

5 Public Transport: Fundamental Problems & Long-term Solutions

5.1 The Problems

There are several problems with the current public transport strategy for Oxford which are likely to grow more acute over time. Under current Government and local government policies, it is difficult to envisage any satisfactory solution to these problems. The recommendations which follow would require some fundamental changes or exceptions to those policies.

The radial routes into Oxford City Centre are struggling to cope with the volume of traffic at peak hours at present. A growing number of buses are held up in congested traffic at peak times, with opportunities for bus priority measures limited by physical space. Some recent research suggests that stop-start bus lanes offer no solution; they may actually make the situation worse, both in terms of journey time and reliability¹.

Most journeys within cities are generally heading somewhere other than the city centre. Changing buses in the city centre to travel somewhere else will never be an attractive option compared to the car. Cross-centre bus journeys suffer from delays and variability, and some routes, which used to connect East and North Oxford for example, have been broken into two parts for this reason. By concentrating buses onto a few deviating routes, *Transform Oxford* is likely to make these problems worse.

Buses, particularly diesel buses, do not mix well with pedestrians in city centres. As the County is trying to reduce their volume on some routes, the planning proposals discussed in Section 0 would rely on yet more buses on radial routes into Oxford City Centre. The air quality improvements from the Low Emissions Zone (which is not expected to solve the whole problem) may therefore prove short-lived.

The step change in transport patterns sought by the Transition Town will not be achievable if the public transport strategy for the city remains solely focussed on street-based buses.

5.2 The possibilities for Rail

A few years ago, the County Council was actively considering a bus rapid transit system (the GTE) which would have followed the railway line for much of its route from North to South Oxford. It was abandoned mainly because it appeared unlikely to attract Government funding. More recently the promoters of the Weston Otmoor Eco-town proposed a tram-train system from Bicester to Oxford.

Although a detailed feasibility study was not part of the brief for this report, the possibility of a North-South tram-train system was considered. Tram-trains have been operated for many years in Germany, sharing the track with conventional trains and the roads with general traffic. They are not yet approved for use on British railways; a trial is underway between Penistone and Sheffield, although this will not share track with high speed passenger trains.

Since the GTE project was abandoned pressure on the rail network generally, and through Oxford station in particular have increased. The following proposed changes are at different stages of the planning process:

- One or two new bays for terminating trains from the South, mainly from London, freeing up some capacity for through trains on the other lines
- The Evergreen 3 project which would create a new link to London Marylebone via the Bicester line and a new station serving the Water Eaton Park and Ride
- East-West Rail, being promoted by a consortium of local authorities, which would link Oxford to Bedford, and eventually Cambridge, also following the Bicester line

The funding is in place for the Evergreen 3 project, and subject to a public consultation and inquiry, it appears likely to proceed in some form, as do the new bays for the London trains. East-West Rail is a longer-term project, for which funding has not yet been entirely secured.

Given these pressures a tram-train system running through Oxford station does not appear to be a realistic option. The possibility of re-opening the Cowley branch line for passenger trains (as mentioned in the Local Plan adopted in 2005²) may still be a longer-term possibility, particularly if the Cowley motor works ever closes and that site becomes available for re-development. Without very substantial redevelopment of Oxford station, this would be restricted to a shuttle service, however.

Chiltern Railways considered the feasibility of reconnecting the Cowley Line to Princes Risborough before deciding on the Evergreen 3 solution. They concluded that development along the former track bed would make this a very difficult proposition today.

5.3 Light Trams

Though a North-South tram train system may not be a feasible option, there are several reasons why a street-based tram system could help to resolve some of the problems described earlier. Unlike buses, trams can mix with pedestrians in semi-pedestrianised areas because:

- a) Their routes are more predictable
- b) They can run closer together, taking less road space
- c) Capacity can be increased by coupling vehicles without the problems caused to pedestrians by articulated buses

There many examples around Europe where trams run through semi-pedestrianised streets in historic centres.



Freiburg Tram Route through pedestrianised centre

Research suggests that trams offer a more attractive alternative to the car than conventional street-based buses, making them more effective at achieving modal shift. Whether segregated bus rapid transit systems can match the performance of trams is a controversial and unresolved issue in the literature; for the routes discussed in this section bus rapid transit is not a realistic option as opportunities for segregation are very limited.

Overhead power lines may be considered inappropriate within historic centres, but the installation in the centre of Freiburg has avoided intrusive gantries (see above).

The main disadvantage of tram systems is the high initial cost. There are many towns and cities much smaller than Oxford with trams but these have generally been in place for many years³. Most of the European (and all of the British) cities which have installed new tram systems have been larger than Oxford. There is one recent exception: the French city of Mulhouse, which has a conurbation-wide population (equivalent to Oxford, Kidlington, Botley and Kennington) of 172,000. The first two tram lines (East-West and North-South) were completed during 2006, within the original budget of €249m⁴, and the system appears to be running well.



