Somerset County Council

Environment Directorate

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ltp 2 local transport plan

Local Transport Plan 2006-2011

Yeovil Transport Strategy Review

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1. Introduction

BACKGROUND

1.1 Atkins Transport Planning was commissioned by Somerset County Council (SCC) in January 2004 to undertake the Yeovil Transport Strategy Review (YTSR).

1.2 The current transport strategy for Yeovil was published in July 1998 and its recommendations were incorporated in to the Somerset County Council's (SCC) Local Transport Plan (LTP) - covering the period 2001 to 2006 - which was published in July 2000, as an Action Plan for Yeovil. The LTP effectively replaced the town strategies with a single overarching countywide set of objectives, strategies and action plans covering the main urban areas as well as other market towns and rural areas.

1.3 Subsequent revisions to South Somerset District Council's (SSDC) Local Plan have resulted in the current transport strategy losing its integration with the latest land use allocations. At the same time, during 2001 and 2002, the Yeovil Community Review of Transport (YCRT) reviewed and updated SCC's understanding of the population's transport needs and aspirations for the town.

1.4 It was jointly agreed by SCC and SSDC to *'use the YCRT recommendations to prepare a more up-to-date and forward-thinking strategy which will support the next round of strategic economic, land use and transport planning processes, and develop a clear set of priorities for the development of Yeovil….'.*

1.5 The brief for the Review of the Yeovil Transport Strategy states the purpose of the review to be *'an assessment of the extent to which the existing transport strategy will deliver the objectives set out in the LTP and YCRT, and in the light of that assessment, the review may recommend changes to the strategy and capital programme or, conceivably to the LTP objectives themselves in preparation for inclusion in the LTP'.*

1.6 The study was tasked with undertaking the following:

- Identify and present existing baseline travel information;
- Assess the overall traffic impact of planned development in Yeovil on the local transport network;
- Identify levels of forecast congestion on the network through application of the Yeovil Traffic Model;
- Technically and objectively assess the feasibility and deliverability of proposals aimed at reducing the rate and impact of traffic growth;
- Test the feasibility of park and ride, including changes to the town car parking policy;
- Propose any necessary changes to the District Council car parking strategies in order to support the transport strategy. This should include the District Council's consideration for implementing Decriminalised Parking Enforcement;

- Confirm that the proposed strategy will accommodate the planned scale of development in Yeovil, and if not, to propose suitable alternative or additional options. This should take account of any reduction in the rate of traffic growth through walking, cycling, public transport improvements, travel plans etc.;
- Assess further options for other transport strategy elements, such as freight routing, road infrastructure, public transport routing and priority measures, interchange facilities, measures to improve cycling and walking, on and off-street parking, and traffic management;
- Demonstrate that the proposed strategy would deliver the objectives of the LTP;
- Consider the implications of the designated Air Quality Management Area (AQMA) and to propose a set of actions to inform the Air Quality Action Plan;
- Propose a set of priorities for a programme of capital schemes;
- Identify major scheme priorities for inclusion in the review of the regional transport strategy (if any);
- Suggest a broad cost estimate for the elements of the proposed strategy. (More detailed costing will be undertaken in-house (SCC) prior to commissioning the individual schemes); and
- Develop a costed action plan, covering all delivery agencies, outlining how the strategy can be delivered.

THE TRANSPORT POLICY CONTEXT

1.7 The transport strategy for Yeovil needs to be developed against local objectives, but must also support current transport policy at national and regional levels. The ability to demonstrate compatibility with regional and national objectives will be important in seeking to secure funding for schemes and measures through processes such as LTP2 (2006-2011). The policy context at all levels is discussed in Section 2, with particular reference to its implications for the Yeovil area, and, specifically, the strategy being developed for this study. A summary of key themes is given below.

1.8 At the national level, Transport 2010: The Ten Year Plan (2000) is the ten year investment and action plan for implementing the Integrated Transport White Paper – *'A New Deal for Transport: Better for Everyone'*. Key themes within national policy are the requirement for an integrated approach to transport embracing all modes.

1.9 The linkages between transport, land use and other areas of policy planning are recognised and the Ten Year Plan seeks to deliver sustainable development as well as transport objectives. The more recent White Paper, "The Future of Transport: A Network for 2030", (DfT July 2004) seeks to build on progress since 2000 and extend this vision over the next 25 years. A key emphasis of this plan is to deliver improvements in design and technology to better manage traffic in the future, and hence the environment.

1.10 Planning policy, in the form of Planning Policy Guidance (PPG) is also relevant to transport. PPG6 (Town Centres) and PPG13 (Transport) both underline the importance to sustainable development of managing travel demand and reducing the use of car. PPG13, in particular also highlights the importance of an integrated approach to transport and land use planning in order to reduce the need for travel.

1.11 Regional planning guidance for the South West (RPG10) is an important instrument in ensuring the delivery of the Government's objectives set out in the Ten Year Plan. RPG10 comprises a Regional Transport Strategy which reiterates the themes of an integrated approach to support sustainable development, improved public transport, cycle and pedestrian facilities, demand management, and improved accessibility to rural areas.

1.12 These principles are being taken forward in the evolving Regional Spatial Strategy (RSS), currently the subject of consultation. The South West Regional Assembly is currently consulting on development options for the region over the next 20 years. The option based upon a continuation of the existing basic RPG10 strategy identifies Taunton as the one Principal Urban Area (PUA) in the County, with Yeovil as an 'Other Designated Centre for Growth' (ODCG). Growth in such areas is designed to 'discourage increasing commuting over longer distances both to work and to access main urban centres'.

1.13 The RSS will include an updated Regional Transport Strategy (RTS) to guide investment in transport facilities. A study such as this has a key role to play in identifying how the Yeovil transport system rises to the challenge of potential future growth of the town, and in helping to influence how regional investment in transport facilities is allocated as the regional planning process is moved forward.

1.14 This study also provides an important basis for identification of measures and initiatives for inclusion within the Yeovil area in the Local Transport Plan, covering the period 2006-2011. The Somerset Local Transport Plan sets out the current transport policy for the county, and its main urban centres. The main objectives of the LTP, which reflect current national and regional policy, are discussed in Section 2 of this report.

1.15 Guidance on the production of the LTP has only recently been issued and it states that a good LTP will demonstrate how an authority will deliver its targets, and deliver the best possible outcomes to society for the available funding. The plan should:

- **make full use of the growing evidence base on what works,** in particular by exploring the potential of programmes and schemes which change behaviours and thereby manage demand for transport services;
- **demonstrate how the authority has worked with** other organisations, service operators and local communities in identifying local transport problems and solutions;
- **make the best possible use of existing infrastructure,** through efficient maintenance and management of the local road network;
- **avoid focussing on capital investment at the expense of other solutions** particularly where these other solutions may deliver better value for money. Packages of complementary measures, with measures to address both demand and supply, should be considered, including the new opportunities for supporting strategies to tackle congestion in towns and cities contained in 'The Future of Transport'; and
- **be underpinned by analysis of local problems and opportunities,** both now and in the future. In particular, there is a new requirement to include

accessibility analysis and an accessibility strategy, on which separate detailed advice is being provided.

1.16 The LTP Guidance states that the key strategies are:

- freer flowing local roads, delivered through a range of measures including congestion charging, and powers under the new Traffic Management Act;
- more buses, enjoying more road space and more reliable buses;
- demand responsive transport services - using buses, car sharing, minibuses, taxis and private hire vehicles to provide accessibility to areas, and to sections of the community, where conventional transport services are unsuitable;
- looking at ways to make services more accessible, so that people have a real choice about when and how they travel;
- exploiting the potential of existing and new technology - for example in managing demand for transport services, improving the capacity of existing networks, improving safety, and providing better, more reliable transport information;
- joined-up transport and land use planning so that new developments do not cause congestion to worsen;
- promoting the use of school travel plans, workplace travel plans and personalised travel planning to encourage people to consider and use alternatives to their cars; and
- creating a culture and improved quality of local environment so that cycling and walking are seen as attractive alternatives to car travel for short journeys, and are encouraged in both residential areas and town centres.

1.17 The requirements of the LTP process have been considered during the development of the YTSR and elements of the preferred strategy that has been developed are suitable for inclusion in the forthcoming LTP.

STUDY APPROACH OVERVIEW

1.18 The study has featured a number of key stages:

- Distillation of existing transport-related analysis and studies, with a particular emphasis on the key findings and conclusions from the Yeovil Community Review of Transport (YCRT);
- Detailed data collation and analysis to provide a quantified overview of current transport and transport-related issues in the Yeovil area (the 'baselining' exercise reported in the Baseline Review of Transport Conditions Report);
- Travel demand forecasting and an assessment of future conditions on the transport network in the absence of any interventions in addition to those already committed;
- Distillation of key objectives and priorities (building upon the work with respect to YCRT), and development of an appraisal framework reflecting these;
- Development of coherent and consistent strategies and measures for addressing existing and future transport issues in and around the town; and
- Testing of strategies and measures and development of recommendations.

LOCATION AND STUDY AREA

1.19 Yeovil is the second largest town in the county of Somerset and has expanded considerably over recent years. As a result of its success traffic levels in Yeovil have grown considerably over the past decade or so, contributing to the peak hour congestion currently experienced within the urban area.

1.20 Yeovil is also surrounded by several towns and villages which, to a large extent, rely on the town centre for local employment, goods and services. This study will therefore seek to identify and offer potential solutions to the problems and issues relating to transport both within the urban area and to and from the surrounding rural areas.

1.21 The location of Yeovil and the surrounding area is shown in Figure 1.1.

THE SCOPE OF THIS REPORT

1.22 This document is the Final Report. It represents the culmination of the study, and hence the basis on which to agree a transport strategy as the framework for transport investment and policy implementation in the Yeovil area up to 2011. The report builds upon the findings of earlier phases of the study (as reported in the Baseline Review of Transport Conditions Report).

1.23 This report is arranged in seven sections following this introduction, as set out below, supported by a number of appendices.

- Section 2 provides an overview of the strategy development approach, drawing upon some of the key relevant findings from previous phases of work;
- Section 3 describes the Yeovil Transport System in 2011 with no intervention i.e. the reference case scenario;
- Section 4 considers strategic transport interventions designed to inform the process of redefining the transport strategy;
- Section 5 identifies the preferred transport strategy for Yeovil
- Section 6 presents the assessment of the impacts of the preferred transport strategy on transport conditions and the strategy's performance against the YTSR objectives; and
- Section 7 discusses the delivery of the strategy in terms of timescales and costs.

ATKINS

Yeovil Transport Strategy Review

Figure 1.1 - Location of Study Area

2. The Current Transport System in Yeovil

BACKGROUND

2.1 An essential component of the development of a transport strategy is a thorough understanding of the nature of current transport and transport related problems and issues. In the past, solutions to transport problems have too often sought to address the symptoms rather than the root causes.

2.2 For instance, identifying the provision of new road capacity to alleviate congestion 'pinch-points', before undertaking a more thorough examination of why the congestion is arising – who is using the network at congested times, for what purpose, and what other options, if any, are available to them (in terms of trip timing and mode)? Accordingly, significant effort as part of this study was expended in understanding the current situation in detail – the so-called 'baselining' exercise that was reported in the Baseline Review of Transport Conditions Report.

2.3 This section summarises the key features of the baselining work which are of relevance in the development of a transport strategy for the Yeovil area. As with the original baselining work, it is recognised that in order to assess the quality of current transport network performance, and to identify issues and problems that require addressing, it is essential to make reference to objectives and aspirations.

2.4 The first part of this section reviews these aspirations, and the second part considers how the network is currently performing with respect to them. The main purpose of this process is to provide a context for selecting options for improving the network in line with policy aspirations and objectives.

TRANSPORT POLICY CONTEXT

National Policy Framework

2.5 Together the 1997 Road Traffic Reduction Act, the 1998 White Paper *'A New Deal for Transport: Better for Everybody'* and its subsequent daughter documents defined a new agenda for local transport in the UK. Central to this approach, and that defined within PPG13, is a reduction in car-dependency and the promotion of more sustainable forms of transport and travel behaviour.

2.6 Current policy focuses on integration as a central defining principle. The White Paper defines this as follows:

- Integration between different modes of transport – so that each mode maximises its potential and users can transfer easily between them;
- Integration with the environment – such that environmental impacts are minimised and an enhanced natural and built environment promoted;
- Integration with land use planning – at a national, regional and local level such that transport and land use planning interact to support more sustainable travel choices and reduce the need to travel; and

- Integration with policies on education, health and wealth creation – in order to promote equity and social inclusion.

