cross-river public transport capacity
- Legacy benefit of infrastructure improvements

## E&I impacts

- Increased capacity on the railway and network flexibility will allow more regeneration, supporting social inclusion
- Reduced crowding will benefit mobility-impaired passengers

## Estimated final cost

£9m



Project locations: Prince Regent and other network locations

Primary category: Meeting demand growth

Manager: Jonathan Fox – Director, DLR

Programme: DLR stations

## Outputs

An increase in station capacity at Prince Regent (second exit to serve ExCel) and other DLR network stations.

## Justification

A large number of people will need to access ExCel during the 2012 Games. It is necessary to enhance the existing access arrangements at Prince Regent station, because they will not accommodate the expected volumes of people. Lifts or ramps for wheelchair users at DLR network stations will also be provided.

## Outcomes

- The project will ensure that 2012 Games demand and evacuation regulations are met at the station
- Crowding on platforms will be reduced
- Service reliability will not be compromised by people delayed in exiting the platform
- Legacy benefit of improved access at Prince Regent

## Key milestones

- August 2006: Submit TWA application
- July 2007: TWA powers granted
- January 2009: Start construction
- March 2010: Construction work complete
- June 2010: Service operational for 2012 Games test events

## Environmental impacts

The 2012 Games transport strategy is designed to support sustainable transport and discourage private car use. The scheme will contribute to this and have an indirect impact on reducing air emissions.

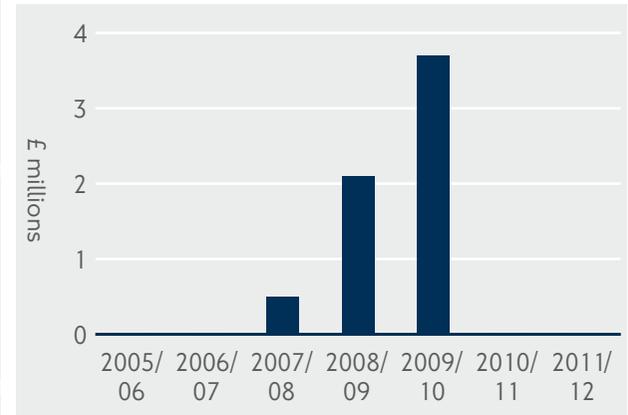
## E&I impacts

The improved access arrangements will improve facilities for mobility-impaired passengers.

## Estimated final cost

£6.3m

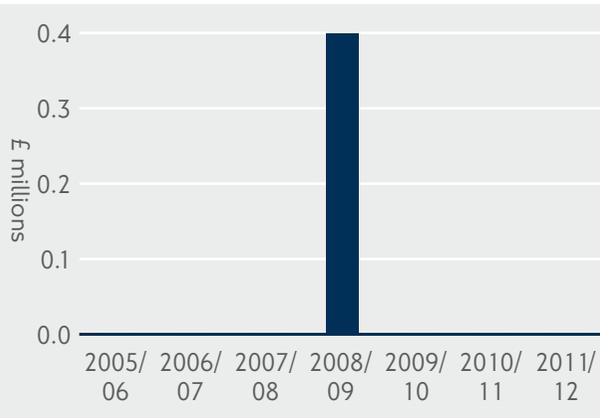
Portfolio: DLR station improvements



**Primary category:** Meeting demand growth

**Programme:** DLR line upgrades

**Portfolio:** DLR line upgrades



**Project locations:** Westferry to Royal Mint Street

**Manager:** Jonathan Fox – Director, DLR

### Outputs

This activity covers the provision of a new signal loop between Westferry and Royal Mint Street junction to improve perturbation recovery time.

### Justification

The project aim is to ensure the best possible reliability of train services is provided during the 2012 Games and thereafter. Providing an additional signal loop between Westferry and Royal Mint Street will allow operations to quickly return to normal when problems arise, which is essential when large numbers of people are travelling.

### Outcomes

- Reliability maintained by allowing breakdowns to be dealt with quickly and efficiently
- Legacy benefit of continued reliability

### Key milestones

- March 2008:** Award contract
- August 2008:** Commence installation
- October 2008:** Signal loop operational

### Environmental impacts

- The 2012 Games transport strategy is designed to promote sustainable transport and reduce the need for private cars
- The scheme will contribute to this and have an indirect impact on reducing air emissions
- Increased energy use will be offset by efficiencies, and increased noise will be addressed by mitigation measures

### E&I impacts

Providing a reliable service will benefit disadvantaged groups dependent on public transport for access to employment and other services.