Mulhouse Trams through City Centre

Some French cities such as Caen and Nancy have installed hybrid trolleybus systems, which run as electric trams through the city centres, and can also run as a diesel bus in the suburbs. The experience of these has not been so successful. Caen opted for the trolleybus in the belief that it would be cheaper than trams, but the project ran to over double the original budget, costing €234m.⁵ The trolleybuses have suffered from technical problems, and there has been a suggestion that Nancy may abandon its system.



Caen Hybrid Trolleybus



Nancy Hybrid Trolleybus

Both of these cities (which have smaller populations than Oxford based on city boundaries, but are part of larger, more sprawling conurbations) appear to have suffered from the new technology ‘guinea pig’ problem.

There is, however, a new generation of “ultra light rail” systems under development, using largely tried and tested technologies, which should be considerably cheaper than conventional tram systems. The key difference with U.L.R. is that on-board power is used, meaning that the vehicles can be much lighter, running on rails which can be laid over the top of existing road surfaces, substantially reducing the capital cost.

There are several possible fuel alternatives. A small-scale trial ran in Bristol during 2002 using a flywheel-driven electric vehicle using “refuelling points” rather than continuous power lines. This trial appeared to run fairly successfully, but the scheme was discontinued because of land availability problems.⁶

Hydrogen fuel cells are another longer-term possibility, although the cost and efficiency of this technology still has some way to evolve. Another fuel which could be viable in the shorter term is methane composted from domestic waste. Lille has recently constructed an anaerobic digester for compostable waste which produces methane to power a fleet of 127 buses.⁷ Methane produced in this way is interchangeable with compressed natural gas, so the vehicle technology is fairly mature; emissions of nitrous oxide are considerably lower than even low emission diesel buses.

Methane buses could help to solve the air quality problems in the city centre, although trams or some guidance system would be necessary to enable the mixing with pedestrians. Running on steel rails improves fuel efficiency due to reduced rolling resistance. Energy consumption is also related to speed. Along the routes suggested below, speeds of more than 30 mph would not be appropriate, so the vehicles need not be as powerful as conventional buses or trams.

It should be noted that the Oxford Bus Company has examined various alternative fuels, and rejected natural gas, due to concerns about reliability⁸. They also claim that CO₂ emissions from gas buses are higher – which is true where the source is natural gas, although different considerations would apply to methane from renewable sources (which would reduce emissions compared to the ‘business as usual’ option).

The four principal axes where trams could replace buses are Botley Road, Banbury Road, Cowley Road and Headington Road (with name changes). The most direct routes through the City Centre would travel along Cornmarket Street and Queen Street. The Water Eaton, Seacourt and Thornhill park and ride sites could provide three of the termini. The terminus for the Cowley route could depend upon the location of new development to the South. There do not appear to be any easy non-road routes into Blackbird Leys or Greater Leys. An anaerobic digester could be built alongside one of the park and ride sites, or to the South of the city as part of any new development.

The speed advantages which trams can offer would be fairly limited along these routes, as opportunities for segregation of traffic are few. The blocking of Magdalen Bridge to general traffic and the proposals in Section 0 would be important to prevent the trams being held up by congested traffic along the radial routes. Figure 1 illustrates the proposed routes along with the rail based North-South axis discussed in the next section.

