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DEVELOPING HISTORIC CITIES: THE CASE FOR AN OXFORD METRO



Dr Nicholas Falk and Reg Harman look to Europe and the US and argue that the UK city of Oxford should have a transport system more like its 'twin', Grenoble.

▲ Grenoble. Trams on lines A and B mix with people in the heart of the city. Reg Harman

ressures for growth are particularly strong in historic cities such as Oxford and York, UK, as places where people not only want to visit, but also work and live. Oxford house prices, currently at 12 times the average income, are twice as unaffordable as other parts of the country and the city has been lagging behind its ancient rival Cambridge, as well as Continental competitors such as Freiburg, as a recent article in *The Economist* has highlighted.¹

With limited brownfield sites to build on and tight Green Belts, any new housing tends to develop in dispersed and isolated sites, leading to further congestion as people drive ever further to reach jobs and services. Political differences between Labourcontrolled city councils and surrounding Conservative-controlled districts lead to stalemate. Both the house building and the strategic planning systems seem broken.

Benefits of smarter growth

In looking for practical alternatives, we have drawn lessons from similar-sized Continental cities such as Grenoble and Freiburg, as well as American models such as MAX (the Metropolitan Area Express) in Portland, Oregon, in order to propose how the barriers to 'smarter growth' could be overcome. Research has shown that France has built five times the number of light rail and tramway systems and ten times the route length as the UK over the last three or four decades. As Tramways & Urban Transit has revealed over the years, this is increasingly due to building in smaller cities such as Amiens or Le Mans.

One of the main reasons for local objections to new housing in the UK is pressure on transport capacity; so would it be possible to link new housing development to existing or planned transport infrastructure? Could the costs of building a new system be offset by the resulting growth? And would a different approach to strategic or spatial planning overcome the main objections? All these are key features of the approach in France, as well as some other Continental countries.

The economic benefits from trams are well set out in a recent study for UKTram². In a historic university city such as Oxford these would include not only greater modal shift from the private car but also making cycling much safer and easier. Keeping cars out of the centre, a central policy in Oxfordshire's new draft Oxford Transport Strategy (OTS), would greatly reduce noise and pollution, with associated health benefits as well as a further boost to tourism.

The OTS currently favours bus rapid transit (BRT), on the basis that passenger levels on existing bus routes would not suffice to support a viable tramway. But the OTS position is based on the typically narrow British approach, in which transport

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projects are measured only against existing transport demand on that mode. It is now evident that guided busways do not provide the same quality of ride or service and so are much poorer value for money; sometimes in reality they cost much more than expected.³ For example, the Luton guided busway was preferred over a railway or tramway line, but the initial passenger figures were less than half the forecasted level.

In contrast, the typical result of introducing a new core tramway in France has been a step-change of about one-third increase in public transport use, followed by a steady rise in carryings. This jump has usually been accompanied by changes in modal split away from car use, especially on radial roads, and in better activity levels at the city centre and other nodal points served. This trend was also encountered with the opening of the Tramlink system in Croydon, London.

Furthermore, light rail can reach places that other modes cannot, leaping over waterways and tunnelling under centres, as in the ancient city of Montpellier, for example. Busways, valuable as they can be outside towns, do not solve the problem of what happens in the centre.

Uxcester Garden City

Looking for a solution to the problem of housing affordability, Lord Wolfson offered a prize for the best 'essays' on how to build a Garden City that was 'visionary, popular and economically viable without subsidy'. The 276 entries were narrowed down to five finalists; these included URBED's proposals for Uxcester Garden City, which ultimately won the prize.⁴

Modelled on a combination of historic cities, including York, plans showed how Ebenezer Howard's ground-breaking ideas for a 'social city' with districts connected by municipal tramways to a central city could be applied in the 21st Century. The financial key was to tap what Howard called 'the unearned increment', that is the uplift in land values from building in the countryside.

Having been shortlisted, David Rudlin and one of the authors of this essay, Nicholas Falk, sought to test their ideas in Oxford. For over a year Nicholas had been working with the 1000-strong Oxford Civic Society to build some agreement over the idea of concentrated growth.⁵ The initiative drew inspiration from experience in Cambridgeshire, UK, and Freiburg in Germany.

The Wolfson submission argued for building garden cities onto 'strong rootstock', as it was not economically feasible to start from scratch, showing how a city like Oxford or York could be doubled in population without impinging into the flood plain or Areas of Outstanding Natural Beauty. This would enable the new residents to live within 10km (six miles) or 20 minutes of the centre. Furthermore, the financial calculations showed that the development could finance building a new tram system with costs taken from Nottingham's recent experience.