### Estimated final cost

£0.4m

Project locations: Royal Mint Street

Manager: Jonathan Fox – Director, DLR

### Outputs

Provision of additional resilience at Royal Mint Street to improve system recovery time.

### Justification

Ensures that the best possible reliability of train services is provided during the 2012 Games and thereafter. The current track layout on the west route (DLR's busiest part of the network) is not particularly suited to quick recovery following a disruption. Rearranging the track layout at Royal Mint Street will provide additional robustness for allowing operations to quickly return to normal when problems arise, which is essential when large numbers of people are using the railway.

### Outcomes

- Reliability maintained by allowing service recovery to be dealt with quickly and efficiently
- Legacy benefit of continued reliability

### Key milestones

- January 2006:** Approve business case
- September 2006:** Submit planning application
- May 2007:** Award design and construction contract
- January 2010:** Additional resilience in operation

### Environmental impacts

Operating an efficient service will discourage people from travelling by car and encourage car users to try public transport for some journeys.

### E&I impacts

Ensuring DLR reliability is maintained will benefit disadvantaged groups that are dependent on public transport.

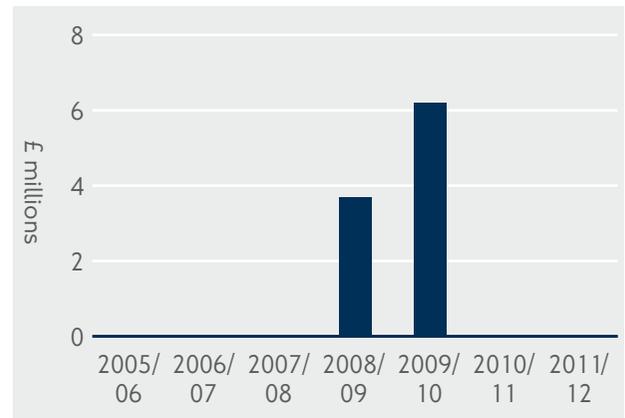
### Estimated final cost

£9.9m

Primary category: Meeting demand growth

Programme: DLR safety and security

Portfolio: DLR resilience

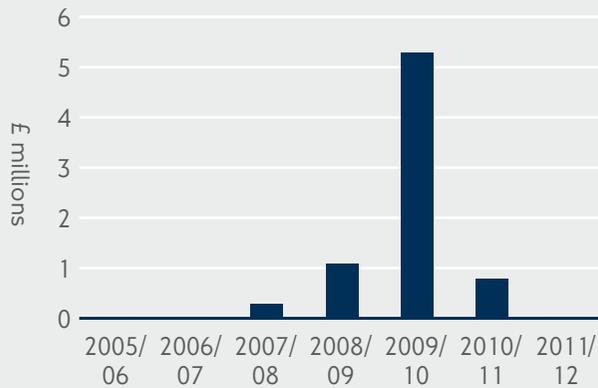


**Primary category:** Meeting demand growth

**Project locations:** Various

**Programme:** Sustainability

**Manager:** Peter McBride – Head of Cycling, Walking and Accessibility



### Outputs

New cycle routes and signage, cycle parking facilities at venues and stations, promotional and information material, and investigation of a river crossing facility.

### Key milestones

Ongoing portfolio – main milestones for 2008/09 include:

- December 2008:** Feasibility, design (including cost estimates) and commence implementation of the 2012 Games cycling (and walking) programme
- December 2008:** Agreement of the cycling (and walking) programme with the ODA

### Justification

The principle of sustainability will be at the heart of the 2012 Games and the Games legacy, and the promotion of cycling will be an integral part of this. Cycling should be considered and actively promoted throughout all stages of the Games planning process.

This project aims to provide adequate cycling facilities to and from Olympic venues and create a sustainable legacy of the Games. The promotion of cycling as part of the Games planning process will lead to an increase in cycling levels and promote sustainability, which is in line with the Mayor's strategies.

### Environmental impacts

- Encouraging a sustainable 2012 Games by promoting sustainable travel
- Encouraging journeys by bike in the longer term, reducing dependence on car travel and bringing about an indirect improvement in air and noise quality

Funding for this scheme will be provided by the ODA, as outlined in the 2012 bid. However, financial aspects of the scheme are subject to further discussions.

### E&I impacts

Providing for cycling as part of the 2012 Games planning process will broaden spectator and workforce travel options, promoting a healthy and environmentally friendly mode of transport. Residents from the local area will be encouraged to attend the Games and sustainable communities will be created.

