Provisional Second Local Transport Plan for Norfolk 2006 - 2011

Norfolk County Council
working with
Mott MacDonald
MAY GURNEY

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The Provisional Second Local Transport Plan for Norfolk; 2006 - 2011 is available for reference at: www.norfolk.gov.uk (click on 'Transport and Streets', then 'Transport Planning')

Photographs on the front cover:

Clockwise from top:

- Cromer pier
- Artists impression of East Port, Great Yarmouth
- Rainbow of Norwich Park & Ride outside St Peter Mancroft Church
- The Broads
- Cyclists at Holkham Bay

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Preface

Provisional Local Transport Plan for Norfolk 2006 to 2011

Preface

I am pleased to present the Provisional Second Local Transport Plan for Norfolk.

This plan builds on our success with the first Local Transport Plan. This first Plan was submitted to Government in July 2000, covering the financial years from April 2001 to 2006. In this period, we received some £170 million Local Transport Plan funding for transport improvements and maintenance in Norfolk. We supplemented this money with funding from our own resources, and also by drawing in money from elsewhere. Over the past five years we have:

- Completed the Nar-Ouse Regeneration Route in King's Lynn
- Built a Cringleford link road in Norwich, providing a second access to the Norfolk and Norwich University Hospital
- Provided new footways, especially in rural areas of the county
- Completed a ring of Park and Ride sites around Norwich, and a new bus station
- Completed the Broome-Ellingham bypass.

We have been rated as joint fourth best for our work on implementation, and have been awarded centre of excellence status for local transport delivery. With this second plan, we want to continue to be a high performing authority.

This provisional plan sets out how we will do this. It has been informed by consultation with many people and organisations. The Plan includes a long-term strategy for transport and a five year implementation plan, setting out how we will tackle the challenges ahead. We recognise the need for infrastructure in the county and include submission of a bid for funding a bypass for Long Stratton with this Provisional Plan. We are also continuing work on a Norwich Northern Distributor Road, together with taking forward a programme of smaller, though still important schemes including footways, cycleways and improvements for public transport. These measures will help us to continue to provide an efficient transport network in the county suitable to meet changing needs, including substantial growth that we are likely to see in the future.

We will carry out consultation on this Provisional Plan in the autumn of 2005. This consultation will help us refine the Plan, before submission to Government of the final, full second Local Transport Plan in March 2006.

I would like to thank everyone involved in preparation of this document, and look forward to its implementation to benefit the people of Norfolk.

Adrian Gunson

Cabinet Member for Planning and Transportation

Executive Summary

The Local Transport Plan describes Norfolk County Council's transport strategy for the period 2006 to 2021, including an implementation programme for the period 2006 to 2011.

Vision

"*Norfolk is a well-connected place in which to live and do business and to visit, and is known as a national leader in making the transport system safer and reducing the transport impacts on climate change*".

Overall strategic approach

We will reduce the need to travel and help people and businesses get where they need to get to, enabling them to do this in a more sustainable way, whilst reducing congestion, protecting and enhancing the environment, and improving road safety. Care has been taken to ensure that private car travel is made an integral part our approach to sustainable travel by encouraging the use of alternative fuels and low emission vehicles.

Thematic Strategies

Delivering sustainable growth - Integrating spatial, economic and transport planning

- Improve strategic accessibility to reduce the remoteness of Norfolk and improve economic performance. At a strategic level this is expected to reduce the need to travel by balancing jobs and housing growth, thereby reducing the need for people living in Norfolk to travel longer distances to jobs outside the county
- Improve connections by road and particularly public transport within sub-regions
- Make the housing and jobs growth that is accommodated more sustainable by ensuring it is located so as to minimise the need to travel, especially by car, and that this is supported by appropriate transport improvements
- Decisions across the County Council will take into account the transport consequences and the need to reduce the need to travel.

Improving accessibility

- Improve local connections and promote better accessibility to jobs and services, especially by public transport, cycling and walking. Prioritise improvements in those deprived areas of the county with low car ownership and poor public transport
- Ensure sufficient provision is made for cars, freight and other traffic to give it access on the most appropriate routes.

Reducing congestion

- Reduce delays to people and traffic, and focus interventions on those areas where congestion is worst, and particularly where delays are affecting public transport most. This will be by

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improving the efficiency of the transport network and enabling people to reduce their car use, but in some cases will involve increasing road capacity.

Protecting and enhancing the environment

- Reduce emissions from transport at source by enabling a shift to alternative fuels and low emission vehicles
- Protect the environment by integrating environmental considerations into plans and programmes, and decision making.

Improving road safety

- Reduce casualties by targeting investment on locations or accident types where there is a disproportionate accident involvement. This means focusing on particular cluster sites and increasingly routes, and particularly on those where people are killed or seriously injured. This will sometimes include major road improvements to tackle the more intractable problems
- An increasing focus on encouraging safer road user behaviour, particularly to improve the safety of those road user groups disproportionately involved or injured in accidents
- Reduce danger for vulnerable road users, such as cyclists and pedestrians, to improve accessibility for them.

Area Strategies

Norwich Sub-Region

The Norwich sub-regional strategy recognises the Norwich area as a centre where growth will be focused. It recognises the importance of providing essential infrastructure including a Northern Distributor Road, and improvements to the A11 and A47 trunk roads, needed to accommodate growth and support the development of the Norwich area as a sustainable community. The strategy supports Norwich's role as a Regional Interchange Centre, the role of market towns. Because of the draw of Norwich the links, especially public transport links, between it and the market towns are of particular importance. Within the city built up area, the strategy carries forward the recently agreed Norwich Area Transportation Strategy, including extending the pedestrian dominated area of the city centre and promoting travel choice and accessibility into and within the area by all modes.

Great Yarmouth/Lowestoft Sub-Region

The strategy will seek to address the transport issues which relate to a relatively poor local economy and the need to regenerate the area. The measures will include:

- Improving access to employment and services by public transport, cycling and walking, particularly from the deprived areas

- Improving strategic access to the area by road and rail, including the entry and exit points, which in turn may reduce the real and perceived remoteness of the area that may be inhibiting economic growth
- Measures to reduce congestion to ensure it does not discourage tourism.

King's Lynn Sub-Region

The King's Lynn sub-regional strategy will work to complement the emerging Urban Renaissance Strategy for King's Lynn and the wider area. It will therefore help to deliver improvements to public spaces, in particular the town centre, and create a vibrant environment in which people will spend time and choose to live. The strategy will focus on improving travel choice, especially better public transport, within King's Lynn and between King's Lynn and other parts of the sub-region, and removing traffic from key public spaces. Furthermore, it will provide a framework through which to deliver transport improvements that will assist regeneration and growth.

Rural Norfolk

Market Towns

This strategy recognises the role of market towns as service centres to their surrounding areas. It will seek to:

- Improve their role as interchange centres, including interchange between modes in the towns, and connections between the towns and surrounding rural areas and other market towns/urban areas
- Improve accessibility within the towns, particularly improving the walking and cycling environments
- Traffic has been growing considerably in market town due to housing and populations growth and we need to remove traffic from town centres where possible, sometimes through providing traffic with new alternatives roads, to promote vibrant public spaces and thriving local economies to serve the rural hinterland.

North Norfolk Coast Area of Outstanding Natural Beauty

The strategy recognises the special character of the area and:

- Seeks to mitigate the traffic impacts on the sensitive landscape areas and in villages, conserving the natural character, historic environment and tranquility of undeveloped areas
- Will develop market towns as entrance points into the area and seek to build strategic links between these and the main urban areas in the county
- Builds on the innovative schemes including quiet lanes and village traffic management schemes that have been introduced
- Recognises the importance of the area a tourist attraction. It will support the tourism industry in becoming more sustainable, through managing the way in which visitors access the area, and using transport to help manage visitor access to more sensitive sites.

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Broads Area

The strategy recognises the special features of the Broads area and focuses in the main on providing a transportation system that promotes sustainable tourism. It aims to provide a safe, secure and accessible transport system that supports sustainable tourism, enhances the economic vitality and liveability of the Broads area, whilst minimising the adverse impacts of transport and climate change on the Broads' unique environment. The strategy will focus its efforts on enhancing a sustainable transport system by:

- Improving sustainable transport options such as walking, cycling and public transport
- Improving sustainable transport interchange facilities
- Improving information and raising awareness about transport choices for tourists.

Major Schemes

Major schemes are those costing over £5m and for which we need to make bids for funding from the government. As part of our transport strategy up to 2021 we are progressing a number of major schemes:

- There is a formal bid as part of our provisional Local Transport Plan for the A140 Long Stratton bypass
- The Norwich Northern Distributor Road will constitute a bid in due course
- A Third River Crossing in Great Yarmouth, and a countywide public transport ‘smart-card’ scheme may also constitute bids pending further technical assessment work
- A number of rural bypasses are also needed on key routes and these will continue to be reviewed with a view to improve their value for money.

Contents

1. Introduction

Norfolk is in the East of England Region. It is a diverse county, having sparsely populated rural areas with villages and market towns, and also three urban areas, including the city of Norwich which, with a population of almost 200,000, exercises a large influence over the county. Norfolk's economic performance lags behind the East of England region, with the gap forecast to widen, and some areas, such as Great Yarmouth, have particular economic and regeneration challenges. Although there are areas of affluence, much of Norfolk is characterised by low skills, low aspirations, low income, and levels of rural and urban deprivation that are the highest of the six counties in the region. It has low levels of crime, despite pockets of concern in the urban areas, and the standard of health is similar to the region as a whole, though the ageing population of Norfolk does mean that the county has a disproportionate number of people with a limiting or long-term illness. Norfolk has a very high quality environment. Most of Norfolk is in the 20% least deprived in England on the measure of the 'outdoors' living environment; hardly surprising in such a beautiful rural County. However, there are pockets of concern in the urban areas, particularly with regard to local air quality and the streetscape.

Transport in Norfolk

Improving public services is one of our five corporate core values. Transport is a vital public service that helps to deliver opportunity for all. This is because transport is rarely an end in itself. It is a demand derived from other activities and needs, such as going to work or shopping. In this Local Transport Plan, transport is seen in the context of the 'bigger picture', in helping to improve Norfolk's economy and address its social issues such as deprivation, but also protecting and enhancing its unique environment.

Most of us travel every day and accessibility to jobs and services is important for maintaining and enhancing our quality of life. Indeed, transport opens up the world to people. Many of us gain access to what we need in many ways: by car, bus, train, walking, or cycling.

Cars in particular have changed the way many of us access what we need and the use of the car has brought greater independence and opportunities. Car ownership and usage in Norfolk is higher than the national average and continuing to increase, largely because of Norfolk's rural nature and dependency on the car for many trips. Indeed, many people consider the car as necessary to meet their basic lifestyle commitments.

The increasing availability and use of the car in Norfolk is often a consequence of its rural nature and the poor viability of reasonable public transport services, leading to a need to own, and then use, a car to serve many daily needs. This has had an impact on the extent to which people use other forms of transport. Walking and cycling are traditionally popular means of transport in Norfolk, but these have been in decline over recent years. Similarly, public transport use had been reducing for a number of years, but recent large increases have reversed this trend, and we have successfully mitigated some impacts through the ring of park and ride facilities around Norwich. Despite increasing car use, many journeys are still made by walking, cycling, motorcycling and public transport. From the business perspective, the local economy depends on access to markets and Norfolk's geographical remoteness is exacerbated by the poor strategic transport connections to major destinations.

1. Introduction

Improving accessibility for people and businesses does come at a price. Increasing traffic levels are a concern for many people in Norfolk and there are consequences such as:

- Persistent congestion in the urban areas and seasonal congestion in the tourism hot-spots, although overall Norfolk has below average levels of congestion
- Road traffic accidents, especially the more serious accidents as, despite a big reduction over recent years, Norfolk has a high number compared to the national average
- Harm to the environment, with traffic causing air quality problems in Norwich and King's Lynn and making a higher than average contribution to global climate change compared to the national average
- In addition, many people who do not have access to a car can have quite limited opportunities to access what they need, especially for many of our rural residents not served by frequent public transport and for whom services are dispersed. This makes it difficult for them to lead independent lives and play a full role in their communities. So a transport system that is too car-based can be exclusive.

Furthermore, the scale of change and growth taking place in Norfolk is considerable. The challenges will not be overcome solely by building new infrastructure. No practical and affordable improvement programme on its own could meet the challenges, even if it was considered acceptable to tolerate the environmental consequences. So we need a range of interventions that complement each other. It is vital to have a strategy in order to ensure a consistent framework in which transport improvements can be delivered and to ensure that the whole is greater than the sum of the individual parts.

Local Transport Plan

The Local Transport Plan has a long-term transport strategy and a five-year implementation programme to address the challenges outlined above. We published our first Local Transport Plan in July 2000, covering the five-year period from April 2001 to March 2006.

In publishing the White Paper "The Future of Transport" in July 2004, the Government set out a clear analysis of the transport challenges the nation will face over the next 30 years and how the Government intends to respond to them. In doing so, the Government has signalled to local authorities the need for them, as key delivery partners, to look again at the transport strategies being pursued at local level. In particular, the White Paper puts considerable emphasis on the importance of making resources work harder to deliver better outcomes for people.

We have therefore taken the opportunity to undertake a review of our transport strategy in the policy context of the White Paper, as well as the regional and local context. This document, our second Local Transport Plan, covers the next five-year period from April 2006 to March 2011 but with a longer term strategy up to 2021. It is our provisional Local Transport Plan, with the final version due to be submitted to Government in March 2006.

1. Introduction

Structure of the Local Transport Plan

The strategy is described in:

- The Strategic Framework. This sets the vision, objectives and overall strategic approach, and so effectively steers the thematic strategies
- The Thematic Strategies. We have developed strategies for delivering sustainable growth, improving accessibility, reducing congestion, improving road safety, and protecting and enhancing the environment. These provide the countywide policy framework for transport improvements and the area strategies
- The Area Strategies. Norfolk is a very diverse county, being a mix of urban and rural areas, and so the thematic policy framework can be applied differently in different parts of the county. To reflect this we have the area strategies.

This is a very top-down approach such that each of the above sections sets the framework for the next.

Finally, the implementation programme translates the strategies into an actual investment programme for delivery. It describes an implementation programme up to 2011 for schemes costing less than £5 million and up to 2021 for schemes costing more than £5 million.

2. Guiding Principles

Introduction

This chapter, drawing on our Corporate Core Values, is a summary of important principles that we use to influence how we develop and manage our strategies.

Working in Partnership

Working in partnership with other key stakeholders and delivery agencies helps to enhance local support for the Local Transport Plan, and assists the delivery of our own transport programmes and the programmes of those partners. Partnership working happens at all levels of the Local Transport Plan, from the strategic integration of policies and investment, to the co-ordinated delivery of specific initiatives. At the strategic level we will:

- Continue to be on the Corporate Medium Term Plan group for tackling urban and rural deprivation with a view to promoting solutions through accessibility planning
- Continue to work with the Local Transport Plan Project Board, on which the District Councils and Broads Authority are represented, to develop the 'final' Local Transport Plan in March 2006
- Continue to work pro-actively with the County Strategic Partnership, especially to roll-out the strategic assessment of countywide accessibility to jobs and key services and the identification of multi-agency local accessibility actions
- Work with the District Local Strategic Partnerships and through them engage with a wider set of stakeholders
- Continue to work very closely with the local planning authorities on land use, regeneration and transport issues to ensure co-ordinated planning and the delivery of integrated solutions. We consider this working partnership to be key to the delivery of the Local Transport Plan
- Continue where appropriate the corporate working groups set up to develop the thematic strategies (involving corporate policy and performance, economic development, environment and spatial planning)
- Continue where appropriate the area strategy steering groups (comprising the East of England Development Agency, Eastport, regeneration and planning officers from district councils)
- Ensure the right connections and working arrangements are made within the County Council, especially to promote the integration of spatial, economic and transport planning
- Continue to work with transport operators, the police, Highways Agency and other key partners to deliver co-ordinated multi-agency programmes and working arrangements
- Improve our liaison with other key stakeholders, such as the Statutory Environmental Bodies, to minimise the harm transport schemes might have on the environment
- Continue to work positively with colleagues at Go-East.

Not everything has automatic widespread support. It is beholden on the County Council at times to demonstrate community leadership and move forward with controversial transport proposals. The Norwich Northern Distributor Road is a key element of the growth of the Norwich sub-region and helping Norwich be ready for the 21st century. We have worked very closely with the local planning authorities and the East of England Regional Assembly on ensuring this complex and

2. Guiding Principles

difficult project has progressed from rapidly to the selection of a route in September 2005. This has involved a highly intense and comprehensive level of community involvement (see Chapter 12).

Community Involvement

Representing Norfolk people effectively is one of our five corporate core values. In developing Norfolk's second Local Transport Plan we have been through a thorough and effective and value for money consultation process.

It is difficult for the Local Transport Plan itself to deliver the outcomes that are needed; only people can do that. We can build a new cycle route, but it needs people to decide to use it and increase the number of cycling trips. Providing services and facilities that people need and will use is therefore essential.

We wanted to be careful that the process was value for money and was not simply repeating other consultations carried out by partner organisations or by other parts of the County Council. Initially we therefore carried out:

- A comprehensive audit of corporate strategies, themselves developed through consultation, as well as those of our partners. Priority was given to the countywide community strategy, Norfolk Ambition, and the community strategies of the district-based Local Strategic Partnerships. Particular attention was paid to analysing how transport strategy and policy can strengthen the achievement of Norfolk's wider economic, social and environmental objectives captured in these
- An audit of recent consultations conducted by the County Council and our partner organisations, such as the Norfolk Citizens' Panel reports and the MORI report View of Norfolk Residents 2001-2004.

To supplement this exercise:

- In Spring 2005, key stakeholders (including public transport operators, local businesses, parish councils, special interest groups) and the public were consulted on the draft strategic priorities for our thematic strategies. During this process we successfully engaged with the Norfolk County Strategic Partnership and the district Local Strategic Partnerships. Key social groups which analysis revealed had not had sufficient input into the main consultation process were also targeted through workshops, including those with younger people, and meetings held with key agencies such as the Rural Transport Partnership. This, along with technical work, enabled us to establish countywide draft strategic priorities
- Area specific consultations were carried out as part of the development of the Area Transport Strategies. For example, for the Norwich Area Transportation Strategy, in one phase of the consultation ten public meetings and 22 staffed exhibitions were held and over 140,000 leaflets were distributed. In total, 21,000 completed questionnaires were returned.

Further consultations on the implementation programme and targets are planned for Autumn 2005 as part of the development of the Final Local Transport Plan.

2. Guiding Principles

Cross Boundary Working

Transport issues by their nature do not respect local authority boundaries. At the local level, we regularly liaise with the County Councils of Cambridgeshire, Suffolk, and Lincolnshire to tackle this issue. In addition, all of the local transport authorities in the East of England have been working together through the East of England Directors of Environment and Transport Local Transport Plan Group to:

- Identify and address transport issues of concern across the region
- Jointly promote transport projects of common interest
- Share information, experiences and best practice to address cross border issues
- Encourage joint working between authorities to develop local transport solutions to address local cross border issues and problems.

The map overleaf shows the strategic projects of common interest. At the strategic level, the following has been achieved:

- Agreement between the relevant local transport authorities on the need for strategic road and rail improvements on the A11 corridor between Norwich and Cambridge and the A10 corridor between King's Lynn and Cambridge
- Agreement on the need for strategic multi-modal improvements on the A47 corridor. The A47 Alliance, co-ordinated by ourselves but including Cambridgeshire County Council and Peterborough City Council, continues to demonstrate community leadership by liaising with national and regional institutions to secure the required improvements to this key corridor
- A widely accepted transport strategy for the Great Yarmouth and Lowestoft Sub-Region as part of the Local Transport Plans for Norfolk and Suffolk, including agreement on the approach to improving accessibility on the A12 between the two towns
- Agreement between Norfolk and Suffolk County Councils on the approach to the A140 between Norwich and the A14 in Suffolk.The A140 road is identified in the draft East of England Plan as part of the regional road network connecting the Regional Interchange Centres at Ipswich and Norwich. In the foreseeable future, most of the improvements on the A140 are likely to be modest with a focus on addressing specific issues such as road traffic accidents and community severance. Within Suffolk the approach to speed management is under review. However, within the Norwich Sub-Region, improvements to the principal roads will play a significant role in enhancing accessibility and supporting a balanced approach to development in this area.The traffic congestion at Long Stratton on the A140 is one of two major bottlenecks having a negative impact on connections between the ring of market towns and Norwich; in this case between Diss and Norwich. Therefore, a bypass of Long Stratton is being pursued as part of our Local Transport Plan (see the separate report on the business case for more details).

Most of these are developed further elsewhere in this Local Transport Plan, especially in Chapter 6.

2. Guiding Principles

Figure 2.1 East of England Strategic Projects

2. Guiding Principles

Value for Money

Value for money is central to how we plan and deliver all our services, including local transport in Norfolk, and is one of our five corporate core values. Achieving the best value for money means we can deliver the best outcomes for the funding available, and ensures we are investing public money wisely. Although value for money can be secured at the detailed programme and scheme stages (see Chapter 17), we have also guaranteed value for money at the more strategic level by:

- Assessing overall strategic options using the New Approach to Appraisal (see Chapter 4) so that we could understand the impact each option would have on economic, social, safety and environmental matters
- Making the best use of past investment and the assets we already have, such as by improving traffic management the benefits of which are progressive and piloting innovative solutions, often relying on revenue rather than capital funding, such as smarter choices to encourage modal shift
- Setting ourselves stretching targets. Many of our targets can be considered as stretching, demonstrating that we are aiming to achieve more or better measurable outcomes for each pound invested
- Identifying clear strategic priorities so that investment and effort can be better focused
- Learning from best practice elsewhere and understanding what worked and did not work in our first Local Transport Plan (see Chapter 3)
- Using predictive modelling for Norwich and Great Yarmouth so that we could carry out strategic appraisals of the more significant proposals such as the Norwich Northern Distributor Road and the Third River Crossing at Great Yarmouth
- Conducting a robust and comprehensive evidence-led analysis of the challenges we face and the opportunities that exist, and building our strategies around this
- Ensuring that we deal with issues 'upstream' by addressing the underlying cause of a problem rather than treating the symptom. For example, our strategy for protecting and sustaining the environment is to, in the following order, reduce the need to travel, encourage a switch to more sustainable types of transport, and finally to reduce emissions from the vehicles themselves
- Ensuring resources from different sources complement each other, such as using our own revenue funding to support our capital programme, and by pooling resources with other agencies within Norfolk or other local authorities in the region to deliver specific transport improvements (see Chapter 17).

3. Lessons learned from our first Local Transport Plan

Introduction

In the five years of the first Local Transport Plan, our total indicative integrated transport allocation was £48.5 million. However, the addition of supplementary bids and reward funding, based on our good record, meant that we received an extra £6.082 million over the five-year period. This is in addition to some £95 million for maintenance and funding for major schemes. We were pleased to receive approval for the Norwich public transport major and Nar-Ouse regeneration route during the first Local Transport Plan, around £17 million of funding.

Delivery

We have established a good reputation for delivery during the last five years, consistently spending our money and delivering projects on time. This was reflected in our rating of being joint fourth best in the country following submission of our fourth Annual Progress Report (July 2004). This brought our classification up to 'well above average,' building on our previous 'above average' and 'average' classifications. This has demonstrated us steadily building on the sound foundations we placed with submission of the first Local Transport Plan. Recently, we were also rewarded with Centre of Excellence status for local transport delivery in urban and rural public transport and road safety, and Local Government Association Pathfinder status for air quality.

Progress towards targets

Good planning and programming allowed us not only to invest our money, but also to achieve desired outcomes:

- In the urban areas we have remained on track to meet our targets for traffic levels, and have been able to stretch our targets for traffic reduction in Norwich
- We have seen an increase in bus patronage across the county, and have been able to stretch this target twice
- We are on track to meet our accident reduction targets, and have been able to stretch the targets for both child and all road users killed and seriously injured.

However, we have also been able to learn from examples of where we have not been able to make such good progress, and will carry forward this learning experience into the second Local Transport Plan:

- We will make our targets more realistic (whilst still being stretching), rather than aspirational
- We will use our targets as performance management tools. For example, we are not on track to reduce traffic levels on the A149, and we should have been better in using this information to direct the works programme to put us back on course.

3. Lessons learned from our first Local Transport Plan

Solving problems and issues

Our first Local Transport Plan set out eight significant transport issues. We have made good progress against most of these through the schemes and measures implemented over the last five years:

- A programme of park and ride sites has contributed to the reduction in traffic growth in Norwich, reducing congestion
- Demand responsive transport, rural bus services like the CoastHopper, and cycleways have helped to reduce the reliance on the private car, and reduce social exclusion
- We have made good progress in tackling casualties through our road safety programmes.

However, we also recognise that on some of the issues, we have not made such progress. For example four air quality management areas have been declared since we submitted the first Local Transport Plan despite one of our objectives being to meet the Government's targets for local air quality. One of the guiding principles in the first plan was to contribute to national targets of carbon dioxide emissions. However, we did not develop a targeted programme of measures designed to reduce carbon dioxide emissions.

Our second Local Transport Plan contains a more rigorous assessment of the problems and issues, including accessibility planning work to actually quantify the issues relating to getting to essential services. With a clear definition of what the problems are, we have been able to develop a strategy to tackle these, and draw up a targeted implementation plan.

We also fell short of our normally high standards in the extent and quality of our information provision and marketing of transport improvements, though for public transport this area of work did improve dramatically towards the end of the first Local Transport Plan, and we need to build on this.

Progress towards the objectives of the first Local Transport Plan

One difficulty we found in the first Local Transport Plan (and which we have addressed for the second plan) was that it did not have a clear top-down relationship between vision, aims and objectives, through targets to the work programme. Many of the objectives were too aspirational and some were not supported by work programmes, so it was perhaps not surprising that we did not achieve these objectives.

Despite that, we made good progress towards many of the objectives and most targets, with government recognising this with our 'well above average' assessment. This was generally in areas where they were clear and supported by targets and defined programmes of work. An example of this might be our casualty reduction work.

We did improve in delivering the objectives during the first Local Transport Plan. For example, we established a programme of agreeing and implementing school travel plans and in the last two to three years have made good progress with this.

3. Lessons learned from our first Local Transport Plan

For the second Local Transport Plan, we have established a much clearer top-down thread throughout the plan, and have included only realistic, achievable objectives and targets. The implementation programme has been developed to meet these clearly defined desired outcomes in a value for money way.

Consultation and Partnerships

The first Local Transport Plan was developed through a wide range of stakeholder groups. We kept these stakeholders on board with the process through annual meetings explaining our delivery. In developing the second Local Transport Plan, we have maintained these relationships and improved the process where we recognised that there were gaps:

- We have targeted social groups under-represented in our consultations: for example, we held a focus group with young people. This will hopefully address some of the improvements suggested by the Audit Commission to our customer focus and our engagement with hard to reach groups
- We have built on links with neighbouring authorities through the East of England Directors of the Environment and Transport Local Transport Plan group, and cross-border working on Lowestoft and Great Yarmouth sub-regional strategy.

4. Strategic Framework

Introduction

This chapter sets the overall framework for the rest of the Local Transport Plan. It covers:

- The vision, which captures where we want to be in the year 2021
- The strategic aims, which describe **what** we are broadly trying to achieve that will move us towards the vision
- The objectives, which describe **how** we are going to move towards the vision
- The outcomes, which describe the ideal results from delivering the strategy and what success should look like. These have been used in the thematic strategies to develop performance indicators and targets to measure the extent of the success of the strategy and are all shown in the Implementation Programme, Chapter 17
- The overall strategic approach, which describes the general approach that will guide the more detailed policy development in Chapters 5 to 10.

Local Transport Vision for the Year 2021

"*Norfolk is a well-connected place in which to live, do business and to visit, and is known as a national leader in making the transport system safer and reducing the transport impacts on climate change*".

This means:

- People will have better travel and transport choices around Norfolk, but they will be able to get where they need to in a more sustainable way through a wider choice of travel options
- People will be provided with the information they need to raise their awareness of the choices available, enabling them to make informed decisions about how and when to travel
- Norfolk will be an easily accessible county, enabling business development to benefit from good links to the rest of the UK and Europe
- Norfolk will grow in a way that is more sustainable and that reduces the need to travel, particularly through the integration of spatial, economic and transport policy
- People, especially those facing rural and urban deprivation and social exclusion, will be able to enjoy better and more equitable access to a range of key services, facilities and opportunities, including jobs, education, and healthcare. This will help them to lead more independent and fulfilling lives, realise their aspirations and potential, and promote community cohesion
- People are, and feel, safer through reduced risk of death or injury caused by road traffic accidents
- People and businesses will enjoy freer flowing local roads with delays kept to a minimum
- Norfolk will be recognised internationally for renewable energies, for leading on reducing the impacts of climate change, and enabling people to make transport choices that help to protect and enhance our environment.

4. Strategic Framework

The vision sits within a national, regional and local policy context and is informed through the key aspirations from the various policy documents that influence the Local Transport Plan. The main national, regional and local policies are summarised below. It is important that our transport strategy is consistent with these and is helping to deliver them.

Policy	Relevant Key Objectives
National	
Central-Local Shared Priority for Transport. This is the result of an agreement between central government and the Local Government Association. The purpose is to ensure that each level of government is clear about the overall common goal and what they are all trying to do to improve transport.	• Improving access to jobs, particularly for those most in need, in ways which are sustainable • Improved public transport • Reduced problems of congestion, pollution and safety
Transport White Paper: The Future of Transport 2030. The Government has built on its 10-year transport plan with this analysis and long term strategy for transport in the UK. It provides a national policy framework with indications of sustained investment for the delivery of local transport improvements. This enables local transport authorities to plan ahead with greater policy and financial certainty.	• Freer flowing local roads • More reliable buses enjoying more road space • More demand responsive transport • Making services more accessible to improve travel choice • Promoting school travel plans, workplace travel plans and personalised journey planning • Encouraging walking and cycling • Better management of road networks • Using technology to keep people better informed
Planning Policy Guidance 13: Transport The Government has published a series of guidelines and statements that set out its policies for different aspects of land use planning in England. This helps local planning authorities take a consistent approach to land use and transportation development. Development plans at the regional and local level need to be consistent with these.	• Reduce the need to travel • Integrate planning and transport • Promote more sustainable travel choices, such as walking, cycling and public transport
Regional	
Draft East of England Development Plan and Regional Transport Strategy 2001/21 The East of England Regional Assembly has developed a draft East of England Plan. This sets out a draft Regional Spatial Strategy to guide development in the East of England, including policies on spatial, economic and transport development. It provides the framework for local authorities to produce more detailed strategies and investment plans for their areas, and its provides an overview of many issues that have implications across the region.	• Reduce the need to travel • Make travel more sustainable and improve opportunities to access services • Promote rail freight • Widen travel choice • Achieve a sustainable relationship between jobs, homes and services • Improve safety and the environment • Ensure efficient use of the transport system

4. Strategic Framework

The Regional Transport Strategy describes policies and investment proposals that seek to serve the regional spatial strategy. The Regional Transport Strategy has a key role for the Local Transport Plan through setting out the long-term planning and policy framework, and identifying regionally and sub-regionally significant investment proposals.	
Local	
Norfolk Ambition: the community strategy for Norfolk 2003/23 A requirement of the Local Government Act 2000 was for local authorities to demonstrate community leadership by working with other key agencies to develop and deliver a community strategy for improving social, economic and environmental well-being. This enables all agencies to have long term plans towards achieving the same local goals and aspirations. The process is managed by a multi-agency strategic partnership with a membership that embraces all local authorities in Norfolk; health and learning providers, police and other key agencies, including the voluntary and business sectors.	• People have the opportunity for a good quality of life • People have healthy lifestyles and good access to health care • Communities feel safe • People achieve excellent educational attainment • People are active in their communities • Norfolk has a strong reputation for renewable energies • Distinctive economy • Improve physical and virtual infrastructure connections
Norfolk County Council's Medium Term Plan 2005/08 This is the overall framework for all of the County Council's services. It includes the Council's 40 priorities for delivering and improving services for Norfolk, including the top eight priorities. The priorities relevant to the Local Transport Plan from the top eight are in the right hand column.	• Reduce deprivation in urban and rural areas • Help businesses to develop in Norfolk through improved travel and transport • Strengthening the contribution to road safety • Support older people to live independently

Table 4.1 Strategic Framework Policy Context

These policy drivers have also been used in the development of our thematic and area strategies in more detail (see Chapters 5 to 15).

Aims, Objectives and Overall Strategic Approach

The relationships between issues, the vision, strategic aims, objectives and outcomes are shown in the table overleaf.

What are we broadly trying to achieve? - Our Strategic Aims

Our local 'transport vision' and the supporting text can be broken down into five key themes, four of which coincide with the central-local shared priority for transport - accessibility, congestion, environment, and road safety. The fifth concerns the growth agenda and relates more directly to the draft East of England Plan. Therefore, to move us towards our vision we need:

4. Strategic Framework

- To deliver sustainable growth
- To improve accessibility
- To reduce congestion
- To protect and enhance the environment, and reduce the impact of climate change
- To improve road safety.

How will we broadly achieve this? - Our Objectives

In order to address the transport issues we need a set of key strategic actions or objectives:

- Improve strategic accessibility into Norfolk
- Reduce the need to travel
- Improve access to key services, facilities and opportunities, especially for those most in need
- Facilitate integration between modes of transport
- Reduce the number and severity of congestion incidents, especially where it affects public transport
- Improve journey reliability, especially for public transport
- Encourage a modal shift, particularly in urban areas
- Improve local air quality
- Mitigate climate change
- Minimise the adverse impacts of transport provision on the built and natural environment
- Reduce the number and severity of road traffic accidents
- Provide a less threatening environment for travel, especially non-motorised travel.

Outcomes and what success looks like

It is important to understand what successfully meeting our objectives will look like for the people of Norfolk. Meeting the objectives should have certain results or outcomes that are meaningful and that are delivering a better quality of life by improving local and national transport priorities. Outcomes have therefore been identified and targets (see Chapter 17) based on these have been developed that would, within the limits of the funding likely to be available, challenge us to achieve successful outcomes.

Vision	General Issues	Local Transport Issues	Objectives	Outcomes
To deliver sustainable growth				
Norfolk is an easily accessible county, enabling business development to benefit from better travel and transport to the rest of the UK and Europe Norfolk will grow in a way that is more sustainable and that reduces the need to travel	• Under-performing economy • Areas in need of regeneration • Economic aspirations such as growth in tourism • Increased housing demand • Population growth • Economic and geographical isolation	• Increasing transport demand with housing and economic growth • Poor strategic transport access into the county limiting economic growth, with this causing a potential failure to balance jobs and housing growth	Improve strategic accessibility into Norfolk Reduce the need to travel	Business satisfaction with transport improvements The need for people to travel is reduced, and the rate of growth in travel demand is reduced
To improve accessibility				

People, especially those facing rural and urban deprivation and social exclusion, will be able to enjoy better and more equitable transport access to a range of key services, facilities and opportunities, including jobs, education and healthcare. This will help them to lead more independent and fulfilling lives, realise their aspirations and potential, and promote community cohesion.	• Social exclusion and relatively high levels of deprivation • Low continuing-educational levels and aspirations • Increasing age of the population • Dispersed rural population • Pockets of high unemployment • Pockets of low car ownership, even in rural areas	Access to key services, facilities, and opportunities especially by public transport in rural areas and to urban areas and market towns, especially for those most in need	Improve access to key services, facilities and opportunities, particularly for those most in need	People, especially those most in need, have better access to a range of key services, facilities and opportunities
People will have better travel and transport around Norfolk, but they will be able to get where they need to in a more sustainable way through a wider choice of travel options available	• Restricted life and job opportunities, especially for those without a car • Increasing obesity levels	• Access to public transport information • Increasing levels of car dependency and use, especially in rural areas • Restricted walking and cycling opportunities	Facilitate integration between modes of transport Improve access to key services, facilities and opportunities, especially for those most in need	More people use public transport More people are satisfied with local bus services People make more trips by bicycle

	• The need to support the vitality of market towns • Low but concentrated crime levels	• Opportunities to interchange between modes • Personal safety when using public transport, cycling and walking.		
To reduce congestion				
People and businesses will enjoy freer flowing local roads with delays kept to a minimum.	• Increasing car ownership and use • Economic and housing growth • Cost of congestion to the economy	• Chronic congestion in urban areas. • Seasonal congestion and less frequent congestion on inter-urban roads • Unpredictable journey times, especially delays to buses • High and increasing car use. • More children driven to school	Reduce the number and severity of congestion incidents, especially where it affects public transport Improve journey reliability, especially for public transport. Encourage a modal shift, especially in urban areas	People have more reliable journeys People make fewer car journeys in main urban areas Bus passengers have more reliable bus journeys People have a wider travel choice that results in a modal shift for some journeys
To protect and enhance the environment, and reduce the impact of climate change				
Norfolk will be recognised internationally for renewable energies and leading on reducing the	• Global climate change • Public health affected by poor local air quality	• Carbon dioxide emissions from transport are high in Norfolk • Air pollution from transport in urban areas.	Mitigate climate change Improve local air quality	People of Norfolk produce less carbon dioxide through their transport activities People are able to breath cleaner air

impacts of climate change, and enabling people to make transport choices that help to protect and enhance the environment	• Good quality of life centred around a nice environment – both urban and particularly rural • Noise and light pollution	• Transport degrading streetscape, historic environment • Pressures on environment from transport development and activity	Minimise the adverse impacts of transport provision and activity on the built and natural environment.	More 'people friendly' public places and improved natural environmental quality
To improve road safety				
People are, and feel, safer through reduced risk of death or injury caused by road traffic accidents	• Road accidents are a public health issue • Obesity and other health related issues arising from increasingly sedentary lifestyles	• Number of people injured, especially killed and seriously injured, in road traffic accidents • Impact on wider quality of life and accessibility issues in urban areas, such as cycling and walking opportunities	Reduce the number and severity of road traffic accidents Provide a less threatening environment for travel, especially non-motorised travel.	Fewer people are injured in road traffic accidents Fewer people, especially children, are killed or seriously injured in road traffic accidents.

Table 4.2 Relationship between vision, aims, issues, objectives and outcomes

4. Strategic Framework

Overall Strategic Approach

Following the identification of the aims, objectives and outcomes, the next step was to identify a preferred overall strategic approach that would lead the general approach for the rest of the Local Transport Plan. Three strategic options were assessed:

1. Reduce the demand to travel by motorised means
2. Meet the forecast demand for travel in a more sustainable manner
3. Increase the supply of transport infrastructure to meet the forecast demand for travel.

These options are only illustrative and are not mutually exclusive. In practice, any strategic approach would employ elements of each of the others. These were tested and assessed strategically to help us understand their impact. The two methods used were:

- New Approach To Appraisal
- Strategic Environmental Assessment.

New Approach To Appraisal is a methodology used by transport professionals to appraise objectively different options available for solving the same problem. The criteria against which the options are appraised are:

- Environment
- Safety
- Economy
- Accessibility
- Integration.

Overall the third option, to increase the supply of transport infrastructure to meet demand, generally had negative impacts on the criteria whereas the first two options had generally positive impacts. The appraisal results were used to provide some of the analytical input to the Strategic Environmental Assessment. New Approach To Appraisal Summary Tables will be appended to the Final Environmental Report.

Strategic Environmental Assessment also provided much of the baseline information for the environment strategy (Chapter 9). Furthermore, Strategic Environmental Assessment, as an iterative process, allowed us to develop mitigation policies and measures as the Local Transport Plan was developed and environmental effects identified. As a result, the environment strategy (Chapter 9) provides a policy framework through which to mitigate the negative environmental effects arising from other policies of the Local Transport Plan. The details of Strategic Environmental Assessment carried out to date can be found in Appendix D, Strategic Environmental Assessment Interim Environmental Report.

In accordance with regulations and guidance, the Strategic Environmental Assessment Final Environmental Report will be published in parallel with the consultation on the Local Transport Plan in autumn 2005 and a statement summarises how the Strategic Environmental Assessment

4. Strategic Framework

has influenced the development of the Local Transport Plan. Also in the autumn consultation we will make available the results of the more detailed New Approach to Transport Assessment we will be conducting on the draft implementation programme.

The Preferred Strategic Approach: Meet the forecast demand for travel in a more sustainable manner

This was developed and chosen by a County Council corporate group to form the basis of the overall approach as it delivers the best outcomes and so the best value for money. However, in the assessments it was clear that there are elements of the other two strategic options that if incorporated would be beneficial, especially from the first option such as reducing the need to travel. The Local Transport Plan Project Board, on which the district councils were represented, agreed to this approach.

There are potential tensions between the strategic aims that can be addressed by the choice of strategy. Improving accessibility is a key priority and has a number of benefits. Our economy needs people to be able to move around, and increased mobility is an important part of promoting social inclusion. But, by improving accessibility, there is a risk of increasing congestion, environmental harm, and road traffic accidents.

To reduce the tension between the strategic aims, the overall emphasis of the strategy will be on improving accessibility by low impact means, such as public transport, cycling and walking, low emissions technology and improving travel choice. This will enable those who do not have a car to get to the opportunities they need, and provide those people with a car with an alternative so that they can, if they choose, reduce their dependence on it.

Policy 1

Overall strategic approach

We will reduce the need to travel and help people and businesses get where they need to get to, enabling them to do this in a more sustainable way, whilst reducing congestion, protecting and enhancing the environment, and improving road safety.

This approach seems to represent the best strategic option for delivering congestion, environmental, and road safety benefits whilst also improving access to jobs, services and facilities.

This will be delivered through our thematic and area strategies described in detail in this document. This approach also builds on potential complementary relationships between the strategic aims, as shown in Figure 4.1

4. Strategic Framework

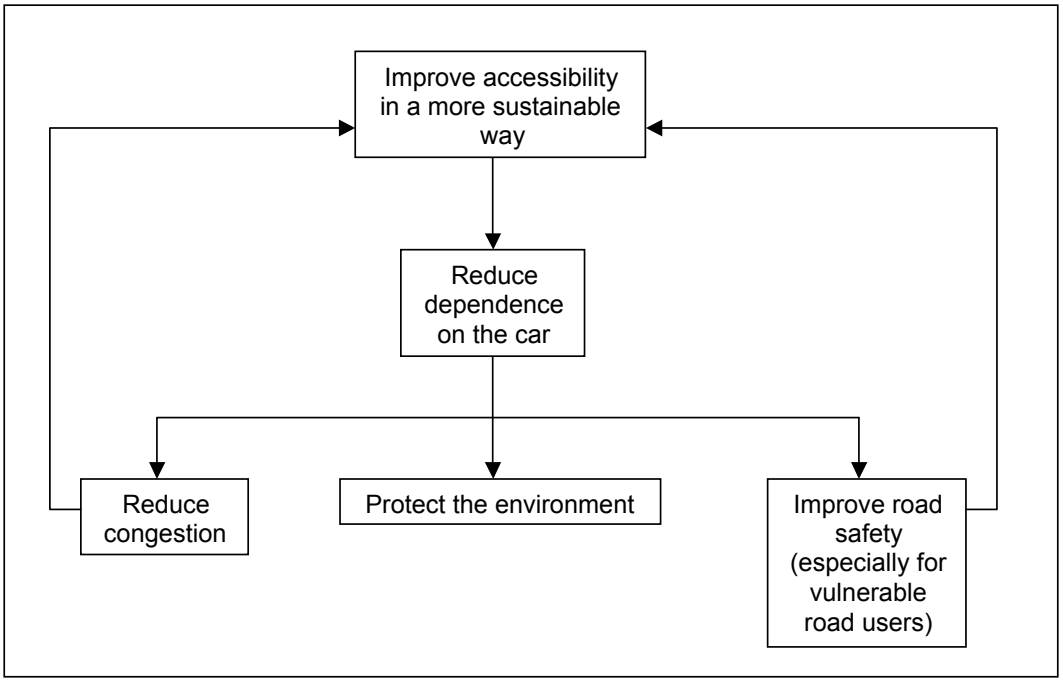


Figure 4.1 Strategic Approach Flow Chart

Overall Priorities

We will also manage the tensions during the decision making processes by identifying what our priorities are. It is clear from our vision that our main priorities are:

- Accessibility and ensuring Norfolk is well connected, particularly for those most in need
- Road safety.

These are consistently high priorities in both consultations and in our wider corporate planning framework, such as the Medium Term Plan. Climate change however is another area where it is important to lead by example, and interventions to reduce the impact of climate change will be given a high priority through the Local Transport Plan. We have therefore recently agreed with the Government to set corporate stretching targets for casualty reduction and public transport as part of our second Local Public Service Agreement.

Sustainability and the private car

Realistically, with Norfolk being a largely rural county, the use of the private car to meet many daily needs will remain dominant. The strategy will therefore embrace the use of the car as part of the sustainability agenda. The use of alternative fuels or low emission vehicles will need to be made an essential element of the approach to widen travel choice, enabling people to choose to use

4. Strategic Framework

low-impact vehicle technology. This could present significant economic opportunities for Norfolk. By positioning itself in such a pro-active way it will be well placed to take advantage of opportunities that may arise as part of national and international policies to reduce global climate change.

Information and choice

Improving choice for people is part of a number of key policies in this Local Transport Plan. Providing information so that people can make informed sustainable and safe choices about how and when they travel and access the services they need is a necessity and was perhaps a weakness of our first Local Transport Plan (see Chapter 3). Studies have shown that such an approach will be excellent value for money in terms of making the best use of existing as well as new infrastructure.

In the short term this will include providing information on:

- How to access the transport system
- How to navigate the transport system
- Sustainable travel options, especially the promotion and marketing of public transport
- How to avoid contributing to congestion
- How to be a safer road user and reduce road danger.

This will be a key theme running through the Local Transport Plan. Empowering people and giving them choice, and enabling them to take responsibility for their decisions. Elsewhere in this document there will be more specific policies and strategies for this, especially identifying opportunities to take advantage of emerging technology to present people with up to date information. In support of this we will develop further our own County Council website to give people access to the ever widening range of transport and travel information electronically available.

5. Thematic Strategies 2006 to 2021

In the Strategic Framework chapter we identified that in order to move towards our vision for transport we need to:

- Deliver sustainable growth
- Improve accessibility
- Reduce congestion
- Protect and enhance the environment, and reduce the impacts on climate change
- Improve road safety.

We have developed five countywide thematic strategies, one for each of the strategic aims above. Together, these describe how our overall strategy (see Policy 1) is delivered through a series of policy interventions. These five strategies provide the countywide policy framework for how we will deliver improved travel and transport across Norfolk. Importantly, they also provide the framework for the area transport strategies and the implementation programme.

For each of the thematic strategies we:

- Examined the policy context to understand how each strategy needs to fit in with the bigger picture at local, regional and national levels. From this we ensured that our policies built on this wider existing policy framework to define a way forward for interpretation and application in Norfolk

- Analysed the data and feedback from consultations to gain a strong evidence-based approach to what the priorities and policies should be
- Set objectives and targets
- Developed policies that when implemented will meet our objectives and targets by building on our strengths, addressing our weaknesses, capitalising on opportunities, and neutralising any threats.

Each of the thematic strategies follows this general structure.

6. Delivering sustainable growth - Integrating spatial, economic and transport planning

Introduction

It was described in the Introduction (Chapter 1) that transport should not be treated in isolation. It is necessary to plan transport in the context of the wider policy agenda to maximise its delivery of better economic, social and environmental outcomes and to reduce the impacts on transport of decisions made in other policy areas. Integration of policy areas will be a key component of reducing the need to travel. As was explained in the Guiding Principles chapter, partnership working is fundamental, with other local agencies, and corporately, as well as with regional and national institutions.

Changes in the future, primarily caused by housing and jobs growth but also policy initiatives in other areas of public service delivery such as education and healthcare, presents an opportunity to improve accessibility. This is by ensuring that people can live close to jobs and services and thereby reduces the need to travel and the consequent impacts of increased travel demand such as congestion. This can be achieved in particular by integrating policy areas, especially spatial, economic and transport planning.

The draft East of England Plan integrates spatial, economic and transport planning at the regional level. It has identified significant growth in housing and jobs in Norfolk between 2001 and 2021. The spatial strategy in the draft East of England Plan aims to achieve a sustainable relationship between jobs, homes and services at the strategic and local level; that is, the jobs and housing growth should happen in the same locations, and near to other services. The spatial, economic and transport considerations need to be planned together because they are all strongly inter-related: housing growth will lead to more people in Norfolk, and they will need jobs and access to those jobs. Indeed, the plan is largely a jobs-led growth scenario. Transport will need to play an integral part in providing the right conditions to enable the growth to happen, and in actually delivering the growth.

