

5 Environment strategy

5.1 Introduction

5.1.1 In a beautiful rural county like Shropshire, we place a very high value on the quality of our natural environment and the historic built environment, and we want to protect and enhance these. We also want to play our part in reducing the greenhouse gas emissions which contribute to climate change, and in improving air quality where this is becoming a problem.

5.1.2 These ambitions are reflected in the high priority we have placed on meeting our environment related local transport priorities and targets.

5.1.3 In line with a recent EC directive, we have undertaken a Strategic Environmental Assessment (SEA) of the LTP. This has helped us to develop a plan which as far as possible minimises and mitigates any negative environmental impact of our transport proposals and maximises the contribution our transport activities can play in enhancing environmental quality.

5.1.4 Full details of the SEA are provided in a separate Environmental Report. A non technical summary of the SEA is included in Appendix Appendix B. An environmental statement is included in Appendix Appendix C. This sets out how the findings of the SEA and the consultation responses on the Environmental report have been taken into account in preparing the final LTP.

5.1.5 This chapter summarises our environmental vision and objectives. It provides a summary of the relevant policy context and a background analysis of the current and likely future impact of transport on the environment in Shropshire and beyond, together with an overview of stakeholders' concerns.

5.1.6 It then sets out how we will meet our environmental goals, including the key measures to be implemented and an overview of how we will work in partnership to develop and deliver our actions. It also summarises the performance management indicators we will use to measure our performance in protecting and enhancing Shropshire's environment through our transport activities.

5.2 Vision and objectives

Our vision is ofa sustainable society ..., served by a transport system which ...has minimal impact on environmental quality...

5.2.1 Shropshire's relatively clean and tranquil environment, rich wildlife, landscape and history is a key component to local quality of life, and is very important to Shropshire people. Environmental quality is also a key asset to the Shropshire economy. It is therefore important that in meeting our travel needs we do not damage this highly valued local asset.

5.2.2 Improving local air quality is a national transport priority. However there is a threat from transport to air quality in only a few discreet areas of the county, whereas the impact of transport on a number of other aspects of the environment has been identified as important across the whole of Shropshire. We have therefore identified these other environmental issues as local transport priorities. Key issues are:

- Local environmental impacts, including noise, vibration, severance and visual impacts, and the local amenity issues related to parking
- Global environmental problems relating to energy resources and global warming.

5.2.3 In response to these concerns we have identified our environmental aim and objectives as:



Aim:

To protect and improve the built and natural environment and reduce the impact of traffic on local communities.

Objectives:

- Improve air quality particularly in Air Quality Management Areas (AQMA's)
- Improve local environmental quality and reduce the impact of traffic
- Reduce greenhouse gas emissions from transport

- To maintain and enhance the populations and natural ranges of species and the quality and extent of wildlife habitats and ecosystems in Shropshire
- To protect and improve soil quality and soil retention
- To mitigate potentially adverse effects on water quality from new or extended development, and where appropriate seek to implement management schemes to enhance the river quality.
- To minimise any increase in the susceptibility of land use activities to flooding
- To protect and enhance human health
- To reduce death and serious injury from road accidents
- To reduce the fear of crime

5.2.4 The local environmental objectives established by Shropshire County Council for the purposes of Strategic Environmental Assessment are:

- To minimise noise levels
- To reduce air pollution in line with National Air Quality Objectives
- To reduce greenhouse gas emissions
- To protect and enhance the character of the landscape and minimise adverse development in particularly sensitive areas
- To protect, conserve and enhance the region's diverse historic environment and manage change in such a way that respects local character and distinctiveness

5.3 Policy context

5.3.1 The international, national and regional and local policy documents which set out environmental objectives and strategies were reviewed at an early stage in the preparation of the LTP. The policy documents with the most relevant objectives are summarised in Table 5.1, and the policy drivers for the LTP are set out . A more detailed analysis of the environmental policy context is provided in the Environmental Report

Table 5.1 Policy Context for LTP Environmental Strategy

Policy	Relevant objectives	Policy drivers for Shropshire LTP
International and European		
Kyoto Protocol, 1997 (ratified 2004)	Industrialised countries to cut their combined greenhouse gas emissions by 5.2% by 2012 (from a 1990 baseline).	Ensure LTP contributes towards a reduction in greenhouse gas emissions
	European countries are working towards an 8% reduction from current levels.	

Policy	Relevant objectives	Policy drivers for Shropshire LTP
Strategic Environmental Assessment (SEA) Directive	Requires local authorities to show that they have taken account of the environmental effects of relevant new strategies and plan	Use the SEA process in the preparation of the LTP
National		
UK Sustainable Development Strategy 2005: Securing The Future	Based on five principles: Living Within Environmental Limits; Ensuring a Strong, Healthy and Just Society; Achieving a Sustainable Economy; Promoting Good Governance; and Using Sound Science Responsibly. It also sets out shared priority areas for UK action: Sustainable Consumption and Production; Climate Change and Energy; Natural Resource Protection and Environmental Enhancement; and Sustainable Communities.	Ensure our LTP contributes to the strategy aims, including through: <ul style="list-style-type: none"> contributing to tackling and preparing for climate change protection of natural resources environmental enhancement
Climate change- The UK Programme - DETR November 2000.	To cut the UK's carbon dioxide emissions - the main contributor to global warming - by some 60% by about 2050, and by 20% below 1990 levels by 2010. Measures to reduce the growth of greenhouse gas emissions from the transport sector, including: <ul style="list-style-type: none"> encourage greater fuel efficiency greater use of alternative fuels reduction of unnecessary car journeys encouraging greater use of public transport. 	Ensure LTP contributes towards a reduction in greenhouse gas emissions
The National Air Quality Strategy 2000: Working Together for Clean Air	Sets objectives for eight main air pollutants to protect health. Performance against these objectives will be monitored where people are regularly present and might be exposed to air pollution.	Transport is a major contributor to incidents of poor air quality in Shropshire. Ensure that the LTP contributes to meeting objectives for air quality.
The Historic Environment: A Force for Our Future	Aims include: <ul style="list-style-type: none"> the historic environment is accessible to everybody and is seen as something with which the whole of society can identify and engage; and the historic environment is protected and sustained for the benefit of our own and future generations. 	Transport affects the historic environment in several ways including the ambience of the historic structures and features. Ensure that the LTP contribute to protecting the cultural heritage from damage arising from Transport.
Biodiversity Strategy for England, 2002: Working with the grain of nature	Aims to ensure that biodiversity consideration becomes embedded in all main sectors of economic activity. It is the principal means by which the government will comply with duties under section 74 of the CRoW Act	Ensure biodiversity protection is integrated into the LTP.
Directing the flow – priorities for future water policy	Includes an aim for further improvements in water quality standards	Surface water runoff from roads cumulatively affects water quality.



Policy	Relevant objectives	Policy drivers for Shropshire LTP
		Ensure that transport improvements set out in the LTP will contribute to protecting water sources from transport related pollution.
Regional		
West Midlands Regional Planning Guidance (RPG11)	<p>Sets out key environmental principles that local authorities and other agencies should follow:</p> <ul style="list-style-type: none"> ● support regeneration, by restoring degraded areas, conserving existing environmental assets, including the re-use of redundant and under-used buildings of merit, and creating new, high quality, built and natural environments, particularly within the Main Urban Areas; ● conserve and enhance those areas of the Region, where exceptional qualities should be reinforced by sustainable use and management, including the Peak National Park, the five Areas of Outstanding Natural Beauty, the European wildlife sites, and the World Heritage Site; ● protect and where possible enhance other irreplaceable assets and those of a limited or declining quantity, which are of fundamental importance to the Region's overall environmental quality, such as specific wildlife habitats, historic landscape features and built heritage, river environments and groundwater aquifers; ● protect and enhance the distinctive character of different parts of the Region as recognised by the natural and character areas and associated local landscape character assessments, and through historic landscape characterisation. 	<p>Ensure that the LTP reflects and supports the environmental principals set out in the West Midlands Regional Transport Strategy, including:</p> <ul style="list-style-type: none"> ● Conserve existing environmental assets (built and natural) ● Conserve and enhance areas of exceptional quality (e.g. Shropshire Hills AONB) ● Protect irreplaceable assets and those of limited or declining quantity which are of fundamental importance. ● Enhance areas of distinctive character.
West Midlands Streets For All Guidance, English Heritage	guidance on management of streetscape and the public realm	Ensure we follow this guidance in delivering LTP programmes and schemes
Local		
Shropshire and Telford & Wrekin Joint Structure Plan	<p>The overarching objectives of the Structure Plan include:</p> <ul style="list-style-type: none"> ● conserving resources; ● improving the quality of life; and ● achieving sustainable development patterns. <p>Environmental quality of Shropshire and Telford & Wrekin is one of the greatest assets of the area:</p> <ul style="list-style-type: none"> ● Care for the nationally important Shropshire Hills Area of Outstanding Natural Beauty will be given priority. ● The many fine historic and architecturally important buildings will be protected from inappropriate development. ● The World Heritage Site at Ironbridge will receive very special consideration in terms of protection and management. 	<p>Ensure the LTP contributes towards the protection of the built and natural environment including historic towns, the Shropshire Hills Area of Outstanding Natural Beauty and the Ironbridge Gorge World Heritage Site</p>