2.7 This approach is also strongly evident in the then DETR (now Department for Transport (DfT)) *'Guidance on Local Transport Plans'*, published in March 2000. This document emphasised the central policy objective of encouraging mobility by a range of travel modes, the need for behavioural change in bringing about a reduction in the growth of road traffic and strategy delivery through partnership between local authorities and a wide range of stakeholders.

2.8 National transport policy is reflected in 'good practice' documents produced by the DfT for transport scheme appraisal and for undertaking multi-modal studies, as set out in the July 1998 *'Guidance on the New Approach to Appraisal'*, and the 2000 *'Guidance on the Methodology for Multi-Modal Studies'* (GOMMMS).

2.9 In July 2000 the DfT published *'Transport 2010 – The 10 Year* Plan'. This set out the Government's strategy for transport, and the resources that will be committed to improving transport over the next 10 years. The strategy recognises the need for a new approach, based upon:

- integrated transport: looking at transport as a whole, matching solutions to specific problems by assessing all the options;
- public and private partnership: government and the private sector working more closely together to boost investment; and
- new projects: modernising our transport network in ways that make it bigger, better, safer, cleaner and quicker.

2.10 Similarly the more recent White Paper, *'The Future of Transport: A Network for 2030'*, (July 2004) seeks to build on progress since 2000 and extend this vision over the next 25 years. A key emphasis of this plan is to deliver improvements in design and technology to better manage traffic in the future, and hence the environment.

Regional Policy

2.11 Regional planning guidance for the South West (RPG10) is an important instrument in ensuring the delivery of the Government's objectives set out in the Ten Year Plan. The Regional Transport Strategy (RTS) for the region is set out within RPG10, and identifies the following policy guidance:

- The need for greater integration of transport and land-use planning to promote more sustainable travel choices, and to deliver key environmental, social, and economic objectives;
- Focus growth at PUAs (including Taunton) and Other Designated Centres for Growth (including Yeovil) so as to reduce the need to travel and increase accessibility. The locations identified are those with the greatest potential to develop high quality, sustainable transport links and where short distance travel is expected to dominate, preferably by non-car modes;
- Provision for development should be made in settlements which provide a good range of local facilities and which are capable of being adequately served by public transport;

- The delivery of an efficient public transport system with high quality information and interchanges to encourage greater diversion from the car;
- Demand management strategies need to be developed to encourage greater use of alternative modes of travel to the car;
- Policies should make walking and cycling more attractive options by ensuring that provision is made, particularly in new development, for footpaths and cycleways which are convenient, safe, and as far as is possible, separated from roads carrying significant amounts of motor vehicles; and
- The transport needs of rural community's presents a significant challenge to ensure accessibility to housing, jobs, services and amenities, and hence improve social inclusion.

2.12 PPG13 also provides guidance on "managing travel demand" and in particular promotes the widespread use of travel planning amongst all organisations, and it role in delivering a sustainable transport system in the future. The Government considers that by securing travel plan participation through the planning application process significant transport benefits could be achieved and this is supported in the RTS.

Local policy

2.13 Since 1994 a number of transport strategies have been developed for each of the settlements defined as towns in what was the Structure Plan at that time. A transport strategy for Yeovil was published in July 1998.

2.14 Building on the town strategies a definitive transport strategy for Somerset (including each of the main towns) was set out in the published LTP for 2001-2006 (July 2000). The broad objectives of the Yeovil transport strategy were consistent with those set out in the LTP for the main urban areas within Somerset, and included the following:

- To seek realistic and achievable ways of implementing Structure Plan and Local Plan objectives;
- To guide the pattern of development relative to transport provision (and vice versa);
- To reduce the growth in the length and number of motorised journeys;
- To reduce congestion, use of fossil fuels and vehicle emissions;
- To encourage alternative means of travel which have less environmental impact than the private car;
- To improve conditions for pedestrians, cyclists and people with mobility disabilities;
- To improve ease of access to the town centre; and
- To support Structure and Local Plan land use planning objectives.

2.15 SCC set out its targets with respect to traffic reduction in the July 2000 Road Traffic Reduction (RTR) Report, submitted as a supporting document to the Local Transport Plan in line with the requirements of the 1997 Road Traffic Reduction Act.

2.16 The report emphasised the need to see traffic reduction as a possible outcome of a series of transport initiatives designed to achieve the objectives set out in the LTP rather than an end in itself.

2.17 Traffic reduction targets were set for 2011 and reflect what is deemed achievable through the introduction of measures contained within the 5 year period of the Local Transport Plan. The RTR report implies that LTP policies over the ten year period (2001 – 2011) are expected to:

- Reduce traffic on Somerset's non-trunk primary roads in 2011 by about 2% (i.e. reduce growth from 40-60% to 38-58% for the period 1996-2011);
- Reduce traffic on County A and B roads in 2011 by 5% (i.e. reducing growth from 13-22% to 8-17 for the period 1996-2011);
- Reduce growth of peak hour car trips in Yeovil (plus Taunton and Bridgwater) by about 50% (i.e. reducing forecast growth from 20-40% to around 10-25% for the period 1995-2011);
- Reduce car journeys for countywide school related trips from 48% to 38% for primary schools and 30% to 25% for secondary schools by 2006; and
- Reduce HGV traffic on non-strategic routes by 10% by 2006 – though a corresponding increase on strategic routes.

LTP: County Wide/ Overarching Objectives

2.18 The Somerset LTP for 2001 to 2006 had the following countywide objectives:

- To protect and enhance the built and natural environment;
- To improve safety for all who travel;
- To contribute to an efficient economy and to support sustainable economic growth in appropriate locations;
- To promote accessibility to everyday facilities for all, especially those without a car;
- To promote the integration of all forms of public transport and land-use planning, leading to a better, more efficient transport system;
- To maintain the efficiency and effectiveness of the road network and manage the traffic on it;
- To encourage and promote leisure and tourism opportunities within the county in a more sustainable manner; and
- To increase awareness of the wider impacts of travel behaviour.

LTP: Objectives for Main Urban Areas

2.19 Building on SCC's town strategies, the LTP contained a definitive transport strategy for each of the main urban areas, including Yeovil, which was intended to meet the following objectives:

- To provide the appropriate infrastructure to allow the town to grow;
- To enhance the economic vitality and environment of the town;
- To ensure new developments are accessible by public transport and other slow modes;
- To allow easy access to the town by the population within its catchment area that use the town as a service centre;
- To provide safe and secure travel choices catering for everybody's needs;

- To make walking and cycling trips between home, work, school, and shops easier, and therefore reducing the need to travel by car;
- To provide a more attractive, convenient, and efficient public transport system, making it the first choice for more people; and
- To introduce greater management over car movements and usage within the town centre through expanded controls for on- and off-street parking.

The Yeovil Community Transport Review

2.20 The Yeovil Community Review of Transport (YCRT) gave rise to a series of recommendations with respect to the transport system in the Yeovil area. In addition to documenting current network performance in relation to broad national and regional objectives (above) the baselining work also highlighted deficiencies as identified within the YCRT.

2.21 Linkages were made to the 46 recommendations that emerged from the YCRT and also include an overview of the performance of the transport system in Yeovil against these policy objectives and targets.

2.22 Underlying many of the themes contained within this summary (and indeed this report as a whole) is the requirement to reduce traffic levels and the need to travel by car (or at the very least manage future traffic growth) if there is any chance of meeting the transport objectives for Yeovil – and hence realise the aspirations for the future of the town.

Overview of Problems and Issues

2.23 The report on baseline transport conditions provides an overview of transport related issues in Yeovil, highlighting how the system performs relative to local objectives. Table 2.1 summarises the key problems and issues in broad terms, with the key features of the study area transport system including:

- Dependency on road movements, for personal and freight travel; (65% of journeys to work by employed residents in Yeovil were undertaken by car (2001 Census));
- At present, demand exceeds available capacity on the highway network, particularly at peak times, resulting in 8% and 11% of average journey time on key routes within Yeovil, in the morning peak and evening peaks respectively, being spent in delays or queuing;
- Long stay car parking charges are as low as £1.30 per day making the car much cheaper than public transport for many journeys;
- At some primary schools over 50% of pupils (and over 20% of secondary school pupils) travel to school by private car across Yeovil. The proportion of primary school pupils that attend schools from outside the appropriate catchment area, and hence are more reliant on the car can be over 50% at some schools;
- Similarly, a large proportion of trips into the town centre during peak times are short distance trips (around 21% of trips crossing the Inner Cordon in Yeovil in the AM peak hour are under 3 kilometres long) and could potentially be made by an alternative mode;

- Public transport is not perceived as a viable or attractive alternative for many journey to work trips. Bus services between Yeovil and the rural hinterland are infrequent with sparse connections; and
- Around 8% of bus services in the county operate on a commercial basis (though these account for around 60% of passenger journeys). The study area features a very complex pattern of journey to work demands (both in the urban and rural areas), presenting a particular challenge in terms of providing high quality public transport which is financially viable.

2.24 There are a number of impacts arising from a level of road-based travel demand which at times reaches or exceeds the available capacity:

- Congestion brings considerable inefficiencies to the local economy, and is likely to affect most businesses to some degree, but with particular implications for those operating road-based public transport. Concern amongst local businesses and residents is thought to relate not just to lengthening journey times, but also the degree of unreliability in journey times which arises at times of congestion;
- Environmental impacts of traffic (applying at all times, but most intense during times of congestion) include noise, air quality and severance. The whole of Yeovil has been declared as an Air Quality Management Area (AQMA);
- Safety concerns, particularly for pedestrians and cyclists, are most acute where traffic uses unsuitable local roads, often to avoid congestion on the primary road network; and
- Diminution in accessibility for all, including those who do not have the choice of using a car to meet their travel needs, but are as affected as car users by the impacts of road congestion on journey times to jobs, shops and essential services.

Table 2.1 – Overview of Problems and Issues

Problem/Issue	Comment
System Inefficiencies	Delay and congestion in the transport system. In 2001 delay accounts for around 9% of the total time spent travelling across all journeys in Yeovil. Adverse impacts on trip-makers, public transport and freight operators, local business. High propensity to make short distance trips to the town centre by car. Around 21% of trips crossing the Inner Cordon during the morning peak hour (930 vehicles) are less than 3km in length. Car ownership in South Somerset has increased by 29% from 1991 to 2001, equating to an additional 19,000 cars.
Diversity of movements	Study area caters for a wide diversity of movements, by origin/destination, trip purpose and trip time. The diversity of trip making is more pronounced to and from the rural hinterland – which is difficult to serve by conventional public transport.
Environmental impact of high traffic flows	High levels of traffic have significant impact on local communities in terms of pollution, severance and safety. This is particularly prevalent in the town centre.

Problem/Issue	Comment
Congestion 'hot-spots'	Key points of congestion on the road network contribute to delay and unreliability. Congestion regularly occurs on the A30 Sherborne Road. Key junctions that contribute to these delays include the Reckleford Gyratory, the Hospital Roundabout, Police Station Roundabout and Fiveways Roundabout.
Deterrence to use of existing public transport provision	Perceptions of poor quality - journey time, reliability, cost, and waiting environment. In 2001 just around 3% of employed residents in Yeovil travelled to work by bus.
Scale of the supply/demand imbalance	The highway network operates at or beyond capacity during peak periods. Forecasts of up to 21% additional growth in travel demand by 2011 resulting in increase in delay experienced by motorists of around 347% during the morning peak hour should nothing be done to alleviate congestion. Average delay per vehicle would increase by around 275% in the morning peak hour.
Modal cost imbalance	Public transport does not compete with car for many movements in the study area, due to perceived (and often 'real') costs of public transport (including level of service and fares) relative to car (including parking costs and availability).

3. The Yeovil Transport System in the Future

THE PURPOSE OF A REFERENCE CASE

3.1 Major transport schemes must be appraised against an appropriate reference base case. The reference case scenario should be developed to represent the most realistic view of future transport conditions without any new transport proposals. In this scenario any transport schemes and land-use proposals that are expected to be in place before the forecast year are considered.

3.2 For the purposes of developing the transport strategy for Yeovil a forecast year of 2011 has been assumed in line with next stage of the LTP process (LTP2) and the Local Plan period. Only those proposals which are likely to have a material effect on travel patterns and/or mode share within the Yeovil study area have been represented directly within the model. The effects of some smaller measures, such as traffic management schemes, are likely to be negligible in terms of route and mode decision making, and hence not included.

3.3 The detailed methodology describing how the forecast reference case matrices were derived is reported in Appendix A. This section provides a description of the performance of the reference case model and its performance against the YTSR objectives.

