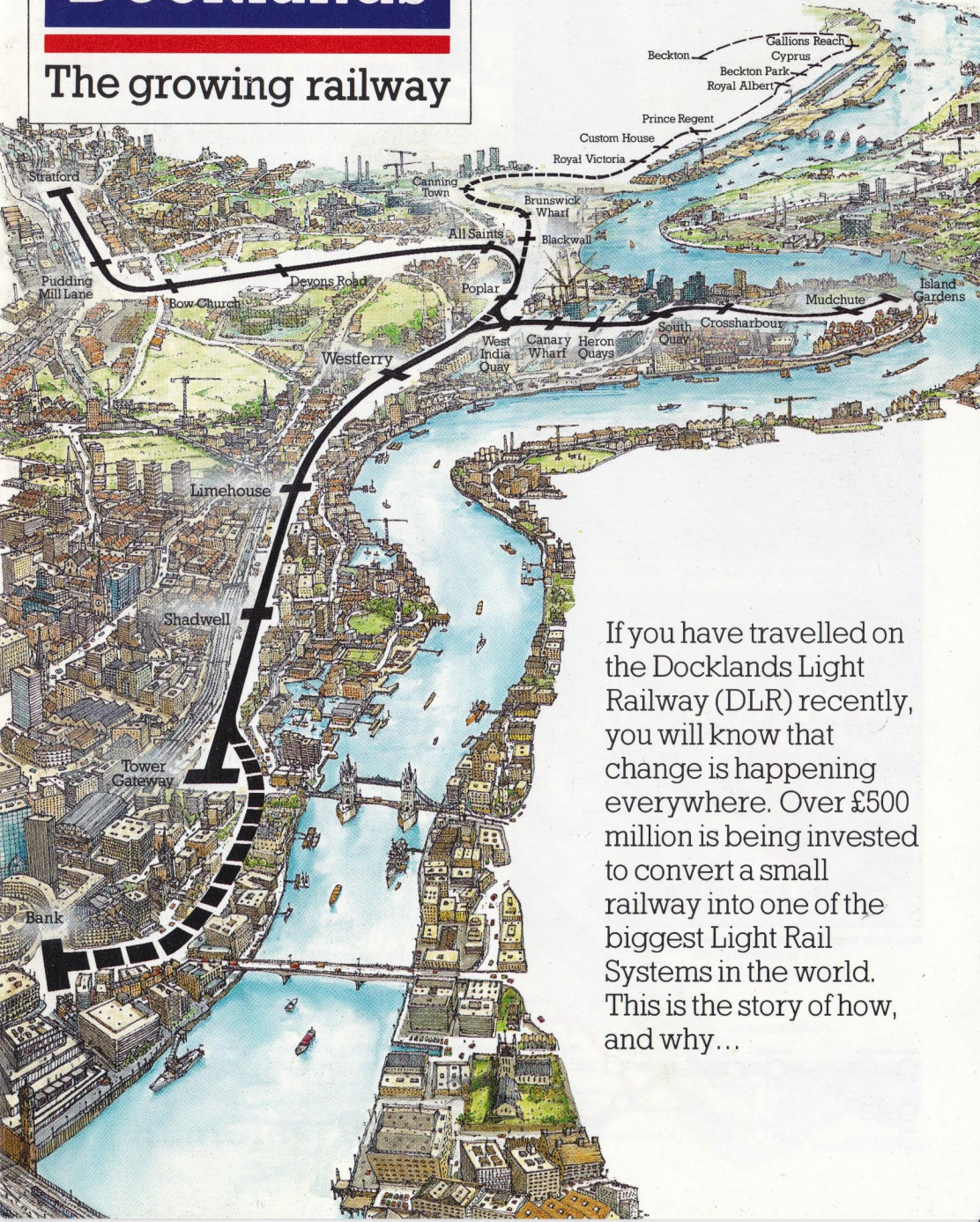


# Docklands Light Railway

# Docklands

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## The growing railway



If you have travelled on the Docklands Light Railway (DLR) recently, you will know that change is happening everywhere. Over £500 million is being invested to convert a small railway into one of the biggest Light Rail Systems in the world. This is the story of how, and why...

