Chapter 8

Oxford

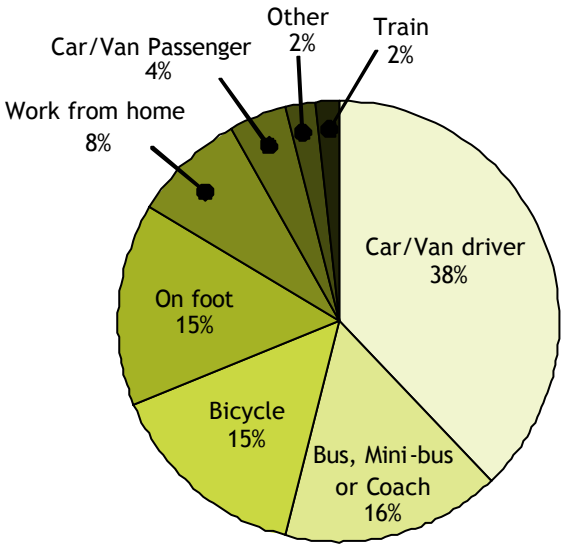
Background

Oxford is the county town of Oxfordshire and has historic assets of international significance. It is a world-class educational centre, an international business and manufacturing hub, a global tourist destination and a world renowned centre for medical science.

In population terms, Oxford is the largest district in Oxfordshire with a population of approximately 134,000. Two-thirds of the population (approximately 86,000) live in the eastern suburbs of the city.

Oxford is Oxfordshire's main employment hub. According to the 2001 census, three-quarters of the city's population work within Oxford, while only 9% travel outside of the county to work.

Approximately 61,000 residents of Oxford were in employment at the time of the 2001 Census. A breakdown of people's main mode for the journey to work is set out below:



Unlike in the other districts, the majority of journeys to work in Oxford are not made by car, though the car is still the most used single mode.

Taking the Oxford Transport Strategy forward: the opportunity of the West End

Plans are currently being developed for a major renaissance of the West End of Oxford. This project is a joint initiative of Oxford City Council and Oxfordshire County Council in partnership with the South East England Development Agency (SEEDA) and various local organisations.

The area referred to as "the West End" is bounded by Cornmarket Street/St Aldates to the east, the River Thames to the south, the railway to the west, and Hythe Bridge Street/George Street to the north. Despite some recent development in this area, the West End is currently seen as something of a "poor relation" to the rest of the city's impressive centre.

The renaissance of the West End aims to:

- Help meet central Oxfordshire's growing demand for new housing by providing additional dwellings;
- Provide vibrant, high quality public spaces;
- Contribute significantly to the city's retail and cultural offer;
- Provide additional office and other employment space;
- Contribute to delivering the objectives of this LTP in Oxford.

The renaissance of the West End presents transport challenges and opportunities of a scale unlikely to the repeated in Oxford in the foreseeable future. These must be recognised and properly handled. There is therefore a need and an opportunity to review and refresh the transport strategy for Oxford alongside and as an integral part of proposals for the West End.

The County Council, in partnership with Oxford City Council, is developing its transport strategy for Oxford to ensure it:

- Provides a strategic transport framework for the redevelopment of the West End and takes full advantage of the transport opportunities presented by the project;
- Is fully consistent with this Local Transport Plan and provides a detailed longer-term strategy for tackling the transport problems outlined in this chapter;
- Builds on the successes of the first Oxford Transport Strategy
- Responds to growth pressures in Central Oxfordshire, recognises Oxford's role as a regional hub, and complements the County Council's transport strategy for the Central Oxfordshire Sub-region; and
- Is highly integrated with Oxford City Council's emerging Local Development Framework.

Development Challenges

The importance of Oxford's architectural heritage needs no elaboration. There is also a significant natural heritage which forms the green framework for the famous views into and out of Oxford. Oxford has a large student population with an estimated 27,000 at the two Universities. In addition to this, Oxford also has a large housing need, even when compared to other cities in the South East region. This is mainly because it is well located, with easy access to international airports, the railway network and the M40 motorway. There is a high-level of in-commuting, with about half of Oxford's workforce living outside of its boundary. More than five million visitors per year, a large sub-regional catchment area for shopping and other services, and a rapidly growing population - all of these present major development challenges to Oxford over the coming years and decades.

Housing growth assumptions

2006 - 2016

The Oxfordshire Structure Plan 2006 – 2016 proposes 3500 additional homes in Oxford between 2006 and 2016.

2016 - 2026

The County Council has recommended to the South East England Regional Assembly that an additional 3500 dwellings be provided in Oxford between 2016 and 2026, but this figure is yet to be agreed by the Government.

Oxford Local Plan 2016

The key aims of the Oxford Local Plan are:

- To reduce the need to travel, particularly by private car, and to give people greater choice in the way they travel by walking, cycling and public transport;
- Proposals for developments that are likely to have significant transport implications will require a transport assessment and travel plan to be submitted;
- All developments will need to be in accordance with maximum parking standards, provide good access and facilities for pedestrians and cyclists, comply with minimum cycle parking standards and provide access for powered two wheelers;
- Seek to secure contributions through planning obligations to improve access for pedestrians, cyclists and powered two wheelers, improve bus services and park & ride;
- Implement a high quality public transport service along the defined corridors and support controlled parking schemes, through securing contributions;
- Seek to reduce the number of private non-residential parking spaces; and

- Proposals involving freight movements will need to address the potential for transportation by rail and water.

The policies outlined in the transport section of the Local Plan, accord with the policies of this Local Transport Plan. The City Council supports proposals for higher quality public transport services and in particular states that planning permission will not be granted for any development that would prejudice implementation of the Guided Transit Express.

The Local Plan for Oxford details the specific locations where future housing and employments developments should be located within Oxford's administrative boundaries.

An assessment of Oxford's housing capacity shows that there is no need to allow building on any previously undeveloped land for residential development. Oxford City Council expects to complete between 95% and 100% of its housing on previously developed land over the Local Plan period.

