Transport

This topic addresses:

SA Objective:
(11) To reduce traffic congestion and associated air pollution by improving travel choice, shortening journeys and reducing the need to travel by car/ lorry

SEA Themes: Air; Climatic Factors; Material Assets

Introduction

The mode of transport people choose has implications for the environment and also for human health. Fossil-fuelled vehicles use limited resources and emit fumes that have widespread negative impacts, including on climate change, human health, ecosystems and historic buildings. Perception of road safety for pedestrians and cyclists is also affected by the number of motorised vehicles. Opportunities to walk and cycle in a safe environment without harmful fumes is important in encouraging use of these modes, which themselves can benefit people's health and wellbeing.
The increase in population expected in the city and across Oxfordshire will mean there are more people needing to travel into and around the city. Within Oxford a much higher proportion of journeys are made by bus and cycle than the national average and the rest of Oxfordshire. Journeys to Oxford that originate outside Oxford are much more likely to be by car. It is important that new developments are located and provided for so that sustainable modes of travel are the preferred choice. It is also important that infrastructure is provided to maximise the attractiveness of these modes.

The limited availability of land in Oxford means that the best use must be made of space, including road space. It is important that streets are attractive spaces. Reducing parking also saves space.

Plans, Policies and Programmes

The National Planning Policy Framework

The NPPF says plans should minimise the need to travel for employment, shopping, leisure, education and other activities. Land-use is important, and within large-scale developments, key facilities should be located within walking distance of most properties. Use of sustainable transport modes, ie walking, cycling and public transport should be maximised. The NPPF also says that parking charges in town centres should not undermine vitality.

Manual for streets (Department for Transport and Department for Communities and Local Government)

The Manual for Streets contains principles for the design of residential and other lightly trafficked streets. Its aim is for streets that are designed not just to accommodate the movement of motor vehicles but also for streets to be designed as 'places'. It sets out the importance of a 'movement framework' that enables and encourages walking and cycling and public transport use. Walkable neighbourhoods usually have a range of facilities available to residents that can be accessed on foot. The environment is attractive and convenient for walking. Pedestrian or cycle only routes must be designed properly so they do not lead to anti-social behaviour.

The Oxford Transport Strategy (OTS)

The OTS is part of the Local Transport Plan: Connecting Oxfordshire 2015-2031 (LTP 4) and was adopted at a full council meeting of Oxfordshire County Council in Spring 2015. The Plan is aimed at improving access and making Oxford a better place to live, work and visit, by reducing congestion, improving public transport and making Oxford more cycle and pedestrian friendly. It sets out city wide measures, as well as going into more detail with a North Oxford Transport Strategy, Eastern Arc and the City Centre. A key OTS project is mass transit, which involves improvement on 3 lines (Kidlington to Blackbird Leys, Cumnor Park and Ride (not in existence currently) to Thornhill Park and Ride, and Eynsham Park and Ride to Lodge Hill Park and Ride (neither in existence currently); reallocation of road space; improved interchanges; use of high capacity electric vehicles; off board ticketing; and reopening of the Cowley Branch Line. Another key OTS project is to manage traffic through remote park and ride, access restrictions to the city centre and exploring a workplace parking levy. OTS projects also include the promotion of 'active travel', ie walking and cycling. Super premium cycle routes, both radial and orbital are suggested, and connector routes through neighbourhoods, as well as improved wayfinding and improved cycle parking (including underground cycle storage in the city centre).