# The initial railway

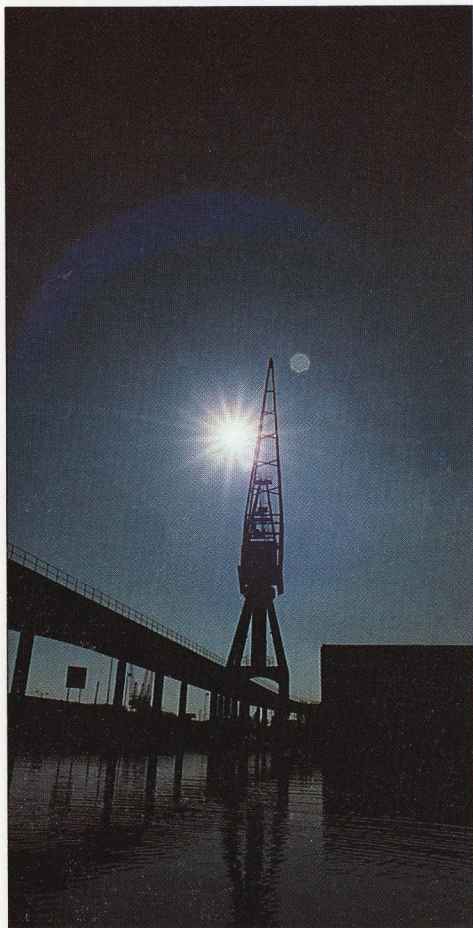
In the early 1980s, the City of London was one of the richest places in the world, with businesses booming, and property development racing ahead. Just a few miles to the east, London's Docklands had become a deserted wasteland with little or no industry, high unemployment, and little hope for the future. The big ships had gone. Goods were being imported and exported in containers, rendering the traditional ports obsolete.

The Government of the day created the London Docklands Development Corporation (LDDC) to redevelop the areas of Surrey Docks, Wapping and Poplar, The Isle of Dogs, and The Royal Docks. The provision of adequate public transport, especially north of the River Thames, was a key to future success, and several schemes were considered.

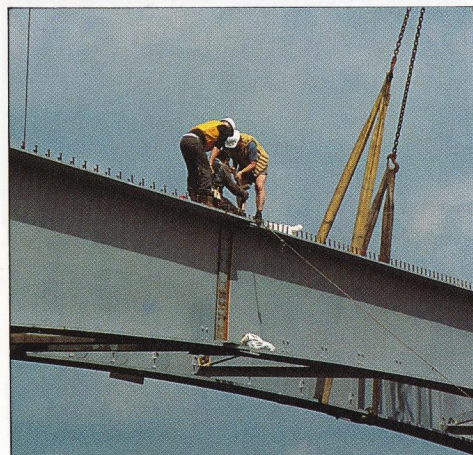
Light Rail technology had been developing during the previous decade. By this time it was possible to build a railway using high performance trains with the ability to climb steep gradients and negotiate sharp curves at a fraction of the cost of a conventional line.

A contract to build the railway was placed in 1984, and construction was completed in three years at a cost of £77 million.

DLR was officially opened by Her Majesty The Queen on 30 July 1987. It operated in a Y-shape with Tower Gateway to the west, Stratford to the north, with trains from both these places running through to a southern terminus at Island Gardens on the Isle of Dogs.