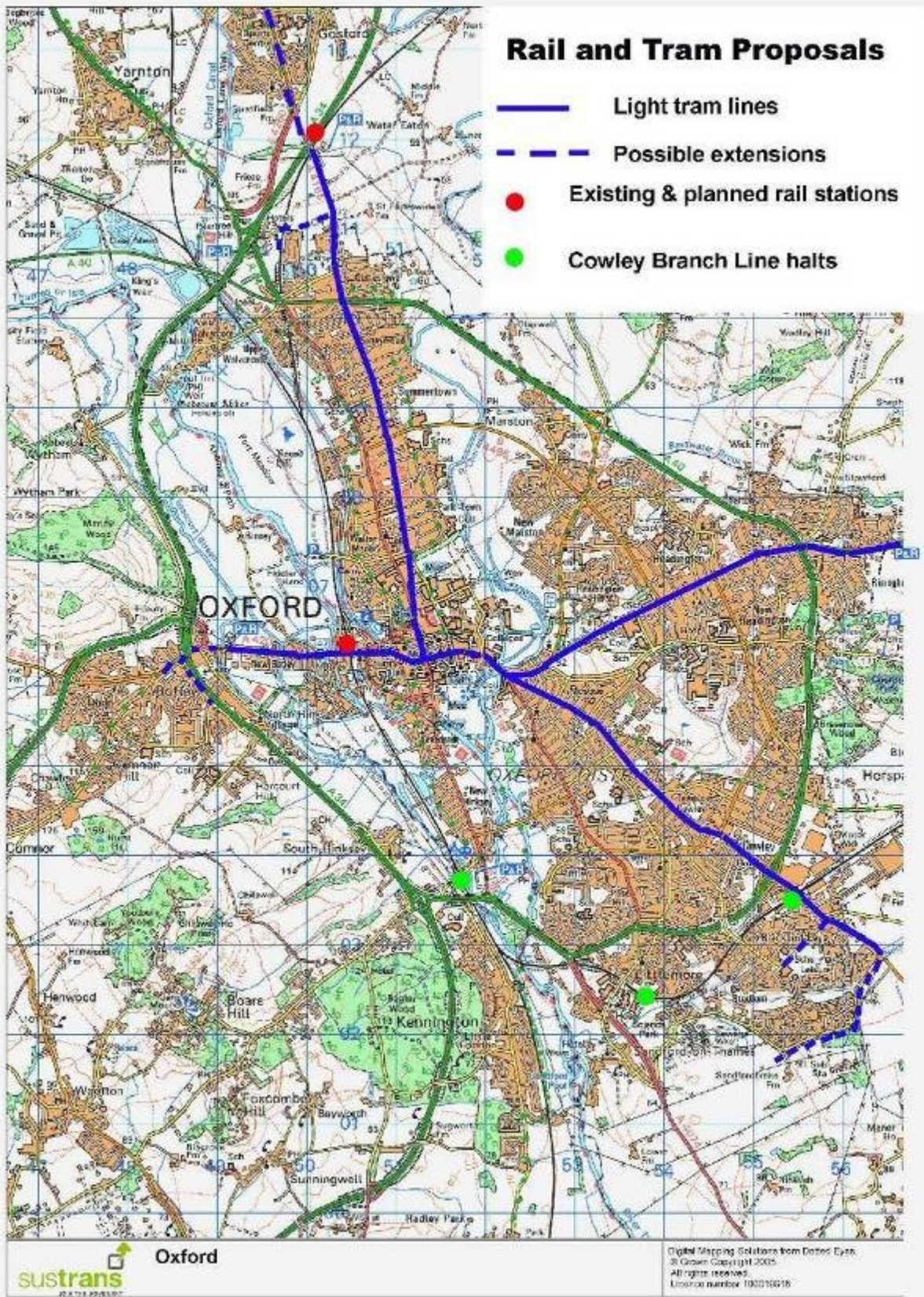


Figure 1 Rail and Tram Proposals

5.4 Other Changes to Bus Routes

Where a tram system is installed, it is preferable for buses to complement and feed the trams (and tram-trains), as they do in Freiburg, rather than competing with them as in Manchester. The strategy here would enable the High Street to be closed to buses, preventing some damaging competition. The link shown below includes some narrow sections, although it is currently used by double-decker tour buses in one direction only. Closing the Eastern High Street to general traffic offers a free-running route for buses linking East/Southeast and North Oxford, which would also improve links to the University Science Area.

When the tram and tram-train systems were complete this would facilitate the relocation of the London bus termini to the park and ride sites.

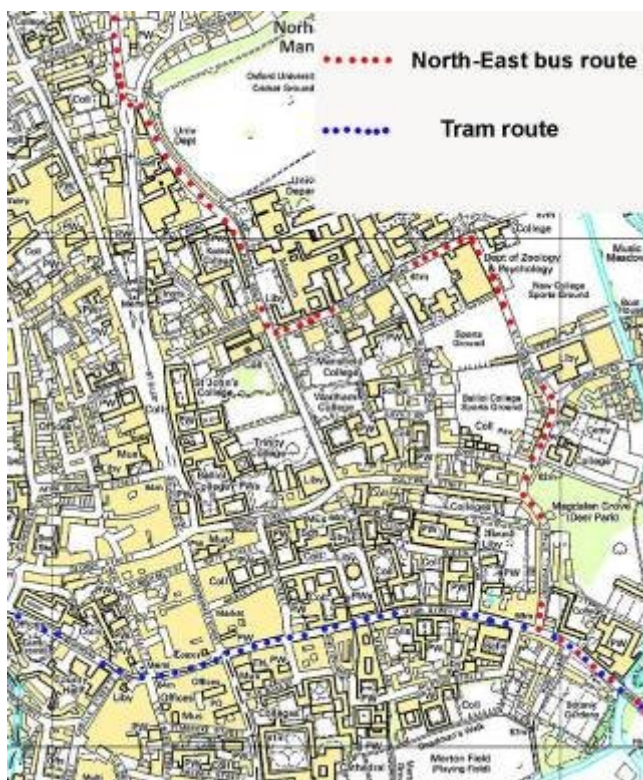


Figure 2 North/East bus route



Longwall Street (above) and Parks Road

5.5 Reality Check: the Politics and Funding of Transport

Under current Government policies it would be very difficult to obtain approval for the recommendations made in this section. This is partly due to the influence of the bus companies on Government, which has ensured that highway authorities are able to bid for up to 90% of bus-related capital schemes, but only 75% of light rail schemes.