Background Analysis

Policy Context

Table 6.1 Sustainable Growth Policy Context

Policy area	Objective or target
National	
Planning Policy Guidance Note 13: Transport	• Reduce the need to travel • Integrate planning and transport • Promote more sustainable travel choices, such as walking, cycling and public transport
Regional	
Draft East of England Plan	• Reduce the need to travel

6. Delivering sustainable growth - Integrating spatial, economic and transport planning

	• Make travel more sustainable • Widen travel choice • Achieve a sustainable relationship between jobs, homes and services • Develop a sub-regional approach to policy integration • Balancing housing and jobs growth • Great Yarmouth and King's Lynn priority regeneration areas • Investment on strategic road and rail networks focused on inter-modal network and between Regional Interchange Centres • Focus on growth and regeneration areas
Regional Economic Strategy for the East of England	Goal Six of the strategy is "Making the most from the development of international gateways and national and regional transport corridors". Within this goal there are five identified priorities: • Taking advantage of the opportunities from sustainable airport expansion • Making the most of gateways to the sea • Promoting the delivery of strategic road, rail and other public transport priorities • Ensuring that transport solutions serve economic growth in a sustainable manner
Local	
County Council Medium Term Plan	• Help businesses to develop in Norfolk, and improve travel, transport and IT links • Land use planning and accessibility for new housing • Maintain a strategic and coordinated approach to the development of the Norfolk economy
Norfolk Economic Partnership - Shaping the Future	Raise annual rate of economic growth from projected 2.1% to 2.5%. Transport aspects include: • Dual carriageway road links to motorway network; • Improve east west rail links • Outer Harbour in Great Yarmouth • A growing airport in Norwich

6. Delivering sustainable growth - Integrating spatial, economic and transport planning

Data and user analysis

One of the more important changes will be presented by the growth agenda. The draft East of England Plan sets out that Norfolk will need to accommodate 72,000 new homes and 42,600 new jobs between 2001 and 2021. It is estimated that each new home will generate 10 additional trips each day, which means that the housing growth will result in an extra 720,000 new trips each day in Norfolk. The traffic growth therefore has the potential to be considerable as 2 in 3 people travel to work in Norfolk by car. There will clearly be a need to reduce the need to travel.

Much of the housing and economic growth will be in and around Norwich, but substantial growth is likely to be in King's Lynn, Great Yarmouth and on the A11 corridor. In addition, both the Great Yarmouth/ Lowestoft and the King's Lynn sub-regional policy areas are priorities for regeneration and so have significant economic development needs where the required jobs growth might be more difficult to deliver.

In terms of jobs growth to balance the housing growth, research has found that Norfolk has the potential to generate the required number of jobs. However, being able to realise this jobs growth will depend on the transport interventions, including improving strategic access into Norfolk, as well as non-transport interventions.

Setting growth aside, Norfolk has significant current economic issues. Although there has been a steady improvement in the economy over recent years, it still lags behind the rest of the Region as a whole. Economic growth is measured by the annual percentage change in total gross value added. Recent figures from Cambridge Econometrics show that average change in gross value added for Norfolk during the period 1998/2004 was 3.10% - similar to the UK average of 3.07% but well below the regional figure of 3.54%. The model predicts a similar pattern over the period to 2010. The local target is to achieve the mid-point between these and the Local Transport Plan should support this.

The poor economic performance compared to elsewhere in the region is largely due to demographic differences such as the ageing population and lower skills attainment in Norfolk, but also believed to be due to poor strategic transport access into the county. Studies show that the economic success of polycentric systems such as that proposed by the draft East of England Plan, depends on good connectivity within and between those centres such as Norwich, Cambridge, and Peterborough. Work for the Core Cities Group has emphasised the critical role that connectivity plays in the delivery of economic competitiveness and that successful urban areas are vital to wider regional and sub-regional competitiveness. Tourism is a major part of the Norfolk economy and it relies heavily on good access (see area strategies in Chapters 11-15).The recent Norfolk Employment Growth Study identified that the constraints to economic growth are on the supply side - including infrastructure.

There is a significant local recognition of this. Our own recent research with businesses outside Norfolk found that a lack of a continuous dual carriageway presented a psychological barrier when considering relocation to Norwich, as well as stifling the establishment of economic links such as in research and development. Twenty percent of businesses in Norfolk cite transport infrastructure as a factor limiting their growth.

6. Delivering sustainable growth - Integrating spatial, economic and transport planning

Economic performance clearly has an impact on levels of deprivation. Large parts of Norfolk have greater problems with deprivation than most of the rest of the Region, with Great Yarmouth being the most and Norwich the second most deprived of the 48 local authorities in the region.

Table 6.2 Sustainable Growth SWOT Matrix

Strengths	**Weaknesses**
• Involvement of local planning authorities in the development of transport strategies • Growth of Norwich International Airport as a gateway to/ from Norfolk • Success of Norwich to Cambridge direct train service • Reasonable North-south rail connections	• Perceived remoteness of Norfolk and poor strategic accessibility • Poor east-west rail connections
Opportunities	**Threats**
• Improving integration of policy areas, and integration of transport strategies with Local Development Frameworks • Capitalising on complementarity of growth and regeneration areas • Regeneration potential of expansion of Great Yarmouth port • Scale of housing growth around Norwich could provide the critical mass to fund significant infrastructure improvements • Help build capacity of regional institutions to deliver East of England Plan	• Little road infrastructure programmed into national priorities and a failure to deliver the infrastructure needed for sustainable growth • Failure to deliver the right strategic employment sites to meet the needs of key components of future economy • Jobs and housing growth failing to balance, and increasing travel demand • Growth in travel demand too car based, placing further strain on the transport system

Priorities

In our consultation with key stakeholders in Spring 2005 on our draft strategic priorities for improving strategic access, 80% of respondents agreed with our priorities. These have therefore been rolled forward as part of our strategy and presented below.

6. Delivering sustainable growth - Integrating spatial, economic and transport planning

1. Enable sustainable growth and improved economic performance by improving strategic multi-modal, particularly road and rail, accessibility into Norfolk

2. Prioritise transport investment on areas accommodating growth to ensure integration between spatial, economic and transport planning. This will mean making sure that transport improvements that help deliver housing and jobs growth are prioritised, especially those that encourage sustainability.

Strategy

Objectives

- Improve strategic accessibility into Norfolk
- Reduce the need to travel.

Targets

Traffic growth can be expected due to housing and jobs growth, as well as increasing car ownership. We are using the national performance indicator to measure and monitor the trend up to 2010/11 to see if our efforts to reduce the need to travel are successful. We aim to keep traffic growth at or below the recent trend, despite the step change in development expected.

- Keep the growth in Norfolk-wide traffic mileage at the current rate of growth between 2003/04 and 2010/11.

We will also consider developing a target for the level of business satisfaction with the transport system.

Policies

The overall strategy is to enable growth, especially economic growth, by providing the right conditions, and help to actually deliver the growth in a sustainable way. Norfolk, especially Norwich and the other urban areas, needs to be well connected if it is to succeed economically and provide the jobs growth necessary to balance the housing growth and so reduce the need for people living in Norfolk to travel longer distances to jobs elsewhere. It is particularly important to deliver better strategic transport connections between growth and regeneration areas in the county, (such as Norwich and Great Yarmouth) to capitalise on complementary development for both types of area, and to growth areas outside the county (such as Cambridge and Peterborough).

Integrating Investment to ensure integration of spatial, economic and transport planning

In order to prevent the creation of new problems through a failure to properly integrate all three policy areas, priority for transport investment will be given to those areas of the county that will need to accommodate growth and regeneration. We expect this to complement the regional approach as a way of prioritising investment.

6. Delivering sustainable growth - Integrating spatial, economic and transport planning

Policy 2

Integrating spatial, economic and transport investment

Priority will be given to transport investments that integrate with and deliver housing and economic growth opportunities, both at the strategic and local levels.

This will align local and regional priorities. The regional spatial and economic strategies provide the framework for how the region will develop up to 2021. This Chapter in particular shows how we will develop these broad regional strategies further at the local level. It also provides the local policy framework for how we will deliver these regional strategies here in Norfolk, particularly by integrating spatial, economic and transport planning. This policy should help the district councils meet their housing growth targets.

We will continue to work closely and liaise with other responsible agencies, such as the Highways Agency, Government Office for the East of England, and the East of England Regional Assembly. We are now taking a more proactive and positive approach to regional working and we chair both the Regional Transport Strategy Task Group and the East of England Directors of Environment and Transport Local Transport Plan Group.

Enabling growth and improving economic performance

A key strategy area will be improving strategic accessibility into Norfolk to improve economic performance. This will also provide the right conditions for balanced jobs and housing growth.

As was discussed in the background analysis, connectivity between growth areas and between growth and regeneration areas is necessary. Many of the required strategic improvements are the responsibility of national agencies such as the Highways Agency, rail industry bodies and the Department for Transport. We will need to influence their decision making, both at the regional and national levels. Essentially, we want to see Norfolk at the forefront of developing a truly integrated approach to spatial, economic and transport planning. This will help Norfolk to play a role in reducing the intra-regional economic disparities and supporting the region as a whole.

Policy 3

Connections to and from Norfolk

The County Council will work proactively and positively in partnership with national and regional institutions to secure the up-grading of national and international strategic transport connections into Norfolk to enable improved economic performance and the delivery of balanced jobs and housing growth and regeneration.

6. Delivering sustainable growth - Integrating spatial, economic and transport planning

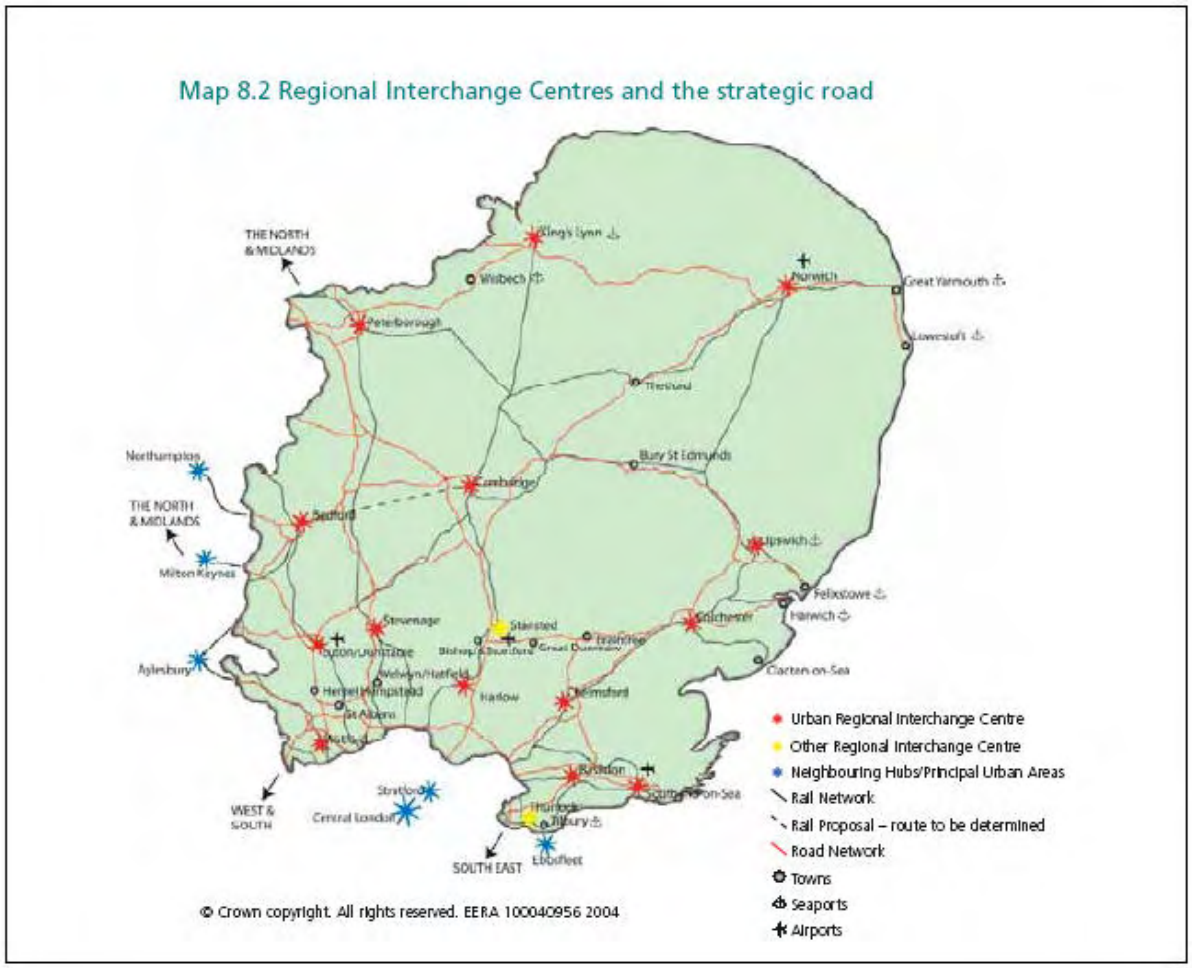


Figure 6.1 Regional Interchange Centres and the Strategic Transport Network

Most of the strategic improvements needed are the responsibility of other agencies, such as the Highways Agency and the rail industry. We will therefore continue to work closely with them.

In the short to medium term, our strategic priority is a high quality transport corridor between Great Yarmouth and the Cambridge area via Norwich. In terms of roads this translates as the A11/A47 corridor, which is the preferred strategic road route of the Government and of the draft East of England Plan and is the responsibility of the Highways Agency. This will connect the Great Yarmouth regeneration area to the Cambridge national growth area via much of Norfolk's own growth around Norwich and on the A11 corridor.

Key priority improvements are:

- Dualling the remaining single carriageway sections of the A11 as an immediate priority. We have successfully secured the re-instatement of the A11 Attleborough bypass following very active engagement with the Highways Agency and the Government

6. Delivering sustainable growth - Integrating spatial, economic and transport planning

- Dualling the remaining sections of the A47 between Norwich and Great Yarmouth to complete the corridor between Cambridge and Great Yarmouth
- Improved train services to Great Yarmouth
- Further improvements to the Norwich-Cambridge train service, potentially including improvements at Trowse Bridge near Norwich and at Ely. We will work with the rail industry to secure the improvements that are necessary.

Priority should be given to those sections that are most congested and that are recognised as integral to improving connectivity within sub-regions (see sub-regional area strategies for Norwich, King's Lynn and Great Yarmouth/Lowestoft - Chapters 12 - 14).

It is also important to improve connections from other growth and regeneration areas in Norfolk such as King's Lynn to the national Cambridge and Peterborough growth area, particularly:

- Improved rail services between King's Lynn and Cambridge
- Improved A47 road connections between King's Lynn and Peterborough.

In the longer term the County Council will also continue to seek the following improvements:

- Improved connections by road and public transport (rail and express coach) from Great Yarmouth/ Norwich to Peterborough and beyond, including a high standard for the A47 between Great Yarmouth and the A1
- Improved east west rail connections beyond Cambridge.

As well as strategic transport links, Norfolk has a number of strategic 'gateways'; major places of interchange that are particularly important for accessing major destinations both here and abroad, including international business centres. The draft East of England Plan identified Norwich and King's Lynn as Regional Interchange Centres. These create an important public transport interchange role within the region to enable seamless journeys. International 'gateways' include Norwich International Airport and the port of Great Yarmouth.

In the short to medium term the strategy is to:

- Deliver improvements that contribute to a significantly enhanced level of public transport service provision to, from and within the Regional Interchange Centres. Further details of proposals for the Regional Interchange Centres can be found in Chapters 12 and 14. See also Policy 9 on Interchanges
- Improve the surface access to Norwich International Airport, including through the Norwich Northern Distributor Road (see Chapters 12 and 17 for details). This will support the air travel passenger growth identified in the White Paper 'The Future of Air Transport'
- Continue to work with other agencies to support the delivery of the outer harbour at Great Yarmouth.

Connections within sub-regional policy areas

6. Delivering sustainable growth - Integrating spatial, economic and transport planning

To deliver the draft East of England Plan the balance of jobs and housing growth within sub-regions will be especially important to achieve, especially to reduce the distances people will need to travel for work. Transport can help develop the mutual dependencies within each sub-region, such as between market towns and the main urban area. Studies have demonstrated the powerful catalytic effect of investment in high quality public transport in the economy, and so improving public transport connectivity within sub-regions will be a priority. Opportunities will also be taken to improve principal road connections, especially associated with accommodating growth.

Priority will therefore be given to improving connections, particularly public transport, that enable balanced growth in the sub-regional policy areas, and overall priority will be given to connections by public transport in the Norwich sub-regional policy area.

Delivering sustainable growth and local planning - reducing the need to travel

Local Plans and their successors, Local Development Frameworks, inform land use planning at a district level. National guidance relevant to transport considerations in Development Plans is to be found in Planning Policy Guidance Notes. Much of the guidance is to ensure necessary development is as sustainable as possible and in this respect much emphasis is placed on minimising the need to travel, and trying to ensure that there are realistic alternatives to the car. The integration of spatial, economic and transport planning will be central to delivering this.

Land use planning can provide a key element of the strategy to improve accessibility by reducing the need to travel, through seeking to prevent the further dispersal of activities gives rise to greater numbers of trips, and that reduces the proportion of trips that can be made by non-car means of transport.

The Local Transport Plan can help by highlighting, countywide, areas of good accessibility where the transport barriers to growth are less and where dependence on the car will be less. The accessibility strategy in Chapter 7 will assist in considering the location tests for new major development. We will therefore work with the local planning authorities and provide them with guidance on those parts of the county that are most, and least, accessible, especially by public transport. This will give them the opportunity to direct their growth allocations towards the most appropriate areas.

Initiatives we will carry out and use to advise the local planning authorities will therefore include:

- Mapping accessibility to jobs and services by public transport
- Mapping other barriers such as congestion and road traffic accidents
- Give advice on other transport barriers to proposed development locations, such as local air quality.

6. Delivering sustainable growth - Integrating spatial, economic and transport planning

Policy 4

Location of new developments

New development should be located so as to minimise the need to travel and reduce reliance on the private car. The local planning authorities will be supported in their locational decisions by County Council advice on accessibility, congestion, local air quality, and road safety.

Although much of the housing and jobs growth will be quite dispersed within built up areas, there will be the need to deliver concentrated strategic developments, including major housing areas such as urban extensions, and strategic employment sites, especially to aid regeneration. With regard to major housing developments, the accessibility needs are unlikely to be localised small scale improvements. Rather, it is likely that there will be the requirement for major new infrastructure, such as the Norwich Northern Distributor Road (see Chapters 12 and 17 for details). Strategic employment sites are locations of economic activity which are either still being developed, need developing, or might exist in the future. It is vital for the success of these areas that their access needs are met, especially in growth and regeneration areas such as Norwich and Great Yarmouth. Particularly important will be the delivery of transport infrastructure and we will work closely with the local planning authorities on their local development frameworks.

Urban regeneration and renaissance can also be achieved through improvements to the physical fabric of our urban areas. This will make the urban areas more attractive and desirable places to live. This can be assisted by transport measures that remove traffic from key urban areas, especially central areas, enabling those areas to be developed and environmentally enhanced (see also Chapter 14 on the King's Lynn sub-regional strategy as an example).

Policy 5

Developer Led Transport Improvements

All developer led transport improvements, including public transport, will be in accordance with the County Council’s Transport Strategies. Where a number of development proposals impact on the transport network we will devise a scheme of transport improvements towards which all development that draws benefit must contribute.

The Local Transport Plan provides a strategy that can be used to guide the details of development-related transport measures and lead on larger schemes that may require resources pooled from a number of nearby developments.

We have started to develop a standard transport charge to ensure the wider transport impacts of successive developments are addressed by area wide transport schemes.

6. Delivering sustainable growth - Integrating spatial, economic and transport planning

In devising area wide transport schemes arising from development, the County Council can ensure developer funded transport improvements not only mitigate transport impacts but assist in meeting our objectives in the Local Transport Plan. The approach devised must be fair and proportionate to the scale of development and will need to be backed up with policies in Local Development Frameworks supporting the principle of the charge. We will be working closely with the Local Planning Authorities to ensure inclusion in their development plans.

The County Council also makes a range of decisions that influence the need to travel, such as:

- Location of new schools, closures of existing schools, and the expansion of schools
- Location of care services and the new children's centres
- How services are delivered (electronically) and how we enable the community to engage with our services (close to where they live)
- Rolling out locally based Council Information Centres in our market towns
- Joining up with other delivery agencies to deliver locally based services
- The use of council owned premises for wider community purposes, such as after hours use of school buildings.

Policy 6

County Council decision making

The County Council will ensure that strategic decisions will consider the implications for transport and the opportunities for reducing the need to travel.

We will:

- Implement a County Council travel plan that will include policies and actions on the wider decision making process as well as other actions to reduce the need to travel, such as home-working
- Work better corporately to ensure that the impacts on transport are considered as part of the wider decision making processes and plans
- Ensure the delivery of the County Council Medium Term Plan involves joint working and cooperation across service areas.

We will also continue to play an active role in the on-going development of the community strategies, especially Norfolk Ambition, and the emerging Local Area Agreements, ensuring that transport helps to deliver the wider policy priorities but also that the aspirations accommodate the reality of likely transport investment and our transport policies.

7. Improving accessibility

Introduction

Improving accessibility is integral to transport improvements, in helping people get to where they want. Improving accessibility is essentially about improving the ease with which people and businesses can to get to where they need, ensuring access within a sensible time period and at a realistic cost.

Accessibility to jobs and services is fundamental to a properly functioning society. It enables people to make the most of their lives and realise their aspirations, potential and ambitions by gaining access to work, training or education; it enables people to be healthier through gaining access to healthy food and healthcare facilities; and it helps people to lead fulfilling and independent lives. As well as being important for the individual, accessibility is a key component of improving community cohesion, the vibrancy of neighbourhoods, and social inclusion, giving people the opportunity to play a full and active part in society. Better accessibility can have a positive effect on the economy by, for example, improving the labour supply both in terms of quality, though better training and education, as well as through easier access to job opportunities.

Changing land use patterns, increases in journey distances, fears of crime and the decline in the use and viability of alternatives to the car have meant that many groups and individuals can be excluded from activities and job opportunities that are freely available to others. Solving such accessibility problems is not only about transport mobility but also about locating and delivering services in ways that enable people to reach them more easily. Reducing the need to travel is the most sustainable way to improve accessibility, having fewer negative impacts on congestion or the environment.

Background Analysis

Policy Context

Table 7.1 Accessibility Policy Context

Policy Area	Objective, target or aspiration
National	
Transport White Paper. Future of Transport 2030	• More demand responsive transport • Making services more accessible • Encouraging walking and cycling • Better public transport
Social Exclusion Unit Report, Making the Connections	• Social exclusion caused by poor transport accessibility • Improving public transport, cycling and walking networks • A need to make services more accessible • Need for multi-agency, evidence led approach

7. Improving accessibility

Policy Area	Objective, target or aspiration
Regional	
Draft East of England Plan	• Improve opportunities for all to access jobs and services • Significantly enhanced level of public transport provision • Improve levels of public transport accessibility • Encouraging walking and cycling • Sustaining rural communities
Local	
Norfolk Ambition	• Norfolk is a county where everyone has access to all services without discrimination • Norfolk is a healthy community which takes concerted action to tackle health inequalities and ensures more equitable access to high quality services • Norfolk has a reputation for meeting the needs of older people • To increase employment levels particularly in key sectors • To improve access to work for disadvantaged people • Norfolk retains attractive and sustainable rural villages
Medium Term Plan	• To increase the scope for older people to enjoy independent living in their own home • To raise the standards of achievement by increasing the proportion of school leavers who go on to further education • Work with partners to develop plans to improve access to food and nutrition

Data and user analysis

General

Analysis of public transport availability has shown essentially where access to frequent public transport exists.This is in the towns, the urban areas and on the main routes. It has also shown that much of rural Norfolk does not enjoy this high quality of frequent public transport services. The accessibility planning analysis described below examines this in more depth to gain an understanding of the extent to which public transport gives access to jobs and services.

7. Improving accessibility

Rural isolation is a particular issue in Norfolk, which is in the 20% most deprived areas of the country in terms of geographical access to services. The county has a relatively high proportion of older people compared to the region. Indeed, the number of persons of pensionable age is projected to grow by around 42% between 2001 and 2021, mainly in the rural areas, with clear implications for potential isolation and accessibility to services.

Evidence from the Department for Transport and elsewhere in the UK has shown the potential improved value for money that can be achieved by focusing subsidising rural public transport in many cases on Demand Responsive Transport services. This clearly affords an opportunity.

In our best value consultation in 2003/04, 37% of people told us that improving public transport was important. Public transport is often cited as a key barrier preventing people accessing services and facilities, with frequency and reliability most often the biggest concerns. Although availability is a major barrier, people often cite information, cost, and with regard to the mobility impaired, physical accessibility onto transport. The problem of accessing market towns for services and to 'interchange' is a recurring theme in consultations and is common to a number of County Council strategies such as:

- School Organisation Plan
- Older People's Strategy (20% of older people in the consultation said public transport was an issue)
- Norfolk Physical and Disability Strategy
- Joint Investment Plan, Welfare to Work for People with Disabilities.

Most services are located in the towns and urban areas. The average distances that people walk and cycle are 0.7 miles and 2.3 miles respectively. Many of the services and job opportunities are therefore reasonably accessible to residents of towns and urban areas through walking or cycling. This is a healthy option, especially in our market towns where walking levels by residents are already high. A review of Norfolk's Public Health Reports identified that obesity levels are growing, particularly amongst young people, related to increasing car dependency and sedentary lifestyles. Consultations have also identified the particular barriers that people with mobility impairment experience on the footway network, such as kerbs. Unfortunately, with regard to pedestrian crossings we have a higher than average proportion that are not fully accessible.

Accessibility Planning Analysis

Accessibility improvements are more important to deliver in some parts of the county and aimed at certain groups of people rather than others. In other words, where the need is greatest; investing money where it is most needed is one of our five corporate core values and this approach helps to deliver better value for money. In particular, improvements are most needed where:

- Accessibility to jobs and key services is relatively poor, especially by public transport
- There is a low level of car ownership and so there is a greater dependency on non-car means
- Relative levels of deprivation are high and so where there are more people in greater need of jobs and key services.

7. Improving accessibility

The process of promoting social inclusion and working in partnership to tackle accessibility problems experienced by those in disadvantaged groups and areas is known as accessibility planning. In Norfolk, accessibility analysis is focused upon identifying geographical areas where there is a lack of availability, affordability or accessibility of local public transport. Assessment on a countywide level looks at the ability to access key services using a combination of public transport and walking. The location and delivery of non-transport services will also be considered as they too can contribute to social exclusion, but analysis will principally focus upon identifying transport related accessibility problems. Accessibility planning will consider access to those opportunities likely to have the greatest impact on life chances and those outlined in the local policy context above; healthcare (doctors' surgeries, community services and hospitals), further education, employment opportunities, Jobcentre Plus, post offices and food shops (supermarkets and village food stores).

Accessibility planning helps to identify both countywide themes for accessibility improvements and also target areas for which local action plans are to be drawn up. Improved accessibility can be achieved in different ways including making services available when and where they are needed and delivering services to people, so some parts of the action plan may be delivered by our partners in other sectors.

Methodology

The methodology used to carry out accessibility planning was as follows:

- Existing evidence reviewed and service providers consulted on developing indicators and on the accuracy of data sets
- Mapping audits used to analyse data relating to the accessibility of different services
- Service providers consulted on the audit findings and invited to review their existing knowledge of the problems and issues
- Areas, groups and issues identified for further investigation in local accessibility assessments
- Action areas selected will be completed for the final Local Transport Plan in March 2006
- Action plans developed and integrated in transportation and wider strategies.

Existing Accessibility Issues

Existing accessibility concerns within the county include the level and distribution of existing deprivation, the pattern of car ownership and a growing population of older people.

Norfolk as a whole has above average deprivation. Deprivation is most prominent in the urban areas, with Great Yarmouth the fifth most deprived district in the country when ranked by local concentration, where it is characterised by low income, relatively low levels of economic activity and poor academic attainment. Rural deprivation also exists, although tends to present different challenges as it is found in sparsely populated, less homogenous communities.

In Norfolk, although car ownership levels are higher than the national average at 79% countywide, a significant number (15%) of rural households do not have a car and in some urban areas car ownership levels are only 50%.

7. Improving accessibility

As highlighted earlier, Norfolk has an increasing population of older people arising from a trend for people to live longer and the attractiveness of the county for retirement migration. At present 41% of pensioner households do not have access to a car thus public transport accessibility is particularly important.

Countywide Accessibility Assessment

This analysis was carried out in order to build up an evidence base of accessibility issues at a county level. It has specifically focused upon identifying where accessibility can be improved for those most in need, those populations most at risk from social exclusion. This 'at-risk population' varies throughout the countywide analysis depending upon the service, but is generally speaking those households without a car who may be reliant upon public transport as their principal means of accessing opportunities. For the purpose of this report accessibility analysis has been concentrated at a Super Output Area level. There are 530 Super Output Areas in Norfolk which each have a minimum population size of 1,000 and comprise either a whole ward or sub-divisions of a ward.

Access to work:

Just under 80% of the Norfolk workforce is economically active compared with 82.5% at regional level. The main causes of economic and social exclusion are unemployment and low pay, and despite current unemployment levels in Norfolk being relatively low, they vary considerably between districts. For Norfolk as a whole 13.8% of benefit claimants have been on benefit for over a year. Although it is yet to be determined what part transport plays in this, evidence from Jobcentre Plus does indicate that the availability of transport is an issue for jobseekers and does influence their ability to gain employment. Unemployed 18-25 year olds, an important client group of Jobcentre Plus, are particularly at risk from transport problems as many do not have access to their own transport. Existing evidence suggests that the most prominent issue is the availability of public transport at work times, although cost is also considered a barrier. The cost of public transport compared to the minimum wage can make job vacancies unsuitable for some jobseekers.

As part of the accessibility planning process geographical accessibility to Jobcentre Plus offices for people claiming unemployment related benefits from the Jobcentre will be carried out as will accessibility to key employment sites, as determined by Jobcentre vacancies. Analysis on access to employment sites is ongoing and subject to further partnership working with Jobcentre Plus.

Access to Jobcentre Plus offices: Jobcentre Plus helps to enable people to gain employment opportunities by providing information on vacancies, processing benefit claims, and giving extra support to those seeking jobs. To promote social inclusion it is therefore important to include access to the Jobcentre in the assessment of wider accessibility problems within the county.

The map below highlights that poor accessibility by public transport to Jobcentre Plus for people claiming unemployment related benefits is most evident in the west of the county. There are jobseekers without access also located in the Great Yarmouth area where the number of people claiming jobseekers allowance and related benefits is relatively high. Elsewhere in the county inaccessibility is largely influenced by the lack of scheduled public transport. Although inaccessibility

7. Improving accessibility

for jobseekers has been highlighted by the mapping analysis it may not be considered a significant problem as so few people are affected. The mapping does not take into account whether jobseekers have their own means of transport.

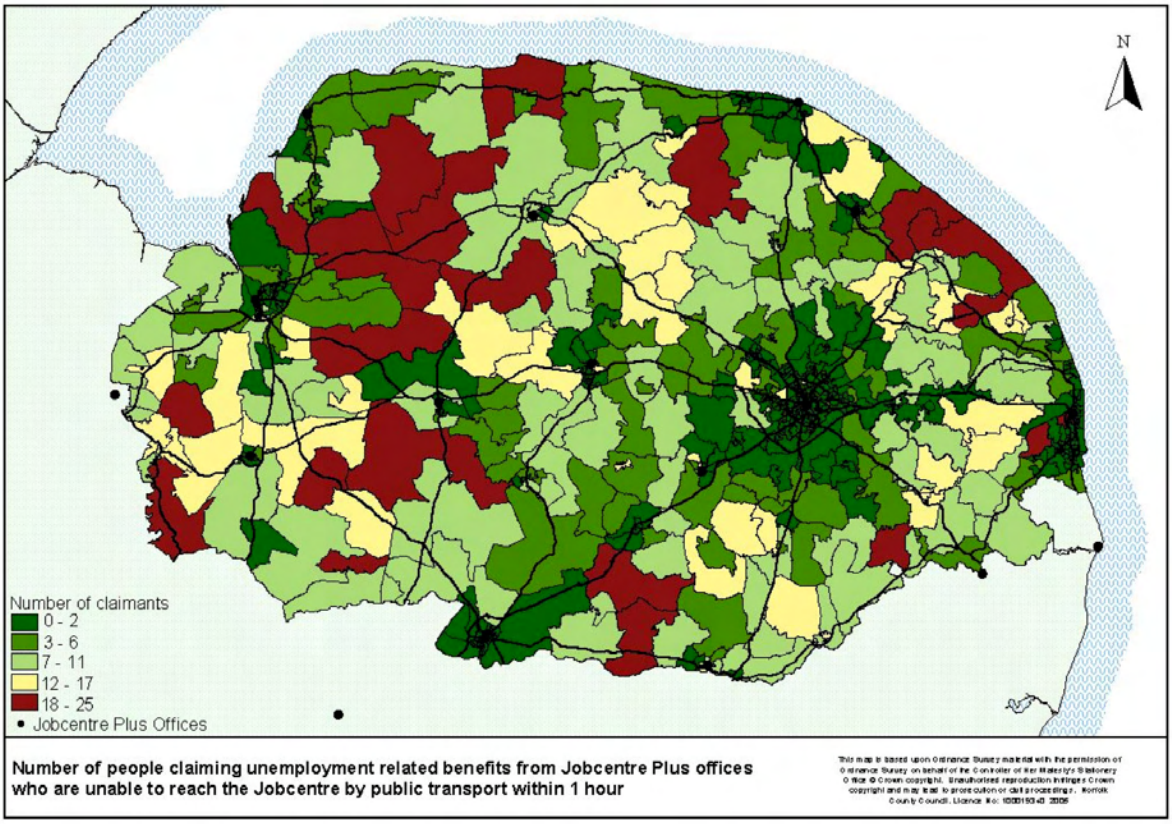


Figure 7.1 Accessibility to Jobcentre Plus

Access to further education:

In Norfolk there is a significant decrease in educational achievement beyond the age of 16, and at 71%, the participation rate in education for 16 to 18 year olds in Norfolk is amongst the lowest in the country. Following consultation with educational policy officers and travel advisors the geographical assessment of accessibility to further education establishments will comprise two elements. It is considered important that potential students have access to their nearest high school with a sixth form, which traditionally offers a limited range of standard courses, as well as further education colleges, offering a wide range of courses including vocational subjects. Access to further education colleges is currently being assessed.

Access to sixth forms: The map below highlights that poor accessibility to sixth forms by public transport is foremost an issue for 16-19 year olds who live around the county's borders with neighbouring authorities. There is a marked lack of access to sixth forms around Great Yarmouth which is possibly a reflection of the location of sixth forms.

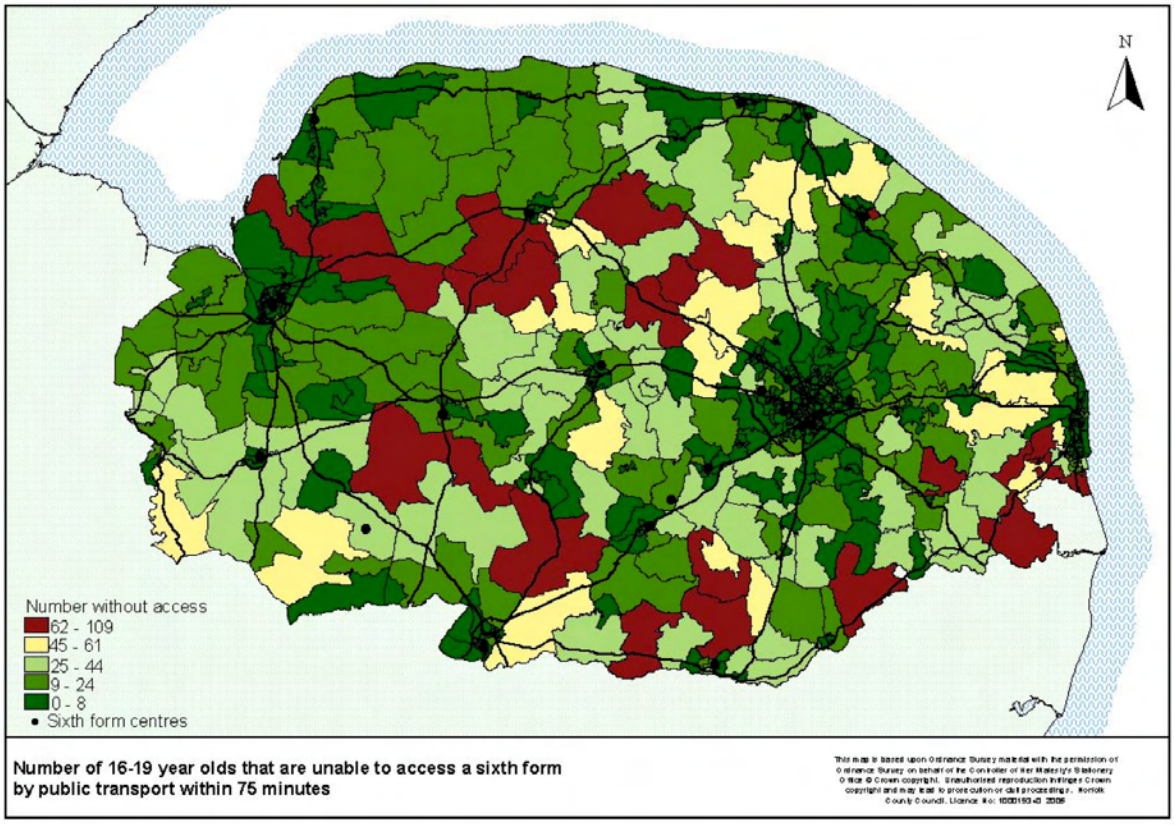


Figure 7.2 Accessibility to sixth forms

Access to healthcare:

Through consultation with service providers three levels of service provision were identified as necessary to provide a comprehensive system of healthcare: the hospital; community service locations; and the doctors' surgery. Community services offer an intermediate level of healthcare provision, in between that provided by the doctors' surgery and the hospital, and comprise services such as district nursing, occupational therapy and podiatry. The feasibility of looking at access to community services is currently being considered in conjunction with Primary Care Trusts.

Healthcare partners have agreed that although not ideal, inaccessible non-car households are the best proxy for identifying where access problems exist for socially excluded populations and so this measure will be used throughout healthcare analysis.

7. Improving accessibility

Access to the Hospital: Health services are currently being reformed by government in order to widen choice for patients, allowing them from 2006 to choose from up to five hospitals for minor operations and by 2008 the choice of any hospital. This could have important consequences for the provision of transport services, but for the purposes of this exercise we will aim to target those without access to any hospital.

The countywide audit of accessibility to hospitals identified that due to Norfolk's rural nature, a large number of Super Output Areas (22%) register as having no accessibility to a hospital by public transport within a one hour time period. This confirms that particularly in rural areas, access to hospital services can involve very lengthy trips. Areas identified as having the poorest accessibility to hospitals for those at risk from social exclusion are largely situated in the north west of the county, as the map below shows, with more isolated problems in the fens and central Norfolk.

Consultation with service providers has confirmed that considerable access problems do exist, evidenced by a high number of requests for non-emergency transport, in most of the rural areas identified by the countywide audit. Notably, the large band of Super Output Areas with high inaccessibility in North Norfolk was expected, although it was stated that problems have been lessened by the introduction of community transport and car schemes in some areas and this is a matter for further investigation. Concerns were raised regarding hospital access for areas between Dereham and Swaffham (see map) where a cluster of inaccessibility has been identified by the mapping. Although transport issues were acknowledged, in reality Swaffham and Dereham both have small cottage hospitals which although rightly not featured in the accessibility audit could be attended. Again, this is a matter for further consideration.

7. Improving accessibility

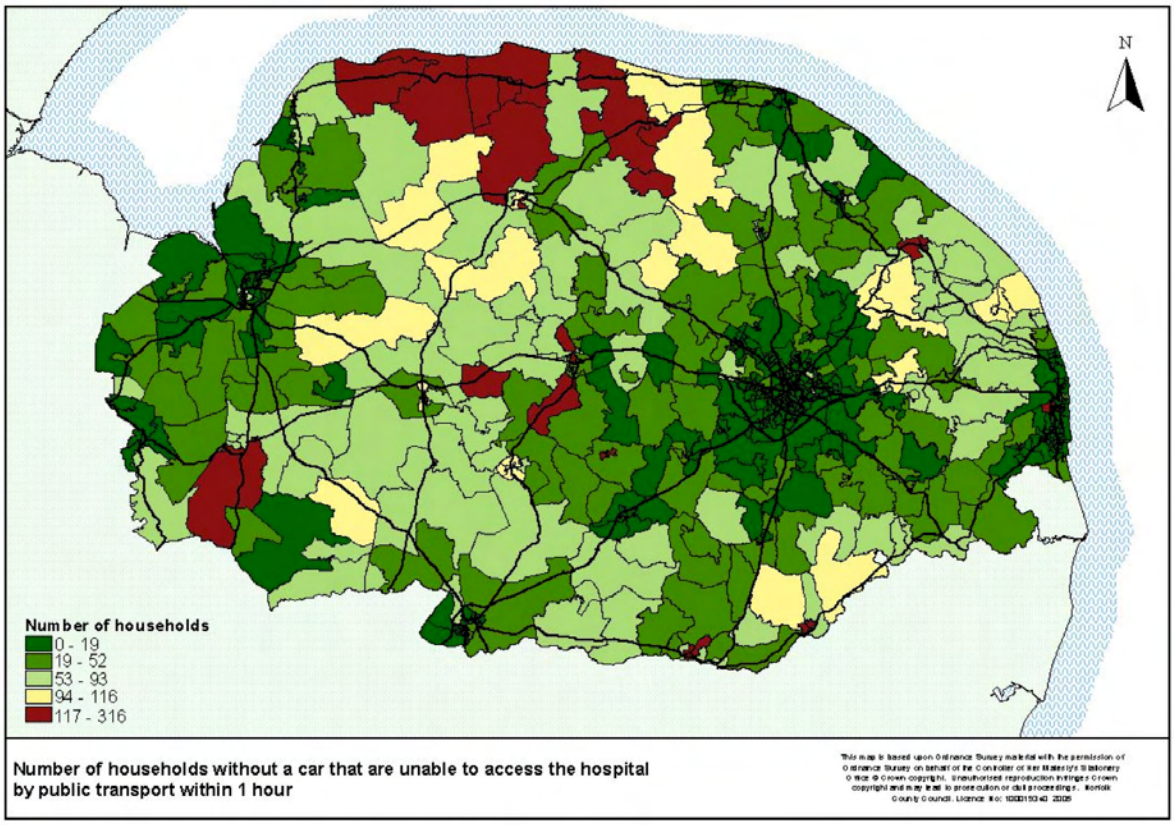


Figure 7.3 Access to hospitals

Access to the doctors' surgery: Countywide modelling has highlighted three main clusters of inaccessibility for the at-risk population to the west of the county. Areas have come forward for a variety of reasons. In many rural parts of the county problems have been highlighted due to poor public transport links whereas in urban areas, low car ownership, only 50% in some Super Output Areas, is the key factor and means in areas where there is not 100% accessibility to the doctor, the number of households without a car who are inaccessible is proportionately high.

Consultation with partners revealed that there is no patient transport system or support with transport available for patients attending the doctors' surgery as there is with those attending the hospital. It was also noted that scheduled public transport is not the most appropriate form of transport used for reaching the doctor and as there are a number of community transport services which specifically cater for those making medical journeys. It will be essential to consider these when carrying out local accessibility assessments.

Access to food stores:

7. Improving accessibility

In order to present a complete picture of food availability, village stores selling fresh fruit and vegetables were included in analysis in addition to large food stores such as supermarkets. Incorporating these village stores also links with the wider policy objectives of the Norfolk 5-a-day initiative. Accessibility problems for the at-risk population of households without a car are most prominent in the west of the county and particularly clustered around the north coast where there are a number of village stores but no larger ones. In some Super Output Areas over 150 households without a car have no access to a food store by public transport.

Access to post offices:

Rural post offices make a considerable contribution to their local economies and are one of the most basic rural services. They are an integral part of sustaining rural communities as they bring money into the area and attract customers who spend in both shops attached to post offices and those nearby. Despite their importance however, over the last year 60 rural post offices have closed. Countywide analysis focused upon the accessibility issues of households without a car, single parents and the over 65s. Poor accessibility to post offices is most evident in rural areas to the west of the county for each of the at-risk groups although the magnitude of inaccessibility is greatest for those over 65.

Countywide barriers of cost and information:

The above countywide analysis focuses on journey times to jobs and key services by public transport and walking. It is therefore unlikely to present a complete picture of accessibility issues in the county. In some areas journey time may not be the most appropriate measure of local accessibility. Travel cost and the provision of information are important barriers to public transport usage throughout Norfolk and these will be explored in detail between July 2005 and March 2006.

Anticipated accessibility planning priorities

A number of anticipated accessibility priorities can be identified following the countywide analysis we have carried out so far. These include those countywide barriers of cost and information in addition to a number of geographical areas which will become action areas, where at-risk populations consistently experience problems accessing key services. It is anticipated that these areas will predominantly lie to the west of the county and it is likely that they will be rural in nature. The priorities of cost and information however will help to target the barriers influencing accessibility by public transport in urban areas as well as rural.

It is intended that a countywide target for improving accessibility to key services by public transport will be developed that will demonstrate accessibility improvements in the action areas. This target will be based upon an acceptable level of accessibility for populations at-risk from social exclusion which will be determined by the outcomes of countywide analyses.

Partnership working

7. Improving accessibility

Working in partnership with a wide range of partner organisations has enabled us to raise the profile of accessibility planning and the Local Transport Plan and has encouraged partners to have a steer on the analysis process, contribute to the identification of problems, and determine priorities.

We have engaged with the Norfolk County Strategic Partnership from an early stage in order to encourage an interest at a strategic level of service provision and we will continue to involve them when developing accessibility solutions for action areas.

We have worked pro-actively with other authorities in the East of England developing a coordinated approach to accessibility planning through the establishment of a regional accessibility planning forum. The forum meets every two months and provides the opportunity to exchange feedback on progress, share experiences, ideas and problems and identify cross border issues. This assists local authorities across the region to take a consistent approach whilst recognising local differences and priorities.

Partnerships have been forged with providers from each of the key services. Below are statements of their involvement in the process.

> "The role of Jobcentre Plus is key to guiding research and supplying data that will inform the accessibility assessment and planning process, and which has due regard to our evolving business needs. Our involvement will determine our priorities, and shape the actions and partnerships that will enable optimal access to Jobcentre Plus services and job opportunities for our customers." Jobcentre Plus.
>
> "Education is a key service that can have a high impact on people's life chances. The Local Education Authority, along with local community partners, has an essential role in securing the framework of support for all students. The accessibility planning process provides us with the opportunity to share information, resources and expertise, in a structured and co-ordinated way, to identify gaps and develop solutions to improve access to education services within Norfolk." Education Transport.

Between July 2005 and March 2006 (when we will submit to Government our final Local Transport Plan) we will continue to develop our accessibility planning, and this is described in Chapter 18; the Next Steps.

Analysis of general traffic, and accessibility for all

Our analysis of the accessibility requirements of cars, freight and motorcycles, and of the needs of particular groups such as those with mobility impairments is summarised in the SWOT Matrix.

7. Improving accessibility

Table 7.2 Accessibility SWOT Matrix

Strengths	**Weaknesses**
• National Centre of Excellence for local transport delivery in public transport • Increases in bus satisfaction levels and bus patronage, especially in Norwich, and quality/ frequency of services for some routes and urban areas. • Some demand responsive transport services - good branding and marketing - improving quality of life for those without a car • Community rail schemes • A high, though declining, proportion of journeys to work made on foot or by bicycle • Well established very extensive road network • Bridges strengthened in the first Local Transport Plan • Existing route hierarchy strategy to guide appropriate vehicle access	• Level of access to jobs and key services, especially in rural areas for those without access to a car, having negative impact on life opportunities • Connections between public transport services and unattractive waiting areas • Lack of knowledge of public transport routes and services • Cost of public transport for some • Through-ticketing arrangements • Poor quality of some routes on route hierarchy • Large proportion of freight carried by road • Some bridges not strong enough for 40 tonne lorries - diversions • Quality of some car parks • Physical accessibility of kerbs, pedestrian crossings and some public transport vehicles for the mobility impaired
Opportunities	**Threats**
• Increased national emphasis on public transport, especially buses • Emerging new technologies for providing travel information • Increasing availability of flexible public transport	• Increasing cost of subsidising conventional public transport in rural areas • Lack of potential Demand Responsive Transport operators • Low levels of investment in new rail services and infrastructure

7. Improving accessibility

• Complementarity of the urban areas and their surrounding market towns in the sub-regional policy areas. • Increasing use of motorcycles	• Continuing dispersed nature of travel patterns and services • Increasing car ownership reducing the economic viability or rural bus routes • Unlikely to see significant transfer of freight from road to rail

Priorities

In our consultations on the draft strategic priorities in Spring 2005, 88% of respondents supported our priority to deliver accessibility improvements in the areas of greatest need over and above any countywide programme of improvements. This has therefore been rolled forward as the basis of the strategy.

Our priority will be to target areas of the county characterised by poor public transport, low car ownership and high levels of deprivation for focused, multi-agency accessibility improvements above and beyond any countywide programmes.