The City Council's response to LTP

The City Council's response to LTP was prepared on behalf of the City Council by Alan Baxter Ltd. This considered the OTS to represent a forward thinking and ambitious package of measures, albeit with potential to be taken further. The report made the following key comments and recommendations:

- Generally more radical solutions were proposed. It suggested the LTS could go further to support walking, cycling and public transport, with a significant re-allocation of road space ;
- As a compact city, Oxford should set a radical and ambitious strategy for increased cycling and walking, based on adopting best practice from other European cities. This should include a walking strategy;
- Concern that the proposed frequency of bus rapid transit is not high enough for 'turn up & go' especially if changing lines; also time to cross to other side of Oxford could be 1 hr +;
- There should be review of bus routing and a bus management strategy which can deliver further service improvements including further bus priority;
- Park & Ride – do not support closure of existing sites as no evidence to support – should enhance existing as well as investigate additional sites;
- Support development of a freight consolidation strategy;
- Strongly support Zero Emissions Zone;
- More intelligent management of ring road e.g. Intelligent Transport Systems;
- Support Workplace Parking Levy;
- Hospitals – consider dedicated P&R parking for hospital staff, and potential for direct access to the Ring Road for emergency vehicles.

The Oxford Residents' Survey 2014/15

The Oxford Residents' Survey 2014/15 carried out by Ipsos MORI asked what things were important in making somewhere a good place to live. 27% said level of traffic congestion was an important aspect of making somewhere a good place to live (7% said this in the comparison council area), and 38% said public transport (18%said this in the comparison council area). This put public transport as the 4th most important aspect of 21 in making somewhere a good place to live and traffic congestion 10th.

Residents were also asked which aspects were in need of improvement. 62% said traffic congestion needs improvement (compared to 15% in the comparator council). This makes it the aspect of

Oxford most in need of improvements according to residents surveyed. In the North East area of Oxford 70% said improvement is needed.

Major infrastructure work programmed

Cutteslowe and Wolvercote roundabouts, on Banbury and Woodstock Road, are key junctions on arterial routes into the city that are already heavily congested at peak times. Increased demand is expected from developments such as Oxford Parkway and Northern Gateway. The main approaches to both roundabouts will be widened, traffic signals will be introduced, and new cycle and pedestrian crossing facilities and off-carriageway cycle facilities will be introduced. Work is underway currently. By mid-July 2016 the A44 southbound between Peartree and Wolvercote roundabouts will be opened as two full-width lanes.

£38m of transport improvements are programmed for the A40. Work could start as early as September 2018.

Access to Headington is a project to deliver a £12.5m package of schemes in the Headington area to improve access to the major employment, health and education sites in Headington. Existing traffic congestion in the area leads to a number of problems, including delay to bus services and an unwelcoming environment for pedestrians and cyclists, therefore measures will be aimed at managing growth in car traffic and planning for more walking, cycling and use of public transport.

Current Situation

Commuting patterns

Between 2001 and 2011 the net increase in the number of commutable jobs (those involving a set journey from the home to place of employment) in the city was almost 8,000 (9% increase). The Eastern arc area saw a 23% increase and it has now surpassed the city centre as the area of the city with the most jobs.

73% of Oxford city residents work within the city. However, almost half of Oxford's workforce (45,900 people or 46%) commuted into the area in 2011. This is an increase in absolute numbers (of 5,801) but a slight decrease in proportion compared to 2001. The greatest numbers of inbound commutes and the greatest increase in the numbers of journeys since 2001 is from the Vale of White Horse, with 10,800 commutes into Oxford, 1,100 more than 2001.

Outbound commuting from Oxford has increased since 2001, although below the growth in inbound commuting. 16,000 employed Oxford residents (23%) travel out of Oxford to work elsewhere, mainly other Oxfordshire districts (The Vale of White Horse receiving the most commuters from Oxford) and London.

Mode share of commuting journeys

Oxford city residents are significantly less reliant on the car for journeys to work than residents in other Oxfordshire authorities (34% of Oxford residents travel to work by car in Oxford compared to 63% in the rest of Oxfordshire).

Within Oxford 68% of journeys were made by sustainable methods of travel (bicycle, foot and bus). These have all increased from 2001, whereas the use of a car for commuting within the city has stayed the same (see graph in figures x.1 and x.2 below).

While the modal share for public transport trips into the city has increased steadily in recent years, the majority (66.8%) of commuters travelling into Oxford from elsewhere travel by car (see Figures 5.4.1 and 5.4.2 below). Travel by car remains the dominant form of transport to all destinations other than the city centre. Since 2001, the number of journeys made by car have increased from 27,700 to 30,600.