Policy	Relevant objectives	Policy drivers for Shropshire LTP
Councils for Climate Change Strategies	<p>Shropshire is one of 23 pilot local authorities involved in this project</p> <p>SCC has assessed greenhouse gas emissions and developed two strategies aimed at reducing these emissions (one covering the County Council's own activities and the other covering the whole of Shropshire).</p> <p>The target is to reduce greenhouse gas emissions by 10% by 2010 and 60% by the year 2050.</p> <p>Set out a number of ways in which the County Council's transport strategy can contribute towards reducing greenhouse gas emissions. Including:</p> <ul style="list-style-type: none"> ● fleet management ● better land use planning to reduce the need to travel, ● changes to street lighting, ● travel planning and the implementation of Local Transport Plan schemes. 	Ensure the LTP reflects SCC's climate change strategy and informs it's delivery.
Shropshire Hills AONB Management Plan (2004-2009)	Aims to conserve and enhance the natural beauty of the Shropshire Hills.	<p>Transport can affect the objectives of AONBs particularly through visual and noise intrusion.</p> <p>Ensure that the LTP aims to avoid and reduce impacts from transport on the landscape value of the AONB.</p>
The Shropshire Biodiversity Action Plan	<p>Objectives include:</p> <ul style="list-style-type: none"> ● To maintain and enhance the populations and natural ranges of species and the quality and extent of wildlife habitats and ecosystems in Shropshire; ● To conserve internationally, nationally and regionally important and locally distinctive species, habitats and ecosystems and enhance their conservation status; ● To maintain genetic variation within species; ● To contribute to the conservation of biodiversity on a national, European and global scale; ● To ensure that policies and practices that affect the environment do not damage biodiversity, but instead contribute towards its conservation and enhancement 	Ensure that the LTP will include objectives for wildlife and maintaining biodiversity.
Shropshire's Local Agenda 21 Strategy	<p>Objectives include:</p> <ul style="list-style-type: none"> ● To work towards improving air quality; 	Ensure the LTP contributes to LA21 objectives objectives relating to air and water quality, wildlife, historic



Policy	Relevant objectives	Policy drivers for Shropshire LTP
	<ul style="list-style-type: none"> To improve the quality of Shropshire's rivers; To protect the County's wildlife sites more; To better protect Shropshire's landscape from inappropriate development; and To make best use of waste produced and improve the economics of recycling. 	environment and landscape protection and conservation of resources.
Environment Agency Local Plan		Ensure that the LTP will contribute to meeting objectives for wildlife, air quality, water quality and flood risk, soils, recycled materials and climate change.
Shropshire Community Strategy 2006-2010	<p>Priority: Preserve and enhance Shropshire's natural environment and heritage Aims:</p> <ul style="list-style-type: none"> Protect and enhance Shropshire's biodiversity. Protect and enhance what makes Shropshire's natural and historic landscape special. Encourage sustainable management of Shropshire's roadside trees. Improve energy efficiency, reduce demand and develop renewable energy. Ensure wise use of our natural resources. Minimise waste and increase recycling. Promote sustainable design and construction. Improve understanding and access to the countryside and services. 	Ensure our LTP contributes to community plan aims to protect and improve the quality of Shropshire environment.
Shropshire Corporate Plan	<p>Key outcomes:</p> <ul style="list-style-type: none"> Improving the quality of the environment in which people live Building a successful economy whilst protecting the environment. Sustainable low carbon communities with strengthened economic capability <p>Priorities for improvement</p> <ul style="list-style-type: none"> Encouraging conservation and sustainable resource management Promoting energy efficiency, increased use of renewable energy and reduced carbon emissions 	Ensure our LTP contributes to corporate aims protect and improve the quality of Shropshire environment, and build low carbon communities

5.4 Analysis

5.4.1 It is clear from our consultation results (see section 3.2) that Shropshire people already perceive the impacts of traffic on their local

amenity and wider environmental quality as a significant problem. These impacts are likely to become more severe and widespread with further increases in traffic levels, unless action is taken.

Environmental problems and opportunities

Table 5.2 SWOT analysis of key environmental problems and opportunities

<p>Strengths</p> <ul style="list-style-type: none"> Rich cultural heritage Well preserved and tranquil countryside character Generally good water quality Generally good air quality Much of Shropshire's landscape lying within the boundaries of land classified as 'Area of Outstanding Natural Beauty' 	<p>Weaknesses</p> <ul style="list-style-type: none"> 4 Air Quality Management Areas declared for NO₂ emissions from transport Relatively high contributions to greenhouse gas emissions from transport sector Some loss of landscape, tranquillity and countryside to development Little exploration of any renewable energy resources in the County 41 listed buildings are currently on the 'at risk' register
<p>Opportunities</p> <ul style="list-style-type: none"> Shropshire is one of 23 pilot local authorities in the UK involved in CCP sponsored by DEFRA Increasing public awareness of climate change issues Capability to lead the market in the production of biofuels Ability to produce and source food locally to reduce 'food miles' 	<p>Threats</p> <ul style="list-style-type: none"> Climate change Vulnerability to flooding from climate change Continued loss of landscape, habitats and biodiversity from development and growth pressures Degradation of countryside and rural tranquillity Traffic and congestion growth may mitigate benefits of reduced per vehicle emissions

5.4.2 Table 5.2 gives an assessment of strengths, weaknesses, opportunities and threats to the environment in Shropshire, at a strategic level.

5.4.3 The Strategic Environmental Assessment also identified the aspects of the environment likely to be most effected by transport activities in Shropshire:

- Greenhouse gases
- Townscape & heritage
- Landscape
- Biodiversity
- Noise
- Local air quality

5.4.4 Each of these aspects is considered below.

Greenhouse gases

5.4.5 Climate change is recognised as one of the greatest, if not the greatest, threats facing the world today. The world is warming and there is evidence of changing weather patterns and thawing of the arctic sea ice. Human activity is partly responsible and latest predictions suggest that the effects will be earlier and sharper than previously thought. The change is being caused by an increase in concentrations of 'greenhouse gases' such as carbon dioxide (CO₂) and nitrogen oxides (NO_x). Concentrations of these greenhouse gases have risen by 50% in the last 200 years.

5.4.6 Transport is a major contributory factor to this build up and is the fastest growing source of greenhouse gases. Between 1990 and 2002, total UK greenhouse gas emissions declined by 10 per cent but greenhouse gas emissions from transport industries were 47 per cent higher in



2002 than in 1990. In Shropshire, transport is the biggest single contributor to greenhouse gas emissions.

5.4.7 Emissions from transport are continuing to grow despite technological advances. Improvements to the fuel efficiency of vehicles have been outweighed by the upward trends in number and length of car journeys and the use of larger vehicles and faster speeds. The power used for street and other highway lighting is also a source of greenhouse gas emissions. See Table 5.3 ⁽¹⁾

Table 5.3 Greenhouse gas emissions by sector in Shropshire, 2000

Sector	Equiv CO ₂ (tonnes)	Equiv CO ₂ (%)	Energy (GJ)
Residential	507,327	33.8	6,854,412
Commercial (inc. corporate)	33,210	8.9	1,476,508
Industrial	52,539	3.5	678,393
Waste	63,738	4.2	
Transport	744,367	49.6	11,050,511
Total	1,501,182	100	20,344,669

Table 5.4 Greenhouse gas emissions from the transport sector in Shropshire, 2000 (Source: SCC)

Road Transportation	Equiv CO ₂ (tonnes)	Equiv CO ₂ (%)	Energy (GJ)
Petrol	445,761	29.7	6,709,149
Diesel	298,106	19.9	4,333,674
LPG	500	0.0	7,688
Total Transportation	744,367	49.6	11,050,511

5.4.8 If current levels of climate change continue it is expected Shropshire will see:

- Higher annual mean temperatures (up to +2 to +3.5°C by 2080): high summer temperatures and summer droughts

- Around half the current number of freezing winter nights by 2050.
- Increased winter rainfall, and so more frequent flooding (see earlier).