Strategy

The general strategy for improving accessibility is to improve local connections and promote better accessibility to jobs and services, especially by public transport, cycling and walking. We will prioritise improvements in those areas of the county with low car ownership and poor public transport, as well as improving connectivity in sub-regional policy areas.

Objectives

- Improve access to key services, facilities and opportunities, especially for those most in need
- Facilitate integration between modes of transport.

Targets

- Reduce the number of areas which fall below the acceptable level of accessibility to key services by public transport (target will be set by March 2006 after further analysis)
- Increase bus patronage by 25% between 2003/04 and 2010/11
- Increase bus satisfaction levels to 62% in 2010/11
- Increase the number of cycling trips by 5% between 2003/04 to 2010/11
- Increase passenger trips on demand responsive transport services to 161,000 per year by 2010/11, an increase of 32% between 2003/04 and 2010/11.

7. Improving accessibility

Policies

The policies for public transport, cycling and walking describe our countywide approach to improving accessibility by these means of transport. These have been based on an assessment of the broad approaches we should be taking, such as capitalising on the value for money offered by demand responsive transport.

Public transport, particularly buses, is fundamental to the delivery of the Local Transport Plan and is a corporate and community priority. For this reason we have developed a bus strategy which is fully integrated into the Local Transport Plan (see Appendix E). This is largely covered in this chapter, but is also mentioned in the congestion chapter in terms of bus reliability and modal shift, and the environment chapter in terms of local air quality. This indicates the value for money of improving buses, as it delivers better transport outcomes across the range of shared priorities for transport.

The accessibility planning analysis has enabled us to identify where and how packages of these measures can be delivered as a priority where the need is greatest. The general public transport, walking and cycling policies, which will be delivered countywide, will therefore also be used as a 'strategic menu' for the action plans in the accessibility action areas to draw on. The action plans will draw upon interventions that other agencies, such as the health service, can deliver too.

That said, policies relating to other transport modes, such as cars and motorcycles, are also important in delivering general accessibility improvements in Norfolk, and the hub and spoke system of connectivity summarised below acts to integrate these different modes of transport at different levels.

Hub and spoke system of connectivity

People and businesses have dispersed travel needs. It is impossible to provide direct connections of the appropriate standard for every possible journey. The strategy for improving connectivity is to gradually move towards a strategic hub and spoke hierarchical approach. This will be delivered at four inter-related levels that combine to form a hub and spoke system:

- Connections within built-up areas. These generally involve short distances. The focus will be on improving connections for pedestrians and cyclists. For on-going journeys, interchange facilities will be provided for access onto key bus routes or rail
- Connections to the nearest market town or urban area from the rural hinterland. The focus will be on ensuring people have some means of accessing their nearest market town or urban area where many daily needs can be met, and so providing at least a basic connection will be the objective. This will help market towns operate as local service centres for their rural hinterland and will promote their vitality and viability. The focus for this will be public transport, especially demand responsive transport
- Connections between market towns and urban areas. Gaining access to other services may require residents of market towns and their rural hinterland to make longer journeys, travelling to the nearest urban area. The focus will be on ensuring people have reasonable travel choices to meet these less frequent needs, and so providing a good standard of connection will be

the objective. These linkages are especially important for developing the sub-regional policy areas and developing the relationships between market towns and the urban areas, including enabling the urban areas to act as drivers for complementary growth in some of the market towns. The focus will be frequent public transport, such as local bus and train services, but also the quality of the roads will be an issue

- Connections between growth and regeneration areas. These will be high quality connections between the urban areas, particularly between those identified as particular growth or regeneration areas in the draft East of England Plan. The focus for this will be high quality road and rail connections.This was discussed in more detail in Chapter 6.

Virtually all journeys are journey 'chains', involving links, such as walking to the bus stop and catching the bus. It is necessary to consider the whole journey because if any part becomes inaccessible (physically, cost, information, parking) then the whole journey is inaccessible. All these aspects are considered below.

Cycling and walking networks

Enabling people to walk or cycle has wider benefits in addition to improving accessibility. These modes have a tiny ‘carbon footprint’ and constitute an affordable way of keeping fit, helping to create healthier communities. It is important that the environment for pedestrians and cyclists is properly planned, so that the physical infrastructure like routes and crossings are available and people who are walking and cycling feel safe and secure.

Much has been done to provide convenient and safe routes for cycling during the first Local Transport Plan, especially in the main urban areas. However, sometimes the facilities are not joined up fully and there are parts of the county's built environment, especially in the market towns, with very little provision for cyclists. Improvements in urban areas and market towns offer the best value for money because the distances to services means more people can walk or cycle.

Policy 7

Walking and cycling networks

We will enable people to choose to walk or cycle through implementing safe and convenient walking and cycling route networks within the main urban areas and market towns, and from/to their immediate rural hinterland, and reducing traffic in town/city centres to create more 'people friendly' public spaces.

In the short term the strategy will give precedence to improvements that:

- Remove traffic from pedestrian intensive areas, such as town centres to create more 'people friendly' environment
- Serve utility trips such as to access major employment areas, interchanges or education facilities

7. Improving accessibility

- Enable people to access their immediate countryside from urban areas and market towns to promote health and well-being
- Enable the completion of networks
- Reduce danger and improve road safety (see Chapter 10)
- Improve accessibility for mobility impaired people
- Contribute to a reduction in crime and the fear of crime, and enhance personal security
- Contribute to the National Cycle Network of Sustrans.

The strategy will also seek to create opportunities to make better use of the rights of way network, especially in towns and urban areas, and improve those sections that help to deliver improved cycling and walking opportunities (see also Chapter 17). Most of the rights of way network is in the rural areas and we will continue to ensure this is accessible and safe for, where appropriate, pedestrians, cyclists and horse riders.

Public transport network

Public transport is often the only realistic option for people who do not have easy access to a car and is therefore fundamental for improving accessibility. It also provides the best opportunity for modal shift by giving people a high quality alternative to the car (see Chapter 8). However, it is clear that public transport needs to become more flexible and accessible in response to the complex travel patterns that people increasingly have.

Policy 8

Public transport network

The accessibility and overall quality of public transport services will be improved by working in partnership with operators and other stakeholders to deliver an integrated and value for money system that meets the needs of all users.

Our strategy is to develop a public transport hub and spoke network of feeder services, interchange hubs, and key bus routes. Providing value for money is key to the strategy, focusing support and subsidy for bus services where it is most needed to improve access in rural areas, whilst improving operating conditions to enable investment by operators in the commercial network of bus services.

Feeder services (progressively in the form of demand responsive transport including taxis, Dial-a-Ride, community car schemes and community transport) are a means of delivering flexible, value for money, non-conventional transport for areas which cannot reasonably be served by standard public transport, to provide access to local jobs and services, especially improving accessibility to towns and urban areas from the immediate rural hinterland. This will provide a better use of the subsidy for non-commercial services.

7. Improving accessibility

For many people, being able to access their nearest town might be the end of the journey, but for those who need to travel further there will be the opportunity to change at interchange hubs. The hub element is a network of interchange points in market towns, urban areas and on key bus routes (see Policy 9). They can then connect into a main core of high quality and high frequency bus services on identified key bus routes, as well as rail services at rail stations. The key bus routes, served by commercial rather than subsidised buses, are critical in increasing usage and build on the existing links that enjoy high service frequencies. It is likely that these services will not only improve accessibility, but will also provide people with a better quality and choice and should encourage a modal shift, especially to the urban areas (see Chapter 8). This will build on the good economic viability and quality of existing bus services on particular routes across the county, aiming to deliver further improvement in both operating conditions and service quality.

The short to medium term strategy for key bus routes will be to target:

- Capital investment prioritised on the key bus routes
- Higher frequency service provision delivered in the urban areas aimed at enabling people to 'turn up and go'
- High frequency services delivered on routes from market towns to the urban areas, especially as part of sub-regional strategies (see Chapters 12 and 14) to improve their connectivity.

A progressive way in which demand responsive transport resources can be maximised is by ensuring that whenever possible journeys to the same place are combined, even if they are for different purposes. This will involve making better use of school and non-emergency healthcare transport. This approach will be rolled out countywide following the 2004/5 Best Value Review of Integrated Transport, and building on the pathfinder work of Project SWITCH on Integrated Transport Solutions, which aims to be a national model. The Integrated Transport Solutions was established using Rural Bus Challenge funding from the Government to co-ordinate journeys made for health, social services and well-being purposes by community transport schemes, the ambulance service, and social services transport. Close partnership working with the health sector was instrumental in delivering this pathfinder project. The aims were to make arranging a journey easier for people by having just one contact point, and to co-ordinate the use of vehicles by ensuring that journeys are shared wherever possible. Benefits include:

- Cost efficiency through the sharing and maximisation of resources to meet passenger requirements
- Gaps in service provision to be recognised and tackled
- Standardisation of a number of aspects of operation, such as eligibility and pricing, and pooling of funding sources to ensure better financial stability and processes.

Effective partnership working between transport operators, local authorities, funding agencies, and others is required to implement this hub and spoke strategy successfully. Encouraging investment from operators by providing good operating conditions and through quality bus partnerships, with priority given to the urban areas will be critical. Indeed, the capital investment

7. Improving accessibility

in key routes will enable the value for money from other revenue investment sources to be improved. Our partners strongly support the approach described, especially the major public transport bus operators.

Although railway lines are not strictly part of the key bus route network, this strategy will complement rail services, many of which effectively provide the same strategic function. Similarly, rail stations will be seen as interchange opportunities. We will continue to support community rail partnerships and work with the rail industry to improve services and access to rail.

Interchange

The interface between links in the journey chain is often the weakest part. Interchange is therefore often a barrier to people making that journey, so there is a need to make it as easy, seamless, comfortable and safe as possible. There are a large number of interchange points across the county, including railway stations, bus stations, and other bus stops, especially those in town or city centres. These are often 'gateways' to towns and should be of a high quality. Cycle parking facilities are also interchange points and these will continue to increase with the implementation of the Cycle Theft Reduction Strategy. These enable people to feel comfortable about leaving their bicycles for long periods of time without it being stolen.

Policy 9

Interchange

Improved connections between transport links will be delivered at key interchanges including rail and bus stations, and other key bus stops.

In the short term the strategy is to improve interchange between modes at appropriate locations by:

- Improving the quality of public transport infrastructure such as shelters, time-table information, and make all bus standings compliant with the Disability Discrimination Act for example by using raised kerbs to make it easier getting on and off the bus
- Enhancing the waiting environment by providing seating, hard-standing areas, telephones and lighting for improved personal security. Interchanges are an important public space and need to be made safer and more people friendly
- Providing information on connections and improving signing to interchanges
- Improving the quality of cycle facilities including secure parking
- Ensuring convenient and safe routes to interchange points for people walking and cycling
- Providing parking facilities for people to be picked up or dropped off, both by private car and taxi.

7. Improving accessibility

Improvements will be prioritised on the basis of their regional and strategic importance, as well as the existing and potential throughput of passengers and users. Particular priority will be given to improving interchange at King's Lynn as a Regional Interchange Centre, as well as continuing to build on the improvements made at Norwich (such as the new bus station) during the first Local Transport Plan.

This will improve the experience of people using public transport and there is evidence that this in turn encourages greater patronage and long-term sustainability of services. The level of provision made will depend on the strategic importance of the interchange facility.

Travel Information

As well as providing people with the physical transport opportunities to access jobs and services, they need to be aware of these opportunities. Providing high quality information is an essential component which helps to make the best use of the assets we have invested in and deliver better value for money.

Policy 10

Public transport, walking and cycling information and marketing

The availability of travel information will be improved. The quality, quantity, variety of formats, and the accessibility of public transport and cycling and walking information will be improved by working in partnership with the operators, and taking advantage of new and emerging technologies.

In the short term the strategy will target initiatives to increase certainty and awareness by:

- Better quality marketing of public transport and cycling, especially integrated with the delivery of new improvements and services
- Providing better information and timetables in a range of formats
- Continuing to work in partnership with others, especially public transport operators and neighbouring local authorities
- Continuing to develop Traveline
- Widening the provision of real time public transport information (BusNet is now installed on nearly all buses in Norfolk), particularly at strategic locations such as main interchanges. This will further provide people with confidence
- Marketing and branding services and routes to promote their use
- Improve the signing of walking and cycling routes.

Public transport ticketing and fares

7. Improving accessibility

A concern for people is ticketing arrangements and the uncertainty this brings. Being able to buy tickets beforehand such as at on-street vending machines, implemented in 2005 in Norwich city centre, can improve both the overall experience for people and bus reliability by reducing boarding delays. A smartcard scheme would allow people to charge credit to a card allowing them to pre-purchase services.

Where passengers connect with another bus to complete their journey and no through ticketing arrangements exist, the passenger has the inconvenience of paying twice, as well as dealing with any confusion. The availability of joint and through ticketing makes the use of public transport more attractive, enabling people to transfer onto other operators' services, including bus/rail journeys.

Policy 11

Public transport ticketing and fares

We will work in partnership with the operators and district councils to seek opportunities to reduce barriers to public transport use caused by ticketing arrangements.

In the short term this in practice means we will:

- Seek further opportunities for on-street vending machines
- Develop a Smartcard system for purchasing tickets. We are likely to submit a major scheme bid to Government as part of the delivery of this strategy. This will be developed during this Local Transport Plan.

Access for general traffic - the route hierarchy

The strategy recognises that different roads fulfil different functions. For example, main roads distribute traffic on essential business, whilst back streets provide access to individual houses. Often, the main function of a road is reflected by the way it is naturally used. However, sometimes it is desirable to change the way that a road is used so that it serves more effectively the people and businesses that need to use it. An example may be a residential street that is used as a cut-through for traffic.

7. Improving accessibility

Policy 12

Route hierarchy

Road users will be encouraged to use the most appropriate route for each journey. Investment in the road network will be made where significant problems or opportunities arise and prioritised according to the status in the hierarchy. Value for money opportunities will be sought to improve principal routes on the route hierarchy as part of the road safety and structural maintenance programmes.

In the short term the strategy is to continue to implement the route hierarchy. The route hierarchy ensures that all vehicles travel on the most appropriate route to minimise their impact on the rest of the community and the environment.

- Through traffic will be encouraged to use principal routes defined in the County Council's route hierarchy through signing and improvements as well as restrictions on lower level roads in the hierarchy
- Lorries especially will be encouraged to use principal routes by a combination of making those routes more attractive, and applying restrictions on less suitable routes
- Many roads on the route hierarchy are seen as of an inadequate standard for their function which can lead to problems such as congestion, damage to roadside habitats and verges by lorries in particular, and road traffic accidents. Targeted measures are required to address these problems and attract heavy goods vehicles and other traffic to use the most appropriate roads and thereby protect rural communities and the environment from excessive traffic
- The concentration of traffic on the main roads opens up the opportunity to implement initiatives on lower level roads to benefit walkers, cyclists and equestrians. An example of this is the 'quiet lanes' implemented in North Norfolk (see Chapter 15).

Access for freight

Freight provides a vital service, allowing businesses to thrive and being essential to the economy. Other things being equal, rail freight is the preferred method of moving goods around and so we support improved access to rail freight facilities and freight interchange hubs. We also support improved facilities that enable the transfer of goods to rail freight, pending consideration of traffic and environmental impacts. However, often the only way to collect and deliver freight is by road and we recognise this as being the dominant mode for freight for the foreseeable future. Whilst it is necessary to manage this and mitigate the impacts on people and other road users (see Policy 12 on route hierarchy), we also need to find ways to accommodate this requirement and help promote its efficient operation.

7. Improving accessibility

Policy 13

Freight

We will work with freight associations and operations to mitigate the impacts of freight operations and encourage the use of rail freight.

In the short term the strategy is to seek agreement with operators and provide information on routes, delivery times, secure over-night parking facilities, encourage applications for inter-modal freight facilities and support grants towards the cost of providing private sidings. The strategy also integrates with development plans by:

- Seeking to pursue land-use policies which will locate major industrial developments so as to maximise access to the rail freight network
- Identifying potential rail freight depots and protecting them from adverse development.

The European Union Directive allowing 40 tonne vehicles on all UK roads came into force in the UK in 1999. In order to allow such vehicles to use the roads we have carried out an assessment of bridges to see which ones require strengthening.

Policy 14

Bridge strengthening

Bridges will be strengthened, in partnership with bridge owners where appropriate, to maintain the integrity and functioning of the route hierarchy and where weight restrictions would cause unacceptable diversions or impacts on the local economy.

In the short term the strategy is to continue the bridge strengthening programme, giving priority in accordance with the route hierarchy, key bus routes and lorry access needs. The programme of bridge strengthening is now well advanced. As part of strengthening schemes, opportunities will be taken to improve access for other modes of transport such as providing footways and cycle routes.

Car parking and accessibility

The availability of car parking is important to ensure the economic buoyancy of areas within the county by enabling people to gain access. Adequate parking is therefore required. However, controlling the availability of parking is also important as a way of managing demand for car travel and encouraging people to use alternative forms of transport (see Chapter 9). Parking must be convenient, but too much parking leads to too much traffic, congestion and worsening air quality,

and impacts on the use of other forms of transport. This is a difficult balance that varies widely across the county, largely because accessibility by other forms of transport varies widely (see Chapter 8).

Many car parks are of a poor quality design and some have considerable problems in terms of vehicle crime. It has been shown that good quality design can help significantly to address vehicle crime and improve the overall experience of the user of the parking facility. This is particularly important as for many visitors this will be the first physical point of contact with the place they are visiting.

Policy 15

Car parking and accessibility

The County Council will work with providers of car parking facilities to improve the quality of car parking facilities, in particular where such improvements can help to reduce levels of crime and the fear of crime.

Access for motorcycles

Motorcycles (including mopeds and scooters) can provide an alternative means of transport for many trips. Where public transport is limited and walking and cycling is unrealistic, eg rural areas, motorcycles can provide an affordable alternative to the car, bring benefits to the individual and widen job opportunities. They can also provide an efficient transport choice in terms of time and fuel economy. To be viable, facilities are required, particularly adequate parking at the destination. We have recently developed a full strategy for motorcycling that is consistent with the government's own strategy and in delivering this we will ensure that schemes are also consistent with the latest engineering design guidelines.

Policy 16

Motorcycles

We will seek opportunities for interventions that make motorcycling a more attractive choice for people.

In the short term the strategy is:

- Not to apply a cap on the availability of parking for motorcycles
- To carry out an audit of powered two wheeler parking
- Investigate the wider use of bus lanes.

7. Improving accessibility

We will also enable people to choose to use motorcycles by delivering targeted initiatives to promote better motorcycle safety (see Chapter 10).

Access for all

Where transport is available, it may still be a barrier for some people, whether because of a long-term physical impairment, temporary injury, or other mobility restrictions such as having children in pushchairs. Part III of the Disability Discrimination Act 1995 gives people with disabilities a right of access to facilities, services and premises. In addition, some people may find it hard to pay for transport services, especially the elderly, young and those on low incomes.

Policy 17

Access for all

Good accessibility for all sections of the community will be sought. Conditions for mobility impaired people and those members of the community most in need will be improved.

This will be delivered primarily through:

- The continued introduction of drop/flush kerbs, tactile paving, and audible signals at appropriate locations, such as pedestrian crossings as a high priority
- Use of hand rails and the careful siting of street furniture
- Rolling out the bus stops and interchanges programme to ensure pavements and kerbs at bus stops are compatible with the buses in operation and compliant with the Disability Discrimination Act
- Use of seating on walking routes and at interchanges
- Provision of information in highly accessible formats
- Expansion of demand responsive transport schemes
- Quality bus partnerships and more informal partnership working with public transport operators, especially to secure improvements on key routes
- Continuing to use public transport tendering arrangements to oblige the meeting of Disabled Persons Transport Advisory Committee specifications
- Work in partnership with local access groups to ensure disability awareness training for transport providers is continued
- Expansion of concessionary fares schemes to include demand responsive transport schemes and people on low incomes and other sections of the community for whom cost is a barrier
- Work with District Councils to increase the number of taxi and private hire vehicles that are fully accessible;
- Encourage the rail industry to provide adequate access to station platforms and between station platforms, with priority at Thetford and Diss
- The provision of adequate parking for people with disabilities; Standards for Parking in Norfolk provides best practice on the size and location of spaces for disabled parking.

8. Reducing congestion

Introduction

The Government has identified urban congestion as a major problem. Under the Traffic Management Act 2004, Norfolk County Council has a new duty to keep traffic, including pedestrians, moving. Congestion can have an adverse impact on the local economy and create uncertainty for businesses which can be quantified as a cost to the economy of the United Kingdom. It also affects the quality of life for residents and visitors by creating poor local air quality and the general degradation of public spaces. Congestion affects all types of transport as it reduces bus reliability and makes it more difficult to cycle or walk.

Background Analysis

The table below shows which policy objectives this strategy will work to deliver.

Table 8.1 Congestion Policy Context

Policy	Objective or Target
National	
Traffic Management Act 2004	• To secure the expeditious movement of traffic on the road network
Transport White Paper 2004	• To provide a more reliable road network and freer-flowing service for both personal travel and freight, with people able to make informed choices about how and when they travel • Bus services that are flexible, reliable and convenient • Making walking and cycling a real alternative for local trips
Regional	
Draft East of England Plan	• To reduce or reverse the growth of motor traffic • To enable infrastructure programmes and transport service provision to support both existing development (addressing problems of congestion) • To widen travel choice: increasing and promoting opportunities for travel by means other than the private car, particularly walking, cycling and public transport, • To stimulate efficient use of the existing transport infrastructure, efficiently maintaining and managing existing road, rail, port and airport infrastructure • To stabilise car traffic levels in Norwich and King's Lynn at 1999 levels as regional interchange centres
Local	

8. Reducing congestion

Policy	Objective or Target
Norfolk Ambition the community strategy for Norfolk	• Reducing the adverse impact of traffic

Government has also identified that in larger urban centres with a population above 250,000, congestion should be monitored and reduction targets set. There are no urban centres in Norfolk that meet these criteria. However, the Norwich Area Transportation Strategy (See Chapter 12), proposes that we monitor congestion and develop targets to reduce it.

Data and User Analysis

The Department for Transport has purchased journey time/speed data from a company called ITIS. This data is derived from vehicles fitted with tracking equipment and is being supplied to local authorities for use in measuring congestion. To assist in identifying the extent of the congestion issue in Norfolk, we have examined the ITIS data for 2004 and considered the AM peak period of 0700 to 1000 and compared this to free flow conditions. This has confirmed anecdotal evidence and the views on congestion expressed by stakeholders and the public in consultation exercises. Peak period delay is particularly evident in the urban areas of Norwich, Great Yarmouth and King's Lynn and typically this relates to areas regarded as congestion hotspots.

A map showing the average am peak delay from the ITIS data is shown in Figure 8.1.

8. Reducing congestion

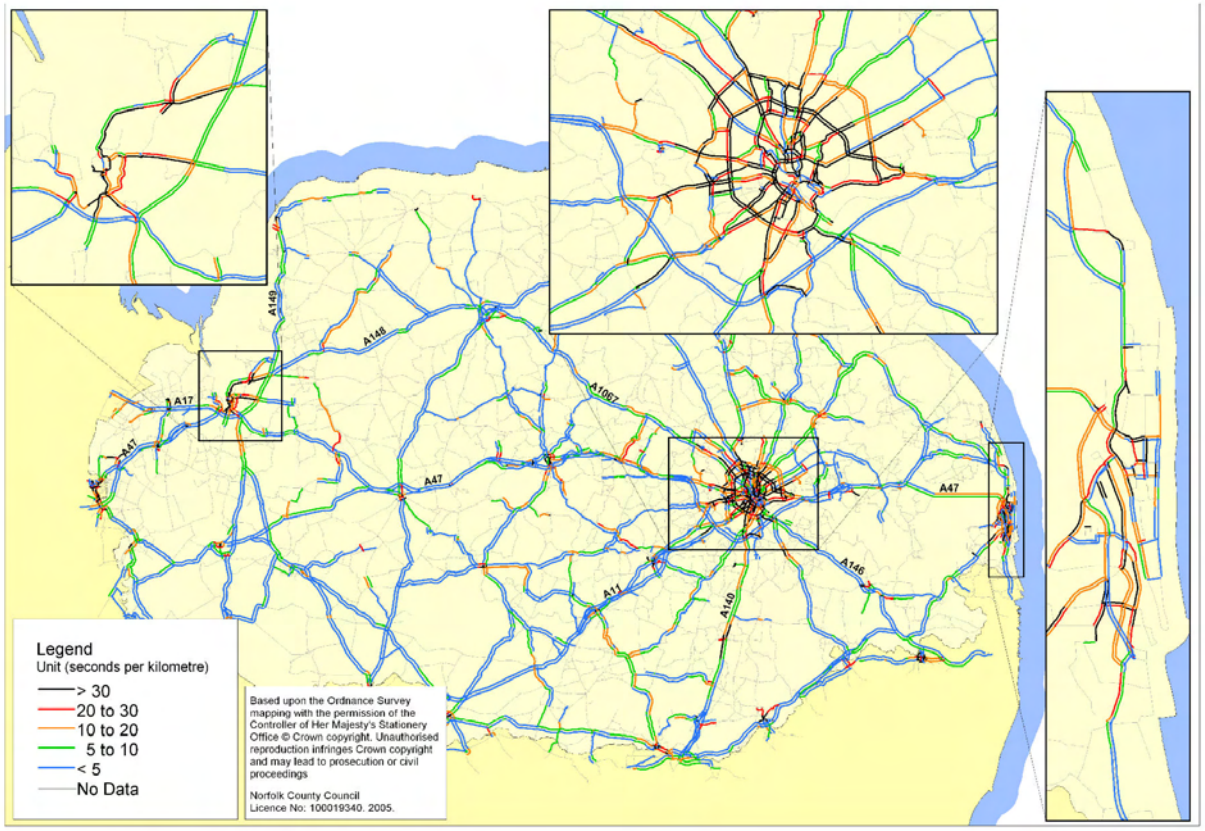


Figure 8.1 Average AM Peak Delay: ITIS - 2004

Looking in more detail, traffic models of Norwich and Great Yarmouth and journey time surveys have also been considered. This has taken into account known future changes in land use patterns. Overall this has shown that of the urban areas, congestion is worst in Norwich.

Furthermore, the Highways Agency has recently developed a trunk road traffic model by combining local models from different multi-modal and local studies. This has been used to assess the impact of the draft East of England Plan on the trunk road network. Model results for Norfolk indicate that there will be some increases in congestion around King's Lynn, the Thickthorn junction of the A11 and A47 in Norwich and the A47 Norwich southern bypass. This additional traffic will arise as a consequence of the planned growth for the region.

As a result of the above, we undertook further work using our BusNet system to establish a baseline of bus journey times and reliability in order to adequately measure and monitor people congestion in our urban centres. Currently over 300 buses in Norfolk are fitted with equipment, allowing for bus positions to be determined in real time. The use of this data as a proxy congestion measure is particularly pertinent as delay to buses is a principal concern.

8. Reducing congestion

Data from urban traffic control systems will also be utilised as much as possible to address the shortcomings of management information, provide a benchmark on current congestion levels and monitor changes through time, and to ensure that the system is operating at maximum efficiency at all major junctions.

Throughout the course of the second Norfolk Local Transport Plan, we will continue to work with national institutions, regional bodies and local stakeholders to develop and monitor indicators of congestion in Norfolk.

Seasonal congestion and congestion on inter-urban routes is also a problem in Norfolk, although the extent of the problem is more difficult to substantiate. By its very nature seasonal congestion only occurs at certain times of the year and so it will not show up particularly in the ITIS average speed data. Also, journey time surveys for modelling purposes are typically undertaken in average periods. However, there is strong anecdotal evidence that summer congestion is a problem in Great Yarmouth. This tends to be more pronounced at certain times related to the holiday let changeover day and events such as horseracing. This seasonal congestion affects the same roads that suffer general congestion in Great Yarmouth and so the effects are cumulative.

Inter-urban congestion can be sporadic and therefore will not be apparent in the ITIS speed data. However, locations are evident where the removal of through traffic from a settlement means that it will not be held up by turning traffic.

The intensity and problem of congestion is influenced by many factors, but most prevalently by human behaviour such as personal transport choices and decision-making. It therefore stands that as Norfolk grows and changes so too will the causes of congestion. It is imperative that the issue of congestion and its causes be continually and consistently reviewed and evaluated, in order to determine the best available solutions.

Table 8.2 Congestion SWOT matrix

Strengths	**Weaknesses**
• Good journey time reliability on trunk roads in the Eastern Region • Congestion largely limited to urban areas at peak times • 6 successful Park and Ride sites	• High car ownership and use • Urban congestion during peak times • Poor road infrastructure • Congestion leads to unsuitable use of residential roads • Congestion could be affecting the local economy due to time loss • Limited capacity in urban areas • Limited scope for bus lanes • Poor quality of life for those living near congested streets
Opportunities	**Threats**

8. Reducing congestion

• Network Management Duty • National interest in congestion or road user charging and additional government funding for schemes • Increased Government interest in travel planning (smarter choices) to encourage modal shift • Emerging technology for better management of roads	• Congestion spreading to the off peak periods could unduly affect business and the local economy • Increased congestion could create additional areas of poor air quality • Some solutions which increase road capacity could encourage more traffic so may only be short term fixes • Highways Agency model shows A47 Norwich southern bypass and around King's Lynn over capacity with proposed growth

Priorities

The evaluation of local problems and issues has helped to determine the focus of the strategy for tackling congestion in Norfolk. During our consultation into draft strategic priorities for the Local Transport Plan nearly 83% of respondents agreed that tackling congestion in the urban areas of Norfolk was a priority. In view of this we are carrying this forward as a strategic priority and our priorities for congestion in order are:

1. Persistent and regular congestion
2. Seasonal congestion
3. Inter-urban congestion.

Strategy

Objectives

- To reduce the number and severity of congestion incidents, particularly where it affects public transport
- To improve journey reliability, especially for public transport
- To encourage a modal shift, especially in urban areas.

Targets

- To limit peak period traffic flows in Norwich to 95% of 2003/04 levels by 2010/2011.
- To reduce the number of car journeys to school by 10% between 2005/06 and 2010/11
- Journey time reliability on key roads in Norwich (target to be determined by March 2006)
- For 90% of buses to meet punctuality targets by 2010/11.

8. Reducing congestion

Policies

Our congestion priorities in Norfolk will be to first tackle the root causes; addressing the problems "upstream". However, new road construction or improvements to the existing road network may be appropriate in some circumstances. This strategy recognises that reductions in congestion can be achieved through other, more sustainable interventions. Therefore, our strategy for tackling congestion will be to:

1) Encourage and seek modal shift to more sustainable modes of transport, such as public transport, walking and cycling, particularly in urban areas where good alternatives exist

2) Improve the efficiency of the transport network

3) Increase network capacity.

Levels of congestion in Norfolk are relatively low, although some delay is experienced in the urban areas, particularly during peak times. Persistent and regular congestion with therefore be targeted for action in the following areas and in particular in areas where it causes significant delay to buses and results in poor air quality:

- Norwich
- King's Lynn
- Great Yarmouth.

People Congestion

Historically congestion strategies have focused efforts on moving the greatest number of vehicles in the most efficient way possible. Traffic congestion significantly affects the reliability of the public transport system. By focusing our strategy on moving people rather than vehicles, we are more likely to reap the greatest benefits. It also works to encourage public transport use, as travel by bus may become a more attractive method of transportation than by car.

Policy 18

People congestion

Transport decisions will first give consideration to improving the movement of the greatest number of people in the most sustainable manner rather than the greatest number of vehicles.

In support of this policy we will work to identify a strategic bus network, first in Norwich and then in King's Lynn and Great Yarmouth. Once these routes have been identified we will then look to reduce public transport delay by developing measures such as bus lanes and priority signalling and access.

8. Reducing congestion

Encouraging Modal Shift

A recent study commissioned by the Department for Transport, *Smarter Choices*, suggests that the high intensity application of travel planning techniques can result in peak period urban traffic reduction of over 20%. Current evidence suggests that the most effective way of reducing congestion is through a package of such measures. The research suggests that every £1 spent on well-designed measures could yield £10 of benefits in reduced costs of congestion alone, therefore this type of investment clearly represents good value for money.

Policy 19

Smarter choices

Priority will be given to implementing smarter choices for encouraging a modal shift. This will encompass promoting Public transport including park and ride, walking and cycling. These measures will be intensively developed in the first instance.

Travel planning measures, designed to give better information and opportunities, will therefore be intensively developed. Such measures will include:

1) *Workplace travel plans*

Businesses, visitor destinations and other major organisations will be encouraged to develop travel plans. Travel plans will be required for larger new developments, or extensions to existing developments.

2) *School travel plans*

Taking children to and from school by car has a marked effect on traffic and may influence travel behaviour of future generations. We will continue to provide professional support for assisting schools in developing and implementing school travel plans. We will give priority to working with schools in the urban areas of Norwich, King's Lynn and Great Yarmouth, then market towns, then rural areas.

3) *Travel awareness campaigns*

We will continue to implement travel awareness campaigns based on the production of travel information, available for all, in offering people incentives and travel options in order for them to make informed and independent decisions about every journey. New media and innovative ways of communicating information to the public will be explored.

4) *Intensive public transport information and marketing*

See Chapter 7.

8. Reducing congestion

5) *Car-sharing schemes*

We are currently updating and re-launching our carsharing scheme to make it more attractive and increase its use. We will continue to develop it by focusing on businesses via their travel plans in order to catch the highest density of destination points. Innovative methods in car sharing will also be investigated, such as possible utilisation of park and ride spaces, urban car clubs and employer pool cars (preferably using alternative fuels).

6) *Personalised journey planning*

We will work to develop a personalised journey planning service, which provides individuals with travel advice and incentives for making journeys on sustainable modes of transport.

Policy 20

Locking in benefits

Where we are successful in reducing traffic levels, complementary "hard measures" will be developed and implemented to lock in these benefits.

Complementary measures for locking in the benefits of travel planning are paramount as these benefits have the potential to eventually induce new traffic onto the network by reducing congestion. This could include strategic closures or flexible reallocation of road space which can be altered easily according to modal demand.

As part of the bus strategy, improvements will be made on key routes between market towns and the urban areas. This will be another key way of encouraging a modal shift to more sustainable modes of transport. Details of this are featured in Chapter 7 on accessibility. This should be an effective way of enabling modal shift and prove to be better value for money than options to increase capacity.

Financial Mechanisms

Providing people with financial incentives for switching to more sustainable modes of transport has recently come to the forefront of the transport policy debate in the UK. Road user charging has been introduced in London and Durham and has had considerable success in achieving both traffic reductions and improvements to local air quality. There is, however, concern that reductions in traffic may be achieved at the expense of the less well off, or for others where an alternative public transport service may not be readily available.

8. Reducing congestion

Policy 21

Financial mechanisms

Financial mechanisms for encouraging modal shift will continue to be kept under review. In particular, road user charging will be given serious consideration when:

- Significant improvements in public transport services have taken place
- Any additional monies raised are earmarked for complementary transport improvements
- All technical and other implementation problems can be adequately addressed
- Assessment indicates that potential detrimental effects will be outweighed by advantages.

Parking

Controlled provision and availability of car parking is key to managing urban traffic congestion. Restricting the number of spaces or limiting the availability of long-stay car parking can have a significant effect on traffic volumes, providing that these measures are complemented by the provision of adequate alternative options, such as park and ride.

Policy 22

Car parking

Parking provision associated with new developments will reflect the need to encourage more sustainable transport. In the urban and more accessible areas, where good alternatives exist, parking will be constrained. However, standards will need to be flexible to ensure accessibility can be achieved in the more remote locations.

In rural areas and market towns, additional parking provision may be appropriate at rail stations and other public transport interchange locations to encourage the use of rail and bus to access the main urban centres.

Managing the Network

Urban Traffic Control is used in the main built up areas of Norfolk to manage the traffic on the road network in the most efficient and effective way. These control systems are developing all the time and it is likely that more could be done by introducing new features and techniques. Use of new techniques will be considered and, if implemented, monitored and refined to make the best use of the existing road network. This is particularly important as it is likely to offer good value for money and, in the context of the new Network Management Duty that the County Council has under the Traffic Management Act 2004, will help to keep traffic moving and to minimise congestion. In addition to this, under the Traffic Management Act 2004, we are devising operational policies

8. Reducing congestion

to minimise disruption to the road network. These could include aspects such as memoranda of agreement with district councils to cover operations on the network such as refuse collection, gully emptying and road sweeping. In implementing our programme we will continue improving through our Transport Asset Management Plan the co-ordination of planned works to minimise disruption. (See Chapter 17 - Ensuring efficient delivery and value for money.)

Improved information for motorists can be used to overcome congestion, for example to direct motorists away from congestion caused by incidents like roadworks. Information can be imparted to motorists by a number of means, including using road traffic signs (including variable message signing), text messaging, the Internet (before the journey), or radio and satellite navigation technology.

Some variable message signs, which direct cars towards car parks and inform which of the car parks have spaces available, have already been erected in Norwich and Great Yarmouth. Implementation of variable message signing in King's Lynn will be investigated and the use of them at other key locations across the county could be considered. Ultimately these signs could be used to advise motorists of problems on the network, for example congestion or air quality problems. Further information for motorists could be advertised on websites showing parking space availability at car parks or roadworks.

Presently bus lanes are available for use by taxis. An investigation will be undertaken to assess the merits of allowing other categories of vehicle to use bus lanes. For example heavy goods vehicles or cars carrying at least one passenger.

Network Capacity

Increasing capacity has historically been viewed as a sensible solution for reducing congestion. However, it is now widely believed that the provision of additional road capacity can induce new traffic onto the road network. The evidence for this is highlighted by the Department for Transport guidance on scheme assessment which advocates the use of variable trip matrices in traffic modelling, which, in simple terms, means the demand for car travel can change in response to changes in the supply of roadspace. It is important that an appropriate balance be struck between providing additional infrastructure to maintain and support economic growth and to stabilise traffic growth. However, it is likely that reductions in the level of congestion could result in other people switching to car use, unless there are complementary measures designed to prevent this. Such measures to "lock in" these benefits include flexible network capacity controls, reducing network capacity elsewhere, and traffic restrictions.

The best value for money improvements in built-up areas are likely to be junction improvements. These will be undertaken where it can be demonstrated that they will maximise the efficiency of the network and reduce overall congestion rather than just shifting the delay to adjacent junctions. A number of schemes have already been identified for the ring roads in Norwich and these will be implemented. In addition, key junctions in other urban areas and on the radial routes in Norwich will be considered.

8. Reducing congestion

Policy 23

Network Capacity

Network capacity improvements, including junction improvements, will be undertaken where their impact benefits the road network as a whole rather than simply displacing problems elsewhere. Particular reasons for improvements may be to achieve the aims of the route hierarchy or reduce overall traffic mileage.

Road building will only be implemented where it:

- Is delivered as part of an overall package to improve conditions for all modes
- Provides environmental relief to communities and facilitates urban renewal.

New road building will only be considered where it is delivered as part of a package to improve conditions for other modes on the highway network. Such schemes will only be taken forward where an assessment has been undertaken of the non-road building solutions to the problem and road building is demonstrably the only practicable way forward and value for money. In these circumstances full account will be taken of the environmental considerations and complementary measures will be devised to avoid encouraging new car trips.

Currently up to 2021, the need for major new road building has been identified as a Norwich Northern Distributor Road, an A140 Long Stratton Bypass and a Third River Crossing in Great Yarmouth. These are summarised in Chapter 17, and a Major Scheme Business Case for an A140 Long Stratton Bypass accompanies this submission.

Seasonal Congestion

Norfolk is a popular tourist destination and particularly in the summer when people arrive to enjoy the peace and tranquillity of the more rural and coastal locations. Many tourists arrive by car, leading to increased seasonal problems of traffic congestion. This makes it difficult for tourists to get to their destinations and also poses problems for local residents in going about their daily business.

Norwich is a historic city comprising a host of cultural assets and resources drawing in tourists throughout the year. The unique location of Norfolk means it has many beaches and the North Norfolk coast caters for thousands each summer and is an Area of Outstanding Natural Beauty. The Broads, which have the equivalent status to a national park, also draw in holiday makers and Great Yarmouth is a popular tourist destination.

Seasonal congestion gives a negative impression to tourists by impacting on Norfolk's perceived tranquillity. Local economies depend on tourism and any negative perceptions need to be minimised. Seasonal congestion will therefore be targeted for action at:

8. Reducing congestion

- Great Yarmouth
- The Broads
- North Norfolk coast.

Visitors will be encouraged to arrive and travel within Norfolk by public transport. Innovative passenger transport services to support sustainable tourism and reduce seasonal congestion will be sought. This includes:

- Better marketing of available public transport and more flexible ticketing
- Improving seasonal bus services between rail stations, town centres, and tourist attractions
- Improving the quality of transport interchanges from rail to bus to visitor attractions
- Working with Community Rail Partnerships to provide additional train capacity during the peak season
- An investigation into the potential of existing park and ride services and the provision of new shuttle services during the peak season between car parks and visitor attractions
- Providing support and encouragement for visitor attractions to develop travel plans.

A review will be undertaken to determine the gaps in public transport provision to major tourist destinations by rail and bus services. An audit of interchanges between rail and bus services in the area has shown that many require improvement in order to encourage more people to use public transport. Bus links could be provided and developed to and from these stations to encourage higher patronage on public transport. There is a general need for better integration between alternative modes of transport which must be improved if visitors are to be encouraged to arrive and travel within Norfolk via sustainable modes of transport. An example of how we will do this is the successful Norwich Public Transport Major Scheme in the previous Local Transport Plan which has improved bus and rail interchange in Norwich.

Interurban Congestion

Due to its rural nature and dispersed centres of population many trips are made between the urban areas and other settlements to access services, such as employment, education, healthcare and shopping. This can contribute to sporadic incidents of congestion on the strategic transport network and principal routes.

Interurban congestion can arise for a number of reasons around Norfolk. The general lack of dual carriageways in Norfolk, nearly all of which is on the trunk road network, means that when incidents arise, farm traffic is using the main roads, or maintenance is carried out, traffic can experience significant delays. On county roads, we can ensure traffic delays are minimised by better managing traffic related incidents and road maintenance. Traffic accidents on these roads can often cause a temporary closure inevitably leading to significant delays.

Trunk roads, however, are managed by the Highways Agency, and are therefore outside the County Council remit. We will continue to work with the Highways Agency to secure continued improvements to trunk roads in Norfolk especially those which experience frequent interurban congestion.

8. Reducing congestion

We will undertake the following in order to tackle interurban congestion:

- Better management of incidents and maintenance on county roads
- Continue working with and supporting the Highways Agency for improvements to key routes under their jurisdiction.

The A11 Attleborough bypass has recently been reinstated into the Highways Agency programme as a direct result of our extensive direct pro-active engagement to secure this improvement. We will continue to lobby the Highways Agency for improvements to the A11 and A47 trunk roads and particularly the dualling schemes Fiveways - Thetford and North Tuddenham - Easton.

Interurban congestion can also occur sporadically where the principal road network runs through villages and the centres of market towns. There is a particular problem with congestion near Long Stratton, and we are submitting a major scheme business case for an A140 Long Stratton bypass to relieve congestion and address other objectives such as improvements to liveability in Long Stratton. In market towns, local congestion issues will be dealt with through the Market Town strategies (See Chapter 15).

9. Protecting and sustaining the environment

Introduction

Transport can pose considerable threats to the environment and is well known to cause and, in some cases perpetuate, significant environmental effects. These effects include local health issues from poor air quality, climate change, noise and water pollution, loss of landscape, biodiversity, and tranquility, and threats to historic assets and cultural heritage.

This chapter provides a strategic framework for mitigating and reducing the environmental effects associated with transport. The policies here will need to be taken into consideration when carrying out transport schemes and projects across the county, in order to ensure that the environment is always a key priority and consideration when making transport decisions and improvements.

In accordance with the Local Air Quality Management Policy Guidance Addendum and the Full Guidance on Local Transport Plans, we have included the Air Quality Action Plans for Norwich and King's Lynn, where Air Quality Management Areas have been declared. Details of the Air Quality Management Areas, feasibility analysis, cost effectiveness and action plans can be found in Appendix B.

Background Analysis

Policy Context

Table 9.1 Environment Policy Context

Policy	Objective or Target
International	
Kyoto Protocol	Reduction of greenhouse gas emissions below 1990 levels by 2008-2012
National	
UK Climate Change Programme	Reduce greenhouse gas emissions by 12.5% below 1990 levels by 2008-2012 and reduce CO_2 emissions by 20% by 2010
National Air Quality Strategy	Threshold emissions limits for seven air pollutants
Energy White Paper 2003	Reduce CO_2 emissions by 60% by 2050
Transport White Paper 2004	Protecting the environment with particular reference to climate change and air quality
Regional	

9. Protecting and sustaining the environment

Policy	Objective or Target
Draft East of England Plan	Local development documents and local transport plans, having regard to the increased levels of development and associated infrastructure proposed across the region, will include objectives, proposals and policies that seek to: • reduce or reverse the growth of motor traffic • encourage infrastructure for cleaner transport fuels such as liquefied petroleum gas and compressed natural gas • ensure that new development does not exacerbate air quality in existing and potential air quality management areas • pay particular attention to any potential effects on wildlife, where potentially polluting development, increased motor traffic or intensive agricultural facilities producing ammonia, are expected close to sensitive habitats such as Sites of Special Scientific Interest • seek to mitigate existing and potential air quality pollution problems
Local	
Norfolk Ambition the community strategy for Norfolk:	• To reduce CO_2 emissions by reducing energy consumption, promoting low emissions technology and increasing the use of renewable resources • Norfolk has the most environmentally friendly public transport in the country • Reducing the adverse impact of traffic • Norfolk has achieved a reduction in the use of the combustion engine without reducing individual choice of modes of transport • Norfolk is known as a knowledge based, science-led economy with a reputation for excellence in green technologies
Norfolk County Council Medium Term Plan 2005-2008	• Protect and sustain the environment • Leading to reduce climate change

Data and User Analysis

A significant amount of environmental analysis and assessment was undertaken to inform the Strategic Environmental Assessment for this Local Transport Plan. Also, an environmental impact matrix (figure 9.1) was used to help us identify the relationships between transport related direct environmental impacts and delineates those that can then lead to other effects (red boxes). This has helped us to determine environmental priorities for transport by focusing our efforts on first tackling the root causes of environmental problems and issues in Norfolk.

9. Protecting and sustaining the environment

	Climate Change	Air Quality	Noise	Biodiversity	Water	Landscape	Human Health	Cultural Heritage	Townscape
Climate Change									
Air Quality									
Noise									
Biodiversity									
Water									
Landscape									
Human Health									
Cultural Heritage									
Townscape									

Figure 9.1 Environmental Impact Matrix

This matrix exercise identified that climate change is the most significant threat to the environment by causing and exacerbating other environmental effects that transport can directly influence. Additional data, indicators, baseline information, trends and analysis on all aspects of the environment can be found in Appendix D - Strategic Environmental Assessment Interim Environmental Report.

Emissions from transport have recently come to the forefront of the environmental debate regarding the detrimental effects that poor air quality and climate change have on human health, quality of life, and future generations. Growing concern from the Government has seen the profile of these two issues raised substantially in the last few years, and these issues have also been highlighted as key challenges in Norfolk Ambition, the community strategy for Norfolk.

Four Air Quality Management Areas have been declared in Norfolk for not meeting nitrogen dioxide (NO_2) limits. Source apportionment exercises and dispersion modelling has determined that these emissions arise predominately from traffic sources. Analysis of data from the National Air Emissions Inventory for Norfolk found that contributions of nitrogen oxides (NO_x) and carbon monoxide (CO) from road transport in Norfolk are substantially higher than national proportions.

Whilst climate change has been identified as one of the most important challenges we face as a global community, it will also have severe repercussions on a local level in Norfolk, as it is a low-lying county. Rises in sea level from partial melting of large ice masses could lead to widespread flooding. Climate change could also lead to higher local temperatures, stronger winds, significant changes in rainfall, and increases in coastal and soil erosion.

9. Protecting and sustaining the environment

Mapping and analysis of carbon dioxide (CO_2) emissions using the National Air Emissions Inventory for Norfolk in 2001 (Figure 9.2) shows that road transport was responsible for 44% of the total CO_2 emissions, a 3% increase on 2000 levels. This is well above national proportions, which show transport to be responsible for 21% of CO_2 emissions (Dore, 2003).