Figure 5.4.1: graph to show the mode of travel of Oxford-resident and non-resident commuters

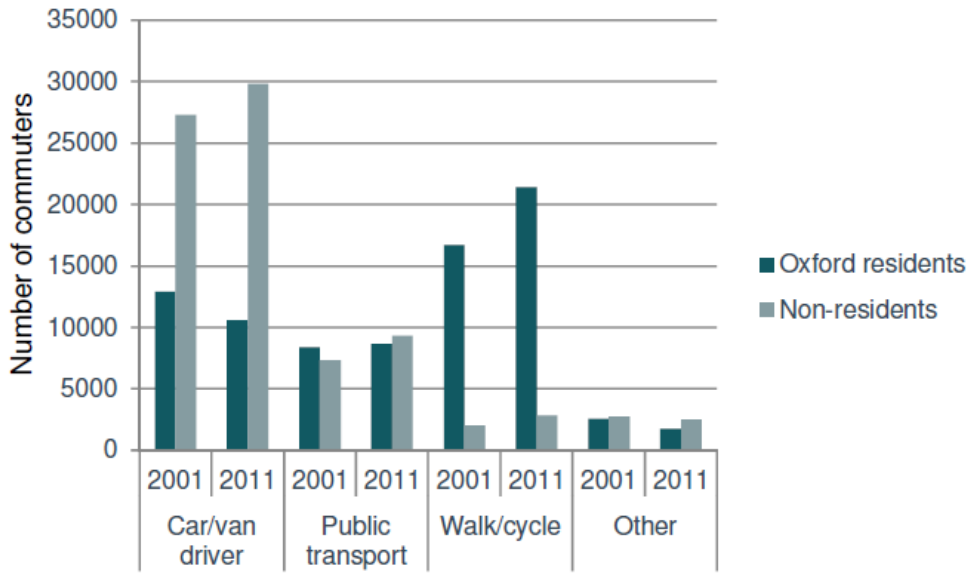
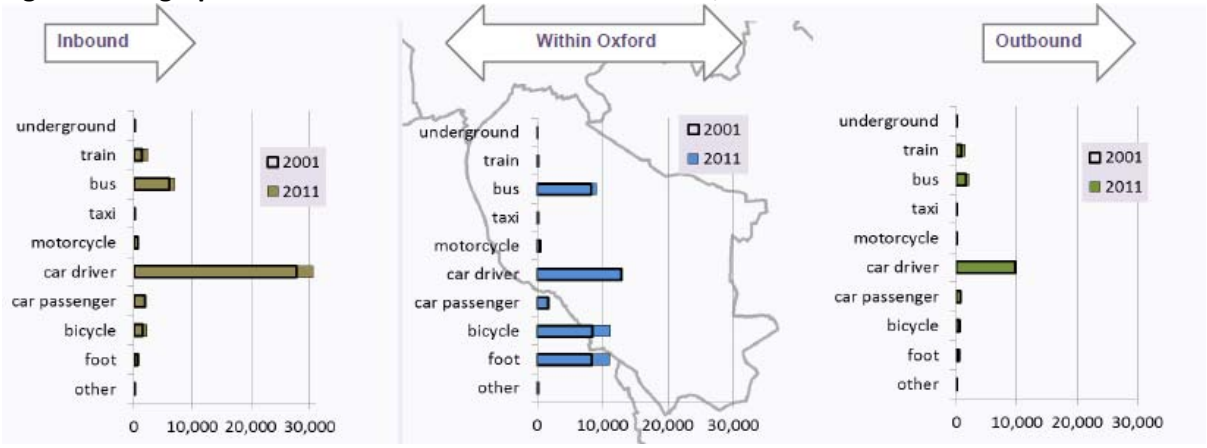


Figure 5.4.2: graph to show the mode of travel into Oxford, out of Oxford and within Oxford



Source: Oxfordshire Insights Census data analysis: http://insight.oxfordshire.gov.uk/cms/system/files/documents/TTWmode_Oct14_FINAL.pdf