The Oxford Local Plan has not identified any strategic housing sites although a large number of sites across the city are identified for development, redevelopment or intensification for residential, commercial and institutional uses. The transport impacts will depend on the site location and the scale and type of development that comes forward.

Community Strategy for Oxford

The Strategy was prepared by the Oxford Strategic Partnership. Key aims for the Strategy are:

- To improve quality of life in Oxford; and
- To develop a framework that encourages closer partnership working between local agencies.

These themes are likely to embrace transport measures although none are specifically identified within the community strategy.

Transport Network

Oxford's road network is a combination of local residential roads, radial routes accessing the City Centre and a ring road that includes part of the A34 trunk road. Oxford is extensively served by buses, with much of the city served by services running at least one every 15 minutes and all areas having at least one hourly bus servce. Oxford has good rail connections to London, Birmingham and the national network.

Car ownership, despite doubling over the past 20 years, remains lower in Oxford compared to the other districts in Oxfordshire. 66% of households have access to one car or more.

Within the city the road network consists of a number of radial routes (Botley Road, Woodstock Road, Banbury Road, Marston Road/Marsh Lane, Headington Road/London Road, Cowley Road Iffley Road/Abingdon Road) with only partial connections between them inside the Ring Road (examples being Donnington Bridge Road/Between Towns Road/Hollow Way in the south and Marston Ferry Road/Headley Way in the north of the city.

The remainder of this chapter sets out the identified high priority problems in Oxford. For most of these problems, solutions have been identified (based on the actions identified in chapter three and the related strategies in chapter 4) for implementation over the next five years. However, given that funding is finite, there are some problems for which detailed solutions have not been developed and programmed within the timescale of this Plan.

Tackling Congestion

Oxford is the by far the county's largest urban area, and many of the roads in Oxford suffer from some congestion at peak times. Generally speaking, the congestion problems that cause the most delay to the most people are on the city's radial routes – all of which are major bus routes. The main congestion problems in Oxford are outlined below.

This strategy underpins the solutions identified below.

Over the LTP period the County Council will implement this strategy in response to the following congestion problems in Oxford. These priorities have been identified through the prioritisation system outlined in chapter five using the following evidence:

- Traffic flow data
- Approximate two-way bus flows
- Current congestion levels and future pressures from local modelling.

Banbury Road, Oxford

Problem

Inbound congestion in the morning peak period affects buses on the approach to the junction with Marston Ferry Road. Outbound congestion in the evening peak causes queues back from Cutteslowe Roundabout, which can tail back through the Summertown shopping area to beyond Marston Ferry Road. Banbury Road carries an average of around 17,000 vehicles a day and there are many high frequency bus services that use the route – including:

- Oxford – Kidlington services (32 services per hour)
- Oxford - Bicester and Banbury services (16 services per hour)
- Park and Ride services Water Eaton – City Centre (8 services per hour)

The main cause of the inbound congestion on this route is the limited capacity through Summertown. This affects buses particularly badly due the lack of bus lanes along this stretch. The capacity and operation of the traffic signal junction with Marston Ferry Road is another major cause of congestion. The operation of the Cutteslowe roundabout is the predominant reason for outbound congestion on Banbury Road.

Proposed Solutions

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford:			
North Summertown Controlled Parking Zone	£137,000	2007/08	This will help to manage demand for car travel and encourage more use of alternative modes on this approach to Oxford and the employment sites in the area therefore reducing the congestion.
Banbury Road Corridor Scheme	£887,000	2008/09	This will include measures to increase priority for buses from the Marston Ferry Rd junction through Summertown. Upgrades to bus stop infrastructure will be taken forward for the whole corridor.
Cutteslowe Roundabout improvement	£TBC	2011-16	Redesign of ring road roundabout to reduce congestion and improve bus priority. This is expected to help alleviate congestion on Banbury Road.
Outside Oxford:			
Kidlington Premium Route	£380,000	2007/08	This will help to reduce pressure on the Banbury Road by encouraging local journeys from Kidlington to Oxford to be made by bus.
Bicester Premium Route	£143,000	2010/11	This will help to reduce pressure on Banbury Road by encouraging local journeys from Bicester to Oxford to be made by bus.
Bicester Remote Park & Ride	£TBC	2011-16	This will help to reduce pressure on the Banbury Road by encouraging local journeys from the Bicester area to Oxford to be made

			by Park and Ride.

London Road, Oxford

Problem

Although there is significant inbound and outbound bus priority on this corridor, congestion is still experienced on a regular basis along considerable lengths of the road. The road carries an average of around 19,000 vehicles per day there are many high frequency bus services that use the route – including:

- Barton/Risinghurst/Headington – City Centre services (36 services per hour)
- Park and Ride services Thornhill – City Centre (8 services per hour)
- Hospital Park & Ride (4 services per hour)
- Aylesbury/High Wycombe – Oxford (6 services per hour)
- BrookesBus services (12 buses per hour)
- London and London airports – Oxford coaches (20 services per hour)

The main reason for the congestion along this route is the extreme demands that are placed on it as a result of its role as one of the main links in and out of Oxford from the East. This is compounded by the fact that a large proportion of the traffic accessing the concentration of Oxfordshire's hospitals in the Headington area uses the London Road. The Headley Way and Windmill Road junctions with London Road are two of the main causes of congestion along the route. Outbound congestion back from the Ring Road is caused at least in part by insufficient capacity of the Headington roundabout.