5.4.9 Climate change is expected to have serious impacts on:-

- Agriculture: as cultivation zones for different crops shift with changing climatic patterns.
- Biodiversity: Niches disappear and imbalances between predator and prey appear.
- Property at risk from an increasing frequency of violent weather events, flooding and subsidence.
- Health: there are also expected to be many direct and indirect consequences for the health of the population, which will need to be both understood and addressed.

5.4.10 There is an upward trend in greenhouse gas emissions from activities in the community. Without Local Transport Plan interventions, traffic volumes are likely to increase and, with the trend towards bigger vehicles and faster average speeds, carbon dioxide emissions from transport are likely to continue to rise. Impacts of climate change are likely to be cumulative and permanent.

Townscape & heritage

5.4.11 Shropshire's historic environment is one of the county's greatest assets with features ranging from prehistoric monuments to structures of the industrial revolution; from historic townscapes to fields and gardens, and from castles to mansions. All these combine to create a rich and diverse historic landscape. Well known features include Offa's Dyke, Wroxeter Roman City and the Ironbridge Gorge World Heritage Site, and the historic towns of Ludlow and Shrewsbury. There are also many less well

¹ Source: Shropshire UK, from software created by Torrie Smith Associates for the Cities for Climate Protection Campaign of the International Council for Environment Initiatives.

known sites and towns and villages with great significance, and in total over 6,700 listed buildings in the County and numerous town and village Conservation Areas. Table 5.5 shows the numbers of designated historic buildings and areas in Shropshire.

Table 5.5 Numbers of designated historic areas and buildings in Shropshire

Type of Historic Area/ Building	No.
Listed Buildings	
Grade I	99
Grade II*	457
Grade II	6152
Total	6708
EH Register of Historic Parks and Gardens	
Grade I	1
Grade II*	4
Grade II	24
Total	29
EH Register of Battlefields (Battle of Shrewsbury, 1403)	1
Scheduled Monuments	448
Conservation Areas	112

5.4.12 Shropshire's historic environment is one of the county's greatest assets. Tourists and visitors are attracted to the historic market towns and villages, stimulating local trade and supporting the county's economy. The quality of streets and highway space in all towns and villages, not just those areas classed as historic, is important to quality of life, and makes Shropshire an attractive place for people to live in, work in, or visit.

5.4.13 In response to criteria set out by English Heritage, SCC is currently preparing an Historic Landscape Characterisation Project. This will be used to help assess the environmental impact of major developments.

5.4.14 Traffic and transport have a significant impact upon the built environment. Transport infrastructure is a key determinant of the form of our towns and villages. Choice of street materials, street furniture, signs, lighting and trees all affect the quality of streetscapes and local amenity. Levels of traffic and parked cars also have a significant impact. Vibration, air pollution and accidental collisions from traffic can damage buildings, whilst visual intrusion and noise can diminish people's enjoyment of historic sites, towns and villages.

5.4.15 There are real opportunities, as part of transport schemes, to improve the historic and built environment, through good design, sensitivity to historic styles, the use of quality materials and the reduction of unnecessary clutter. Recent town centre enhancement work in Shrewsbury and the larger market towns has significantly improved the urban environment, improving the setting for historic buildings as well as enhancing the visitor experience.

5.4.16 The potential significant effects of transport on this historic environment include:

- Damage to historic roadside buildings by traffic vibration, in particular heavy goods vehicles
- Damage to historic buildings (particularly stone) from the effects of air pollution
- Damage to historic buildings by accidental collisions
- Loss of historic bridges due to road widening.
- The ambience of Conservation Areas can be adversely affected by the presence of traffic and inappropriately placed street furniture
- Cultural monuments may be severed from their setting due to the intrusion of vehicles including those of people visiting the monument.



Rural landscape

5.4.17 Shropshire's countryside is perhaps its greatest treasure and is highly valued by local people and visitors. Much of Shropshire is still relatively unspoiled and tranquil. The Shropshire Hills Area of Outstanding Natural Beauty (AONB) covers a quarter of Shropshire and significant areas of the rest of the County are designated as areas of special landscape character.

5.4.18 Shropshire County Council has undertaken a countywide landscape character assessment of rural areas, and this informs new planning guidance. This will be used to ensure development is in keeping with local landscape character.

5.4.19 Roads are often the only modern man-made features in large areas of open countryside, and this places an important obligation on those responsible for the transport infrastructure.

5.4.20 The potential impacts of transport on rural landscape quality include noise from vehicles as well as visual intrusion from roads, traffic, parked vehicles, inappropriate street furniture and unnecessary signage. Landscape quality can also be reduced by inappropriate design of road improvements and use of inappropriate materials which can "urbanise" rural roads and lanes, impacting on local character and distinctiveness. Street lighting in rural areas can also lead to light pollution which can reduce the quality of the rural landscape.

Biodiversity

5.4.21 The extent of Shropshire's biodiversity is reflected in the number of statutory designations for nature conservation: Four National Nature Reserves and 110 Sites of Special Scientific Interest; 14 of which are RAMSAR sites important for birds, and 698 Ancient Woodlands, as well as 573 non-statutory wildlife sites. Shropshire has six (candidate)

Special Areas of Conservation (cSACs) covered by European legislation (Natura 2000). The County also has two Environmentally Sensitive Areas around Clun and the Shropshire Hills which form part of the AONB. Areas covered are shown in Table 5.6.

Table 5.6 Nature Conservation Designations in Shropshire

Designation	Number of hectares under designation	Percentage of county
National Nature Reserves (NNR)	1,658	0.5
Sites of Special Scientific Interest (SSSI) (includes Ramsar sites and cSACs)	8,715	2.5
Wildlife Sites	c. 10,000	2.9
Area of Outstanding Natural Beauty (AONB)	80,916	23.2

5.4.22 The interaction of biodiversity and the road network is significant with, for example, a quarter of the UK badger population being killed annually and between thirty and seventy million birds.

5.4.23 The potential impacts include:

- Wildlife casualties through collisions with motor vehicles
- Land take and associated habitat loss through new transport infrastructure schemes
- Fragmentation / severance of habitats through new schemes, increased traffic etc
- Changes in air quality, water quality, noise, vibration, light emissions, dust deposition as a result of construction and operation
- Increase in disturbance to wildlife populations
- Creation of barriers to movement
- Hydrological changes affecting surface and groundwater
- Changes to soil
- Inappropriate grass cutting regimes on verges

- Spread of invasive species (e.g. Japanese Knotweed spread by verge regime)
- Creation of habitats
- Curbing spread of invasive species

Noise

5.4.24 The impact of noise on the quality of life is increasing. Noise is a less obvious form of pollution because people learn to live with gradual change. However, noise does not just cause annoyance, it can affect people's health. The main generator of background noise in Shropshire is traffic. The majority of Shropshire is rural and it should be noted that smaller volumes and changes to volumes of traffic are more noticeable in tranquil areas.

5.4.25 A survey of Shropshire people⁽²⁾ identified that road traffic was the noise source of greatest annoyance, with 8% of respondents stating that it is a serious problem, and 18% finding it to be a minor problem.

5.4.26 If traffic levels continue to rise, with no action taken we will see a rise in the adverse effects of noise.



2 Shropshire People Panel August 2004

Key Challenge: To ensure we minimise the impacts of our transport activities upon our local and global environment and seek to enhance where possible current and future environmental quality. Specifically to seek to:

- Reduce greenhouse gas emissions
- Enhance the quality of our road infrastructure ensuring it is in keeping with urban and rural character
- Minimise impacts from traffic on our historic townscapes and high quality rural landscapes
- Engage practices which support biodiversity
- Seek to reduce the noise from road traffic.

In response to this challenge, our transport strategy needs to

- Minimise traffic growth and encourage more sustainable forms of travel
- Manage traffic in order to reduce impacts on the most valuable and sensitive parts of our environment
- Seek to reduce visual impacts and noise and to enhance biodiversity when undertaking new highway schemes and maintenance.