The 2011 Census figures show that the highest relative ratios of private motorised transport trips compared to those made by sustainable modes for travelling to work are in Cowley, Littlemore and North Oxford. The proportion of car journeys made varies depending on the part of Oxford that is the end destination. As the table in Figure 5.4.3 below shows, the Eastern Arc attracts more car journeys, and a higher proportion of car journeys, than the city centre or North Oxford.
The number of trips by private motorised transport into workplaces in the city centre or north Oxford declined from Census 2001 to Census 2011. This reduction in numbers was exceeded by the increase in this type of travel to the Eastern Arc. However, the percentage change in those accessing the Eastern Arc to work by bus was the largest percentage increase.

Figure 5.4.3: Graph to show the mode share of commuter travel to three employment areas in Oxford at the time of the 2001 and 2011 censuses

Area	Private motorised vehicle			Mass transit			Walking & cycling		
	2001	2011	% Change	2001	2011	% Change	2001	2011	% Change
City Centre	14,663	12,126	-17	11,627	11,955	3	9,944	12,254	23
Eastern Arc	24,087	27,362	14	3,211	5,062	58	7,611	10,856	43
North Oxford	3,533	3,143	-11	986	1,040	5	1,294	1,423	10
Total	42,283	42,631	1	15,824	18,057	14	18,849	24,533	30

Source: LTP4 Background Paper changing patterns of growth and travel

Traffic congestion

As a medieval city, Oxford's often narrow streets are, in many areas, unsuited to motorised vehicles. Peak period traffic congestion is a persistent problem. Within the centre there is a clear conflict between cars, buses and delivery vehicles which compete for the limited space with pedestrians and cyclists. Traffic congestion on Oxford's road network, ring road and approaches is already significant, as the diagram in Figure 5.4.4 below shows. Levels of traffic have not been increasing, and have decreased slightly in some areas since 2001, but congestion and delay is still a problem, in peak times particularly.

Figure 5.4.4 Map showing the areas of greatest congestion in and around Oxford

Walking

Walking is an essential component of almost all journeys. Walking has many advantages over other modes. It creates no emissions and does not contribute to congestion or damage the environment. It is also good for people's health. More people walking in an area can also help deter crime and may even contribute to the building of social cohesion. Its compact nature makes Oxford a walkable city. Walking should be made as attractive as possible, both to ensure it is used as a mode in itself, and also in recognition of the importance of attractive walking routes to bus stops or train stations in encouraging use of these modes over the car. To encourage more walking it is necessary to consider

the pedestrian environment and also the connectivity of walking routes. It is important that roads can be crossed safely and directly, and also that new developments are well linked to facilities and workplaces. Volumes and speeds of motorised traffic also affect the quality and range of pedestrian activity.

Cycling

The percentage of workers cycling to work in Oxford, at 17%, is the second highest in England and Wales, after Cambridge (see chart in Figure 5.4.5 below). This compares to 5% of journeys to work being made by bike in Oxfordshire as a whole, and 3% in England and Wales. There are likely to be many reasons for this, including the cycling culture and the use as cheap transport by students, as well as the relatively compact urban area. There are many dedicated cycle routes in Oxford and 20mph zones which are likely to encourage cycling.

Barriers to increasing the proportion of cycling are likely to include hazardous junctions, and insufficient space on roads. There are opportunities to encourage more cycling, many of which are outlined in the OTS, for example joining up the 'quiet routes', and integration with bus, train and rapid transit.

The map in Figure 5.4.6 below shows that there is variation across the city in the number of workers cycling to work. Many of the areas with lower percentage cycling to work than most of the city are those around the ring road. However, there are also some areas closer to the city centre that have lower percentages than elsewhere in Oxford. This is likely to do with the destinations being out of range for cyclists; however there is also likely to be potential to improve cycling routes from these areas to areas of work to increase levels of cycling.