One reason for the regional emphasis on road building mentioned earlier comes from the DfT's project appraisal system, NATA, which attaches high values to the saving of time, particularly business time, and low values for CO₂ savings.⁹ The recommendations outlined here would be very difficult to justify under NATA, since the benefits are partly qualitative and partly relate to climate change, with relatively modest opportunities for time savings. Over the next few years, substantial cuts in overall public spending in response to the growing levels of national debt are likely to make funding for any public capital projects more difficult. Tram systems may be able to make a small operating surplus, but they will never be able to fund the initial capital cost.

The Conservative Party has proposed a Carbon Reduction Fund, and Sustrans have been working on proposals to the Government to reallocate funds from the largely stalled Transport Innovation Fund, which was intended mainly to promote schemes involving congestion charging. Workplace parking charges are another possibility under TIF, as discussed in Section 0.

If it is recognised that current policies will not solve Oxford's transport problems, then political influence will need to be brought to bear on Central Government to allow local authorities and local communities to find a way out of these problems. Most of the other recommendations in this report may 'stand alone', although their effectiveness will be limited if they are not supported by the kind of public transport strategy outlined in this section.

6 Other Measures in the Short and Medium Term

6.1 Cycling

Appendix 4 describes the principle of filtered permeability, defined in a recent Government document as “separating the sustainable modes from private motor traffic in order to give them an advantage in terms of speed, distance and convenience”¹⁰. There are many examples of filtered permeability benefiting cyclists in Oxford, some of which seem the result of deliberate policy:



Filtered permeability: Collins Street



Useless Cycle Lane: Park End Street

But as with all British cities, the application is inconsistent. For most routes, particularly towards the City Centre, the cyclist is offered a choice between a direct route along busy main roads, or deviating, interrupted, inconvenient alternatives. Cycle lanes are often too narrow, discontinuous and poorly designed at junctions.

Recommendations

To improve conditions for cycling and encourage non-cyclists to take up cycling for transport, a **city-wide audit of cycle routes** should be carried out with the following aims:

- A long-term plan to match the comprehensiveness of the cycle networks in Freiburg and Groningen, as shown on Appendix 4
- Maximising the opportunities for cyclists to make convenient uninterrupted short-cuts
- Ensuring that cycle routes have priority over other traffic at junctions
- Identifying and remedying sub-standard cycle facilities. Three tests should be applied:
 - Is there a ‘cyclists dismount’ sign?
 - Is the route easy to use for people on mobility scooters?
 - Is it easy to use for a tandem with a child trailer?

A yes to the first question, or no the others indicates the need for a re-design

The City could benefit from the experience of cycle planning in the Netherlands, whether through study visits, or employment of cycle planners with Dutch experience.



Dutch cycle routes used by mobility scooters



Dutch cycle route with junction priority

Some particular places are in need of urgent attention, including the route from the railway station to the City Centre, mentioned earlier, and the following **roundabouts**:

- Woodstock Road/Ringroad
- Banbury Road/Ringroad
- Frieze Way/Oxford Road Kidlington

The last of these should be part of a coordinated network serving Water Eaton Park and Ride and the new railway station.



Kidlington Roundabout



Woodstock Roundabout

Subways are probably the best way of providing for crossings at high volume roundabouts (as at the Headington Green Road Roundabout). It should be noted that the current fashion in Britain for replacing subways with traffic signals ignores best practice in European cycling cities. Wide, well-lit, well-designed well-used subways are a vital part of the cycling strategy in cities such as Groningen and Zwolle:



Zwolle: cycle and pedestrian tunnel under railway. Note separate pavement and no barriers

Segregated facilities for cyclists are not needed on roads where *both* the speed *and* the volume of traffic are low. This should be the aim wherever possible. A decision in principle needs to be taken on the **radial routes**, either blocking them to through traffic, as suggested at Magdalen Bridge, or if not, direct, continuous, properly segregated cycle routes (whether alongside the carriageway or elsewhere) need to be provided.

The **river and canal paths** form two potentially useful links for many journeys, and they are well used in places, but their surfaces are poor. Hard, flat surfaces (whether asphalt or stone) would help to improve their usefulness. Barriers are a problem at several points, such as the one shown:



Pothole on the Thames Path



This woman had considerable difficulty negotiating these barriers with child trailer

A **city-wide cycle hire** scheme is under consideration. The evidence from Paris suggests, where these are done on a sizeable scale, they can significantly increase rates of cycling. A suggestion that they should use some of the (already inadequate) cycle parking within the City Centre, would be counterproductive, however.

6.2 Planning for Growth

There is currently a problem of coordination between the transport and spatial planning for Oxford which, if not addressed, will exacerbate the problems described in this report.

