TIME TO THINK IN CIRCLES

ALAN DAY, a celebrated transport economist, said long ago that the cheapest way to improve the country's highway system was to send all Department of Transport engineers for psychoanalysis, since they had an obsession with circles. He had a thing about roundabouts, so it was probably unfair. In any case, 40 years later the need is to get planners in London and the South East to think in circles – orbital rail circles.

One person who's done it is the South East England Regional Assembly's (SEERA's) Director of Planning and Transport, Mike Gwilliam. SEERA's draft Regional Spatial Strategy (RSS), due to go to Examination in Public next year, develops a vision: concentrated polycentric development in and around key regional transport 'hubs', served by top-quality, integrated public transport including both rail and bus, from which 'spokes' would radiate to subsidiary centres and other 'hubs'.

There's a small snag: the lack of orbital links, needed to connect the radials. The South East has nearly 20 main lines radiating from London; the East of England adds some four more. But these lines (or most of them) intersect with only two key orbital links: an *inner circuit* some 30-50 miles from central London, and an *outer circuit* along the south coast about 50-70 miles from London, from Southampton to Ashford, effectively continuing around the North Kent coast to Margate and back to the Medway towns.

The inner circuit is critically important because it could do two important jobs, highlighted in recent research interviews with key actors in the region:

- It could provide relief for the overcrowded M25.
- It could provide an alternative pattern of rail transport for business journeys within (and outside) the South East without the need to go into and through central London, with the penalty of transfer between termini.

But at present it's fragmentary. It provides discontinuous train service in four separate sections: Oxford to Reading via the Great Western (radial) main line; Reading to Guildford, Dorking and Redhill (with onward service to Gatwick Airport); Redhill to Paddock Wood (with onward service to Ashford) via the (radial) Ashford line; and Paddock Wood to Strood (Medway). They are operated by separate companies; they connect, but not always conveniently. Some are electrified, some are not.

A phased programme for orbital rail in the South East

It would be quite feasible to develop a phased programme to tie together the existing pieces of track and service on this inner circuit, so achieving an integrated radial/orbital rail network for the whole of South East England over a 20-25-year period, with much of the total package delivered at a moderate cost within five to ten years.

The first stage is the simplest: to start integrated service (which would have to be diesel-hauled) over the southern sector from Oxford via Reading, Guildford, Redhill, Maidstone and Strood to Medway and Dartford International, without any need for major new engineering works, within an initial five-year period.

Phase two would extend this by re-opening through-service on the north sector, from Oxford via Bletchley (for Milton Keynes) to Bedford. Two sections of this sector, Oxford to Bicester Town and Bletchley to Bedford, already operate passenger services. The intermediate section is closed but the formation is preserved. Re-opening this should be seen as a priority in the five-to-ten-year time period – perhaps sooner. At this point, 60 per cent of the entire 250-mile orbital system would be complete, delivering continuous rail service connecting the region's key locations in the 30-50-mile ring: Bedford, Milton Keynes, Oxford, Reading, Guildford, Redhill, Maidstone, Medway and the Kent Thameside 'new town', where it would intersect with major radial rail lines from London.

Phase three is more ambitious and more costly: construction of a Lower Thames Crossing, extending phase one across the Thames from Dartford International to Tilbury, via either a high-level bridge (to avoid dense shipping out of Tilbury port) or a tunnel. This would be located near the Tilbury power station, as the lowest point before the estuary widens. On the Essex side it would connect directly to the Tilbury-Southend line between Tilbury Town and East Tilbury stations, running east to Southend Central station. It would bring additional benefits to rail freight as well as connecting the two sides of Thames Gateway at its outermost end, which will be undergoing rapid regeneration and development during the period 2015-2020, when it should be built. At this point, effectively, some 70 per cent of the orbital rail project would be complete.

The remaining phases, in the East of England region, would be much more difficult and costly. They would involve re-opening service from Bedford to Cambridge and from Cambridge to Southend, both with long stretches of new construction. Some parts – for instance restoration of the long-closed line between Stansted and Great Dunmow – could be justified as part of the expansion of Stansted and the development of the Sustainable Communities proposal for the London-Stansted-Cambridge-Peterborough corridor. But most could not. So this would be a long-term plan.

In fact, there is a question whether eventual completion could be economically justified, particularly if demand for freight service to the Channel Tunnel were better served by alternative routes. A satisfactory alternative might be secured through an express bus service connecting Bedford, Cambridge, Stansted, Chelmsford and (via the Lower Thames Crossing) Dartford and Strood. Road connections between these places are generally good, and priority access to interchange stations could be secured via bus lanes or busways, including those planned for Cambridge and Kent Thameside.

Such a system could deliver remarkable value for money. And, as SEERA's RSS suggests, it would deliver much more than transport benefits: it would powerfully reinforce the polycentric structure of the entire Greater South East region. So it should be an investment priority.

Extending the orbital-polycentric pattern to London

But the potential does not end there. Within London, as in the ring around it, there is huge potential for investment in orbital public transport to provide an effective alternative to the car-based travel that currently dominates non-radial movement in outer London, as well as fortifying a more polycentric form of development based on the cores of the outer London boroughs.