Figure 5.4.5 Graph to show the local authority areas with the highest % of workers cycling to work, from the 2011 census

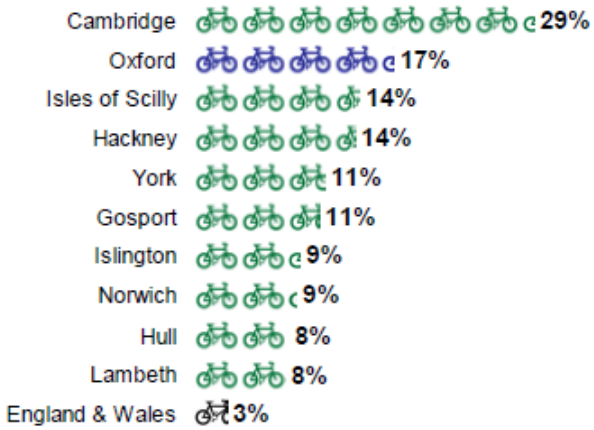
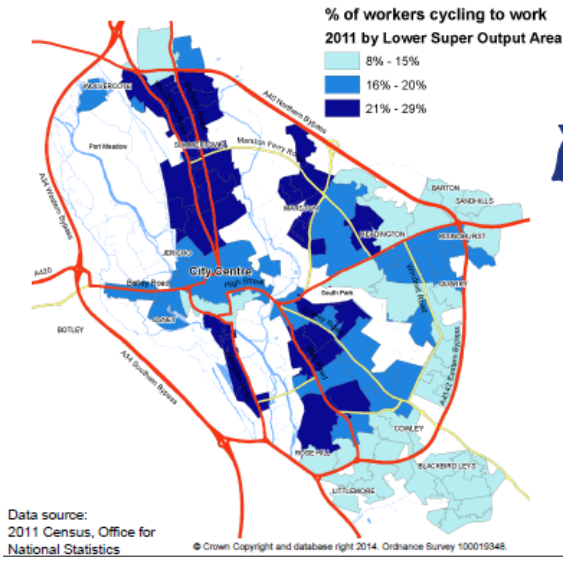


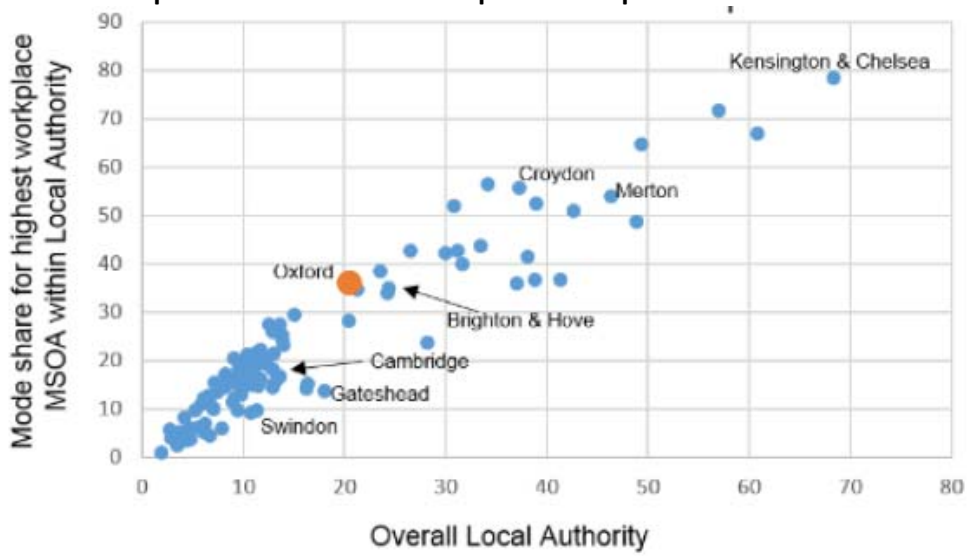
Figure 5.4.6: map to show the % of workers cycling to work from different areas of Oxford



Mass transit (bus and train)

Mass transit in Oxford has been key to limiting growth in traffic congestion in the city over the past 10 to 20 years. Few areas outside London have such a high mode share of public transport use. Figure 5.4.7 below shows that mode share of public transport use in Oxford overall is just over 20%. This figure has remained relatively static over the last decade. It is to workplaces in areas around Cowley and Blackbird Leys to which travel by bus has remained particularly static.