REFERENCE CASE TRAVEL CONDITIONS

Travel Demand Forecasts

3.4 The reference case represents the local transport situation in 2011 assuming:

- Overall travel demand grows in line with the increases in household and job numbers forecast in TEMPRO 4.2.3 (for 2011);
- Specific future employment, residential and education developments are identified and included in the forecast travel demand; and
- Highways improvements regarded as likely to have been constructed by 2011 are included.

3.5 The forecasting process adopted assumes a proportion of the future unconstrained demand will either choose to use public transport or be discouraged from making their journeys by car during the modelled peak hour in response to increased levels of congestion. In the latter case such responses might include retiming journeys outside the peak, not making the trip at all, increased vehicle occupancy (car sharing) or choosing a different destination.

3.6 Whilst these responses have not been modelled explicitly, the focus has been on quantifying the expected magnitude and distribution of trips suppressed from the peak hour demand as a result of congestion. This has been carried out by using elastic assignment techniques to remove a proportion of the trips from the matrices based on the changes in trip costs from the base year (2002) to the strategy year (2011).

3.7 The unconstrained reference case matrices were forecast to increase by around 27% between 2002 and 2011 in both the AM and PM peak hours. However, the effects of congestion in the model results in growth of 19% being assigned in the AM peak and 21% assigned in the PM peak. The matrix totals, in passenger car units - pcu's (where light vehicles have a value of 1.0 and heavy goods vehicles have a value of 2.0), are shown in Table 3.1 below.

Table 3.1 – Forecast Highway Demand for 2011 (AM & PM Peak Hours)

	Model Hour	
	AM	PM
2002 demand	19,254	20,449
Unconstrained demand (TEMPRO)	24,478	25,871
Growth relative to 2002	*+27.1%*	*+26.5%*
Capped demand	22,924	24,665
Growth relative to 2002	*+19.1%*	*+20.6%*

Source: Yeovil Traffic Model

Forecast Conditions on the Transport System

3.8 The changes in traffic flows between the 2002 base and 2011 reference case are shown in Tables 3.2 and 3.3 for the Yeovil Inner and Outer Cordons. The locations of these cordons are shown in Figure 3.1.

3.9 Although the overall growth in assigned demand is around 20% greater in 2011 than 2002 it can be seen that across the Inner Cordon flows increase by between 4% and 9%. The lower flows are a reflection of greater levels of suppressed demand in the elastic assignments for trips crossing the Inner Cordon and also traffic flows queued at junctions upstream of the Inner Cordon.

3.10 In general traffic flow increases on the links crossing the cordon points but in some cases a decrease in traffic has been observed. This is due to delays at junctions, especially the large at-grade junctions on the A30 and A37, make some routes unattractive and traffic therefore reassigns onto routes away from these junctions, often onto inappropriate routes.

3.11 Figures B.1 and B.2 in Appendix B show the changes in traffic flows between 2002 and 2011 for the AM and PM peak periods. Flows increase across much of the network (the green bands) although around the A30 Queensway/Reckleford Hospital Roundabout a decrease in flow is forecast in both peak hour models. Traffic flows can also be seen to increase on residential roads, especially across the north east area of Yeovil.

3.12 Flows are shown to decrease on the A30 Sherborne Road on the approach to the Reckleford Gyratory in the AM peak hour. Although this might be regarded as a desirable outcome it should be remembered that this is due to congestion at this location limiting the amount of traffic that can travel through the junction.

Table 3.2 – Change in Traffic Flow 2002-2011 Reference Case: Inner Cordon

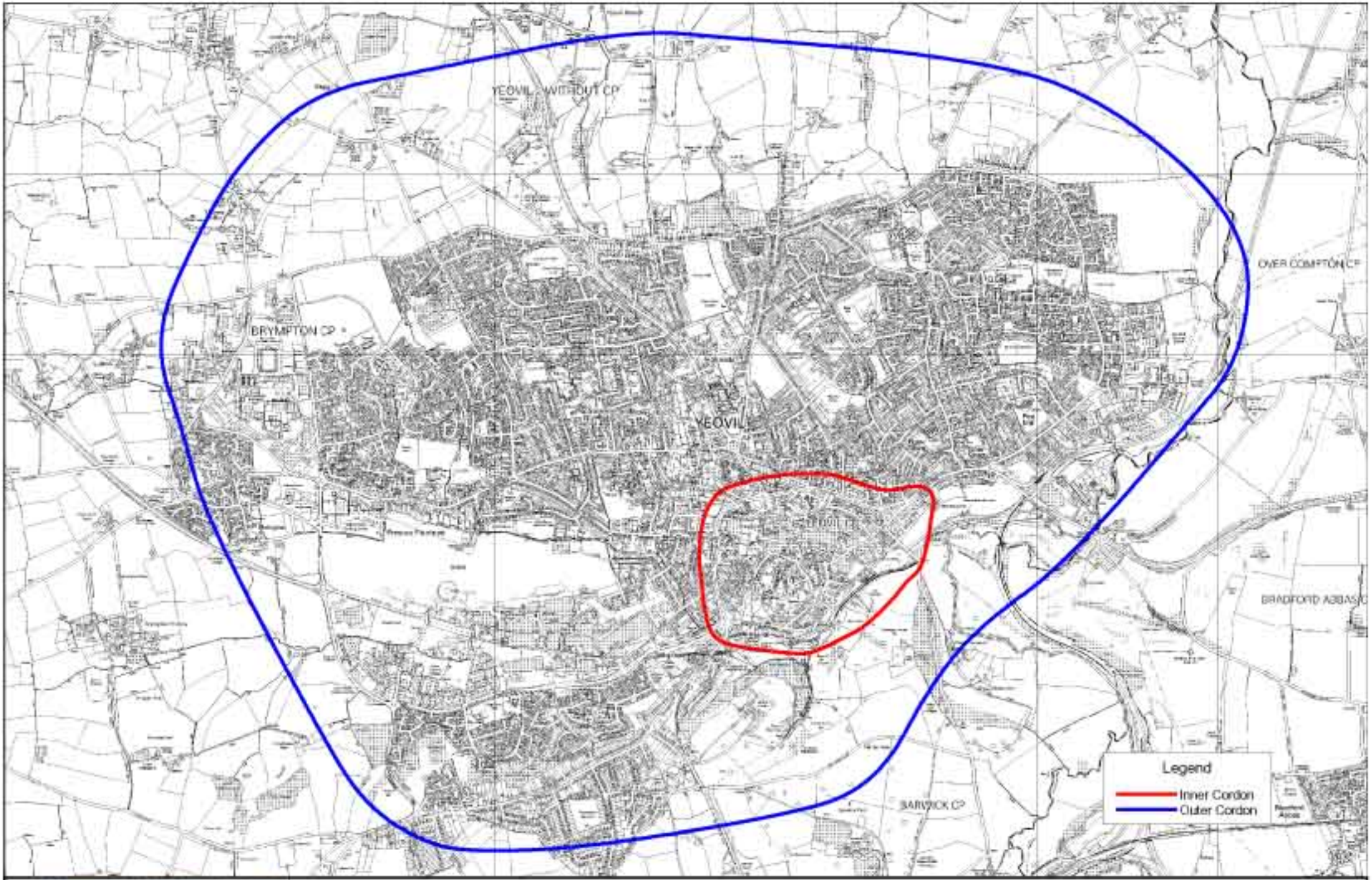
	AM Peak Hour Flows in pcu's				PM Peak Hour Flows in pcu's			
Road	**2002**	**2011**	**Difference**	**% Difference**	**2002**	**2011**	**Difference**	**% Difference**
Inbound								
A30 Hendford Hill	923	672	-250	-27%	616	738	122	20%
A3088 Lysander Road	1180	1322	142	12%	1276	1822	546	43%
A37 Kingston	1695	1948	253	15%	1447	1180	-268	-19%
Higher Kingston	103	108	5	5%	79	82	3	4%
Goldcroft	175	198	23	13%	105	70	-35	-34%
Eastland Road	191	358	166	87%	181	135	-46	-26%
A30 Sherborne Road	1123	801	-322	-29%	912	1000	89	10%
Newton Road	278	462	184	66%	87	118	31	36%
Total Across Cordon	5668	5869	201	4%	4704	5145	441	9%
Outbound								
A30 Hendford Hill	581	701	120	21%	1073	1088	15	1%
A3088 Lysander Road	970	1279	309	32%	736	781	46	6%
A37 Kingston	990	918	-73	-7%	1247	1297	49	4%
Higher Kingston	325	226	-99	-30%	154	146	-8	-5%
Goldcroft	133	104	-29	-22%	207	318	111	54%
Eastland Road	121	37	-83	-69%	116	111	-5	-4%
Southville	117	143	26	22%	111	240	129	116%
A30 Sherborne Road	988	989	0	0%	1295	1278	-17	-1%
Newton Road	100	141	41	41%	253	207	-46	-18%
Total Across Cordon	4325	4538	213	5%	5192	5466	273	5%

Source: Yeovil Traffic Model

Table 3.3 – Change in Traffic Flow 2002-2011 Reference Case: Outer Cordon

	AM Peak Hour Flows in pcu's				PM Peak Hour Flows in pcu's			
Road	**2002**	**2011**	**Difference**	**% Difference**	**2002**	**2011**	**Difference**	**% Difference**
Inbound								
A30 West Coker	883	1139	256	29%	435	628	194	45%
A3088 Cartgate Link	1310	1485	175	13%	659	722	63	10%
Bluebell Road	632	837	205	32%	297	292	-6	-2%
Titinhull Road	519	603	85	16%	243	374	130	54%
A37 Ilchester Road	722	880	158	22%	741	768	27	4%
A359 Mudford	507	432	-75	-15%	437	531	93	21%
A30 Sherborne Road	838	1086	248	30%	925	1150	225	24%
Newton Road	278	462	184	66%	87	118	31	36%
Tower Lane	77	66	-11	-14%	62	56	-6	-10%
A37 Dorchester Road	707	812	104	15%	455	502	47	10%
Sandhurst Road	0	1	0	88%	3	15	12	334%
Nash Lane	43	66	23	54%	18	44	25	139%
Total Across Cordon	6516	7869	1353	21%	4363	5199	836	19%
Outbound								
A30 West Coker	375	415	41	11%	1024	1184	160	16%
A3088 Cartgate Link	637	657	20	3%	1199	1497	298	25%
Bluebell Road	188	336	148	79%	470	657	187	40%
Titinhull Road	255	300	45	18%	458	563	105	23%
A37 Ilchester Road	616	672	56	9%	744	868	123	17%
A359 Mudford	322	524	203	63%	466	541	76	16%
A30 Sherborne Road	764	884	120	16%	1196	1307	111	9%
Newton Road	100	141	41	41%	253	207	-46	-18%
Tower Lane	23	34	12	51%	69	106	37	53%
A37 Dorchester Road	477	573	96	20%	747	831	84	11%
Sandhurst Road	0	20	19	-	13	14	1	4%
Nash Lane	74	110	36	49%	85	148	62	73%
Total Across Cordon	3830	4667	836	22%	6725	7923	1198	18%

Source: Yeovil Traffic Model



ATKINS

Yeovil Transport Strategy Review

Figure 3.1 - Yeovil Cordons

3.13 Table 3.4 shows junction delays greater than 120 seconds in the 2011 AM peak reference case model. Most of these delays are at roundabouts and many of these are those located on the dual carriageway sections of the A30 and A37. Similar data is shown in Table 3.5 for the PM peak although the lower bound is 100 seconds as there are a number of junction approaches with delays just above this value but less than 120 seconds.

3.14 The tables show that in these locations the junction delays increase substantially by 2011. The large delays at the A30/A37 Hospital Roundabout on the approach along the A30 Reckleford are caused by the large north to west circulatory flow at this roundabout making it difficult for westbound traffic to enter the roundabout. This explains the reduction in traffic observed on the A30 Reckleford indicated in the flow diagrams.

3.15 As well as at the large at-grade junctions in Yeovil delays are also forecast to increase substantially on the A30 Sherborne Road at the Reckleford Gyratory, on Newton Road at the South Western Terrace junction and at the junction of Market Street and A30 Reckleford where traffic from Market Street is delayed.