Air quality

5.4.27 Consultation for the Local Transport Plan indicated that the impact of traffic on local environmental quality is a significant concern of Shropshire people. However, widespread poor air quality is not recognised as a Shropshire problem. There is some concern over the health impacts of traffic fumes in some localised



situations, such as in some town centres and around schools; but generally air quality is not viewed as the most serious transport related environmental concern. Early stakeholder consultation on LTP objectives clearly identified that tackling air quality should not be considered a higher priority than addressing other wider environmental and amenity issues, including noise and vibration, greenhouse gas emissions, speed and severance and visual intrusion.

5.4.28 As required by the 1995 Environment Act district and borough councils in Shropshire have carried out assessments of local air quality. The results of these assessments show that whilst air quality in Shropshire is relatively good in comparison to many larger urban areas, there are some areas within the County where pollutant levels give cause for concern.

5.4.29 Poor air quality can have a serious effect on human health. Nitrogen dioxide, for example, is a respiratory irritant. High pollution episodes can trigger increased admissions to hospital and contribute to premature death, particularly affecting vulnerable people with existing lung diseases or heart conditions. There is also evidence that long term exposure to air pollution can have a long term effect on health. Air pollution can also affect ecosystems and speed up the process of erosion of buildings.

5.4.30 Road traffic is a major contributor to poor air quality, producing 70% of carbon monoxide (CO) and 48% of nitrogen oxide (NO) emissions and 22% of particulates (PM10) in Britain. It has been seen that in the locations in Shropshire where air quality is poor the main source of pollution is road traffic.

5.4.31 Local Authorities assess local air quality against national standards for a range of pollutants (Benzene, 1,3 – butadiene, Carbon monoxide, Lead, Nitrogen dioxide, PM10 and Sulphur dioxide). If a local authority's assessments show that the national standards

are unlikely to be met, the authority should designate the relevant areas as Air Quality Management Areas (AQMA).

5.4.32 Assessments have shown that two pollutants of concern in some areas of Shropshire, these are particulate (PM10) and Nitrogen Dioxide (NO₂). The national objectives that should have been met by 2005 for these are outlined in Table 5.7. In order to comply with the EU Directive the objective of 40 µg/m³ NO₂ (annual mean level) should be met by 2010.

Table 5.7 National Air Quality Objectives (Source: National Air Quality Strategy 2000)

Particles (PM10) (gravimetric)	50 µg/m ³ Not to be exceeded more than 35 times per year	24 Hour Mean
	40 µg/m ³	Annual Mean
Nitrogen dioxide	200 µg/m ³ Not to be exceeded more than 18 times per year	1 Hour Mean
	40 µg/m ³	Annual Mean

5.4.33 Since 1998 a detailed process of 'Air Quality Review and Assessment' has been undertaken in Shropshire. This assessment process highlighted a small number of localised sites in the County where levels of NO₂ were predicted to exceed national standards and be significant enough to affect human health. Air Quality Management Areas (AQMA) have been declared for five locations. Specific remedial measures are needed to reduce levels of pollution in these areas:

- In 2003 Shrewsbury and Atcham Borough Council declared three AQMA in Shrewsbury at Bayston Hill on the A49 (T), Heathgates Island and Frankwell/Smithfield Road. Further assessment work led to a decision by SABC in spring 2005 to extend the Franwell/Smithfield Road AQMA to cover the whole town centre area.

- In Spring 2005 Bridgnorth District Council declared an AQMA in Bridgnorth town centre for an area including Pound Street, and the junction of Salop Street and Whitburn Street.
- In Oswestry a small AQMA was declared in 2001 for a site on the A483(T) between Oswestry and Pant. The area only affects

one property, and solutions will need to be pursued by the Highways Agency who are responsible for the A483 trunk road.

5.4.34 The current and predicted annual mean NO₂ levels within the AQMAs and projected levels in 2010 (if no intervention action is taken) are set out in Table 5.8. (Where the annual mean objective is exceeded, this is highlighted in bold).

Table 5.8 Current and predicted annual mean NO₂ concentrations at sites in AQMA's

AQMA/ location	X(m)	Y(m)	Monitored data NO ₂ diffusion tube monitoring results (µg/m ³)				Modelled data- NO ₂ annual mean concentrations (µg/m ³)		
			2003	2004	2005	2010	2004	2005	2010
Bridgnorth AQMA									
Whitburn Street West				44.5				43.4	
Pound Street				46.2				45.1	
Oswestry (A483(T)) AQMA									
A 483 (south of Morda Road junction)	328900	325900		35	36				
Shrewsbury Bayston Hill (A49(T)) AQMA									
A49 Bayston Hill, opposite Three Fishes	348726	308959	41.1	31.8	36.2	26.0			
Shrewsbury Heathgates AQMA									
Ditherington Road, Heathgates	350255	314367	40.4	30.9	35.3	25.3	31.2	30.3	26.1
Whitchurch Road, Heathgates	350533	314786	40.4	31.9	31.1	26.1	28.5	27.6	23.9
Heathgates Roundabout	350375	314590	38.7	30.3	-	24.8	29.9	29.0	25.0
Heathgates Public House (façade)	350436	314607		26.6	28.5	21.7	31.6	30.7	26.4
Shrewsbury Town Centre AQMA									
82/83 Frankwell	348669	312957		27.9	30.1	22.8	25.9	25.2	21.9
Abbey Foregate	349981	312430	36.1	29.4	30.6	24.0	43.6	42.5	36.1
Abbey Foregate/Monkmoor Road	350103	312378	-	27.6	35.2	22.6	38.7	37.8	32.1
Brittania Inn, Castle Foregate	349461	313133	-	36.1	37.9	29.5	32.6	31.8	27.3
Castle Foregate (opposite Royal Mail)	349432	313100	54.0	41.5	-	33.9	36.6	35.7	30.5



AQMA/ location	X(m)	Y(m)	Monitored data NO2 diffusion tube monitoring results (µg/m3)				Modelled data- NO2 annual mean concentrations (µg/m3)		
Castle Gates	349396	312742	43.5	35.0	37.8	28.6	30.2	29.4	25.4
Coleham Head	349682	312311	46.7	31.2	32.7	25.5	25.7	25.1	21.8
Dogpole	349330	312503	41.1	32.3	33.5	26.4	38.6	37.6	32.2
English Bridge	349540	312348	39.0	37.6	38.9	30.7	44.0	42.7	36.1
Frankwell	348803	312855	-	-	-	-	44.6	43.5	37.1
Frankwell/Drinkwater Street	348719	312952	36.8	25.7	-	21.0	28.3	27.6	23.9
Samaritons	349667	312347	37.6	30.9	31.7	25.3	28.4	27.7	23.9
Severn Steps	349235	312900	-	37.5	35.5	30.6	32.8	31.9	27.5
Smithfield Road	349060	312759	-	-	-	-	33.7	32.8	28.2
St Michaels Gate	349609	313375	31.5	26.8	26.3	21.9	25.2	24.6	21.4
Station Hotel, Castle Foregate	349400	312954	-	57.6	83.2	47.1	74.0	73.1	66.2
The Albert, Smithfield Road	349283	312889	-	32.2	37.4	26.3	34.4	33.5	28.8
Welsh Bridge (Smithfield Rd/Victoria Ave)	348891	312721	47.0	35.2	38.2	28.2	30.4	29.6	25.4

Potential future air quality issues

5.4.35 Increases in traffic levels and congestion in Shropshire would increase the number of areas where air quality problems are experienced. Air quality problems are particularly likely to occur in town centres, at major road junctions, and on main roads; where there are narrow streets, traffic levels are high or congestion regularly experienced, and where properties are located very close to the road. Specific localised areas of concern where air quality is being closely monitored include:

- Shrewsbury** - Areas where air quality is not currently expected to exceed national standards, but where the situation is of concern and is being closely monitored are at the Whitchurch Road / Battlefield Road / Featherbed Lane junction where additional development is planned, and around Meole Brace Island.
- Bridgnorth** - Other parts of Bridgnorth town centre will be subject to further monitoring.
- Oswestry** - Further locations on the A483(T) at Pant and Llanymynech are of concern and will be subject to further monitoring.
- In South Shropshire** - no AQMA have been declared but activities which may lead to significant increases in traffic flows on the A49 (T) through Craven Arms and Church Stretton, on the A4117 through Clee Hill and Cleobury Mortimer and increases in local traffic within Ludlow are of concern, as this may result in air quality objectives for 2010 not being met.
- In North Shropshire** - no AQMA have been declared, but there are concerns about NO₂ levels at locations within Whitchurch & Market Drayton - during the five year implementation period of the LTP it is possible that Air Quality Management Areas may need to be declared in these places.