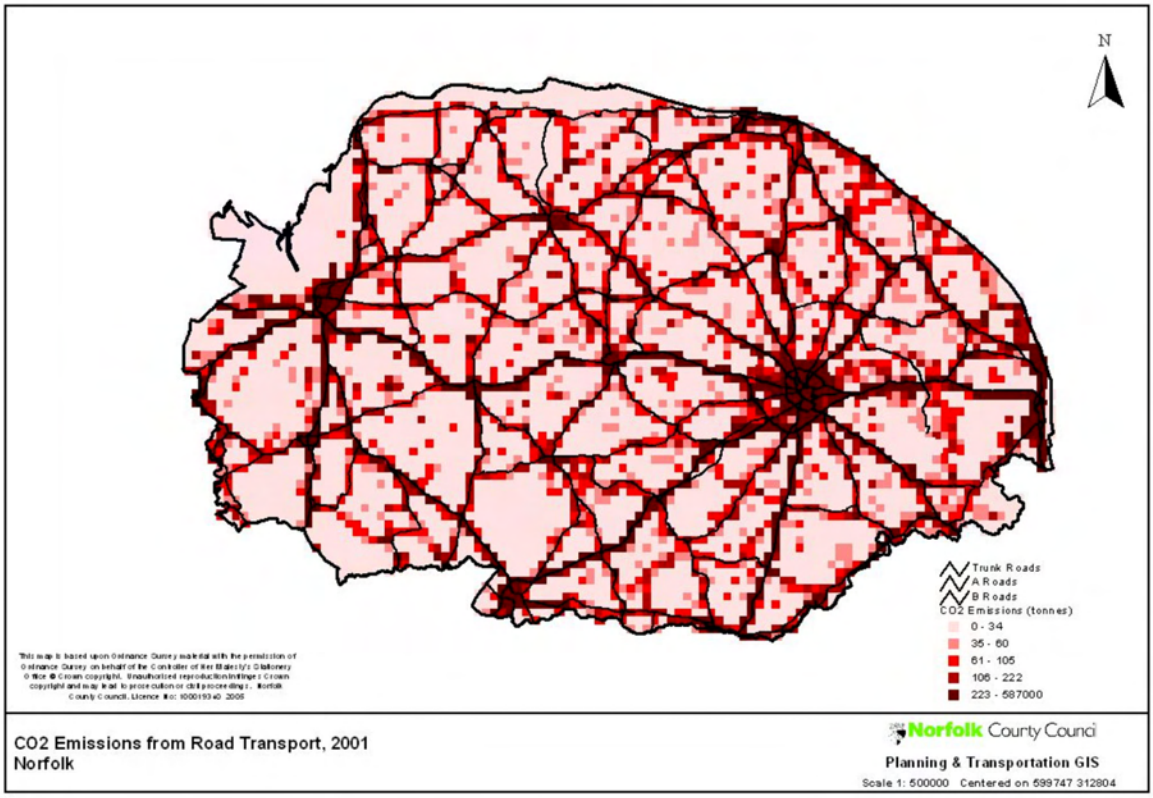


Figure 9.2 Carbon Dioxide Emissions from Road Transport

We have purchased data that provides details of all cars and light commercial vehicles registered in Norfolk. Initial analysis of this data highlights that 26% of the cars registered in Norfolk pre-date European emissions standards and also have high CO_2 emissions. We will continue to use this data to refine a methodology that will help to track our NO_x and CO_2 emissions from transport for the county and use this information to help identify where we need to target measures for reducing emissions from transport.

9. Protecting and sustaining the environment

Table 9.2 Environment SWOT Matrix

Strengths	**Weaknesses**
• Rich cultural heritage • Well preserved and tranquil countryside character • Generally good water quality	• 4 Air Quality Management Areas declared for NO_2 emissions from transport • Relatively high contributions of, NO_x and CO_2 emissions from road transport • Some loss of landscape, tranquility and countryside to development
Opportunities	**Threats**
• Capability to lead the market in the production of biofuels • To advance technological improvements in the vehicle fleet to reduce vehicle emissions • Increasing public awareness of climate change issues • To produce and source food locally to reduce "food miles"	• Vulnerability to coastal and soil erosion, sea level rise and flooding from climate change • Deteriorating air quality could lead to local health issues • Continued loss of landscape, habitats and biodiversity from development and growth pressures • Degradation of countryside and rural tranquility • Traffic growth may lead to increases in emissions from transport • Additional Air Quality Management Areas

Priorities

In spring of 2005, we undertook a public consultation to help us identify our priorities. In terms of environment, over 80% of respondents agreed that tackling climate change and improving air quality should be our environmental priorities for transport. Air quality is also a statutory obligation, and the source of the problem is the same as that for climate change. Tackling both together will reap combined environmental benefits from common mitigation measures, which will increase cost effectiveness. These two areas will therefore be fully integrated, and a holistic strategy to tackle them taken forward. This chapter therefore focuses in the main on air quality and climate change, but also covers other environmental and quality of life issues in Norfolk, though in less detail.

9. Protecting and sustaining the environment

Strategy

Objectives

- To improve local air quality in line with the National Air Quality Standards
- To mitigate climate change
- To minimise the adverse impacts of transport provision on the built and natural environment.

Targets

- To reduce CO_2 emissions from road transport by 10% on 2001 levels by 2010/2011
- To reduce NO_2 concentrations to 40 µg/m^3 by 2010 (intermediate outcome indicators follow):
  - 5% reduction in traffic crossing the Inner Ring Road cordon in Norwich by 2010
  - Reduction in traffic at central locations in King's Lynn by 2010 (to be determined)
  - 40% of vehicle fleet of Euro IV emissions standard or higher by 2010

Policies

Many of the policy interventions that improve accessibility and reduce congestion will also work to meet our environmental objectives. Reducing the need to travel is dealt with in depth in Delivering Sustainable Growth (Chapter 6), whilst encouraging modal shift to more sustainable modes of transport is the main thrust of Reducing Congestion (Chapter 8). Therefore, the policies below focus in the main on reducing the environmental impacts of transport at the source.

Environmental Assessment

Environmental impacts arising from transport schemes need to be identified and understood before informed decision-making can take place. Strategic Environmental Assessment provides decision makers with an in depth assessment of the cumulative environmental effects that plans and programmes have on the environment.

Policy 24

Strategic Environmental Assessment

The County Council will undertake Strategic Environmental Assessments in addition to New Approach To Appraisal on area transport strategies where large projects may arise to ensure that the additional environmental effects of proposed schemes on the strategy are explicitly understood and appropriately mitigated.

9. Protecting and sustaining the environment

In addition to environmental appraisal tools, the County Council will continue to work in partnership with the Community Carbon Reduction Programme (CRed) and the University of East Anglia to understand better the environmental effects from transport. This will help us to mitigate as best we can the environmental impacts arising from our transport decisions and will also help to make the public more aware of the impacts of their personal travel decisions.

Air Quality

Recent guidance from the Department for Transport and the Department for Environment, Food and Rural Affairs supports the inclusion and integration of Air Quality Actions Plans into Local Transport Plans. Whilst the district councils are responsible for air quality, air pollution caused by transport becomes a shared obligation between the districts and the County Council, as the transport authority.

Air Quality Action Plans will be fully integrated into the Local Transport Plan and its Annual Progress Reports. Capital measures arising from Air Quality Action Plans will be prioritised for action to help us meet our statutory obligation under the National Air Quality Standards.The County Council will therefore work in partnership with the district councils to develop, manage, and deliver Air Quality Action Plans related to emissions from transport.

Some traffic management measures may simply displace traffic onto other roads. When considering actions for improving air quality, displacement of traffic and pollution should only be implemented where there is no other alternative for improving air quality available.

Policy 25

Displacement of Air Pollution

Measures which displace air pollution to other locations will only be acceptable in Air Quality Action Plans where it can be proven to be a measure of last resort.

Where an Air Quality Management Area lies within a school catchment, improvements arising from those school travel plans will be prioritised for implementation, particularly where the improvements encourage a modal shift to other means than the car.

New development in areas already suffering from poor air quality from high traffic volumes have the potential to exacerbate the situation. It is therefore imperative that development proposals in or near to Air Quality Management Areas or areas nearing breach of National Air Quality Standards from traffic sources, assess the potential implications of that new development on air quality. Transport scheme assessment requirements are detailed in Policy 35 (Chapter 17).

9. Protecting and sustaining the environment

Climate Change

The threat of climate change to the environment, society and the economy from increased atmospheric concentrations of greenhouse gas emissions is growing. Reductions in CO_2 emissions are currently at the forefront of the challenge in mitigating climate change. The magnitude and proportion of CO_2 emissions from transport in comparison to other sectors requires that climate change mitigation strategies focus a great deal of effort into identifying feasible and attainable solutions to the growing problems of emissions from transport. The transport sector is currently the second largest and fastest growing source of CO_2 emissions in the UK and projections indicate that this will continue to rise if left unchecked.

The County Council, as part of the Norfolk County Strategic Partnership, will work with partners to develop a climate change programme for Norfolk and will implement and incorporate any transport measures arising from this programme into the Local Transport Plan.

Possible interventions for mitigating climate change include:

- Leading by example by carefully examining our own use of transport, and by minimising its environmental impact
- Reducing emissions from vehicles that travel the most, with a focus on buses, lorries, taxis, essential commuters and school runs
- Investigating incentives to encourage car owners to purchase more fuel efficient and/or alternative fuel vehicles
- Awareness raising campaigns to help people understand the effects of their transport decisions in relation to climate change.

Policy 26

Climate Change: Carbon Neutral Transport Schemes

Measures to mitigate and/or sequester projected increases in CO_2 emissions will be required for transport schemes and improvements that result in additional traffic being induced on to the transport network or increases in vehicle kilometres.

Carbon neutrality can be achieved in a number of ways:

- Offsetting against CO_2 emissions reductions made in other sectors in Norfolk
- Reducing traffic volumes or vehicle kilometres elsewhere on the network
- Carbon sequestration - the storage of CO_2 by natural processes - such as large scale tree planting
- Purchasing emissions credits through emissions trading schemes

9. Protecting and sustaining the environment

In particular, carbon sequestration projects could have a number of additional benefits to reducing climate change including:

- Absorption of other air pollutants
- Creation of new habitats to support local biodiversity
- Water filtration and purification
- Noise barriers
- Landscape and character enhancement.

Our transport network is an asset and its long-term function and value must be maximised as much as possible. To that end, it is important that we protect this investment from potential future threats, including climate change.

Policy 27

Transport Development

Large transport schemes will be required to carry a climate change adaptation risk assessment, ensuring that such improvements are not undertaken in areas of high risk of damage from climate change.

Reducing Emissions from Transport

Historically, air quality and climate change have been treated in isolation of one another. The two issues, however, are inextricably linked: each can exacerbate the other and they are also known the have many sources in common, most notably the combustion of fossil fuels for use in the transport sector. Norfolk County Council recognises the efficiency in tackling both these issues in an integrated manner.

Cars are both an essential element of the transport system in Norfolk and a major source of air pollutants and greenhouse gas emissions. Norfolk is a rural county with widely dispersed services and populations, making it difficult to travel with ease without a car. It is often not feasible or viable to provide public transport services in parts of the county, and rural residents often rely on their car for travelling to work, to shops, schools, and elsewhere. Additionally, the distances involved are often too far to walk or cycle, leaving the private car as the only alternative.

This strategy recognises that we must look not only at ways to reduce the demand for travel and encourage modal shift to more sustainable modes of transport, but must also look to ways of incorporating the private car into the solution by making driving more sustainable. Unfortunately, a large proportion of Norfolk's private vehicle fleet is of an age that pre-dates European emissions standards. We will therefore need to focus our efforts on finding ways encourage a more rapid uptake of newer vehicles that meet higher European emissions standards.

9. Protecting and sustaining the environment

Policy 28

Reducing Emissions from Transport

Transport measures which reduce both greenhouse gas and regulated air pollution emissions will be prioritised for action.

1) *Better Information and Raising Awareness*

The County Council will work to encourage a modal shift to more sustainable modes of transport by increasing public awareness about the environmental impacts of transport choices through the Travelwise campaign. In particular, we will disseminate information to the public on the following:

- The effects of poor air quality on human health and how everyone can help to make a difference
- How climate change could affect Norfolk and its residents and what people can do to prevent and prepare for it
- How to drive in a more sustainable manner
- The Government grants available to the public for purchasing alternative fuel vehicles and retrofitting existing ones.

2) *Alternative Fuels*

The County Council will look into ways to increase the production, use and distribution of alternative fuels and will give priority to alternative fuels that reduce both air pollutants and greenhouse gas emissions. Furthermore, we will encourage planning authorities to lend support to planning applications for the production, provision and/or distribution of alternative fuels.

The use of alternative fuels can offer a number of environmental benefits. For example, biodiesel offers CO_2 emissions reductions over conventional diesel fuels and does not require any alteration to the vehicle. Furthermore, Norfolk is well placed to produce biofuels and this will help to stimulate and revitalise the rural economy, an important aspect of Norfolk. Local production of fuels also reduces emissions by minimising the distance that fuels are transported.

3) *Financial Incentives*

Over the past five years, the Government has offered financial incentives for purchasing low emissions vehicles or retrofitting existing vehicles to reduce emissions from road transport. Following this example, Norfolk County Council will apply these principles on a local basis. The County Council will investigate a series of financial incentives for promoting low emission vehicles, public transport, walking and cycling.

4) *Low Emission Vehicles*

9. Protecting and sustaining the environment

In order to support financial incentives for low emission vehicles, a comprehensive set of guidelines must first be developed.

Policy 29

Low Emission Criteria

An established set of low emission criteria for buses and heavy goods vehicles will be set, reviewed and updated as necessary. Low emissions criteria for cars will be set in accordance with the Department for Transport labeling scheme arising from the Passenger Car Regulations 2004.

Low emission criteria will ensure a consistent and fair approach is taken for designating low emission vehicles in Norfolk. We currently have plans to introduce a Low Emission Zone in Norwich on Castle Meadow in order to meet our air quality obligation and we will continue to give consideration to the establishment of additional Low Emission Zones, particularly in areas with poor air quality. Low emission criteria will be used to determine which vehicles are granted access to Low Emission Zones. Other potential uses of low emission criteria are:

- Determining transport priority on the network
- Exemption from future road user charging
- Discounts in car parks operating emissions based charges
- Residential parking permit discounts
- Preferential parking in car parks.

Buses

Whilst public transport is more efficient in environmental terms than single occupancy vehicle use, buses pose particular problems in terms of emissions in Norfolk due to their age and the magnitude of mileage they cover. It is therefore prudent to ensure that we provide support for reducing emissions from buses. To do so, we will need to work closely with bus operators, providing them with assistance, support and information on how we can tackle this problem in partnership. Bus operators will therefore be encouraged to replace older vehicles with alternative fuel and or low emission vehicles, or retrofit vehicles to lower emissions through quality bus partnerships and contracts.

Eventually, Norfolk County Council would like all buses operating in or passing through Air Quality Management Areas, as well as buses on routes requiring subsidy, to meet County Council standards for low emissions. However, getting buses up to standard could be expensive and this cost could potentially be passed on to passengers through increased ticket prices. Therefore, the County Council will investigate ways we can assist operators in improving their vehicle fleet without unduly burdening them with additional costs. The feasibility of imposing and enforcing fines for idling buses will be investigated in areas with high levels of bus movements, including bus stations.

9. Protecting and sustaining the environment

Freight

Heavy goods vehicles and the transport of freight into and out of the county is vital to supporting and sustaining the local economy. However, heavy goods vehicles are disproportionately more polluting than lights goods vehicles and private cars. For example, heavy goods vehicles in one of our Air Quality Management Areas accounts for 14% of the total NO_2 concentration, but only 3.3% of the traffic volume. Furthermore, recent reports have shown that 25% of road freight nationally is given over to the transport of food, with an associated environmental cost of nearly £2 billion per annum. Therefore, in order to minimise the adverse environmental effects that freight transport has on the environment without hindering the economic vitality of Norfolk we will:

- Work with freight operators to inform them of ways to improve fuel economy and reduce emissions through better driving practices
- Assist freight operators to retrofit heavily polluting vehicles with pollution reduction equipment
- Distribute information on "food miles" and buying locally produced food. This will help to reduce the freight transport of food - and therefore congestion, CO_2 emissions, and air pollution - and will also work to support local farmers and the rural economy of Norfolk.

The Natural and Built Environment

Norfolk enjoys a high quality natural and built environment, but it is important that we protect this from any damage that may arise from transport. Norfolk contains some of the most prized landscapes in England, supporting an exceptionally wide variety of wildlife and habitats. There has been loss of biodiversity and landscape as a result of growth, development and road construction. Rural tranquillity is rapidly being eroded from growth and transport pressures. These pressures also lead to loss and fragmentation of habitats.

Policy 30

Protecting the Natural and Built Environment

The County Council will give a high priority to conserve and enhance the wealth, variety, and distinctiveness of Norfolk's natural and built environment.

In order to support this policy the County Council will focus on the following:

1) *Rural Character*

Care will be taken to ensure transport schemes and proposals preserve the rural character of Norfolk against the incremental and cumulative impacts of transport development. Therefore, the amount of greenfield land taken for transport infrastructure will be kept to a minimum.

9. Protecting and sustaining the environment

2) *Landscape*

There will be a presumption against transport schemes that would significantly affect sensitive landscape and habitats. In particular, transport development which would adversely affect, directly or indirectly, the integrity of statutory designations and locally protected sites will not be permitted unless:

- There is no alternative solution
- There are imperative reasons of overriding public interest
- Appropriate compensatory measures can be agreed.

3) *Biodiversity*

The County Council will maximise opportunities for habitat creation along with appropriate management in new transport schemes. Biodiversity will be respected and, wherever possible, enhanced in our planning, decision making and delivering of transport improvements.

4) *Noise*

The County Council will ensure that tranquility is safeguarded from the impacts of transport, where appropriate. Low noise surfacing will be used when constructing and maintaining roads, where it offers value for money.

5) *Water*

New schemes will be designed to minimise the risk of spillage of pollutants into local water systems. Furthermore, due consideration will be given to the use and inclusion of Sustainable Urban Drainage Systems, where appropriate, and to the protection of ground and surface water flows and quality, particularly to wetland sites.

6) *Cultural Heritage and Townscape*

We will seek transport solutions that enhance the historic fabric of the county and that contribute to a sense of place.

10. Improving road safety

Introduction

Road safety continues to be a major concern nationally. In 2004 there were 3,750 casualties from road traffic accidents in Norfolk. Although casualty numbers are falling, road safety is a key corporate priority for Norfolk County Council. This is because it not only affects all road users, it also impacts on a range of other aspects of people's lives, such as:

- Road traffic accidents are a significant cause of mortality and morbidity, and are one of the most common causes of death amongst people aged 18-24. As well as the human suffering, this represent a considerable impact on the resources of the health service
- Community severance in rural and urban areas, and affecting the vibrancy of neighbourhoods
- High traffic speeds, the most common cause of accidents, generate more pollutants and carbon dioxide emissions
- Safety concerns are a major contributory factor of social exclusion and poor accessibility, especially for those who are most vulnerable
- Road traffic accidents cause significant delays on the roads, reducing the efficiency of the transport network and causing frustration
- The cost to the economy of road traffic accidents resulting in injury.

Background Analysis

Policy context

Table 10.1 Road Safety Policy Context

Policy Area	Objectives or targets
National	
'Tomorrow's roads – safer for everyone'	40% and 50% reductions in the number of casualties for 'all road users' and 'children' respectively in 2010 compared to mid-1990s Improve driving skills, attitudes and behaviour Reduce the impacts of drink, drugs and drowsiness, and better enforcement Treating places with the worst safety record and safer speeds Improved safety for vulnerable road users
Regional	
Draft East of England Plan	Improve safety by reducing sources of danger
Local	

10. Improving road safety

County Council Medium Term Plan	Strengthening contribution to road safety is a top 8 priority
Norfolk Ambition	Key element in Healthy and Well theme

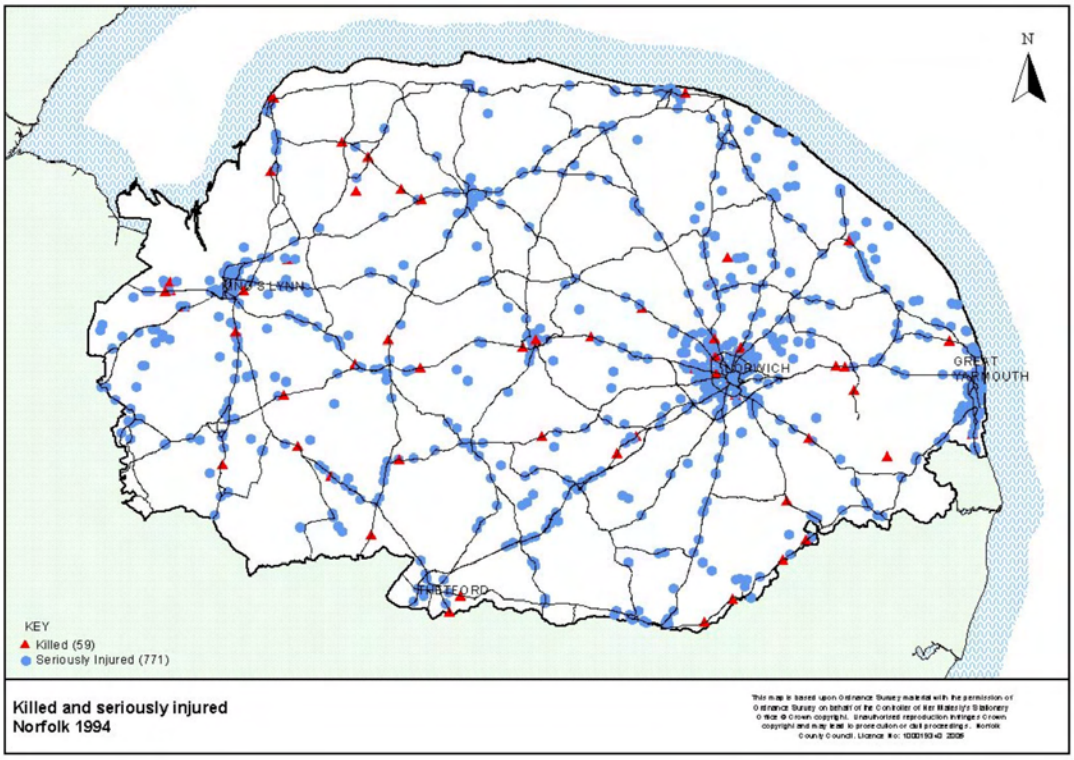
Data and user analysis

We have carried out a comprehensive analysis of our Stats 19 accident data, and benchmarked our current road safety performance against national statistics and our own recent trends.

Table 10.2 Norfolk: GB Comparison of Casualty Rates and Severity

	Norfolk	Great Britain	Comment
Casualties per 100,000 pop.	448.4	502.3	11% lower
KSI cas per 100,000 pop.	70.8	64.3	10% higher
Severity Index	0.158	0.128	23% higher
Child cas per 100,000 pop.	44.7	55.3	19% lower
Child KSI cas per 100,000 pop.	5.1	7.1	28% lower
Child Severity Index	0.113	0.128	12% lower

This shows that our casualty rates are below the national average but that severity is significantly higher, with the exception of children killed and seriously injured. This is despite a reduction in killed and seriously injured casualties on our roads of 35% between the mid-1990s and 2004. The two maps below show this reduction very clearly, comparing 1994 and 2004.



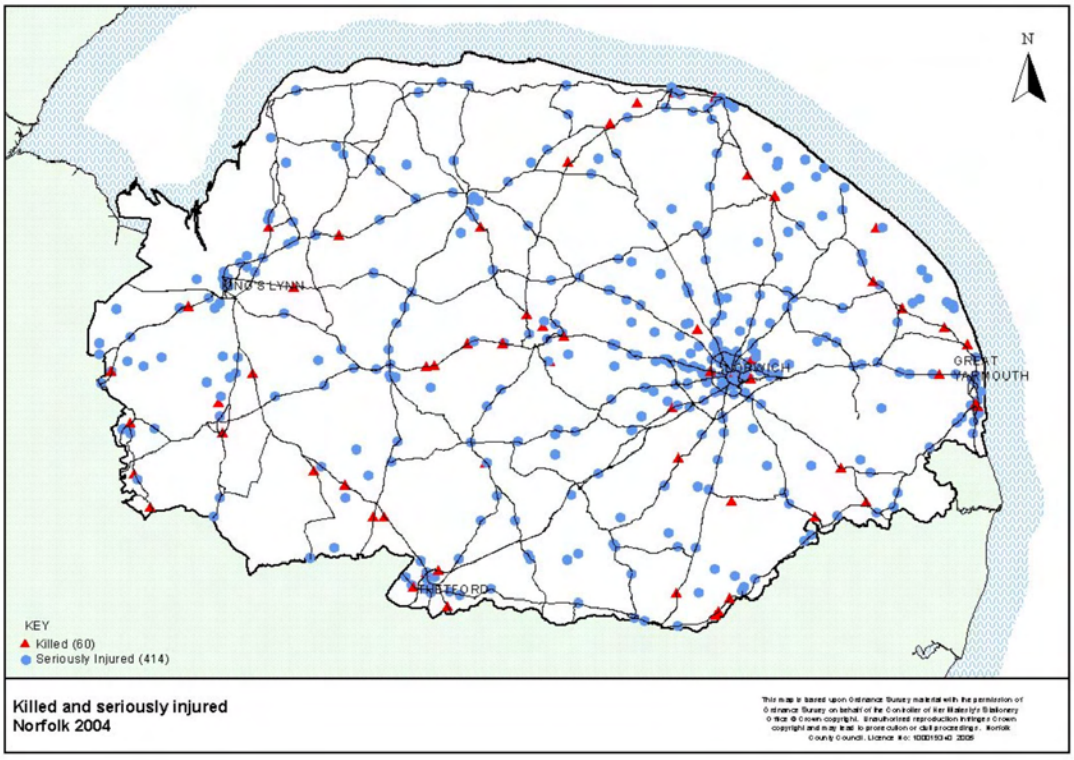


Figure 10.1 Killed and Seriously Injured Casualty Locations: 1994 and 2004

10. Improving road safety

Other key statistics from our analysis found that:

- Casualties in non-built up areas (with a speed limit higher than 40mph) are a very much higher proportion of Norfolk casualties compared to the proportion they are at the national level. For example, 34% of Norfolk killed and seriously injured casualties occur on A class roads in non-built up areas, whereas the national proportion is 23%
- Pedestrians account for almost half of all children killed and seriously injured in road accidents
- The proportion of children injured in accidents who are pedal cyclists is higher in Norfolk than the proportion at the national level - 19% of child casualties in Norfolk compared to 15% nationally
- The proportion of children injured in accidents who are car occupants is higher than the national proportion - 42% in Norfolk compared to 39% nationally.

Within Norfolk there are also significant variations that reflect the urban/ rural diversity in the county. In non-built up areas the main problem is serious accidents involving cars, but in built up areas there is a much greater problem with accidents involving vulnerable roads users such as pedestrians, cyclists and motorcyclists. For example, the pedestrian casualty rate in Norwich is double that for the county as a whole.

Road safety is consistently a priority in community consultations, including with key stakeholders, with responses from our consultations on the Medium Term Plan leading to road safety being a made a corporate top 8 priority.

Table 10.3 Road Safety SWOT Matrix

Strengths	**Weaknesses**
• National Centre of Excellence for local transport delivery in road safety • Below average levels of injury accidents • Recent reduction in the number of people killed and seriously injured. • Success of speed management initiatives • Success of tackling clusters of accidents	• Above average levels of killed and seriously injured accidents, especially for car users and cyclists. Major cause of mortality and morbidity and demand on the health service • High levels of accidents on A and B class single carriageway rural roads, especially speed related. • Disproportionate rate of child car occupant casualties • Younger, older and inexperienced drivers disproportionately involved • Increasing number of accidents involving motorcyclists on rural roads • High speeds on many rural roads

10. Improving road safety

	• Safety fears of pedestrians and cyclists, especially in built up areas, causing accessibility barriers • Variable route standards
Opportunities • Cycling and walking networks • On-going implementation of route hierarchy • Improved asset management	**Threats** • Increasing motorcycle accidents • Increasing pedestrian and cycling trips in built up areas through accessibility strategy and school travel plans • Left with the more intractable problems and expensive solutions • Increasing traffic levels • Ageing driver population, with associated increased accident and injury risk

Priorities

In the Spring 2005 consultation with key stakeholders on our draft strategic priorities, 88% agreed with our road safety priorities, with only 6% disagreeing. The priorities have therefore been carried forward as part of the strategy:

- Reducing accidents involving people killed or seriously injured
- Targeting casualties on rural main roads and integrating road safety improvements in urban areas with wider quality of life improvements and danger reduction.

Strategy

Objectives

- Reduce the number and severity of road traffic accidents
- Provide a less threatening environment for travel, especially non-motorised travel.

Targets

- No increase between 1994-98 and 2010 in the number of people slightly injured in road traffic accidents, despite increasing traffic levels
- 50% decrease between 1994-98 and 2010 in the number people killed or seriously injured in road traffic accidents
- 70% decrease between 1994-98 and 2010 in the number children killed or seriously injured in road traffic accidents.

10. Improving road safety

Policies

Building on our practices in the first Local Transport Plan we will continue to work in partnership with other agencies, especially Norfolk Constabulary and the Highways Agency, such as through the Norfolk Casualty Reduction Partnership. A principal benefit of partnership working is the added value of ensuring better synergy between different road safety activities such as education, speed management, enforcement, and local safety schemes. Similarly, we will also to continue working with other local authorities to share best practice and pool resources for road safety campaigns.

Targeting accidents - locations

Sometimes accidents cluster in the same location, such as on bends or at junctions. Often these have similar causes which are likely to be treatable by changing or improving the road environment. There is a proven track record of the effectiveness of this approach in Norfolk and the treatments tend to be very cost effective. However, low cost treatable sites are becoming harder to identify. Many of the remaining accidents, especially the more serious ones, happen at cluster sites that require a more substantial intervention or are strung out along particular routes, especially on certain sections of those routes.

Policy 31

Accident locations

We will continue the identification and systematic treatment of accident problems where they occur, prioritising those that provide the highest benefit to cost ratio, and seek funding to address the more intractable problems by delivering more significant improvements

In the short term the strategy will particularly:

- Place an increased emphasis on targeting those stubborn cluster sites on principal roads where low cost solutions are not possible and which require more substantial interventions. Although the benefit to cost ratio will not be as high initially, such interventions are more long lasting and so the benefits are realised over a longer period. The strategy will also place more emphasis on the treatment of routes or sections of A and B class roads. These approaches combined will help to improve the quality of our principal roads, the poor standard of which in many instances is proving a barrier to making further significant progress in casualty reduction. This is particularly the case in non built-up areas
- Make use of the AA Motoring Trust's European Road Assessment Programme and other consistent and structured methods to identify routes for treatment
- More use of treatments that encourage drivers to choose to drive safely, such as variable message signing.

Targeting accidents - behavioural

10. Improving road safety

With the location of injury accidents becoming less concentrated and more dispersed, there is an increasing need to target general road user behaviour so that people will behave in a safe way wherever they are.

Most accidents are caused by the behaviour of road users and although measures to make the highway design safer can often help make behaviour safer, it is also necessary to target the unsafe behaviour directly through education, training and publicity measures. This will equip people with the knowledge, skills and attitudes that will enable them to use the roads more safely.

Some groups of road users are more likely to be involved in injury accidents than others, such as cyclists and other vulnerable road users. Similarly, some types of behaviour are more commonly involved in accidents, such as speeding. To ensure good value for money, resources should be directed at those groups and behaviours disproportionately involved in accidents. For example, national research has shown that children in the most deprived areas are five times more likely to be involved in an injury accident compared to their better off peers.

Policy 32

Road user behaviour

Education, training and publicity measures will be used to improve road user behaviour, with a focus on groups and behaviours disproportionately involved in accidents, particularly vulnerable road users.

In the short term the strategy will:

- Focus behavioural initiatives particularly in built-up and deprived areas, linking with other issues such as promoting cycling, walking and health. This will prove a more cost effective approach to education, training and publicity initiatives
- Improve the skills of child cyclists and pedestrians through training, especially in deprived urban areas and as part of school travel plans, especially important to help meet the target for the number of children killed and seriously injured
- Deliver road safety education in schools
- Develop a robust approach to reducing motorcyclist casualties, especially on rural single carriageway roads. Increase joint working with training bodies to improve education of motorcyclists;
- Promote road safety campaigns, especially about speed reduction and integrated with police enforcement initiatives
- Increases of innovative measures such as temporary speed indicator displays
- Promote greater child seat belt awareness and promote the correct fitting
- Develop our activities to manage occupational road risk and continue to disseminate best practice to businesses. Thirty percent of casualties on the road are caused by people driving

10. Improving road safety

on business and during the first Local Transport Plan the average cost of lease car accidents was down from £2000 to £600 through our initiative to manage occupational road risk

- Improve the education and training of younger and inexperienced drivers, especially speed awareness
- Retrain and educate offending drivers as an alternative to prosecution
- Develop driver development courses for older drivers, especially given the rise in the number of older drivers.

Casualty severity

As shown in the background analysis, Norfolk's main problem compared to other parts of the country is the number of people being killed or seriously injured in accidents, and so this is one of our top priorities for intervention, including having a particular focus on children. In Norfolk, one of the main reasons why we have a disproportionate number of people killed and seriously injured is the higher traffic speeds on our many single carriageway roads in non built-up areas.

Policy 33

Casualty severity

The strategy will aim to reduce the risk of road accidents for all groups of road users, particularly for the more serious accidents, and will concentrate resources on those accidents where Norfolk has a disproportionate problem compared to elsewhere in the country.

In the short term strategy will be to manage and reduce traffic speeds:

- To focus on speed related accidents
- To continue implementing our speed management strategy. During the first Local Transport Plan this has been one of the main reasons where we have had considerable success in reducing the number of casualties killed and seriously injured in Norfolk
- To deliver solutions that empower road users to make the choice to drive more slowly such as through our highly successful use of vehicle activated signing.

The strategy will have a particular focus on treating A and B class roads in non built-up areas on which around half of the accidents occur involving people being killed or seriously injured and which for strategic reasons it is important to ensure incident free high quality routes. In built-up areas, speed reduction will be particularly beneficial for the safety and mobility of pedestrians and cyclists, and in tackling community severance.

Integration with other policy areas

In built-up areas the situation is complex as safety impacts on not only actual involvement in an accident, but on other issues such as perceived danger to vulnerable road users and the likelihood of choosing to walk or cycle, the liveability of an area, and overall quality of life.

10. Improving road safety

Policy 34

Integration with other policy areas

In built-up areas in particular, the strategy will aim to deliver road safety interventions that achieve synergy with wider considerations and objectives, and aim to reduce danger, especially to vulnerable road users.

In the short term the strategy will be to reduce casualties, especially involving vulnerable road users such as children, pedestrians and cyclists. It will also take into account the need to reduce danger and integrate with other strategies to improve accessibility, including:

- Make safety improvements part of the safer and healthier journeys to school element of implementing school travel plans (see Chapter 8)
- The need for area wide approaches to, for example, speed management
- Assisting the delivery of local accessibility action areas identified through accessibility planning where road danger is a barrier to accessibility for vulnerable road user groups (see Chapter 7)
- The need to add value to regeneration and environmental enhancement schemes, and neighbourhood renewal programmes and improve the quality and safety of public space, making it more people friendly
- Ensure physical improvements, such as new pedestrian crossings, are supported by behavioural initiatives, especially in relation to schools.

11. Area strategies 2006 to 2021

The thematic strategies described the policy interventions that will be delivered countywide. However, Norfolk is a very diverse county with varying needs, problems and solutions. The emphasis of the countywide policies will therefore vary. For this reason we have developed Area Transport Strategies. These do not repeat the countywide policies, which are applicable in each area, but rather they describe the particular emphasis for that part of the county and how the policies will be applied locally.

In the first Local Transport plan our area strategies were:

- Norwich
- Great Yamouth
- King's Lynn
- North Norfolk coast
- Broads.

In order to align our planning with the draft East of England Plan, we have modified these area strategies to be consistent with its sub-regional policy areas (Figure 11.1). Our area strategies for the second Local Transport Plan are therefore:

- Norwich sub-region
- Great Yarmouth and Lowestoft sub-region
- King's Lynn sub-region
- Rural Norfolk including the market towns, Broads, and North Norfolk coast (Figure 11.2).

11. Area strategies 2006 to 2021

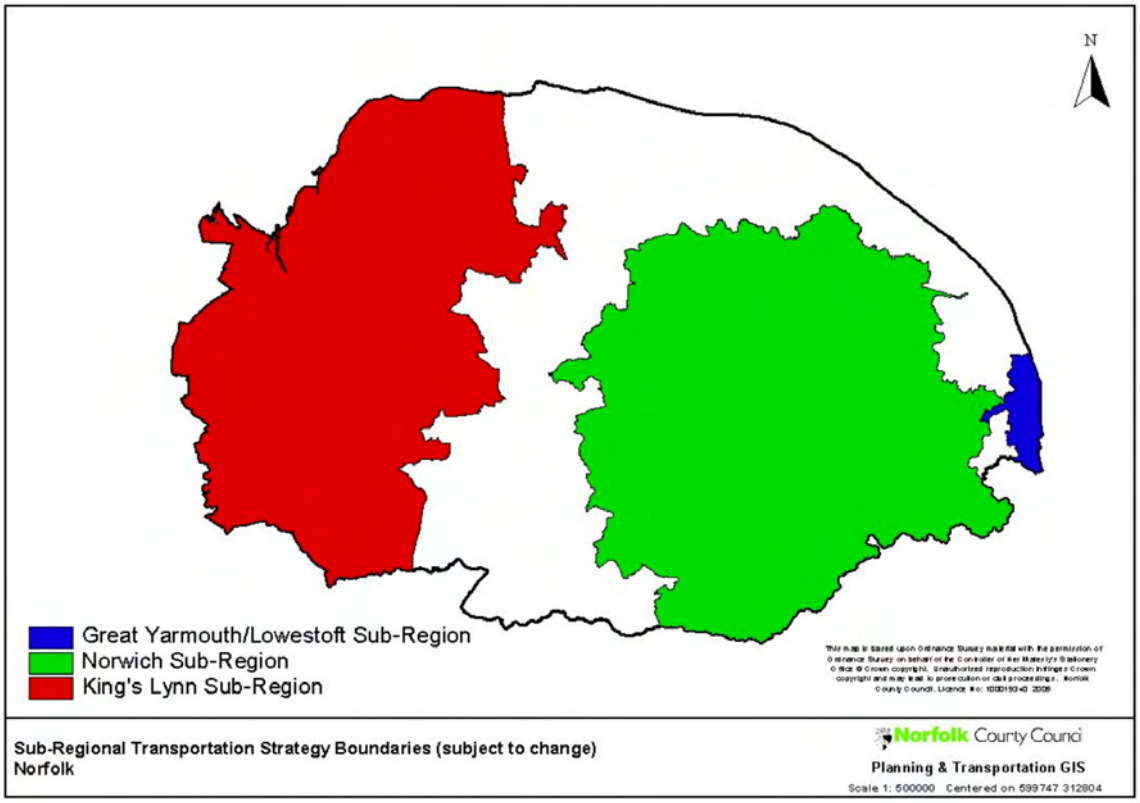
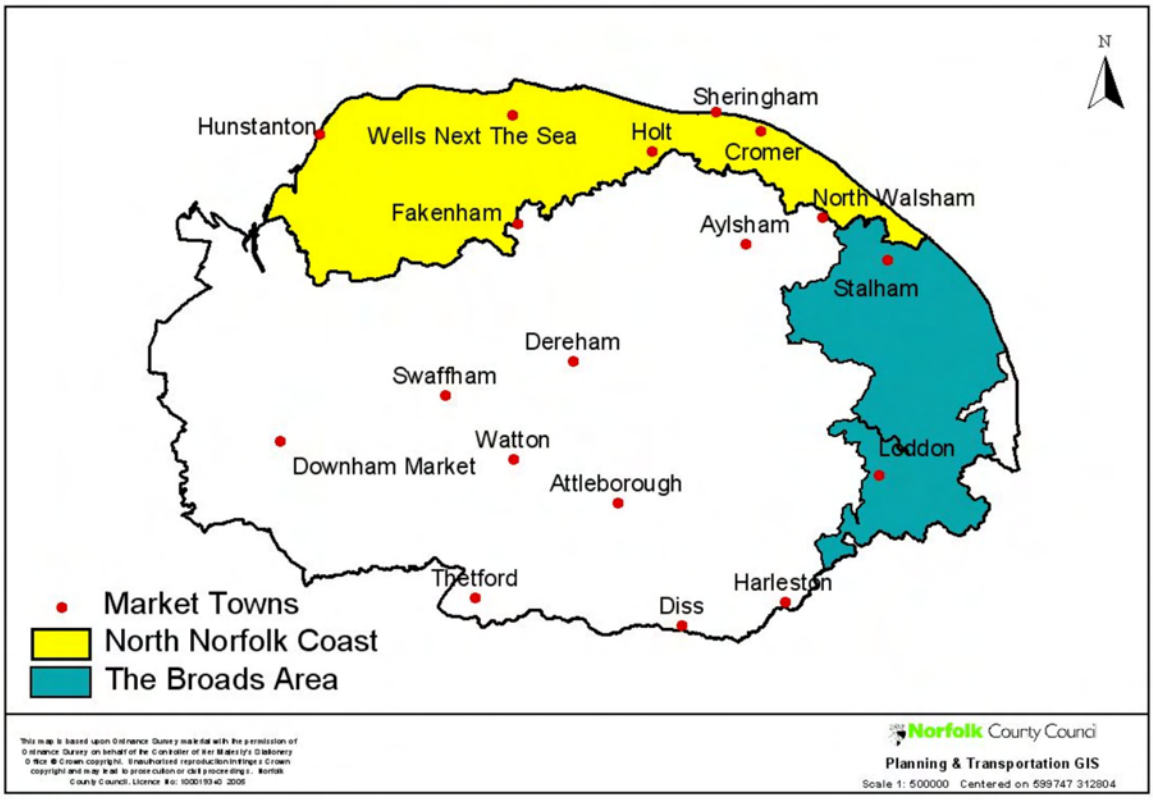


Figure 11.1 Sub-Regional Transportation Strategy Boundaries

11. Area strategies 2006 to 2021



Picture 11.1 Rural Area Transportation Strategy Boundaries

12. Norwich sub-region

Vision

To provide the highest possible level of access to and within the strategy area to benefit people's individual needs and enhance the economic health of the strategy area. To ensure that journeys minimise any adverse impact on people and the built and natural environment.

Introduction

The emerging Norwich sub-region in the draft East of England Plan contains Norwich and extends to a surrounding ring of market towns broadly within a 30 minutes drive time. A revised transportation strategy for the Norwich built-up area was agreed in October 2004: the Norwich Area Transportation Strategy. The strategy for the sub-region carries forward the main elements of the Norwich Area Transportation Strategy and sets these in the context of the sub-region.

The transport strategy has been designed to help the aim of the Norwich sub-region strategy in the draft East of England Plan to contribute to a more successful, outward looking and regenerated sub-region with a higher quality of life. The strategy:

- Recognises the Norwich area as a centre where growth will be focused, recognising the importance of providing essential infrastructure needed to accommodate growth
- Supports the development of the Norwich area as a sustainable community, complementing development by measures to provide a high quality urban experience
- Supports the role of market towns as a focus for their surrounding rural area and Norwich's role as a Regional Interchange Centre
- Promotes travel choice and accessibility into and within the Sub-Region by all modes.

Background Analysis

Norwich is the county town of Norfolk and an important focus in the region for a range of services, as well as the administrative and operational headquarters for a number of organisations. It is a city of considerable historic importance and the city centre, in particular, retains many historic features. The wider sub-region contains a number of historic market towns serving as centres for their surrounding rural communities. Changes in the pattern of population and development have affected travel patterns. For example, there has been a shift in business and retail parks to the edge of the built up area in Norwich and high technology development is emerging on the A11 corridor.

Norwich is consistently placed within the top ten retail centres in the UK, in terms of the quality and range of its facilities. Tourism and leisure form an increasingly important part of the area's economy. The Broads area overlaps into the sub-region. Areas of Norwich have high levels of deprivation, Norwich City itself being the second most deprived local authority area in the East of England. There are also pockets of deprivation in rural areas, although some wards in the sub-region are amongst the least deprived nationally.

12. Norwich sub-region

The draft East of England Plan states that development will be focused in or adjacent to major urban areas where there is good public transport accessibility and where strategic networks (rail, road and bus) connect. It identifies Norwich as a key centre in which development and change will be focused. There will be considerable housing growth in the area, with the Norwich urban area set to have the largest amount of growth of any town or city in the whole of the East of England. The draft East of England Plan sets out that local development documents should provide for 45,500 net additional dwellings up to 2021, with 29,500 of these within the Norwich Policy Area. This is likely to include a significant mixed-use urban extension on the north-east fringe of Norwich. There could be significant expansion at Norwich International Airport, the Norwich Research Park (including research institutions, the University of East Anglia and the Norfolk and Norwich University Hospital) and business parks close to the A47. Elsewhere in the sub-region, housing and economic growth will be focused on the market towns, particularly on the A11 corridor. The draft East of England Plan recognises that locations for growth are likely to need significant infrastructure investment.

We have recently adopted a revised transportation strategy for the Norwich area. This review was supported by analytical studies and analysis, including updating of the computer traffic model, analysis and consultation on problems and issues, and studies into Light Rapid Transit, park and ride and future car parking demand. We developed a number of strategic options, and undertook an appraisal, using the New Approach to Appraisal techniques, on each of these. We carried out a major consultation on a preferred strategy, sending out over 140,000 brochures and questionnaires in September 2003. A high rate of return was achieved, with some 21,000 responses. There was support for the preferred strategy and good support for some of the main elements: for example 91% of respondents supported our approach to public transport, 78% supported a northern distributor road. A Strategic Environmental Assessment has been carried out on the preferred strategy, and the outcomes fed back into the final adopted version. This sub-regional strategy builds on the strategy for the Norwich area, which is directed specifically at the main built up area of Norwich.

The objectives of the sub-regional strategy in the draft East of England plan include to:

- Facilitate the role of the area as the major focus for sustainable growth in the north east of the region
- Secure the infrastructure required to assist in the sustainable growth and regeneration of the sub-region
- Sustain and develop the regional role of Norwich, ensuring it realises its full growth potential as well as maximising the benefits of its role as the most significant city centre in the East of England
- Provide a coherent basis for a sustainable transport strategy to benefit access by all modes of transport
- Promote the development of Norwich Airport as a regional airport and international gateway with better surface transport links to the rest of the region.

12. Norwich sub-region

Table 12.1 Norwich sub-region SWOT Matrix

Strengths	**Weaknesses**
• Diverse economic base • Norwich International Airport • Strong tourism & educational base • Retail in top 10 nationally, serving a regional role • 18% reduction in traffic entering • Norwich city centre since 1995 • Park and Ride network	• Perception of remoteness • Perception of difficult access into Norwich (parking, congestion, some of the slowest journey speeds in the country) • Deprivation in particular areas • Poor air quality, high CO_2 emissions • High casualty rate for vulnerable road users
Opportunities	**Threats**
• Provision of infrastructure from development proposals • Transport successes in Norwich can be built on (reduction of traffic crossing ring road, park and ride network, public transport major scheme, including new bus station)	• Lack of infrastructure to support continued growth • Rebuilding car parks in city centre could lead to increased traffic • Priority commitment to regional schemes outside Norfolk could reduce service levels for the Norwich sub-region (for example, increased stops of trains in London arc could reduce rail service levels)

Strategy

Accessibility

The strategy for delivering sustainable growth in Chapter 6 recognises that connections to the rest of the country and beyond are important to enable the county to thrive and to deliver balanced housing and job growth. As Norwich is the key driver of the economy of the county and will be the focus for growth, this is especially important within the Norwich sub-region. Travel within the sub-region can also be a problem, with businesses pointing to poor public transport links within Norwich being a reason for relocating to edge of centre sites. There are also difficulties of accessing essential services in, especially, the remoter rural areas by any means other than by car. It is important to improve the connections within the sub-region, especially the connections between market towns and Norwich. Lack of infrastructure could be a barrier to future development of the sub-region.

Strategic Road Links

12. Norwich sub-region

The two main strategic road links are the A11 south east of Norwich and the A47 east and west of the city . These two roads connect at the A47 Norwich southern bypass. The capacity of junctions on the southern bypass may constrain future development of strategic employment or housing sites around Norwich, as evidenced in the Highways Agency's work. We will work with the Highways Agency to deliver improvements to these junctions.

The A47 provides an important east-west road link in the sub-region. The section west of Norwich southern bypass is a single carriageway road that connects Norwich with the market town of Dereham. Dereham is likely to see growth, and the town centre shopping precinct has recently been redeveloped. Improving connections on the A47 between Norwich and Dereham can help to deliver balanced housing and job growth in these areas. Part of the A47 between Norwich and Dereham is single-carriageway (between North Tuddenham and Easton), and this section according to the multi modal study is the most congested section of the A47 in Norfolk. The evidence of the Highways Agency's model is that this will get worse in the future. We will continue to press for early completion of dualling between Norwich and Dereham .

South of Norwich, the A140 is a former trunk road and provides a strategic link between Norwich and Ipswich. It currently passes through the market town of Long Stratton, which has seen recent housing growth. The road is largely single-carriageway and traffic suffers from congestion, especially as it passes through Long Stratton. We have developed a bypass scheme and are putting in a major scheme business case with the Local Transport Plan.