While this would involve taking some land out of the Green Belt, in fact only around 5-8% would be affected, and in return the scheme proposes improved biodiversity and access to open space, as well as potentially easing the problems of annual flooding through creation of new country parks. A subsequent calculation suggested only 16 villages at most would be affected out of a total of 246 'fine villages' in Oxfordshire.

In other words, by growing Oxford as a proper garden city, existing residents would get an improved quality of life, and their children might not have to move away. To test the feasibility of the plan, comparisons were made with Oxford's twin city of Grenoble in Southern France and proposals worked up with British tram and transport experts.

Lessons from Grenoble

Grenoble, one of France's major tramway cities, has close parallels with Oxford. A small regional city outside the sway of major conurbations, it had a population at the last census of 157 000; the administrative conurbation focused around it totalled 437 000, while the population in the metropolitan catchment areas as defined by the national census was 664 000. Equivalent figures for Oxford were a city population





ABOVE: Grenoble's line A extension south of the centre, serving a large modern city extension. Note the green track, trees and easy access to the tram stop - and there is still room for roads and car parking. Reg Harman

of 152 000 and 666 000 for the County of Oxfordshire, which is also the Local Economic Partnership area. Like Oxford, Grenoble has a major university, dating from 1339, providing internationallyrenowned teaching and especially research and development.

Both cities sit in attractive countryside, which adds to their attraction as tourist centres but imposes development restraints on development. While Oxford's expansion is restricted by flood plains and meadows, Grenoble faces the opposite problem, being hemmed in by mountains. This has led to new development spreading south and east, coupled with redevelopment within the city itself.

From the mid-19th Century Grenoble developed as a manufacturing centre, focusing particularly on hydropower. This laid the basis for its expansion over time into the present status as a major scientific centre of European significance. Its high-tech expertise today is organised mainly around three domains: information technology, biotechnologies and new energy technologies. It is the largest French research centre after Paris, with national, regional and commercial research facilities.

To support this, the city has long sought to provide room for expansion and a high quality of life within the restricted confines of its area. It was one of the French pioneer cities to explore the scope of tramways in the 1970s, leading to detailed plans being agreed by the city council in 1983. These were met with significant opposition, leading to a referendum, which saw 53% of voters in favour. The first section of new line opened in 1987, followed by completion of the initial network in 1990. Since then expansion has continued steadily in incremental stages. It has been guided by successive urban transport plans (*Plans de Déplacements Urbains*, PDU), themselves framed by the conurbation's spatial planning strategy.

The current system has five lines totalling 43km (27 miles), much of it a compact network within the city and immediately adjacent development areas. The two original lines, A and B, serve a common trunk from the railway station through the heart of the city. Line B links the high-tech 'polygon scientifique' to the west with the 'pole santé' (hospital and health research) and the spreading university campus to the east. Line A runs south through areas of modern offices and high-rise residences to the Grand Marché retail mall.

Successive extensions have brought lines to most residential areas and created direct or single-change links between them and the various commercial and employment centres. Today the tramway forms the backbone of the public transport system, which also incorporates an integrated complementary network of quality bus services. Indeed, the tramway forms the backbone of the city's continued success as a major economic centre and an attractive city with a sustainable lifestyle. The challenges for Oxford are considerable. The major economic growth points are spread out along what has been called Science Vale, with Harwell south of the railway line from Didcot to Swindon, Culham which gets only a few trains a day, and Radley cut off from Abingdon. Potential sites for the major residential development needed are mostly remote from existing rail lines. The A34 road running from Southampton to the Midlands is overloaded, and there is no connection with the A40 running from east to west.

Developing a high quality local transit system thus needs to combine existing infrastructure and opportunities with a well-grounded vision of the possibilities and practicalities. This approach has been followed over recent months by bringing together new projects and current plans by Chiltern Railways, the transit proposals in the draft OTS, ideas developed by Peter Headicar and illustrated in an Oxford Futures report on transport options and principles from the studies of light rail in small cities carried out by the Sintropher project at University College London. The issues and proposals have most recently been examined at a workshop held in London.6

These steps have led to the proposal for what is called the Oxford Metro. It would consist of upgraded local rail services and a three-line light rail system, shown schematically in the diagram (left), with complementary bus services. The transport network would give much improved access for existing urban areas and potential development nodes. Well-designed interchanges, supported by appropriate development, would form a fundamental part of this. Projects would need to be worked out in more detail but the main elements and corridors would be as follows:

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Chiltern Railways is launching a new service from Oxford to Marylebone in 2015, with a new station to the north at Water Eaton, named Oxford Parkway. This would also serve the proposed Northern Gateway development project, linked to the A34 and A40 trunk roads. Chiltern has plans to provide a more frequent local service to Didcot and also on the current freight line to Cowley, which would be reopened for passengers and served by two new stations. These local rail services would best be run with new fast-accelerating urban style trains, providing a regular Metro service from Bicester to Didcot or Cowley, and several new stations, as an initial part of an integrated transport network. This is marked as line 1 on the schematic diagram.