Proposed solutions

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford			
Headington Roundabout improvement	£2,646,000	2006/07	Major Redesign of junction to improve bus priority. This will help to reduce outbound congestion on the London Road. The scheme will also reduce road casualties and take the opportunity to improve air quality where possible.
London Road Corridor Improvements	£3,720,000	2009/10	Major improvement scheme to improve bus priority, reduce road casualties, enhance the street environment and improve air quality. The bus priority elements will help to reduce congestion particularly

			that experienced by buses. Further measures maybe required along the length along Green Road to Stile Road, to be reviewed after the completion of the Headington Road roundabout improvement.
Controlled Parking Zones in Headington/ Marston area	£137,000	2010/11	This will help to manage demand for car travel and encourage more use of alternative modes on this approach to Oxford and the employment sites in the area therefore reducing the congestion.
Outside Oxford			
Improvements to Thornhill Park and Ride	£2,284,000	2008/09	Improvements to passenger waiting facilities and possible increases in parking capacity. Thornhill is situated approx. 1km east of the Ring Road and improvements leading to increased use of the facility will help to relieve congestion on the London Road.

Abingdon Road, Oxford

Problem

On average, around 22,000 vehicles use this route every day and there is considerable inbound queuing in the morning peak (and at weekends) along the whole length of the road from the ring road to the junction with Oxpens Road in the city centre. This affects the high frequency bus services (around 30 an hour) that operate on this route (from Wantage, Abingdon and Redbridge Park & Ride). Outbound in the evening peak there is also slow moving or queued traffic along this entire length on most days. The bus services that use this route include:

- Abingdon – Oxford services (14 buses per hour)
- Abingdon/Radley/Didcot – Oxford (15 buses per hour)
- Redbridge Park and Ride services (12 buses per hour)
- Minchery Farm local services (4 buses per hour)

The congestion on this route is attributable mainly to the fact that it is the main route into the city centre from the south and because bus priority is very limited – there is only a short section of bus lane on the inbound approach to the Weir's Lane traffic signals. Congestion is severe at the

weekends as the road acts as one of only two main road routes to the 1200 space Westgate car park (the main off-street car parking in the city centre).

Proposed solutions
A more detailed study is required to evaluate potential solutions, which are likely to be focused on measures to assist buses, cyclists and pedestrians, for implementation in a future Plan period.

Botley Road, Oxford

Problem
This route is used by 25,500 vehicles every day and is subject to considerable congestion both inbound and outbound for much of the day. Buses are regularly heavily delayed on the approaches to the city centre between Binsey Lane and the Rail Station and often along the entire length of the road outbound in the evening peak. A wide range of bus services use this route in and out of the city. They include:

- Park & Ride Seacourt – city centre (10 buses per hour)
- Botley – city centre (26 buses per hour)
- Witney – Oxford (12 buses per hour)

Although there is significant inbound bus priority, this terminates at Binsey Lane and buses are subject to significant delays between this point and Park End Street. Buses are also subject to congestion outbound, mainly because there is only one very short section of bus priority in this direction.

Proposed solutions
A more detailed study is required to evaluate potential specific solutions to this problem for implementation in a future Plan period. However, there are a number of schemes in the Council's spending programme that will contribute towards managing traffic levels on Botley Road:

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford			
Wolvercote roundabout improvements	£TBC	2011-16	Redesign of key ring road roundabout to reduce congestion on A40 and improve bus priority. Significant numbers of drivers travelling from west Oxfordshire to Oxford use Eynsham Road and Botley Road to avoid congestion on the A40 approaching Wolvercote roundabout, so improving the flow of traffic at Wolvercote will relieve some of the pressure on

			Botley Road.
Outside Oxford			
Eynsham Premium Route	£465,000	2007/08	This will help to reduce pressure on Botley Road by encouraging local journeys from Eynsham and Witney to Oxford to be made by bus.
Expansion of Seacourt Park and Ride	£TBC	TBC	Improvements to passenger waiting facilities and increases in parking capacity. Seacourt is situated at the western end of Botley Road and improvements leading to increased use of the facility will help to relieve congestion on the Botley Road.

Woodstock Road

Problem

On average, around 17,000 vehicles use this road each day. Congestion in the morning peak on this road occurs inbound beyond Moreton Road as far as St Margaret's Road. The main source of delays to buses is outbound in the pm peak where slow moving queues back up from the Wolvercote roundabout as far as Moreton Road. The bus services that use Woodstock Road include:

- Pear Tree Park & Ride - city centre services (12 buses per hour)
- Wolvercote – city centre services (8 buses per hour)
- Carterton – Oxford services (5 buses per hour).

Inbound traffic feeds into the Woodstock Road from both the A44 and the A40.

Although there is an inbound bus lane between Wolvercote Roundabout and Moreton Road, congestion in the morning peak occurs beyond this to St Margaret's Road. The main source of delays to buses is outbound in the evening peak where slow moving queues back up from the Wolvercote roundabout to Moreton Road.

Proposed solutions

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford			

North Summertown Controlled Parking Zone	£135,000	2007/08	This will help to manage demand for car travel and encourage more use of alternative modes on this approach to Oxford and the employment sites in the area therefore reducing the congestion.
Woodstock Road Premium Route and corridor improvements	£TBC	2011-16	This will include measures to increase priority for buses, upgrades to bus stop infrastructure and cycle/pedestrian improvements. This is expected to reduce delays to buses and relieve general pressure on the road increasing bus use, walking and cycling.
A40 North of Oxford - Wolvercote roundabout improvements	£TBC	2011-16	Redesign of key ring road roundabout to reduce congestion on A40 and smooth flow of traffic and between A34, A40, A44 and Woodstock Road and improve bus priority. Expected to help alleviate northbound queuing on Woodstock Road.
Outside Oxford			
Eynsham Premium Route	£465,000	2007/08	This will help to reduce pressure on Woodstock Road (used by some as a route into Oxford from west Oxfordshire) by encouraging local journeys from Eynsham and Witney to Oxford to be made by bus.

Cowley Road

Problem

This is a generally very busy road carrying an average of around 15,000 vehicles a day and catering for many conflicting traffic movements along its length, but the main location for congestion on the Cowley Road is at the Plain junction at its northern end. A large number of bus services use Cowley Road and are affected by this congestion including:

Blackbird Leys/Cowley – Oxford services (approx 48 per hour)

Headington/Cowley – City Centre services (12 per hour)
Oxford to South Oxfordshire (8 per hour)

Proposed solutions
To tackle congestion problems along this route, the County Council recently implemented a major congestion, road safety and street environment scheme. The scheme is expected to have the following congestion-related benefits:

- Reduce the impact of minor bottlenecks along the length of road
- Make public transport along the route faster, more reliable, and more user friendly
- Make walking and cycling along the route safer and more convenient
- Help to manage parking along the route to reduce trips and bottlenecks caused by inconsiderate parking.