### Outcomes

- Enhancement of London's cycle routes and parking facilities
- Provision of cycling opportunities for spectators and employees travelling to and from venues by bike
- Improvement of London's cycling facilities more generally, and consequent increases in cycling levels in the longer term

### Benefit cost ratio

To be confirmed.

### Net financial effect

To be confirmed.

### Estimated final cost

£7.5m



Project locations: Various

Primary category: Meeting demand growth

Manager: Peter McBride – Head of Cycling, Walking and Accessibility

Programme: Sustainability

## Outputs

- New walking routes and signage
- Promotional and information material

## Key milestones

Ongoing portfolio – main milestones for 2008/09 include:

- December 2008:** Feasibility, design (including cost estimates) and commence implementation of the 2012 Games walking (and cycling) programme
- December 2008:** Agreement of the walking (and cycling) programme with the ODA

## Justification

The principle of sustainability will be at the heart of the 2012 Games and the Games legacy, and the promotion of walking will be an integral part of this. Walking facilities should be considered and actively promoted throughout all stages of the Games planning process. This project aims to provide first-class walking facilities to and around venues, and create a sustainable legacy from the Games.

The promotion of walking as part of the 2012 Games planning process will lead to an increase in walking and promote sustainability, which is in line with the Mayor’s strategies.

Funding for this scheme will be provided by the ODA, as outlined in the 2012 bid. However, financial aspects of this scheme are subject to further discussions.

## Environmental impacts

Encouraging a sustainable Games by promoting sustainable modes of travel.

## E&I impacts

A first-class walking environment for spectators and workforce at the 2012 Games will facilitate journeys to and around Games venues and provide access to all Londoners, which is in line with the Mayor’s strategies. These activities will also contribute to improved social inclusion and reduced community severance, and stimulate local regeneration.

## Outcomes

- Enhancement of walking routes in the vicinity of Olympic Park and other 2012 Games venues
- Create a first-class walking environment for spectators for 2012
- Create suitable walking conditions at venues and ensure that venues are accessible
- Implementation of best practice in venue design for 2012

## Benefit cost ratio

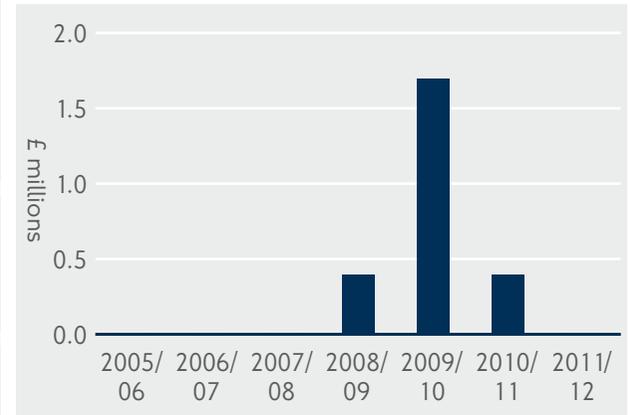
To be confirmed.

## Net financial effect

To be confirmed.

## Estimated final cost

£2.5m



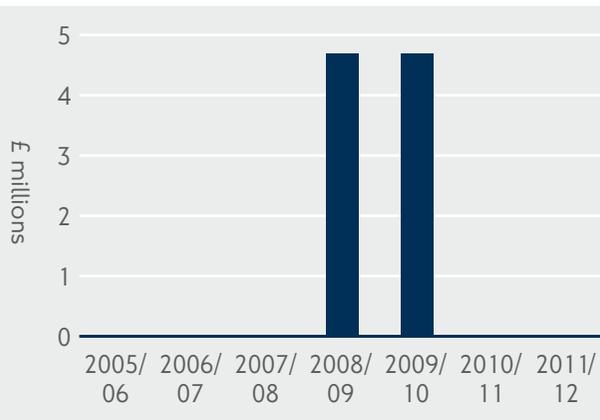
**Primary category:** Accommodating London's growth

**Project locations:** Various

**Programme:** Traffic operations

**Manager:** Alan Bristow – Head of Real-Time Operations

**Portfolio:** LTCC development



### Outputs

- Multi-modal control centre to manage the Olympic Family vehicles across the ORN in real time throughout the duration of the 2012 Games
- Surface Transport is in the process of working up 2012 Games-related projects into clear outputs with milestones, in conjunction with the ODA

### Key milestones

- February 2008:** TCC detailed planning commences
- January 2009:** TCC design commences
- December 2009:** TCC fit-out commences
- May 2010:** TCC testing commences
- January 2011:** TCC commences operations

### Justification

- Upgrades the LTCC capability and information systems to provide visibility of all transport modes' operational status for the 2012 Games
- Upgrades network monitoring and dynamic control of the ORN to facilitate the movement of Olympic Family vehicles

### E&I impacts

Proactive management of the Games as a major event will allow efficient movement of all London road users to be maintained. Journey time reliability will continue to be maintained at the highest levels, allowing better pre-planning of journeys.