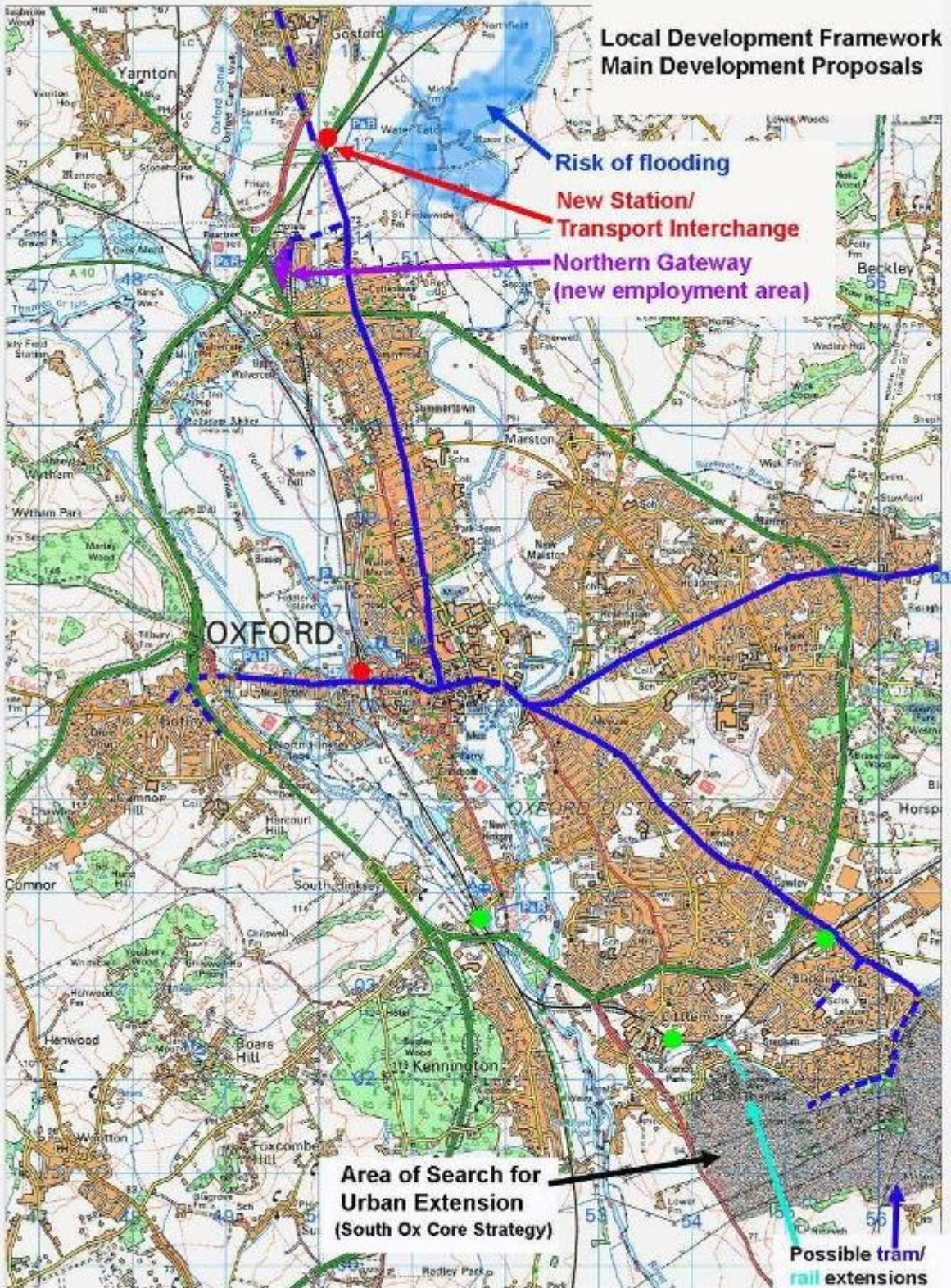
Attempts to use the planning system to reduce car dependency have largely failed in Britain so far. This is particularly true of new private developments on the edge of towns and cities; those viewed as planning disasters, and those given awards for ‘best practice’ both suffer from similar levels of car dependency.¹¹

Conventional transport planning tends to assume that transport demand (the number of trips and their destination) is a ‘given’ for each location, the only variable being the modal split. The Transition Town aims will require a new approach: one which reduces overall travel distances. As discussed in Section 2.1 the most powerful influence on travel distance is car ownership. The key transport question when planning a new development is not ‘how do we provide for travel from this place’ but ‘how easy and attractive will this place be for people living without cars’? The author’s PhD research¹² suggests that, outside the inner cities, this will require access to rail. In the Oxford context, conventional buses on congested radial routes will not be sufficient.