The effects of the scheme are being monitored. No further work on Cowley Road itself is currently planned, but there are a number of schemes in the Council's spending programme that will contribute towards managing traffic levels on Cowley Road:

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford			
Thames Towpath pedestrian and cycle route	£138,000	2007/08	Significant upgrade to the Thames Towpath, which will provide people living in Cowley, Blackbird Leys, Iffley, Littlemore and Rosehill with a pleasant traffic-free route for much of their journey to the city centre and help to manage traffic levels on Cowley Road.

Iffley Road

Problem
Iffley Road carries an average of around 19,000 vehicles a day. Outbound queuing centres on the approaches to the Donnington Bridge Road. This can occur in both morning and evening peaks. In bound congestion occurs both back from this junction and at the approach to The Plain, primarily in the morning peak. The affects several key bus services, including:

- Rosehill/Littlemore/Iffley – City Centre and Botley services (24 per hour)
- Cowley/Littlemore – City Centre services (4 per hour)
- Littlemore/Berinsfield – City Centre (2 per hour)

Proposed solutions
A more detailed study is required to evaluate potential specific solutions to this problem for implementation in a future Plan period. However, there are a number of schemes in the Council's spending programme that will contribute towards managing traffic levels on Iffley Road:

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford			
Thames Towpath pedestrian and cycle route	£138,000	2007/08	Significant upgrade to the Thames Towpath, which will provide people living in Cowley, Blackbird Leys, Iffley, Littlemore and Rosehill with a pleasant traffic-free route for much of their journey to the city centre and help to manage traffic levels on Iffley Road.
Oxford southern approaches	£838,000	2010/11	Improvements to a number of ring road junctions to reduce congestion and increase bus priority where possible. This will improve access to Redbridge Park & Ride and make bus services from Abingdon and other settlements to the south and south east of Oxford more attractive, helping to reduce pressure on Iffley Road.

Headley Way

Problem
Headley Way forms part of a cross-city route and also one of the main access routes into the John Radcliffe Hospital. Queueing occurs at the junctions at each end of Headley Way throughout the day. This affects the following bus services:

- Northway/Marston/JR Hospital – City Centre (14 per hour)
- JR Hospital/Churchill Hospital – Oxford Rail Station (4 per hour)
- JR Hospital – Cowley – City Centre services (10 per hour).

Proposed solutions
In addition to the schemes outlined below, the Oxford Radcliffe Hospitals Trust is providing a new bus link to allow JR Hospital – Cowley – City Centre services (8 per hour) to avoid Headley Way and much of London Road entirely, making the service significantly more reliable and cutting journey

times significantly. This is an improvement the County Council has secured through collaborative working with the Trust.

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford			
London Road Corridor Improvements	£3,720,000	2009/10	Major improvement scheme to improve bus priority, reduce road casualties, enhance the street environment and improve air quality. Reduced congestion on London Road will have a positive knock-on effect on Headley Way.
Controlled Parking Zones in Headington/Marston area	£135,000	2010/11	This will help to manage demand for car travel and encourage more use of alternative modes in the area, thereby reducing the congestion.

Garsington Road

Problem

This road carries an average of around 21,000 vehicles per day. Queues can tail back from the junction with the ring road beyond the junctions with Hollow Way and Between Towns Road and onto Oxford Road, Cowley. This affects the following bus services:

- Watlington/Wheatley/Horspath – City Centre (8 per hour)

Proposed solutions

A more detailed study is required to evaluate potential specific solutions to this problem for implementation in a future Plan period.

Marston Road

Problem

Inbound queues can tail back from the junction with Headington Road on this busy radial route, which carries an average of around 10,000 vehicles per day. The congestion affects the following bus services:

- Northway/Marston/JR Hospital – City Centre (14 per hour)

The queues are caused by the junction of Marston Road with Headington Road – a very busy radial route into the city centre.

Proposed solutions

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford			
Marston Road cycle improvements	£80,000	2007/08	Measures to make cycling safer and more attractive on Marston Road and help to manage traffic levels on Marston Road.
Marston Road Bus Lane/Gate	£338,000	2008/09	Bus priority scheme to allow buses to reach the head of the queue.
London Road Corridor Improvements	£3,720,000	2009/10	Major improvement scheme to improve bus priority, reduce road casualties, enhance the street environment and improve air quality. The bus priority elements will help to reduce congestion particularly that experienced by buses.
Fairfax Road/Purcell Road cycle link	£279,000	2009/10	New cycle route linking Marston with existing traffic-free routes to the city centre. This will provide a very attractive alternative option for people in Marston travelling to the city centre, and consequently help to relieve congestion on Marston Road.
Controlled Parking Zones in Headington/Marston area	£137,000	2010/11	This will help to manage demand for car travel and encourage more use of alternative modes in the area, thereby reducing the congestion across the area.

Windmill Road

Problem

Queues form back from the junction with London Road, Headington throughout the day extending at times back to the Nuffield Orthopaedic Hospital and Old Road junction. This congestion affects the following bus services:

- JR Hospital – Cowley – City Centre services (8 per hour).

The cause of the problem is insufficient capacity at the signalised junction of London Road and Windmill Road.

Proposed solutions
In addition to the schemes outlined below, the Oxford Radcliffe Hospitals Trust is providing a new bus link to allow JR Hospital – Cowley – City Centre services (8 per hour) to avoid Headley Way and much of London Road entirely, making the service significantly more reliable and cutting journey times significantly. This will make the service significantly more attractive for people travelling between the Cowley and Headington areas (linked by Windmill Road), and therefore help to reduce pressure on Windmill Road. This is an improvement the County Council has secured through collaborative working with the Trust.