Table 3.4 – Junction delays greater than 120 seconds AM Peak Reference Case

Junction	Approach	2002	2011
A30/A37 Hospital Roundabout	A30 Reckleford	34 secs	473 secs
A37/A359 Fiveways Roundabout	A37 Ilchester Road	169 secs	286 secs
A37/A359 Fiveways Roundabout	A359 Mudford Road	203 secs	345 secs
A359 Mudford Road/Sparrow Road	Sparrow Road	3 secs	248 secs
A359 Mudford Road/Sparrow Road	A359 Mudford Road	1 sec	219 secs
A30 Reckleford Gyratory	A30 Sherborne Road	13 secs	541 secs
A37 Ilchester Road/Thorne Lane Roundabout	Combe Street Lane	22 secs	233 secs
A30/A3088 Police Station Roundabout	A30 Hendford Hill	20 secs	149 secs
A3088 Cartgate Link/Bunford Lane Roundabout	Bunford Lane	65 secs	161 secs

Source: Yeovil Traffic Model

3.16 Tables 3.6 and 3.7 show the SATURN model network summary statistics and matrix totals for the AM and PM peak models respectively. The demand matrix totals identify the level of matrix suppression separately for both the light vehicles and heavy goods vehicle matrices.

3.17 The model summary statistics show the travel time across the network. These are disaggregated into running time or non-queued time, transient queued time (non-over capacity delay at junctions) and over capacity queued time (delay) at junctions. Also reported are total travel distances across the model and the average modelled speed.

Table 3.5 – Junction delays greater than 100 seconds PM Peak Reference Case

Junction	Approach	2002	2011
A30/A37 Hospital Roundabout	A30 Reckleford	139 secs	301 secs
A30/A37 Hospital Roundabout	A37 Kingston	18 secs	106 secs
A30/A37 Hospital Roundabout	Clarence Street	466 secs	351 secs
A30 Reckleford/Market Street	Market Street	15 secs	119 secs
Newton Road/South Western Terrace	Newton Road	11 secs	104 secs
A30 Sherborne Road/Lyde Road	A30 Sherborne Road	30 secs	104 secs

Source: Yeovil Traffic Model

3.18 One of the key indicators is the over-capacity queued time which shows the time delayed at junctions. The table shows that in the AM peak this delay increases by 842 hours or 347% between 2002 and the 2011 capped assignment. Similarly for the PM peak delay increases by 439 hours or 117% between 2002 and the 2011 capped assignment. These are significant increases in the levels of delay which have resulted from a modest 20% increase in demand, this shows how the relationship between flow and delay is non linear.

3.19 Total travel time is forecast to increase by 34% (3025 pcu-hours) for the AM peak and 28% (2585 pcu-hours) for the PM peak from 2002 to the 2011 forecast year. This increase will mean longer journey times and a decrease in the average speed.

3.20 In the AM peak the average speed is expected to drop from 47.2kph in 2002 to 37.1kph in 2011 and in the PM peak the average speed is expected to drop from 44.8 kph in 2002 to 38.7 kph in the forecast year.

Table 3.6 – AM Peak Network Summary Statistics

	2002 AM Base	2011 AM Reference Case	
Matrix Size (vehicles)			
	Demand	Demand	Capped
Light vehicles	17,471	22,332	20858
Heavy goods vehicles	891	1,073	1,033
Total (vehicles)	18,362	23,405	21,891
Capped traffic and % change			
Light vehicles	-	-	1,474
% Change	-	-	6.6%
Heavy goods vehicles	-	-	40
% Change	-	-	3.7%
Total (vehicles)	-	-	1,514

	2002 AM Base	2011 AM Reference Case	
% Change	-	-	6.5%
Model Network (pcu-hours or pcu-km)			
Running time	8,113	10,430	10,024
Transient queued time	536	950	807
Over-capacity queued time	243	2,216	1,085
Total travel time	8,892	13,596	11,917
Total travel distance	439,200	553,775	535,866
Average speed (kph)	47.2	30.3	37.1

Source: Yeovil Traffic Model

3.21 The differences in model statistics between the 2011 demand and capped assignments are interesting in that they show that a modest reduction in demand (6.5% and 4.7% in the AM and PM peak matrices respectively) results in a large decrease in over-capacity queued time of 51% in the AM peak and 37% in the PM peak.

Table 3.7 – PM Peak Network Summary Statistics

	2002 PM Base	2011 PM Reference Case	
Matrix Size (vehicles)			
	Demand	Demand	Capped
Light vehicles	19,494	24,724	23,576
Heavy goods vehicles	478	574	545
Total (vehicles)	19,972	25,298	24,121
Capped traffic and % change			
Light vehicles	-	-	1148
% Change	-	-	4.6%
Heavy goods vehicles	-	-	29
% Change	-	-	5.1%
Total (vehicles)	-	-	1177
% Change	-	-	4.7%
Model Network (pcu-hours or pcu-km)			
Running time	8,125	10,216	9,986
Transient queued time	572	939	857
Over-capacity queued time	374	1,304	813

	2002 PM Base	2011 PM Reference Case	
Total travel time	9,071	12,459	11,656
Total travel distance	439,003	542,200	531,437
Average speed (kph)	44.8	35.0	38.7

Source: Yeovil Traffic Model

Trip Length Distribution

3.22 Figures 3.2 and 3.3 compare the number of light vehicle trips entering Yeovil across the Outer and Inner Cordons during the AM Peak for the 2002 base year model and 2011 reference case whilst Figures 3.4 and 3.5 show the equivalent for trips leaving Yeovil in the PM peak. It should be noted that the trip distance refers to the overall length of the journey and does not mean that trips have travelled this distance to reach Yeovil.

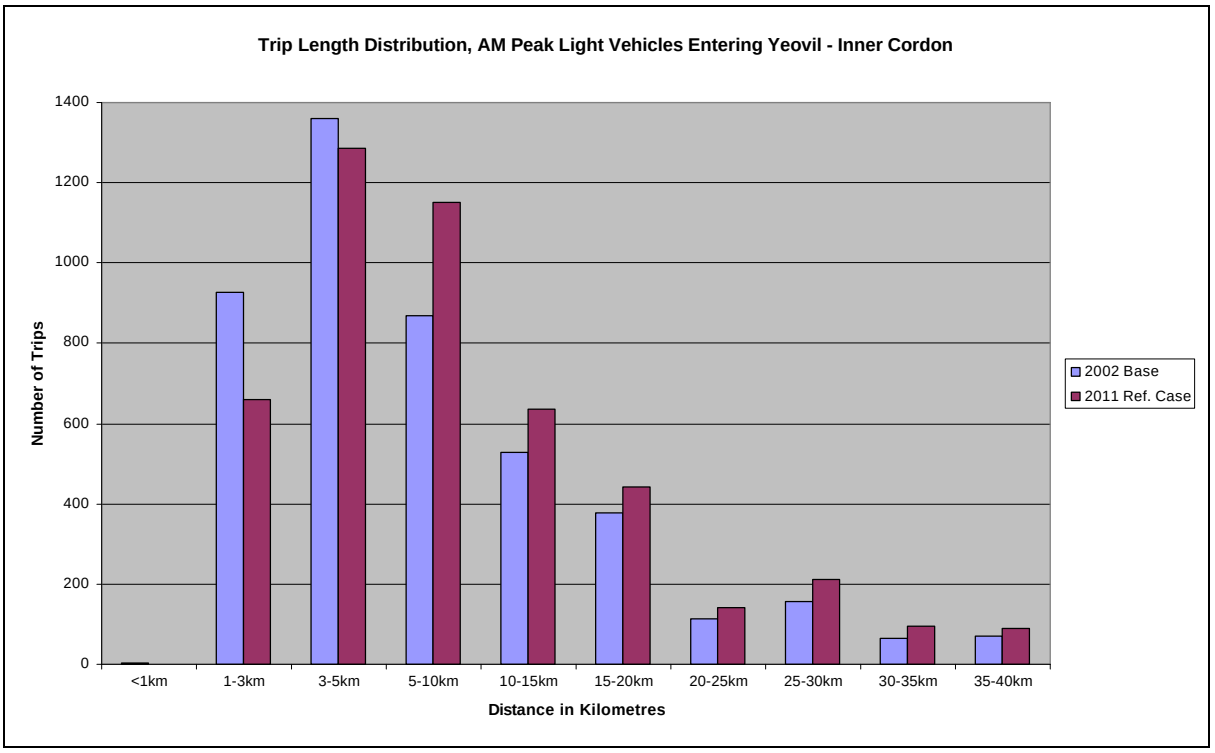
3.23 Figure 3.2 shows that in both the 2002 AM peak base model and 2011 AM peak reference case model the largest group of trips crossing the Inner Cordon are in the 3–5km band. In both models the majority of trips crossing the Inner Cordon are less then 10km long. Trip lengths are shown to increase between 2002 and 2011 with fewer trips less than 5km long and an increase in the number of trips greater that 5km in length.

3.24 Figure 3.3 shows trips crossing the Outer Cordon in the AM peak in the 2002 AM peak base model and the 2011 AM peak reference case. The largest numbers of trips can be seen to be in the 5-10km band which reflects the location of the cordon around the edge of the Yeovil urban area. Between 2002 and 2011 the number of trips in each of the bands can be seen to increase although the largest increases are in the 5-10km band.

3.25 For outbound trips crossing the Inner Cordon in the PM peak, shown in Figure 3.4, almost the same pattern as was seen in the AM peak can be observed. In both the 2002 AM peak base model and 2011 AM peak reference case model the largest group of trips crossing the Inner Cordon are in the 3–5km band. In the 2011 reference case model there are fewer trips less than 5km in length and more trips greater than 5km in length. This is the same as was observed for trips travelling into Yeovil in the AM peak.

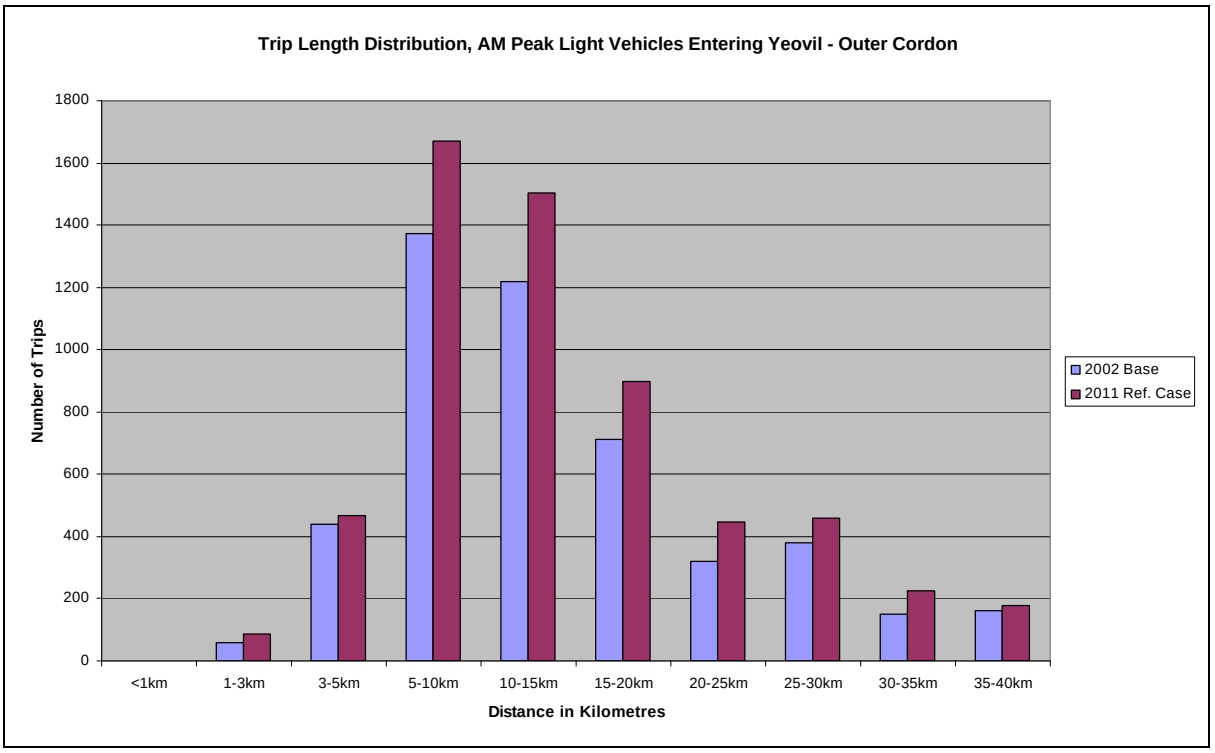
3.26 Figure 3.5 shows PM peak trips crossing the Outer Cordon in the outbound direction. Again the PM peak pattern of changes in the trip length distribution is similar to that shown for the inbound direction in the AM peak. Between 2002 and 2011 there is an increase in trip numbers in each of the bands with the largest increase being seen in the 10-15km band.