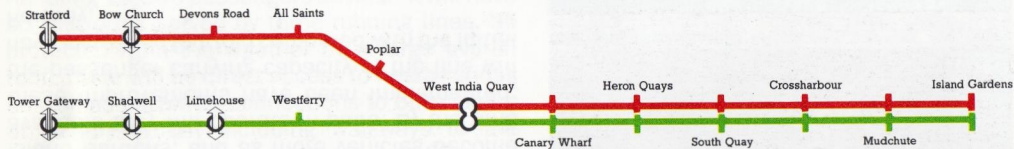
*In the beginning*



*Building over the Docks*



*HM The Queen at Poplar, July 1987*



Meanwhile the planned development of the area had exceeded everyone's hopes, and work was about to start on Europe's largest commercial development, Olympia and York's £4,000 million mixed office and retail complex on the Canary Wharf site at West India Dock. The developers expect that one day more than 50,000 people will work in this huge complex, designed to include England's tallest building. At its heart will be a new DLR station.

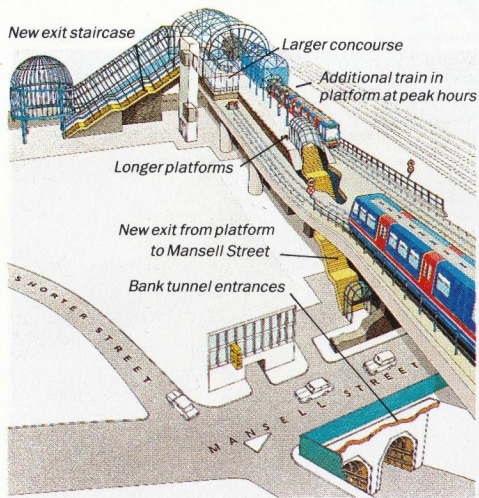
The number of people using the DLR was soon to be much greater than expected. The planners had predicted that by 1991, the maximum number of people using the line on any one day would be 22,000. By the end of 1989 the daily total of passengers carried was 33,000, and increasing all the time.



Canary Wharf, 1986



Canary Wharf, May 1990



Tower Gateway improvements

# Tower Gateway

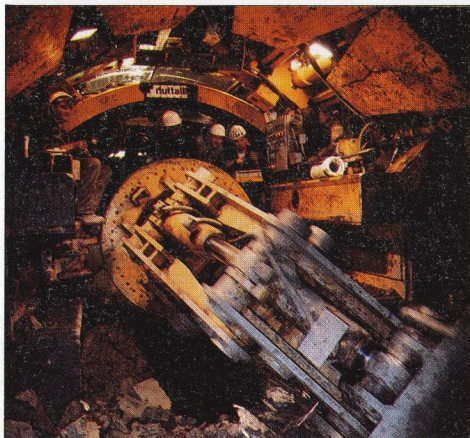
DLR's busiest station is Tower Gateway. Great care is taken to ensure maximum safety on the narrow platform. Staff on duty during the rush hour make sure that passengers enter and leave trains in an orderly manner, and that the concourse never becomes overcrowded. To ease the situation, DLR is constructing two new staircases, one alongside the existing escalators and stairs, and another at the opposite end of the platform for use as an 'exit only' into Mansell Street.

A new timetable provides for a 'layover train' which allows passengers to board a train before the arrival of the next incoming service.