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford			
London Road Corridor Improvements	£3,720,000	2009/10	Major improvement scheme to improve bus priority, reduce road casualties, enhance the street environment and improve air quality. Reduced congestion on London Road will have a positive knock-on effect on Windmill Road.
Controlled Parking Zones in Headington/Marston area	£137,000	2010/11	This will help to manage demand for car travel and encourage more use of alternative modes in the area, thereby reducing the congestion across the area.

Marston Ferry Road

Problem
An average of around 12,000 vehicles per day use this road. There can be queues at any time at the junctions at each end of this cross town road, although these are worst during peak periods, particularly the double mini-roundabout with Marsh Lane/Marston Road during the morning peak period. This congestion affects the following bus services:

- JR Hospital/Churchill Hospital – Oxford Rail Station (4 per hour)
- JR Hospital – Cowley – City Centre services (4 per hour).

Proposed solutions
A more detailed study is required to evaluate potential specific solutions to this problem for implementation in a future Plan period. However, there are a number of schemes in the Council's spending programme that will contribute towards managing traffic levels on Marston Ferry Road:

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford			
Marston Road cycle improvements	£80,000	2007/08	Measures to make cycling safer and more attractive on Marston Road and help to manage traffic levels on Marston Road.
Marston Road Bus Lane/Gate	£338,000	2008/09	Bus priority scheme to allow buses to reach the head of the queue.
Fairfax Road/Purcell Road cycle link	£279,000	2009/10	New cycle route linking Marston with existing traffic-free routes to the city centre. This will provide a very attractive alternative option for people in Marston travelling to the city centre, and consequently help to relieve congestion on Marston Road.
Controlled Parking Zones in Headington/Marston area	£137,000	2010/11	This will help to manage demand for car travel and encourage more use of alternative modes in the area, thereby reducing the congestion across the area.

Old Road

Problem
Queues extend for almost the whole length of this road during the morning peak period back from the junction with Windmill Road/The Slade. There is also queueing at the westbound junction with Gipsy Lane/Warneford Road, particularly in the morning peak. This congestion affects the following bus services:

- Wood Farm – Churchill Hospital – Oxford city centre (12 per hour)

Proposed solutions
A more detailed study is required to evaluate potential specific solutions to this problem for implementation in a future Plan period. However, there

are a number of schemes in the Council's spending programme that will contribute towards managing traffic levels on Old Road:

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford			
London Road Corridor Improvements	£3,720,000	2009/10	Major improvement scheme to improve bus priority, reduce road casualties, enhance the street environment and improve air quality. Reduced congestion on London Road will have a positive knock-on effect on Old Road, which is used by many as an alternative when London Rd is congested.
Controlled Parking Zones in Headington/ Marston area	£137,000	2010/11	This will help to manage demand for car travel and encourage more use of alternative modes in the area, thereby reducing the congestion across the area.

Delivering Accessibility

By its very nature, Oxford has the best level of accessibility anywhere in the county, underpinned by a very well used public transport system. It also contains many of the services that many in the county need to access, sometimes on a regular basis, sometimes only on an occasional basis. It has the county's main medical facilities and highest concentration of major shops. However even here there are a number of accessibility problems that need to be addressed. Access is good to the centre along radial routes but cross-city journeys can be difficult, sometimes involving more than one change. In particular access to healthcare from the most deprived wards in the south of the city have poor public transport links to healthcare facilities.

Access

Access to Work

- The county's main centre of employment, with a few major employers.
- 31,000 people are employed in the city centre, mainly retail, local authority or university. The number of jobs has not changed over the last 10 year census period.

- Growth in jobs has been away from the centre of Oxford, predominantly on the eastern edge of the city. Growth in jobs away from the city centre has been 19%, at approximately 9,000.
- The location and nature of the growth employment areas makes access by public transport and in some cases also cycling and walking far more difficult. This has created a greater reliance on the private car for these employment sites. Providing efficient public transport access is more difficult because of the dispersed nature of the sites.
- Very high house prices in Oxford generally have also reduced the ability for people to choose to live near their employment location.

Access to Education

- Access issues to schools are primarily associated with the perceived and actual risk that parents feel their children are exposed to, particularly if cycling or walking unaccompanied.
- The Oxford College of Further Education is located in the city centre, a highly accessible location by public transport.
- The University has a high level of provision of residential accommodation and this is generally within a mile of the colleges. Further rules apply to those living out of college that they should live within a mile of the colleges.
- Oxford Brookes University's main campus is located approximately 2 miles east of the city centre. It has a higher number of part time students, and the location away from the city centre means that providing access right across the city by public transport is more difficult. The majority of full time students are able to consider living within 2 miles in private accommodation. The University has increased the number of student accommodation places available and have improved pedestrian/cycle accessibility.

Access to Health

- Through NHS reorganisation the provision of healthcare in Oxford is gradually being concentrated in the Headington area, with major expansion at the John Radcliffe and Churchill sites.
- Provision of bus services to these sites from the city centre is good, but cross city services are poor and staff, patients and visitors often have change bus in the city centre.
- The situation is exacerbated by the layout within the sites, which is largely designed for people arriving by car. Those who use buses have to walk greater distances than those from the car parks.
- Joint work with the hospital trusts in Headington has been undertaken since 2002 with the County Council. This includes improving information on bus services, subsidising bus services, improving pedestrian and cycle routes for local trips.
- The work on social exclusion in Oxfordshire has highlighted that it is in the south of Oxford, in wards such as Blackbird Leys and Littlemore that many who suffer from poor health and low incomes do not have good public transport access to healthcare.

Access to Food/Shopping

- The centre of Oxford has two medium sized supermarkets.
- There are also a number of delicatessens around the centre but these tend to supply more expensive specialist food products.
- The city centre has a traditional weekly food market.
- The suburban centres in Oxford have a substantial amount of foodshops as well as small and medium sized supermarkets.
- There are a number of other small local foodstores/mini-supermarkets in the city suburbs, all of which cater reasonably well for the local market and are accessible by bus.
- Three larger superstores are located on the ring road.