Figure 3.2 – Trip Length Distribution, Light Vehicles, Inner Cordon, AM Peak



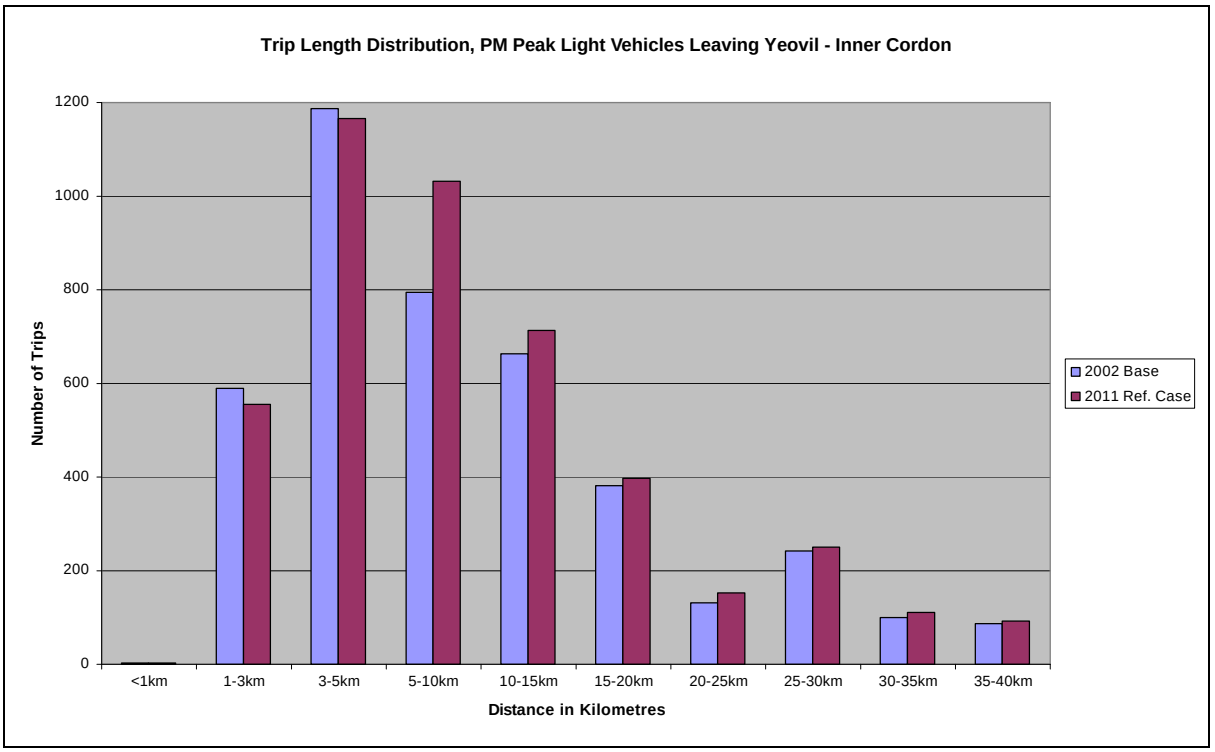
Source: Yeovil Traffic Model

Figure 3.3 – Trip Length Distribution, Light Vehicles, Outer Cordon, AM Peak



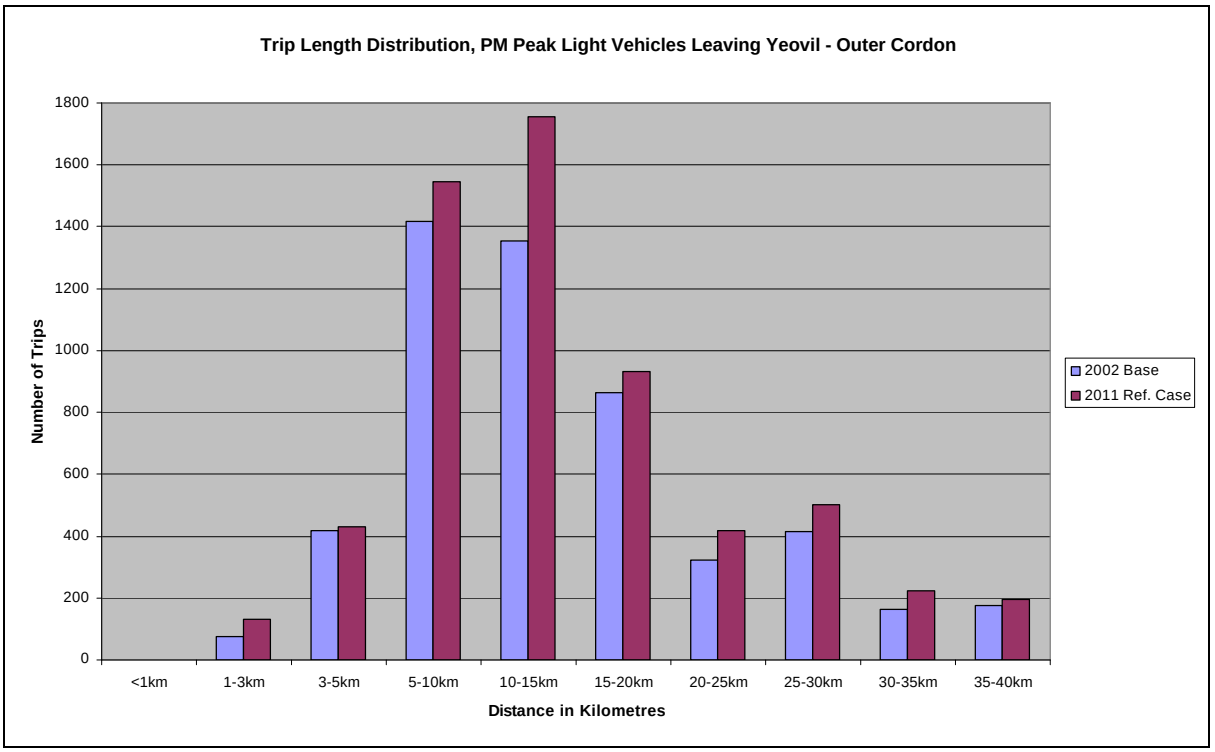
Source: Yeovil Traffic Model

Figure 3.4 – Trip Length Distribution, Light Vehicles, Inner Cordon, PM Peak



Source: Yeovil Traffic Model

Figure 3.5 – Trip Length Distribution, Light Vehicles, Outer Cordon, PM Peak



Source: Yeovil Traffic Model

PERFORMANCE AGAINST YTSR OBJECTIVES

3.27 The YTSR is to be appraised against the policy objectives detailed in Section 6 of the Baseline Review of Transport Conditions Report. The framework is based on the DfT guidance found in GOMMMS which considers the impact of transport schemes against five key objectives, namely environment, safety, economy, accessibility and integration. It also incorporates objectives taken from the SCC LTP at both the countywide and Yeovil specific level.

3.28 The following section summarises the performance of the reference case scenario against the environment, safety and economy GOMMMS objectives. The appraisal of the YTSR strategy appraisal can be found in Section 6 of this report.

Environment

3.29 The environmental impacts of travel pattern changes are largely influenced by changes in traffic flows, traffic speeds and queuing on the highway network. The YTSR has set objectives to reduce the impact of traffic within Yeovil, to reduce the impacts of noise nuisance and to reduce severance.

Reduce impact of traffic within Yeovil

3.30 Table 3.8 shows the changes in total two-way traffic flows crossing the Yeovil Inner and Outer Cordons. It can be see that the Inner Cordon sees a modest 4% and 7% increase whilst the flows across the Outer Cordon increase by 21% and 18% in the AM and PM peak hours respectively. This reflects the lower levels of congestion forecast to occur outside of the Yeovil Town Centre.

Table 3.8 – Change in Total Traffic Crossing the Yeovil Cordons, 2002 -2011

Peak Hour & Cordon	2002 Base	2011 Reference Case	% Change
Inner Cordon			
AM Peak	9,993	10,407	+4%
PM Peak	9,896	10,611	+7%
Outer Cordon			
AM Peak	10,346	12,536	+21%
PM Peak	11,088	13,122	+18%

Source: Yeovil Traffic Model

Noise

3.31 A considerable increase in traffic flows (over 20%) is normally required before a perceptible change in noise level occurs (GOMMMS). Therefore, any changes in noise levels in Yeovil are likely to be small.

3.32 Table 3.9 shows the estimated 2011 noise levels on a number of sensitive roads around Yeovil and the change from the 2002 base year at the same locations. The

forecast changes are very modest with the largest increase on Lyde Road (3%) and a decrease of 2% on St.Michael's Avenue.

Table 3.9 – Road traffic noise along sensitive roads, 2011 Reference Case

Road	Estimated Average Roadside Noise Level (dBA)	% changes from 2002
A30 Hendford Hill	69.6	0%
A359 Mudford Road	67.5	0%
A3088 Lysander Road	70.9	-1%
Lyde Road	68.3	3%
Preston Road	68.1	-1%
Western Avenue	68.1	1%
St.Michael's Avenue	53.0	-2%
Larkhill Road	63.8	0%

Severance

3.33 Community severance is defined in the Design Manual for Roads and Bridges (DMRB) as the separation of residents from the facilities and services they use by changes in traffic flows. Table 3.10 shows forecast 2011 daily traffic flows along a number of sensitive roads and the change from the 2002 base year.

Table 3.10 – Daily traffic flows along sensitive roads, 2011 Reference Case

Road	2011 Daily Flow (two-way)	% changes from 2002
A30 Sherborne Road/A30 Reckleford Gyratory	29,800	-13%
A30 Reckleford	23,000	-22%
A30 Queensway	28,200	-14%
A30 Hendford Hill	20,300	9%
A359 Mudford Road	12,100	-7%
A37 Kingston	23,300	74%
A3088 Lysander Road	26,700	8%
Lyde Road	11,500	62%
Preston Road	12,600	-16%
Western Avenue	13,000	27%
St.Michael's Avenue	700	-20%
Larkhill Road	4,300	-11%

3.34 Severance can be seen to increase on a number of links across Yeovil although in places flows, and thus severance, are actually forecast to decrease due to the congestion in the reference case models.

Safety

3.35 Accident rates are forecast to reduce with time as will the severity of injury as vehicles become safer. The DMRB provides accident rates by link type and severity split as well as the forecast changes in rates and severities. These have been applied to the traffic flows from the Yeovil traffic model to estimate future accident numbers and casualties. It can be seen that forecast numbers of fatal and serious accidents decrease significantly by 2011 in the reference case scenario.

Table 3.11 – Forecast Road Traffic Casualties in Yeovil, 2011

Severity	Measurement	Forecast Numbers of Casualties 2011	% Change from 2002
Fatal	Casualties per annum	0.9	-21%
Serious	Casualties per annum	14.5	-22%
Slight	Casualties per 100m veh-km	90.0	-2%

Economy

3.36 The key economic impact of the YTSR strategy will be the change in travel times due to a reduction, or increase, in delay and congestion. In the 2011 reference case the average time lost to delay per vehicle kilometre is 79.9 seconds on the A-classified road network and 78.8 seconds on the remaining roads in the study area.

Journey Times

3.37 The overall journey times in Yeovil are expected to increase as a result of the increase in traffic on the highway network. This can be seen in Figures B3 to B.22 (of Appendix B) which show a comparison of times along the journey time survey routes reported in the Baseline Review of Transport Conditions and also shown in Figure B.23 in Appendix B of this report.

3.38 These graphs show that in nearly all cases journey times in the reference case are slower than in the base year model. This is to be expected as there is additional demand on the network, leading to greater delay and slower journey times.

3.39 The journey time graphs assist in the identification of junctions where there are large increases in modelled delay. A summary of these is shown below for both the AM and PM peak hours:

- A30 Reckleford Gyratory/Newton Road/South Western Terrace – Route 2 AM peak and PM peak clockwise;
- A37 Ilchester Road/Combe Street Lane - Route 2 AM peak anticlockwise;
- A30/A3088 Police Station Roundabout – Route 3 AM peak northbound;
- A37/A359 Fiveways Roundabout – Route 3 AM peak southbound;

- A30/A37 Hospital Roundabout – Route 3 PM peak southbound;
- A37/A359 Fiveways Roundabout – Route 4 AM peak southbound;
- A30 Reckleford Gyratory – Route 5 AM peak and PM peak westbound;
- A30/A37 Hospital Roundabout – Route 5 AM peak westbound; and
- A30 Sherborne Road/Lyde Road – Route 5 PM peak eastbound.