In Norwich itself, a new road around the north of the Norwich built up area, connecting the A47 in the west to the A47 in the east (the Northern Distributor Road) is an essential element of the sub-regional strategy as it will:

- Reduce congestion on strategic routes to the north of the city
- Reduce noise, air pollution and accidents for communities in the northern suburbs of Norwich and villages outside
- Enable the removal of through traffic from the city centre and implementation of widespread pedestrianisation / bus priority measures
- Provide direct access to growth locations, helping to deliver significant housing and employment growth
- Support the continued success of the Norwich economy as the driver for growth across the north or the region
- Provide improved access to north and north-east Norfolk.

We have carried out consultations on preferred routes, will adopt a preferred route in September 2005, and aim to bring back a bid for a major scheme in due course.

A Northern Distributor Road will improve access to strategic sites including Norwich airport, potential future housing growth in the north east of Norwich and industrial estates around the north of Norwich. Although the delivery of some of the strategy in the city is dependent on having the Northern Distributor Road, we have reached agreement with the City Council on what improvements can be delivered in advance.

12. Norwich sub-region

We need also to consider access to other development sites, for example the Deal Ground / Utilities site in south east Norwich, the Norwich Research Park/UEA/hospital cluster, Longwater employment area and Broadland Business Park. We have completed a second access route to the hospital, and are developing approaches to access needs to other strategic sites.

City centre

In Norwich city centre and the centres of the market towns, the focus is on improving the pedestrian environment and the movement of public transport, consistent with the Regional Transport Strategy. Proposals for the city centre will be brought forward in a phased manner. Initially (during the period of the second Local Transport Plan), work will concentrate on extending the pedestrian dominated area and to improve the liveability of the street space and promote a healthier community through implementing traffic management measures / vehicular traffic restrictions and streetscape improvements. In the longer term we will work towards removing through traffic from the city centre, although our technical work has shown that this is only achievable with a Northern Distributor Road or other measures. Our strategy for market towns is set out in more detail in Chapter 15 Market Towns Strategy.

Regional Interchange Centre

The draft East of England Plan identifies Norwich as a Regional Interchange Centre where a significantly enhanced level of public transport service provision to, from and within it will be secured. We have already made good progress towards improving public transport within the city, including completion of a new bus station in the city centre, bus priority corridor and Park and Ride network. As part of our public transport major scheme, we are installing on-street ticket machines, which will not only be convenient for passengers, but also assist bus reliability by reducing boarding times. In addition to countywide initiatives, we will continue to focus improvements to public transport within and around Norwich, including the new orbital bus service, funded from Urban Bus Challenge.

In addition to an enhanced level of bus service in the Regional Interchange Centres, the Regional Transport Strategy stipulates that traffic levels should be stabilised at 1999 levels. In Norwich, we have gone beyond this. The target in our first Local Transport Plan was that traffic crossing the inner ring road should be no higher than 90% of 1995 levels by 2006. We are carrying forward this stretched target, aiming for a 5% reduction on 2003/04 baseline traffic levels by 2010/11.

Light Rapid Transit has been considered for Norwich, but it's thought that a high quality, road-based bus system will provide many of the benefits, but with greater operating flexibility. We are therefore keeping Light Rapid Transit under review, and will again review its feasibility post 2011.

The market towns also provide an interchange role, acting as a place where people can access the strategic public transport network. We will therefore be looking to improve market towns as interchange points. Our strategy is to improve the main links between market towns and to urban areas. This will be particularly important for links to Norwich because of its strong economic, cultural and social role: Norwich is a major draw for the county and beyond. It will therefore be a priority to improve services on key bus routes within the Norwich sub-region. Improving bus links on such key corridors could also help to provide modal shift for longer distance trips coming into Norwich.

12. Norwich sub-region

Public transport plays a vitally important role in the sub-region, and in the Norwich Area Transportation Strategy. We need to undertake further work to understand the relationship between park and ride and other services - especially longer distance services from which people may be abstracted to park and ride. We also need to identify the core bus routes in Norwich for high frequency services, and on which to focus bus priority measures. We will treat these areas as a priority to bring forward.

Car parking

The continued vitality of Norwich for retail, leisure and business activity is dependent on people being able to access the city, particularly the city centre. The availability of adequate parking supports the city's role as one of the country's top ten retail centres, its economic role and as a centre for visitors and tourism. Parking must be convenient, but too much parking could worsen congestion or lead to significant extra traffic entering the city centre, increasing problems of air quality, traffic impact and making it difficult or dangerous to cross roads. Our strategy is therefore to limit the amount of car parking in the city centre, and any new provision must only replace existing.

Tariff structures of existing and any new city centre car parks, and on-street parking, will favour short stay and medium stay demand. All long stay public parking demand for the city centre will be provided through the development and promotion of park and ride car parks. Decisions about whether to expand the capacity of park and ride (instrumental in helping to reduce traffic crossing the inner ring road into the centre by 18%) will be taken after future passenger demands have been assessed in the light of operating experience. Decisions about whether additional capacity is achieved through expansion of existing sites, or new sites will be taken based on the merits of each option, including value for money.

Congestion

Traffic congestion is an issue throughout the sub-region. We could see improved high-quality connectivity through bringing forward schemes on the strategic road network: dualling schemes on the A11(Attleborough bypass and Thetford to Mildenhall Fiveways junction) and A47 (Easton to North Tuddenham dualling), and a bypass at Long Stratton on the A140.

In the Norwich built-up area, congestion is an issue, as shown through the consultation we did on the Norwich Area Transportation Strategy. Comparing the ITIS data of 2004 for the AM peak period with free-flow conditions confirms that congestion is evident in Norwich. Currently, congestion is most serious in the traditional AM and PM peak periods. The main focus of this congestion is the junctions where the radial routes cross the inner and outer ring roads. Increasingly however, congestion is becoming a problem at weekends with many cars trying to access Norwich city centre and other adjacent shopping facilities like the Riverside development. This problem is often exacerbated by cars blocking roads as they queue for car parks. Of particular concern is the effect this congestion can have on public transport services. Any additional delay to bus and park and ride services could undermine these important measures which have demonstrably reduced traffic levels within the Norwich ring roads.

12. Norwich sub-region

In the future, Norwich will be a focus for growth. Already the draft East of England Plan recognises its lack of adequate infrastructure. Traffic modelling work indicates that the Norwich Southern Bypass may be subject to traffic stress within the next 15 years. Growth around the north of Norwich will lead to additional traffic placing extra strain on the network. We will need to ensure that improvements are planned in advance to prevent such issues becoming a major constraint in the future development of the sub-region. We are already planning for a Norwich Northern Distributor Road.

Our congestion strategy recognises that priority should be given to those areas where buses get held up in congestion. In the sub-region this means targeting the major radial routes within the Norwich built-up area. We are also targeting congestion-busting measures for all traffic on the main roads, principally the major radial routes and the ring roads. We can do this through making best use of the existing infrastructure, whether this be by improving the Urban Traffic Control network, giving priority to modes capable of carrying the most people or through innovative actions such as introducing lanes for high occupancy vehicles or charging regimes.

The County Council has already carried out a study of congestion on the inner and outer ring roads. These roads are vital to keep traffic moving around Norwich. Work has identified areas where chronic congestion (rather than congestion caused by incidents such as accidents or road works) could be tackled. A programme of improvements, to improve traffic flow through junctions, has been identified and is already underway.

Road hierarchy

The County Council already has a route hierarchy for the county outside of Norwich. This route hierarchy is used to ensure that traffic is on the most appropriate routes, and that all roads are suitable for the types of use. We intend to identify a new road hierarchy within Norwich city. This will classify roads according to their desired function and level/type of use. It will be used to identify what role the road should perform (eg whether it should be a main road for vehicles or a street for pedestrians) as well as the types of improvements that may be appropriate. This will be a useful tool to help tackle congestion as it will identify which roads should predominantly cater for traffic flow, and allow improvement schemes to be implemented that will help keep traffic moving on these roads.

Decriminalised enforcement

As many roads are operating close to their capacity, even fairly minor incidents can cause congestion, for example badly parked vehicles left on main roads. We intend to explore whether local authorities in the sub-region can take on additional enforcement powers, as outlined in the Traffic Management Act 2004. (Already Norwich City Council undertake parking enforcement in the city centre.) This will allow enforcement to be targeted to meet the objectives of the transport strategy, for example to reduce congestion.

Innovation

12. Norwich sub-region

As well as use of our BusNet system to help determine areas of congestion, we are also examining innovative measures to tackle congestion. We have examined whether we could make better use of the roadspace by introducing lanes dedicated for one or all of buses, freight vehicles, high occupancy vehicles and motor bikes. We have examined whether such lanes could be introduced as new lanes, or whether any of our existing bus lanes could be changed. The analysis showed potential routes in Norwich where there could be merits for such a scheme, and we are considering whether to take this forward. If the proposals are agreed, we may be making a bid for funding to implement the measures, as demonstration or pilot projects.

We are also examining making a bid using the Transport Innovation Fund. This will be for a study of the feasibility of introducing innovative demand management measures in Norwich coupled with improved public transport. We have made good progress with public transport measures in the city, but are constrained by what further progress we can make and how we can bring forward funding for the delivery of the Norwich Area Transportation Strategy (see Chapter 17).

Environment

Transportation makes a major contribution to air pollution, affecting both local air quality and leading to climate change. In the Norwich area, road transport is estimated to produce 35% of the total emissions of CO_2, the main driver of climate change. Our strategy to tackle this is set out in Chapter 9: Protecting and Sustaining the Environment.

In Norwich, the City Council has declared Air Quality Management Areas in three parts of the city centre, where local air quality falls below government thresholds due to transport impacts. We have developed action plans to improve air quality in these areas, these are set out in Appendix B.

Norwich City Council has developed a Draft Spatial Strategy for Norwich city centre as part of the 'Liveable Cities' European collaboration project. It seeks to develop a new and much more integrated approach to how public spaces are shaped, managed and maintained in the city centre. We have been working with the City Council on developing the Spatial Strategy, in conjunction with our transport strategy for the city centre. Measures arising from these strategies will help to improve the built and historic environment of Norwich, through improving the use of the public open spaces in the city centre, including parts of the transport network. As part of our transport strategy, we have, with the City Council, developed an action plan for the city centre, which will bring forward a number of road closures / access restrictions and streetscape improvements within the span of the second Local Transport Plan.

Safety

Probably the main safety issue, where the sub-region is different from the rest of the county is within Norwich. Here, progress on reducing killed and seriously injured casualties has been lower than elsewhere, although this may be a reflection of the rest of the county 'catching up' with the levels of safety in Norwich. There are, however, high rates (per head of population) of casualties amongst vulnerable road-users like pedestrians. This is because of the numbers of people who come into Norwich to shop, visit, for leisure or do business, and use the streets on foot. We have

implemented the Prince of Wales Road National Road Safety Demonstration Project, one of ten projects across the country. The improvements carried out alongside the Public Transport Major Scheme should also have a big impact in the pedestrian-dominated core of the city. Improvements like this can be very expensive, especially given the historic fabric of the city's buildings and street scene.

We will also focus on reducing accidents amongst deprived groups. We are implementing Kerbcraft in a deprived part of the city, involving ten schools in the Mousehold area. Kerbcraft is a project of child (and parent) road safety training in areas where there is a correlation between child casualties and low socio-economic groups. The Government's inspectors have stated that the Norfolk model is one for others to follow. The project ends in 2006, and results to date are positive.

CIVITAS

We are leading in Norwich on the European CIVITAS II project, which spans a four year period until the end of January 2009. The broad objective of the project is to improve urban air quality and create a sustainable, safe and flexible traffic system that improves the quality of life and health in the cities involved and, by disseminating information, to facilitate these improvements in other cities within the European Union.

In Norwich we are working with five other partners on measures involving:

- Use of alternative fuels for better air quality
- Use of cleaner-fuelled vehicles for better air quality
- Encouraging more efficient use of cars eg car-sharing, car pooling
- Encouraging modal shift from the private car to public transport
- Encouraging cleaner goods vehicles eg priority access to city centre.

13. Great Yarmouth and Lowestoft sub-region

Vision

To promote the comprehensive regeneration of the sub-region by building on its unique qualities and its links with the rest of Europe through an urban renaissance and other initiatives to harness established strengths, realise leading edge opportunities, protect and enhance the natural environment and encourage the environmental economy.

Introduction

The emerging Great Yarmouth and Lowestoft sub-region in the draft East of England Plan includes two seaside towns with similar problems and issues. The linkages between these towns and into the sub-region are important considerations. In addition, these two towns link into the Norwich sub-region and so transport issues are particularly relevant in relation to the connections with Norwich.

The strategy for this sub-region takes forward area wide issues that have emerged from a unified vision between the local authorities and regional bodies. This has been brought together by the sub-regional Working group which includes elected members of the various authorities.

As well as the sub-region being relatively self contained in terms of employment and access to services, this is also true of the two towns themselves. In view of this, transport movements in and around the Great Yarmouth and the Lowestoft area are given detailed consideration in the overall sub-regional strategy.

Suffolk County Council will focus on Lowestoft including sub-regional policies in its Local Transport Plan and this chapter of the Norfolk Local Transport Plan will cover the Great Yarmouth area and sub-regional policies.

Background analysis

The Great Yarmouth and Lowestoft sub-region is an area in need of regeneration. It suffers from low or negative economic growth, has structural unemployment problems and an increasing level of social deprivation. The two towns have relatively low industrial bases relying on the offshore industry, port activity and seaside tourism. Lowestoft has also suffered from an over-dependence on the fishing industry and on food processing. Overall, much of the industrial base is in decline.

The geographical location of the sub-region is also a key issue as its isolation from markets and the wider national and regional strategic transport network has inhibited a reversal of the industrial decline.

Transport could play an important role in regeneration by allowing the Great Yarmouth and Lowestoft sub-region to fulfil its economic potential.

13. Great Yarmouth and Lowestoft sub-region

The housing growth requirement for the sub-region is 5,400 dwellings in Great Yarmouth and 4,000 in Lowestoft. This growth will place additional demands on the transport network over and above attempts to regenerate the area. The major employment growth to match this housing growth is planned for the following areas in Great Yarmouth:

- South Gorleston development area
- South Denes, EastPort area

Within the sub-region, the Great Yarmouth and Gorleston area (including the parishes of Bradwell, Caister-on-Sea and Hopton-on-Sea) is an important service centre for a catchment population of approximately 125,000. It is the fifth most important tourist resort in the UK based on its number of visitors and an area of important historic and environmental importance. Great Yarmouth is an active port with advanced plans for an Outer Harbour (EastPort). This will regenerate the port and related industrial sectors.

In order to assist in devising a new strategy for the Great Yarmouth and Gorleston Area, Norfolk County Council has undertaken surveys and built a traffic model to consider strategic options. The key options referred to in the Government Office A47 Norwich to Great Yarmouth 'roads-based' study have been evaluated using this traffic model. This work and the development of the strategy for the Great Yarmouth and Gorleston area has been overseen by a steering group of key stakeholders comprising; Great Yarmouth Borough Council, Highways Agency, East of England Regional Assembly, Port Authority and EastPort Ltd, Greater Yarmouth Tourist Authority and the Great Yarmouth Town Centre Manager.

Although Public transport usage is below the average for England and Wales, a greater proportion of people in the Great Yarmouth area rely on public transport to get to work than for the rest of Norfolk. The proportion of households in the area without access to a car is greater than the Norfolk average. Central wards within the Great Yarmouth area also experience high levels of deprivation, low levels of income and deprivation can be linked to lack of accessibility to employment.

Consultation on key priorities for the Great Yarmouth and Gorleston area has been undertaken in parallel with the key issues consultation for the overall Local Transport Plan. This has confirmed the need to improve public transport provision, particularly in relation to accessibility from deprived areas. It has also shown that stakeholders are supportive of potential new river crossing schemes but they recognise that a third crossing of the River Yare is likely to achieve more than an A47/A149 link.

The objectives to deliver the vision for the Great Yarmouth and Lowestoft Sub-Region are:

- Supporting the existing industrial sectors
- Moving into the renewable energy sector using the existing skill base
- Diversification of tourism by linking into the Broads and other wildlife areas
- Developing environmental technologies
- The urban renaissance of core areas, including brownfield sites, to achieve economic, physical and social regeneration

13. Great Yarmouth and Lowestoft sub-region

Table 13.1 Great Yarmouth and Lowestoft SWOT Matrix

Strengths	**Weaknesses**
• High quality coastal, countryside and Broads environment • Built heritage that is being conserved and enhanced • Success of reducing child casualties in first Local Transport Plan in Great Yarmouth • Gas industry	• Remoteness to rest of country and perception of remoteness • Limited access to Great Yarmouth peninsula which acts as a focus for congestion • Trunk road through traffic in conflict with internal traffic • High levels of social deprivation and poor accessibility leading to a poorer quality of life
Opportunities	**Threats**
• Outer Harbour and proximity to Europe • Economic regeneration and renewable energy technology • Benefits from the formation of an Urban Regeneration Company • Provision of infrastructure from development area proposals • Improved links to Europe • Joint local authority working	• Increased levels of congestion could discourage tourists and visitors • Reduction in levels of support for bus and rail services

Strategy

Objectives

- To improve strategic transport links to the Great Yarmouth and Lowestoft sub-region
- To improve access to major centres of employment, particularly from deprived areas
- To reduce seasonal and daily congestion
- To prevent declarations of Air Quality Management Areas and encourage sustainable tourism
- To target pedestrian and cyclist casualties especially in deprived areas

Accessibility

The countywide accessibility strategy is set out in Chapter 7 and describes the need to improve accessibility in Norfolk and the way it will be tackled. In relation to the Great Yarmouth and Lowestoft sub-region accessibility can be regarded on two levels, strategic access and local accessibility.

13. Great Yarmouth and Lowestoft sub-region

The latter is important to enable people to get to day to day activities such as work, learning, healthcare, food shopping, personal business and leisure, and in particular can help address some of the issues relating to social deprivation.

Strategic Access

Improving links between the three centres, Norwich, Great Yarmouth and Lowestoft, especially by public transport is essential to ensure economic prosperity. Improvements to the strategic road network that could benefit this sub-region are covered in Chapter 6.

The strategy will therefore support improvements to bus services on the A12 corridor between Lowestoft and Great Yarmouth. In addition, improvements to cycling links on this route will be promoted which could encourage commuter cycling and contribute to tourism and its diversification.

Plans will be developed to enhance bus services within and between the sub-region and Norwich and to further improve rail services on the successful Wherry Lines. Improvements in these public transport services will benefit all three of the communities and would also act as a gateway to the Broads area. These will include:

- Quality bus partnerships and bus priority on the A12 corridor
- Improvements to railway stations for better interchange, safety and comfort.

The remoteness of the sub-region is compounded by problems of traffic delays at key junctions which are entry and exit points to the area. Therefore junction improvements which can facilitate delay-free access to the area will be pursued where possible and supported and encouraged where the responsibility lies with the Highways Agency.

The draft East of England Plan also sees the sub-region of regional significance by identifying Great Yarmouth as a potential gateway between the region and Europe. The EastPort proposals, which have been backed by the Secretary of State for Transport, should increase the economic role of Great Yarmouth as a European shipment centre, form a transport interchange for services to Europe and provide a passenger ferry. The strategy will therefore support these proposals with complementary measures to ensure its success, which will raise the image of the town as European gateway.

Local Accessibility

Bus and rail interchange

Although passenger numbers are increasing on the Wherry Lines with modern, reliable and clean rolling stock, Great Yarmouth railway station is uninviting which discourages patronage. Improvements to Great Yarmouth railway station will be pursued to provide better interchange facilities, greater safety and comfort to encourage patronage. In addition partnerships with train operating companies and bus operators will be investigated to provide better services, improved facilities, reduced fares and integration.

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Inter-modal travel will be promoted, by providing pedestrian and cycle links between the station and the town centre. To this end the provision of an all year round bus link between the rail station and the seafront will be pursued and may include measures to support the Borough Council in implementing its “Alternative Transport Study “.

Public transport to workplaces

Public transport can play a key role in providing access to employment and facilitating access to day to day facilities. The strategy will therefore support and encourage use of public transport to provide access to employment areas. In order to promote social inclusion priority will first be given to improving accessibility from deprived areas by public transport. In addition to traditional public transport, consideration will be given to promoting specific workplace buses and other similar initiatives as part of workplace travel plans.

Cycling

Cycling is also a real alternative for access to employment but problems exist on the network. An example of this is the difficulty in crossing the A12 at Harfreys roundabout to access the industrial area. Issues such as this will be addressed and further ones will be identified and where possible measures will be taken to improve conditions for commuter cycling.

Community transport

Some residents require a more specialised level of public transport. For example in Gorleston, Caister and some outlying areas there is a relatively high proportion of older residents. These areas often experience less frequent bus services and in some instances the needs could be addressed by more community-based transport systems. Areas of poor public transport accessibility will be investigated to ensure the most appropriate form of transport is provided in each case.

Public transport information

Often a lack of information about bus services or the prospect of a long wait for the next bus can discourage use of bus services. Working with the bus operators the County Council will improve the availability of bus information. This will include expanding the use of real time passenger information so users will know when to expect the next bus. Currently buses throughout Norfolk are being fitted with locating devices (BusNet), and as bus stop facilities are improved this data can be displayed to tell passengers when the next bus will arrive.

Other improvements will also be made to the public transport infrastructure such as ensuring that bus stops are correctly sited. This has been a problem in the past where changes over time in the use of premises means that bus stops no longer relate to where people need to go.

Car parking

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Although the strategy attempts to encourage the use of other modes, it is recognised that access to the area by car is still important to workers, shoppers and visitors alike. The car parking requirements of these groups are different and a balance of provision needs to be struck between them. However, too much parking provision could undermine attempts to encourage other modes.

The existing car parking strategy for the town, which seeks to provide for the different groups, will be continued. However, greater consideration will be given to providing a purpose built park and ride site or sites for Great Yarmouth, possibly in conjunction with a third crossing of the River Yare, and promoting peripheral car parking to reduce traffic levels in the historic town centre. Some car parking difficulties occur on the seafront in the summer due to the high tourist demand. Management of the car parking supply by variable message signs to make the best use of available spaces and use of park and ride solutions will continue to be pursued.

Congestion

The countywide congestion strategy is set out in Chapter 8 and identifies the need to reduce congestion particularly where it affects the reliability of public transport. The congestion issues and proposals for the Great Yarmouth area are outlined here.

Seasonal and Daily Congestion

Much of the day to day congestion experienced in Great Yarmouth is related to the limited points of access to the peninsula which results in delays at key junctions.

The area also experiences a dramatic increase in traffic flows during the holiday season. This extra traffic conflicts with town centre, port and commercial traffic, creating congestion problems on the road network, particularly on the A47 and A12, South Quay, North Quay, Fullers Hill and Lawn Avenue. This is exacerbated during peak hours, with commuter and school traffic. Whilst public transport reliability is generally good in the winter, during the summer season delays are experienced due to increased traffic congestion.

Congestion will be tackled in the Great Yarmouth area by the following measures over the first five years of the Local Transport Plan.

- Travel planning to encourage a modal shift, such as workplace and school travel plans, which are described further in Chapter 8 on Reducing Congestion
- Improving the alternatives such as walking, cycling and public transport
- Making more efficient use of the road network by junction improvements

Overlapping with the strategic access issue, improvements to the Vauxhall roundabout could greatly assist in resolving some of the congestion issues. We will therefore work with the Highways Agency to bring about this and other measures to make best use of the existing road network.

In the longer term congestion could be tackled in the Great Yarmouth area by a bridge over the River Yare near Southtown. This will be investigated further by the County Council. Preliminary work using the new Great Yarmouth traffic model shows that a Third River Crossing contributes

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strongly to reducing congestion, which in turn will contribute to the other Local Transport Plan priorities and represents good value for money, with a benefit to cost ratio of between 9 and 12 . It will also enable more reliable and flexible public transport and enable more direct access to the port, which contribute to the accessibility improvements. The scheme would also remove some traffic from the town centre, making further environmental enhancements possible and helping to promote healthier communities. In some ways this proposal mirrors the North Lowestoft access project in Suffolk which also removes traffic from sensitive areas. Further feasibility and development work will be undertaken on a third river crossing with a view to submitting a bid in the third Local Transport Plan period.

In the sub-regional context the benefits (to the Great Yarmouth area) of a third river crossing could assist in accommodating the housing growth of almost 10,000 dwellings allocated in the Great Yarmouth/Lowestoft sub-region in the draft East of England Plan.

Freight

The transport of freight is an important issue facing the Great Yarmouth area and needs to be given due consideration due to its contribution to the local economy. Great Yarmouth is a port town, and the recent acceptance of the Outer Harbour Project should increase its economic role as a European trans-shipment centre as well as provide a passenger ferry and form a transport interchange for services to Europe. The strategy will positively respond to the Outer Harbour issues to ensure that economic regeneration is achieved including the servicing and development of gas and off-shore wind farms, and any adverse effects are effectively mitigated.

The County Council will continue to promote the use of the rail freight terminal near the Vauxhall roundabout and encourage further rail freight initiatives.

Environment

Emissions from vehicles make significant contributions to air pollution which causes poor local air quality that is harmful to health. In addition CO_2 emissions contribute to climate change which could have significant consequences for this area being coastal and low lying.

Local Air Quality Management

Although no local Air Quality Management Areas have been declared in the Great Yarmouth area, reductions in acceptable limits for pollutants and the increases in traffic mean that some could be over the life of this Local Transport Plan. The most likely scenario at present for an Air Quality Management Area in Great Yarmouth is close to the A12 as residential development could mean more people living close to the most heavily trafficked roads.

This situation will be kept under review and the measures to tackle congestion described above will be relevant to mitigating the problem.

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However, it is recognised that much of the bus fleet that operates in the Great Yarmouth and Gorleston area is old and more polluting than modern vehicles. Improvements to the bus fleet will be pursued through the use of quality bus partnerships and contracts, particularly for the A12 corridor between Great Yarmouth and Lowestoft. Consideration will also be given to the use of alternative fuelled buses.

Sustainable tourism

As tourism is a key activity in the sub-region, sustainable development in this sector could contribute to overall improvements in the environment. Transport measures which support sustainable tourism will be given a higher priority.

In general, visitors to the Great Yarmouth and Gorleston Area will be encouraged to arrive in and travel around the area by sustainable modes of transport which will be supported by the improvements mentioned above for accessibility and congestion. Better access to the Broads from other parts of the sub-region will help to promote synergies within the tourism sector.

Safety

Road Traffic Accidents

Although the majority of injury accidents in the area are classified as slight, and monitoring suggests a downward trend in reported casualties, the proportion of casualties occurring as pedestrian and cyclists is well above the Norfolk average. There is also a marked seasonality in the casualty rates across these road user groups.

In addition to the countywide road safety initiatives the cycle and pedestrian network will be targeted for improvements which minimise the risk of accidents. In particular the segregation of cyclists from general traffic in higher risk locations will be pursued. The higher casualty rate in the summer will be investigated as it appears to be disproportionate to the summer increases in traffic. This will help target pedestrian improvements where they are most needed.

Fear of Crime

As well as general transport road safety, the Great Yarmouth and Gorleston area has safety issues relating to fear of crime. Although this is principally a social issue, if transport measures can contribute to reducing this perception it provides additional justification for their implementation.

Measures that are likely to be pursued, which could encourage bus use and reduce the fear of crime include enhancing the image of bus travel through partnerships with the bus operators. For car users the further use of CCTV in car parks and on the routes to them could assist in make people feel safer so this could also be pursued.

14. King's Lynn sub-region

Vision

King's Lynn is an attractive, vibrant and prosperous town, where people choose to live, work and visit.

Introduction

King's Lynn is the centre for a sub-region in the draft East of England Plan. It includes areas that are a priority for both regeneration and growth. The wider sub-region contains a number of historic market towns serving as local centres for their rural hinterland.

The transport strategy for the sub-region has been designed to contribute to the overall strategy in the draft East of England Plan and it has been developed as an integral element of the Borough Council's Urban Renaissance Strategy and will help to deliver our shared vision for the area. The transport strategy:

- Recognises the sub-region and King's Lynn in particular as a focus for growth, and the importance of providing the necessary infrastructure to accommodate the growth. The level of growth in the size of King's Lynn is substantial naturally leads to a requirement for it to function as a sub-regional centre, serving a wide rural hinterland
- Supports King's Lynn town as the primary retail, leisure, tourism and cultural centre serving the population of the sub-region
- Supports King's Lynn having a strong and diverse employment base, building on its strengths in engineering and food, but providing higher quality and better paid jobs, and acting as a driver of the local economy
- Contributes to the urban renaissance of King's Lynn and the enhancement of the urban environment, raising the quality of the town and making it a more desirable place to live and do business
- Supports regeneration in the rural areas.

Background Analysis

The sub-region's economy is characterised by low unemployment with a dependence on sectors that are showing little growth and this is reflected in low skills and low average earnings, with consequent low spending powers. The town of King's Lynn has some wards with significant social deprivation.

The growth requirement for the Borough is to accommodate 11,000 new homes between 2001 and 2021, with 75% of these being in the town of King's Lynn itself. Overall, the town population is likely to grow by over one third in 15 years. Given this, and without the interventions that comprise the strategy, King's Lynn will experience deteriorating traffic and environmental conditions, which in turn will undermine the aims of the Urban Renaissance Strategy. Although lower traffic growth has been recorded in recent years, strong traffic growth could be generated between 2001 and

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2021 by virtue of the planned housing and jobs growth. In addition, the aimed for expansion of the role of the town will further increase trips, as will increasing car ownership generated by improving income levels. In theory, unconstrained traffic growth could increase by as much 35% between 2001 and 2021, though this needs to be treated with caution and will be heavily dependent on policy interventions.

An analysis of the national census data shows that King's Lynn enjoys high, though declining, levels of cycling and walking, and consistently low levels of public transport use, especially compared to similar towns.

Table 14.1 Journey to work mode split (resident population of King's Lynn)

Mode	1991 census	2001 census	Nationally towns of 25-50,000 population 2002-2004
Walk	18	13	10
Cycle	14	10	6
Public transport	4	5	8
Car passenger	9	9	14
Car driver/MC	52	61	61
Total %	97		99

Sources: 1991 and 2001 national census, 2002-2004 National Travel Survey special tabulations.

During the development of the strategy as part of the wider Urban Renaissance Study, the strong feeling of key stakeholders was that continuing 'as we are' is not an option and that transport issues are high on the agenda and central to implementing the wider urban renaissance strategy.

Table 14.2 King's Lynn Sub-Region SWOT Matrix

Strengths	**Weaknesses**
• High levels of walking and cycling (though declining) • Attractive historic area • Working port	• Significant traffic delays on key routes and car traffic dominance, with the public realm suffering as a result • Community severance for pedestrians • Unreliable bus services

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• Regeneration initiatives • Strategic road and rail links to Cambridge growth area	• Low levels of bus use • Poor local air quality on key routes
Opportunities • Integration with Urban Renaissance Strategy • Provision of infrastructure from development proposals • Focused growth on King's Lynn provides greater chance of sustainable transport options • The proximity of the successful Cambridge growth area. • Rail re-franchising for Cambridge/ London line • NORA • Potential Boal Quay marina	**Threats** • Continuing decline of walking and cycling • Continuing increase in car use, and continuing dominance of the car • Worsening congestion on key routes with growth

Strategy

Delivering sustainable growth

The Borough Council's plan to focus 75% of the borough's growth in King's Lynn reduces the need to travel and provides greater potential for more sustainable travel patterns, including reducing dependence on the car. In particular, the Urban Renaissance Strategy has identified that most of the growth can take place within the town centre by redeveloping existing surface car parks and other brownfield sites, reducing the need to travel and the forecast traffic growth.

A key element of the transport strategy, developed as part of the Urban Renaissance Strategy, will be to complement the land use interventions by ensuring that the town centre becomes less dominated by vehicular traffic, enhancing it as a 'people-friendly' public space that is a safer and more attractive environment for pedestrians and cyclists, and generally a more pleasant and vibrant place to live in and visit. The proposals to relocate car parking to the edge of the town centre, extend the 20mph zone to the rest of the town centre, and implement pedestrian and cyclist improvements are described in sections below.

Accessibility

Improving public transport will be a key element of the strategy to improve accessibility, helping King's Lynn fulfil its role as a Regional Interchange Centre. This will include:

- Better car parking provision at the King's Lynn town centre railway station;

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- Investigating the feasibility of developing Watlington Rail Station as a parkway for trips to Cambridge growth area and beyond
- Keeping under review the feasibility of a new parkway station on the edge of King's Lynn
- Improving the connection between the rail and bus station through a high quality pedestrian and cyclist route
- Investigating improvements to the access and egress arrangements at the bus station in tandem with possible further development of the site
- Implement public transport interchanges in the surrounding market towns and work with the operators to promote improved bus services between the market towns and King's Lynn, possibly through a Quality Bus Partnership
- Continue to promote Thameslink 2000 to improve connections to Cambridge growth area and beyond.

It will be important for us to continue to build on the strong culture of cycling and walking in the town. The cycle network was well developed during the first Local Transport Plan. The emphasis during this one will be to complete the 'missing links' in the core network and overcome key barriers, and providing further secure cycle parking facilities. Priority will be given to removing the severance between the town centre and approach routes and enhancing facilities in areas of the town with low car ownership to improve access to jobs and services. The aim will then be to complement this with a high intensity promotional and marketing programme to ensure best use is made of the town's cycling assets, linking this with the development of school and workplace travel plans. For pedestrians, a key intervention will be the removal of severance between the town centre and residential areas caused by the ring road.

High quality car parking will be implemented to improve access to the town centre. The existing surface car parks will be redeveloped for other uses and replaced with multi-storey car parks on the edge of the town centre where the main radial road routes reach it. These will be supported by signed 'parking routes' to discourage unnecessary traffic in the town centre and also by real time Variable Message Signing to inform drivers of the spare capacity at the car parks (see also congestion strategy).

Much of the above is improving the 'gateways' to the town, something that has been identified as an issue for King's Lynn. This includes the car parks, and the rail and bus stations.

In addition, work will be carried out to determine the feasibility of introducing extra stopping places for the West Lynn ferry.

Congestion

Ideally, traffic flow systems should be reasonably self enforcing. However, an integrated set of traffic management measures could be used to reduce congestion, under the banner of an 'Area wide Traffic Management System'. This will improve network efficiency. The system could cover the town centre and the main approaches and will aim to reduce congestion particularly on the inner ring road and the three main radial routes. The system would be able to deliver other objectives, such as improved bus reliability and local air quality, by relocating traffic queues where

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they cause fewer problems. Priority will be given to investigating detailed options for improving traffic flow on the gyratory near the railway station (see 'environment' section below). Feasibility work will need to be carried out to determine exactly what system is needed.

To complement this, changes to the route hierarchy will be implemented as part of a review of local access arrangements. The A148 primary route currently takes traffic through the town, possibly exacerbating congestion and air quality problems. Potential exists for making changes to road numbering and signing that should encourage traffic to use the current A149/ A47 bypass around the town. Part of this strategy will require ensuring that the bypass is an attractive route with minimal delays, especially as this provides a key access to the hospital.

The approach to car parking and the use of ‘parking routes’ mentioned earlier will, as well as improving accessibility, reduce congestion by reducing unnecessary car trips in the town centre and reducing ‘searching traffic’ as many of the cars currently in the town centre are searching for car parking spaces. The aim of the new strategy will be to provide real-time information and encourage people to use the car park nearest to their arrival point in the town, rather than nearest to their town centre destination; a ‘drive to, not through’ approach. This will be complemented by the possible adoption by the Borough Council of a Decriminalised Parking Enforcement regime, for which they will take responsibility from the police for enforcing on-street parking restrictions.

Modal shift will need to be a central aim of the strategy. Ensuring improved bus reliability will be essential in order to make public transport an attractive option so as to reduce dependence on the car and limit traffic growth, and work towards stabilising traffic growth as defined in the draft East of England Plan for all Regional Interchange Centres. Opportunities will be sought to deliver bus priority, especially on the radial routes. This should be associated with the operators investing in improved vehicles that are more accessible and less polluting.

In the short term a parking strategy will be developed to demonstrate how a park and ride could be feasible in King’s Lynn by integrating it with the development and management of the proposed town centre multi-storey car parks and the adoption of a decriminalised parking enforcement regime by the Borough Council, and potentially integrating it with the delivery of the Nar Ouse Regeneration Area Millennium Community (NORA). This would need to be associated with a high quality priority bus route through to the town centre, potentially using the bus gate at NORA and a route across Hardings Pits/ Boal Quay as part of further development. Feasibility work will be conducted to determine the best option.

High intensity promotion of cycling will also contribute to modal shift, as will be development of workplace travel plans at the major employers. This may help to stabilise car traffic levels in line with the policy in the draft East of England Plan on Regional Interchange Centres.

In the vicinity of King’s Lynn, the Highways Agency’s analysis of the traffic growth expected on the A47 as a result of the housing growth has shown that key sections of the A47 will be congested at least by 2021, if not earlier. We will support improvements to these sections as a priority. In addition, heavy traffic through the rural communities of Middleton, East Winch and Bilney will continue to worsen and exacerbate community severance and we will work with the Highways Agency to bring forward any proposals to bypass these communities.

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Other sections of principal roads will be kept under review to ensure high quality access within the sub-region to King's Lynn, such as the A10 at West Winch.

Environment

An Air Quality Management Area has been declared by the Borough Council on Railway Road. A traffic management scheme will be implemented to address both congestion and air quality as a priority intervention. Schemes implemented will also need to ensure that further Air Quality Management Areas are not created, such as on London Road.

Newer, less polluting buses will be sought from the operators as part of a package of public transport improvements that will include bus priority measures in the town to improve bus reliability.

King's Lynn town centre

The aim is to make the town centre an attractive, vibrant, pedestrian friendly environment where people want to live and visit. The Borough Council will plan for locating much of its planned development for King's Lynn within the town centre, which should help to generate a pedestrian focus. Much of the traffic could be removed by the car parking strategy (see above) and the remaining trafficked areas will be made safer for vulnerable road users through an expansion of the 20mph zone. Penetration by public transport is an issue, especially towards Tuesday Market Place. Potential could exist for enabling a future park and ride service to access the town centre. Further assessment work needs to be carried out on bus access into the town centre.

Road Safety

On top of countywide initiatives, there will be focus in King's Lynn on improving the road safety of children in the more deprived areas through pedestrian training. The 20mph zone extension in the centre will also contribute to improving the environment for vulnerable users, promoting cycling and walking.

15. Rural areas

Market towns

Vision

A transport system that enhances the important role Market Towns performing as local transport hubs in Norfolk by improving access to local services and employment, encouraging sustainable tourism and ensuring the conservation of their individual character and heritage.

Introduction

Rural Norfolk is characterised by a large number of market towns and villages. Few villages provide a range of essential services such as education, employment and foodshops. People living in towns and villages, or the deep rural areas, look therefore to market towns to provide this range of services and to do this, the towns need to be economically viable and retain the range of services on offer.

There are eighteen towns recognised as market towns in the county.The population of the market towns ranges from just fewer than 2,500 in Wells to over 21,500 in Thetford. The population of most of the towns, however, is around 7,500. Although having a market is not a determining factor for market towns, they do have an historical relationship with the surrounding rural area, acting as a local service centre.

Background Analysis

The draft East of England Plan aims to focus development in rural areas on market towns. The spatial implication of this policy is that it will be necessary to maintain the vitality and viability of market towns as focal points for access to employment, services and facilities, allowing for further provision of affordable housing and encouraging economic diversification. Indeed, Market Towns are important to the county's economy. In Norfolk 18% of all employment is within Market Towns.

The Norfolk Structure Plan contains more detailed policies about market towns, setting out three categories:

- Towns able to take major development
- Towns that will provide for housing, employment and commercial development on a scale that will support their functions as rural centres
- Towns that will provide for employment and service development which will support their function as rural market towns but only provide for housing which improves the balance of jobs and services locally

The role of market towns is crucial. Research carried out as part of our corporate 'localism' initiative to improve access to our services locally, found that people, especially elderly people and those without access to a car, are very dependent on their nearest market town. Market towns vary

greatly in nature and the extent to which they serve their own residents and those in the villages and rural hinterland. However, in general, residents of market towns access most local services (such as food shopping, banking, health care etc) in their own market town. A large proportion of market town residents therefore walk to access their local services. Travel patterns are more dispersed for employment and non-food shopping. Although village residents are less attached to their market towns the problem of accessing market towns for services and to 'interchange' is a recurring theme in consultations, especially amongst older people.

Norfolk is relatively deprived in terms of education, skills and training. The proportion of Norfolk residents with no qualifications is relatively high and the County lags behind in terms of progression to higher education. The School Organisation Plan identified access, especially to market towns, as being a barrier preventing people from choosing continuing education.

Table 15.1 Market Towns SWOT Matrix

Strengths	**Weaknesses**
• Tourism • Local character • Role of local service centres • Sense of community • Short distances within market towns to services	• Transport integration and interchange • Narrow streetscape reduces space for pedestrians and cyclists • Economic viability
Opportunities	**Threats**
• Develop local service centres • Greater sustainable tourism • Local transport hubs • Reduce traffic in historic centres • Infrastructure improvements as part of new development	• Over-dominance of larger urban areas, loss of business and economic activity • Increasing traffic levels, especially associated with growth • Loss of local character • Low investment levels

Strategy

Accessibility

The strategy recognises the role of market towns as local service centres for their surrounding areas. It will seek to improve access to them from their rural hinterland by public transport, especially through demand responsive transport.

Market towns also have an important relationship and synergy with their sub-regional urban centre. Connections between market towns and their urban centres, particularly by public transport on key bus routes and rail, will need improving to provide people with a good alternative to the car.

15. Rural areas

This will require their role as interchange centres to be developed. As market towns continue to grow, distances from residential areas to services increase and we will need to provide flexible public transport services within the larger market towns to improve local accessibility.

Within the towns, local accessibility improvements can build on the clear potential for improving the walking and cycling environments. The historic street patterns of market towns present specific challenges in providing coherent walking and cycling networks.

As part of the first Local Transport Plan, we have undertaken walking and cycling studies of all of the market towns. These studies resulted in the identification of walking and cycling networks in the towns, and proposals for improvements on these networks. We will implement these and develop a complementary promotion strategy to raise awareness. Improvements will include routes to schools, employment areas, shops and services, healthcare, recreation and links to the wider rural area including using the Public Rights of Way network.

Improving the town centre pedestrian environment will be a key feature of market town strategies and is identified in the draft East of England Plan as being a key intervention to improve the vitality of market towns. The County Council will continue working with partnerships across Norfolk specifically targeting the regeneration of individual market towns. This will include contributing to environment enhancements, sometimes by diverting and removing through traffic. In some circumstances this will include the delivery of significant new road infrastructure, such as relief roads or, in some locations and where it offers value for money, rural bypasses, potentially as part of new develpments. These would need complementary measures to improve opportunities and safety for other road users and tolock-in the benefits of increased road capacity.

We will continue to focus upon the important role that market towns play in the tourism sector. Market towns can be an excellent base for visiting an area, providing local services and accommodation. Access to areas of interest for visitors, within market towns and the surrounding area should be of high quality and convenient to use, this includes public transport, walking and cycle routes, links to the public rights of way network.

Reasonable car parking provision is essential. Consideration will be given to providing this in locations that supports the removal of traffic from historic town centres, with good pedestrian links to the core centre.

Congestion

Market Towns have a key role to perform in reducing congestion in the larger urban areas. Improving the quality and variety of services and facilities available in Market Towns and improving access to them will reduce the desire to travel longer distances, and improve the economy of the rural areas. We will encourage the local planning authorities to ensure development opportunities in the market towns accommodating growth provide sufficient facilities locally.

Increasing congestion in the town centres themselves, often as a result of traffic growing beyond the capacity of the historic road networks through housing and population growth, may, in some circumstances, require new road building (see 'accessibility' section above).

15. Rural areas

Environment

Town centre environmental enhancements that help with regeneration will be particularly important.

Road safety

In market towns we will be concentrating on improving the environment for non-motorised users and reducing danger for vulnerable road users.

Market town studies

Multi-modal strategies for each market town will be developed during the second local Transport Plan, building on the cycling and walking studies now completed. The strategies will need to conform to the broad framework outlined above. In terms of carrying out the studies, priority will be given to:

- Aligning the studies with the time-table for local development frameworks and those market towns that are expecting to accommodate significant growth;
- Those market towns that are currently experiencing significant problems such as through traffic and congestion.

The Broads

Vision

To provide a safe, secure and accessible transport system that supports sustainable tourism, enhances the economic vitality and livability of the Broads area, whilst minimising the adverse impacts of transport and climate change on the Broads unique environment.

Introduction

The Norfolk and Suffolk Broads is the UK's premier wetland. It is a unique and internationally important landscape encompassing over 125 miles of navigable waterways and hosts a wide variety of plants and wildlife. Although the rivers and broads were once an essential element of the transport network, today the Broads is a holiday and recreation area for thousands of visitors and local residents. It has a distinct blend of wildlife, landscapes and buildings, and offers many opportunities for people to relax and enjoy themselves both on land and on the lock-free, navigable waterways.

Norfolk County Council, the Broads Authority and other local district and borough councils have developed the Broads Area Transportation Strategy to provide a framework through which to address the impacts arising from traffic and to improve transport for both local residents and visitors in the Broads area.

15. Rural areas

Following consultation on transport-related problems and issues in August 2004, a full strategy and an action plan developed through which to implement the strategy. This chapter provides a summary of the revised strategy for the Broads, setting out a local transport strategy that is unique to the Broads area. The Broads Area Transportation Strategy recognises the special features of this part of Norfolk and focuses on providing a transportation system that promotes sustainable tourism.

Background Analysis

Due to the geography and network of waterways, much of the Broads area is relatively difficult to access. Moreover, links between land and water-based recreational provisions are limited.

Compared to other areas in Norfolk, congestion is not a significant problem in the Broads area, except at certain times of the year and around key attractions. Visitors are concentrated during the summer months, and the result is increased pressure on the area in terms of demands for visitor attractions, accommodation, road space and parking.

Ninety-four percent of visitors to the Broads arrive by private car, causing seasonal congestion during the summer travel period. Congestion is particularly problematic in and around towns acting as a focus for attractions and which provide easy access to rivers or Broads. This in turn impacts on bus reliability and also creates a contradictory impression to tourists, who perceive and expect the Broads to be a tranquil and idyllic getaway and not an area of dense traffic and congestion.

The unique environment of the Broads area is its major asset and it is important that this is protected and enhanced wherever possible. A key challenge in the Broads area is to manage tourism at environmentally sustainable and socially acceptable levels, whilst ensuring that the area remains economically viable.

Table 15.2 Broads Area SWOT Matrix

Strengths	**Weaknesses**
• Tranquillity and landscape character • Tourism	• Lack of integration between modes of transport

15. Rural areas

• Broadshoppper bus service • Bittern and Wherry Line train services	• Seasonal congestion at visitor hotspots • Isolated and relatively inaccessible
Opportunities • Increased tourism from climate change • Centre for sustainable tourism	**Threats** • Exposure to climate change impacts • Deteriorating interchange facilities • Lack of transport investment

Strategy

Accessibility

There is a general lack of integration between modes of transport which must be improved to encourage visitors to arrive and travel within the Broads via sustainable modes of transport. This will be done by:

- Improving train and bus services between the Norwich and Great Yarmouth/Lowestoft sub-regions
- Improving interchanges between passenger transport, walking and cycling facilities
- Improving seasonal bus services between rail stations, town centres, tourist attractions, and moorings
- Continuing to develop and improve the value the Broads Hopper bus service
- Investigating the use of quiet lanes

Poor accessibility can be further exacerbated by the geographical nature of the Broads themselves, which bisect much of the area, creating severance and making it difficult to get from one place to another without having to go around the waterways. We will continue to review the requirement for provision of bridge access for pedestrians and cyclists in the Broads area.

