

# West London Orbital 2008 Update – a summary

The West London Orbital is a proposed new underground line to serve west London.

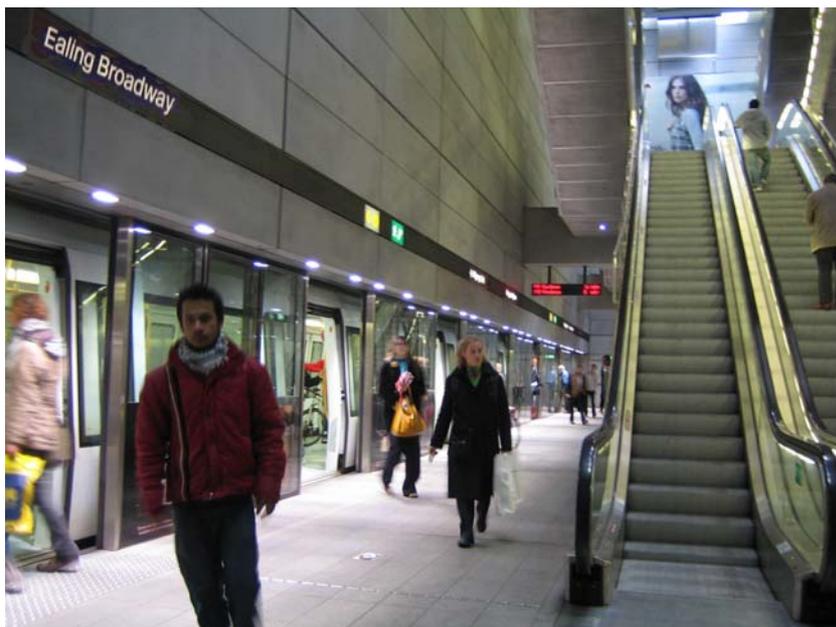
The line would run in a north-south direction, and would connect together the many radial railway lines in west London, creating a comprehensive rail network for use within west London, rather than providing for journeys mainly into and out of central London. The new line would be complementary to Crossrail and would serve as a feeder to it.

A number of routes have been examined for the new metro and the most promising one would run between Brent Cross and Surbiton via Wembley, Ealing Broadway and Richmond.



The West London Orbital would operate using short driverless trains, similar to the Docklands Light Railway and updated to the most modern standards broadly similar to the recently opened Copenhagen metro in Denmark. The transit time from Brent Cross to Surbiton would be 28 minutes, with a maximum train speed of 80km/h. No station on the route would be more than 15 minutes from the interchange with Crossrail at Ealing Broadway. The 25km line would link together 20 different radial rail or tube lines.

This summary sets out the main conclusions from the recent report prepared by Capita Symonds for West London Business. More information and copies of the full report can be obtained from the address at the end of this document.



**CAPITA SYMONDS**



## **Background**

West London is one of the UK's key economic generators. Strategically located between Heathrow Airport and central London, it is also an employment centre of international significance.

This success has been based primarily on road transport. Although a number of rail lines (both national and London Underground) run through the sub-region, they are primarily used for commuting to central London rather than for access to local jobs. Consequently about two-thirds of journeys to west London jobs take place by car.

Most west London homes and jobs are within reasonable reach of a railway station, or could be made so at modest cost by further improvements to local buses and cycle facilities. The solution proposed is to link together the many radial lines in west London, so that they act together as a single cohesive system rather than as a series of independent lines.

## **The problem requiring a solution**

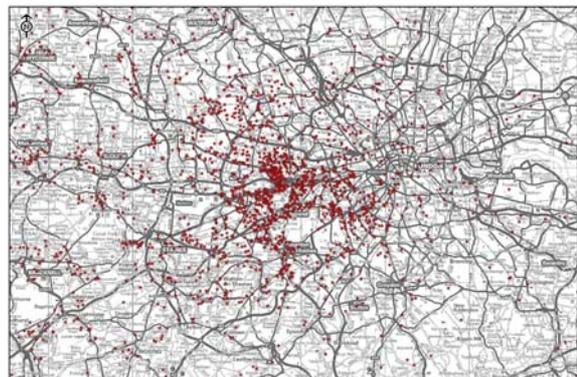
Traffic congestion is a major and growing concern in west London. The principal planning tool used to control traffic growth over the last decade has been to drastically reduce the amount of car parking permitted for new development. This is now seriously affecting the provision of new jobs in west London, and is causing severe difficulties for existing businesses that wish to expand. Although existing businesses that are content to continue operating without change are unaffected, the west London economy is becoming stagnated at its late 1990's state of evolution.