3.40 Unsurprisingly, many of the locations identified above in the journey time surveys are consistent with those shown earlier in the tables showing delay at junctions.

3.41 The data in the diagrams has been summarised to show the changes in journey times along the overall routes and this is shown in Table 3.12.

Table 3.12 – Change in journey times, 2011 Reference Case

Route	Description	Direction	Time (mins) 2002	Time (mins) 2011	% Diff.
AM Peak					
2	Yeovil Circular Route	CW	19.0	36.5	92%
2	Yeovil Circular Route	AC	25.4	32.9	30%
3	A37 Dorchester Road - A37 Ilchester	NB	12.8	15.6	22%
3	A37 Ilchester - A37 Dorchester Road	SB	16.4	17.9	9%
4	New Road - A359 Sparkford	NB	17.2	19.6	14%
4	A359 Sparkford - New Road	SB	20.1	26.6	32%
5	A30 Babylon Hill - A303 Cartgate	WB	22.6	29.9	32%
5	A303 Cartgate - A30 Babylon Hill	EB	16.6	19.2	16%
PM Peak					
2	Yeovil Circular Route	CW	19.8	28.7	45%
2	Yeovil Circular Route	AC	20.6	25.0	21%
3	A37 Dorchester Road - A37 Ilchester	NB	12.8	13.5	6%
3	A37 Ilchester - A37 Dorchester Road	SB	13.7	16.4	20%
4	New Road - A359 Sparkford	NB	19.8	20.0	1%
4	A359 Sparkford - New Road	SB	18.3	19.1	5%
5	A30 Babylon Hill - A303 Cartgate	WB	20.4	23.6	16%
5	A303 Cartgate - A30 Babylon Hill	EB	15.2	20.3	33%

Source: Yeovil Traffic Model

3.42 The table shows that all the journey times increase with substantial increases on some routes. Journey times on Route 2, which is the Yeovil circular, almost double in the AM peak (92%) and most of the other routes see times increase by more than 10%.

Journey Time Reliability

3.43 Increases in delay caused by traffic growth will have significant implications for journey time reliability for travel around Yeovil. As traffic volumes become near to a road's capacity (junction or link capacity) the journey times will become more unreliable due to the reduction in spare capacity on the road network.

3.44 By 2011 the number of vehicle kilometres travelled in the AM peak on links where traffic flow is at or over capacity is forecast to increase considerably to the point that they represent 11% of vehicle kilometres travelled. Table 3.13 below shows the modelled vehicle kilometres disaggregated by link reliability category.

Table 3.13 – Journey Time Reliability by Capacity Bands

Category	Vehicle-kms travelled 2011 AM peak	% Change from 2002
Below capacity (<70% of capacity)	38905	8%
Nearing capacity (70-85% of capacity)	8304	91%
At capacity (85-95% of capacity)	1662	-25%
Over capacity (95% + of capacity)	4178	177%

Source: Yeovil Traffic Model

4. Options for Intervention

INTRODUCTION

4.1 Within the YTSR strategy there are a number of elements that are aggregated to form the overall strategy. In reality there are many areas where the elements overlap and there are also strong linkages between each of them as the implementation of measures as part of one element will often impact on issues being addressed by another element of the strategy. These issues have been considered as part of the overall YTSR strategy and the elements have not been developed in isolation.

4.2 The elements that have been developed are listed below:

- The Highway Strategy;
- The Cycling Strategy;
- The Pedestrian Strategy;
- The Travel Planning and Travel Awareness Strategy;
- The School Transport Strategy;
- The Public Transport Strategy; and
- The Parking Strategy.

4.3 This section describes the development of each of the elements of the strategy. In each case it looks at the relevant objectives set as part of the development of the YTSR and the linked recommendations that were contained in the YCRT. Each section then looks at current and future issues and discusses possible interventions to address these problems.

DEVELOPING A HIGHWAY STRATEGY

Objectives

4.4 The following highway linked objectives were set for the YTSR.

Source of Objective	Objective
LTP – Countywide	Implement environmental traffic calming schemes and reduce speeds at sites by 15%.
	Reduce average time lost in congestion per vehicle km
	Improve journey time reliability
Not specified	Reduce severance effects along sensitive routes

4.5 A large number of the other study objectives are directly linked to the performance of the highway network and any changes in the level of use of other modes may have a direct impact on traffic flows. These will also impact upon the environment objectives which aim to reduce noise levels and severance along sensitive routes.

4.6 The YCRT made the following recommendations that are directly related to the highway network:

- Recommendation 1: The YCRT Panel recommended the creation of a road hierarchy with three types of local road:
  - 20mph zones in residential areas;
  - 30mph on the strategic road network within the town; and
  - 30mph+ on roads outside the town built up area.
- Recommendation 34: The YCRT Panel recommended the replacement of the roundabouts on the A30 Reckleford and Queensway with signalled junctions, incorporating pedestrian, cycle and bus priority facilities wherever possible.
- Recommendation 36: It was recommended that the one-way system at Reckleford be monitored and evaluated in term of the scheme's objectives.
- Recommendation 39: The YCRT Panel recommended the construction of a single carriageway road from the Pen Mill area to link with Reckleford and Summerhouse Terrace/Old Station Road.
- Recommendation 40: A new distributor road, paid for by developer contributions, was recommended to serve the proposed residential developments to the north and east of Yeovil.
- Recommendation 41: The A3088 Lysander Road was recommended for limited widening to allow traffic to travel in two lanes for most of its length without the need to merge into a single lane.

4.7 The road referred to in Recommendation 39 follows the route of a previous scheme promoted by SCC but subsequently withdrawn from their programmes and not included in SCC's LTP. The scheme is widely known as the 'Stage IV' link road.

4.8 Part of the distributor road referred to in Recommendation 40 is the Thorne Lane link road that has been assumed to be a reference case scheme in the traffic modelling work carried out in the study. Therefore, this scheme is assumed to have been constructed in 2011 regardless of the recommendations of the YTSR.

4.9 The rationale that has been followed in developing the Highway Strategy and thus achieving the study objectives can be summarised as follows:

- To reduce delays and journey times across the network;
- To distribute traffic more 'evenly' and efficiently across the network; and
- To reduce traffic on unsuitable routes

4.10 The strategy development has been based on realism. It is known that current regional transport policy makes it unlikely that a major highway scheme could be justified in Yeovil although this has not precluded the YTSR from assessing a number of possible schemes.

4.11 Much of the Highway Strategy is based on making better use of the existing highway network and examining possible improvements. The strategy is not about providing additional highway capacity to meet 'predict and provide' type criteria but looks at ways of creating and redistributing capacity.

4.12 It is recognised that there is no one scheme that could improve the forecast traffic conditions described in Section 3 so the strategy aims to recommend improvements

as part of a package of measures to help alleviate some of the likely issues in the future.

Background

4.13 The Baseline Review of Transport conditions identified that there is no large movement of traffic through Yeovil for which a bypass could offer a solution. Although over a quarter of traffic in the Yeovil model has both origin and destination outside of the town analysis using the traffic model showed that there was no dominant through movement which would justify a bypass.

4.14 The largest through movement were between the A37 Dorchester Road and both the A37 Ilchester Road and A3088 Cartgate Link. These roads are designated as National Primary Routes whereas the other classified roads in Yeovil (A30 and A359) are classified as County Routes (except for the A30 Queensway which links the two sections of the A37 and is thus a National Primary Route).

4.15 Similarly the same hierarchy is adopted in the designation of freight routes as part of the SCC Freight Strategy. The A37 and A3088 are designated as National Freight Routes and the A30 (east of Yeovil) is a local freight route.

The Reference Case

4.16 Section 3 has described the traffic conditions in Yeovil in the reference case scenario where limited improvement has been made to the highway network apart from additional infrastructure to serve new residential and employment developments.

4.17 The assessment showed that a large increase in delay at junctions, due to over capacity, occurring at many locations across the network. In particular significant increases in delay were forecast at the three large at-grade roundabouts along the A30 and A37 at:

- A30/A3088 Hendford Hill/Lysander Road/Queensway/Brunswick Street 'Police Station' Roundabout;
- A30/A37 Queensway/Kingston/Reckleford 'Hospital' Roundabout; and
- A37/A359 Kingston/Preston Road/Ilchester Road/Mudford Road 'Fiveways' Roundabout.

4.18 Other junctions where significantly increased delays were observed in the reference case traffic models were:

- A30 Reckleford Gyratory;
- A30 Sherborne Road/Lyde Road Roundabout; and
- A37 Ilchester Road/Combe Street Lane Roundabout.

4.19 Further assessment of the model showed that delays at these junctions were contributing to reassignment of traffic off the classified road network onto unsuitable roads. This could be seen on links such as the A30 Reckleford and the A30 Sherborne Road where traffic flows are forecast to decrease from 2002 to 2011.

Development of the Strategy

4.20 The development of the strategy required an assessment of a number of individual schemes. The appraisal of these was required on an individual basis against the reference case and also as part of a package. It is not uncommon for a scheme to work well in isolation but when included as part of a package of improvements may not offer the benefits originally envisaged.

4.21 In addition it is important to test schemes in both the AM and PM peak scenarios as some schemes will only bring benefits in one of the peak hours. In such cases a judgment needs to be made on the whether the benefits can justify the scheme.

At-Grade Roundabouts

4.22 In the reference case the large at-grade roundabouts on the A30 and A37 have been shown to have significant delays which contribute to unbalanced flows on the approaches. This leads to reassignment of traffic off the classified road network onto unsuitable roads and has led to reference case flows of less than the base year.

4.23 To make a roundabout work efficiently the optimum solution is to grade-separate the roundabout and take the major flow out of the junction. Considering the cost of such a scheme, as well as the land take and environmental issues, this approach has been rejected by the YTSR.

4.24 In the hierarchy of methods to increase capacity through junctions and balancing flows on approaches the recommended method is to provide some form of signal control at the junction. The YTSR has looked at the possibility of introducing traffic signals at the large at-grade roundabouts in Yeovil.

North Yeovil Improvements

4.25 Movements between west and east across Yeovil are restricted to two main routes, either the A30 Sherborne Road and then the A30 Reckleford or Summerhouse Terrace or via Lyde Road, the A359 Mudford Road, Combe Street Lane and Thorne Lane.

4.26 Although this latter route is not a classified road (apart from the short section of A359) this corridor is forecast to carry two-way traffic flows of up to 1800 pcu's in the 2011 AM peak reference case. With the proposed developments at Lyde Road, Thorne Lane and Lufton at either end of this route it is expected that the route will develop further into a key route across Yeovil.

4.27 Even though traffic from Lyde Road through to Combe Street Lane makes up the majority of the traffic on this section of the A359 Mudford Road this is not the priority movement. The junctions of Lyde Road and Combe Sreet Lane with the A359 Mudford Road are priority junctions with the A359 being the major arms at both locations.

4.28 The strategy has looked at a number of possible options to ease traffic flow along this route for east-west moments. These have included keeping the two junctions on the A359 as priority junctions but with the major movements from Lyde Road and Combe

Street Lane, and converting the junctions into either traffic signals and or roundabouts.

4.29 The YTSR has also looked at improving the standard of Combe Street Lane to the equivalent of a modern 7.3m single carriageway although the modelling work indicated that most of the delays along this route are attributable to the junctions at either end of the road.

4.30 At the roundabout at the junction of Combe Street Lane and the A37 Ilchester Road delays are forecast in the model. The strategy has looked at modest improvements at this junction to ease the problems on the approaches to the roundabout.

4.31 West of the A37 Ilchester Road the new Thorne Lane distributor road bypasses the existing Thorne Lane. At the east end of the new road the current plans propose a roundabout with the existing Thorne Lane. Combined with the existing roundabouts at Tintinhull Road and A37 Ilchester Road this will result in three roundabouts along a short stretch of road.

4.32 The reference case models showed that delays were being caused to traffic due to these roundabouts and so the YTSR has looked at a revised junction configuration to ease the flow west of A37 Ilchester Road.

Market Street Junction

4.33 The current Market Street Junction with the A30 Reckleford allows only for 'left in and left out' movements. On the A30 Reckleford there is a lane drop for the left in movement and the lane is gained by the left out movement. The junction is a priority junction.

4.34 The 1998 Yeovil Transport Strategy recommended that the junction should be improved to allow the 'right in' movement from the west. The YTSR has looked at the benefits of providing traffic signals at this junction and of allowing a combination of movements including 'right in' and 'right out' and only 'right in'.

4.35 The potential of providing bus priority through an improved junction was considered as part of the Public Transport Strategy.