Congestion

The railways were the means of transport which first brought tourism to the Broads and increased rail use will also tackle congestion and reduce environmental impacts from visitors arriving in the Broads area. We will therefore look at ways to revitalise the local railway network, support sustainable tourism and reduce seasonal congestion by:

- Working with community rail partnerships to make best use of capacity during the peak season
- Investigating the potential for using existing park and ride services and the provision of new shuttle services during the peak season between car parks and visitor attractions
- Promoting the use of river bus as a means of transport within the Broads
- Improving the quality of transport interchanges from rail to bus to visitor attractions

15. Rural areas

- Providing safe and secure cycle parking at key interchange points on the public transport network
- Providing support and encouragement for organisations to develop travel plans

Traffic congestion impacts on the local economy and creates a negative impression of the Broads both to visitors and local residents. Therefore, through traffic will be encouraged to find alternative routes away from visitor and residential areas. This will be done by:

- Undertaking a strategic signing review in the Broads area and using signage to direct traffic to the most appropriate routes in accordance with the route hierarchy
- Working in conjunction with the Norfolk Rail Policy Group to investigate rail freight initiatives in areas with disused rail lines and industrial activity

Environment

Tourism has clearly brought many benefits to those who live and work in the area, although it can result in pressures on the Broads environment, which require careful management. Broads Area Transportation Strategy supports the Broads Authority's promotion of sustainable tourism that improves the local economy, whilst ensuring the long-term conservation of the environment. We will work to promote the development and use of sustainable transport infrastructure by:

- Improving walking and cycling facilities to support the local economy and the diversification of the tourist industry in the Broads area
- Pursuing marketing opportunities to provide information on local public transport, walking and cycling - particularly at major moorings and key visitor attractions - in partnership with tourist information agencies

The strategy seeks to conserve and enhance the natural, historic and built environment of the Broads Area by protecting it from transport development likely to cause it irreparable harm. We will discourage unacceptable transport development from impacting on the landscape character of the Broads area by:

- Giving priority to the conservation and enhancement of the Broads landscape, waterways, and wildlife over other considerations in the determination of transport development proposals
- Not permitting or supporting transport development which would be detrimental to the character of the Broads unless there is an overriding, proven national need for the development and there are no suitable alternatives
- Not permitting the construction of new roads through the Broads area where the benefits of the scheme do not outweigh the adverse impacts on the environment and local public amenity

The Broads area is particularly exposed to the impacts of rising temperatures, sea levels and wind strengths and changes in the distribution and frequency of precipitation, resulting from climate change. It is therefore imperative that transport's climate change contribution is adequately mitigated and managed. This will be achieved by:

15. Rural areas

- Investigating incentives for promoting and encouraging the use of low emission and alternative fuel cars and boats
- Supporting the provision of electric recharging points at main moorings for electric boats
- Raising awareness about the effects of climate change on the Broads

In unique areas such as the Broads, highway furniture, including signs, can have a detrimental effect on the character of the area. However, traffic management and speed reduction make it necessary to install traffic signs. Norfolk County Council will undertake a signage review to the Broads attractions and businesses from major routes, with a view to minimising signage and ensuring that signage deemed necessary is in keeping with the character of the Broads.

The North Norfolk coast AONB

Vision

To identify a realistic and sustainable approach to the management of traffic in the Norfolk Coast Area of Outstanding Natural Beauty that reduces traffic and associated impacts on the environment and meets the needs of local residents, tourism and businesses.

Introduction

The Norfolk coast is a very special area, recognised by its national status as an Area of Outstanding Natural Beauty and by the national and international status of its coastline and wildlife designations. The Area of Outstanding Natural Beauty stretches for almost 50 miles, from Heacham to Bacton, with outliers around Sandringham in the west and Horsey in the east.

A draft revised transport strategy for the Area of Outstanding Natural Beauty has been prepared by Norfolk County Council in partnership with the Norfolk Coast Project and the District Councils in the area: North Norfolk District Council, Great Yarmouth Borough Council and the Borough Council of King's Lynn and West Norfolk. This Chapter provides a summary of the North Coast transport Strategy, setting out those aspects where we propose something different and special for the coast area.

The strategy recognises the special character of the area and

- Seeks to mitigate the traffic impacts on the sensitive landscape areas and in villages, conserving the natural character, historic environment and tranquility of undeveloped areas
- Will develop market towns as gateways into the area and seek to build strategic links, focussed on public transport, between these and the main urban areas in the county

15. Rural areas

- Builds on the innovative schemes including quiet lanes and village traffic management schemes that have been introduced
- Recognises the importance of the area as a tourist attraction. It will support the tourism industry in becoming more sustainable, through managing the way in which visitors access the area, and using transport to help manage visitor access to more sensitive sites.

Background Analysis

The Norfolk coast is a popular tourist destination, for both day and long stay visitors. The influx of visitors results in highly seasonal traffic flows and associated traffic problems in the summer season. Most visitors use the A149 coast road to get to destinations, but this road passes through the core of the Area of Outstanding Natural Beauty and many coastal villages. In the first Local Transport Plan, we had a target to achieve a 10% fall in traffic on this road between 1997 and 2010. Although we are not on track to meeting this target, initiatives like the Coast Hopper bus service have helped to limit traffic growth on the road. There can be heavy seasonal congestion in the narrow streets of the area's settlements, making it difficult for motorists and pedestrians, who often have to walk in the road in and around both parked and moving cars. General problems from traffic include congestion, speed, safety and parking.

Much of the Area of Outstanding Natural Beauty is a relatively remote rural area with few local facilities. Residents would generally have to travel to facilities located in market towns, but may find this travel difficult if they do not have access to a car. A relatively high proportion of the 20,000 residents is over 60 years old and have particular transport needs.

There is a limited network of bus services to the nearby market towns, with the nearest rail stations at King's Lynn, Sheringham and Cromer. The Bittern Line between Sheringham, via Cromer, to Norwich has seen recent large increases in patronage and is an example of a successful community rail partnership line. The Coast Hopper bus service has also proved to be a very successful initiative, with both visitors and residents alike.

The AONB is appreciated by residents and visitors for its rural beauty, tranquility and countryside character. However, these are often compromised by the increased presence of the car and the requirement for transport infrastructure.

Table 15.3 Norfolk Coast SWOT Matrix

Strengths	**Weaknesses**
• Vitality of tourism, market towns • Landscape quality • Coasthopper bus service	• Poor public transport links to deep rural area • Generally low standard road network

15. Rural areas

• Bittern Line train service • Traffic management measures including village speed limits, quiet lanes network	• Main coast road passes through many villages • Road infrastructure (including car parks) cannot cope with numbers of car-borne visitors
Opportunities • Can build on initiatives that have been introduced • Norfolk Coast Partnership • Public appears willing to accept innovative measures	**Threats** • Climate change • Growing proportion of older people

Strategy

Accessibility

The Norfolk coast Area of Outstanding Natural Beauty is a relatively remote rural area and it can be difficult for residents and visitors who do not have a car to get to services, which are generally sited within the region's market towns. For those with cars, getting around may be easier, but this leads to detrimental impacts from traffic on the area. At a local level, minor country lanes and public rights of way can provide links for leisure as well as residents to get to services by foot or by bike.

We have been successful in building up the Coasthopper bus service along the A149 coast road. This provides an important service for both residents and visitors. We will continue to develop this as an attractive alternative to the car, and as a practical means for tourists to visit the coastal towns and resorts from their visitor bases. We will look to see how we can improve integration of this service with the longer distance bus and rail services to destinations further afield such as Norwich, King's Lynn and Great Yarmouth, as well as improving the links with rural public transport services including demand responsive transport services.

Quiet Lanes have become successfully established in an area around Knapton. They have a real suitability in the Area of Outstanding Natural Beauty, and we will give consideration to further development of the network, either as an expansion of the existing network or the creation of a new network within the area. We will also explore ways of linking the network with local and longer distance cycle routes.

Similarly, rights of way including footpaths, cycle tracks, bridleways and restricted byways have evolved into a network of unsurfaced roads that people use mostly for leisure. Opportunities will be explored to make the best use of public rights of way through improved management and maintenance, better information and, potentially, the creation of new routes.

15. Rural areas

Congestion

Traffic congestion in the Norfolk Coast area is generally confined to the peak tourist season. The worst spots can be the A149 between King's Lynn and Hunstanton and through Cromer. Elsewhere, there is little congestion in the traditional sense of lengthy traffic queues, although at particular pinch points like Holkham, Cley and Stiffkey, traffic volumes can cause delay for general traffic as well as buses. A particular problem can be traffic circulating towns and villages looking for opportunities to park, for example as can happen at Wells.

The congestion strategy (Chapter 9) sets out how we will be tackling these congestion problems. In the Area of Outstanding Natural Beauty we will also be targeting villages and settlements to tackle the perception that these areas are congested, or busy, which reduces the attraction of the settlements and their suitability to be explored on foot. In particular, we will be looking at the location, availability and pricing of parking facilities as this can influence the places that visitors go to. Parking in settlements causes serious detrimental visual impact, obstruction to others and, as few settlements have dedicated footways, means pedestrians have to weave between parked vehicles. The volumes of circulating traffic, often characterised by cars waiting to park obstructing the traffic flow, can cause severe localised congestion.

We will be looking at ways to overcome the problems. This will involve working with other partners in an integrated way and may involve tough decisions: we have previously made little progress in tackling the problem because schemes have stalled where we have not been able to reach agreement on all aspects of the proposals.

Environment

The environment of the Norfolk coast, including its landscape, streetscape and tranquility is one of its major attractions. These aspects are under threat from the impacts of motor traffic, which also contributes to climate change. Climate change could affect the north coast in particular with further coastal erosion and rising sea levels.

We will continue to make sure traffic uses the most appropriate roads, supporting the draft East of England Plan's strategic road network in the area, the A148 and A140, and the county's route hierarchy. We will also pursue opportunities to change car-based tourism to that focused on walking, cycling and horse riding. It is proposed to investigate the potential for locally distinctive village entrance signs. They could reinforce to drivers that they are within the Area of Outstanding Natural Beauty and that within this area, they should pay particular respect to other road users and the environment.

We will continue to take opportunities to reduce car parking in the sensitive parts of the coast north of the coast road. Any new parking should normally be inland of the coast road, close to the main approach routes from the A148 / A149, and should be accompanied by an equivalent reduction in parking capacity seaward of the coast road.

15. Rural areas

The draft East of England Plan states that in order to sustain the viability of and secure revitalisation of the region's market towns, local authorities will have to consider the need to enhance the environment of the town centre. Improving the town centres may help to realise the potential for these towns to act as alternative places of interest for visitors, potentially taking some pressure off the Area of Outstanding Natural Beauty's core honeypots. We will continue to improve the environment of market towns, building on the recent works at Cromer and Fakenham.

Safety

Our priority in the Area of Outstanding Natural Beauty is to focus on road safety improvements that reduce accidents where someone is killed or seriously injured, see Chapter 10. In the Area of Outstanding Natural Beauty, engineering schemes will need careful consideration to ensure that they do not have adverse impacts on the landscape or built environment.

We will also be focussing on managing vehicle speeds and creating a less-threatening environment for non-motorised forms of travel. Already we have implemented appropriate speed limits in most villages and need to concentrate now on continuing to reduce the actual vehicle speeds to the posted speed limits. However, we need to make sure that this does not result in sub-urbanisation of the area. New and innovative measures that preserve and enhance the setting of the towns and villages need to be found, likely to involve more innovative measures than might be suitable for other parts of the county. This must be done in conjunction with programmes and campaigns to educate and encourage drivers to drive responsibly.

16. Asset Management

Introduction

The County Council is responsible for maintaining 9762km of highway. We have to decide where funding on maintenance is spent and how it affects the delivery of other county council objectives. Our service plan recognises that well maintained road, cycling and footway networks help to deliver elements of our Community Strategy and Medium Term Plan. We already have a Transport Asset Management Plan which brings together all the county's policy drivers that influence the maintenance and improvement of the network, including our first Local Transport Plan. We have drawn up an improvement plan for the Transport Asset Management Plan that will take forward those elements of this Local Transport Plan that will influence how maintenance is carried out.

Table 16.1 Asset Managment SWOT Matrix

Strengths	**Weaknesses**
• An existing TAMP • Improved condition of the Principal Highway Network • A defined route hierarchy for the county	• Condition and deterioration of the non principal road network, cycleways and footways • User perception
Opportunities	**Threats**
• TAMP improvement plan • New data management software • Street Lighting Private Finance Initiative • Rights of Way Improvement Plan • New network duty	• Heavier Lorries • Traffic Growth • Climate Change • Litigation

Priority

Our Priority for maintenance is to ensure principal roads (A roads) are kept in good condition now that we have achieved this during our first Local Transport Plan, while shifting resources to improve the non-principal classified roads (B and C roads) and footways. 88% of key stakeholders in our Spring 2005 consultation agreed that this should be our priority for the second Local Transport Plan.

Strategy

The Transport Asset Management Plan looks at the detailed strategy for maintaining and improving the county's roads and footways. The improvement plan has an action to review the Transport Asset Management Plan to reflect the strategy of the second Local Transport Plan. Maintenance that simply just replaces like with like will not greatly assist in delivery of the other strategies of the Local Transport Plan but by thinking about how maintenance is carried out, there are many opportunities to contribute to towards them.

16. Asset Management

Targets

- To ensure no deterioration in the condition of the principal road network
- To ensure no deterioration in the condition of the non-principal road network
- An improvement in condition of the footway network.

Safety

Appropriate maintenance ensures that the physical condition of the network does not present a danger to road users. Regular inspections look for visual defects such as potholes. Not only do such defect represent a hazard, but can lead to personal injury and damage claims against he authority, which diverts resources away from services. We prioritise our inspections so that the most important roads that carry the most traffic are looked at most regularly. We also prioritise the repair response rate to reflect the potential level of hazard that certain defects present to highway users. We aim to repair or make safe defects which could lead to a significant risk of injury or damage to property within 90 minutes .

Properly maintained lighting not only improves road safety, but personal security and will contribute towards reducing crime and disorder. We prioritise maintenance of lighting into 3 response times, 40 minutes, 24 hours and 7 days. The quickest responses are if there is a danger to life, such as exposed electrical connections. A 24 hour response is given where the fault is in a high crime area or could lead to crime, or where there have been a large number of reports of the fault. We are currently preparing a Private Finance Initiative bid to deliver a cost effective means of replacing the ageing lighting stock.

When maintenance works are carried out opportunities to broaden the scope of works to deliver safety improvements are considered.

Environment

We have produced a best practice guide on protecting the environment of the highway corridor. The guide relates to new works and maintenance and ensures that the works are carried out in a way that minimises adverse environmental impacts. The design of schemes will seek to minimise their impacts by consideration of visual impacts, the choice of materials such as low noise surfacing, sustainable drainage systems, considering light pollution from street lights in sensitive areas, and using low energy lights to reduce power consumption. Our current electricity supply contract guarantees 100% of energy is generated from renewable sources. We will continue to negotiate energy supply contracts to maximise the renewable content for street lighting. We will also continue to take into account how works are carried out, for example, maintaining certain verges so as to protect habitats and increase biodiversity or looking at recycling materials for reuse in maintaining or improving the network. We also look at how materials such as salt for the roads are stored so that its potential harmful effects on the environment are minimised.

16. Asset Management

Congestion

Maintenance will be planned to ensure that the condition of the principal road network does not delay traffic. Streetworks will be co-ordinated to minimise delays on the road network and temporary traffic management schemes for road works will be designed to minimise the delay to traffic by balancing the ability to carry out the works safely, quickly and efficiently with the delays to passing traffic.

Accessibility

We have a route hierarchy that informs our signing policy. Traffic is signed clearly and consistently along the most appropriate route to access its destination making sure it can get where it wants to. In winter the route hierarchy is used to inform which roads are gritted. Priority is given to our strategic and important roads and also those that lead to key services such as hospitals and schools. Key bus routes are also prioritised to ensure that disruption to services is minimised. The category of road within the route hierarchy is also a factor in the prioritisation of improvements and used to target bridge strengthening on routes that need to be used by heavy vehicles to serve key services and businesses. Keeping street lighting working aids personal safety to encourage walking and cycling by reducing fears over personal security. When road works are needed we consider the impact on public transport so the users of those services can still get where they need to.

Rights of way can be important for some people to access jobs and services and we will ensure those important routes are free from obstructions.

As part of structural maintenance schemes on principal roads we will will take cost-effective opportunities to improve the quality of the route, especially where this improves the quality of connectivity between market towns and their sub-regional urban centre. The inadequacy of some routes for their purpose leads to considerable damage, especially by larger vehicles, to edges and this has implications for the maintenance liability.

Value for money

We need to demonstrate that we are delivering value for money when we choose which roads to maintain and the type of maintenance we carry out on them. Survey and inspection data is used to identify appropriate works at different stages of deterioration of the asset and hence make best use of the funding. The Transport Asset Management Improvement Plan includes actions to build on what we do now to enable better informed decisions We also need to consider if there are opportunities to link maintenance works with other improvement schemes. To do this we are currently putting in place management systems to enable fully informed decisions on priority to be made.

Norfolk's Transport Asset Management Plan

Our Transport Asset Management Plan represents an evaluation of asset management practices in the County and sets out a way forward.

16. Asset Management

There are two internationally recognised styles of asset management – basic and advanced. The differences between the two models are shown in the figure below.

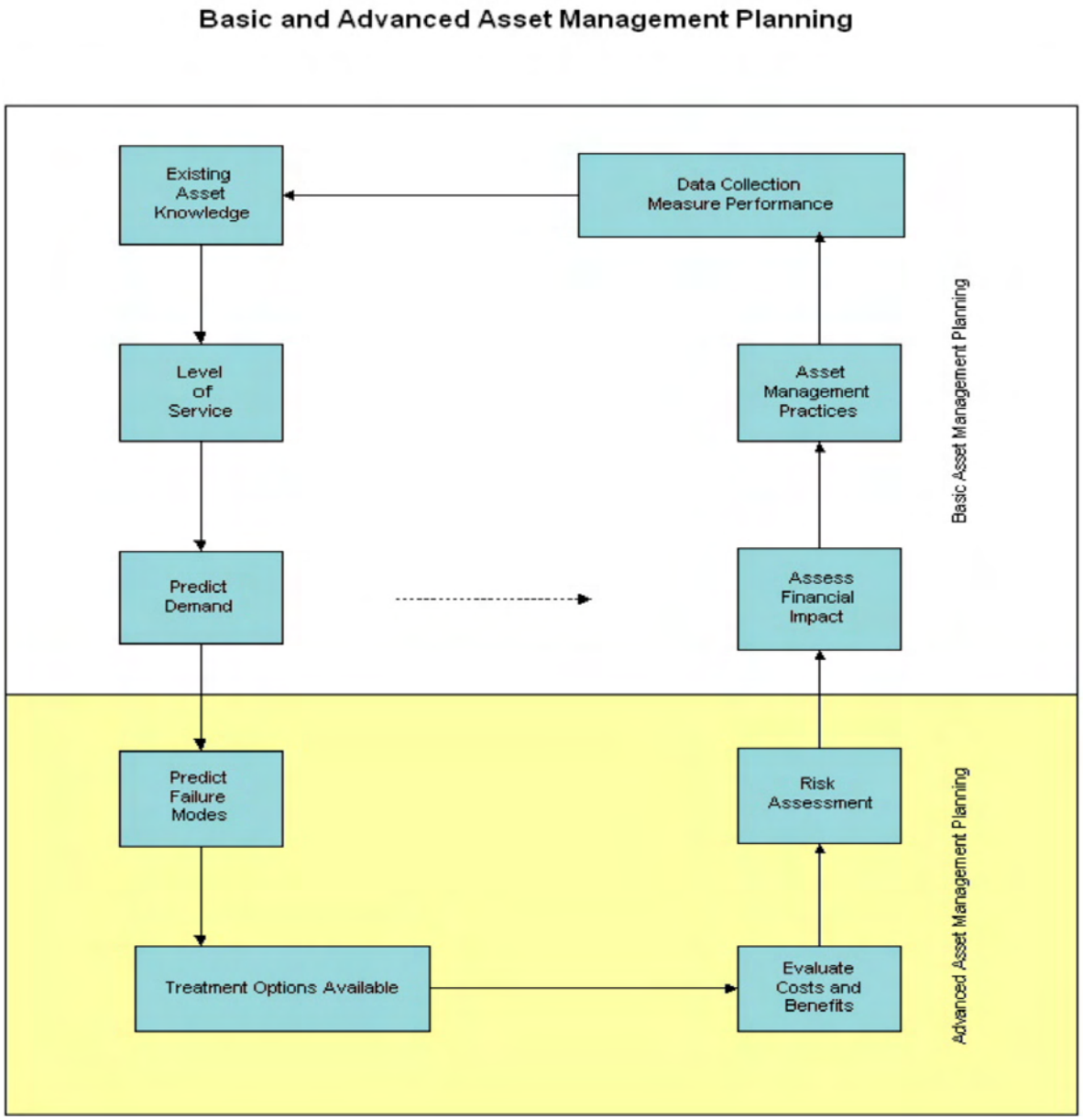

Figure 16.1

16. Asset Management

We currently follow the basic system approach. Through the Improvement Plan we will more towards the advanced system. Advanced Asset Management builds on the basic approach by including prediction modelling, risk management and optimised renewal decision-making techniques. These facilitate long term financial forecasts and programmes that minimise lifecycle costs whilst delivering required levels of service.

This necessitates taking a lifecycle approach to our asset management and improving our Transport Asset Management Plan that will;

- Monitor the condition and performance of assets
- Use optimisation tools to develop options for current and future service delivery, forward financial planning and investment and asset renewal programmes
- Provide value for money by optimising the long-term life cycle costs of assets and through improved system and practices
- Enable the County Council to meet the government's future requirements for financial planning for transport
- Demonstrate effective management of assets on behalf of customers and stakeholders
- Assist in planning for future asset requirements based on projected demand and service levels

The adoption of a formalised asset management approach builds on the foundations of existing practices but also represents a large step improvement in what we do. This plan will set out practices in regard to these elements as far as is possible. Where changes are identified in the information and systems necessary to refine this process they are set out in an improvement plan.

Given current funding levels, the plan indicates that the Local Transport Plan asset management targets are, though challenging, realistic assuming we continue to spend the funding wisely.

17. Implementation programme 2006 to 2011

Linking Strategy and Programme

Linking the strategy to the five-year actual implementation programme is a crucial part of the Local Transport Plan. This section helps to achieve this.

Improving accessibility

Accessibility action areas are to be identified and the balance of interventions will reflect the local circumstances, but they are likely to draw on the public transport, cycling and walking budgets from 2007/08. There will be a greater emphasis on demand responsive transport that will require increased capital funding for vehicles, again from 2007/08 in particular. Corresponding revenue support will also need to be redirected to these services.

High level of funding for public transport infrastructure, especially for key bus routes as public transport is a high priority.

Transport interchanges are key to delivering the strategy and a high level of funding will need to be maintained for the whole of the five years. Great Yarmouth and King's Lynn are identified as a high priority and will require significant investment towards the end of the five-year period. The development of a countywide concessionary travel card and a smartcard scheme will assist in meeting the stretching patronage targets and will require revenue and capital funding in the first half of the five-year period. Public transport improvements are a high priority and funding levels in the public transport budgets will need to remain high for the five years, especially to deliver high quality infrastructure to implement the key bus routes strategy.

For cycling, there needs to be a shift in emphasis from simply delivering infrastructure to information, and promoting the facilities. A stretching cycling target has been set so emphasis needs to be placed on the information strategy to get better use out of the investment. That will require a consistent level of funding throughout the period. There will need to be a shift towards delivering cycling and walking improvements in the market towns are the five-year period progresses, particularly those challenging barriers to overcome, such as crossing facilities and ensuring compliance with Disability Discrimination Act.

Funding for local road schemes will need to be kept at a steady level to deliver identified schemes in the first half of the five year period, followed by newly identified schemes arising from market town studies during the second half.

Reducing congestion

Bus priority schemes, particularly in King's Lynn and Norwich, will need feasibility funding at the beginning of the five-year period and funding potentially for implementation towards the end of the period.

Funding for smarter choices such as travel planning will need to increase and be focused on the urban areas. As more workplace travel plans are developed they will draw more heavily on a range of budgets such as cycling and walking.

17. Implementation programme 2006 to 2011

Funding for traffic management will be needed to help deliver measures such as junction improvements in Norwich and will need to increase during the five-year period as measures to deliver the new network management duty are delivered.

Feasibility funding to investigate a park and ride at King's Lynn will be needed during the five years. This could lead to a high cost scheme towards the end of the period so budgets will need to remain flexible.

Protecting and enhancing the environment

The early part of the five-year period should concentrate on reductions in air pollution, particularly carbon dioxide emissions, so as to gain from the compounded benefits over the five years. Interventions may include changes to the vehicle fleet, especially buses, and carrying out retrofits on buses and heavy goods vehicles. Later in the period the air quality action plans will need to be delivered with a consequent increase in funding, particularly traffic management. There may be opportunities to combine the traffic management measures with congestion reducing schemes. Further consideration needs to be given to how we will fund carbon sequestration measures.

Improving road safety

Stretching targets are being set for casualty reduction despite the increasing difficulty of targeting clusters of accidents. Funding will need to increase for this corporate priority compared to the first Local Transport Plan, although there will be an expected declining return in accident savings. Road safety schemes will need to be more widely supplemented by education, training and publicity, including as part of the delivery of schemes. Demands on Safer and Healthier Journeys to School funding will increase during the five-year period as more school travel plans are completed and made ready for implementation.

Five-year Programme 2006 to 2011

The Government has indicated how much capital funding through the Local Transport Plan will be made available to us for 'maintenance' and for 'integrated transport' (the former is for the structural repair of roads and pavements, the latter is for improvement schemes such as bus priority, new road schemes, road safety schemes, cycle routes, and pedestrian crossings). These indicative amounts have been used as the basis of our programming and how they are broken down into the different categories of schemes is show in the table below.

Table 17.1 Implementation Programme Table - costs in £000's

SCHEME TYPE	2006 / 07	2007 / 08	2008 / 09	2009 / 10	2010 / 11	TOTAL (LTP)
Majors Accepted	0	0	0	0	0	0
Majors Developing	520	200	250	250	250	1,470

17. Implementation programme 2006 to 2011

SCHEME TYPE	2006 / 07	2007 / 08	2008 / 09	2009 / 10	2010 / 11	TOTAL (LTP)
Bus Infrastructure Schemes	1,250	1,200	1,200	1,149	1,100	5,899
Bus Priority Schemes	200	200	200	200	200	1,000
Park and Ride	50	100	100	100	100	450
Public Transport Interchanges	700	700	700	700	700	3,500
Cycling Schemes	737	725	700	750	750	3,662
Road Crossings (Pedestrian / Market Towns)	730	750	727	750	750	3,707
Walking Schemes (Footways / Pedestrian / Market Towns)	710	720	693	720	720	3,563
Local Road Schemes (Other Improvements)	1,636	1,600	1,524	1,700	1,750	8,210
Local Safety Schemes (Including Safer and Healthier Journeys to School)	1,644	1,714	2,119	2,129	2,079	9,685
Traffic Management and Traffic Calming	505	756	932	1,400	1,884	5,477
Other Schemes	230	230	230	30	123	843
Fees for Future Schemes	480	497	503	510	517	2,507
Retention / Land Costs on Complete Schemes	300	300	300	300	300	1,500
Detrunked Roads and Bridges	0	0	0	0	0	0
Structural Maintenance	16,401	16,789	17,779	18,817	19,808	89,594
Bridge Strengthening / Bridge Maintenance	3,000	3,000	3,000	3,000	3,000	15,000
Totals:	**29,093**	**29,481**	**30,957**	**32,505**	**34,031**	**156,067**
Integrate Transport (Excluding Majors Accepted)	**9,692**	**9,692**	**10,178**	**10,688**	**11,223**	**51,473**

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These indicative funding allocations will increase or decrease by up to +/- 25%, depending on the assessment of our Local Transport Plan. Be that as it may, having indicative allocations helps us to plan ahead.

Other, non-Local Transport Plan, funding sources

In addition to resources secured through the Local Transport Plan, there are number of other funding streams that will helps us to deliver transport improvements and progress towards out targets and objectives.

Additional funding to support the delivery of the targets, or minimise the impacts on the network, is secured through local partnerships or from developers. In some cases the partnership or developer funds all or almost all of the cost of the works, for example the improvements in Great Yarmouth forming part of the InteGREAT schemes. In other cases the County Council will contribute funds related to the contribution a scheme makes to the Local Transport Plan objectives, for example the County Council contribution towards the provision of Vehicle Actuated Speed Limit Signs in villages is assessed against the potential casualty reduction.

The funding likely to be available is more difficult to forecast. But some major contributions that are expected during the second Local Transport Plan are shown below:

- 2006/07 B1108 highway improvements £1 million - developer funding.
- 2006/07 Norwich Lakenham Route cycling scheme £75,000 - developer funding.
- 2006/07 Norwich City Centre Spatial Strategy £1 million - provisional Norwich City Council funding.
- 2006/07 King's Lynn Hardwick Road cycling scheme £30,000 - developer funding.
- 2006/07 Provision of tactile paving / upgrading of existing crossings to ensure Disability Discrimination Act compliance £500,000 - County Council funding (provisional).

Other sources of funding will include CIVITAS European funding for sustainable transport in Norwich, Rural Bus Subsidy Grant, Local Public Service Agreement pump priming, Revenue Support Grant, and bus challenge funding such as for the Norwich orbital bus service. Some of these are substantial and there is every reason to expect these sources to continue through the second Local Transport Plan. In 2003/04, the revenue funding spent on transport was as follows:

- Public rights of way - £241,000
- Public transport - £5,001,000
- Park and Ride - £808,000
- Road safety education - £460,000
- Winter and routine maintenance - £19,237,000
- Street lighting - £2,229,000

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Ensuring delivery and value for money

Effective and efficient delivery of our transport strategy through our programme is vital. This focus ensured we were awarded the status of National Centre of Excellence for Local Transport Delivery in Public Transport and Road Safety; two of our priority improvement areas.

We continue to enjoy the benefits of our strategic private sector partnership with Mott MacDonald and May Gurney. This partnership helps us save money, with the transport service almost £1 million a year less costly than it would have been if we continued to use traditional methods of service delivery. The partnership also provides greater flexibility, such as extra resources to carry out projects in short time-scales.

Any potential scheme is assessed against the four main themes in the Local Transport Plan (accessibility, road safety, environment, and congestion), the Local Transport Plan strategy, objectives and targets and the corporate priorities of the County Council.

Policy 35

Implementation Programme

In developing the implementation programme we will assess schemes in terms of the contribution they make to the strategy and the impacts they will have on accessibility, congestion, the environment (especially carbon dioxide emissions), and road safety. This will ensure that we maximise their contributions and that we are aware of any negative impacts.

The process also includes an assessment of the value for money of a scheme at two stages. At the initiation stage the estimated outcomes are compared with an estimated cost based on past schemes or preliminary design. As the design and consultation processes progress the outputs and costs are reviewed, this gives an opportunity to withdraw or modify the scheme if it is no longer considered value for money.

The processes used to identify schemes are described in the Transport Asset Management Plan, although these are being reviewed as part of the Improvement Plan to the Transport Asset Management Plan. Coordinated delivery and adding value by integrating transport delivery with other improvements is a key element of our approach. Consideration is given to the timing of schemes to ensure that opportunities are taken to combine maintenance, safety, improvements, regeneration and/or partnership schemes in an area. This has the potential to reduce design, consultation and construction costs, combine funding sources and minimise the impact on the network in terms of its unavailability and congestion.

To ensure delivery of the programme all schemes are assigned a “project owner “. This is a strategic role, generally outside of the project team. The role includes:

- Taking ownership of the project from “cradle to grave”

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- Being a point of contact for the public and elected members
- Undertaking sufficient investigations to assess the adequacy of the budget and timescales
- Preparing a project plan, monitoring progress and raising any concerns to ensure the project is delivered on time, on budget and to appropriate standards
- Discussing any variations to programme or costs with the project sponsor
- Ensuring financial, scheme and programme systems are kept up to date
- Carrying out post project review and report issues to enable improvement of the service through the adoption of best practices, and designs or processes to provide better value for money.

We keep the overall programme under regular review as part of our active risk management to identify potential delays or cost increases. If unexpected delays or costs arise on any scheme, control measures are taken on other schemes to maintain progress towards targets. The availability of flexible resources through the partnership greatly assists the management and delivery of the programme in this way. We also make full use of the feedback we get from the Government Office though the annual progress reporting process.

Rights of Way Improvement Plan

The Countryside and Rights of Way Act has placed a duty on local authorities to develop a Rights of Way Improvement Plan. This will be integrated into the Local Transport Plan so that improvements to the Rights of Way network can be delivered as part of the transport implementation programme, particularly to improve accessibility for people walking or cycling.

In December 2003, a steering group was set up reflecting both the breadth of interests in walking, cycling, horse-riding, and soft-road driving. During 2004, an assessment of related services and facilities was made through checking and analysing records, officer summaries, and interviews with team members from across the County Council. Current and likely future public need was assessed through a countywide paper and online questionnaire, and public conference. This was supported by Citizens' Panel research and telephone interviews with people who are partially sighted, blind, deaf, or face mobility or other issues. A ten-year statement of action was produced.

Agreement on a winter 2005 consultation on a technical document concentrating on better execution of Public Rights of Way duties is expected in September 2005.

Major Schemes 2006 to 2021

Those schemes costing more than £5 million are called 'major schemes' and are subject to a separate bidding process for funding from the Government. In Norfolk we have had a significant under-investment over the years in major infrastructure. The consequence is that many of our roads are of a low standard. Up-grading our infrastructure to meet current and future demands is therefore one of our priorities. However, we are aware of the need to be realistic in terms of the funding likely to be available and of the need for schemes to represent good value for money. We have therefore identified only a small number of potential major schemes, summarised below, that

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we are confident represent good value for money in delivery local and national priorities. Not all will be ready for the second Local Transport Plan, but they have emerged during the development of our longer term strategy.

We are making a formal bid for the A140 Long Stratton bypass as part of this provisional Local Transport Plan (see the business case report - a separate document with this Local Transport Plan). The Norwich Northern Distributor Road will constitute a bid in due course. The public transport smartcard and the Third River crossing in Great Yarmouth may also constitute bids pending further assessment work

We are also keen to progress a number of other improvements, including rural bypasses, and are therefore keeping these under review in the event of positive changes to funding levels or their value for money.

A140 Long Stratton Bypass (see business case report for details)

The A140 Long Stratton Bypass is a 5km length of predominantly dual carriageway road with associated junctions and bridges. Its principal objectives are to provide an improved link between South Norfolk and the Norwich Sub-Region and to provide congestion and environmental relief to the large village of Long Stratton. It also helps to deliver the need for improvements to the A140 in general, as identified in Table 8.3 of the draft East of England Plan.

The scheme will contribute to our Local Transport Plan objectives and the central/ local shared priority in the following way:

Congestion

- To reduce traffic congestion through the village of Long Stratton
- Promote more reliable journey times especially for commercial traffic.

Accessibility

- To improve strategic road links to the Norwich Sub-Region
- To improve access to local facilities by other modes
- To enable improvements to facilities for equestrians, pedestrians and cyclists in Long Stratton.

Safety

- To improve safety for all road users.

Environment

- To enhance the quality of life for the residents of Long Stratton and support the vitality of the village
- To improve local air quality and noise pollution
- To provide an enhanced setting for the built environment.

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Targets in the Local Transport Plan which the Long Stratton bypass will impact upon are:

- Best Value Performance Indicator (BVPI) 99 – Road traffic accident casualties
- No increase between 1994-98 and 2010 in the number of people slightly injured in road traffic accidents, despite increasing traffic levels
- 50% decrease between 1994-98 and 2010 in the number people killed or seriously injured in road traffic accidents
- 70% decrease between 1994-98 and 2010 in the number children killed or seriously injured in road traffic accidents
- BVPI 102 Public transport patronage - Increase bus patronage by 25% between 2003/04 and 2010/11
- BVPI 104 satisfaction with local bus services - Increase bus satisfaction levels to 60% by 2009/10
- LTP3 – Levels of cycling across Norfolk - Increase the number of cycling trips by 5% between 2004/05 and 2010/11
- LTP4 – Mode share of Journeys to school - To reduce the number of car journeys to school by 10% between 2005/06 and 2010/11.

Improvements to these targets will be brought about by the transfer of traffic to a new and safer road, better bus journey times through Long Stratton and the improvement in conditions in Long Stratton for other modes such as walking and cycling.

The expenditure profile for the preferred implementation strategy is shown in the table overleaf. It assumes that a public inquiry will not be necessary and that following a decision on funding in December 2005 works would commence very early in 2006 with the works being substantially completed and the road opened to traffic end of 2007 or early in 2008. The consultation period for the statutory orders will be completed by the end of October 2005 and shortly after this date we will be in a position to advise whether the Secretary of State has given notice of his intention to hold a public inquiry or not.

The expenditure profile for the alternative strategy is also shown in the table overleaf and assumes that a public inquiry will take place and that only essential advance works will be undertaken in 2006/07 with the works being substantially completed and the road opened to traffic in summer 2009.

Table 17.2 Preferred Expenditure Profile (Forecast outturn costs)

	Earlier preparation costs	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	Total £
Fees £	584,145	150,000	581,800	596,300	611,000					**2,523,245**
Land £	438,198	20,000	410,000	78,800	231,500	1,628,100	678,800	77,500		**3,562,898**
Works £			8,703,600	9,985,100	466,500					**19,155,200**
Total £	**1,022,343**	**170,000**	**9,695,400**	**10,660,200**	**1,309,000**	**1,628,100**	**678,800**	**77,500**		**25,241,343**

Table 17.3 Alternative Expenditure Profile (Forecast outturn costs) (Advance works only 2006/07)

	Earlier preparation costs	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	Total £
Fees £	584,145	90,000	188,000	553,000	567,000	580,900				**2,563,045**
Land £	438,198	20,000	20,500	420,300	161,500	220,800	792,000	1,478,600	103,200	**3,655,098**
Works £			385,600	6,601,500	10,274,000	3,077,300				**20,338,400**
Total £	**1,022,343**	**110,000**	**594,100**	**7,574,800**	**11,002,500**	**3,879,000**	**792,000**	**1,478,600**	**103,200**	**26,556,543**

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Norwich Northern Distributor Road

The Northern Distributor Road is a new road around the north of Norwich, connecting the A47 in the west to the A47 in the east. It is not, however, a bypass of the city, but is a road that will distribute traffic making orbital movements in the north of the city. In particular, its focus is to take traffic off unsuitable routes where, for example, there is greater conflict with pedestrian movements. As such it will be complemented by imposing traffic restrictions on some of those existing routes and giving greater priority to vulnerable road users and residents and provide the opportunity for environmental improvements in the city. We have consulted widely on the idea of a new road, as part of our consultation on a preferred Norwich Area Transportation Strategy, and followed this up with further extensive consultation on route options. We have completed most of the appraisal work, including environmental impact assessment, needed to inform a choice of route. We have been working with the Statutory Environmental Bodies, and expect to choose a preferred route in September. The objectives of the new road are set out in Chapter 12 as:

- Reduce congestion on strategic routes to the north of the city
- Reduce noise, air pollution and accidents for communities in the northern suburbs of Norwich and villages outside
- Enable the removal of through traffic from the city centre, and implementation of widespread pedestrianisation / bus priority measures
- Provide direct access to growth locations, helping to deliver significant housing and employment growth
- Support the continued success of the Norwich economy as the driver to growth across the north of the region
- Provide improved access to north and north east Norfolk.

How the scheme meets policy objectives

The draft East of England Plan states that the Norwich sub-region “suffers from a severe infrastructure deficit” and that a Northern Distributor Road “is essential to improve the quality of life in residential areas, aid rural regeneration, enhance links to strategic employment areas, facilitate urban expansion, and improve access to Norwich International Airport.” The Northern Distributor Road is one of five schemes having regional priority status in the draft Regional Transport Strategy. It should also provide assistance with economic development in parts of North Norfolk such as North Walsham and Fakenham.

The Northern Distributor road supports regional and local policy as follows:

Regional Transport Strategy objectives:	It will do this by providing a high quality road link between the trunk road network and locations around, and to the north of, Norwich including Norwich International Airport, locations of new housing growth and existing areas of employment. It will address
• Improve opportunities for all to access jobs, services and leisure / tourist facilities • Enable infrastructure programmes and transport service provision to support both existing development	

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(addressing problems of congestion) and that proposed in the spatial strategy (economic regeneration needs and further housing growth).	problems of congestion by reducing traffic on key routes such as the Norwich outer ring road.
Regional Transport Strategy aims • Supporting Norwich as a Regional Interchange Centre, by providing opportunities to enhance the public transport provision. • Enhancing access to the airport	It will support this by allowing improvements to be made to public transport on existing routes, following traffic reductions achieved by a new road, and provides a high quality road link to the airport.
Regional Economic Strategy for the East of England Goal Four High quality places to live, work and visit: • Ensuring a suitable supply of homes to support economic growth • Ensuring the provision of social and transport infrastructure • Enabling renaissance and regeneration of the region's communities Goal Six: Making the most from the development of international gateways and national and regional transport: • Taking advantage of the opportunities from sustainable airport expansion in the region	A Northern Distributor Road will help to bring forward housing growth by providing infrastructure requirements. It will assist public transport provision and enable Norwich to develop as a sustainable community by allowing implementation of the full Norwich Area Transportation Strategy. In particular, it will facilitate bringing forward schemes in the city centre to remove through traffic and extend the pedestrian dominance of the area. It will bring improvements to residential roads and minor rural roads by removing traffic using these routes as a cut through. A Northern Distributor Road provides a high quality road link between the airport and the trunk road network

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	south of Norwich. This will assist transport connections to the airport, removing traffic from residential roads.
Local Transport Plan strategy objectives:	
Improve strategic accessibility into Norfolk	It will do this by providing a high quality road linking the north and north east of Norfolk to the main trunk road network
Improve access to key services, facilities, and opportunities, especially for those most in need	It will do this by providing a high quality road link to the airport, and facilitating access to housing growth areas, employment and industrial areas around the north of Norwich
• Facilitate integration between modes	The Northern Distributor Road will free road space on other roads, allowing improvements to public transport, and will itself connect with park and Ride sites and the airport
• Reduce the number and severity of congestion incidents, especially where it affects public transport	It will do this by removing traffic from other roads
• Improve journey reliability, especially for public transport.	It will do this by reducing congestion on roads used by public transport
• Improve local air quality	It will do this by reducing traffic on residential roads in and around the north of the city
• Minimise the adverse impacts of transport provision on the built and natural environment	It will do this by removing through traffic from key routes, allowing us to carry out complementary measures in

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	the historic city centre and rural and village streets in and around the north of Norwich.
• Reduce the number and severity of accidents	Our work shows that it will save up to 44 accidents per year, saving £2.7 million per year
Local Transport Plan targets	
BVPI99x, y and z: Road accident casualty reduction targets	Our work shows that it will save up to 44 accidents per year
BVPI102 Public transport patronage	It will allow improvements to be made to public transport, following reductions in traffic on public transport routes
LTP5: Bus punctuality	It will allow improvements to be made to public transport, following reductions in traffic on public transport routes
LTP6: Changes in peak period traffic flows into Norwich	It will provide an alternative route around Norwich
LTP8a: Changes in motor traffic crossing the Norwich Inner Ring Road cordon	It will provide an alternative route around Norwich
Local indicator 3: journey time reliability on key roads in Norwich	It will reduce congestion on key routes by reducing traffic levels on them

Scheme Development

The Northern Distributor Road forms an essential part of our Norwich Area Transportation Strategy. This strategy has recently been reviewed, and was the subject of extensive consultation in autumn / winter 2003. This consultation showed widespread support for a Northern Distributor Road as part of the strategy, with some 78% of respondents supporting it. We have continued to develop the scheme, carrying out a consultation on routes in winter 2004. Following our work on Environmental Impact Assessments on the routes, working closely with the Statutory Environmental Bodies, we will be selecting a preferred route in September.

The Northern Distributor Road has very good performance in economic terms with benefit to cost ratios for the routes in the range 2.8 to 3.9. The scheme represents very good value for money as set out in recent government guidance on value for money and by all accounts would justify its construction through government funding.

Spend profile

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The estimated cost of the Northern Distributor Road is £120-137 million at 2002 prices (allow 3% inflation to 2004 prices if needs be)

The spend profile is as follows, although the costs for previous years also include development of parts of the Norwich Area Transportation Strategy.

We will be examining a range of potential funding options, including through Private Finance Initiative and major scheme bid through the Local Transport Plan.

Year	Expenditure (£k)
up to 2004/5	600 (estimated)
2004/5	640 (actual)
2005/6	1060 (forecast)
2006/7	1150
2007/8	950
2008/9	1200
2009/10	1000
2010/11	1000
Total	**£7,600k**

Countywide Public Transport Smartcard

The County Council is keen to develop a regional Smartcard scheme. This will support a fully integrated public transport network which joins conventional and unconventional transport modes, tackles the lack of available card reading infrastructure amongst operators and offers customers the opportunity to enjoy a seamless travel experience. There may also be an opportunity to develop the Smartcard scheme to link in with other government initiatives such as the Youth Matters Opportunities Card and enhance the major scheme by including at other neighbouring council councils.

Third River Crossing in Great Yarmouth

A Third River Crossing in Great Yarmouth is a lifting bridge across the River Yare near Southtown. This has been evaluated, as recommended in the Government Office A47 Norwich to Great Yarmouth 'roads-based' study, using a traffic model based on summer and autumn data for 2003.

The results to date have shown that the scheme will contribute to our Local Transport Plan objectives in the following way:

- Contribute strongly to reducing congestion, especially at key junctions into the area
- Is likely to assist in ensuring that an Air Quality Management Area will not need to be declared

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- Could reduce overall vehicle mileage and contribute to reducing CO2 emissions
- Will provide enhanced accessibility to and from the Great Yarmouth peninsula (the enhanced accessibility is recognised by the major bus operator and they believe it will enable them to provide more reliable and flexible services)
- Would also remove some traffic from the town centre, making further environmental enhancements possible and helping to regenerate this regional priority
- Would provide improved access to the outer harbour development proposals
- Is good value for money, with a benefit to cost ratio of between 9 and 12.

Stakeholder consultation during the development of this provisional Local Transport Plan has indicated wide support for a Third River Crossing. Detailed feasibility and development work will be undertaken on options during the next Local Transport Plan with a view to submitting a bid in the third Local Transport Plan period.

Although we are not expecting to set a congestion target for Great Yarmouth in the second Local Transport Plan it is likely that we shall in the third and that target will be stretched if a Third River Crossing goes ahead. Similarly, existing public transport targets could be stretched in the third Local Transport Plan.

Transport Innovation Fund

The Transport Innovation Fund was established by the Department for Transport to support imaginative, bold, innovative and coherent solutions to congestion over and above what could be funded from mainstream budgets. The solutions should broadly be a combination of improved local bus services and demand management measures. The Transport Innovation Fund is the only Government transport funding stream likely to see any significant increase over the next few years.

Norfolk County Council, along with most local transport authorities, expressed an interest in the Transport Innovation Fund to the Department for Transport in early 2005. We expressed an interest in how the Transport Innovation Fund could help with the implementation of Norwich Area Transport Strategy, including the Northern Distributor Road.

In the first Local Transport Plan, the delivery of the Norwich Area Transportation Strategy has ensured that Norwich is one of the few urban areas in the UK to achieve actual reductions in traffic. The traffic crossing the inner ring road has fallen by 18% and the traffic crossing the outer ring road has increased by only 1% compared to the levels in 1995. Implementation of the Council's bus strategy and the delivery of park and ride around the edge of the city has played a major part in this success. Norwich now has more park and ride spaces than any other town or city in the UK. This progress will be challenged over the next few years by the major growth in activity expected in the Norwich area.

In the second Local Transport Plan the aim in the first half of the plan period is to stabilise traffic levels in the city centre through continued promotion of, and improvements to, bus services and park and ride. In the second half of the plan period we aim to reduce further the city centre traffic

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by selective extension of pedestrianisation and traffic management to improve the quality of the city centre environment and accessibility for pedestrians, cyclists and bus users. This is also likely to include changes to the inner ring road to accommodate some of the displaced traffic.

However, beyond the next 5 years, the existing infrastructure will simply not be able to cope with the expected growth in activity and traffic. Continuing efforts to stabilise or reduce traffic and associated congestion will become increasingly difficult. The Norwich Sub-Region will be expected to accommodate considerable housing and economic growth up to 2021; around 45,000 new homes. Norwich urban area will need to accommodate around 27,000 of these, including a likely significant urban extension on the North-East of Norwich. Norwich will therefore grow by more than any other town or city in the East of England Region.

The recent review of the Norwich Area Transportation Strategy, using the up-dated predictive traffic model, identified increasing delays across the city. The delivery of the Norwich Northern Distributor Road and complementary elements of the strategy (such as large scale improvements to bus services) will help both to deliver the housing and economic growth in the city whilst reducing the impact of the associated traffic growth and its impact. The Northern Distributor Road has a key role in removing a significant amount of through traffic from the city centre, relieving inappropriate roads in the northern suburbs and providing strategic access to Norwich airport and north east Norfolk.

Further work will need to take place over the coming months on how this strategy will be delivered and funded. Our current policy position (contained within NATS and also Policy 22 in Chapter 9 of this Local Transport Plan) is that we should keep charging options under-review. In submitting a major scheme bid for the NDR in due course, we recognise the need to demonstrate we have given consideration to alternative and complementary approaches, and to the scope for exploiting funding contributions from other sources. We are therefore keen to explore with Government how the Transport Innovation Fund can help fund the strategy, particularly the required revenue and capital needed for the NDR and improvements to local bus services. As a first step, we are looking for support from the TIF pump priming fund to meet the cost of the necessary feasibility work.

With Norfolk County Council's track record in delivery as a National Centre of Excellence we are confident that, given the funding, a package of solutions can be developed and delivered that will act as a best practice model for other parts of the UK.

Demonstration or Pilot Projects

We are currently developing ideas for delivering progressive and innovative solutions to two key transport issues in Norfolk. These should represent good value for money and will enable us to disseminate best practice to other local authorities as part of our responsibilities for being a national Centre of Excellence for local transport delivery. The ideas will be developed further and we will discuss them with Government Office between July 2005 and March 2006 are:

A11 Besthorpe Junction.