Draft air quality action plan and consultation

5.4.36 A draft air quality action plan covering the Shrewsbury air quality management zones was prepared jointly by SCC and Shrewsbury and Atcham Borough Council in early 2005, and included in the provisional LTP. In addition to the LTP consultation process specific consultation on this draft plan was undertaken during summer 2005. The public were consulted at a series of public events. Respondents were asked to indicate their levels of support for a series range of Action Plan measures. Table 5.9 shows the levels of support for each measure.

LTP option assessment

5.4.37 In addition to public consultation a detailed study of the impacts of different options on air quality was undertaken.³ This assessed the impact of different levels of traffic reduction, and different traffic profiles for improving air quality in: Shrewsbury Town Centre and Heathgates Roundabout AQMA areas. This included:

- Predicting NO₂ annual mean concentrations in 2010, with a sustained baseline of 2004 traffic growth;
- Source apportionment of buses and establishment of impacts of improved emissions proposed for Park and Ride fleet in the Town Centre;
- Traffic reduction scenarios, to quantify the reduction in traffic required to meet the objective and EU Limit.

5.4.38 The results of this study are shown in Table 5.9.

5.4.39 The study concluded if traffic levels continued to increase at the current rate, by 2010 they would be no predicted exceedences of the NO₂ objectives at Heathgates Roundabout AQMA, and that NO₂ levels at most sites within the town centres would also be within the EU limit. The predicted improvements in air quality would be primarily due to projected decreases in background levels of NO_x.⁴

Table 5.9 Shrewsbury air quality action plan consultation results

Measure	Likely or very likely to support
Improve facilities for pedestrians and cyclists	96.7%
Improve town centre public transport / Park and Ride	90.0%
Enlarge pedestrianised area of the town centre	88.1%
Increased town centre car-parking charges	76.4%
Bus priority at traffic lights	73.1%
Congestion charging zone / Low emissions zone for town centre	72.5%
Require waiting vehicles to turn off engines in town centre	66.6%
Voluntary emissions testing for vehicles	66.0%
Increase participation in sustainable travel plans	57.5%
Provision of Bayston Hill Bypass / improve Dobbies Island	55.9%
Provision of a North West Relief Road	38.7%

3 Local Air Quality Management- Further Assessment, March 2006, produced for SABC/SCC

4 Projections of background concentrations to future years were made using the guidance provided in LAQM.TG (03).



5.4.40 However, the study predicted that by 2010 the EU limit would be exceeded along Castle Foregate, and that pollutant levels would be close to the EU limit in other locations such as Frankwell and Abbey Foregate.

5.4.41 Assessment was made of the impacts of different levels of traffic reduction, and measures to introduce a cleaner bus fleet. This showed that if traffic levels could be contained to 2004 levels, and some improvements were made to the bus f

5.4.42 leet, that by 2010 NO₂ concentrations should be well within the EU limit at all locations in the town centre, except at Castle Foregate.

5.4.43 Even if traffic levels could be reduced by 50% at this location, the EU NO₂ air quality limit would still not be predicted to be met. It is clear that at this location additional measures will be required to address the air quality problem e.g. traffic management measures to improve flows and further action to improve the worst polluting vehicles.

Final air quality action plan

5.4.44 The actions to be implemented in Shrewsbury to tackle air quality are summarised later in this chapter.



Key Challenge: To meet our responsibilities towards local air quality by:

- **improving air quality**

In response to this challenge, our transport strategy needs to

- **minimise traffic growth and encourage more sustainable forms of travel**
- **reduce traffic, and emissions for the most polluting vehicles, in areas where local air quality is under threat**

Table 5.10 Impacts on air quality of traffic reductions

Location	X(m)	Y(m)	2010 Current rate of traffic growth	2010 No traffic growth	2010 10% reduction in traffic	2010 20% reduction in traffic	2010 50% reduction in traffic	2010 No traffic growth + bus improvements
Shrewsbury - Heathgates								
Ditherington Road, Heathgates	350255	314367	26.1	18.9	17.7	17.0	11.1	N/A
Whitchurch Road, Heathgates	350533	314786	23.9	16.0	15.0	14.5	7.9	N/A
Heathgates Roundabout	350375	314590	25.0	17.5	16.4	15.8	9.6	N/A
Heathgates Public House (façade)	350436	314607	26.4	19.2	18.0	17.2	11.3	N/A
Shrewsbury - Town Centre								
Frankwell/Drinkwater Street	348719	312952	23.9	20.4	19.3	18.6	15.7	18.7
WelshBridge	348891	312721	25.4	24.3	23.0	22.2	20.0	22.4
Castle Foregate (opposite Royal Mail)	349432	313100	30.5	27.3	25.4	24.3	20.2	25.6
Dogpole	349330	312503	32.2	29.2	27.2	26.0	21.6	27.5
Castle Gates	349396	312742	25.4	22.0	20.8	20.0	16.8	20.1
St Michaels Gate	349609	313375	21.4	17.7	16.9	16.4	14.0	16.8
82/83 Frankwell	348669	312957	21.9	18.2	17.3	16.8	14.3	16.9
Brittania Inn, Castle Foregate	349461	313133	27.3	24.0	22.5	21.6	18.1	22.6
Severn Steps	349235	312900	27.5	24.3	22.8	21.9	18.3	22.3
The Albert, Smithfield Road	349283	312889	28.8	25.6	24.0	23.0	19.3	23.7
Station Hotel, Castle Foregate	349400	312954	66.2	64.2	60.8	58.5	48.7	59.8
Frankwell	348803	312855	37.1	34.1	31.6	30.1	24.8	30.1
Smithfield Road	349060	312759	28.2	25.0	23.4	22.5	18.8	22.5
Coleham Head	349682	312311	21.8	20.9	19.9	19.3	17.8	18.9
English Bridge	349540	312348	36.1	34.8	32.6	31.3	27.5	29.5
Samaritans	349667	312347	23.9	22.9	21.6	21.0	19.0	20.4
Abbey Foregate	349981	312430	36.1	34.7	32.4	31.0	27.1	27.4
Abbey Foregate/ Monkmoor Road	350103	312378	32.1	30.9	28.9	27.8	24.5	24.9



5.5 Approach and priorities

Strategy options

5.5.1 We have considered three potential approaches to reducing the impacts of transport and traffic on the environment.

- **Using technological advances and better design** to reduce environmental impacts. For example, we can encourage use of more fuel-efficient vehicles to reduce air pollution, provide special road surfaces to reduce noise, and install landscaping to reduce visual intrusion.
- **Diverting traffic** away from communities and environmentally sensitive areas such as town centres, schools and areas of outstanding natural beauty. For example we can apply lorry bans, improve directional traffic signing and build bypasses
- **Managing traffic levels**, through demand management, particularly in the most sensitive areas such as towns, for example by reducing the need to travel and encouraging people to use more sustainable forms of transport.

Strategic approach

5.5.2 In Shropshire, we will make full use of the first two options where resources permit and there are not undesirable associated impacts. However, given likely levels of traffic growth and the trends towards larger vehicles, and in light of the resources available, it is unlikely that we will be able to fully achieve our environmental objectives through use of technological advances or actions to divert traffic away from sensitive areas. In simple terms, we cannot build our way out of the problem.

5.5.3 We will therefore also take positive steps to manage traffic levels. Within urban areas particularly, where many journeys are short, and

shared transport is most viable we will encourage a greater proportion of journeys to be made by foot, cycle and public transport.

5.5.4 In rural areas, where generally journey distances are longer and dispersed, private vehicles will often provide the most practical way of getting around. However, we will still aim to improve accessibility and choice, through safer roads, flexible transport solutions provision of local facilities and services and increased electronic communication, to reduce the need to travel. A key part of the strategy will be enhancing connections between rural areas and market towns.

Priorities

5.5.5 In line with the overall strategic approach set out in section 2.5 our environment strategy will include a blend of measures to enhance and protect the environment in ways which :

- Reduce the need to travel and enhance sustainable travel options
 - make public transport a more attractive travel option;
 - enhance conditions for cycling and walking;
 - influence travel behaviour through demand management measures;
- Manage traffic and enhance the sustainability of car use
 - ensure traffic uses the most appropriate routes, avoiding sensitive areas;
 - use appropriate design, processes and technological solutions to enhance and reduce impacts on the environment; and
 - improve Air Quality in AQMAs through implementing Air Quality Management Area Action Plans.