Social Exclusion

In social terms Oxford is a city of extremes: it has some of the wealthiest areas in the country, and some of the most expensive properties, but also some of the most deprived both for Oxfordshire and the south east. Some of the findings of a study commissioned from Oxford Consultants for Social Inclusion relating to Oxford are given below:

Multiple Deprivation

- The south-eastern fringes of the district of Oxford have the county's most deprived areas with levels of multiple deprivation relatively high compared to England as a whole.
- The only area in the county to fall into the most deprived ten percent of super output areas in England is located in the Northfield Brook ward, in the most south-easterly area of the city.

Work

- Oxford has the highest rate of worklessness in Oxfordshire at 6.1%; a higher rate than the south-east region average.
- Northfield Brook ward in Oxford has the county's highest worklessness rate of above 10.6%, almost twice as high as the south-east region average and 20% higher than the England average.
- Eight out of ten wards with the highest worklessness rates in Oxfordshire are in Oxford.
- There are pockets of considerable employment deprivation where a large proportion of people are claiming Jobseekers Allowance, Incapacity Benefit, or Severe Disablement Allowance. These areas are located mainly in the south of Oxford in the wards of Northfield Brook, Blackbird Leys, and Littlemore.
- Oxford is the only district in Oxfordshire with proportions of people through unemployment above the county and regional averages (1.6% in Oxford compared to county average of 0.8% and the south-east region average of 0.9%).
- The ten wards with the highest Jobseekers' Allowance claims are located in Oxford. Each of these wards also show people workless through unemployment only rates above the England average.

- At 4.5%, Oxford has the highest proportions of people workless through sickness in Oxfordshire, with a rate slightly higher than that of the south-east (4.4%), but still considerably lower than the England average. The ward of Littlemore in Oxford has the highest proportion of any ward in the county, 9.2% - almost three times the Oxfordshire average (3.3%) and over twice the regional average (4.4%).
- Four of the five wards with the very highest proportions of people workless through sickness are in Oxford (Littlemore, Blackbird Leys, Northfield Brook, Barton and Sandhills) - all have rates above the England average.
- Oxford has the highest proportion of people living on a low income within the county at 7.3%.
- Northfield Brook has the highest proportion of people living on a low income of any ward in Oxfordshire. At over 17%, this ward's rate is over three and a half times higher than the Oxfordshire; almost three times as high as the south-east region average; and almost as high as the England average.

Low Income

- Oxford has proportions of people under 20 living on a low income that are higher than the county average.
- Of the ten wards in Oxfordshire with the highest proportions of people under 20 living on a low income, four lie within Oxford.
- Oxford, at 12.4%, has significantly the highest proportions of people aged 60 and over living on a low income of the five districts in Oxfordshire - higher than both the county and the regional average, but well below the England average.

Education

- Two of the three wards with the lowest performance at GCSE are in Oxford (Blackbird Leys and Northfield Brook). In these areas less than one in six pupils achieve five or more A-C GCSE passes.
- Of the lowest twenty wards in the county, nine are in Oxford. Two of the six wards in Oxfordshire which have post-GCSE staying on rates below 50% are in Oxford: Northfield Brook and Blackbird Leys.
- In Blackbird Leys ward, more than two in five adults have no qualifications, while in Barton and Sandhills ward, more than one in three adults have no qualifications.

Health

- In Oxford poor health tends to be concentrated along the southern fringes of the city, in areas such as Rose Hill and Blackbird Leys and on the eastern edge of Barton and Sandhills.
- There is also a "hotspot" in the centre of the city, including one in Carfax, ranked in the top 1% of all areas in England.
- Five of the nine wards in the county with proportions of people needing higher rates of care than the England average are in Oxford: Littlemore, Northfield Brook, Cowley and Barton and Sandhills.

Proposed solutions

During the course of the Plan period the County Council will be developing schemes and initiatives to tackle those areas of poor accessibility and social exclusion that exists in Oxford. These will be in the form of Local Accessibility Assessments and will be tailored to the individual areas concerned. These local assessments will include a review of local evidence and data held by partners. The work involved for Oxford was started in the autumn of 2005 and will continue over the spring of 2010 looking at access to health and access to employment and skills training.

Access to Health

Health deprivation tends to be concentrated along the southern fringes of the city in such areas as Rose Hill and Blackbird Leys and on the southern fringes of Barton and Sandhills. Access from these areas to the hospitals in Headington is particularly poor. This is being exasperated by the current NHS reorganisation of healthcare in Oxford which is concentrating in this area. Work is currently underway to improve accessibility to healthcare from the most deprived areas of Oxford, the "South East Oxford Arc" extending from Blackbird Leys around the south east edge of Oxford to Barton and Sandhills.

Access to Employment

The location and nature of the growth employment areas away from the city centre makes access by public transport and in some cases by cycle or on foot far more difficult. This has created greater alliance reliance on the private car for these employment sites. Work will be undertaken to look at ways of improving public transport access to these sites but due to their dispersed nature this may prove difficult to introduce efficient services.

Safer Roads

Problems

There are a range of locations and routes in Oxford where accidents occur with a higher than average frequency. The County Council routinely investigates all such sites and routes to establish whether or not measures could be implemented to improve safety. It is not possible to identify all such locations in this Plan, so only locations with a particularly high frequency and severity of accidents have been highlighted below.