The key deficiency in public transport in west London is the lack of provision for longer-distance orbital movements, typically of 5km or more. The national average journey to work distance is 14km, but for commuters to central London (the City) it is 25km.

Local buses and cycling cater for shorter journeys, but speeds are low and the opportunities for improvements such as further bus lanes are few. Street-running rail solutions such as the now-abandoned West London Tram can cause more problems than they solve.

Present proposals for rail improvements in west London are limited to Crossrail and the re-branding of the North London Line as the London Overground. Crossrail will have a major benefit in terms of increasing capacity, hence reducing overcrowding on existing journeys to central London, but will have little or no benefit in improving accessibility within the West London sub-region. The London Overground has few linkages with the radial lines it intersects, and it would be very difficult, expensive and disruptive to provide the necessary interchanges.

As a result, west London is increasingly becoming a dormitory for commuters to central London. The danger is that West London will soon cease to be considered a prime location for high-level employment of the type that requires large catchment areas. Whilst such jobs can still be provided in central London, the costs over time of providing and upgrading rail links to central London are increasing rapidly, as has happened with Crossrail.



*Employee distribution for a typical large west London employer. 56% of these people live within 15km of their workplace.*

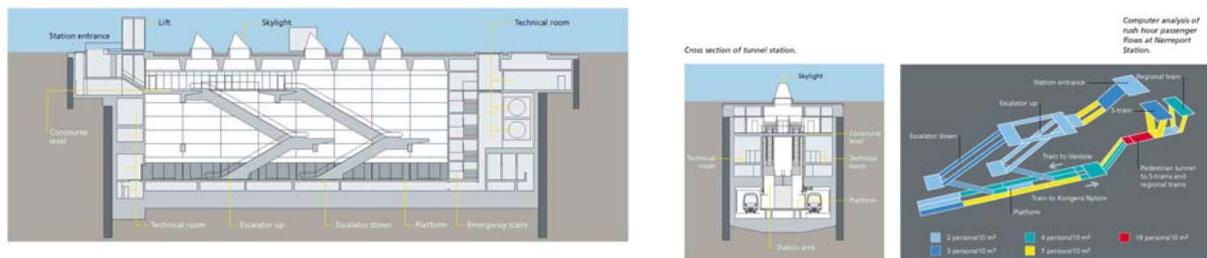
**Engineering and costs**

Compared with building a metro line in inner London, constructing an entirely new West London Orbital should be relatively uncomplicated. The subsoil strata are suitable for modern tunnel boring machines (TBMs), there are few other tunnels to avoid, and the tunnel diameter will be smaller than for a heavy rail scheme.

The West London Orbital would run in twin tunnels, typically at a depth of 30 metres but rising closer to the surface at stations. Some key comparisons with other rail tunnels are:

Scheme	Internal diameter (m)	Internal cross-sectional area (m <sup>2</sup> )	Station platform length (m)
High Speed 1 (Ebbsfleet to St Pancras)	7.15	40	400
Crossrail	6.0	28	245
Copenhagen/DLR/West London Orbital	4.9	19	40
London tube (Victoria Line)	3.8	11	122

Because the trains would run frequently – at 3 minute intervals at peak periods – the stations can be relatively small and thus cause minimal disruption at street level. The station boxes would typically have a plan area of 20m x 60m. They would be built downwards from ground level, using either diaphragm walling or contiguous bored piles. Both these construction methods are widely used in London for buildings that incorporate basements. Based on experience in Copenhagen, platforms would typically be 18m below street level.