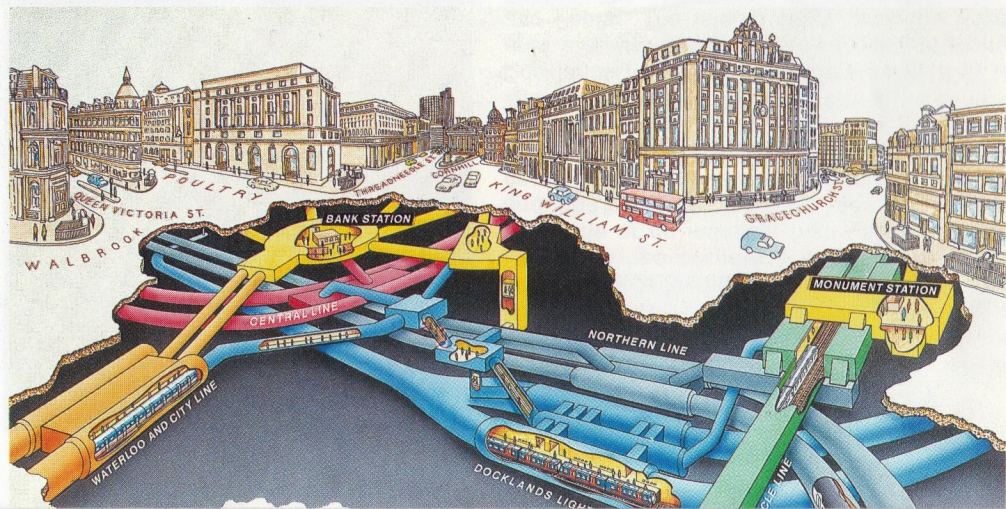
# Bank

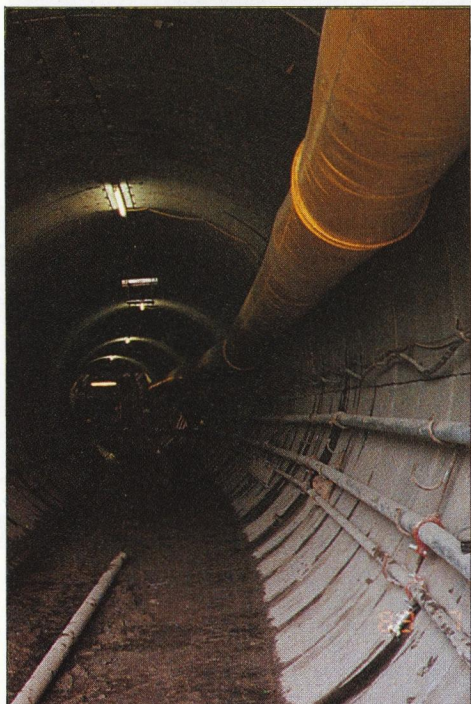
Even before the line was opened, plans had been finalised for an extension, westward, to a below-the-surface station at Bank. This would link the heart of the old city, with the new 'City' in Docklands. Parliamentary approval was granted in 1986, and Olympia and York agreed to pay half the original cost of £150 million, with the balance coming from government funds.

The entrances to the Bank tunnels are easily seen from the train on the south side of the existing line outside Tower Gateway station. The twin bores have been driven 1.5kms under the City of London. They have several novel features. Each tunnel is 5 metres in diameter, which allows for the construction of a continuous walkway (rather like a mini-platform) which will allow the safe evacuation of passengers, including wheelchair users, in the event of a

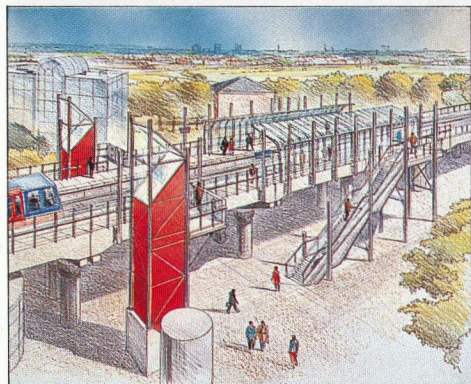


The Bank tunnelling machine





The tunnel, 42 metres below street level



An artists' impression of a typical new station

breakdown or emergency.

The incline from the existing line at a gradient of 6% is one of the steepest used on any railway relying purely on the adhesion between steel wheels and steel rails. The tunnel passes close to the moat of the Tower of London, beneath Tower Hill, along Byward Street, Great Tower Street, and Eastcheap ending at the new station beneath King William Street. At 42 metres below street level, it will be one of the deepest in central London.

Between the two platforms will be a concourse with escalators leading from each end to the existing Monument and Bank Stations. When finished, the whole complex will be simply known as 'Bank'.