The basis for the tramway system would start by applying the Garden City concept to the northern area, development around the new station at Water Eaton being supported with a new tram link along the Banbury Road to the centre and in the other direction out to Begbroke Science Park, This could be largely funded from the uplift in land values around Kidlington as house prices to the north of the city are as high as those in London. This line (marked as line 4) could then extend south east to serve potential growth areas along the south of the city, connecting at Cowley with the urban rail service. A complementary line (3) could link the station, new shopping centre, and the important Radcliffe Hospital complex in Headington, along with Oxford Brookes University on the east side.

"The Metro concept can be brought to reality through establishing clear aims and a clear strategy."

On the west it might go from an expanded park-and-ride site at Botley off the A34 and out to the west beyond Barton Park, where construction of some 850 homes is about to start through a joint venture between Oxford City Council and Grosvenor Developments. The connections provided by these could be completed by a further line (2) from Eynsham through the Northern gateway interchange round through East Oxford and down through Radley to growth areas at Abingdon.

The aim throughout would be to deliver very high standards of attractiveness and environment for everyone in Oxford through use of appropriate light rail technologies. These could, for example, include operation through the centre without overhead wires.

While proposals for long busways are unlikely to provide the quality, speed and attractiveness of tramway lines over core routes, buses remain a fundamental part of the transport system. Within the fragmented system created by deregulation (the 1985 Transport Act), achieving integration in the French style is very difficult. Nonetheless it is possible through working in partnership to provide bus priorities on the road (including brief stretches of bus-only routes), with co-ordinated ticketing and promotion.



ABOVE: Grenoble. Junction of lines A and C close to the city centre looking south. This is a key interchange, offering frequent trams north-south and east-west. Reg Harman

The Metro concept can be brought to reality through establishing clear aims and a clear strategy that will benefit city businesses, residents and visitors, and also transport providers and their passengers. This approach has lain at the core of tramway development in French cities, where initial lines, themselves built following slow and difficult gestation, have often been followed by steady expansion to spread benefits city-wide.

Conclusions

Instead of relying on unpredictable grants, URBED is proposing that use is made of a county-wide Growth Bond, influenced by the success of Cambridge University in raising GBP300m (EUR400m) for a scheme to build 2000 homes on land it owns, which has been taken out of the Cambridge Green Belt. This might be facilitated by the setting up of a Municipal Investment Corporation to enable new local infrastructure to tap into pension funds, with the returns coming from selling off sites for housebuilding.⁷

The political differences could be overcome by setting up a Development Corporation, as the UK Government is doing for Ebbsfleet, which may also help to resolve the problems of assembling the land at close to existing use value.

The full benefits of such a strategy may well not be seen in our lifetime, but in planning for the next phase of urban transport development in the UK we do need to start thinking about 2050, and the way people will be living and working then. As French and other Continental cities have shown, tramways can form the core to a strong and attractive system of quality public transport. French cities too have often gone through some years of controversy and debate before taking the decision to build their first tramway; but the resulting systems have almost invariably proved a major factor in more effective economies and higher quality lifestyles.

Some people may consider this approach too advanced, while for others the idea is not radical enough. Calls have been made in Oxford for driverless electric cars and suburban lifestyles, or for shifting employment to the North of England. However, these would not resolve the fundamental problem created by roads crossing each other, or the preference of international companies engaged in the knowledge economy such as that in Oxford.

Oxford is known throughout the world, and was one of the first cities to implement park-and-ride to help 'tame the car'. It could also be at the forefront of showing how to plan for posterity within a quality cityscape rather than within the polluted suburbia of austerity.

FOOTNOTES

¹ Trailing in its wake: How the fortunes of England's two historic university towns have diverged, The Economist, 17 January 2015

² Richard Knowles and Fiona Ferbrache, An investigation into the Economic Impacts on Cities of Investment in Light Rail Systems, UKTram, June 2014

³ Reg Harman, *Busways: Do they work in practice?, Tramways & Urban Transit,* September 2014

⁴ See www.urbed.coop

⁵ Oxford Futures: Achieving smarter growth, Oxford Civic Society, March 2014

⁶ Trams for Oxford? www.oxfordfutures.org.uk

⁷ Nicholas Falk, *Funding Housing Growth and Local Infrastructure*, The Smith Institute, 2014