The start is Orbirail. Taking shape over the next five years, potentially capable of completion within ten, this is a revolutionary concept that will change the psychological geography of Londoners as fundamentally as the tube extensions did in the 1930s. It includes three elements:

- completion of the East London Line extension, stage 1, from Dalston Junction to New Cross, due in 2009;
- opening next year of two new stations on the West London Line (at Imperial Wharf in Chelsea and Shepherds Bush), to complement existing stops at West Brompton and Kensington Olympia, with enhanced service between Willesden Junction and Clapham Junction; and
- enhanced service on the North London Line between Richmond and Stratford, where

the service will terminate after the line to North Woolwich is converted to Docklands Light Railway (DLR) operation in 2009.

Thereafter, it remains only to complete the East London extension from Dalston to Highbury & Islington in the north, and from Canada Water to Peckham Rye in the south, with service extension onward to Clapham Junction, to complete the circuit. The aim should be to achieve this by 2014 – or, with acceleration for the Olympics, by 2012.

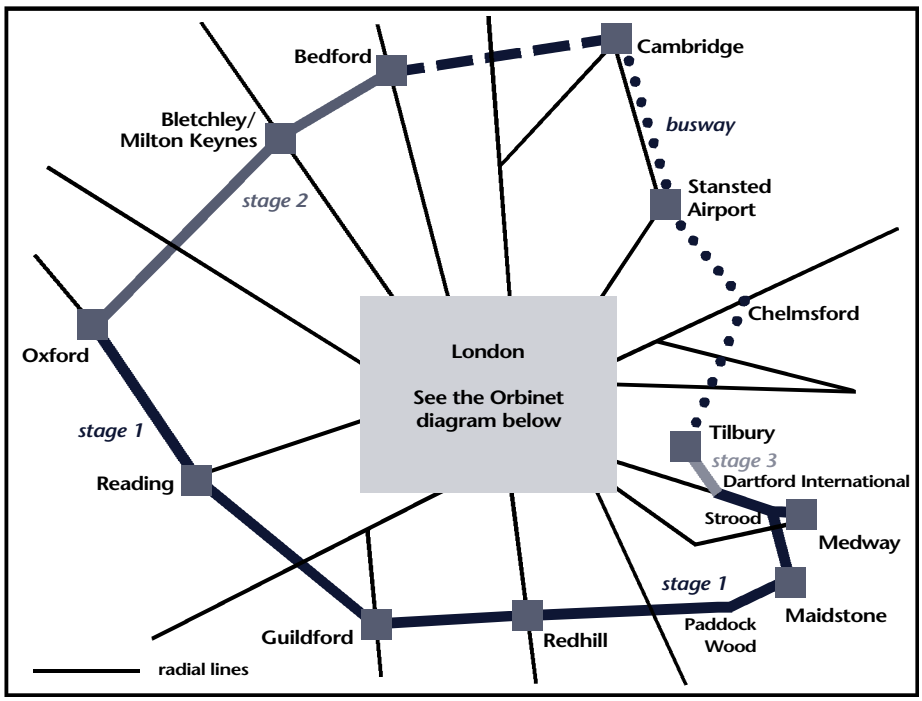
Then, with Orbirail open, the way is open for a second stage: *Orbinet*, an outer orbital service connecting the key town centres of London's outer ring identified in the London Plan – Ealing Broadway, Brent Cross, Wood Green, Ilford, Stratford, Bromley, Croydon, Sutton and Kingston[1] – where they would link with local feeder services. North of the river, three centres (Hounslow, Harrow and Romford) are much farther distant than the others; the others are all on or near the North Circular. South of the river, they are generally more distant from the centre.

But Orbinet is different from Orbirail. It cannot be built as a continuous heavy rail system; the basis is lacking. The key to its completion is that, like its planned Parisian equivalent, it would be a composite of technologies and modes – heavy rail, light rail and guided bus – which would interconnect at key interchanges in the outer ring. They could be produced with minimal new construction at relatively low cost, yielding good value for public money.