While the County’s transport planners are struggling to reduce the number of buses using these routes, the Regional Spatial Strategy and the Core Strategy for Oxford (and reluctantly, South Oxfordshire¹³) are planning a major urban extension served solely by buses, which will be forced to use these same routes. The existing buses serving Greater Leys require a Council subsidy, and the layout of the roads would preclude any *useful* bus route serving both Greater Leys and a new development as illustrated below.

The land is within the Oxford green belt, which is to be moved outwards to accommodate it. There are, however, no plans to review the greenbelt around the planned new station and transport interchange at Water Eaton, which appears of no greater landscape value. It does adjoin some areas susceptible to flooding, but the area of search shown below is also subject to multiple constraints. The proposal for the urban extension appears to have pre-dated the plans for Water Eaton station, and discussions with the planners suggest that the possibility of an extension to the North was never considered.

**Local Development Framework
Main Development Proposals**



Risk of flooding
**New Station/
Transport Interchange**
**Northern Gateway
(new employment area)**

**Area of Search for
Urban Extension
(South Ox Core Strategy)**

**Possible tram/
rail extensions**



Oxford

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At the same time Cherwell District Council is proposing an extension to Bicester as part of the Eco-towns programme¹⁴, which would also be served solely by buses (despite a railway line passing through the site), many of which would follow the same congested streets into Oxford.

The proposals in the previous section would help to overcome the transport problems of a Southern extension. The land is still available for an extension to the Cowley rail line as illustrated above (although this could disappear if not protected), or the light trams could be extended as shown. In the absence of such plans, Water Eaton would represent a more sustainable location for an urban extension.

Studies of the relationship between settlements in Oxfordshire suggest that expansion of the smaller towns is likely to be a much less sustainable option than expansion of Oxford itself¹⁵ (a comparison with Didcot was also mentioned earlier), so if the transport infrastructure can be provided, as suggested in this report, then expansion of Oxford in more than one direction, accompanied by restraint elsewhere in the County, may be the best alternative.

Urban Intensification

The most sustainable form of development from a transport and many other perspectives is urban intensification. Constraints on intensification within Oxford are contributing to unsustainable development in the neighbouring districts.

This is one area where national policy has been more helpful, but the gains of recent years are under threat from a growing backlash, based partly on a misunderstanding.

Oxford’s draft Core Strategy states:

“there are serious concerns about the number of family houses being converted into flats, scope is limited for further increases in densities outside the city centre and district centres.”

The reality is illustrated by the following table:

	Oxford	England & Wales
Houses as a proportion of dwellings	71%	80%
Flats as a proportion of dwellings	27%	19%
Families as a proportion of all households	16%	20%
Single person households	34%	30%
Two person households	30%	34%

These figures are taken from the 2001 Census, but new build and conversion make only very slow changes to the overall stock. Had the pre-credit crunch trends continued for another 50 years, the proportion of flats in England would have risen to just 24.6%¹⁶. As a university city, the proportions of single people (and flats) in Oxford is always likely to be higher than the national average.

The proportions of single person households are projected to rise in the years to come. The real danger is that misinformed planning policies will result in more greenfield car-based “family housing” to be occupied by one and two person households in the future.

The low density car-based retail and employment sites around the fringes of the city (including Templars Square Retail Park) and on radial routes such as those illustrated below, represent another opportunity for intensification, which current plans do not appear to recognise.



Low Density car-based retail and business development: Botley Road & Garsington Road

The economic downturn could offer an opportunity to redevelop some of these sites, retaining their employment (and where appropriate, retail) uses, introducing residential development, and reducing the car-based transport focus of both. The Westfield Centre in London is an interesting precedent (which includes a PC World Store) where the modal share of public transport after opening has been around 75%.¹⁷

Recommendations

The spatial plans for Oxford and adjoining areas should be reconsidered. To reduce car dependency and improve the quality of urban life they will need to be changed to:

- focus on additional opportunities for intensification within Oxford
- reduce reliance on street-based buses along radial routes into the City
- reconsider the growth areas in the short-term (Water Eaton as a more sustainable location than the Southern extension, until public transport infrastructure is available to support the latter)
- better coordinate the spatial and transport strategies for the future
- expand Oxford rather than the surrounding market towns, providing the public transport infrastructure is made available.

Unfortunately, these recommendations may also encounter political difficulties, as the adopted South East Plan is expected to be published very soon. The scope for a change of approach should be explored with the authorities as soon as possible.

6.3 District Centres

A more localised pattern of shopping and living in general is central to the Transition Town initiative. Strengthening district centres within cities such as Oxford must be a key part of

signalised crossing at that point could serve only to delay pedestrians (for up to two minutes at peak times) and exacerbate the air quality problems.