Figure 5.4.7: Graph to show mode share of public transport in Oxford



Source: Oxford Transport Strategy

Oxford has city and inter-urban bus routes with very high frequencies and also five park and ride sites. The table in Figure 5.4.8 below shows the existing bus patronage and service on each main bus corridor in Oxford. Very high bus patronage is taken to be over 1000 passengers per hour, and four of Oxford's bus corridors exceed this in the AM peak and five in the PM peak. The high frequency of buses serving routes into the city centre means there are 190 buses and coaches entering the city centre per hour at peak times.

Figure 5.4.8: Table to show buses per hour and bus patronage on Oxford's key bus corridors

Corridor		Buses per hour (in peak)	Two way bus patronage	
			AM peak hour	PM peak hour
London Road	Inner cordon	64	1,596	1,825
	Outer cordon	64	1,328	1,310
Cowley Road	Inner cordon	50	1,396	1,353
	Outer cordon	36	939	672
Woodstock Road	Inner cordon	26	799	940
	Outer cordon	16	626	332
Botley Road	Inner cordon	42	1,150	1,149
	Outer cordon	20	430	439
Banbury Road	Inner cordon	46	855	902
	Outer cordon	50	1,050	1,097
Iffley Road	Inner cordon	14	580	470
	Outer cordon	14	347	164
Abingdon Road	Inner cordon	44	924	1,119
	Outer cordon	44	786	839
Eastern Arc	Inner cordon	16	214	161
	Outer cordon	16	240	164

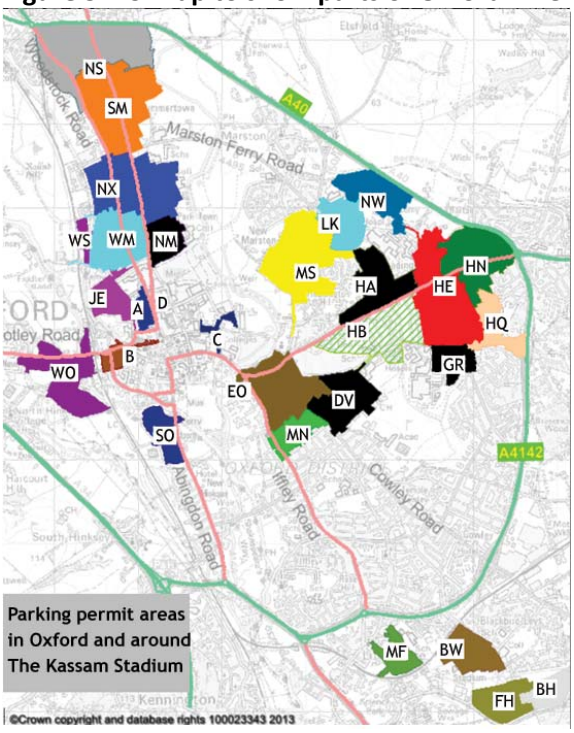
Oxford's rail mode share for commuting journeys into the city is fairly limited. The mainline rail station provides access for 5% of commuters to the city centre. The main origins of these commuters are Banbury, Didcot and Bicester, which are served by two or three direct services to Oxford in the peak hours. Other areas of employment in Oxford, particularly the Eastern Arc, are relatively inaccessible by rail and access requires interchange on to local buses.

Parking

Parking takes up land that could be used for other uses and enables car use. However, there will be those who need to drive or who drive for to access certain areas at certain times and for particular types of trips. The needs of people to access services and potential impacts on local centres if there is not enough parking must be balanced against the negative effects of car traffic generation.