Most of the tunnelling was completed by early 1990, and tracks were laid in the westbound tunnel during March and April. When in use, trains will stop at the arrival platform, offload their passengers, and then move into an 'overrun' tunnel before reversing to the other platform to pick up departing passengers. The excavation of the junction immediately beyond the station is the last major part of the works, and should be completed by late summer 1990. Installing escalators, ventilation, lighting, and applying the finishing touches will take several more months, and it is planned that a limited service, using one tunnel, will start in Summer 1991, with a full service coming into operation the following Spring.

## Beckton

Now that the regeneration of Wapping and The Isle of Dogs is set to be a success, the LDDC has turned its attention to the Royal Docks. As the DLR clearly acted as a catalyst in attracting development north of the River Thames, it is a natural progression to extend it 8 kms eastward to serve future developments in Leamouth and the Royal Docks areas of London's Docklands.





Construction at Beckton

The total cost of this project is £240 million, with the majority of funds being provided by the LDDC. The double track line will serve eleven stations (with the possibility of two more at a later date) and provide the DLR with substantial storage sidings and comprehensive workshops on the site of the former Beckton Gasworks. It is scheduled to open for passenger service at the end of 1992.

To accommodate the large number of trains passing through Poplar Station when the Beckton extension comes into service, new junctions are being constructed between Westferry Station and the new Blackwall Station at Prestons Road. When completed, trains running between Bank and Beckton will use a completely different set of tracks from those operating between Stratford and the Isle of Dogs. To achieve this, the number of lines serving Poplar Station is being increased from three to four. Demolition of part of the station, installation of the four running tracks, and finally the reconstruction of the superstructure will take until mid 1991 to complete.

## New trains

Until May 1990, DLR had to operate all its services with just eleven trains. Relief for rush hour travellers came with the arrival of the first of ten new trains which entered service as the 'layover train' at Tower Gateway.

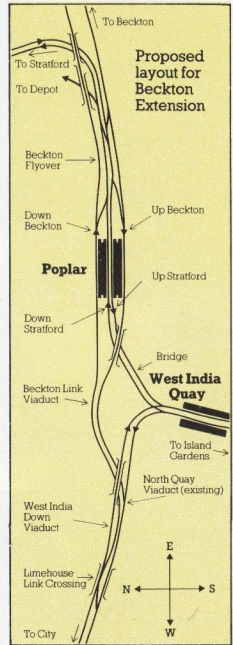
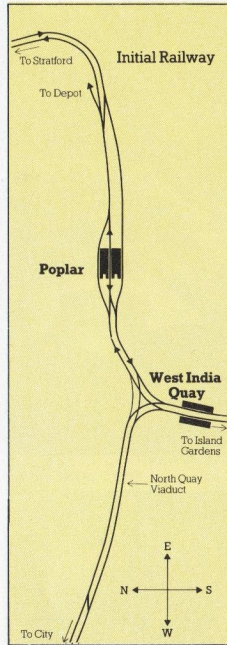
The new vehicles will enable more frequent peak services to operate from mid summer.

Forty-four trains of a new design, with sliding doors, are due to start entering service from early 1991. The first of these will be used to provide a more frequent service between Stratford and Island Gardens, and as more vehicles become available they will operate in pairs. By the time these improvements have been implemented, the passenger carrying capacity of the line will have increased fourfold compared with the Initial Railway.

## New stations



Construction at West India Docks



Old and new track layouts at Poplar junction



New trains in Poplar sidings



A major new station is under construction at Canary Wharf. When finished it will be capable of handling 15,000 passengers an hour. It will have six platforms served by three running lines, all protected from the weather by a large overall roof. There will be direct access to nearby shops as well as escalator connections to other floors at Canary Wharf, including walkways to the Jubilee Line when it opens in the mid-1990s.

A loop of track, allowing trains to pass each other, has been installed on the single line terminal section of DLR between Bow Church and Stratford. For the time being this will allow trains in the area to operate with much shorter intervals between them. Later, a new station called Pudding Mill Lane will be built on the site of the loop.