5.5.6 These measures are outlined in the next section

5.6 Measures

Make public transport a more attractive travel option

5.6.1 We need to improve the image and performance of public transport, so that it becomes an attractive option for more people.

Passenger transport services which better meet travel needs

5.6.2 We will increase our coverage of demand responsive bus services in deeply rural areas, as well as improve the frequency of core inter-urban bus services (as set out in section 4.7). This will help to increase travel choices for people in these areas as well as enhance accessibility .

5.6.3 The enhancement of interurban bus services will particularly have an impact on enhancing travel choice and providing an alternative to the car. The impact of the improved Shrewsbury- Oswestry bus service demonstrates the impact such improvements can have:

Shrewsbury- Oswestry- Wrexham Quality Bus Corridor Improvements

During 2004/05 a number of improvements were made on this bus corridor, including an increased frequency of service (every 30 mins), new bus shelters, real time information and improved information and publicity. Completion of this first phase has increased bus patronage by 33%. This success demonstrates how focused investment and service improvements can bring about significant increases in bus use.

5.6.4 Public transport operators run many rail and bus services within the county on a commercial basis. We will continue to work through bus quality partnerships and community rail partnerships to enhance services on these networks.

5.6.5 We will work with partners to put a strong case for enhanced rail services to Shropshire, especially through services to London, and will work with operators to enhance rail station facilities.

More Park and Ride

5.6.6 Park and Ride services can contribute towards environmental improvements, provided they are well used and do not involve drivers in long diversions to reach the sites.

5.6.7 We will continue to support Park and Ride services in Shrewsbury, working in close partnership with Shrewsbury and Atcham Borough Council and, in future, the developers of the town's main indoor shopping centre to provide a service which is attractive, reliable and cost effective. We will use some of the income from on-street parking charges to help support the Park and Ride service.

5.6.8 We will investigate the scope for new diesel electric buses, subject to funding becoming available.

5.6.9 We will continue our involvement in the Shropshire Hills Shuttles Partnership. These services help to reduce traffic within the area of outstanding natural beauty.

5.6.10 We will introduce a new Park and Ride service in Ludlow, in close partnership with South Shropshire District Council. The District Council will provide the site, whilst the County Council will purchase an additional bus to enable the existing town bus service to serve the Park and Ride site. The Park and Ride service is part of wider changes to the car parking regime in



Ludlow, designed to reduce congestion, in which the revenue from on-street parking charges will help support the park and ride service.

5.6.11 We will investigate the potential for Park and Ride services in other towns including Oswestry and Bridgnorth.

5.6.12 We will also look at making better use of existing park and ride facilities, by encouraging integration with conventional public transport services. An example is the use of Oxon site as a park and ride site for the Royal Shrewsbury Hospital, utilising the existing route 22 bus service.



Faster journey times

5.6.13 In implementing our inter-urban core bus service improvements we will seek to look for improvements to journey times.

5.6.14 During the LTP period we intend to use developer funding to introduce a new circular bus route in Shrewsbury, this will help to improve convenience for passengers and reduce journey times for cross town journeys. We will also, in conjunction with Arriva, investigate the viability of increasing the extent of the cross-town operation of bus services in Shrewsbury.

Better bus reliability

5.6.15 Although bus reliability in Shropshire is relatively good, we will seek to enhance this further. We will seek to do this through a Bus Punctuality Improvement Partnership with Arriva. This will link into the existing partnership arrangements we have. We will base our actions on an agreed understanding of the actual bus punctuality issues for particular routes and times of day. We will aim to address the route cause of the reliability problem where possible. Actions which are likely to prove to be important in improving bus reliability will include better parking enforcement and bus priority measures.

5.6.16 Improved enforcement of waiting restrictions through decriminalised parking enforcement will be a key measure in reducing delays to buses caused by illegal parking in towns.

5.6.17 Bus priority measures will be implemented in urban areas, with a focus on Shrewsbury, in order to improve reliability and reduce bus journey times. Measures that will be considered include dedicated bus links, bus lanes, exemptions from traffic restrictions, such as right turns, and priority at traffic signals. Where buses cannot be given a priority route through traffic signals, GIS technology could be utilised to facilitate priority green calls for approaching buses.

5.6.18 Possible bus priority measures will be investigated at the following locations in Shrewsbury during the plan period, these areas of current concern to bus operators:

- Town centre approaches at Castle Foregate, English Bridge and Welsh Bridge
- High Street
- Barker Street
- Shrewsbury Bus Station
- Mount Pleasant into Ditherington Road

5.6.19 Improvements on commercial bus routes will be implemented as part of bus quality partnership agreements, with agreed improvements to vehicles and services linked to infrastructure development

Better quality and more accessible services and infrastructure

5.6.20 The introduction of high quality, low floor and low emission vehicles of appropriate sizes on a number of bus routes in Shropshire has improved accessibility and air quality, and increased service patronage.

5.6.21 We will continue to modernise the fleet of buses in use in Shropshire through encouraging the purchase and use of new low floor, low emission vehicles. We will continue to look for opportunities to upgrade vehicles used for contracted services, where operational restrictions permit, and encourage use of modern vehicles on commercial services through quality bus partnerships.

5.6.22 We will also continue to support community transport services by assisting in the purchase of suitable accessible vehicles. We will support district authorities in encouraging the modernisation of taxi and PHV vehicles, and particularly the use of lower emission vehicles in air quality management areas.

5.6.23 The quality of waiting and interchange facilities affects the quality of the passenger transport experience. During the next LTP period we will continue to offer parish and town councils 75% grants towards approved schemes to provide or improve bus shelters and stops.

5.6.24 We will seek additional partnership funding to make improvements to passenger facilities at two of the Shrewsbury Park and Ride sites, undertake environmental enhancement and accessibility improvement work at Shrewsbury Bus station and enhance disabled access at rail stations.

5.6.25 We will also seek to enhance the quality of access to public transport interchanges, by foot, cycle and car. During the plan period we will look at opportunities to improve car-parking provision at rural rail stations, provide secure cycle parking facilities and enhanced routes to major interchanges, and improve the security of walking routes to stops and stations.

5.6.26 A key partnership project linked to new development is the reinstatement of the Gay Meadow Footpath, which would provide a strategically important walking link to Shrewsbury Rail Station, reducing walking time from the Abbey area by about 15 minutes.

5.6.27 During the LTP period we will continue to expand our real-time bus information system to cover the Bridgnorth, Oswestry and Ludlow town services. We may also look at providing real time information on these additional routes:

- Shrewsbury - Ludlow
- Shrewsbury - Bridgnorth
- Shrewsbury - Market Drayton
- Shrewsbury - Minsterley/Bishops Castle

5.6.28 We will also start a programme of providing real time bus information at key rail stations in the County.

Reducing the cost of transport

5.6.29 Journeys by a combination of passenger transport modes benefit from the availability of through tickets. The "Plus Bus" scheme for joint rail/bus tickets was extended to Shrewsbury during 2005. We will promote this scheme and encourage extension to other areas of the County within the LTP period.

Better integration of services

5.6.30 The provision of easy and fast interchange between passenger transport modes can increase travel options and help to provide viable alternatives to the car. We will seek to



improve co-ordination between rail and bus, and different bus services to enhance interchange opportunities, and improve the overall network quality.

5.6.31 The introduction of the new standard pattern timetable on all Arriva Trains Wales Services from 2006 has provided a significant opportunity during the new LTP period to improve co-ordination of bus and rail times and improve interchange opportunities.

5.6.32 Community and voluntary transport services can also help to provide feeder services to rail and inter-urban bus services. The Shropshire community car scheme criteria have already been extended to include taking people to their nearest public transport interchange. New rural demand responsive bus services will be designed to provide good integration with longer distance bus and rail services serving the main towns in the sub region.

More information and promotion

5.6.33 The bus information strategy will be reviewed in 2006 and at this time it will be expanded to form a passenger transport information strategy.

5.6.34 A key aim over the next LTP period will be for better integration of bus, rail, community transport, taxi and coach information. We will aim to deliver printed passenger transport information directly to all relevant households in Shropshire as well as continuing to support and promote the national "Traveline" telephone and internet based "Transport Direct" information systems. Early in the LTP period we aim to introduce electronic information terminals at key bus and rail stations and town centres to provide additional access to on-line passenger transport information.

5.6.35 We will also undertake targeted activities to promote greater use of passenger transport including specific promotions in relation

to significant service improvements. In addition, we will support specific marketing aimed at visitors and tourists. Promotions will make use of all appropriate means of communication including leaflets, web and radio and incorporate special offers and free trial periods.