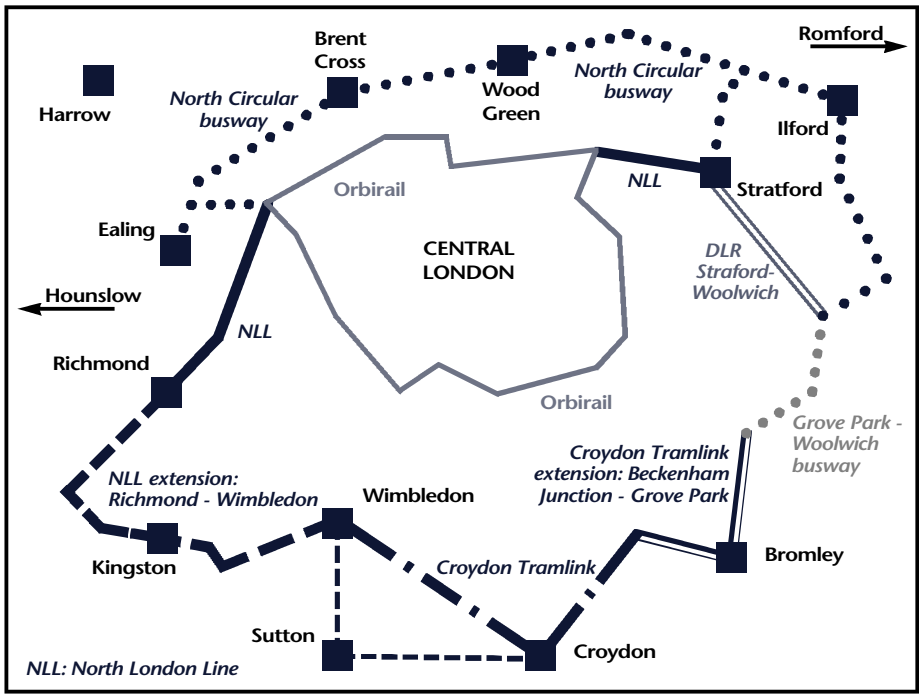
They would depend on an historic north-south distinction. In North London, main rail lines were built as inter-city connectors, and companies only slowly and reluctantly developed commuter services; in the 1920s and 1930s the gaps were filled by the Underground, which, however, provided only radial services without orbital connectors. In South London, railways were built as pure commuter lines, and competition produced an extremely complex network with both radial and orbital elements. Likewise on the roads, but in reverse: the North Circular Road has no equivalent south of the river except for a short stretch south of Woolwich, and the so-called South Circular is a collection of road signs.

So South London has potential for orbital rail links connecting the major town centres, some existing (Croydon Tramlink), but little potential for orbital road links save in the south east; but in North London the reverse is true, and the North Circular passes close to five of the eight major town centres.

These constraints point to a possible solution. As in the wider South East, it comes



South East Orbital



London Orbinet (and Orbirail)

in stages – some easier, cheaper and therefore capable of short-term implementation; some not.

First, the North London Line – the already-existing northern leg of Orbirail – would be extended on existing tracks from its present western terminus at Richmond to Wimbledon, where it would connect with Croydon Tramlink.

Second, at the far eastern end of the Tramlink network, the line would be extended from its present terminus at Beckenham Junction via Bromley to Grove Park, with street-running via Bromley Road/Beckenham Lane, through Bromley town centre into Bromley North station, where it would take over the existing line from Bromley North to Grove Park, currently providing shuttle service, to connect with a new express bus service from Grove Park to Woolwich Arsenal station.

Third, the DLR Woolwich and Stratford International extensions, due for completion in 2009, would complete a circuit back to Stratford, where Orbinet would again meet Orbirail.

Fourth, new express electronically-guided bus services would be introduced on the A406 North Circular Road as part of a comprehensive traffic management system:

■ *Woolwich to Willesden Junction or North Acton/Ealing* via the Greenwich Waterfront Transit busway to the Thames Gateway

Bridge, thence via the A406, with intermediate stops at Barking, Ilford, Angel Road, Wood Green, Brent Cross and Neasden; and

■ *Stratford to Willesden Junction or North Acton/Ealing* via the A12 to the A406, with intermediate stops at Angel Road, Wood Green, Brent Cross and Neasden.

The nearside lane in each direction on the A406 would become an HOV (high-occupancy vehicle) lane for buses and shared cars, at least for considerable sections and/or at peak hours. Electronically guided buses, under development in France (Nancy, Caen and Clermont-Ferrand), would leave the A406 guideway to enter major town centres via bus lanes on existing streets, many of which are already in place. Barking, Ilford, Angel Road, Brent Cross and Neasden are close to the A406 and transit times would be minimal. Wood Green (Shopping City and tube/bus station) and Ealing Broadway (shopping centre and Network Rail/tube/bus station) are more distant, but in both cases it may prove possible to provide a segregated busway.

Stages one to three would provide 'Orbinet South' while the fourth would provide 'Orbinet North'. On the east side of London, they would link at Woolwich and Stratford. On the west side they would link either at Willesden Junction on the north corner of the Park Royal industrial estate, or even better at a new interchange station at North Action in the middle of the estate. Here, Orbirail and Orbinet would meet, to produce unequalled regeneration opportunities, including major housing gains. Park Royal has huge areas of railway land at Willesden Junction and Old Oak, either completely redundant or (in the case of Old Oak) likely to become so in the near future. Developers are already expressing an interest – evidenced by the very large apartment complex under construction at North Acton – and the potential is huge.

Together, Orbirail and Orbinet within London, plus a South East Orbital outside it, potentially provide a revolutionary strategic restructuring device, changing not only patterns of moving around but also, in the longer run, patterns of living and working too. But are we capable of rising to the challenge? ■

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Note

1 Seven of these (Ealing, Kingston, Sutton, Croydon, Bromley, Ilford and Wood Green) are identified as 'metropolitan centres' in the Plan. Brent Cross seems to have been omitted because it is not a conventional town centre, but effectively will become one on completion of the large Cricklewood/West Hendon development. Stratford will similarly become a major centre on completion of the new Stratford City shopping centre just starting construction