



Railways: Docklands Light Railway (DLR)

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This note outlines the development of the Docklands Light Rail (DLR) system in East London and summarises the recent and planned expansion of the system. Information on other light rail systems throughout England and light rail policy more generally, can be found in HC Library Standard Note SN/BT/3307, available on the [Railways topical page](#) of the Parliament website.

In July 2005 it was announced that London had won the right to hold the 2012 Olympic Games. The Olympic Stadium and Village will be based in East London and the DLR will form one of the key pieces of transport infrastructure for the Games. For more information on transport and the London Olympics, see HC Library Standard Note [SN/BT/3722](#).

Contents

1	Development of the original network, 1986-1996	2
2	Extensions	3
2.1	Lewisham	3
2.2	London City Airport	4
2.3	Woolwich Arsenal	6
2.4	Stratford International	7
2.5	Dagenham Dock	7
3	Capacity Enhancements	8

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1 Development of the original network, 1986-1996

The first part of the Docklands Light Railway (DLR) was constructed by a consortium of GEC and John Mowlem and opened in August 1987. This consisted of two lines which ran from Tower Gateway (on the North bank of the River Thames, near Tower Bridge, just on the edge of the City) and Stratford to the East of London, joining at Poplar and continuing to Island Gardens at the southern tip of the Isle of Dogs. The cost of the initial railway was £90 million.¹ In retrospect this was considered to be a shoestring budget at a time when plans for the development of the Docklands were more modest.² Before the completion of the initial system a plan had emerged to transform Canary Wharf into a satellite of the City of London with 10 million square feet of office space and 45,000 jobs. A Private Bill to extend the DLR to Bank to connect with the London Underground system received Royal Assent in December 1986. The extension was constructed at a cost of £295 million (together with upgrading) to which Olympia & York made a contribution of £95 million.³

The DLR was operated by London Transport until 1 April 1992 when it was transferred to the London Docklands Development Corporation (LDDC) under sections 9 and 10 of the *London Regional Transport Act 1984*. With the transfer to LDDC, responsibility for securing Government funding for the operation of the DLR passed from the Department for Transport to the Department for the Environment which financed the [Urban Development Corporations](#). Urban Development Corporations were short-life bodies and the LDDC was wound up in 1998, when ownership passed to the new Department for the Environment, Transport and the Regions (DETR). DLR Ltd became part of Transport for London (TfL) in July 2000.⁴

When LDDC took over the DLR it appointed a new management team led by Sir Peter Levene, formerly head of defence procurement at the Ministry of Defence. In March 1993 DLR Ltd appointed an American engineering group, Brown & Root, to take over the day-to-day running of the railway and to manage the remaining stages of the expansion programme for a fee of £30 million. A further extension was built to Beckton (near the Royal Docks) with 90 per cent funding from LDDC at a total cost of £280 million.⁵ The next improvement was a new signalling and control system to the rest of the railway at a cost of £56 million.⁶ Adding together the above figures, the total capital cost of the DLR up to January 1996 was £751 million.

On 26 October 1994 the then Secretary of State for the Environment, John Gummer, announced the Government's intention to privatise the DLR in line with the Conservative Party's 1992 Election Manifesto commitment.⁷ It was not, however, until March 1997 that the Government was able to announce the award of a seven-year franchise to Docklands Railways Management Ltd (DRML), a consortium of Serco Group Plc and a team of DLR Ltd managers. DRML took over the franchise on 1 April 1997.⁸

¹ [HC Deb 11 January 1996, c287W](#); all costs in this section at 1995 prices

² "A fast track to efficiency", *Financial Times*, 17 March 1993

³ [HC Deb 11 January 1996, c287W](#); Olympia & York was the property company behind Canary Wharf, it filed for bankruptcy in 1992

⁴ Transport for London took over the old responsibilities of London Transport and others under the *Greater London Authority Act 1999*; information on how London transport is managed and operated can be found in HC Library research paper [RP 08/36, *Transport in London*](#)

⁵ [HC Deb 11 January 1996, c287W](#)

⁶ *ibid.*

⁷ [HC Deb 26 October 1994, cc609-11W](#); and [Conservative Party General Election Manifesto 1992](#)

⁸ [HC Deb 10 March 1997, cc78-80W](#)

Unlike the [privatisation of the former British Rail companies](#) where the track was separated from the rolling stock ownership and train operations, the DLR franchise is a vertically integrated operation with responsibility for all three. The franchisee is required to operate a basic minimum level of service, the passenger service requirement (PSR). DRML receives three types of remuneration:

- A fixed fee payable by DLR Ltd, set in advance for each year of the franchise, indexed to the retail prices index, to meet the operating deficit DRML expects to incur on the existing network;
- the fare revenue from passengers on the existing DLR network; and
- ancillary income from commercial income on DLR stations, such as shops and merchandising.