Improved security

5.6.36 We will improve personal security by providing more CCTV on buses where required, and working in partnership to enhance CCTV at rail stations. We will also improve walking routes to key stops and stations. (More information in section 4.7)

Enhance conditions for cycling and walking

Better conditions for cycling

5.6.37 We will encourage cycling by extending our cycle networks, mainly in urban areas, with a particular focus on journeys to school, work and town centres. (Further details are provided in 7.6).

Better conditions for walking

5.6.38 Walking is already an important mode of transport, especially in town centres. We will encourage walking by providing quality walking routes, more road crossings, better lighting and security and safer routes to schools. (Further details are provided in 7.6).

Encouraging 'smarter choices'

5.6.39 We will work to raise awareness of travel choices and their consequences and promote available travel options. This will be done through:

- actively supporting the development of school and employer based travel plans
- undertaking personalised travel planning

- enhancing information and publicity about public transport, cycling and walking
- undertaking event focused and longer term travel awareness campaigns
- and supporting innovative projects such as car clubs, car sharing and teleworking

5.6.40 (Further details are provided in section 6.6)

New development

5.6.41 We will continue to work with district and borough councils to ensure new developments are located and designed so that they can be accessed by a choice of transport modes, and do not encourage unnecessary car use. This will include the requirement for travel plans to be prepared for appropriate developments.

Managing parking

5.6.42 We will work with district, borough and town councils to establish town parking strategies for on and off street parking and set levels of parking and where appropriate charges which do not have negative local economic impacts, but which discourage unnecessary car use.

5.6.43 We will implement decriminalised parking enforcement for on street parking throughout Shropshire, subject to obtaining the necessary approvals, to enable more effective enforcement of parking restrictions.

5.6.44 Further details of our measures to manage parking are provided in section 6.6.

Encourage traffic to use the most appropriate routes

5.6.45 As well as reducing overall levels of traffic we will take positive steps to make sure traffic uses the most appropriate routes, minimising impacts on communities and high quality local environments.

Heavy goods vehicles

5.6.46 We will take measures to encourage HGV traffic to use the most appropriate available routes, where impacts on local communities and sensitive environmental areas can be minimised. Working through our established Freight Quality Partnership, we will define a core HGV network, and where possible place weight restrictions on the most unsuitable routes.

Core HGV network

5.6.47 We will work with the Freight Quality Partnership to establish a defined core HGV network. In defining this network we will try to minimise potential impacts of HGVs on local communities.

5.6.48 We will identify the locations on this core network where it will be desirable to provide improvements to assist the movement of lorries. Equally, we will identify locations that are not on the core network where restrictions on HGV traffic can be put in place in order to improve environmental quality and safety.

5.6.49 A map will be made available to freight operators to advise them of the core HGV network and advisory routes, and to provide information on town centre deliveries, the location of HGV hazards, HGV restrictions and useful facilities.



Rail freight

5.6.50 Although it has not proved viable to provide a dedicated rail freight facility for Shrewsbury, we support the planned provision of a new depot at Donnington, Telford, which will help reduce long haul lorry movements.

Rat running

5.6.51 We will investigate the causes of rat running onto unsuitable roads and where possible take measures to prevent it. Implementation of the Network Management Duty should help to reduce the impact of temporary road blockages which contribute to rat running.

Traffic signing

5.6.52 We will undertake comprehensive signing reviews in our major towns, as well as in rural areas where there are identified problems with vehicles, including HGVs using inappropriate routes. Improved signage systems will aim to provide clear information and ensure traffic is being routed in the most appropriate way.

5.6.53 We will also take active measures to reduce clutter from road signs and markings in sensitive rural and historic urban areas. In new schemes we will always try to use the minimum signs necessary for safety and to give clear directions. We will also undertake selected reviews of streets in sensitive areas to reduce clutter and improve functionality.

5.6.54 In main centres we will look to use intelligent transport systems to improve traffic routing, including the use of car park real time information to prevent unnecessary circulation of traffic.

Quiet lanes

5.6.55 We will complete our review of the 'quiet lanes' schemes undertaken in recent years, which have followed a variety of approaches, to assess their benefits and value for money. This will inform a decision on whether to deliver further schemes, and if so what the criteria should be.

Use of appropriate design, processes and technological solutions to enhance and reduce impacts on the environment

Public realm enhancements

5.6.56 Our future programme will build upon the successful work we have undertaken in the larger market towns to enhance the street environment. Working closely with district, borough and town councils, we will build on our considerable experience of creating high quality improvements in the public realm, with improved paving, better co-ordinated street furniture and where appropriate more trees and planting. We will look for opportunities to contribute towards improved urban spaces, including enhancing "green infrastructure."

5.6.57 In Shrewsbury our programme will include consultation on a potential major partnership project to enhance the pedestrian environment in Pride Hill. We will implement a scheme to provide wider footways and improved crossing points for pedestrians in Castle Street, St. Mary's Street and Wyle Cop. We will work with Shrewsbury and Atcham Borough Council on schemes to regenerate the West End of the town.

5.6.58 We have made allowance within our programme to support further town centre enhancements in Shropshire's market towns. Early in the plan period we will deliver a high street environmental enhancement scheme in

Cleobury Mortimer in partnership with Advantage West Midlands, improving pedestrian facilities and enhancing conditions for visitors and shoppers. We will identify further public realm works within other market towns, and prioritise these based upon their benefits to enhancing safety, improving air quality and relieving congestion, as well as improving the local environment and supporting local economies.

Appropriate materials

5.6.59 We will seek to use appropriate construction materials when implementing traffic and transport schemes in sensitive rural and historic areas

Parking in rural areas

5.6.60 We support the limited introduction of concealed off-highway parking of an appropriate scale in sensitive rural locations to reduce visual intrusion from parked vehicles.

Guidance for management of roads in the AONB

5.6.61 We will develop specific guidance to ensure that our transport activities and practices minimise the impact on the Shropshire Hills AONB.

Street lighting

5.6.62 Different types of area will require different levels of lighting. We will seek to use lighting in an appropriate way in sensitive locations. Where lighting is replaced or new lighting provided we will aim to use modern lights which direct the light more effectively and reduce light pollution. We will also continue to source electricity for street lights from renewable sources, recycle lights and materials where

possible and investigate further ways of reducing greenhouse gas emissions e.g. use of solar powered infrastructure.

Noise

5.6.63 When undertaking structural highway maintenance we will aim to utilise appropriate surfacing materials to reduce noise levels, whilst preserving safety for all users and the sustainability of the highway asset.

Biodiversity

5.6.64 We will work to reduce the impacts of our transport activities on biodiversity by:

- roadside verge and hedgerow cutting practices which enhance habitats and minimise wildlife impacts
- taking opportunities to create new habitats as part of improvement schemes e.g. habitat for bats and sand martins in replacement bridge structures
- reducing severance and possibilities of road collisions through crossing provisions such as badger tunnels in upgraded or new highway infrastructure
- minimising winter salt use to reduce impacts from salt run-off on habitats

Recycled materials

5.6.65 We will continue to use recycled materials for highway maintenance reducing energy consumption.

Highways maintenance practices

5.6.66 Reducing the environmental impact of highway maintenance activities is a key consideration and a specific action plan has been developed to help enhance the use of sustainable practices. This is shown in Table 5.11.



Table 5.11 Highways and bridge maintenance: sustainability actions and targets

Purpose	Action	Target
Develop sustainable procurement procedures within all elements of the supply chain.	Encourage highway maintenance contractors to use more sustainable practices by the adoption of permissive specifications and early contractor involvement.	3 permissive specifications to be introduced during 2005/06 (<i>target to be reviewed each year</i>)
Encourage repair, reuse and recycling ahead of the responsible disposal of surplus materials, and minimise waste generation.	Increase the use of sustainable techniques in the maintenance and improvement of the highway network.	3 permissive specifications to be introduced during 2005/06 (<i>target to be reviewed each year</i>)
Maximise the efficient use of energy and materials.	Develop a phased programme aimed at reducing CO ₂ emissions from street lighting and other highway lighting.	To change 10% of capacitors every year thereby reducing energy consumption
Take positive actions promoting continual improvements.	Increase the use of Sustainable Urban Drainage Systems in highways projects, including above ground water storage where feasible (to enable additional biodiversity benefits).	Sustainable drainage systems will be provided wherever possible
	Ensure the sensitive management of road verges where possible throughout Shropshire, whilst maintaining safety for road users.	Mowing of rare or unusual groups of flowers in verges will be avoided unless this causes a danger to road users
	Ensure the protection, preservation and management of the historic environment.	Appropriate maintenance will be provided to bridges which are either listed or ancient monuments. Special consideration will be given to works in conservation areas

5.6.67 In addition to the agreed action plan during the LTP period further investigations will be made to further enhance sustainability:

- Review the current arrangements for road side tree management
- Progress the programme for the use of recycled materials and compliance with Code of Practice requirements
- Keep under review a programme to improve the environmental sustainability of the service, including the replacement of salt piles with bins wherever possible

Promoting more sustainable car use

5.6.68 We will use our travel plan and travel awareness activities to raise awareness of the links between car based travel and climate change. We will promote 'greener driving techniques' and the purchase of more fuel efficient vehicles, and the use of alternative fuels,

including bio-diesel. We will also seek to increase the proportion of new, more fuel efficient buses in use in the County.