Station details - Copenhagen metro

Capita Symonds’s cost estimate for the scheme is £1.75bn. This figure includes rolling stock, escape shafts, maintenance depot, track and signalling. It does not include design costs, land acquisition, unforeseen geotechnical complications, ticketing system alterations or Value Added Tax. For comparison, the cost of the recently completed Copenhagen Metro was £1.1bn, with 11km out of the 21km route being tunnelled.



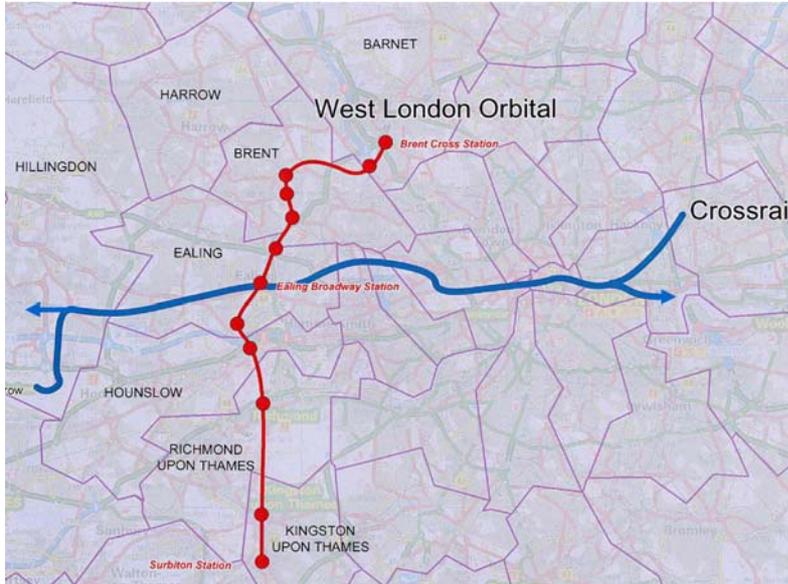
Trains would be slightly more than twice the length of a bendibus

At stations, it may be sensible to buy additional land to allow development to help fund construction.

An essential feature would be the introduction of a unified ticketing system (Oystercard) covering the whole of London including national rail suburban lines.

### **The benefits**

The proposed West London Orbital would make travel by public transport a real option for many journeys that at present can only sensibly be undertaken by car. Destinations such as Heathrow and Wembley Stadium would become accessible from anywhere in west London without the need to travel via central London or by car. West London's public transport system would become a cohesive network rather than a series of parallel radial routes leading to central London, and journey times would be more reliable and predictable.



The new metro would fit well with plans for Crossrail. It would also include a new interchange station with Thameslink near Staples Corner, where major redevelopment is already planned.

An additional benefit would be seen during times of planned maintenance on existing lines, as it would become much easier to change to an alternative rail route.

The metro, being electrically powered, would help meet air quality and CO<sub>2</sub> objectives.

### **Next steps**

The West London Orbital proposal is the outcome of a feasibility study carried out for West London Business, to identify how a step change in strategic public transport accessibility can be achieved in west London. The study has confirmed that the key structural weakness in the transport system is the lack of an orbital public transport route that interchanges with the many radial railway and tube lines.

A project of this kind will need public sector support from borough councils, the Mayor of London, and eventually from central government. Funding sources will need to be identified, and could include income from road pricing schemes that seem likely to be introduced over the next decade, and the increasing tax revenue arising from escalating oil prices.

West London Business will be asking Transport for London to undertake a more detailed study, to identify more firmly the costs, benefits and environmental effects including land requirements. A scheme of this magnitude is likely to take a decade or so in preparation, but preparatory works need not take as long as, for example, Crossrail. The concept is simple, and is not dependent on re-using existing infrastructure for parts of the route. Also, the passenger volumes will be lower than for central London lines, reflecting the relatively lower building density in outer London.

Copies of the full report by Capita Symonds can be obtained from West London Business, 15-21 Staines Road, Hounslow, Middlesex TW3 3HR telephone 020 8607 2500 (a charge may be made), or may be downloaded free from [www.westlondon.com](http://www.westlondon.com) from the end of April 2008 onwards.