Location	Type	Accidents	Action
B480 Cowley Road between Magdalen Road and The Plain (East Oxford)	Urban route	57 injury accidents (11 fatal and serious, 46 slight)	Major scheme recently implemented - monitoring/Further investigation
B4495 - B480 to Rymers Lane	Urban route	21 injury accidents (14 fatal and serious, 7 slight)	Monitoring/Further investigation
B480 - B4495 Barns Rd. to Divinity Rd.	Urban route	58 injury accidents (14 fatal and serious and 44 slight)	Monitoring/Further investigation
A420 High St	Urban route	40 injury accidents (4 fatal and serious, 36 slight)	For solutions, see below
A420 London Road – West of Windmill Road	Urban route	33 injury accidents (4 fatal and serious, 29 slight)	For solution, see below
A420 Oxford Seacourt P&R to Hollybush Row	Urban route	44 injury accidents (6 fatal and serious, 38 slight)	Monitoring/Further investigation
A40 Headington Roundabout (Oxford Ring Road)	Site	49 injury accidents (5 serious and 44 slight)	For solution, see below
A4142 signalled junction with Horspath Road (Oxford Ring Road)	Site	20 injury accidents (3 serious and 17 slight)	Monitoring/Further investigation
A4142 junction with Kiln Lane and Beaumont Road (Oxford Ring Road)	Site	16 injury accidents (4 serious and 12 slight)	Monitoring/Further investigation

Proposed solutions

In addressing the site and route problems identified above (and other sites where value for money casualty reduction solutions can be developed), the Council will investigate carefully all possible causes of incidents, and use this information to develop appropriate solutions. The County Council has included an allocation of around £2.8 million in its LTP spending programme for such improvements.

Scheme	Cost	Expected Completion	Details and expected impact on problem
Headington Roundabout improvement	£2,300,000	2006/07	Major Redesign of junction to improve bus priority. This will help to reduce outbound congestion on the London Road. The scheme will also reduce road casualties and take the opportunity to improve air quality where possible.
High Street (inc Maintenance)	£1,050,000	2008/09	Major maintenance and improvement scheme to improve the street environment and air quality and reduce casualties and congestion.
London Road Corridor Improvements	£2,962,000	2009/10	Major improvement scheme to improve bus priority, reduce road casualties, enhance the street environment and improve air quality. Reduced congestion on London Road will have a positive knock-on effect on Old Road, which is used by many as an alternative when London Rd is congested.

Better Air Quality

A detailed screening process (based on traffic volumes, speeds, types of traffic and the location of points of relevant exposure) carried out on the road network in Oxford revealed a number of locations where air pollutant levels may have exceeded national air quality objectives. Detailed monitoring and modelling of air quality at these locations has concluded that there are a number of locations in the city where national air quality objectives are exceeded – these are highlighted in the table below. The only air quality objective that is exceeded in Oxford is the national objective for the annual mean concentration of nitrogen dioxide, which states that levels should not exceed 40 microgrammes per cubic metre at points of relevant exposure.

Location	Monitored NO_2 levels in 2004 - not necessarily representative of relevant exposure (ug/m3)	National air quality objectives exceeded at points of relevant exposure
Beaumont Street	52	2005 objective for annual mean concentration of nitrogen dioxide
High Street	83	
Longwall Street	62	
Queen Street	100	
George Street	83	
Frideswide Square	74	
New Road	69	
Park End Street	63	
Speedwell Street	47	
St Aldate's	60	
St Giles	59	
Worcester Street	56	
St Clements Street	87	
Hythe Bridge Street	50	
Bonn Square	57	
Castle Street	No monitoring data	
Gloucester Green Bus Station	No monitoring data	
Hollybush Row	36	
Magdalen Street	70	
Old Greyfriars Street	No monitoring data	

Figures from Oxford City Council. Monitored data from diffusion tubes.

Proposed solutions

Where pollutant concentrations exceed national objective levels, local authorities are required to declare an Air Quality Management Area covering the affected streets. Authorities must then develop an Air Quality Action Plan which sets out how they intend to reduce concentrations of the

pollutants concerned to meet national air quality objectives. The streets listed in the table above make up the Central Oxford Air Quality Management Area.

An Air Quality Action Plan for central Oxford has been developed jointly by the County Council and Oxford City Council, in the context of the County Council's wider transport strategies. The Action Plan was approved by the City and County Councils at the end of February 2006 and a summary of the measures will be included in this document following that approval.

However, most (if not all) of the proposed schemes in the Council's LTP programme located in or near Oxford are likely to have a positive impact on air quality in the city centre and some may be included in the final Air Quality Action Plan itself. The City Council are currently monitoring other locations across Oxford. Should any other locations exceed the national required levels, the County Council will work in partnership with City Council to address the identified problems as and when required.

Improving the Street Environment

Given the historic and architectural importance of Oxford and the limited road space available within the historic core, it is to be expected that there are a number of areas in the city centre where traffic demands detract from the quality of the overall streetscape. In addition to the city centre, though, a number of the suburban centres have also been identified where there are significant problems.

By their nature, street environment problems and their causes vary enormously from one site to another. The actions above represent general approaches to improving the attractiveness and ambience of streets.

In addressing the street environment problems identified below, the Council will review the quality of the streets concerned, their transport function, and their current and potential usage as a public space. The Council will use this assessment to develop appropriate solutions based on the actions outlined in the table above.

High Street & St Aldates

Problem

These streets feature many of the University's colleges and other high quality buildings. General, daytime (0730-1830) through traffic was excluded from these streets in 1999 as part of the Oxford Transport Strategy central area measures but relatively high levels of traffic remain including buses, deliveries and access vehicles. Problems remain due to conflicts of use along this road. The County Council has been pressing since the introduction of for powers to enforce the restrictions through camera inforcement.

Proposed solutions

Scheme	Cost	Expected Completion	Details and expected impact on problem
City Centre Bus Gate Enforcement	£165,000	2006/07	This will help to support the above scheme by reducing the number of vehicles ignoring the access restrictions in the High Street.
High Street	£1,258,000 (excluding maintenance)	2008/09	Major maintenance and improvement scheme to improve the street environment and air quality and reduce casualties and congestion.

Cowley Road

Problem

This is one of Oxford's busiest radial transport links, connecting a large population to the south-east of the city, to the city centre. It also acts as a major shopping and leisure destination with shops, bars and restaurants serving not only the immediate local area, but also the wider city and county. The high volumes of cars, buses, and delivery vehicles, combined with poor quality footways and street furniture have made for a poor street environment in Cowley Road.

