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White City development races ahead

The £1.6billion Westfield London shopping mall is now rising up out of the streets of Shepherd's Bush. With around 270 stores, in the UK it will be outstripped in size only by MetroCentre (Gateshead) and Bluewater (Kent). The new complex will open next year.

As described in a feature in the June 2006 *Modern Railways*, the shopping mall is largely built on former railway land and new sidings for the Central Line are incorporated in the basement of the new development, replacing inconvenient old sidings on the site. Extensive investment is also taking place in the public transport facilities in the area, as around 60% of visitors to the site are expected to travel by public transport.

The Westfield London site is crossed or bordered by the following railways:

- London Underground's Central Line
- the Hammersmith & City Line (H&C)
- the West London line of Network Rail.

The existing Shepherd's Bush Central Line station is to be rebuilt at street level to provide a new ticket hall. It will offer step free access from street to platform level.

The station will be part of the new shopping centre's south side interchange, which will also offer travel by bus and taxi, and will be linked directly to the new West London line Shepherd's Bush station. Provision is also being made for the proposed West London Tram terminal, should that ever come about.

New stations are being constructed on both the H&C line and the West London.

The new H&C station will be situated broadly half way between the present Latimer Road and Shepherd's Bush stations, and immediately to the east of the bridge which spans the main north-south road on the west of the site, Wood Lane. It will thus be about 200 metres due south of the Central Line's White City station. This is not the site of the original H&C White City station, closed in 1959, and of which nothing now remains. This was on the other side of Wood Lane, by which name the station was known before 1947. The intended name for this new station is Shepherd's Bush Market.

The existing Shepherd's Bush H&C line station is a distance of around 550 metres from the shopping centre.

A new bus station is to be built in Ariel Way, which leaves Wood Lane next to the new Shepherd's Bush Market H&C station, and this will serve the northern end of the development. It might be added that both of these will join the existing White City Central Line station in being close to the BBC Television Centre and thus an added facility for those workers and visitors.

The new station on the West London line will be named Shepherd's Bush. It is situated between Willesden Junction to the north and Kensington Olympia to the south. Another station, Imperial Wharf, is to be built further south between West Brompton and Clapham Junction, but that is not associated with the Westfield development.

Local National Rail services in the area are presently provided by Silverlink Metro, and these will become part of the new London Overground franchise currently being tendered by Transport for London.

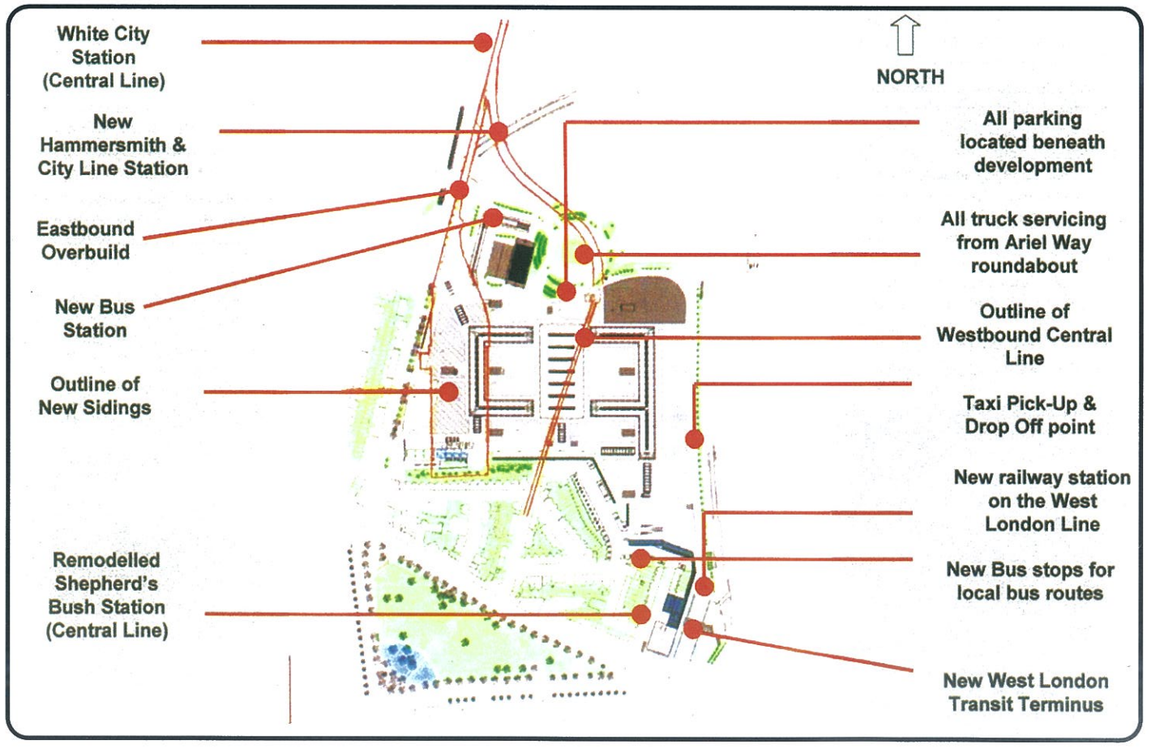
Impression of aerial view of the finished development. The West London line runs down the right hand side of the development, with the new station at the bottom of the picture adjacent to the remodelled Shepherd's Bush Underground station.