### Outcomes

Enhanced real-time traffic management and control for the 2012 Games transport operation through multi-modal representation.

### Benefit cost ratio

To be confirmed.

### Net financial effect

To be confirmed.

### Environmental impacts

Reduced congestion leads to improvements in air quality, improved carbon footprint for London and reduced noise pollution.

### Estimated final cost

2007/08–2009/10: £9.4m



Project locations: ORN

Primary category: Meeting demand growth

Manager: Mark Allan – Head of Strategic Project Support

Programme: Street maintenance and renewals (TLRN)

## Outputs

A number of legacy and temporary carriageway alterations and improvements along the ORN will be implemented. The legacy schemes are to be developed and delivered between 2007/08 and 2011/12, and the temporary schemes will be delivered in 2012/13.

‘Carriageways’ include links between major junctions (nodes), minor junctions along links and mitigation measures on side roads.

## Justification

The ORN is a requirement of the London 2012 Host City Contract, and is verified in the MoU signed by the Mayor. The ORN programme is expected to provide guaranteed reliable and safe journey times for the Olympic Family during Games time.

This project will deliver a range of legacy and temporary carriageway modifications necessary to enable the required journey times to be met, in conjunction with other parallel complementary projects.

## Outcomes

This project, in conjunction with other parallel complementary ORN-related projects, will deliver the necessary ORN highway infrastructure for the Olympic Family vehicles to travel along during Games time, contributing to the realisation of their targeted journey times.

Legacy benefits are also provided to London post-Games time through all the permanent modifications made to the road network, helping to meet the city’s increasing travel demands and reduce congestion problems.

## Key milestones

**March 2008:** Completion of outline design and costing  
**July 2011:** Completion of legacy schemes

## Environmental impacts

- Legacy works will help reduce vehicular stops, delay and congestion, improving air quality and reducing noise pollution
- Legacy works will be subject to a streetscape audit

## E&I impacts

- A less congested road network enhances accessibility and reliability for all road users
- Providing a reliable road network will benefit disadvantaged groups that are dependent on the bus network for access to employment and other services
- Increased accessibility to an area encourages local investment and regeneration, and increases social inclusion

## Benefit cost ratio

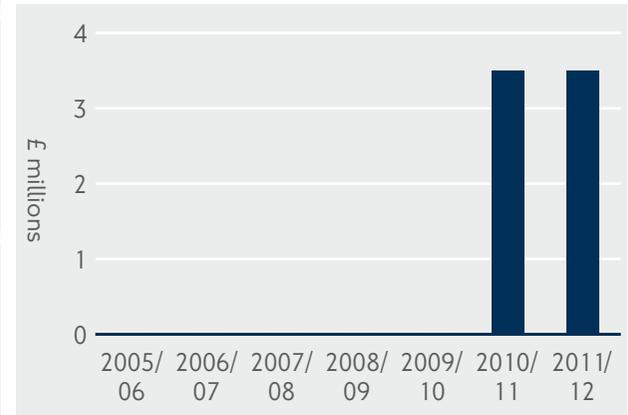
To be confirmed.

## Net financial effect

To be confirmed.

## Estimated final cost

£7m



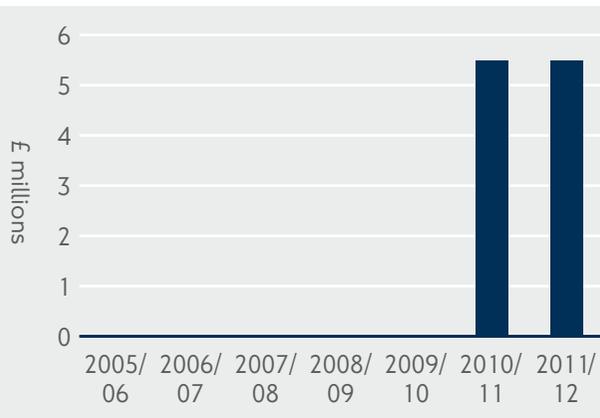
**Primary category:** Meeting demand growth

**Project locations:** ORN

**Programme:** Major route and safety improvements

**Manager:** Mark Allan – Head of Strategic Project Support

**Portfolio:** Major route improvements



## Outputs

A number of legacy and temporary junction alterations and improvements along the ORN will be implemented.