Air Quality Management Area (AQMA) action plans

5.6.69 We will work with District Councils to develop and implement Action Plans to address the specific problems in AQMA where traffic is the main generator of poor air quality. SCC have been particularly involved in the development of air quality action plans for those AQMA's resulting from vehicle emissions on County roads.

Shrewsbury

5.6.70 Following consultation and assessment the draft final action plan for Shrewsbury Town Centre and Heathgates AQMAs in Shrewsbury is set out in detail in Appendix Appendix D.

5.6.71 In Shrewsbury Town Centre the key aims of the action plan are in Table 5.12

Table 5.12 Shrewsbury AQMA action plan summary

Key aims	Examples of actions
Seek to prevent further traffic growth in the town centre, through the reduction of through traffic, encouraging a switch to alternative modes and car sharing for trips to the town centre, and reducing unnecessary traffic through improved signing and real-time parking information	<ul style="list-style-type: none"> • Better public transport infrastructure and information • Park and ride improvements • Pedestrian and cycling infrastructure improvements, training and promotion • Travel plans, travel awareness work and individualised marketing • Car park strategy • Review signing • Intelligent car park signing
Reduce vehicle emissions by encouraging use of greener fuels, improving emission standards of bus fleet using SCC contracts or through quality partnerships	<ul style="list-style-type: none"> • New diesel electric park and ride buses • Seek upgrading of commercial buses to more modern and cleaner vehicles through BQP • Licensing conditions for taxis and PHV • Cleaner public sector fleets
In locations experiencing the worst air quality problems seek to reduce localised congestion and smooth the flow of traffic e.g. review of traffic signal timings, better enforcement of illegal on-street parking which causes congestion	<ul style="list-style-type: none"> • Review signing • Investigate intelligent traffic systems and urban traffic control • Investigate delivery restrictions • Review parking and waiting restrictions • Introduce decriminalised parking enforcement and enhance enforcement action
In specific locations where, due to geographical constraints, the use of the above measures will not achieve the required air quality reduction e.g Castle Foregate, we will consider the use of new technologies to achieve our goals.	<ul style="list-style-type: none"> • Review road layout and traffic circulation systems • Encourage switching off of engines in car parks/ bus station • Investigate new paving materials which contain a catalyst to breaking down pollutants and improve air quality.

Bridgnorth

5.6.72 Investigations into the small Bridgnorth air quality management area have shown that the exceedences of the air quality standards are likely to occur in the morning peak period. The

emerging action plan will therefore focus upon measures to reduce traffic and emissions in this period. Investigations into the causes of poor air quality have shown that buses and HGV's make



a disproportionate contribution to overall NO_x levels. We will also look at ways to reduce the impact of these vehicles

5.6.73 The action plan, being developed in conjunction with the district and town councils will include consideration of the following measures:

- Time restrictions on HGV's using Pound Street
- Restrictions on delivery/ loading vehicles using Whitburn Street which can affect traffic flow
- Trial of a park and ride scheme
- Continued implementation of school travel and safer routes to school measures for the three large schools based on Innage Lane - traffic going to these schools passes through the AQMA
- Review of the town car park Strategy - to encourage people to use alternative car parks, reducing traffic flow through the AQMA
- Seek to introduce cleaner buses and coaches for both public services and school travel services
- Improve enforcement of waiting restrictions on Whitburn Street following introduction of decriminalised parking enforcement
- Measures such as improved signage to encourage re-routing of traffic to avoid the AQMA

5.7 Partnership working

5.7.1 A range of partnership working will be necessary to effectively deliver our Environmental Strategy. Some examples are:

Partnerships with public transport operators

5.7.2 Public transport operators will be critical to the success of our aim to improve the quality of public transport services and increase patronage levels.

5.7.3 The majority of commercial bus services in Shropshire are currently operated by Arriva bus. We have an existing Bus Quality Partnership agreement with Arriva covering a few routes, including the recently upgraded Shrewsbury to Oswestry quality bus service.

5.7.4 Arriva have agreed in principle to the extension of this agreement to cover other services. Over the LTP period we will aim to extend this agreement to cover other routes including route 22 serving Shrewsbury Hospital, as well as routes 25, 12, 16 and 23 within Shrewsbury town.

5.7.5 We will also develop the partnership agreements to cover issues of punctuality, forming Bus Punctuality Partnership agreements

5.7.6 We will continue to meet with key bus operators on a regular basis and look for other opportunities for joint working. An recent example was the submission in 2005 of a 'kickstart' funding bid to enhance the X5 commercial route to Telford, in partnership with Arriva and Telford and Wrekin Council. Although the bid was not successful, some improvements to the route have been agreed and implemented locally. We will still seek funding to trial a further enhanced service on this potentially high capacity route.

5.7.7 Through our dedicated rail officer we will also continue to work closely with the rail operators in Shropshire to jointly deliver station improvements; and to seek passenger services which meet the needs of Shropshire people

Public transport forums and partnerships

5.7.8 SCC are involved in a number of local partnership and forums which oversee the delivery of our passenger transport programmes. These includes regular rail and bus forums, which involve both operators and local stakeholders. We also support three Community Rail Partnerships in the county, supporting their work to improve and promote their local lines.

Working with other authorities

5.7.9 We will work in close partnership with district and borough authorities in delivery of the air quality action plans, and monitoring of traffic and air quality in the County.

5.7.10 We are also helping to share and spread best practice with authorities across the County through our Beacon Authority Sustainable Energy work.

5.8 Performance management

5.8.1 In order to monitor our performance in delivering our environmental strategy and achieving our aim to protect and enhance the environment, we have identified a series of performance indicators. These are outlined in Table 5.13 (key indicators, for which we will set LTP targets, are highlighted in bold)

Table 5.13 Environmental performance indicators

Objective	Outcome	Indicator
Improve air quality particularly in AQMA's	People will be able to breathe clean air, and there will be no areas in Shropshire where air quality does not meet minimum standards.	AQMA Air Quality- Levels of NOx emissions (LTP8a) AQMA Air Quality - traffic levels (LTP8b)
Improve local environmental quality and reduce the impact of traffic	More people will use public transport, helping to reduce traffic levels	Public transport patronage (BVPI102) Rail Patronage Community and voluntary transport patronage Satisfaction with public transport information Perceptions of improvement to public transport services Number of quality bus routes Proportion of households receiving public transport information
	More people will use park and ride services to access town centres	Park and Ride patronage (S1)
	People will enjoy a better quality environment	Condition of SSSI's River quality Perception of traffic noise as a problem Landscape character impact Tranquility Number of town centre enhancement /regeneration schemes Use of recycled and secondary aggregate in road maintenance Proportion of low light polluting street lights



Objective	Outcome	Indicator
	<p>People in many towns and villages will experience less negative impact from: traffic and heavy good vehicles using inappropriate routes; illegally parked vehicles and speeding traffic.</p>	<p>Use of minor roads by freight traffic</p> <p>Traffic /HGV's levels in town centres</p> <p>Number of reduced speed limits in towns and villages</p> <p>Number of illegally parked vehicles served with an enforcement notice</p>
<p>Reduce greenhouse gas emissions from transport</p>	<p>The rate of traffic growth in the County as a whole will be reduced. Combined with greater use of more energy efficient vehicles and renewable fuels this will contributing to reduced greenhouse gas emissions</p>	<p>Change in area wide road traffic mileage (LTP2)</p> <p>Use of alternative (low carbon) fuels</p> <p>Number of organisations with a travel plan</p>