It was announced at the time that the DLR's dependence on public subsidy would be reduced by 24 per cent over the seven-year franchise period.

Between 1992-93 and 1995-96 the number of passenger miles more than doubled from 20 million to 46 million; the operating cost per passenger mile halved from £0.98 to £0.48 and the subsidy per passenger mile fell by two thirds – from £0.77 to £0.27.⁹

DRML's franchise was renewed in 2006; full details can be found on the [DLR website](#).

2 Extensions

A map of the completed and planned extensions of the DLR is available on the [Transport for London website](#).

2.1 Lewisham

In his Budget statement on 30 November 1993 the then Chancellor of the Exchequer, Kenneth Clarke, announced that the private sector was to be invited to finance, build and maintain a 4.2 kilometre extension of the DLR to Lewisham; the first extension south of the River Thames.¹⁰ The [London Docklands Railway \(Lewisham\) Act 1993](#), which legislated for the building of the extension, received Royal Assent in May 1993.

On 15 February 1995 the Government announced that four consortia had been short-listed to tender for the Lewisham Extension: Brown & Root, AMEC and Dragados; the Docklands Link Group; the Lewisham Extension Company; and the Light Rail Group.¹¹ Bids were invited on the basis of six stations but without a station at Cutty Sark in Greenwich. It was reported in August 1995 that the Department for the Environment had admitted that it would have to fund £50 million of the construction costs of the extension. Due to the capping of rail fares, revenue projections had been reduced which affected the financial viability of the scheme. The DLR management had apparently told ministers that, without a subsidy, bidders for the tender would be forced to pull out.¹²

On 27 September 1996 the then Deputy Prime Minister, Michael Heseltine, announced the signing of the concession agreement with the winning consortium, CGL Rail (City Greenwich

⁹ [HC Deb 11 January 1996, cc287-288W](#)

¹⁰ [HC Deb 30 November 1993, c932](#)

¹¹ [HC Deb 15 February 1995, cc677-78W](#)

¹² "Rail project to get £50m state cash", *Financial Times*, 28 August 1995

Lewisham Rail Link plc), to build the Lewisham Extension. The extension was estimated to cost around £200 million and to be completed early in 2000. The concession agreement was set for a period of 25 years. The consortium included John Mowlem and Company plc, Hyder Investments Limited, London Electricity plc and Mitsui & Co UK plc. The project was amended to include a station at Cutty Sark in Greenwich following representations from Greenwich Council.¹³

The Lewisham extension opened on 20 November 1999, with the exception of Cutty Sark Station which opened on 3 December 1999, two months ahead of schedule. The line runs through two tunnels under the River Thames and included two new, replacement stations at Mudchute and Island Gardens and five new DLR stations south of the river at Cutty Sark, Greenwich Railway station, Deptford Bridge, Elverson Road and Lewisham Town Centre. CGL Rail raised debt finance through a bond issue, underwritten and distributed by investment bank BZW.

It was proposed that an additional fare in the form of a toll would be charged to passengers crossing the river on the extension. The then Deputy Prime Minister, John Prescott, announced at the Labour Party Conference in 1999 that a grant of £20 million would be made to replace the toll. This grant was intended to fund twelve additional two-car trains for the DLR to carry 14 per cent more passengers, the proportion calculated to be deterred by the toll.¹⁴

2.2 London City Airport

In 1997, DLR Ltd commissioned consultants to undertake a study to review potential extensions and enhancements to the existing network and to develop a ten-year strategy for the development of the railway. The objective was to identify schemes that were: technically feasible; financially and economically viable; capable of implementation; and which would contribute to sustainable regeneration. This 'Horizon Study' analysed the impact of major public transport proposals and examined 14 possible extensions that could provide new opportunities for the railway, including: London City Airport, Woolwich Arsenal and Stratford International.

