

UPDATE ON SUB-SURFACE RAILWAY RESIGNALLING

by John Hawkins

Well, over six months since the last article about the proposed Thales signalling scheme for these lines (see *Underground News* November 2014) a surprise media release from TfL on 24 March 2015 saw the Mayor and LU confirm plans to improve the sub-surface lines. This apparent good news looked strangely familiar. Just how many times can they confirm this upgrade? Whilst it mentioned detailed plans, including timescales and budget, these were not revealed. The promise of new trains and lengthened platforms was made when these have already reached all lines, with just the District awaiting replacement of its remaining D Stock. Surprisingly, it confirms that the contract with Thales remains under negotiation, and one must assume that the sole purpose of the release was to provide positive news before the election campaign got underway. In fact, the few new details provided bad news for those in the know.

A surprise claim that Circle Line services will more than double is probably a misunderstanding, since it allows little room for increase on other inter-working services. The total upgrade is now budgeted at £5.54 billion, almost a third more than the original £4.26 billion due to the expected cost of the Thales contract, which has therefore ballooned to a much greater extent. It is claimed that this will be near the cost per kilometre of the Northern Line upgrade, which is no reassurance. That did not have the long plain double-track sections like the outer areas of the sub-surface lines, and also used the expensive wiggly-wire system and not the new radio-based one to be employed on the SSR.

Work is expected to begin later this year, with benefits seen on the Circle Line in 2021, and completion in 2022. This means that the ambitious TfL proposed timetable shown in the earlier article has been rejected by Thales who, with no competition, have been able to commit to a more conservative one. This has implications for the New Tube for London programme, where new trains and signalling are to be ordered after the sub-surface lines project is completed. It was intended that new signalling would precede the first of the NTfL going into operation on each line, with service upgrades awaiting delivery of all new trains to each line in turn. The Feasibility Study (see *Underground News*, January 2015 page 54) had the rolling stock invitation to tender issuing in 2015 (expected to issue on 25 February 2015 but already overdue), with the contract awarded in 2016. Resignalling on the Piccadilly Line would then have commenced in 2019, with the first new train delivered for testing in 2022 and entering service in 2023, and the whole fleet commissioned by 2025. Other lines were to follow. It is unclear how much this timetable has to slip, but two or three years would be likely with current trains required to continue in the meantime. It is unclear if this is due to a shortage of signal engineers or of capital budget funding.

With negotiations continuing beyond the expected autumn 2014 deadline, it is surprising that internal papers have the initial installation on the Hammersmith branch expected only six months later than in the last plan, with an interim stage to only Latimer Road. But then the settling in period before Baker Street is reached has gone from five months to between seven months and a year. The TfL plan was to then proceed at two-monthly intervals until the final Wimbledon area was reached with a three month interval. The Thales plan has both early and late targets. After reaching the Aldgate triangle, the early target allows an unexplained four months before including the plain tracks on the south side of the Circle Line. I wonder if this allows for the north side Circle Line to catch up with the initial Hammersmith & City Line adoption of the new system. Early targets then vary between two and four month spacing to completion in December 2020. However, the late targets only allow a two month interval before the south side of the Circle Line, with generally longer intervals between areas and an unexplained six month interval before completion of the Richmond branch. It is unclear how these dates link with the press release, which may be timetable revision dates. 2022 was a date mentioned for the introduction of 'night tube' services on the SSR after the completion of resignalling.

A noticeable change compared to the earlier proposals is the demotion of outer areas of the Metropolitan Line to the final two stages, rather than the initial stages in the early schemes. Thus the lines north of Moor Park, and likely the fast lines from Harrow-on-the-Hill, are not to be completed until September 2020 or June 2021. This would include the new link to Watford Junction, now expected to open in 2019; surely conventional signalling will not be installed for a year or two, although there will be plenty of redundant equipment. With a small new signalling area, this could trial the overlay system when interworking with Overground trains. This system will be installed over the current signalling on

the Richmond and Wimbledon branches, and also west of Acton Town to Ealing Broadway to interwork with the Piccadilly Line. It means that the current fixed block system provides clearance for trains, although S Stock will detect this through their TBTC system. An underlay system will be used on the fast lines from Harrow-on-the-Hill to Amersham and also west of Rayners Lane junction, which means that the TBTC moving block signalling is fully installed, but new fixed block signalling is also installed for non-S Stock trains. Why Piccadilly Line trains will work over two systems, around Ealing Common and west of Rayners Lane is unexplained. The Uxbridge branch will complete this long awaited resignalling in December 2020 to September 2021.

The initial resignalling scheme was looking to increase frequencies to compensate for lower seating capacity on the new trains before they were introduced, but perhaps that will be long forgotten some ten or more years later. In any case, these outer areas have lower frequency services and interwork with non-fitted trains that will not benefit, including the Piccadilly Line trains, and therefore the case for resignalling is mainly for standardisation and modernisation. It is the central area services that will see the new signalling provide a promised 32tph. By leaving the Uxbridge line until last, after which Piccadilly Line resignalling should commence, perhaps the two can be integrated upon installation. If the Piccadilly Line is to use a different system, it means that this branch will need three signalling systems whilst old trains continue to operate!

The Bombardier scheme planned train fitment works to be done in Ruislip depot, and site works were undertaken earlier this year to minimise delays for the new contractor (see NF 9/15). It is now expected that each S Stock train will return to Derby to be fitted with the necessary equipment, and the rebuilt train shed at Ruislip will only be used to fit engineering vehicles. Will this still include the heritage fleet, specifically mentioned in the previous contract?

What will the delay be on NTfL? The Bakerloo Line was listed for 2027 in the Feasibility Study. This expressions of interest request –

<http://ted.europa.eu/udl?uri=TED:NOTICE:126658-2015:TEXT:EN:HTML&tabId=1>

... for life extension work on Bakerloo Line signalling control system suggests need for 15 year life (from when?). Invitation to tender is not expected for a year so if completed by end of 2016, I suppose must last until 2031. That looks like three or four year delay. Still earlier than Central Line feasibility study date of 2032 so has not slipped behind that again. 1972 Tube Stock will be nearing 60 years old! That suggests that Piccadilly dates may become invitation to tender 2018, order 2019, resignalling starts 2022 (fits after new SSR finish to Uxbridge), new train 2025, in service 2026, whole fleet 2028. Totally my projections based on this Bakerloo contract.