New sidings

White City station has three platforms, consisting of two islands with a double sided centre track. This is used for reversing trains in normal service, but importantly it also gives direct access to the sidings without obstructing either the westbound or the eastbound running lines. The new White City sidings can be reached only by an approach from the eastbound direction, but from any of the three platforms.

The new sidings have the same 16-road capacity as the old site. As they are completely underground beneath the shopping mall, they are subject to s12 Fire Regulations. The term 'sidings' is now adopted officially; the commonly used depot description has now been dropped. This also reflects the fact that sidings remain part of the operational railway, and are not part of the Metronet Infraco. London Underground is responsible for all safety measures.

The new sidings are a state-of-the-art construction, where every attempt has been made to provide modern facilities for trains and staff alike.



Right: **Artist's impression of remodelled Shepherd's Bush interchange.**

Below: **Site of the Shepherd's Bush interchange on 28 February 2007, with the Central Line station on the left and the new West London line station on the right.** *John Glover*

The site includes:
- the train stabling area;
- a staff block;
- escape blocks;
- pump chambers;
- services tunnels.

A replacement substation is also being built in the former 'Dimco' building, to the north of the main development.

The sidings stabling area is constructed with a track slab set to a gradient of approximately 1:258, falling from north to south, ie towards the three fixed red lights for each road and a friction buffer stop. There is no traditional ballast, anywhere.

Each stabling position has a fibre-optic shunt signal, sidings display unit, signal post telephone, train ready to start plunger, and a rail gap indicator at the northern end. This indicates the availability of traction current for the whole of the route between the sidings and into White City station itself. All train movements within the sidings are normally made in the 'Coded Manual' mode.

Traction current

Each of the four groups of sidings has its own traction current supply, with a separate section for the siding feeder road. This latter is switched off during engineering hours. Traction current can be isolated by the 12 motorised section switches within the sidings, but for use in emergency three equidistant plungers are provided along the length of each of the raised walkways.

Movement into the sidings is provided by shunt signals located at the south end of each of the three White City station platforms. An additional inlet signal is provided on the sidings feeder road, marking the signalling boundary with the sidings.

This, however, is not far enough away from the station to allow a train to shunt south of the station and then reverse into any of the three platforms. To allow for this, a further shunt signal is provided on the approach to roads 12/13.

Accommodation

The accommodation block is located at the southern end of the concrete sidings box on two levels. That at track level contains staff accommodation, welfare facilities, storage and a workshop; that at the upper level provides plant room space and access and security room.

Facilities for LU drivers and other staff are of high quality, including showers, kitchen and lockers. There are offices for Metronet Fleet, Track Maintenance and Signal department managers.

The staff accommodation includes two shafts that deliver fresh air into the sidings stabling area. A vertical shaft rises approximately 26 metres above track level, passing through the retail development now being constructed above. The track area exhaust system comprises large ducts along the tracks which form into one large duct above the track walkway to a plant room. The permanently staffed offices have the benefit of natural daylight through a roof light.

The LU service yard provides the base for Central Line emergency maintenance vehicles, but is also the access point for deliveries, waste removal and those arriving by road. There is a dedicated LU car park.