Headington Shops and (threatened) subway

6.4 Carfree Development

In those locations where it is feasible, carfree development is the single most effective means of reducing car use and improving the quality of life in dense urban areas. In the European carfree areas visited and studied by the author over the past three years, modal shares for cars vary between 5% and 16% of trips¹⁸. The author has observed and interviewed the parents of children as young as five, who were allowed to walk, cycle and play freely around their neighbourhoods without direct supervision. The carfree areas appeared considerably more effective in this respect than conventional home zones open to traffic.



German carfree developments (Vauban, Freiburg, and Stellwerk 60, Cologne)

Carfree development should not be confused with the peculiarly British (and deeply flawed) concept of ‘carfree housing’ meaning ‘housing with no allocated parking’. As practised elsewhere in Europe, carfree development provides:

- A traffic-free immediate environment
- A design focussed on travel by other means (usually including car clubs)
- Limited (ratios between 0.15 and 0.5 per dwelling) parking separated both physically, and financially from the housing

A similar definition has been adopted in the recent transport guidance for the Eco-towns. Carfree development generally requires some form of parking control in the surrounding areas, to avoid problems of overspill parking.

There are essentially three models across Europe:

1. Vauban, the largest example with a population of over 5,000. Vehicles are allowed down residential streets at walking pace to set down but not to park. Car owners must buy spaces in peripheral multi-storey car parks.
2. Smaller developments (50 – 600 dwellings) where vehicles are physically prevented from entering the sites.
3. Pedestrianised city centres, which in some European cities have much larger residential populations than their equivalents in Britain.

All three models could be applied to Oxford. Type 3 was addressed in Section 4.3. Any sizeable residential site within the inner districts of Oxford would be suitable for type 2. The West End Area Action Plan¹⁹ refers to opportunities for ‘car-free housing’ defined in the British sense, but does not appear to rule out genuine carfree developments.

Type 1 would be suitable for larger sites. In outlying areas, access to public transport including rail becomes more important. A mixed use development at Water Eaton would provide an ideal site. The Southern Area would also be suitable if served by trams or tram-trains (probably not suitable if street-based buses are the only option).

A fourth possibility, which has not yet been widely tried (although some long-standing precedents exist, such as in Ancoats, Manchester²⁰) is to pedestrianise existing residential streets. This could be feasible where existing car ownership is low, the residents are sympathetic, and some land is available for minimal peripheral parking.

Whichever approach is taken, parking generally needs to be controlled in the surrounding areas.

More information about carfree development is available on www.carfree.org.uk, or the author, whose PhD focussed on this area, can advise further. Carfree UK, to which the author belongs, is planning to establish a London carfree association in the autumn. This will bring together people who live without cars and want to live in carfree neighbourhoods, with the aim of convincing developers and lobbying the authorities. If this is successful, a similar initiative could be explored in Oxford.

Recommendations

- Planning policies in Oxford should encourage carfree developments as defined here in the West End and any other available sites in the inner areas of Oxford.
- A sizeable mixed use carfree development should be planned near the new station at Water Eaton, and/or in the Southern Development Area if this can be served by rail or trams.
- The Transition Town should explore the feasibility of a carfree association in Oxford.

6.5 Non-Residential Parking and Travel into Oxford ²¹

This report has mainly focussed on the travel patterns of Oxford residents. Some of the factors contributing to inward travel by non-residents depend on wider regional and national policies. There is however one change within the City which could have a wider influence. This relates to non-residential parking.

The capacity of off-road public car parks does not seem excessive: 1,547 in the City Centre²² compares with 1,400 in Groningen (see Appendix 4). The parking charges in Oxford are also higher than the cities reviewed in Appendix 4. The greater problem appears to be the availability of private non-residential parking, estimated at 6,600 spaces within the central area alone. The retail parks already mentioned and low-density employment sites such as the Oxford Business Park all provide ample free parking, attracting long-distance car journeys from outside the City.

A **workplace parking levy** is one of the options available under the Transport Innovation Fund. This could be used to finance infrastructure improvements such as the ones mentioned earlier, as well as providing an incentive for employers to reduce parking spaces and encourage modal shift amongst their employees. Nottingham has been developing a TIF bid incorporating a levy whose revenues would be used to extend the city's tram network. A decision is expected on this shortly, and it could provide a useful precedent for Oxford.

Reduction in parking within the City may create more demand for the **park and ride** sites which are already well used. Research conducted in Oxford provided some of the strongest evidence so far that park and ride redistributes but does not reduce car mileage²³. Continuing expansion of park and ride sites is not a sustainable solution; it "cannot continue indefinitely", as recognised by the Local Plan.

To promote more sustainable patterns of travel into Oxford would require a range of other measures such as limitations on road capacity and improvements in rail connections across the wider sub-region. The **Transition Town** movement began in smaller towns, and encouragement should be given to similar initiatives within the **Oxfordshire market towns**, which could work together on some of these sub-regional problems.