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The A11 / B1077 Besthorpe improvement scheme is being jointly developed with the Highways Agency to meet both strategic and local needs, partly in recognition that people make use of strategic and local roads during their journey. The current A11 junction arrangement forces traffic, including heavy goods vehicles, through the town centre of Attleborough. The absence of the ability to make all turning movements is holding back traffic management and pedestrian improvements in the town centre which would benefit the existing residents in terms of reduced congestion, better air quality and increased accessibility. Future expansion of the town is expected as Attleborough, being on the A11 corridor, is a prime location in which Breckland District Council may choose to provide some of their housing allocation.

To minimise disruption to the road user, the scheme is being progressed in conjunction with the proposed Highways Agency scheme to dual the A11 Attleborough Bypass. As well as minimising congestion by joint agency co-ordination, value for money is to be achieved through reducing the contractor's set up costs as May Gurney are an integral part of the Norfolk County Council Partnership and also the contractor for the A11 dualling. It is anticipated further cost savings will be achieved by co-ordinating the works. Further innovative joint arrangements will be examined for their cost saving potential.

Wider use of bus lanes.

As well as use of our BusNet system to help determine areas of congestion, we are also examining innovative measures to tackle congestion in Norwich. We have examined whether we could make better use of the roadspace by introducing lanes dedicated for one or all of buses, freight vehicles, high occupancy vehicles and motor bikes. We have examined whether such lanes could be introduced as new lanes, or whether any of our existing bus lanes could be changed. The analysis showed potential routes in Norwich where there could be merits for such a scheme, and we are considering whether to take this forward. If the proposals are agreed, we may be making a bid for funding to implement the measures, as demonstration or pilot projects.

Targets and Trajectories

A series of targets were identified in the thematic strategies following a comprehensive analysis of each theme, and bearing in mind the funding likely to be available between 2006 and 2011. These are shown in the Figure 17.1. The implementation programme will deliver the improvements that will move us towards achieving those targets. The trajectories for this progress are also shown.

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LTP Performance Indicator		Baseline	Target
BVPI 99x	Number of people killed or seriously injured in road traffic accidents	863 1994-98	50% reduction by end of 2010
BVPI 99y	Number of children killed or seriously injured in road traffic accidents	90 1994-98	70% reduction by end of 2010
BVPI 99z	Number of people slightly injured in road traffic accidents	3134 1994-98	No increase by end of 2010
BVPI 102	Public Transport Patronage: Total local public transport journeys per year by bus only or by bus and other selected local public transport modes	25.52 million 2003/04	25% increase by end of 2010/11
BVPI 104	Bus Satisfaction: % of all users satisfied with the local bus service	46% 2003/04	60% by 2009/10
BVPI 187	Footway Condition: % where structural maintenance should be considered	36.41% 2004/05	Only 35.81% by end of 2010/11
BVPI 223	Principal Road Condition: % where structural maintenance should be considered	33.2% 2004/05	No deterioration by end of 2010/11
BVPI 224b	Unclassified Road Condition: % where structural maintenance should be considered	19.19% 2003/04	No deterioration by end of 2010/11
LTP 1	Accessibility Indicator	2005/06	To be determined
LTP 2	Change in area wide road traffic mileage: million vehicle kilometres	7902 (2003) 2003/04	Limit to current levels of growth by end of 2010/11
LTP 3	Number of cycling trips	3004 2004/05	5% increase by end of 2010/11
LTP 4	Modal share of journeys to school (reduction in the number of car journeys to school)	2005/06	10% reduction by end of 2010/11
LTP 5	Bus Punctuality: Percentage of services one minute early to five minutes late	74% 2003/04	90% punctuality by end of 2010/11
LTP 6	Changes in peak period (0700-1000) traffic flows into Norwich	14655 (2003) 2003/04	5% reduction by end of 2010/11 (2010)
LTP 8	Pollutant concentrations in Air Quality Management Areas: NO_2 annual mean	46-48 µg/m^3 2005	Less than 40 µg/m^3 by end of 2010/11
LTP 8a	Motor traffic crossing the Norwich Inner Ring Road cordon (0700-1900)	96285 (2003) 2003/04	5% reduction by end of 2010/11 (2010)
LTP 8b	Motor traffic at central locations in King's Lynn (0700-1900)	2005/06	To be determined
LTP 8c	Vehicle fleet composition: % of private car fleet composition Euro IV standard	1% 2003	40% by 2010
Local Indicator 1	The annual total number of passenger journeys made on Demand Responsive Transport services	122.2 thousand 2003/04	161.0 by end of 2010/11
Local Indicator 2	Carbon dioxide emissions from road traffic (thousands of tonnes)	544.2 2001/02	10% reduction by the end of 2010/11
Local indicator 3	Journey time reliability on key roads in Norwich	2005/06	To be determined

Figure 17.1 Targets and Trajectories

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2006/07	2007/08	2008/09	2009/10	2010/11	Priority in Medium Term Plan
520	498	476	453	431	-Strengthen contribution to road safety
34	33	31	29	27	-Strengthen contribution to road safety
3134	3134	3134	3134	3134	-Strengthen contribution to road safety
30.40	30.77	31.14	31.51	31.89	-Better travel and transport around Norfolk -Help business to develop and improve transport and IT links
54%	56%	58%	60%	62%	-Better travel and transport around Norfolk
36.41%	36.26%	36.11%	35.96%	35.81%	-Better travel and transport around Norfolk
33.2%	33.2%	33.2%	33.2%	33.2%	-Better travel and transport around Norfolk
36.4%	36.4%	36.4%	36.4%	36.4%	-Better travel and transport around Norfolk
					-Reduce urban and rural deprivation
8319	8463	8610	8759	8911	-Land use planning and accessibility for new housing -Leading to reduce climate change
3053	3078	3103	3129	3154	-Better travel and transport around Norfolk
					-Better travel and transport around Norfolk
81%	83%	85%	87%	90%	-Better travel and transport around Norfolk
14655	14655	14411	14167	13922	-Better travel and transport around Norfolk
N/A	N/A	N/A	N/A	< 40 $\mu g/m^3$	-Protect and sustain the environment
96285	96285	94680	93076	91471	-Leading to reduce climate change -Protect and sustain the environment
					-Leading to reduce climate change -Protect and sustain the environment
18%	23%	29%	34%	40%	-Protect and sustain the environment
150.3	152.9	155.5	158.2	161.0	-Leading to reduce climate change -Protect and sustain the environment
513.9	507.9	501.8	495.8	489.8	-Leading to reduce climate change -Protect and sustain the environment
					-Better travel and transport around Norfolk

17. Implementation programme 2006 to 2011

The guidance for the second Local Transport Plan expects local authorities to develop local targets to reflect any regional targets in the draft Regional Transport Strategy. The Regional Transport Strategy in its final form will play a key role in all of the Local Transport Plans for the East of England through setting out the long-term planning and policy framework, and identifying regionally and sub-regionally significant investment proposals. However, at the time of writing the Provisional Local Transport Plans, the strategy is only in a draft form and has yet to be considered at Public Inquiry.

Through the East of England Directors of Environment and Transport Local Transport Plan group, all of the Local Transport Authorities in the East of England have discussed how best to take forward the draft Regional Transport Strategy in their Local Transport Plans. It was agreed that, although the more strategic elements of the plan should be incorporated into each authorities' Local Transport Plan, it would not be possible to take forward the targets or some elements of the regional programme in the provisional Local Transport Plans.

There are two reasons for this:

- The programme within the draft Regional Transport Strategy was drawn up at a time when the level of funding available regionally was unclear. The announcement by government that Regional Planning Guidelines will be provided by the summer of 2005 means that the final Regional Transport Strategy will be able to provide a more realistic programme, but the elements of this are not known at this time.
- The targets contained within the draft Regional Transport Strategy were developed at a time when thinking regarding the way that transport targets should be set had not fully evolved. Consequently, many of the targets within the draft strategy are aspirational in nature and would prove difficult or impossible to monitor. From the point of view of Local Transport Plans, such targets contradict government guidance which call for all targets to be realistic, measurable and achievable. The availability of regional funding guidelines will mean that a review of the targets can be informed by a realistic funding regime. Until final regional targets are established it is impossible for the local transport authorities to collectively allocate their respective contributions and so set their local targets.

It is sensible and more efficient to wait for this process to roll out and work proactively with the regional institutions to develop a deliverable programme and realistic targets and indicators in the light of the funding guidelines. The East of England Directors of Environment and Transport Local Transport Plan Group has already been preparing for this and the imminent Examination in Public. For example, by making some assumptions the Local Transport Plan Group has been able to start reviewing the investment proposals in the Regional Transport Strategy to determine a more realistic delivery programme ahead of the Examination in Public.

In the interests of achieving value for money and spending public money wisely, all the local authorities in the region will therefore delay introducing regionally based targets into their Local Transport Plans or setting up monitoring regimes to support regional targets and indicators until

17. Implementation programme 2006 to 2011

there is greater certainty about which performance indicators will finally be adopted and the stretch of the related targets. All members of the Local Transport Plan Group look forward to supporting the performance indicators and targets when the final East of England Plan is available.

Commentary on Indicator and Monitoring regime

BVPI 99x, BVPI 99y, BVPI 99z Casualty reduction

We are using the recommended 1994-98 baseline for these indicators and data from the Police STATS19 system to monitor progress. Although ours targets for BVPI99x and BVPI99y are more stretching than the minimum standard, our progress to date might suggest that we could stretch them further. However, we are not doing so because we have tackled most of the accident cluster sites already and so further improvements are likely to be more difficult and costly to achieve with a reducing rate of progress. We do not have a stretching target for slight casualty reduction because these tend to be more related to overall traffic volumes for which we expect a continuing increase.

BVPI 102 Public transport patronage

We have used the recommended baseline year of 2003/04 for this indicator and will monitor with patronage data from operators. The data for 2004/05 has shown a marked increase in patronage over the baseline which is likely to be due new Park and Rides that have come into operation. The trajectory for the remainder of the period shows a more modest increase year on year due to general increases in patronage. Overall we consider this target to be stretching but feel it is achievable because of the previous increase we have witnessed from implementation of Park and Ride and other countywide improvements.

BVPI 104 Bus satisfaction

We have used the recommended baseline year of 2003/04 for this indicator and will monitor it by quarterly telephone surveys. Our target for the required horizon year of 2009/10 is 60% and we also expect to see further improvement so we are showing a projected target figure of 62% by 2010/11. We also have an interim Local Public Service Agreement target of 54% for 2006/07. The trajectory therefore reflects the enhanced performance over the next year to achieve the Local Public Service Agreement target. Locally we believe this to be a stretching target on the basis that user satisfaction is presently very low as indicated by the baseline figure of 46%.

BVPI 187 Footway condition

A baseline year of 2004/05 has been chosen for this indicator rather than 2003/04 because the survey technique was only accredited in 2004/05. However, because it takes two years to sample the whole of Norfolk, it may be necessary to review the baseline and target to reflect the 2005/06 survey results. The trajectory is to hold the percentage of footways needing attention steady until 2006/07 and then to reduce the percentage by 0.15 of a percentage point each year until 2010/11.

17. Implementation programme 2006 to 2011

Our key actions for maintenance of both footways and roads is to implement schemes as economically as possible using the benefits of our strategic partnership with consultant Mott MacDonald and contractor May Gurney. For the larger schemes we do not believe the savings could be sufficient to enable us to implement additional works, hence the no deterioration target for roads. However, we believe a modest improvement in overall footway condition is possible because, as they are smaller in scale, potentially the savings could provide funding for additional works.

BVPI 223 Principal road condition

The new SCANNER technique is now used for this survey which yields a 33.2% figure compared to the 5.8% figure from the previous coarse visual inspection method (see above for explanation of trajectory).

BVPI 224b Unclassified road condition

The recommended baseline year of 2003/04 is used for this indicator but the baseline value has been taken from the average of the last three years because of the geographical distribution of the survey areas. However, in future a more representative sample is to be used to produce more typical results each year. The survey technique for this indicator is coarse visual inspection but this is likely to change to the SCANNER technique in 2007/08 at which time it may be necessary to review the baseline and target values to reflect the differences results between the two methods.

LTP 1 Accessibility indicator

We are still working on an accessibility indicator and will present this in the final Local Transport Plan in March 2006.

LTP 2 Area wide road traffic mileage

Area wide road traffic mileage has increased steadily in Norfolk over the last 10 years equivalent to the East of England average. We will monitor this indicator by using the published data from the National Road Traffic Survey. Being a very rural county, measures to reduce road traffic mileage are likely to be difficult to achieve. In view of this we would not expect to be able to reverse this trend. Our target is therefore not to allow area wide traffic to increase at a higher rate than at present. In the context of the anticipated step-change in housing growth for Norfolk in the draft East of England Plan we feel we can consider this target as stretching. Although this indicator is regarded as a proxy for climate change, we will monitor these separately with local indicators

LTP 3 Cycling trips

The monitoring regime for this indicator will use results from a selection of automatic cycle counters at representative sites across Norfolk. The baseline will be 2004/05 as there is insufficient automatic counter data for 2003/04. A baseline figure and a target representing a 5% increase by 2010/11is

17. Implementation programme 2006 to 2011

specified. However, additional automatic counters are being installed for a greater coverage and to embrace the market towns. In view of this the baseline and target figures will be revised during the course of the Local Transport Plan to include these additional sites.

LTP 4 Journeys to school

Although a target is not yet required for this indicator, analysis of data from schools that we have been working with has enabled us to understand the level of improvement we are likely to make if we extend the work to all of the schools in Norfolk. In view of this we feel that we could expect to reduce the number of car journeys to schools by 10% for the same number of pupils.

LTP 5 Bus punctuality

In this provisional Local Transport Plan we are showing a baseline and trajectory for the percentage of services one minute early to five minutes late. We do intend to improve this indicator by providing the other 3 key percentages and expect to have this baseline data for the final document. The monitoring will be undertaken by manual roadside observation surveys.

LTP 6 Peak period traffic flows into Norwich

Over recent years we have seen a reduction in peak period traffic flows crossing the inner ring road of Norwich to access or pass through the city centre. This is likely to have been as a result of the success of our park and rides, traffic management measures and parking policies. We expect further reductions in these traffic levels and have a target of a 5% reduction by 2010/11. The trajectory for this reduction is flat for the early years of the Local Transport Plan period with the reductions occurring in the later years. The reason for this is that we intend to implement measures to discourage through traffic but these are not likely to be in place until later in the period. We believe this to be a stretching target because it involves an absolute reduction and the implementation of measures to discourage through traffic will need further detailed consultation.

We intend to monitor this with data from manual classified traffic counts which have been undertaken annually since 2001. In line with current guidance, we intend to supplement these counts with some automatic traffic counters on the busiest roads to enable the counts to be adjusted to reflect a longer monitoring period.

LTP 8 Pollution concentrations in Air Quality Management Areas

We will continue to work with the district council who monitor NO2 concentrations in Air Quality Management Areas.

LTP 8a Traffic crossing Norwich inner ring road cordon

This is a proxy for mandatory indicator LTP8 for the Air Quality Management Areas that have been declared in Norwich since they lie within and around the ring road. This indicator is similar to LTP6 and the comments made for that are applicable.

LTP 8b Traffic at central locations in King's Lynn

17. Implementation programme 2006 to 2011

This will be a proxy for mandatory indicator LTP8 for the Air Quality Management Area in King's Lynn. Traffic counts will be undertaken in and around the declared Air Quality Management Area. Baseline data will be collected in July 2005 and these figures will be include in the final Local Transport Plan.

LTP 8c Vehicle fleet composition

This is a general proxy for mandatory indicator LTP8. We will monitor this by analysing vehicle fleet registration data. The target for 2010 is slightly better than predictions for vehicle fleet turnover and we expect to achieve this by measures to encourage a faster turnover to less polluting vehicles.

Local Indicator 1 Passenger journeys on demand responsive transport

This local indicator is the number of demand responsive transport journeys and is designed to measure our performance in encouraging/ providing Demand Responsive Transport which is a key tenet of our bus strategy. The data is collated from information provided by operators and we have used the recommended 2003/04 baseline. For this local indicator we have a Local Public Service Agreement target which represents an increase of 23% by 2006/07 and we have extended this for the end of Local Transport Plan to period a 32% increase.

We believe this to be stretching indicator as it will rely very much on successful partnership with the voluntary sector and a willingness for operators to take up the incentives on offer to provide Demand Responsive Transport.

Local Indicator 2 Carbon dioxide emissions from road transport

We will use vehicle fleet data and average CO_2 emissions combined with area wide road traffic mileage to determine amount of sequestration required. CO_2 emissions reductions (tonnes) will be calculated ad hoc for each measure delivered.

Local Indicator 3 Journey time reliability on key roads in Norwich

This is an important local indicator to enable us to monitor congestion levels in Norwich. To do this we will use data from our BusNet tracking system that relates to key radial and ring roads. We are presently assimilating data to enable use to understand how best to use it and to help us determine a suitable target for inclusion into the final Local Transport Plan. We may extend the use of this indicator to other urban areas in Norfolk.

How we will achieve these targets

The key actions and policy interventions of ourselves and our delivery partners are covered in Chapters 6 to 10.

17. Implementation programme 2006 to 2011

Reviewing trajectories

In our first Local Transport Plan, good progress towards our targets enabled us to stretch a number of them, including casualty reduction and public transport use. We have again stretched these as part of our second Local Public Service Agreement so that we are constantly challenging ourselves to do better. We still feel there is room for improvement in how we manage our performance strategically and we are currently investigating options to achieve this. Be that as it may, the primary opportunity to review performance to ensure we are on track is as part of the Annual Progress Reporting framework.

Key risks

The main risks that, if they materialise, could prevent us meeting our targets are:

Funding

If we secure less funding than anticipated, we will need either to:

- review our strategy to identify if there are ways to meet our targets more cost effectively, or
- consider alternative sources of funding, such as from the County Council's own resources.

Impact - This would impact on all of our targets.

Action - The key is to ensure we get a good assessment of the Local Transport Plan.

Delivery partners

Key delivery partners, on whom we are partly dependent for some targets, could reduce their commitment in the event of change in prevailing circumstances.

Impact - This will impact mainly on public transport related targets

Action - We will continue to work proactively with delivery partners, especially the bus operators, through initiatives such as Quality Bus Partnerships, to promote mutually beneficial policy interventions.

Growth

There could also be a failure properly to integrate spatial, economic, and transport planning. This could result in increased travel, especially by car, because of dispersed development and associated travel patterns.

Impact - This would impact on most targets through increasing car use and reducing the modal share of alternative means of transport

17. Implementation programme 2006 to 2011

Action - We will implement Policy 2 of the Local Transport Plan on integrating spatial, economic and transport investment; "priority will be given to transport investments that integrate with and deliver housing and economic growth opportunities". We will continue to work proactively with regional institutions and processes, and with local planning authorities, especially in support their local development frameworks.

Next steps

This version of the Local Transport Plan, submitted to the government in July 2005, is provisional. In March 2006 we need to submit to the Government a final version. Between July 2005 and March 2006 we will therefore continue to develop aspects of the Local Transport Plan. Key actions will include:

Consultation

In autumn 2005, we will carry out a major consultation exercise on the provisional five-year implementation programme in Chapter 17. This will be integrated with consultations on the Transport Asset Management Plan to inform its further improvements. The consultation will be supplemented the Final Environmental Reoprt, which will describe the effects of the programme as assessed through both Strategic Environmental Assessment and New Approach To Appraisal. We will also consider using other impact assessment methods such as a Health Impact Assessment and one that assesses the social distributional impacts.

Accessibility planning

With regard to accessibility planning, our current thinking on how the work carried out to date will be used to derive local area action plans is described below.

Firstly, we will develop a long list of potential action areas. This is a 'long list' that is based on the outcome of the countywide accessibility mapping audit. The aim is to take this list and critically examine it to question why each area has been identified and whether there are areas that other knowledge sources indicate should be identified. We will then consult local communities and service providers to understand what accessibility problems are experienced and perceived. From this additional information we will define the accessibility action areas and also finalise any countywide actions to improve accessibility. The County Strategic Partnership will be asked to give a steer in shortlisting the priority areas and identifying potential cross-sector actions. We will also work with our Corporate Medium Term Plan Steering Group for tackling urban and rural deprivation.

Once the action areas have been chosen local accessibility action plans will be developed with partners, including Local Strategic Partnerships and service providers, which set out in detail how the identified accessibility problems will be tackled and the objectives achieved. A local indicator to monitor the success of interventions will also be defined for each of the action areas.

Feedback from Government

We will also consider revising aspects of the Local Transport Plan in the light of the Government's assessment of this provisional version.

Appendix A - Assessment criteria

The assessment criteria and sub-criteria

This appendix outlines the government's criteria for assessing the Local Transport Plan. For each criterion we have indicated in italics where in the document we have provided the evidence.

- The Plan reflects the long-term vision of local authorities serving the plan area, and a long term local transport strategy consistent with that vision. *Chapter 4, especially the vision and table 4.1. This feeds through the thematic strategies. See also the area strategies, especially the vision and introduction for each.*
- The delivery programme, and LTP objectives and targets, are consistent with the full range of local policy aims and objective and the outputs of the wider local corporate planning framework (e.g. corporate plans, community strategies and Best Value performance plans). *Table 4.1 in chapter 4, and tables 6.1, 7.1, 8.2, 9.1, and 10.1 in the thematic strategies.*
- The Plan will influence, and will therefore be broadly consistent with, other decisions of local authorities in the area covered by the LTP - for example, in housing, planning, economic development, education and social services. *Policy 6, chapter 6, area strategies chapter 12 to 15, accessibility planning in chapter 7.*
- The Plan is broadly consistent with, and will influence the development of, spatial planning and economic development strategies produced at the regional level. *Most of chapter 6, introductions and especially background analyses in chapters 12,13 and 14.Also targets and trajectories in chapter 17.*
- The Plan is consistent with relevant national-level policies - in particular as they relates to strategic transport networks and their users, the environment, sustainable communities, and economic development. *Policy context at beginning of each of chapters 4, 6 to 10. Chapter 6 (but also chapters 12 to 15) covers strategic transport networks, sustainable communities and economic development. Chapter 9 covers environment.*

- The Plan contains appropriate analysis relating not only to existing local transport problems, but also to possible emerging problems, and to opportunities to deliver a better quality of life to local communities. *Existing problems covered in background analyses in chapters 6 to 10, and 12 to 15. Also chapter 4 table 4.2. Emerging problems are also covered i these, but especially chapter 6.*
- The Plan's analysis of problems and opportunities is fully informed by the existing evidence base, including the past experience of the Plan authorities and others. *Background analysis in chapters 6 to 10, and 12 to 15. Also chapter 3.*
- The Plan's analysis avoids making assumptions that are not necessarily supported by evidence. *Should be a clear links between the policy context, evidence, priorities and onto policies for each strategy.*
- The Plan analysis is informed by consideration of the full range of people, communities, public services and businesses affected by the Plan. *All of the document is relevant, but especially: For businesses - policies 12,13 and 14 and access to jobs in accessibility planning (chapter 7), policy 28 in chapter 9, as well as much of chapter 6; Public services - chapter 6 and accessibility planning in chapter 7; People and communities - most of chapter 7, especially*

Appendix A - Assessment criteria

accessibility planning, vulnerable road users in chapter 10, and area strategies chapter 12-15 focus on communities.

- The Plan addresses problems and opportunities across the full range of transport modes used in the area - including car travel, walking, cycling, public transport, taxis and private hire travel, distribution of freight, the use of public service vehicles, coach travel, motorcycling, wheelchair use and horse riding. *Horse riding - supporting text of policy 7 and also right of way section in chapter 17. Freight - policies 12, 13 and 14, and freight section of chapter 9. Car travel - policies 12, 15 and 22. Walking and cycling - policies 7, 9, 10, 19, 34. Public transport - policies 8, 9, 10, 11, 18 and 19, plus policy 18 and supporting text, and bus section of chapter 9. Coach travel - chapter 6, page 40. Motorcycling - policy 16. Taxis - policies 8 and 17 with supporting text. Wheelchairs - policies 9 and 17.*
- The Plan makes appropriate use of analytical techniques (e.g. modelling and accessibility planning) , and air quality assessment. *Chapter 8, section on data and user analysis. Chapter 7, section on accessibility planning. Chapter 10, section on data and user analysis and figure 10.1. Chapter 9, section on data and user analysis. Appendices B and D. Chapter 12, background analysis. Chapter 13, seasonal and daily congestion. Chapter 17, major schemes.*
- The Plan demonstrates that the environmental impact of Plan schemes and policies has been fully considered and that the LTP will take opportunities to improve the environment (e.g. through the inclusion of selected analysis produced in support of a Strategic Environmental Assessment.) *Chapter 9, Appendix D, Chapter 4 especially the section on overall strategic approach*
- The Plan analysis has sought to identify and prioritise the local transport policies and schemes that would deliver the best possible value for money. *Chapter 4, 6 to 10 - all have priorities based on value for money considerations*
- Every opportunity will be taken to make the best use of existing assets, both to avoid the need for new or upgraded infrastructure and to maximise the benefits of new or upgraded infrastructure. *Chapter 8, policies 19 to 23. Chapter 10, policy 32*
- The Plan would maintain assets in a cost-effective way, and that asset maintenance will be informed by LTP objectives and targets. *Chapter 16*
- The Plan adequately considers (in the context of local circumstances) a range of potential options for delivering congestion, pollution and road safety benefits through managing demand for travel by road and influencing travel behaviour. *Chapter 4, section on information and choice. Chapter 6, delivering sustainable growth and reducing the need to travel. Chapter 10, policies 32 and 34. Chapter 9, policy 28 and better information.*
- The Plan demonstrates how the Network Management duty will be implemented in a way that will maximise the value of existing transport networks. *Chapter 8, managing the network section.*
- The Plan is not just a capital investment plan, but demonstrates how opportunities will be taken to improve transport outcomes through the effective use of revenue budgets. *Chapter 17, Five-year programme, other funding sources.*
- The Plan is framed in a way that is consistent with a realistic view of funding from all sources - including the 'planning guidelines' provided by the Department - and does not contain unfunded aspirations. *Chapter 17, five-year programme*

Appendix A - Assessment criteria

- The Plan will implement a robust and effective approach to budgeting, the control of costs, and the securing of partnership funding from non-LTP sources. *Chapter 17, five year programme - other funding sources, and ensuring delivery and value for money*
- The Plan has been developed with the full and active participation of all relevant tiers of local government and all relevant departments or divisions within local authorities. *Chapter 2, working in partnership and community involvement. Chapter 4, preferred strategic approach. Chapter 6, delivering sustainable growth and reducing the need to travel, policies 4 to 6. Chapter 7, accessibility planning.*
- The Plan has been developed in a way that fully addresses local transport needs and opportunities across administrative boundaries. *Chapter 2, cross boundary working. Chapter 6, enabling growth and improving economic performance, policy 3.*
- The Plan has been developed with the active involvement of a wide range of interested local stakeholders - including companies delivering transport services, other local businesses, local public services, local communities and special interest groups - and where possible makes use of existing consultative and planning bodies (e.g. Local Strategic Partnerships, Rural Transport Partnerships). *Chapter 2, cross boundary working. Chapter 6, enabling growth and improving economic performance, policy 3*
- The Plan's policies and schemes with impacts on strategic transport networks have been developed with the other responsible agencies (e.g. the Highways Agency, other DfT delivery agencies, rail industry bodies, freight operators, operators of coach services). *Chapter 6, enabling growth and improving economic performance*
- The Plan targets have been set in a way that reflects the transport aims and objectives of the local authority or authorities involved, and the wider policy and planning context, instead of (for example) a predetermined transport investment programme. *Targets set as part of strategy development in chapter 6 to 10 (strategy and targets connected) following background analysis. Chapter 17, linking strategy and programme.*
- Development of the Plan has brought about a robust system for reviewing LTP targets to ensure they are, and will remain, realistic and challenging. *Chapter 17, targets and trajectories*
- The Plan targets will measure outcomes directly, or measure outputs demonstrably related to outcomes. *Chapter 17, targets and trajectories, especially the table*
- The Plan will include all relevant mandatory targets and indicators. *Chapter 17, targets and trajectories, especially the table*
- The Plan targets will be accompanied where possible by year by year trajectories, and a robust process will be in place for setting these trajectories and monitoring performance against those trajectories. *Chapter 17, targets and trajectories, especially the table*
- The Plan targets identify how the targets will be achieved, the key risks to the achievement of the targets, and how those risks will be managed. *Policies and strategies in 6 to 10. also chapter 12 to 15 show how they will be achieved. Chapter 17, targets and trajectories - key risks*
- The Plan contains evidence that the developing accessibility strategy will deliver accessibility objectives, and will ensure those strategies and objectives are addressed by the wider local policy and planning agenda. *Chapter 7, accessibility planning. Chapter 6, delivering sustainable growth and reducing the need to travel. Chapter 10 - policy 34*

Appendix A - Assessment criteria

- The Plan convincingly addresses current and emerging congestion problems using a range of policy tools (or provides convincing evidence that there are no such problems), and ensures that the need to address congestion levels is addressed by the wider local policy and planning agenda. *Chapter 6, delivering sustainable growth. Chapter 8, supporting policies*
- The Plan convincingly addresses current and emerging air quality problems - especially those in Air Quality Management Areas - that are related to local transport (or provides evidence that there are no such problems), and ensures that local transport related air quality problems are addressed by the wider local policy and planning agenda. *Chapter 6, delivering sustainable growth. Chapter 8, encouraging modal shift. Chapter 9. Appendix B.*
- The Plan will convincingly deliver better road safety outcomes, especially for vulnerable road users, through a range of policy tools, and ensures that the road safety objectives are addressed by the wider local policy and planning agenda. *Chapter 6, delivering sustainable growth. Chapter 7, policy 7 and supporting text. Chapter 10.*
- The Plan policies and schemes will demonstrably take all reasonable opportunities to deliver:

- - sustainable and prosperous communities. *Chapters 10, 12, 13, and 14*
  - enhanced, 'people-friendly' public spaces. *Chapter 7, policies 7 and 9 and text. Much of chapter 9, especially natural and built environment. Chapter 12, city centre. Chapter 14, delivering sustainable growth.*
  - protection and enhancement of landscapes and biodiversity. *Chapter 9 and Appendix D.*
  - enhanced personal security. *Chapter 7 policies 7 and 9 and text. Chapter 16, safety.*
  - healthier communities. *Chapter 7, access to health care and policy 7. Chapter 8, policy 19. Chapter 9, introduction. Chapter 10, introduction. Chapter 13, seasonal and daily congestion. Chapter 14, delivering sustainable growth. Chapter 17, city centre, and CIVITAS.*
  - fewer transport-related noise problems. *Chapter 9, natural and built environment, and noise. Chapter 16, environment.*
  - progress towards climate change objectives. *Chapter 9, policy 26 and text, and associated target.*

Appendix B - Air Quality Action Plans

Introduction

The Environment Act 1995 imposes a statutory obligation on local authorities to declare Air Quality Management Areas (AQMAs) where levels of specified air pollutants are predicted to be above set Government objectives. As transport authority, Norfolk County Council has a duty under Section 86 (3) of the Act to put forward proposed actions which can be implemented to work towards meeting the air quality objectives in AQMAs.

Norfolk currently contains six AQMAs - 3 in Norwich, 2 in King's Lynn and one in Breckland District. Of these, four have been declared for exceeding limits of nitrogen dioxide (NO_2) from traffic sources and two for particulate matter (PM_{10}) arising from industrial processes and wind blown soil. This appendix and the LTP covers those AQMAs declared on transport grounds and each of these are described in more detail in the following section.

Consultation

The Norfolk Local Air Quality Management Group meets four times a year to discuss local air quality issues across the county. This group is comprised of environmental health officers from each of the seven district councils, Norfolk County Council transport planners, air pollution academics from the University of East Anglia and a representative from the Environment Agency. This group was used as a forum for discussing, developing and gaining support and agreement on air quality policies in the Local Transport Plan. Different stages in the development of air quality sections for the Local transport Plan were presented to the group for approval. The group was also asked to compose a joint response to the Local Transport Plan consultation, carried out in spring 2005, with specific reference to their air quality remit. This response stated:

"Delivery of the action plans can only be achieved by full participation of all partner groups. With the Districts about to produce annual reports, and next year, full updating and screening of their Local Air Quality Assessments, the involvement of the County as a partner is seen as crucial. The 2nd Local Transport Plan must not stand in isolation but should integrate and link in with associated policies strategies and plans of the Districts. The County's recognition of the links between local air quality and climate change is to be applauded."

Development of action plans for AQMAs were carried out as a joint effort between the AQMA district councils and Norfolk County Council. All measures for actions plans have been developed, revised and agreed as a result of numerous meetings between those district councils and Norfolk County Council. Finally, a draft of this appendix was sent for final comment and approval to AQMA district councils before going to print.

Further consultation on the Local Transport Plan, including this appendix, will be carried out in autumn 2005.

Appendix B - Air Quality Action Plans

Feasibility of Actions for Improving Air Quality

The measures outlined in Table 1 were assessed and considered for feasibility when developing action plans for improving air quality in the AQMAs. Feasibility was based on a number of factors including cost, the magnitude of the air quality impact, political and public acceptability, ancillary impacts and the circumstances local to each AQMA. Those considered feasible were then assessed further for cost effectiveness for each AQMA.

Table 1 Feasibility of Options for Norfolk AQMAs

Strategy Measures	Air Quality Impacts	Cost	Feasibility for AQMAs
Zoning			
20 mph zones	Negative[a] - Low	£	No
Clear Zones	High	££££	No
Low Emission Zones	Medium-high	£ - £££	Castle Area, Grapes Hill
Traffic free areas/ Vehicle Bans	High	£	Grapes Hill, Castle Area, Railway Road
Public Transport			
Bus Priority	Negative to Medium	££££	Castle Area, Railway Road
Park & Ride	Low to Medium	£££££	Area wide: Norwich & King's Lynn
Quality Bus Partnerships	Low to High	£	Castle Area, Grapes Hill, Railway Road
Light Rail or Tram	Medium	£££££	No
Subsidised Public Transport	Low	£££££	Area wide: Norwich & King's Lynn
Fiscal Measures			
Road User Charging	High	£££££	No
Workplace Parking Levy	Low	£	Area wide: Norwich & King's Lynn
Roadside Emissions Testing	Low	££	No
Parking Charges	Low to Medium	£	Area wide: Norwich & King's Lynn
Soft Measures			
Carsharing	Low	£	Area wide: Norwich & King's Lynn

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Strategy Measures	Air Quality Impacts	Cost	Feasibility for AQMAs
Travelwise	Low	£	Area wide: Norwich & King's Lynn
School Travel Plans	Low	£	Area wide: Norwich & King's Lynn
Workplace Travel Plans	Low	£	Area wide: Norwich & King's Lynn
Traffic Management			
UTC/UTMC	Low to Medium-low	££	Grapes Hill, St Augustines, Castle Area, Railway Road
High Occupancy Vehicle Lanes	Negative[b] to Low	£	No
Speed Control/Regulation	Low	££	No
Infrastructure Improvement			
Pedestrianisation	Low	££	No
Improved walking and cycling provision / Reallocation of Road Space	Low	£££	Castle Area, Railway Road, St Augustines
Traffic Calming	Negative[c]	£££	No
Road Layout Changes	Negative[d] to High	£££ - £££££	Grapes Hill, St Augustines, Railway Road
Pollution Barriers	None, but would protect receptors from harmful pollutants	£££	Grapes Hill
Bypasses and Road Building	Negative to Low[e]	£££££	Area wide: Norwich & King's Lynn
Planning			
Land Use Planning	Low	£	Area wide: Norwich & King's Lynn
Car-free Residential Development	Low	£	Area wide: Norwich & King's Lynn
Low Emission Technologies			
Alternative Fuels	Medium-low	££	Area wide: Norwich & King's Lynn

Appendix B - Air Quality Action Plans

Strategy Measures	Air Quality Impacts	Cost	Feasibility for AQMAs
Retrofit Pollution Reduction Equipment	Medium	£££	Grapes Hill, Castle Area, Railway Road

Air Quality Impact:

- Low = 0 - 0.2 µg/m^3
- Medium-low = 0.2 – 1.0 µg/m^3
- Medium = 1.0 – 1.5 µg/m^3
- Medium-high = 1.5 – 2.0 µg/m^3
- High = Greater than 2.0 µg/m^3

Cost:

- £££££ = greater than £1 million
- ££££ = £500k - £1 million
- £££ = £250k - £500k
- ££ = £100k - £250k
- £ = less than £100k

Norwich

The statutory review and assessment of local air quality in Norwich was carried out in four stages with assistance from AEA Technology to determine whether the national air quality objectives would be met by 2005. The results of these assessments indicated that there are areas of Norwich almost certain to exceed the annual mean objective for NO_2. Consequently, Norwich City Council declared three AQMAs for NO_2 at St Augustines Street, Grapes Hill, and the Castle area on 1st June, 2003 (see Figure 1). Source apportionment exercises identified oxides of nitrogen from traffic on roads to be the most significant source of NO_2 at all three AQMAs in Norwich.

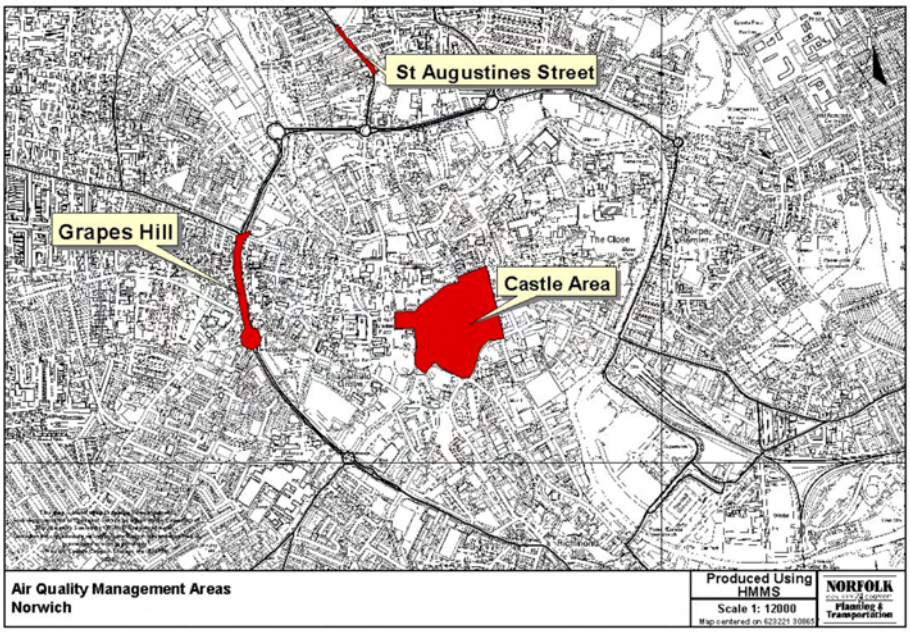

Figure 1 Norwich Air Quality Management Areas

Appendix B - Air Quality Action Plans

St Augustines Street

St Augustines Street is a short stretch of radial "A road" providing access between the northern suburbs and Norwich City Centre. It is a mixed-use neighbourhood, comprising both residences and small businesses and has a busy five-way junction at the northern end.

Traffic volumes are currently over 17,000 vehicles per day. Peak hour traffic volumes regularly result in queue formation along St Augustines Street as vehicles wait to enter the five-way junction to the north or the inner ring road to the south.The buildings on St Augustines Street are taller than the road is wide, causing a canyon effect where pollutants can build up due to the lack of adequate dispersion.

Stage 4 work predicted NO_2 concentrations to be 48 µg/m^3 by 2005, requiring an 8 µg/m^3 reduction on St Augustines Street. Source apportionment exercises carried out in the preliminary Stage 4 Air Quality Review and Assessment identified that traffic sources account for 49% of NO_2 concentrations, or 23.52 µg/m^3.

The following options were put forward to reduce NO_2 concentrations at the most sensitive receptors in the St Augustines AQMA:

1. A 20% reduction in total traffic
2. A reduction in congestion at the St Crispins Road roundabout and at the junction with Waterloo Road to increase average traffic speeds to 40 kph

Table 2 describes the measures that were considered feasible for improving air quality in St Augustines Street AQMA. These were considered for cost-effectiveness, which later determined which measures would be put forward for further investigation and potential for inclusion in the Air Quality Action Plan.

Table 2 Cost Effectiveness of Feasible Actions for St Augustines Street Norwich

Measure	Lead/Key Organisation	Air Quality Impact	Cost	Non-air quality impact	Ranking
UTC: Use UTC to manage traffic flows so as to minimise emissions	Norfolk CC & Norwich CC	Low	££	May increase delays and displace emissions	2
Road Layout Changes: Introduce one-way system on St Augustines to reduce traffic flows in AQMA	Norfolk CC & Norwich CC	High	£££££	Will increase vehicle kilometres and displace emissions	1

Appendix B - Air Quality Action Plans

Measure	Lead/Key Organisation	Air Quality Impact	Cost	Non-air quality impact	Ranking
Improved walking and cycling facilities: Widen pavements and provide a cycle lane	Norfolk CC & Norwich CC	Low	££	Will reduce road space for motorists	3
Air Quality Impact: • Low = 0 - 0.2 µg/m^3 • Medium-low = 0.2 – 1.0 µg/m^3 • Medium = 1.0 – 1.5 µg/m^3 • Medium-high = 1.5 – 2.0 µg/m^3 • High = Greater than 2.0 µg/m^3			Cost: • £££££ = greater than £1 million • ££££ = £500k - £1 million • £££ = £250k - £500k • ££ = £100k - £250k • £ = less than £100k		

Grapes Hill

Grapes Hill is a small segment of the Norwich Inner Ring Road and is therefore integral to Norwich's economic vitality. Traffic counts on Grapes Hill amount to over 34,000 vehicles per day, as it carries north and southbound traffic on an incline between a major roundabout, radial routes and the city centre. Grapes Hill is bounded on either side by private residences and several private businesses at the north end. It is also characterised by pedestrian bridge, which carries pedestrians between the “Golden Triangle” residential area and the city centre.

Stage 4 work predicted NO_2 concentrations to be 48 µg/m^3 by 2005, requiring an 8 µg/m^3 reduction on Grapes Hill. Source apportionment exercises carried out in the preliminary Stage 4 Air Quality Review and Assessment identified that traffic sources account for 46% of NO_2 concentrations, or 22.08 µg/m^3.

Stage 4 identified that a 40% reduction in traffic was required in order to reduce the NO_2 concentrations at the most sensitive receptors in the Grapes Hill AQMA. This solution, however, is considered difficult to implement, as Grapes Hill is part of the Inner Ring Road, which is a more appropriate for through traffic than passing through the city centre.

Table 3 describes the measures that were considered feasible for improving air quality in Grapes Hill AQMA. These were considered for cost-effectiveness, which later determined which measures would be put forward for further investigation and potential for inclusion in the Air Quality Action Plan.

Appendix B - Air Quality Action Plans

Table 3 Cost Effectiveness of Feasible Actions for Grapes Hill Norwich

Measure	Lead/Key Organisation	Air Quality Impact	Cost	Non-air quality impact	Ranking
Quality Bus Partnerships: Include emissions standards for bus routes operating along Grapes Hill	Norfolk CC	Low	£	May encourage modal shift	4
UTC: Use UTC to manage traffic flows so as to minimise emissions	Norfolk CC	Medium-low	££	Overall emissions may increase if queues are displaced	3
Pollution barriers: Create pollution barriers at roadside to protect receptors from harmful pollutants	Norfolk CC & Norwich CC	None, but would mitigate health impact	£££	Conservation issues as this street contains the footings to the historic city wall	5
Traffic free areas / vehicle bans: Ban HGVs from using Grapes Hill segment of Inner Ring Road	Norfolk CC & Norwich CC	High	£	Could displace heavy polluting vehicles on to residential roads	1
Retrofit Pollution Reduction Equipment: Retrofit HGVs and buses that travel along Grapes Hill frequently	Norfolk CC & Norwich CC	Medium-high	£££	Changes to fuel efficiency and CO_2 emissions	2
Air Quality Impact: • Low = 0 - 0.2 µg/m^3 • Medium-low = 0.2 – 1.0 µg/m^3 • Medium = 1.0 – 1.5 µg/m^3 • Medium-high = 1.5 – 2.0 µg/m^3 • High = Greater than 2.0 µg/m^3			Cost: • £££££ = greater than £1 million • ££££ = £500k - £1 million • £££ = £250k - £500k • ££ = £100k - £250k • £ = less than £100k		

Appendix B - Air Quality Action Plans

The Castle Area

The Castle Area is an area of historical significance comprising shops, tourist destinations, and a few residences. Castle Meadow, Cattle Market Street, Market Avenue, Farmers Avenue, Bank Plain, and Agricultural Hall Plain form a loop around Norwich Castle and all have been declared as part of the Castle Area AQMA.

Movement of traffic around this area is complex. Castle Meadow has traffic restrictions and access is only allowed for buses, deliveries, and taxis and is the major bus link between the train and bus station. This is also one of the main bus thoroughfares in Norwich and a high proportion of buses destined for the city centre stop on this road.

Further complicating traffic movements around the Castle Area is an underground car park to a shopping mall, which has entrances and exits on Farmers Avenue and Market Avenue.

Stage 4 work predicted NO_2 concentrations to be 48 µg/m^3 by 2005, requiring an 8 µg/m^3 reduction in the Castle Area. Source apportionment exercises carried out in the preliminary Stage 4 Air Quality Review and Assessment identified that traffic sources account for 49% of NO_2 concentrations, or 23.52 µg/m^3.

The following options have been considered in order to assess their potential to reduce the NO_2 concentrations at the most sensitive receptors in the Castle AQMA:

1. Upgrade of buses (assumed 70% of HDV) to Euro IV standard;
2. Bus only zone.

Table 4 describes the measures that were considered feasible for improving air quality in the Castle Area AQMA. These were considered for cost-effectiveness, which later determined which measures would be put forward for further investigation and potential for inclusion in the Air Quality Action Plan.

Table 4 Cost Effectiveness of Feasible Actions for Castle Area Norwich

Measure	Lead/Key Organisation	Air Quality Impact	Cost	Non-air quality impact	Ranking
Low Emission Zone: Restrict Buses from entering Castle Meadow if they do not meet low emissions criteria	Norfolk CC & Norwich CC	Medium-high	££££	Reductions in CO_2 emissions, possible displacement and additional vehicle kilometres	3

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Measure	Lead/Key Organisation	Air Quality Impact	Cost	Non-air quality impact	Ranking
Quality Bus Partnerships: Include emissions standards for bus routes operating in Castle Area	Norfolk CC	Medium	£	May encourage a modal shift	1
Enforcement: Use powers to fine buses found idling on Castle Meadow	Norwich CC	Low	£	CO_2 emissions reductions	5
Enforcement: Use vehicle activated signs to warn vehicles that are blocking traffic by queuing at entrance to Castle Mall car park	Norfolk CC & Norwich CC	Low	£	May increase vehicle kilometres as cars drive around "searching" for parking	5
UTC: Use UTC to manage traffic flows so as to minimise emissions	Norfolk CC	Medium-low	££	May increase overall emissions if queues are displaced elsewhere	3
Retrofit Pollution Reduction Equipment: Retrofit HGVs and buses that travel in Castle Area frequently	Norfolk CC & Norwich CC	Medium-high	£££	Changes to fuel efficiency and CO_2 emissions	2

Air Quality Impact:

- Low = 0 - 0.2 µg/m^3
- Medium-low = 0.2 – 1.0 µg/m^3
- Medium = 1.0 – 1.5 µg/m^3
- Medium-high = 1.5 – 2.0 µg/m^3
- High = Greater than 2.0 µg/m^3

Cost:

- £££££ = greater than £1 million
- ££££ = £500k - £1 million
- £££ = £250k - £500k
- ££ = £100k - £250k
- £ = less than £100k

Action Plan

In Norwich, a good deal of progress has been made to date on developing and implementing the Norwich Air Quality Action Plan. For St Augustines Street AQMA, it was determined that improvements to UTC and SCOOT would only go so far in achieving the necessary improvements

Appendix B - Air Quality Action Plans

in air quality. It was therefore determined that road layout changes to reduce capacity and therefore traffic volumes would be investigated Design work for introducing a one-way gyratory system on and around St Augustines Street is nearing completion and will be subject to public consultation in autumn 2005. As a part of this scheme, pedestrian and cyclists improvements, including a pedestrian crossing at the junction at the northern end, will also be undertaken in order to help regenerate the area and reduce the dominance that traffic has on this historic street.

Action to improve air quality on Grapes Hill to date has been slower than in the other two AQMAs. Efforts to find a scheme that achieve the necessary air quality improvements has been difficult as Grapes Hill is part of the Inner Ring Road. Several potential traffic management schemes have been put forward for this AQMA, including a high occupancy vehicle lane, increasing the capacity of the approach to the roundabout and a bus priority lane. Each of these schemes were rejected on the basis that they would not achieve the required air quality improvement .