The core recommendations of the Horizon Study were to extend the DLR to London City Airport and to consider a further extension of the London City Airport line to North Woolwich.¹⁵ Following this study, in Spring 1998, the Government asked DLR Ltd to develop the proposed London City Airport link to a stage where a [Transport and Works Order](#) application could be made.¹⁶

[Three broad route options](#) for connecting London City Airport to the DLR network were identified:

- **Eastern Route Option:** would leave the existing DLR between Cyprus and Gallions Reach, continuing across the Albert Basin and then along the south side of King George V Dock approaching the airport from the east; would involve a complicated crossing of the main entrance to the Royal Docks for shipping that would require an opening bridge; would not serve the West Silvertown/Pontoon Dock area on the south

¹³ Department for the Environment press notice, "Michael Heseltine inaugurates the £200 million Docklands Light Railway extension", 27 September 1996 [PN 1996/395]

¹⁴ DETR press notice, "[£5.5 billion transport legacy for Londoners](#)", 29 September 1999

¹⁵ Steer Davies Gleave, *The Horizon Study, Final Report*, 1998

¹⁶ DLR press notice, "Go-ahead for airport expansion", 17 June 1998

of the Royal Docks and would thus have less potential to assist in the regeneration of the surrounding area; and would serve the community of North Woolwich and eliminate some of the local environmental impacts in the Hartmann Road area.

- **Central Route Option:** would leave the existing DLR east of Prince Regent before crossing Royal Victoria Dock on a bridge and then approaching the airport via Hartmann Road with provision to extend to a station at King George V in North Woolwich; would involve a complex and expensive swing bridge crossing of the Royal Victoria Dock; and would have less potential for serving the West Silvertown area and the regeneration of the wider area.
- **Southern Route Option:** would leave the existing DLR south of Canning Town station and run on the south side of Silvertown Way and North Woolwich Road before approaching the airport via Hartmann Road with provision to extend to King George V in North Woolwich; offers the shortest journey times to the airport and has the maximum potential to remove car trips from local roads; would serve the local community of West Silvertown in addition to Silvertown and London City Airport; and would not requiring a complicated dock crossing.

A [public consultation exercise](#) in March 1999 indicated strong support from local residents for the extension and in particular, widespread support for the Southern Route option. There followed an '[Options Appraisal](#)' which concluded that the Southern Route, although the longest, was the simplest option, avoiding any need for costly and potentially disruptive opening sections. The Southern Route also had the highest cost-benefit ratio but also the highest potential funding gap (due to high construction costs). It was further identified as having the most positive socio-economic impact in terms of regeneration. The Southern Route was subsequently adopted as the '[preferred route](#)', incorporating an extension to King George V in North Woolwich.

The [estimated capital cost](#) of the extension from Canning Town to King George V station at North Woolwich was approximately £115 million. In the autumn of 2002, DLR Ltd successfully appointed City Airport Rail Enterprise (CARE), a consortium of AMEC and the Royal Bank of Scotland, as the preferred bidder to design and build the extension and ultimately maintain the new line. Under a concession arrangement, CARE will be responsible for the maintenance of the railway for a period of approximately 30 years, and for making it available for DLR (through the franchisee - currently Serco Docklands Limited) to operate trains. Construction (including testing and commissioning) of the line started on 4 March 2003 and the line opened in December 2005.¹⁷

The Transport Select Committee looked at access to airports as part of its report on passengers' experiences of air travel, published in July 2007. It praised the DLR link to London City Airport as a "huge success":

One of TfL's main objectives for the extension was to address the lack of a dedicated public transport link: in 2000 over three quarters of passengers arrived or departed by car or taxi, the remainder used shuttle bus and other means. In its first year of operation 4.2 million passengers used the extension. Usage increased by 45% over the first year, equating to an additional 3,150 passengers using the extension each day. Compared to the car the extension has delivered a 37% improvement in journey times from Bank Underground/DLR station to the airport and a 39% improvement from

¹⁷ TfL press notice, "[Mayor opens Docklands Light Railway London City Airport extension](#)", 6 December 2005

Canary Wharf. It has achieved one of the highest rail mode-shares at any airport in the UK. After one year of operation 49% of passengers use the DLR to travel to and from the airport, increasing total public transport usage from 31% in 2003 to 50% in 2007.

London City Airport is a small airport, historically with poor transport links. The Docklands Light Railway extension to the airport has been a huge success.¹⁸

2.3 Woolwich Arsenal

The background to the Woolwich Arsenal extension is described on the [TfL website](#):

[In] 1998/9 DLR Ltd developed and costed a feasible engineering alignment for a DLR extension to Woolwich Arsenal as a continuation of the proposed line to London City Airport.