The legacy schemes are to be developed and delivered between 2007/08 and 2011/12, and the temporary schemes will be delivered in 2012/13.

'Junctions' include major nodes, the approaches to major junctions and mitigation measures on side roads at major junctions.

## Key milestones

**March 2008:** Completion of outline design and costing  
**July 2011:** Completion of legacy schemes

## Justification

The ORN is a requirement of the London 2012 Host City Contract, and is verified in the MoU signed by the Mayor. It is expected to provide guaranteed reliable and safe journey times for the Olympic Family during Games time.

This project will implement a range of legacy and temporary junction modifications necessary to enable the required journey times to be met in conjunction with other parallel complementary projects.

## Environmental impacts

- Legacy works will help reduce vehicular stops, delay and congestion, which improves air quality and reduces noise pollution
- Legacy works will be subject to streetscape audit

## E&I impacts

- A less congested road network enhances accessibility and reliability for all road users
- Providing a reliable road network will benefit disadvantaged groups that are dependent on the bus network for access to employment and other services
- Increased accessibility to an area encourages local investment and regeneration, and increases social inclusion

## Outcomes

This project, in conjunction with other parallel complementary ORN-related projects, will deliver the necessary ORN highway infrastructure for the Olympic Family vehicles to travel along during Games time, contributing to the realisation of their targeted journey times.

Legacy benefits are also provided to London post-Games time through all the permanent modifications made to the road network, helping to meet the city's increasing travel demands and reduce congestion problems.

## Benefit cost ratio

To be confirmed.

## Net financial effect

To be confirmed.

## Estimated final cost

£11m



Project locations: West Ham station

Primary category: Meeting demand growth

Manager: Simon Nunn – Head of Project Development

Programme: LU stations

## Outputs

Additional eastbound District line platform (possibly temporary) and/or additional route off existing District line platform. Works under development to explore operational solutions to deliver a cost-effective remedy.

## Key milestones

2007: Completion of feasibility (achieved)  
 2008: Scheme design complete  
 2008: Detailed design complete  
 2009: Implementation – work on site  
 2011: Complete  
 Milestones are subject to planning consents.

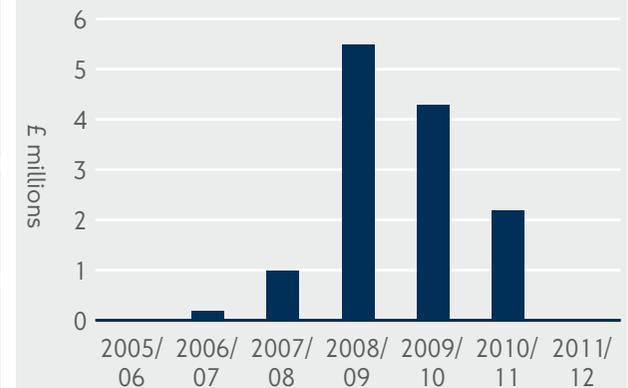
Portfolio: LU managed accessibility

## Justification

West Ham station is an integral part of the overall transport strategy for delivering passengers to and from the Olympic parks during the 2012 Games. It is estimated that 13% of the total passenger flows will access the parks via West Ham. Existing physical and operational constraints mean that modifications to either the station infrastructure or operation is required for West Ham to meet Games-time demand.

## Environmental impacts

No significant impacts.



## E&I impacts

- Station already provides step-free access from street to all platforms

## Outcomes

- Reduced journey time between the Olympic Park and West Ham station
- Reduced congestion through increased station capacity (if extra platform provided)

## Benefit cost ratio

Project is in the early scoping phase.



Primary category: Meeting demand growth

Project locations: Central line

Programme: LU track

Manager: Richard Parry – Director of Strategy and Service Development

Portfolio: LU managed track

Project no longer progressing.

### Outputs

Completion of feasibility study.

### Outcomes

Resilience improvements will now be delivered via operational solutions.

### Justification

Additional reversing capacity was required to support the higher off-peak service frequencies envisaged for the Central line in the Olympic Transport Plan. Feasibility works for this site have concluded that a better value-for-money solution can be delivered for the 2012 Games through operational solutions rather than capital investment. This specific scheme will not be progressed any further, as it would not demonstrate a value-for-money solution.