Further complicating efforts is the anticipated opening of the Chapelfield shopping development, which includes a 1,006 space car park facility for shoppers, immediately adjacent to the AQMA. The opening of the Chapelfield development in September 2005 may lead to changes in traffic patterns in this area of the transport network. A traffic management scheme to enable efficient access to the development will be implemented in August 2005, which may effect air quality in Grapes Hill AQMA.

At this stage, it seems prudent to re-evaluate possible traffic management schemes and road layout changes to improve air quality in light of these changes taking place in the Grapes Hill area. In the interim, we will begin investigating the feasibility of creating a pollution barrier to guide pollutants up and away from relevant receptors in the area. Whilst we accept that this is not a long-term solution to the air quality problem in the Grapes Hill AQMA, such a scheme would provide protection for receptors against harmful air pollutants in the short-term, whilst also improving the quality of the streetscape for residents and pedestrians.

Additionally, there is scope to work with HGV operators to retrofit pollution reduction equipment to the most polluting vehicles that travel on Grapes Hill. Although HGVs are only a small proportion of traffic on Grapes Hill, they account for a significant proportion of NO_2 concentrations.

Due to the difficulty in finding a solution for improving air quality on Grapes Hill, we will be commissioning additional assessment work on the Grapes Hill AQMA. This work will reevaluate the air quality situation by incorporating the changes that have arisen recently in the area. It will also assess in detail the impact of the schemes described above will have on air quality concentrations. This additional assessment work will be carried out in 2005/06.

In the Castle Area AQMA, a number of measures for improving air quality have been completed and several more are programmed for 2005/06 and during LTP2. The Public Transport Major Scheme has successfully implemented a contraflow bus lane on Tombland to allow direct access to Castle Meadow. This has not only resulted in improved journey times for buses, but has also reduced emissions from buses by reducing vehicle kilometres on this route. The Public transport Major Scheme will also carry out pedestrian enhancements to Castle Meadow during 2005/06.

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The proposed Low Emission Zone for Castle Meadow will soon be beginning detailed design, with implementation to be completed in 2007/08. Discussion with bus operators has already begun to gain cooperation for the buses to meet emissions standards by the implementation date. Additionally, Quality Bus Partnerships will specify a minimum emissions standard for buses operating through this AQMA. To ensure success, we will work with bus and taxi operators to retrofit older vehicles with pollution reduction equipment to ensure their fleets meet the minimum standards for entry to the Low Emission Zone. Additional funding for this element of the Norwich Air Quality Action Plan has been secured through the European Union via the CIVITAS SMILE project.

Table 5 Norwich Air Quality Action Plan Summary

Action	NO_2 Reduction	Ancillary Effects	Timescale	Lead Organisation	Funding Mechanism
St Augustines Street					
Introduce area gyratory in order to reduce traffic flows on St Augustines to one-way operation	8.0 µg/m^3	Displacement of traffic, emissions; may increase vehicle kilometres	Design: 2005/06 Implementation (if applicable): 2006/07	Norfolk CC & Norwich CC	LTP
Pedestrian crossing at five ways junction, increase width of pavement of St Augustines Street and add cycle lane	0.2 µg/m^3	Improved livability and road user safety; may increase vehicle wait times at signal	Design: 2005/06 Implementation (if applicable): 2006/07	Norfolk CC & Norwich CC	LTP & Norwich CC
Grapes Hill					
Pollution barrier	0	Conservation issues as this street contains the footings to the historic city wall	Assessment & Feasibility: 2005/06	Norfolk CC & Norwich CC	LTP
Retrofit pollution reduction equipment to HGVs	4.0 µg/m^3	Changes to fuel efficiency and CO_2 emissions	2006/07	Norfolk CC & Norwich CC	LTP

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Action	NO_2 Reduction	Ancillary Effects	Timescale	Lead Organisation	Funding Mechanism
Commission additional modelling and assessment work on potential schemes	0	None	2005/06	Norfolk CC & Norwich CC	LTP
Castle Area					
Improve pedestrian environment, widen pavements on Castle Meadow and improve pedestrian crossings	0.2 µg/m^3	Improved streetscape and liveability	Design: Complete Implementation: 2005/06	Norfolk CC & Norwich CC	Public Transport Major Scheme
Introduce contra flow for buses from Tombland to Castle Meadow, circumventing need for buses to circle through gyratory on Prince of Wales Road / Rose Lane	0.2 µg/m^3	CO_2 emissions reductions, improved bus journey times	Complete	Norfolk CC & Norwich CC	Public Transport Major Scheme
Use vehicle activated signs to warn vehicles that are blocking traffic by queuing at entrance to Castle Mall car park	0.2 µg/m^3	May increase vehicle kilometres as cars drive around "searching" for parking	Type Approval: 2005/06 Implementation: 2005/06	Norfolk CC & Norwich CC	Public Transport Major Scheme
Use powers to fine bus operators for extended periods of idling on Castle Meadow	0.2 µg/m^3	CO_2 emissions reductions	2006/07	Norwich CC	Norwich revenue funding

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Action	NO_2 Reduction	Ancillary Effects	Timescale	Lead Organisation	Funding Mechanism
Low Emission Zone on Castle Meadow	5.0 µg/m^3	Reductions in CO_2 emissions, possible displacement and additional vehicle kilometres	Design: 2005/06 Implementation: 2006/07	Norfolk CC & Norwich CC	LTP / EU CIVITAS SMILE
Quality Bus Partnerships with minimum emissions standards		May encourage modal shift	Ongoing	Norfolk CC	LTP
Retrofit pollution reduction equipment to buses operating on Castle Meadow		Changes to fuel efficiency and CO_2 emissions	2006/07	Norfolk CC & Norwich CC	LTP / EU CIVITAS SMILE

King's Lynn

The Stage 4 Air Quality Review and Assessment Report completed in April 2003 concluded that the levels of NO_2 along Railway Road breached the 40 µg/m^3 annual average limit of the National Air Quality Strategy (NAQS). Accordingly, the Borough Council of King's Lynn and West Norfolk (BCKL&WN) declared an AQMA along Railway Road in November 2003 (Figure 2). Source apportionment exercises identified oxides of nitrogen from road traffic to be the most significant source of NO_2 along Railway Road.

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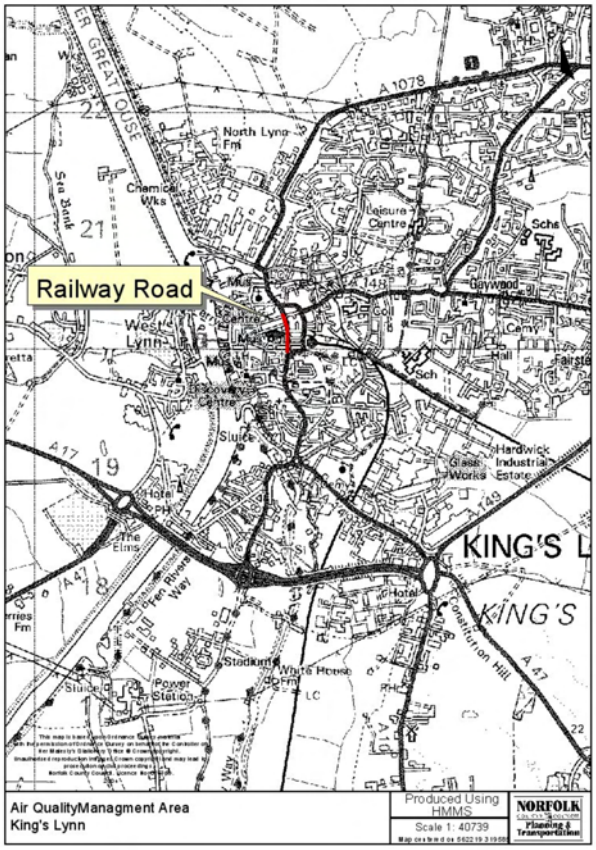

Figure 2 King's Lynn Air Quality Management Area

Railway Road

The AQMA stretches along both side of Railway Road between St Johns Terrace and Waterloo Street/Old Market Street and on the east side only of Railway Road between Waterloo Street and Stanley Street.

A reduction of 6 µg/m^3 is needed in annual mean NO_2 concentrations to ensure that concentrations at all relevant receptors in the area do not exceed 40 µg/m^3 annual mean objective for NO_2.

Stage 4 work predicted NO_2 concentrations to be 46 µg/m^3 by 2005, requiring a 6 µg/m^3 reduction on Railway Road. Source apportionment exercises carried out in the preliminary Stage 4 Air Quality Review and Assessment identified that traffic sources account for 61% of NO_2 concentrations, or 28.06 µg/m^3.

The following scenarios were considered for reducing emissions of NO_x and so reducing the concentrations of NO_2 at the most affected receptors:

1. The elimination of queuing at traffic lights, providing a free flow of traffic along the road, without increasing traffic speeds;

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2. The elimination of queuing at traffic lights, providing a free flow of traffic along the road, allowing an increase in traffic speeds to 25 kph;
3. A 20% reduction in overall traffic numbers without reducing queue lengths at traffic lights or increasing traffic speeds

Table 4 describes the measures that were considered feasible for improving air quality in Railway Road AQMA. These were considered for cost-effectiveness, which later determined which measures would be put forward for further investigation and potential for inclusion in the Air Quality Action Plan.

Table 6 Cost Effectiveness of Feasible Actions for Railway Road

Measure	Lead/Key Organisation	Air Quality Impact	Cost	Non-air quality impact	Ranking
Road Layout Changes: Build turnouts to more evenly disperse traffic between lanes, reduce queuing and increase speeds	Norfolk CC	Medium	£ - £££	Reduced congestion	1
Bus Priority: Introduce bus lane in left lane of Railway Road	Norfolk CC	Low	££	Displaces traffic into other lanes	6
Quality Bus Partnerships: Include emissions standards for bus routes operating along Railway Road	Norfolk CC	Medium	£	May encourage modal shift	3
Retrofit Pollution Reduction Equipment: Retrofit HGVs and buses that travel along Railway Road frequently	Norfolk CC & BCKL&WN	Medium	£££	Changes to fuel efficiency and CO_2 emissions	4
UTC: Use UTC to manage traffic flows so as to minimise emissions	Norfolk CC	Medium-low	££	Queue displacement may increase overall emissions	5
Park and Ride: Investigate the feasibility of developing a Park and Ride facility in King's Lynn	Norfolk CC	Medium-low	£££££	CO_2 emissions and congestion reduction	7

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Measure	Lead/Key Organisation	Air Quality Impact	Cost	Non-air quality impact	Ranking
Parking Charge/Strategy: Use parking tariffs to draw people away from Railway Road	BCKL&WN	Medium	£	May be publicly unpopular	2

Air Quality Impact:

- Low = 0 - 0.2 µg/m^3
- Medium-low = 0.2 – 1.0 µg/m^3
- Medium = 1.0 – 1.5 µg/m^3
- Medium-high = 1.5 – 2.0 µg/m^3
- High = Greater than 2.0 µg/m^3

Cost:

- £££££ = greater than £1 million
- ££££ = £500k - £1 million
- £££ = £250k - £500k
- ££ = £100k - £250k
- £ = less than £100k

Action Plan

In King's Lynn a number of options for improving air quality on Railway Road have been investigated through the Urban Renaissance Strategy and the King's Lynn Area Transport Strategy. King's Lynn is well known for its abundance of surface car parks, and it has been well documented that many cars will search for car parking spaces nearest their destination rather than their point of origin. This increases total vehicle kilometres and could be a contributing factor to the air quality problem on Railway Road.

To that end, a decision was taken that King's Lynn requires a parking strategy. Part of this strategy will be to replace all surface car parking with fewer but larger car parks on the periphery of the town centre. This will help to combat additional vehicle kilometre spent searching for available car park spaces. Use of real-time information through variable message signing will also be used to direct people to the car park nearest their arrival point, rather than their destination. Finally, the feasibility of introducing a Park and Ride in King's Lynn will be investigated as part of the parking strategy and, if sited south of Railway Road, could encourage a modal shift and reduce the volume of traffic travelling through the AQMA.

Railway Road is one-way northbound and is part of a larger gyratory in King's Lynn town centre. Further investigation into traffic volumes and the air quality issue showed that congestion is not necessarily an issue on Railway Road. Furthermore, Stage 4 source apportionment highlighted that stopped traffic is responsible for 23% of the NO_2 concentration on Railway Road, or 10.58 µg/m^3. UTC shows that congestion is created by the traffic not dispersing across the three lanes available to them on Railway Road, and that traffic is not making the most of the available capacity. This creates queues at traffic signals and lowers average speeds, leading to increases in emissions. To tackle this, we are currently working on devising a traffic management scheme that will more evenly distribute traffic across all three lanes, hopefully reducing queuing and increasing overall speeds. This should go some way to meeting our air quality objectives.

Appendix B - Air Quality Action Plans

Finally, we will work with public transport operators to develop Quality Bus Partnerships on routes operating through the AQMA to set minimum emission standards and also assist with retrofitting pollution reduction equipment to older buses. This will be particularly effective as the bus station is accessed via Railway Road. These measures, taken together and implemented accordingly, should bring about the required improvement in air quality on Railway Road.

Table 7 King's Lynn Air Quality Action Plan Summary

Action	NO_2 Reduction	Ancillary Effects	Timescale	Lead Organisation	Funding Mechanism and cost
Park and Ride	TBD	Reduced congestion and CO_2 emissions	Feasibility: 2006/07 Implementation (if applicable): 2010/11	NCC	LTP & Section 106 agreements with developers
Parking strategy	1.5 µg/m^3		Development: 2006/07	BCKL&WN & NCC	BCKL&WN/ LTP/Prviate
Road Layout Changes	1.0 µg/m^3	Improved traffic management	Feasibility: 2005/06 Design and Implementation (if applicable): 2006/07	NCC	LTP
Quality Bus Partnerships	2.0 µg/m^3	Increased bus use	2006/07	NCC	LTP & NCC Revenue
Retrofit Pollution Reduction Equipment to buses		Changes to fuel efficiency and CO_2 emissions	2006/07	NCC	LTP & Operators

Targets and Monitoring

Targets and intermediate outcome indicators for improving air quality in Norfolk are as follow:

- To reduce nitrogen dioxide concentrations to 40 µg/m^3 by the end of 2010
- To improve the proportion of the vehicle fleet meeting Euro IV emission standard to 40% by the end 2010
- To reduce the amount of traffic crossing the Inner Ring Road Cordon in Norwich by 5% by the end of 2010

Appendix B - Air Quality Action Plans

The district councils will continue to review annual mean concentrations of nitrogen dioxide in AQMAs through diffusion tube monitoring and dispersion modelling, where deemed necessary. Monitoring of all regulated pollutants is carried out throughout the year. The County Council will continue to work with the Local Air Quality Management Group on transport related air quality monitoring and assessment. This will allow the County Council to input into transport related information into the air quality review and assessment process and also for the County Council to liaise closely with the districts in keeping abreast of potential air quality issues arising from transport.

Furthermore, the County Council will continue to monitor progress towards air quality targets through the use of intermediate indicators, as outlined in Chapter 17 of this Local Transport Plan, and report on progress through Annual Progress Report for the Local Transport Plan. This includes the continuation of purchasing and analysing car and light goods vehicle registration data in order to review the European emissions standards of the Norfolk vehicle fleet. We will also continue to develop and monitor traffic volumes in and around AQMAs in order to identify the effects our proposed traffic management measures on air quality. Finally, we will continue to monitor the proportion of all regulated emissions from road transport using data from the National Air Emissions Inventory.

Appendix B - Air Quality Action Plans

End Notes

a. The relationship between vehicle speeds and emissions is complex and varies depending on vehicle type, temperature, acceleration and traffic conditions. It is therefore possible that 20 mph zones may increase emissions in some circumstances
b. May increase emissions by creating congestion in remaining lanes
c. This can lead to additional acceleration/ deceleration, which can increase total emissions
d. Road layout changes that increase capacity could lead to increases in emissions by inducing additional traffic onto the road network
e. Road building can induce additional traffic onto the road network, which may increase area wide emissions

Appendix C - Supplementary bids

SUPPLEMENTARY BIDS FOR THE STRUCTURAL MAINTENANCE OF DE-TRUNKED ROADS

Table 1 Supplementary Bids for the Structural Maintenance of De-Trunked Roads

ROUTE	PARISH	LOCATION	ESTIMATE	AREA	PROPOSALS
		2006/07			
		Structural Maintenance			
A140	SCOLE	Bypass	£5,000,000	S	Overlay
A134	STOKE FERRY	Phase 2 C44 Oxborough Rd - Roundabout	£288,000	W	Plane & overlay due to severe rutting. 6.5 m c/w. Deterioration has occurred in the past 12 months
A134	NORTHWOLD	U21340 Hovells Lane to south end of lay-by north of C42	£300,000	W	Plane & overlay due to severe rutting. 6.5 m c/w. Deterioration has occurred in the past 12 months
A134	NORTHWOLD	South end of lay-by north of C42 - Beckfield Farm (south of C42)	£288,000	W	Plane & overlay due to severe rutting. 6.5 m c/w. Deterioration has occurred in the past 12 months
A134	CRANWICH	Beckfield Farm (south of C42) - south end of lay-by opp Manor Farm	£276,000	W	Plane & overlay due to severe rutting. 6.5 m c/w. Deterioration has occurred in the past 12 months
A134	CRANWICH	South end of lay-by opp Manor Farm to Parish Boundary	£312,000	W	Plane & overlay due to severe rutting. 6.5 m c/w. Deterioration has occurred in the past 12 months
A134	CRANWICH	Parish Boundary south to Speed limit	£312,000	W	Plane & overlay due to severe rutting. 6.5 m c/w. Deterioration has occurred in the past 12 months
A10	HILGAY	Joint by River Wissey south to joint just north of C487 Ely Rd	£648,000	W	Severe cracking, wheel track failure and rutting. Plane 80 mm resurface with 100mm
A10	SOUTHERY	Joint just south of B1160 (N) southwards to joint approx. 500m n of B1160(S)	£300,000	W	Severe cracking and rutting. Plane 80 mm resurface with 100mm

Appendix C - Supplementary bids

A10	SOUTHERY	Joint just south of B1160 (S) southwards to joint just south of U21504 Sedge Fen Rd	£504,000	W	Severe cracking and rutting. Plane 80 mm resurface with 100mm
A10	BRANDON CREEK	River bridge northwards for 200m	£86,400	W	Severe cracking. Plane 80 mm resurface with 100mm
A140	STOKE HOLY CROSS	A47 roundabout to C178 Church Road , Swainsthorpe	£840,000	S	Surface worn and showing high binder content leading to rutting - Resurface
A140	DICKLEBURGH BY-PASS	C592 Ipswich Road (N) to C592 Ipswich Road (S)	£156,000	S	Proprietary Surface Dressing
A140	DICKLEBURGH	Roundabout at North end of Scole By-pass	£120,000	S	Severe cracking, wheel track failure and rutting. Plane 80 mm resurface with 100mm
A140	NEWTON FLOTMAN	Newton Flotman to Long Stratton	£960,000	S	Thin surface course dried and disintegrating. Temp Surface Dress in 2005. Plane and overlay.
		TOTAL	**£10,390,400**		

A140 Scole Bypass

This bypass was opened in 1995. It is a continuous reinforced concrete pavement (CRCP), 200mm thick, on a CBM base. We are experiencing severe transverse cracking at regular intervals and sections of the surface breaking up. Cores and investigation indicates that the cracking extends through the CBM and up through the CRCP with de-lamination occurring with the reinforcement. Rather than a continuous slip-form, the road was constructed in long bays. This has set up different stress patterns throughout the slab. Local repairing releases this stress in one place and transfers it elsewhere. Recent research at TRL indicates that construction on CBM should involve a weaker CBM rather than a stronger one, as the cracking at regular intervals in a strong CBM, reflects through and compromises the random crack pattern that should occur in the CRCP.

After taking expert advice, the recommended treatment is two-fold. We could use a proprietary surface dressing, which would be expected to have a two-year life. A second dressing could be applied in year three but, by year five, the only solution would be to overlay with 100mmm of flexible material containing SBS. There is also the possibility of further local failure, as we are currently experiencing, within this period. Each surface dressing will cost about £500,000 and the full treatment in the region of £5,000,000. To avoid wasting £1,000,000, in terms of whole life costs we suggest that the permanent solution be carried out at the earliest opportunity.

Appendix D - SEA Interim Environmental Report

Introduction

In July 2004 an assessment of the effects of certain plans and programmes on the environment, known as Strategic Environmental Assessment (SEA), became a statutory requirement in accordance with European Directive 2001/42/EC. The Directive applies to "plans and programmes, and modifications to them, whose formal preparation begins after 21 July 2004" (ODPM, 2003). It also applies to "plans and programmes whose formal preparations began before that date, if they have not been adopted by 21 July 2006" (ODPM, 2003).

The objective of the SEA Directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans with a view to promoting sustainable development. The SEA also works to inform the decision-making process through the identification and assessment of the cumulative significant effects a plan or programme will have on the environment at the strategic level. The SEA results in an Environmental Report, which accompanies the final plan.

In accordance with the Directive, the Regulations and the Department for Transport (DfT) *Full Guidance on Local Transport Plans* and *Strategic Environmental Assessment Guidance for Transport Plans and Programmes* (2004), an SEA has been undertaken on the Second Local Transport Plan for Norfolk. This report is an interim Environmental Report the Final Environmental Report will be published alongside the consultation on the Provisional Second Local Transport Plan (LTP) for Norfolk in autumn 2005 and submitted to the DfT with the final LTP in March 2006.

SEA activities that will be completed between the submission of the provisional LTP in July 2005 and the final LTP in March 2006 are as follow:

- Finalise Environmental Report
- Consult on draft provisional LTP alongside publication of Environmental Report
- Prepare environmental statement for LTP, describing how SEA has influenced the LTP
- Submit final Environmental Report with final LTP

In applying the SEA Directive to the LTP, Norfolk County Council (NCC) aimed to:

- identify alternative strategy options for the LTP;
- evaluate the cumulative significant environmental effects of the strategy options;
- provide decision makers with a holistic understanding of the environmental implications of the proposed strategy;
- mitigate environmental impacts arising from the implementation the LTP as much as possible; and
- reduce/minimise the environmental impacts from transport.

The LTP SEA was carried out by transport planning professionals and environmental specialists from the Planning and Transportation Department at NCC. Due to the iterative nature of SEA, it was decided to carry out the SEA internally to ensure consistency between the development of

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the SEA and the LTP as much as possible. Table 1 delineates the key stages of the LTP SEA. Items in bold are those tasks that will be carried out after the submission of the provisional LTP in July 2005 and before submission of the final LTP in March 2006.

Table 1 LTP SEA Programme

When	SEA Stage	Action
Development of Local Objectives Consultation on Issues and Priorities	Setting Context and Establishing Baseline	• Relationship of LTP to other plans and programmes • Identify relevant Environmental Objectives
Development of strategy options	Establish SEA Scope and Develop Strategic Options	• Identify alternatives at strategic level • Scoping consultation with statutory environmental bodies • Scope of the significant effects of the plan and the alternatives
Development and Production of Draft LTP	Assessing Effects of the Plan	• Describe the significant effects on the environment in relation to the LTP's scope and objectives • Describe the significant effects on the environment of the implementation programmes in relation to the scope of the plan and the objectives • Justification of selection of alternatives • Propose measures to prevent reduce and offset adverse environmental impacts from implementation of the plan or programme • Prepare Environmental Report
Consultation and Publication	Consultation and Publication	• Consult on draft LTP and Environmental Report (autumn 2005) • Publish Environmental Report as appendix to the final LTP (March 2006)

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When	SEA Stage	Action
Monitoring and APR	Monitor	• Report on environmental effects from the implementation of the LTP

Consultation with Statutory Environmental Bodies

In August 2004, NCC undertook a screening consultation with the statutory environmental bodies (SEBs) - English Nature, the Countryside Agency, English Heritage, and the Environment Agency - in order to inform them that an SEA would be undertaken on the LTP. Responses determined that the SEBs were supportive of the County Council's decision to carry out an SEA on the LTP in accordance with the Directive.

In November of 2004, NCC carried out the scoping consultation with SEBs. This consultation consisted of a letter explaining the consultation and a list of particular questions the council was interested in receiving comment on. The letter was also accompanied by the *Norfolk Local Transport Plan Strategic Environmental Assessment Scoping Report*, which gave a brief overview of the LTP SEA process to date and included the following:

- An overview of the LTP
- SEA objectives
- Environmental baseline, indicators and data sources
- Environmental problems and issues
- Strategic LTP options that would be assessed
- How the remaining stages of the SEA will be carried out
- The proposed content and structure of the Environmental Report

When asked if the Scoping Report adequately covered the environmental problems and issues relevant to transport in Norfolk, the consultees generally felt that the issues raised were adequate, although we did receive a recommendation to make more explicit the issues surrounding rural accessibility.

They also were in general agreement that the proposed indicators were appropriate, although comments were recieved with particular emphasis on the landscape, biodiversity and cultural heritage indicators. During the scoping consultation NCC specifically requested feedback on these indicators, as it is an area in which indicators are few and difficult to quantify and qualify. Posing this question elicited a host of helpful responses from the appropriate environmental bodies, and the indicators for these topics were reviewed as a consequence.

Finally, all the SEBs agreed that they were satisfied with the proposed structure of the Environmental Report.

Additional comments included:

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- Requests for clarification on the process for assessing major schemes, a methodology which was revised as a result of these responses and the publication of the final DfT guidance on SEA in December 2004
- Additional policies, plans and programmes to be added to the LTP context
- For a compatibility matrix on objectives to be included in the final Environmental Report

Overall, the scoping consultation was found to be extremely useful, both for receiving feedback from the relevant environmental bodies and also for informing them as to our SEA activities.

THE LTP Context and Environmental Baseline

Links to other relevant policies, plans and programmes

A list of policies, plans, programmes and environmental objectives relevant to the LTP (Table 2) was compiled and analysed by NCC's strategic transport planners.

Table 2 Policies, plans, and programmes relevant to the LTP

Policy, Plan or Programme	Summary of Relevant Environmental Objectives
International	
Kyoto Protocol	To reduce emissions of greenhouse gases.
Birds Directive	To protect wild bird species.
Habitats Directive	To conserve natural habitats.
Water Framework Directive	To improve water quality.
National	
Transport White Paper 2004	To protect the environment and look at how transport policy can best contribute to reducing CO_2 emissions.
Transport Act 2000	To promote an integrated transport system.
Transport 2010	To tackle congestion and pollution.

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Policy, Plan or Programme	Summary of Relevant Environmental Objectives
PPG3 - Housing	To promote the greater intensity of development at locations with good public transport access, the creation of places and spaces with the needs of people in mind, focussed on the needs of pedestrians, not the parking and movement of vehicles and the avoidance of inflexible standards and allows for the reduction of road widths and traffic speeds.
PPG13 -Transport	Promote sustainable transport choices and accessibility and reduce the need to travel, especially by car.
The UK Strategy for Sustainable Development	Effective protection of the environment, prudent use of natural resources and maintenance of economic growth and employment.
Environment Act 1995	To ensure national air quality standards and objectives are met.
Urban and Rural White Papers	To promote good design and planning which makes it practical to live in a more environmentally sustainable way, with less noise, pollution and traffic congestion and a protected countryside in which the environment is sustained and enhanced, and which all can enjoy.
UK Climate Change Programme	To reduce greenhouse gas emissions.
Energy White Paper	To reduce carbon dioxide emissions.
Countryside and Rights of Ways Act 2000	To allow the public a new right of access to mountain, moor, heath, down and registered common land.
Local Government Act 2000	To promote economic, social and environmental well-being
Regional	

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Policy, Plan or Programme	Summary of Relevant Environmental Objectives
RPG6: East Anglia	To ensure that the environment is protected and enhanced while the distinctiveness of each locality is maintained and that natural resources are conserved.
EERA Integrated Regional Strategy	To promote the economic, social and environmental well being of the region.
Draft East of England Plan inc. Regional Transport Strategy	To minimise the environmental impact of transport provision and travel, protecting and enhancing the natural, built and historic environment
Local	
Norfolk Ambition	To improve the quality of life for all of the people of Norfolk.
Norfolk Structure Plan	To achieve a strategic transport network that will support sustainable development, economic vitality, and environmental assets of the County and to ensure schemes are sympathetic to the character of the area, and minimise resource use and environmental impacts.
Norwich Local Plan	To create the conditions for sustainable long-term regeneration of the City, taking account of the needs of the present population without threatening the viability of the environment or services on which future generation will depend.
Broadland District Local Plan (draft deposit)	To minimise the adverse effects of traffic on people and the environment.
South Norfolk District Local Plan	Emphasis on improved provision for pedestrians, cyclists, and public transport.
King's Lynn and West Norfolk Local Plan	To conserve environmental assets.

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Policy, Plan or Programme	Summary of Relevant Environmental Objectives
North Norfolk Local Plan	To reduce greenhouse gas emissions by guiding new developments to locations that will reduce the need for car journeys and the distances driven, or which permit the choice of more energy-efficient public transport, cycling and walking.
Breckland District Council Local Plan	To focus development near services to reduce the need to travel.
Norfolk Waste Local Plan	To locate waste facilities in such a way as to minimise transportation movements and encourage sustainable shipment of waste.
Norfolk County Council Medium Term Plan: 2005 - 2008	• Protect and sustain the environment • Leading to reduce climate change

SEA Objectives and Indicators

The SEA Directive does not specifically require the use of objectives or indicators, but they are a recognised way in which environmental effects can be analysed and compared. The SEA objectives describe a statement of intention and the desired direction of environmental change, whilst the indicators were used to measure the LTP's performance against the objectives.

To fulfil the requirements of the SEA Directive, objectives should cover each environmental topic: biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage, landscape, and interrelationships between them (2001/42/EC, Annex 1f). These can be found in Table 3. The objectives bring together and consolidate:

- the environmental topics listed in the SEA Directive;
- the LTP objectives;
- *Norfolk Ambition: The community strategy for Norfolk 2003-2023* objectives;
- objectives from other relevant plans and programmes; and
- environmental problems identified as part of the baseline analysis.

The Environmental Context

In order to establish an environmental baseline of current conditions in Norfolk, existing environmental and sustainability data were collected from a wide range of sources including:

- Office of the Deputy Prime Minister

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- National Air Emissions Inventory
- NCC maintained Geographical Information System (GIS) data sources
- Norfolk's Local Transport Plan 2001/02-2005/06 and Annual Progress Reports
- Norfolk Ambition: The community strategy for Norfolk 2003-2023
- Norfolk State of the Environment Report 2003
- Countryside Agency
- Environment Agency
- English Heritage
- English Nature

Taken together, the indicators extracted from the above data and documents were used to describe the current state of the environment. This has been used as the baseline scenario against which to assess the environmental effects of each of the LTP strategy options and also to forecast the evolution of the environment without the LTP. The evolution of the environmental baseline over the plan period had to be assessed in the absence of the plan, in order to understand how the plan will contribute to or mitigates these environmental changes. Table 3 illustrates the relationship between the SEA topics, objectives and indicators and also summarises the baseline conditions for Norfolk, and the likely evolution of that baseline based on current trends.

Whilst the future scenario forecasts the evolution of the environment in the absence of LTP, it does not, however, assume that previously adopted, draft and future plans and programmes will not continue to be implemented. SEA must assume that other adopted plans and programmes will deliver as planned. Other plans and programmes identified as having the greatest potential environmental effects on Norfolk's environment are development and transport plans such as:

- District development plans
- Norfolk Local Transport Plan
- Draft East of England Plan

Table 3 SEA Objectives, Indicators, Baseline, Trends and Evolution Assessment

SEA Topic	Objective	Indicator	Baseline	Trend	Evolution Assessment
Climatic Factors	To reduce CO_2 emissions from transport	% CO_2 emissions from road transport out of total	44% of CO_2 emissions from road transport (525,718 tonnes)	9% increase expected 2000-2010 (6% local increase per captia)	Moderate Adverse
Air	To improve air quality in line with the National Air Quality Strategy	% of Norfolk car fleet of Euro IV (highest) emissions standard	1%	The vehicle fleet will continue to turnover to less polluting vehicles as older vehicles drop out of the fleet and are replaced by those meeting the regulatory high emissions standards	Moderate Beneficial
		Number of Traffic Related AQMAS	4	Increase expected from traffic growth and increases in vehicle kilometres	
		% from road transport from total:	Emissions from road transport:		
		NO_x	77% (12,724 tonnes)	69% decrease expected 2000-2010	

SEA Topic	Objective	Indicator	Baseline	Trend	Evolution Assessment
		PM_{10}	15% (666 tonnes)	76% decrease expected 2000-2010	
		Benzene	52% (124 tonnes)	84% decrease expected 2000-2010	
		CO	81% (46,708 tonnes)	78% decrease expected 2000-2010	
		Lead	90% (5472 tonnes)	99% decrease expected 2000-2010	
		SO_2	6% (99 tonnes)	96% decrease expected 2000-2010	
Population	To minimise noise, vibration and visual intrusion from transport			Loss of tranquillity	
	To improve accessibility and reduce social exclusion	Number of Super Output Areas in worst 20% nationally	55		

SEA Topic	Objective	Indicator	Baseline	Trend	Evolution Assessment
Biodiversity	Implement transport solutions that protect landscape, biodiversity, and water resources	Net loss of Special Protection Areas	7.94 ha	Unlikely to change	Moderate Adverse
		Special Sites of Scientific Interest: % area in favourable or recovering condition	61%	95% of SSSI area in favourable or recovering condition by 2010	
		Net loss of Special Area of Conservation	12.67 ha	N/A	
		Number of County Wildlife Sites	1226	N/A	
		Number of Roadside Nature Reserves	62	N/A	
		Number of Local Nature Reserves	23	N/A	
		Net loss of Ramsar area	7.97 ha	N/A	

SEA Topic	Objective	Indicator	Baseline	Trend	Evolution Assessment
Landscape		% of land area classified as having marked changes inconsistent with character	14%	New indicator - no trend available	Moderate Adverse
		% of land area classified as urban	7.3%	This will increase as a result of growth allocated for Norfolk in the East of England Plan	
		% of Ancient Woodland natural or semi-natural	47%	Most likely to continue to decline, as greenfield land is developed to accommodate growth	
Water		% of biological river quality grade B or above (good or very good)	93%	36% improvement nationally between 1990-2000 61% improvement in Anglian region 1990-2000	Slight Beneficial
		% of chemical river quality grade B or above (good or very good)	62%	43% improvement nationally between 1990-2000	

SEA Topic	Objective	Indicator	Baseline	Trend	Evolution Assessment
				57% improvement in Anglian region 1990-2000	
Cultural Heritage	To maintain and enhance the character of the townscape and cultural heritage	Number of historic parks and gardens	51	No decline as provided legal protection	Slight Adverse
		Listed building: # (%) of buildings at risk	313 (3%)		
		Number of ancient monuments	203	No decline as provided legal protection	
Human Health	To Minimise the number and severity of road traffic accidents and maximise health, safety, and security for everyone	Number of people killed or seriously injured in road traffic accidents	683	May get worse in the absence of the LTP	Slight Adverse
		% super output areas in Norfolk in the worst 20% crime and disorder deprived nationally	61		

SEA Topic	Objective	Indicator	Baseline	Trend	Evolution Assessment
		% super output areas in Norfolk in the worst 20% health deprived nationally	28		Moderate Adverse

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LTP Environmental Problems and Issues

Environmental and sustainability problems that affect and are relevant to LTP were identified through:

- Discussions with Planning and Transportation officers at NCC
- Analysis of the baseline data
- Norfolk State of the Environment Report 2003
- LTP SEA Scoping consultation (autumn 2004)
- The LTP consultation (April 2004 and spring 2005)

Climate Change

Emissions of greenhouse gases have been identified as a worldwide problem as evidenced by the international treaty on climate change, the Kyoto Protocol. It is commonly recognised that greenhouse gases can lead to climate change. Emissions of carbon dioxide (CO_2), the most abundant greenhouse gas, is directly proportional to fossil fuel consumption, making it particularly relevant to transport. The transport sector is currently the second largest and fastest growing source of emissions in the UK and projections indicate that this will continue to rise if left unchecked.

In 2001, road transport in the Norfolk was responsible for 44% of the total CO_2 emissions, a 3% increase on 2000 levels. This is well above national proportions, which show transport to be responsible for 21% of CO_2 emissions (Dore, 2003). This is due to a combination of factors including that the rural nature of Norfolk lends itself to high levels of car use and ownership and also the substantially lower than national contributions from other sectors, specifically energy production and industrial combustion.

As Norfolk is a low-lying county, the effects of climate change could be serious on a local level. Rises in sea level from partial melting of large ice masses could lead to widespread flooding. Climate change could also lead to higher local temperatures, stronger winds, significant changes in rainfall, and increases in coastal and soil erosion.

Air Quality

Norfolk currently contains six AQMAs - 3 in Norwich, 2 in King's Lynn and one in Breckland District. Of these, four have been declared for exceeding limits of nitrogen dioxide (NO_2) from traffic sources and two for particulate matter (PM_{10}) arising from industrial processes and wind blown soil. AQMAs from traffic have been declared for exceeding levesl of NO_2 at St Augustines Street, the Castle area, and Grapes Hill in Norwich and along Railway Road in King's Lynn.

Local emissions estimates give rise for concern, as contributions of oxides of nitrogen (NOx) from road transport in Norfolk are substantially higher at 77% than the national contribution of 46% (Dore, 2003). Carbon monoxide (CO) emissions from road transport in Norfolk are also higher at 73% than national contributions of 62% (Dore, 2003).

Health and Safety

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Health deprivation has been identified as an issue in Norfolk in the urban areas of King's Lynn, Norwich, and Great Yarmouth. A recent report on physical activity in Norfolk identified that the overwhelming majority of people within Norfolk are not active enough to gain health benefits against the major killers (PAAG, 2002). Furthermore, responses from a recent survey showed that only 23% of the Norfolk population take moderate activity five or more times a week, which is the minimum recommended level (NCC, 2001).

There is growing evidence regarding the effects of pollutants from road transport on human health. Air pollution is a potential hazard to the population as a whole, but in particular to vulnerable groups including pregnant women, the elderly, those suffering from respiratory and coronary illnesses, children and workers with high occupational pollution exposure levels.

Exhaust emissions from petrol engines are the largest contributors of non-natural benzene which, as a carcinogen, has been implicated in contributing to deaths from leukaemia. Other lesser sources of benzene include diesel exhausts and evaporation of petrol during its distribution and refuelling. Diesel particulates can aggravate respiratory diseases such as bronchitis and asthma. Technological advances such as catalytic converters have already reduced emissions and further progress is likely. However, the health effects of vehicle emissions are likely to remain a serious issue. Other health impacts from traffic include stress and anxiety, noise and lack of physical exercise.

Landscape, Biodiversity and Cultural Heritage

Norfolk contains some of the most prized landscapes in England, supporting an exceptionally wide variety of wildlife and habitats. The countryside is a key asset for those living and working in Norfolk, as well as for visitors. In the last 50 years, however, there have been considerable losses of wildlife habitats and species because of land use changes. There is currently a great deal of concern about the loss of countryside to development. In 2000-2001, only 37% of housing in Norfolk was built on previously developed land.

In recent years concern has grown about the gradual degradation of both the countryside and urban environment through changing farming practices, drainage of wetlands, increased pressure from transport and the need for new housing and other development. There has been loss of biodiversity and landscape as a result of growth, development and road construction. Rural tranquillity is rapidly being eroded from growth and transport pressures. These pressures also lead to loss and fragmentation of habitats.

Water

Currently, there is a problem with silt and soil pollution entering rivers in Norfolk, which builds up and increases risk of local flooding. Local rivers provide a habitat for some very important species of wildlife, some of which require low levels of silt to survive. Silt and mud causes lasting damage if it enters rivers by:

- Smothering important fish and insect habitats;
- Destroying fish spawning sites;

- Affecting aquatic plant growth, which then limits the oxygen supply in the water; and
- Building up in the river to increase the risk of flooding.

The Environment Agency has identified various areas in the Wensum catchment where the roads run down a valley, and cars or heavy vehicles tend to pull soil and mud in from the roadsides, which subsequently runs into rivers. The problem is predominant on roads without kerbs, particularly on those used as rat runs or by heavy vehicles where the roads are quite narrow. Areas through which tractors and other farm machinery vehicles pass are also prone to mud. Other problem areas are those where there is a more specific source of silt or mud from poorly managed sloping fields with roads at the bottom or construction sites.

Strategy Options and Environmental Assessment

LTP Strategy Options

Several options were put forward for consideration during the development of LTP. Each of these options attempt to use different interventions, such as new road construction schemes, public transport schemes, traffic management and traffic restraint measures, to meet the objectives of LTP, whilst also addressing current and future transport problems and issues in Norfolk.

In identifying alternative options, preliminary assessment was undertaken on broad, strategic alternatives for the LTP. The options selected for assessment represent different ways of achieving the LTP's objectives, local public and political aspirations, and solutions to environmental and transport related problems and issues. Each of the options selected for assessment were felt to be viable and realistic for Norfolk.

The following three strategy options were developed for full appraisal:

1) Reduce the demand to travel through:

- Land use: Locating most new development in urban areas, achieving medium levels of density with a high development mix, and high levels of parking standards in urban areas that conform to standards.
- Information and Attitude: Medium to high use of soft measures and driver information in main urban areas, less so in market towns. Medium level use of pedestrian and cyclist information in all urban areas.
- Management: Fairly high use of parking and access restrictions in urban areas.
- Pricing: Low to medium levels of pricing in main urban areas.

2) Meet the forecast demand for travel, but more sustainably (especially in urban areas), and increase supply to generate/ deliver economic and housing growth through:

- Land use: Locating most new development in urban areas, achieving medium levels of density with a high development mix, and high levels of parking standards in urban areas that conform to standards.

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- Information and Attitudes: Medium use of soft measures and driver information in main urban areas, less in market towns. High use of bus information in main urban areas, low elsewhere. And low use of pedestrian and cyclist information in urban areas.
- Infrastructure: Moderate programmes for the following: growth related road building; park and ride in main urban areas; cycle routes and pedestrian facilities in urban areas. High intensity of improvements for rail related infrastructure to make growth more sustainable.
- Management: Medium levels of traffic management, bus priority, and bus service improvements in main urban areas, lower elsewhere. Lowish use of parking and access restrictions and cycle priorities in urban areas, and lowish use of car share, and route hierarchy improvements.
- Pricing: Low to medium levels of pricing and fares improvements in main urban areas especially.

3) Increase supply to meet forecast demand for travel

- Infrastructure: Very large road building programme to meet growth, tackle congestion and for rural bypasses. Moderate programmes of the following improvements: new car parks in urban areas; infrastructure to support rail growth; park and ride development in main urban areas. Lowish investment in freight facilities.
- Management: High intensity use of traffic management measures in urban areas.

Preliminary Assessment of LTP Strategy Options and Components

Strategy options were evaluated in light of their potential cumulative environmental effects on the different SEA topics. The assessment was informed by the following:

- Expert judgement
- GIS analysis, where available
- National, regional and local trends.

For all options, matrices were used to evaluate the how the environment would change from the implementation of the plan in relation to the objectives and indicators that comprise the environmental baseline. These effects were qualified using a seven-point scale compromised of the following:

- Large Adverse
- Moderate Adverse
- Slight Adverse
- Neutral (adverse and beneficial impacts are balanced)
- Slight Beneficial
- Moderate Beneficial
- Large Beneficial

Options that posed no significant impact on the environmental topic were described as having "no significant effect".

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All strategy options were assessed based on their significance, duration, timing, and magnitude. More detailed descriptions of these effects will be appended to the final Environmental Report. Table 4 summarises the cumulative effects on the SEA environmental topics required for assessment for each of the different strategy options considered for LTP.

In accordance with the DfT guidance on SEA, LTP was was carried out alongside New Approach to Appraisal (NATA) on the LTP strategy options. Where feasible, these were integrated as much as possible. results from the NATA Environment objective can be found in Table 5. Full NATA appraisal summary tables will be appended to the final Environmental Report.

Table 4 Summary of the environmental effects of LTP Strategic Options SEA

SEA Topic	Strategy Options		
	Option 1	Option 2	Option 3
Population:			
Accessibility	Slight Beneficial	Slight Beneficial	Slight Beneficial
Noise	Slight Beneficial	Slight Adverse	Moderate Adverse
Air	Moderate Beneficial	Slight Adverse	Moderate Adverse
Climatic Factors	Moderate Beneficial	Slight Adverse	Moderate Adverse
Landscape	No significant effect	Moderate Adverse	Large Adverse
Townscape	Moderate Beneficial	Slight Beneficial	Slight Adverse
Cultural Heritage	Moderate Beneficial	Slight Beneficial	Slight Adverse
Biodiversity	Slight Beneficial	Moderate Adverse	Large Adverse
Water	Slight Beneficial	No significant effect	Slight Adverse
Human Health:			
Safety	No significant effect	No significant effect	Slight Adverse

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SEA Topic	Strategy Options		
	Option 1	Option 2	Option 3
Physical Fitness	Slight Beneficial	Neutral	Slight - Moderate Adverse

Table 5 LTP NATA Assessment - Environment Objective

Sub-Objective	Strategy Options		
	Option 1	Option 2	Option 3
Noise	Not Possible	Not Possible	Not Possible
Local Air Quality	Not Possible	Not Possible	Not Possible
Greenhouse Gases	Not Possible	Not Possible	Not Possible
Landscape	Neutral	Negative	Negative
Townscape	Negative	Negative	Negative
Heritage of Historic Resources	Mixed	Mixed	Negative
Biodiversity	Insignificant	Probably Negative	Probably Negative
Water Environment	Insignificant	Mixed Contribution	Significantly Negative
Physical Fitness	Minor Benefit	Minor Benefit	Minor Adverse
Journey Ambience	Large Beneficial	Large Beneficial	Large Beneficial

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Next Steps

The general strategic approach has now been determined by the Provisional Second Local Transport Plan for Norfolk and a more detailed assessment will follow on the implementation programme for that option. A detailed description of the significant environmental effects of this implementation plan, proposed mitigation measures and the justification for the selection of the preferred strategy will be included in the final Environmental Report. In accordance with SEA guidance and regulations, the final Environmental Report will be published alongside the draft LTP consultation in autumn 2005.

In accordance with the DfT's *Full Guidance on Local Transport Plans Second Edition* (2004), new major scheme proposals have been developed and presented separately from LTP strategy options and not as an integral part of the LTP. As a result, detailed assessments will be undertaken on two versions - one on the preferred LTP strategy implementation programme with potential major schemes and one without major schemes. The potential major schemes that will be assessed are as follow:

- Long Stratton Bypass
- Norwich Northern Distributor Road
- Public Transport Smart Card Scheme

Monitoring the Environmental Effects of LTP

The environmental effects of the implementation of the LTP must be monitored and reported in order to continue to appraise progress against targets, indicators and the environmental problems and issues. This will be carried out through the LTP Annual Progress Reports (APRs), compiled each summer and submitted to the DfT. The APR will describe any changes to the environmental baseline from the implementation of the LTP and also how Norfolk County Council will work to mitigate any adverse effects identified. Work is currently underway to further develop the NCC monitoring system and to integrate SEA monitoring with LTP monitoring of targets.

- GIS
- Annual Snapshot taken
- Comparison of current state against the baseline
- Analysis of changes to indicators (positive or negative)
- Analysis of performance against targets and objectives

Appendix E - Bus Strategy

The Transport Act 2000 places a duty on the County Council to produce a bus strategy. We have complied with this requirement and fully integrated it into the Local Transport Plan. For those readers who specifically wish to read the bus strategy elements of the Local Transport Plan, the following references and pointers will help.

Chapter 6, Delivering sustainable Growth. Sections on 'enabling growth and improving economic performance', and 'delivering sustainable growth - reducing the need to travel'

Chapter 7, Improving Accessibility. Sections on 'objectives', and 'targets'. Also section on the policies, particularly, it's introduction and the 'hub and spoke system and connectivity', 'public transport network' and policy 8, 'interchange' and policy 9, 'travel information' and policy 10, 'public transport ticketing and fares' and policy 11, and 'connections within sub-regions' and policy 18.

Chapter 8, Reducing Congestion. Sections on 'people congestion' and policy 19, 'encouraging modal shift' and policy 20, 'locking in benefits' and 'managing the network' .

Chapter 9, Protecting and Enhancing the Environment. Section on 'buses'

Chapter 12, Norwich Sub-Region. Sections on 'accessibility', 'Regional Interchange Centre', and 'congestion'

Chapter 13, Great Yarmouth and Lowestoft Sub-Region. Sections on 'strategic access', 'public transport to workplaces', 'community transport', 'public transport information', 'seasonal and daily congestion'

Chapter 14, King's Lynn Sub-Region. Sections on 'accessibility', and 'congestion'

Chapter 15, Rural Areas. Sections on 'accessibility' and 'congestion' in Market Towns, sections on 'accessibility' and 'congestion' in Broads, section on 'accessibility' in North Norfolk Coast

Chapter 16, Asset Management. Section on 'accessibility'