7 Getting There

Transport is a difficult issue for transition towns. Unlike many of their other areas of interest, autonomous action by individuals and communities is unlikely to make a significant difference unless this also leads to changes in the policies and practice of public authorities and private companies. Community actions may contribute to a wider campaign, by, for example, organising carfree days or street parties in areas targeted for pedestrianisation or more permanent road closures. Streets Alive can help with the organisation of street parties²⁴.

During the writing of this report, conversations with officers of the County Council in particular indicated a willingness to listen to suggestions from external organisations, and to consider more radical measures for the longer-term. Influencing the spatial planning process will be more difficult, but must also be addressed. A strategy to influence the public authorities should aim to:

- Identify some potential ‘quick wins’, such as the recommendations relating to cycling in this report, and possibly some opportunities for road closures.
- Influence the later stages of *Transform Oxford*
- Obtain a public commitment to the objectives of the Transition Oxford Plan, and a recognition that a new transport strategy will be needed to achieve them
- Obtain a recognition that the spatial plan for Oxford needs to be reviewed and changed to support these objectives
- Promote a feasibility study into the tram and rail options outlined in this report

The proposal to restrict access to Magdalen Bridge will be controversial. A public debate and a campaign will be needed to move this up the agenda.

As a first step, Appendix 1 is a summary of recommendations or a draft declaration which could form the basis of a media release. Organisations and individuals across the City could be invited to add their support. The support of the City’s MPs should be sought, particularly in respect of the national policies which are obstructing the sort of public transport solutions recommended in Section 0.

This should then be followed by an approach to the County and City Councils, to begin the dialogue which will need to continue for many years to come.

Acknowledgements

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Notes

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- ¹ ANDERSON, J., MULLEY, C. and NELSON, J., 2008. No Car Lanes or Bus Lanes - Which Gives Public Transport the Better Priority? An Evaluation of Priority Lanes in Tyne and Wear, *40th Universities Transport Study Group Conference*, January 2008,
- ² www.oxford.gov.uk/planning/localplan.cfm
- ³ www.skyscrapercity.com/showthread.php?t=779550
- ⁴ <http://www.mulhouse.fr/fr/letram.php?PAGEID=1653>
- ⁵ <http://www.caendetoutesnosforces.fr/resources/documents/Les%20Echos%20-article.pdf>
- ⁶ www.bristol.gov.uk/committee/2002/ob/ob002/0415_4.pdf
- ⁷ www1.eere.energy.gov/cleancities/pdfs/baesen.pdf
- ⁸ www.oxfordbus.co.uk/content/doc/cms/alternative_fuels.pdf
- ⁹ A recent review of NATA has made some changes, likely to favour walking and cycling, but the fundamental issues mentioned here have not changed. See: www.dft.gov.uk/consultations/archive/2008/consulnaterefresh/natarefresh2009.pdf
- ¹⁰ TCPA and DCLG, 2008a. *Eco-Towns Communities Worksheet*. London: Town and Country Planning Association, on: www.tcpa.org.uk/ecotowns.asp
- ¹¹ See article in *Local Transport Today* on: www.stevemelia.co.uk/lttbuses.htm
- ¹² Interim findings published on: www.stevemelia.co.uk/research.htm.
- ¹³ www.southoxon.gov.uk/ccm/content/planning/local-plan/core-strategy-preferred-options-consultation.en
- ¹⁴ www.cherwell-dc.gov.uk/index.cfm?articleid=4167
- ¹⁵ HEADICAR, P., 2000. The Exploding City Region: Should it, Can it be Reversed? In: K. WILLIAMS, E. BURTON, M. JENKS and M. JENKS, eds, *Achieving Sustainable Urban Form*. Spon Press (UK), pp. 160-172.
- ¹⁶ Calculation based on 2006/7 stock and build rates from Communities & Local Government, *Housing Trends 2007*. Flats represented 47% of all new build in 2006/7, but only added 0.36% to the overall housing stock.
- ¹⁷ Duncan Bower, Development Director, interviewed on Radio 4: http://news.bbc.co.uk/nol/shared/spl/hi/programmes/analysis/transcripts/19_02_09.txt
- ¹⁸ From: SCHEURER, J., 2001. *Urban Ecology, Innovations in Housing Policy and the Future of Cities: Towards Sustainability in Neighbourhood Communities*. PhD edn. Perth: Murdoch University Institute of Sustainable Transport. The 16% figure for Vauban was recorded at an early stage, before extension of the tram network there.
- ¹⁹ www.oxford.gov.uk/planning/west-end-aap.cfm
- ²⁰ www.cabe.org.uk/case-studies/ancoats-and-new-islington?photos=true&viewing=305

²¹ Thanks to Peter Headicar for suggesting the need for this section.

²² www.oxford.gov.uk/transport/car-parking.cfm

²³ PARKHURST, G., 2000. Influence of bus-based park and ride facilities on users' car traffic. *Transport Policy*, 7(2), pp. 159-172.

²⁴ www.streetparty.org.uk