The results of this work formed an input to the East London Integrated Transport Strategy (ELITS) studies being undertaken jointly by Government Office for London, Transport for London (TfL), Railtrack, and DLR Ltd. These studies compared different public transport packages for the Thames Gateway and included both a DLR and Heavy Rail scheme at Woolwich.

The opening of the Jubilee Line extension in 1999 prompted TfL, DLR and Railtrack to re-examine rail alternatives for the corridor between Stratford, the Royal Docks and Woolwich. The Stratford Woolwich Corridor Study considered alternatives that ranged from the heavy rail schemes to light rail and mixed running alternatives. The report concluded that a DLR scheme might be able to deliver many of the benefits of the heavy rail scheme at significantly lower cost and in a shorter timescale.

In May 2000, the Thames Gateway River Crossings Strategic Integration Study reviewed the previous ELITS and East Thames Area Framework (ETAF) studies together with new information, in particular relating to a DLR alternative at Woolwich. The report concluded in respect of the choice between a heavy rail or a DLR crossing at Woolwich that DLR had a more localised effect than the heavy rail scheme in terms of regeneration impact in the Thames Gateway. It also concluded that the DLR scheme had a financial and economic advantage and was capable of more rapid implementation.

DLR therefore began to develop the details of an extension to Woolwich Arsenal up to the level required for a Transport and Works Order application. A '[preferred route](#)' was endorsed by the DLR Ltd Board in November 2001 and by Greenwich Council Cabinet Committee in January 2002. In April 2004, TfL and DLR Ltd announced that four prospective consortia had been successful in the pre-qualification process to bid for the concession to build the Woolwich extension.¹⁹ A preferred bidder was selected in March 2005 and in June it was announced that a 30-year concession contract had been signed with Woolwich Arsenal Rail Enterprises (WARE), a consortium formed by AMEC and the Royal Bank of Scotland. The cost of the extension would be £180 million.²⁰ Work began later that same month and the extension was completed and opened in January 2009.²¹

¹⁸ Transport Committee, *Passengers' experiences of air travel* (eighth report of session 2006-07), HC 435, 26 July 2007, paras 55-56

¹⁹ TfL press notice, "[Four bid to build Woolwich](#)", 22 April 2004

²⁰ TfL press notice, "[DLR signs contract for extension to Woolwich Arsenal](#)", 1 June 2005

²¹ TfL press notice, "[Mayor unveils DLR Woolwich Arsenal station](#)", 12 January 2009

2.4 Stratford International

Following the Horizon Study report in 1998, the then DETR instructed DLR to undertake studies of the feasibility of an extension serving the proposed Stratford International Station for the [Channel Tunnel Rail Link \(CTRL\)](#). These are outlined on the [TfL website](#):

In December 1998, DLR Ltd commissioned Maunsell Ltd to establish the optimum route and prepare outline engineering designs for the proposed extension of the DLR to Stratford International and to allow for possible future extensions, taking into account engineering, timescale and financial factors.

In June 2002 DLR initiated a review of previous demand modelling and appraisal work for the extension. The work incorporated the latest views and strategic thoughts emerging about development on both the Railway Lands (a large scale mixed use development planned between Stratford station and the planned Stratford International station) and the Arc of Opportunity corridor (an identified regeneration zone which runs from Stratford to Canning Town).

In late 2003, DLR and the Strategic Rail Authority (SRA) commissioned a joint study to review options for the future operation of the North London line. In July 2004 DLR received the Government's support to pursue plans for the conversion of the North London line between Canning Town and Stratford.

In May 2005 TfL gave approval for a Transport and Works Order application and planning approval was granted by the Department for Transport in October 2006. Part of the North London rail line between Stratford and Canning Town was closed in December 2006 to convert it to DLR use. The Extension is being funded by TfL and the [Olympic Delivery Authority](#), with a total value of £238 million.²² Preliminary work began in January 2007 when a Skanska and GrantRail joint venture was appointed to carry out the first physical work for the scheme, valued at approximately £39m.²³ The main construction contract was awarded to the same companies in July 2007.²⁴ The target completion date is autumn 2010.

Updates on the project can be found on the [Transport for London website](#).

2.5 Dagenham Dock

The background to the plan to extend the DLR to Dagenham Dock is given on the TfL website:

The idea of extending the DLR to Dagenham Dock has been examined several times. It was first investigated in 1997, when DLR Ltd looked at possible extensions to the network which could be realised within the ten-year period up to 2007. A Dagenham Dock scheme was not taken forward at that time because the land use and development proposals for Dagenham Dock and Dagenham were not fully developed and the likely timescale for re-development of the area was beyond the designated period up to 2008.

