



a complete workwear solution

## London orbital rail network complete

02 Nov 2012 · by [Nigel Wordsworth](#) · in [Featured rail engineer Rail News](#), [Infrastructure](#), [Rail Projects](#), [Subways and Underground](#) · [1 Comment](#)

London's new orbital railway will be complete on 9 December 2012 when the new timetable will introduce a service of four trains per hour between Highbury and Islington and a new platform that Carillion has installed at Clapham Junction.

It will not be a continuous service around the capital. (In fact, even the Tube's Circle Line has a break at Edgware Road.) Anyone wishing to do a 'lap' of the new railway from Clapham Junction, which itself will be a terminus station for the service, will have to change at either Highbury & Islington or Cannonbury, but the new network will considerably improve travel possibilities for residents of south-east London.

To complete the orbit, a new link had to be built between Surrey Quays, on the East London Line, and Queens Road Peckham on the Inner South London Line. Fortunately, there was a disused line running between just those two points which had closed in 1911. It was time to dust off that old line and relay it. Fortunately, most of the old alignment still existed, even

though most of it was now a footpath.

### Split responsibility

In the region of Surrey Quays, the East London line is Transport for London (TfL) infrastructure. However, the Inner South London Line is owned by Network Rail. Because of this, two separate work packages were let.

Birse Metro, part of the Balfour Beatty Group, was asked by TfL to build the junction at Surrey Quays and relay the bulk of the line. There would also be provision for a new station at Surrey Canal Road, which is due to be built around 2015 to serve a new housing development in the area.

The junction of the new line with the Inner South London Line at Old Kent Road, just before Queens Road Peckham, was to be built by Carillion under a MAFA (Multi Asset Framework Agreement) contract awarded by Network Rail. To keep the two contracts apart (who says inter-company rivalry is dead?) a fence was built a few hundred yards from the Old Kent Road junction.

At this point, the Inner South London Line runs on a viaduct. Built with the old junction in

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At this point, the Inner South London Line runs on a viaduct. Built with the old junction in mind, there is plenty of space on that viaduct and, over time, the two tracks of the current layout were separated with a six-foot between them was more like twenty. The first preparatory job was therefore to reballast the trackbed to get it into good condition, and at the same time slew both tracks into a new position with a proper six-foot. Work on the Down line was completed at the end of June 2011 with 250mm of new ballast. The Up line was retamped and slewed slightly in September.

### **New turnouts**

Design for the scheme was being undertaken by Arup for the track work, civil engineering, traction power and points heating, while specialists telnet did the telecoms design. Carillion undertook the signalling design in-house.

Some vacant land adjacent to the Down line was cleared and used to assemble the S&C that would be going into the line. All the components arrived from Progress Rail, and the Up line switch was built ready for installation.

Over a weekend in early October 2011, Carillion took a 54 hour possession to install that Up line switch. Road-rail vehicles (RRVs) were used to remove the old track and ballast and the switch was moved into position using a PEM LEM track installation system. A temporary track layout was constructed, and a series of remote controlled straddle cranes lifted the new turnout into position.



A second 54 hour possession in November saw the same process used to install the other switch as well as the crossover into the Down line. The crossover was connected to the Up line switch installed previously. Both possessions went to plan, and the line was handed back on time and with no delays.

The new S&C arrangement now had to be connected to the relayed track coming in from Surrey Quays, known as the Silwood Lines. Preparatory work could be undertaken under green zone conditions as it was far enough from the live railway. Ballast was put down and sleepers positioned. The rail could likewise be installed and even connected up to the new switches without disrupting traffic.

New third rail was installed over several short night-time possessions. This was steel rail for the Network Rail connections, the Silwood lines themselves were being installed using aluminium third rails.

### **S&T**

At the end of April 2012, the signalling work came to fruition. On the Up line, a signal was relocated to before the junction and bolted to the side of the viaduct. The current signal on the Down line was retained but fitted with a new LED head. New signals were fitted on the Silwood lines. A Down signal close to the demarcation line between Carillion and Balfour Beatty protected the junction, while a new signal further along the Up line allows a train to be held at the start of the new chord but clear of the Inner South London Lines. All this was installed during normal night time possessions and line blockages.

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As might be expected, a lot of cables run alongside the existing Inner South London Line. Some of these are Network Rail cables, either for power or communications, and most of these were replaced either by Carillion or by telent. There were also a number of third-party cables, supplied under contract to private organisations such as banks by Global Crossing, which also took the opportunity to renew several. Five big new cable crossings had to be installed under the new lines.

In total, twelve different cable routes had to be repositioned or replaced. Carson multi-duct was selected as the best option to protect and segregate these critical pathways.

The whole project came together during the week commencing 24 June 2012. The new turnouts were connected to the track of the Silwood lines and final traction and SCADA commissioning carried out, with no last-minute unpleasant surprises. Apart from the tidying up, the work at Old Kent Road was complete, well in advance of the introduction of the new timetable on 9th December.

### **Clapham Junction**

Once the new orbital is in service, trains using it will terminate at Clapham Junction. Passengers wishing to continue around the new circular route will change trains. This means that the already-busy station will have to cope with an extra four trains per hour coming in from the Silwood lines. This work was also awarded to Carillion, again by Network Rail using the MAFA framework.

The novel solution was to turn one platform into two. The existing layout had platform 1 and 2 being one island, 3 and 4 another, and a middle road between 2 and 3 running into the Kensington sidings. The solution was to terminate the track on platform 2 halfway down, and to extend the platform face behind that termination out to the middle road, creating a 'step' in the platform. The existing platform 1 was renamed platform 0, the terminus platform became 1, and the new 'middle' platform is now platform 2.

New crossovers would be installed in the approach to allow terminating trains to come in on the Down line and depart onto the Up.

However (isn't there always a 'however' in these projects?), right in the way of the new track alignment was 'Superloc' – the signalling relay room for the whole of the Clapham area, which includes Europe's busiest station. It would have to be moved.

Fortunately, it didn't have to be moved very far – about two metres. A new piled foundation was constructed overhanging the existing embankment, and a number of the signalling cables extended over a period of time. When all was ready, the entire relay room, a prefabricated building, was skidded into its new position using jacks and turfers.

Once that was done, the four new sets of points could be installed. These were built up in Kensington sidings using Progress Rail components. Over last Christmas and New Year, VolkerRail's Kirow crane carried them, one at a time, to their new positions.

The new switches were locked in straight-ahead positions until new signalling could be commissioned. This was carried out during the first week in May. New LED signal heads were fitted to existing signals. A platform starter signal for the new platform 2 had already been installed and a Rawie buffer stop placed at the terminated end of platform 1. A second unit was placed on the now-single Kensington siding.

Operationally, everything is ready for the new timetable on 9th December. Carillion's project manager, Jon Wells, was pleased that the main elements of the project have been completed in good time. "The main complication on this project was making sure we didn't interrupt current services. We had a number of critical weekend blockades, but otherwise we only used normal night-time possessions. The track work went well, and moving the entire Superloc relay room without causing serious disruption was the result of good planning and excellent teamwork by all involved."

Some work on the station facilities, including an extension to the footbridge, wider stairs and a canopy on platform 2, still have to be completed. But there will be nothing to stop the new service commencing as planned, giving the nation's capital its second orbital railway.



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