Reckleford Gyratory

4.36 The Reckleford Gyratory is considered by many people in the area to be the main cause of traffic delay in Yeovil. Traffic travelling westbound along the A30 Sherborne Road into Yeovil is frequently subject to delay with slow moving traffic often being observed from Reckleford Gyratory eastwards back to Babylon Hill.

4.37 There is a perception that the recent introduction of traffic signals (with pedestrian crossings) at Reckleford Gyratory has resulted in a substantial increase in traffic problems at this location and this has led to demands for these signals to be removed.

4.38 SCC regarded this issue to be of such importance that it should not be considered as part of the YTSR but instead separate studies were commissioned to look specifically at this issue. As the development of the YTSR was undertaken in parallel with these

Reckleford specific studies it was necessary for the YTSR to assume that no changes would be made to the highway network at this location.

Traffic Management

4.39 Analysis of the reference case has shown that congestion on the classified road network has resulted in increased flows on residential roads as trips seek alternative routes to avoid delays.

4.40 Any improvements to the highway network should help to attract these flows away from such roads although as the scope for major improvements in Yeovil are limited it is likely that traffic will need to be deterred from using residential roads.

4.41 As part of the strategy development the study has looked at introducing measures to increase journey times along residential areas. In reality this could be achieved by physical measures such as traffic calming or alternatively by extending the existing 20mph zones.

Road Hierarchy

4.42 A possible tool to encourage traffic to use different routes is to re-designate roads to reduce or increase their importance in the road hierarchy. The YTSR has considered the classified roads in Yeovil and the surrounding area to understand if there is merit in recommending change. This applies to both the road hierarchy and the freight strategy hierarchy.

Major Schemes

Highway Schemes

4.43 A number of potential major scheme highway improvements (>£5m) were considered as part of the YTSR. These included:

- Converting the A3088 Western Relief Road to dual 2-lane carriageway;
- Constructing a link from the A3088 Cartgate Link to Thorne Lane via a route to the west of the proposed Lufton developments; and
- Constructing a link from the A37 Dorchester Road to the A30/A3088 Watercombe Lane junction via a route running adjacent to Pavyotts Lane and Nash Lane.

4.44 The A3088 Western Relief Road dualling scheme and the A37 Dorchester Road to A3088 scheme are both parts of the National Primary Route network and National Freight network and so these schemes could be easier to justify at the regional level than other schemes in Yeovil.

4.45 Despite this when these three schemes were assessed against the reference case they were discounted as there was little traffic or economic benefit to justify construction.

4.46 The A3088 Western Relief Road scheme showed limited change in traffic flows or economic benefit as any problems along this stretch are attributable to the at-grade roundabouts at either end of the route and not the link capacity. With the Bunford

Development planned to access the A3088 on this stretch another junction will also be included in the network.

4.47 The link from the A3088 Cartgate Link to Thorne Lane results in localised reassignment from Western Avenue to the new link road and traffic flows elsewhere in Yeovil are unchanged. The scheme provided additional capacity connecting a large new residential development with the A3088. This will allow easy access onto the National Primary Route network away from Yeovil and can not therefore be seen as meeting the objectives of the YTSR.

4.48 The link from the A37 Dorchester Road to the A3088 at Watercombe Lane provides an effective bypass of the A30 West Coker Road. Again the traffic effects are limited to the locality with little change in traffic flows across Yeovil.

4.49 The A30 West Coker Road has not been identified in the reference case as a road where there are significant forecast delays or congestion. Although it is predominately residential the road is reasonably wide for much of its length. Creating a bypass for this road would have some benefits but it is difficult to see how such a scheme could be justified as it is not bypassing a problematic stretch of road and would not fit with any regional or local objectives.

A30 Stage IV Link Road

4.50 The A30 Stage IV Link Road was proposed as an extension of the A30 Queensway and A30 Reckleford linking the Reckleford Gyratory through to the A30 near Babylon Hill, thus bypassing the Sherborne Road.

4.51 It is a scheme that for a number of years was safeguarded in the Local Plan and was promoted by SCC as a scheme worthy of construction. This is no longer the case and SSDC have recommended that the scheme is no longer safeguarded in their Local Plan.

4.52 Intuitively the scheme would be expected to have merit in that it is bypassing what is regarded by many as the most congested part of the Yeovil highway network. From the west the scheme leaves the A30 west of Babylon Hill and runs through the Yeovil Country Park. Near Newton Road the route splits with a link going northwards and joining the existing A30 at the Reckleford/Sherborne Road junction. The other section runs westwards and joins in to Summerhouse Terrace at its junction with Stars Lane.

4.53 The Yeovil Traffic Model was used to test the impact of the scheme on the Yeovil highway network. The model networks included the changes proposed as part of the YTSR as it was felt that it was unlikely that Stage IV would be constructed in isolation from other improvements. Additional runs were also carried out that looked at the implications of not constructing the link from Summerhouse Terrace through to the Newton Road junction.

4.54 Table 4.1 below shows the changes in traffic flows on the key links adjacent to the Stage IV scheme. The table shows that flows on the current A30 Sherborne Road decrease significantly although the remaining traffic volumes are still substantial, especially with the option with no western section of the Stage IV scheme.

4.55 Few trips use the link from the Stage IV scheme to the Reckleford Gyratory as the traffic modelling shows that there is little time advantage for trips using the Stage IV scheme between Babylon Hill and Reckleford compared to the current A30 Sherborne Road. As a result most trips on the scheme use Summerhouse Terrace and Stars Lane and this is shown by the significant flow increases on these roads.

Table 4.1 – 2011 Traffic Flow Changes – Stage IV

Location	AM Peak (two-way pcu/hr)			PM Peak (two-way pcu/hr)		
	YTSR Strategy	Strategy + Stage IV	Strategy + Stage IV (no west section)	YTSR Strategy	Strategy + Stage IV	Strategy + Stage IV (no west section)
A30 Sherborne Road east of Reckleford Gyratory	2479	1552	1927	2592	1878	2304
A30 Reckleford	1431	1659	1723	1598	1803	1891
Summerhouse Terrace	860	1167	768	1179	1480	847
Stars Lane	296	482	329	190	267	239
Stage IV: Eastern Section		1239	635		1289	639
Stage IV: Western Section		1081			1209	
Stage IV: Link to Reckleford Gyratory		66	251		47	126

Source: Yeovil Traffic Model

4.56 The increase in flow on the A30 Reckleford is due to trips utilising the capacity at the Reckleford Gyratory that had previously been used by trips which are now using the Stage IV scheme.

4.57 The model network statistics showed that there was little difference in the level of over capacity queuing in each model run which shows that there the scheme does little for congestion on the network. There are some small improvements in network-wide travel time although the differences are so small that the best performing variant is different in each peak hour.

4.58 The above assessment of the Stage IV scheme was based on the traffic and economic performance of the scheme. If it was to be progressed then other appraisal objectives including environment, integration and accessibility would need to be considered. The environmental implications of the Stage IV scheme are significant and in the past have led to the scheme being removed from SCC's programme.

4.59 Funding for the Stage IV scheme, or similar, could potentially be difficult to obtain from the DfT as the A30 is not designated as a National Primary Route. Through Yeovil, apart from the section of the A30 Queensway, the A30 is classified as a County Route. If a case was to be made for Stage IV it may be possible to look at obtaining funding through alternative sources such as the Yeovil Vision or Eastern End Regeneration Strategy.

DEVELOPING A CYCLING STRATEGY

Objectives

4.60 The following cycling linked objectives were set for the YTSR.

Source of Objective	Objective
LTP – Yeovil Specific	Increase the number of cycle trips.
	Town strategy cycle route to be 70% complete by 2005
LTP - Countywide	Significant increase in approval rating by cyclists after implementation of specific schemes

4.61 In addition, a large number of the other study objectives are influenced by changes in the level of cycle usage. An increase in the level of cycling may have a corresponding reduction in usage of other modes and ideally will result in a reduction in car usage. This underpins many of the objectives of the YTSR.

4.62 The YCRT included the following three cycling related recommendations:

- Recommendation 8: The YCRT panel felt that there was merit in providing whole safe cycle routes although in general it was felt that improving pedestrian routes would provide greater modal shift.
- Recommendation 9: Walking or cycling were said to be important foundations to a healthier lifestyle and should be encouraged.
- Recommendation 38: The dual carriageways should be re-lined to provide a wider inside lane to give additional protection for cyclists.

4.63 The proposed strategy aims to build on the current levels of cycling in Yeovil and provide a framework for enhancing cycling facilities and developing increased cycle demand across the town.

4.64 This section looks firstly at the current cycling demand in Yeovil and cycling infrastructure. It then assesses conditions for cycling in the town centre and across Yeovil including the topography of the town and surrounding areas.

Cycling in Yeovil

Current Demand

4.65 The Baseline Review of Transport Conditions showed that the use of cycles amongst employed Yeovil residents (16-74 years) travelling to work was around 6% (2001 Census) which is twice the regional average and is greater than the corresponding values for Somerset and South Somerset (5% and 4% respectively).

4.66 The high level of cycling for work trips is undoubtedly due to the large numbers of employees who cycle to work at Agusta Westland and this is confirmed by data from their Staff Travel Survey which shows that 13% of employees cycle to work, over twice the Yeovil average.

4.67 Whilst there are encouraging levels of cycling for work trips it has also been shown that use of cycles for purposes such as school, shopping and visiting friends and relatives is minimal. Indeed the majority of schools have no children cycling to

school, including two secondary schools which both have less than 1% of pupils cycling. Travel to school data is only available for two of the three secondary schools in Yeovil.

4.68 The average journey-to-work distance in Yeovil (9.4km) is considerably less than the Somerset average (14.3km) which indicates that a relatively large proportion of the workforce work near to their homes. This is encouraging as it is short journeys that are the easiest to transfer to cycle.

Cycle Routes and Other Infrastructure

4.69 There are a number of segregated cycle routes in Yeovil including Bluebell Road, A3088 Lysander Road, Bunford Lane, A3088 Western Relief Road, A3088 Bunford Hollow, A37 Ilchester Road and A37 Dorchester Road.

4.70 To facilitate cycle crossing at individual junctions a number have recently been upgraded to Toucan crossings. These are on Larkhill Road at the Stiby Road junction, on Old Station Road and around the Yeo Leisure Park and at the Reckleford one-way system.

4.71 A Toucan crossing is also planned on the A30 adjacent to Pen Mill Station to allow cycle access from the station directly to the route through the country park to the Yeo Leisure Park.

Cycle route to Yeovil Pen Mill station

4.72 There is a cycle route most of the way between Yeovil town centre and Yeovil Pen Mill station via the Country Park. It is an attractive 'traffic-free' facility and most of the route is very flat. However, the route ends at the A30 Sherborne Road. There is currently no formal crossing of Sherborne Road although a Toucan crossing and ramp to Yeovil Pen Mill station are planned to be installed shortly by SCC as part of the current LTP programme to complete this link.

Cycle route to Yeovil Junction station

4.73 There is no segregated route from Yeovil town centre to Yeovil Junction station which is the busier of the two stations serving Yeovil. Cyclists currently use Newton Road to access this station.

4.74 Newton Road is narrow and quite undulating on some sections. There is little scope for providing a segregated cycle path along this route due to the restricted road widths and lack of footpath. There have been suggestions to develop a cycle route along the River Yeo although it is not felt that the likely cycle demand would justify the expense of such a route.

Town centre cycle parking

4.75 Short-term cycle parking, suitable for shoppers, is generally well provided for in the town centre with a total of 31 cycle stands in the main shopping areas of the town centre. There is no cycle-parking in the large multi-storey car park for the Quedam Shopping Centre although a section near the entrance is cordoned off for

motorcycles. On a typical day around 50 cycles are found parked in Yeovil town centre.

Conditions for Cycling

Town centre

4.76 Cycle-friendly towns either have very few one-way streets or provide contra-flow cycle routes to maintain permeability. They also allow cyclists to access pedestrianised areas, and provide adequate parking facilities for different cycle journey types.

4.77 Yeovil town centre is hilly with the main pedestrian streets and other roads having gradients in the region of 5% to 10%. Cycle traffic is banned from the pedestrian streets as shown by the 'no vehicles' sign. To the west of the town centre, there is a 'pedestrian zone' which allows access for local buses and taxis. The 'no motor vehicles' sign, however, implies that cycling is also permitted but this may not be obvious to local cyclists. There are no contra-flow cycle-facilities on the one-way streets.