Proposed solutions

To tackle street environment problems along this route, the County Council recently implemented a major congestion, road safety and street environment scheme. The scheme is expected to have the following congestion-related benefits:

- Reduce the impact of minor bottlenecks along the length of road
- Make public transport along the route faster, more reliable, and more user friendly
- Make walking and cycling along the route safer and more convenient
- Help to manage parking along the route to reduce trips and bottlenecks caused by inconsiderate parking.

The effects of the scheme are being monitored. No further work on Cowley Road itself is currently planned, but there are a number of schemes in the Council's spending programme that will contribute towards managing traffic levels on Cowley Road:

Queen Street and Bonn Square

Problem

With Cornmarket and adjoining streets, Queen Street forms the main shopping area in Oxford. It is also at present one of the main locations in the town for buses to both for set down and pick up passengers. The high level of bus traffic and the waiting passengers severely detract from the overall attractiveness of the area for shoppers.

Proposed solutions

Removing buses from Queen Street will be central to any efforts to improve the street environment there. However, the re-routeing of buses away from Queen Street will require a significant number of bus waiting facilities to be relocated and a number of bus routes to be amended. The Council is keen to take opportunities to make proper provision for these alternative arrangements through the redevelopment of the Westgate centre, which is due to take place during the next five years.

George Street

Problem

George Street has developed in the last decade into the main area in the city centre for cafes and restaurants while retaining its traditional role as a shopping street. It suffers from many of the same problems as Queen Street with relatively narrow pavements and a number of bus stops along its route. Substantial volume of traffic passing through the street has a significant adverse impact on the attractiveness of the area.

Proposed solutions

A recently introduced maintenance scheme has significantly improved the quality of the paving and street furniture in George Street, but further work will still need to be done in a future Plan period to improve the street further. Opportunities are likely to be available as part of the redevelopment of the West End of Oxford to make improvements to George Street.

Scheme	Cost	Expected Completion	Details and expected impact on problem
City Centre Bus Gate Enforcement	£165,000	2006/07	This will help to support the above scheme by reducing the number of vehicles ignoring the access restrictions in the High Street.

Summertown

Problem

Major suburban shopping centre split by major radial road into Oxford and with the area dominated by the road and by parking on an adjacent service road. Significant room for improvement in the overall environment of the

area. Improvement would be a major undertaking and would need to be very carefully considered both in terms of traffic efficiency and visual impact.

Proposed solutions

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford:			
Banbury Road Corridor Scheme	£887,000	2008/09	This will include measures to increase priority for buses from the Marston Ferry Rd junction through Summertown. Upgrades to bus stop infrastructure will be taken forward for the whole corridor, as well as significant improvements to the street environment in Summertown.

London Road, Headington

Problem

This is a significant local shopping centre which is split by London Road – a heavily used radial route which is the city's busiest approach from the east. This acts as major barrier to pedestrian movement between shops, bus stops, and other amenities. Whilst this road is always likely to carry very high volumes of traffic, opportunities may exist to reduce the impact of that traffic on the attractiveness of the street as a public space.

Proposed solutions

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford			
London Road Corridor Improvements	£3,720,000	2009/10	Major improvement scheme to improve bus priority, reduce road casualties, improve air quality, and enhance the street environment in the Headington and St Clements shopping areas.

Cowley Centre

Problem

The environment around this major shopping area, the second largest in the city after the city centre, is particularly unattractive. A major road also severs the main Templars Square shopping centre from an adjacent area of

larger warehouse-style shops with difficulties for pedestrian movement between them.

Proposed solutions
Further work will need to be done in a future Plan period to improve the street environment in this location.

St Clement's Street

Problem
This is a very busy section of the London Road radial route, the city's busiest approach from the east. It is also a shopping and leisure destination. The very high volumes of buses and other vehicles, coupled with narrow footways and sometimes poorly designed and positioned street furniture, make for a generally unpleasant street environment – particularly at peak times. Whilst this road is always likely to carry very high volumes of traffic, opportunities may exist to extend footways in places, rationalise street furniture, and improve the general layout and design of the street.

Proposed solutions

Scheme	Cost	Expected Completion	Details and expected impact on problem
Within Oxford			
London Road Corridor Improvements	£3,720,000	2009/10	Major improvement scheme to improve bus priority, reduce road casualties, improve air quality, and enhance the street environment in the Headington and St Clements shopping areas.

Integrated Delivery

The County Council has put in place two main mechanisms – the Transport Networks Review and Integrated Transport Strategies - for ensuring measures developed in response to the problems above are considered as strategic elements of an integrated package wherever appropriate, rather than in isolation.

Intra-urban Networks: Integrated Transport Strategies (ITS)

ITSs have been developed for many of Oxfordshire's larger towns and for Oxford. The role of the ITSs in the second Local Transport Plan period will be to help the County Council deliver the five objectives of the Plan in an

integrated, efficient and cost-effective way. To this end, the ITSs will have three key functions:

- Ensuring transport problems in larger urban areas are addressed in an integrated way, recognising the complex inter-relationships that often exist between different parts of an urban transport network;

- Providing an established structure for consultation with local communities, stakeholders and local government partners;

- Providing a framework for integration between transport and land use planning. ITSs enable the County Council to anticipate and minimise the transport impacts of new development. To help do this, the Council will continue to secure funding for transport improvements needed as a result of development. Any such improvements will be implemented as part of the LTP spending programme.

Inter-Urban Networks: Transport Networks Review (TNR)

The TNR was completed in October 2004, and has helped to guide the County Council's longer-term transport objectives and strategy, as set out in Chapter 1. The review has also provided a strategic framework for the development of schemes which are likely to impact significantly on the operation of the county's strategic transport network. In developing solutions to the problems outlined above, the methods and conclusions of the TNR will be referred to as necessary to ensure any wider network considerations are taken fully into account.