## Longer platforms

With the exception of Island Gardens and Mudchute, all DLR's platforms have been extended to take double length trains. The lengthening had to be carefully planned in order to maintain the narrow gap between the trains and the platform edge which allows wheelchair users to board without assistance.

It is possible that the DLR will be authorised by the Government to build an extension southward to Lewisham, via a new tunnel below the River Thames. To achieve this, the stations at Mudchute and Island Gardens will have to be rebuilt on new sites. It follows that expenditure on platform lengthening now could turn out to be a waste of money. Meanwhile, an extra track has been installed

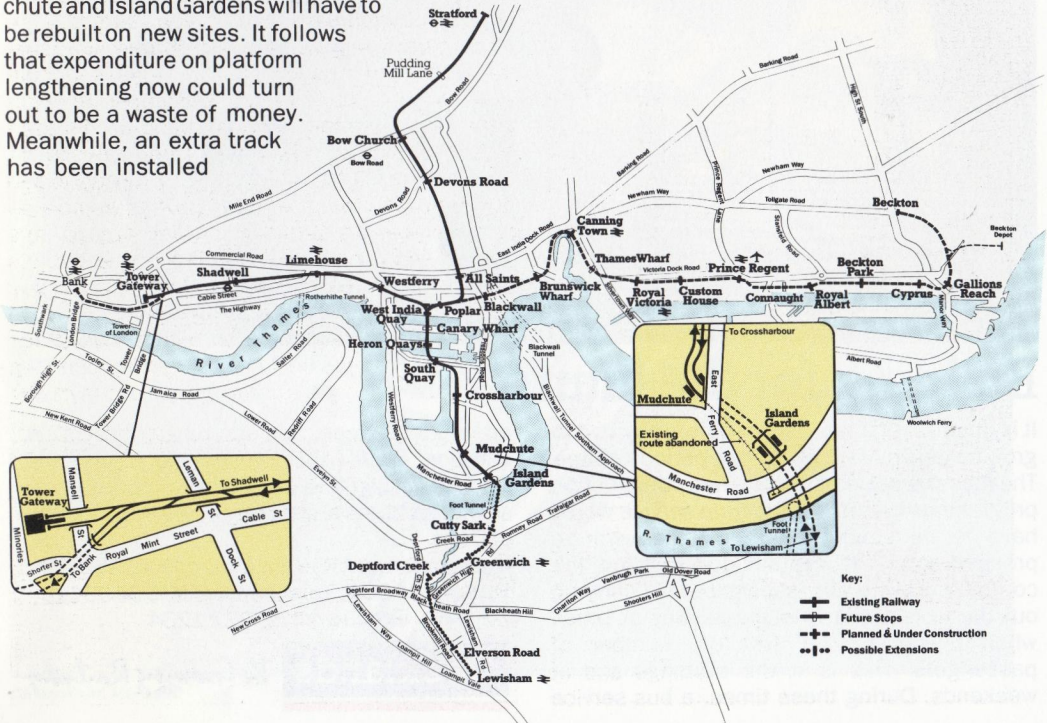


An artists' impression of Canary Wharf station



Longer platforms: (West India Quay Station)

near Crossharbour Station allowing double length trains to reverse without the need to enter Mudchute or Island Gardens stations. If the DLR is not authorised to build the Lewisham extension, Mudchute and Island Gardens will then be modified to accept longer trains.





Canary Wharf, June 1990

## Building for the future

It is doubtful that any railway before has had to grow so quickly in such a short period of time. The massive scale of the planned construction programme meant that the train service would have to be stopped to allow the work to proceed safely. It was decided to allow the contractors, who are responsible for carrying out the work, access to the railway at times when it carried the smallest number of passengers. This is in the evenings and at weekends. During these times, a bus service

operates between, and stopping only at, DLR stations. So for the foreseeable future, the Docklands Light Railway will be operating a service of trains and buses to and from the Isle of Dogs.

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**Docklands** *The Growing Railway*