Many areas of Oxford are covered by a controlled parking zone (CPZ), as shown on the map in Figure 5.4.9 below. A CPZ is an area where parking is only permitted in designated parking bays, and the rest of the kerbside space is restricted by yellow lines. Residents, their visitors, and local businesses can park in designated bays when displaying a relevant parking permit for that zone. In controlled parking areas, new developments with little private parking are less likely to have a negative impact on surrounding areas, as parking cannot be displaced to the street.

Figure 5.4.9 Map to show parts of Oxford where a Controlled Parking Zone is in force

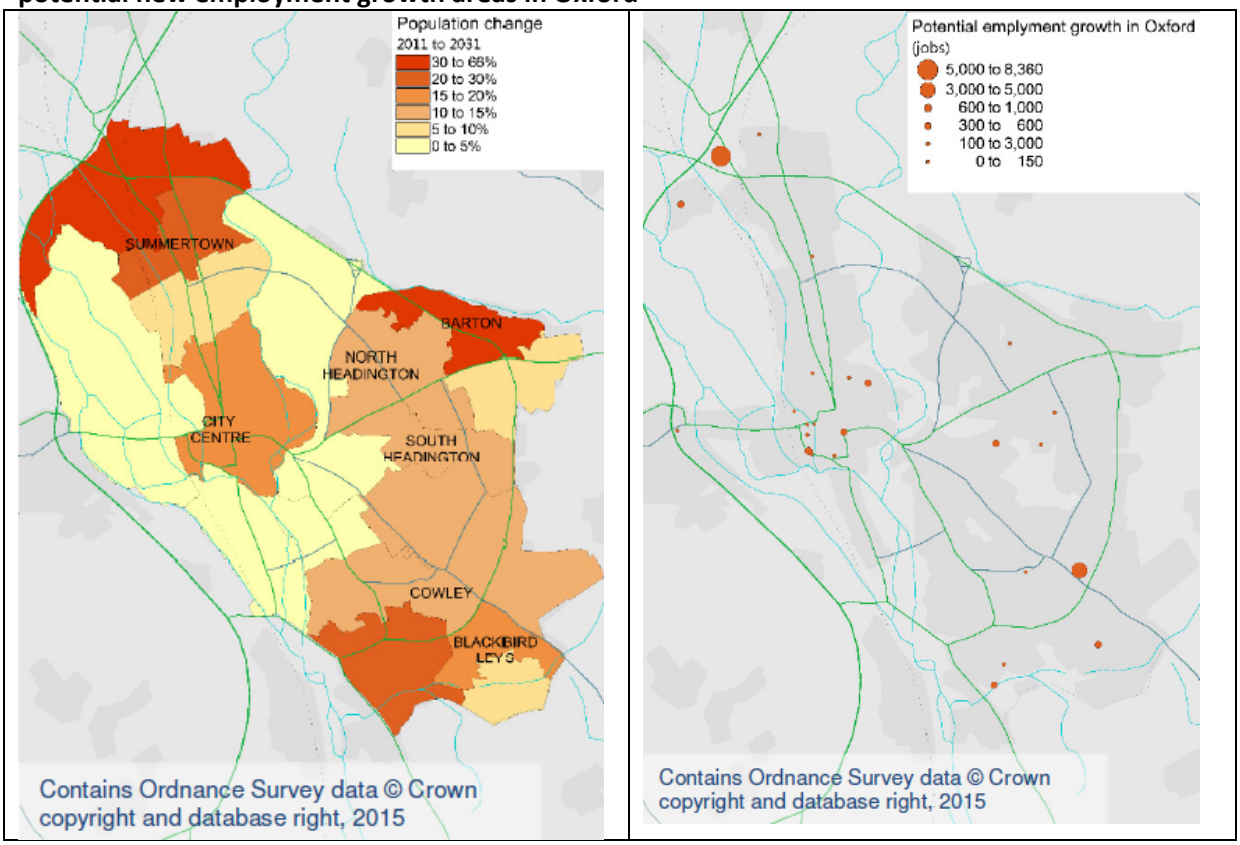


Likely trends without a new Local Plan

Predicted growth of employment and housing

The population of Oxfordshire is expected to grow significantly. As background work to the OTS, the County Council has made some high-level analysis of the SHMA 2031 housing allocations for the county which indicated there could be up to 26,000 additional trips in and around Oxford. The choice of mode for making these trips is likely to be heavily influenced by the location of new housing. The highest levels of growth in the number of commutable jobs by 2031 are expected to be seen in North Oxford and the Eastern Arc. The maps in Figure 5.4.10