However, by 2002, the emerging plans for both Barking Riverside and for South Dagenham envisaged as many as 11,000 new homes in Barking Riverside and significant employment and new homes around South Dagenham. The Barking Riverside area has now been identified in the London Plan and emerging proposals for

²² TfL press notice, "[Government gives green light to key 2012 rail link](#)", 25 October 2006

²³ TfL press notice, "[Major contract award signals start of work on DLR Stratford International Extension](#)", 10 January 2007

²⁴ TfL press notice, "[DLR on track for Stratford International as £67m contract awarded](#)", 2 July 2007

regeneration of the Thames Gateway sees it as a location for major housing growth and employment.

The Greater London Authority (GLA) and Transport for London (TfL) requested that DLR undertake initial feasibility studies into possible route options and costs for an extension through to Barking Riverside. In February 2002, Docklands Light Railway Limited (DLR Ltd) appointed consultants to examine outline engineering corridors for a proposed eastern extension of the DLR from the existing network. This work was completed in mid 2002 and highlighted Barking town centre, Renwick Road or Dagenham Dock as possible terminus destinations.

Following further work and stakeholder consultation, it was concluded that the optimal route eastwards involved extending the DLR to Dagenham Dock. This was principally due to the potential interchange opportunities, the need to fully serve the planned Barking Riverside area and the desire for the potential of the DLR to unlock sites further east.

In March 2006 the Mayor of London instructed DLR to develop this scheme further. In response to this DLR has developed a proposed route for the extension. A team of consultants were appointed to review the previous route proposals and develop a detailed route between Gallions Reach and Dagenham Dock.

A TWA order application was made to the Secretary of State for Transport in April 2008 to get permission to build the extension. The application was subsequently withdrawn in December 2009. The application was withdrawn due to the lack of funding and a delay in building new homes at Barking Riverside, where many of the passengers expected to use the extension will come from. DLR has indicated that it will work to safeguard the proposed route for the extension so that it can still be delivered in the future. Updates on the project can be found on the [Transport for London website](#).

3 Capacity Enhancements

The DLR has experienced huge growth since the early 1990s, particularly since 1997 as the Canary Wharf area and its surrounding environs have developed. The DLR currently carries almost 70 million passengers each year and this is expected to rise to over 100 million per year in 2010. In 1997-98, passenger kilometres were at almost 110 million, by 2006-07 they had almost tripled to 300 million. Meanwhile the average fare per passenger kilometre had risen from 17.3p to 17.5p – compared to Underground fares which rose by 1.0p and bus fares which fell by 2.5p over the same period.²⁵

In order to cope with the expected increase in patronage, particularly during the 2012 London Olympics, to be held in Stratford, east London, the DLR is upgrading the network for three-carriage trains.

In June 2004, DLR Ltd submitted to Government a Transport and Works Order application to undertake construction works on the route between Bank/Tower Gateway and Lewisham. The works would entail lengthening platforms, strengthening some viaducts and bridges and also providing additional lifts and other improvements in order to give the DLR the ability to run three-car trains. The estimated cost of £125m included provision for 18 new vehicles and expansion of the Beckton depot.²⁶ Following a Public Inquiry, approval was granted for the Transport and Works Order in October 2005. In May 2007 TfL awarded the contract to

²⁵ TfL, [London Travel Report 2007](#), p35

²⁶ TfL press notice, "DLR applies for major capacity enhancement powers", 29 June 2004

upgrade the Bank-Lewisham route to Taylor Woodrow with an expected completion date in late 2009.²⁷ Three-carriage trains began to run between Bank and Lewisham in February 2010. The cost of the total upgrade programme is £325 million and includes fifty-five new carriages, lengthened platforms, and upgraded track and infrastructure.²⁸

The Beckton route is currently being upgraded to accommodate three-carriage trains. Once the works are completed in early 2011 the entire DLR network will be three-carriage compatible.

Information on the capacity enhancement for the DLR can be found on [Transport for London's website](#).

²⁷ TfL press notice, "[Extra carriage on every DLR train](#)", 3 May 2007

²⁸ Mayor of London press notice, "[Fifty per cent capacity boost as DLR rolls out three-carriage trains](#)", 23 February 2010