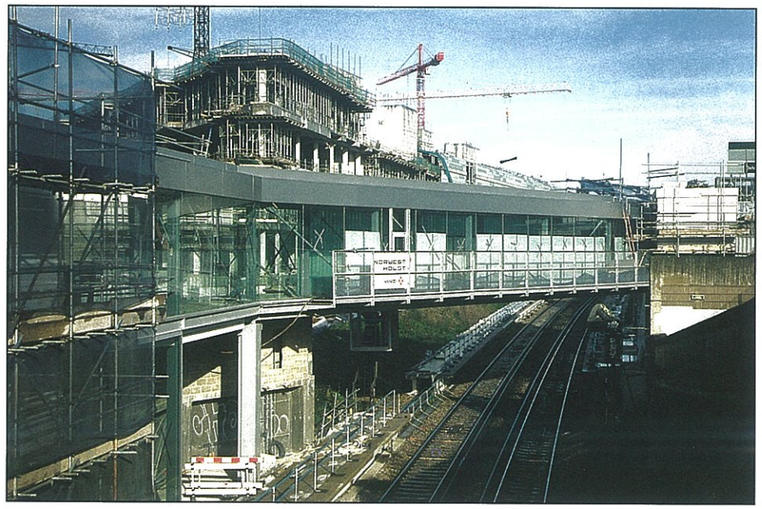
Separate rooms for signal equipment, communications equipment and train data systems are located on the west side of the sidings, with their own dedicated access from the street.

Operation

The Central Line is the only one of the LUL lines to have a siding facility very close to the central area, and when the Westfield London plans were being formulated there was some consideration as to whether it should be kept. Alternatively, was a brown field site elsewhere a possibility? The answer was a resounding 'yes' for retention, as it gave the Central a flexibility in service provision which enabled it to recover quickly from service disruptions.

Travel on the Central Line amounts to around 660,000 passenger journeys a day. This means that the numbers of passengers on platforms builds up very quickly, and if London Underground fails to push trains 'down the holes' at both White City and Stratford at about two minute intervals,

The new station taking shape on the West London line, 28 February 2007. *John Glover*



platforms soon become overcrowded. 'The 1992 stock trains are marvellous people eaters', said Danny Woodward, Duty Manager Trains. 'The limitations are more the ability of the stations and particularly the platforms to cope'. He went on to illustrate this with the Notting Hill carnival, when the 1992 stock was delivering 800 people off each train, 'and that was beyond the theoretical capacity of Notting Hill Gate station'.

White City sidings became operational on Monday 15 January 2007. They are used mainly for overnight stabling rather than daytime storage, and their location makes it easy to operate early trains in a westbound direction. Thus the first train out is the 05.11 for Ealing Broadway, followed by a West Ruislip journey. Similarly, an early eastbound train will be that much earlier, when compared with one which has to make the 20-min journey from Ruislip first.

At the other end of the day, the White City sidings stable the last trains at night.

Recovery

When there are operating problems in the central area, and everybody has them from time to time, White City sidings can act as a bolt hole to aid service recovery.

Intermediate walkways between the sidings provide level access to trains for cleaners; the guard rails have swing gates which align with the doors on the train. The sidings lighting is controlled by remote sensors, which turn the lights off when no movements are detected. *Courtesy Multiplex*

Thus up to 16 trains can quickly be taken into storage to get them out of the way, but complete with train crew. 'From here, we can get them back again and onto the eastbound line towards central London in around 10 minutes', said Danny, ' and they will be in the central area itself in another 15 minutes'.

Similarly, when the problem is expected to clear within, say, half an hour, trains can be dispatched to North Acton or Ealing Broadway to reverse. (White City to Ealing Broadway is a 30-min round trip). Such trains can supplement those which can be held in the White City station platforms; for each of these the driver has to walk the length of the train, affecting the time needed for turnround. The flexible use of the central road at White City station is very useful for such purposes.

Thus service recovery can mean just that, with a supply of trains ready to provide a regular service when the all clear is given.

While the sidings are a useful place in which to dispose of a crippled trainset, they otherwise see very little use during the day. With the growth of middle day travel, the peak number of trains required at 79 sets is reduced only marginally off peak, so there is no real need to 'lose' trains in between those times.

Massive investment

The White City shopping development is the source of finance for a welcome improvement to the Central Line's operational infrastructure: the new sidings are a vast improvement on the old ones. Coupled with that, two new railway stations are being built for public benefit, together with new bus facilities.

Might one tentatively suggest that this is what public/private partnerships should really be about? MR *John Glover*

Thanks are due to Phillip Todd, Rail Director for Multiplex Constructions (UK) Ltd and Westfield, and colleague Dave Mole, for help in the preparation of this article.

Part of the new staff accommodation. *Courtesy Multiplex*

Contractors

New station on the Hammersmith & City	Costain
New West London line station	Norwest Holst
New sidings on the Central, overall responsibility	Westfield
New sidings, track work	GrantRail
New sidings, signalling	Westinghouse
Shepherd's Bush ticket hall remodelling	Morgan Est
Shepherd's Bush capacity and access works	Morgan Est
Shepherd's Bush station modernisation	Metronet Rail BCV