Figure 5.4.10: Maps to show the predicted population growth in different parts of Oxford and potential new employment growth areas in Oxford



Source: LTP Background Paper changing patterns of growth and travel

Walking and cycling

Nationally, cycling levels have declined slightly in recent decades, with the distance travelled by bicycle falling by 2% between 1995/97 and 2008. However, cycling in Oxfordshire does not tend to follow this trend and automatic bicycling counts indicate that overall cycling levels may have increased slightly since 2005 (source: Oxfordshire Local Transport Plan 2011-2030).

There is not good data on the number of walking trips because walking forms a component of almost all journeys and happens almost everywhere. However, in the ten years to 2003, the number of walking trips measured nationally fell by 20%. This decline in walking journeys is largely accounted for by trips that have transferred to the car (source: Oxfordshire Local Transport Plan 2011-2030).

Mass transit

The Oxford Transport Strategy has considered available options for road based mass transit solutions, and given the constraints of Oxford's geography and urban form has proposed bus rapid transit as the best solution for developing a level of prioritised road-based travel. BRT has the potential to make road based public transport significantly more attractive and to expand capacity.

Rail demand forecasting work carried out by Network Rail in 2013 found that the rail network around Oxford will be subject to a high level of infrastructure investment over the next fifteen years and the result of the planned package of rail improvements, will be an increase in passenger demand for rail services. The predicted growth in Oxfordshire's population would lead to 20% increase in use rail commuters into Oxford by 2031, if travel patterns remain the same. However, it is been forecast that the rail network improvements strategy could lead to a 70% increase in patronage (OTS).

The new service from Oxford to London Marylebone, with a new station at Oxford Parkway, provides new strategic rail connections and an alternative route to London and is likely to lead to increased rail patronage and better access to employment sites north of the city for those travelling from Bicester for example. The re-opening of the line between Bicester Town and Bletchley will place Oxford at the centre of an expanded network of trains from the south and west of England and the West Coast and Midland Main Lines. Electrification of the main line from London to Newbury and Oxford will include the introduction of new trains.

Oxfordshire County Council is currently working with Chiltern Railways on their proposals to reopen the Cowley branch line for passenger trains, creating stations at Oxford Business Park and Oxford Science Park and served by an extension of the London Marylebone to Oxford line.

Improvements to the railway won't only lead to an increase in commuters to Oxford travelling by train. Network Rail predict a 71% increase in passenger demand on routes from Oxford by 2026, rising from 4.9m to 8.3m journeys. The route with the greatest absolute increase in passenger demand is oxford to Central London, with a forecast increase of 1m journeys between 2011 and 2026 (Network Rail forecast).

Advances in technology

Driverless cars are being tested now and are expected to be on the road within 3 years, with mass-production in the 2020s. Driverless cars have the potential to save roadspace, save time, improve safety and reduce emissions. They bring the potential for efficient and convenient car-sharing amongst communities, which could save considerable amounts of urban space by reducing the need for private parking spaces.

Smart management systems such as tidal flow of traffic in the am & pm peaks and ring road roadside information on the most congested routes are being introduced and have the potential to help manage congestion.

Sustainability/Plan Issues

- With population and job growth in the city, a continuation of existing travel behaviour would threaten to over-burden the transport network to an extent that compromises the character of Oxford and the quality of life of those living and working here.
- It is important that housing development is delivered in locations that have a trend towards sustainable travel choices, for example close to established walking and cycling networks.
- Barriers to increasing walking and cycling in Oxford should be overcome, including roads busy with other forms of transport, air quality and rivers and large areas of private land or rivers preventing direct routes.