4.78 The town centre is an unattractive environment for cycling partly due to topography, but also due to the one-way system, forcing cyclists to take circuitous routes, and the pedestrianised areas which do not permit cycling.

Access to the town centre

4.79 The dual carriageway A30 Queensway and Reckleford act as a barrier for access between Yeovil town and the surrounding urban area and there are a limited number of crossing points on these roads. The key points of access are:

- A30 Hendford Hill/A3088 Lysander Road Police Station roundabout – large and busy at-grade roundabout;
- West Hendford subway – unappealing subway, with ramps, under A30 Queensway;
- Huish and West Park bridges – bridges across A30 Queensway. The long ramps up to the bridge at Huish provide a circuitous crossing of the A30;
- A30 Queensway/Reckleford 'Hopsital Roundabout' subway – unappealing subway, with ramps, under the A30;
- A30 Reckleford – Pelican crossing at Goldcroft; and
- A30 Reckleford Gyratory – Toucan crossings providing good quality and safe route for cyclists into Yeovil town centre.

4.80 The above shows that apart from at the Reckleford Gyratory cycle access into Yeovil town centre is poor and will potentially deter cycle usage for journeys into the town centre.

Level of service for cycling on the radial routes

4.81 The levels of service for cycling have been assessed along what are considered to be the five main corridors for cycle traffic in Yeovil. These corridors were selected

according to the output of the Yeovil traffic model, and the position of the town centre in relation to the key residential areas.

4.82 The level of service for cycling relates to the quality of the journey for cyclists. This quality is not directly dependent on the provision of dedicated cycle facilities (although it is influenced by them) but takes into account factors such as gradient, carriageway width, road surface, traffic flows, traffic speeds, and the number and type of junctions. Scores are provided for all these factors and an overall level of service is calculated for each route, ranging from one to five.

4.83 A score of five relates to excellent conditions for cycling and would be typified by very gentle gradients, plenty of carriageway space, low motor-vehicle speeds and flows, and cycle-friendly junctions. A score of one would be awarded for a route which might have steep gradients, high traffic flows and speeds, narrow carriageways, and junctions which are likely to be perceived as dangerous for cyclists such as large, unsignalised roundabouts. A score of three is considered to relate to an average level of service for cycling on a typical urban road. Yeovil received an average score of 2.65 indicating that conditions are a below average. Descriptions for each individual route are provided below.

Lyde Road and A30 Sherborne Road from Primrose Lane to Reckleford Gyratory

4.84 This route connects the eastern residential area of Pen Mill with the town centre. The speed limit is mainly 30mph, but becomes 40mph further east on Lyde Road, and motor vehicles appear to keep close to the speed limits. Two-way traffic flows in the AM peak are around 700 vehicles on the southern section of Lyde Road and 2000 vehicles on the A30 Sherborne Road. The carriageway is generally quite wide (8-10m) and, although the section close to the town centre is reasonably flat, there are some steep gradients (5% to 10%) on Lyde Road.

4.85 The junction of the A30 Sherborne Road and Lyde Road is likely to provide cyclists with considerable difficulty when turning right from Lyde Road into the A30 Sherborne Road as the geometry of the junction does not encourage motor vehicles to slow down.

4.86 Overall, this route is considered to have a level of service of 2.5, a below-average figure due to the A30 Sherborne Road/Lyde Road junction, the gradients, and the high traffic levels.

Milford Road and Sparrow Road

4.87 This route was identified as an alternative east-west route to the A30 Sherborne Road due to the relatively low traffic flows, two-way AM peak hour flows of about 300 vehicles, and also because it appeared to be relatively flat when assessed using 1:50,000 mapping.

4.88 The speed limit is 30mph and traffic appears to travel at around 30-35mph. The carriageway is quite wide, 8-10m, (wide enough for cycle lanes) and there are no junctions that are likely to cause cyclists problems, apart from the A37 Fiveways roundabout at the western end of the route.

4.89 However, the main problem with this route is that, despite its east-west orientation, the topography is very unsuitable for cycling with lots of short but relatively steep gradients which are only evident on detailed mapping. The road surface is also quite poor along several stretches although this is due to be resurfaced which may lead to increased speeds. The overall level of service for this route is considered to be 2.0.

Preston Road

4.90 The full length of Preston Road was assessed from the A37 Fiveways roundabout to Preston Road/Bunford Lane. It was identified as an important route in both the traffic model and, from the map, also appeared to be relatively flat. The speed limit is 30mph along the length of the route and motor vehicles appear to travel at round 30-35mph.

4.91 Traffic flows are high (two-way AM peak flows of about 1300 vehicles per hour) reflecting the importance of this route. The width varies along the route but is generally between 8m and 10m. The topography is quite cycle-friendly; with gentle undulations rather than any major hills. Most of the junctions should cause few problems to cyclists apart from the A37 Fiveways roundabout and the Preston Road/Bunford Lane roundabout. The overall level of service is considered to be 3.5.

4.92 An off-road cycle route is currently being constructed starting at West Street and running parallel to Preston Road along the north edge of the airfield. This will provide an alternative route for some cyclists currently using Preston Road west of Preston Grove.

A37 (Ilchester Road)

4.93 The A37 was the only north-south route to be assessed as it had the fewest steep gradients. The speed limit is 30mph and average speeds are estimated at around 35mph. Two-way AM peak traffic flows are approximately 1000 vehicles per hour and the gradient is approximately 5% north of the Fiveways roundabout but fairly flat on the outer sections. The carriageway width is similar to the other assessed routes (8-10m) but there are two large roundabouts (Fiveways and Hospital Roundabouts) close to the town centre, neither of which could be considered cycle-friendly. An overall level of service of 2.0 was awarded which is considerably below average due to the large unsignalised roundabouts and the gradient.

A3088 Lysander Road and Bunford Lane

4.94 Lysander Road was selected for assessment as it is a route which has relatively gentle topography, and serves both a large residential catchment area as well as the Agusta Westland's plant. It is also known from cycling data that levels of cycling in this area are greater than the Yeovil average. There is a cycle facility (off-road shared-use footway) along much of this route. The speed limit is 30mph and most traffic seemed to be travelling at between 30mph and 35mph. The traffic flow is very high with two-way AM peak flows of around 1800 vehicles per hour.

4.95 The topography on this route is gently undulating although there is a prolonged climb towards the Bluebell Road junction. The carriageway width is variable although it is generally wide enough for cyclists to feel comfortable when cycling on carriageway.

Most of the route is free of difficult junctions although the A30 Police Station roundabout junction is likely to act as a barrier to town centre access.

4.96 The roundabout with Watercombe Lane (bottom of Bunford Hollow) has cycle facilities but these require cyclists to dismount as they cross each arm. An overall level of service of 3.5 was awarded for this route with a score of 4.0 given for the parallel off-road route. Although much of this is an attractive and well-used facility, cyclists are expected to dismount at the roundabout and several side-road junctions impact on the continuity and, therefore, attractiveness of the facility.

Summary of level of service findings

4.97 The level of service assessments found that conditions for cycling on the key routes in Yeovil are mixed but generally below average. The routes with the highest level of service are Preston Road and Lysander Road.

Topography of Yeovil

4.98 When proposing a cycling strategy it is important to understand the topography of the town as it is non-productive to develop a cycle network if cyclists are going to encounter severe gradients along the routes. Cycling is an attractive mode if the journey is reasonably short (less than 5km), reasonably flat and along routes with some form of segregation or good level of service.

4.99 To understand where there is potential for cycling in Yeovil an assessment was undertaken of the town's topography and this can be seen in Figure 4.1. The plan shows contours at 10m intervals and further highlights the areas within 10m height difference of the town centre. This is regarded as the maximum desirable change in height during a cycle journey.

4.100 Further analysis was also undertaken looking at a series of key indicators of the town's topography. These included the distance across the town, contours per km of the road network, maximum difference in height and the percentage of the built up area within 10m of the town centre. This analysis is shown in Table 4.2.

Table 4.2 – Topography of the town

Criteria	Value
Furthest distance from town centre to edge of built-up area	3.7km
Contours per km of road network (with CTC classification)	2.9 (very hilly)
Difference in height between lowest and highest point of built up area	80m
Approximate percentage of built-up area within 10 metre height-difference of town centre (to nearest 10%)	30%

4.101 The table shows that there are 2.9 contours per km of road network which classifies Yeovil as being 'Very Hilly'. This is Cycling Tourist Classification (CTC) that identifies the number of 10m contours crossed on the A, B and C classified road. This level of hilliness is further emphasised by the 80m difference in height between the lowest and highest point of the built up area and that only 30% of the built up area is within 10m of the town centre.

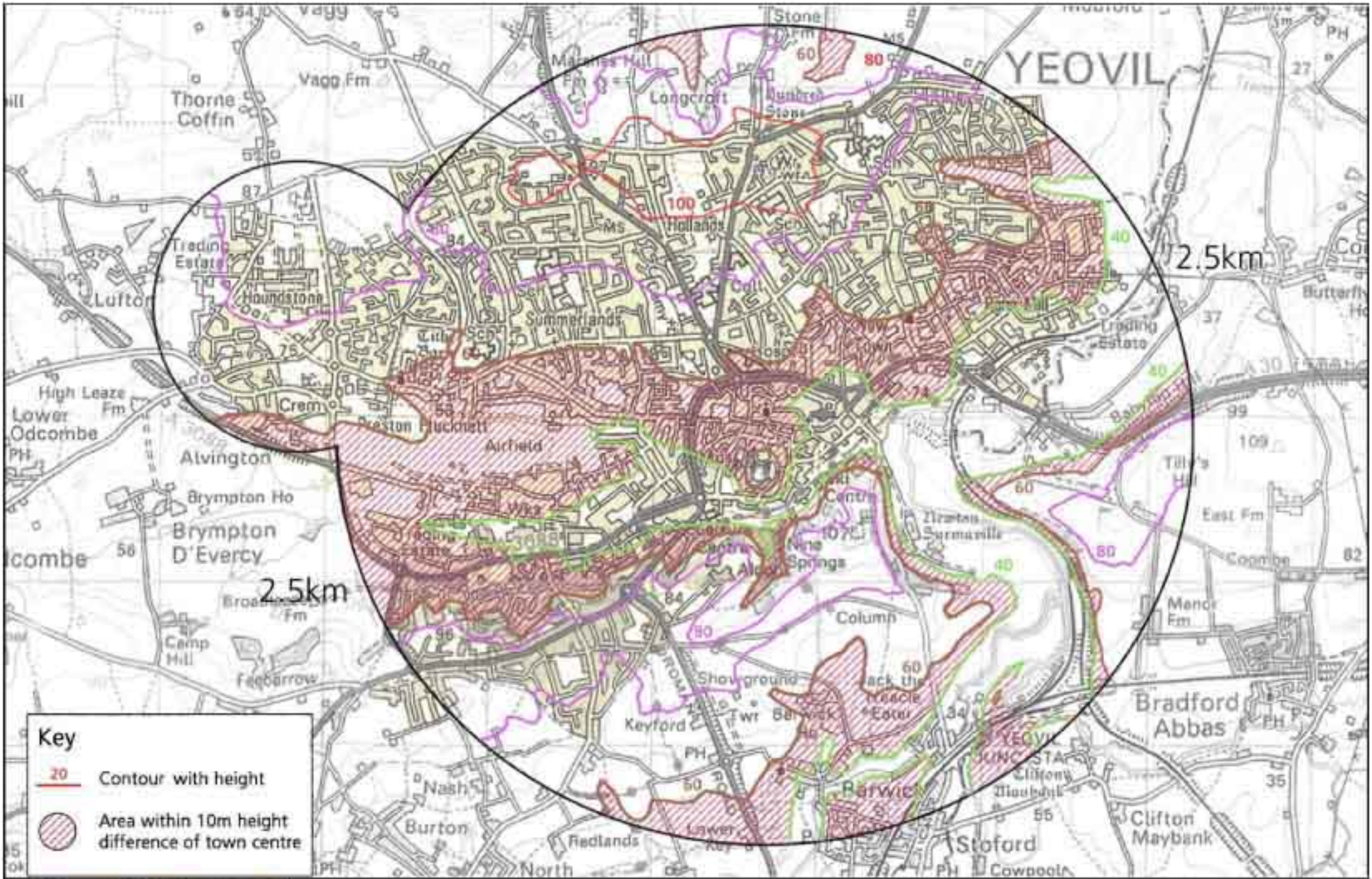


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Figure 4.1 - Yeovil Topography

4.102 Table 4.3 shows that Yeovil is one of the hilliest towns in Somerset. Only Crewkerne and Wincanton have a higher contours per kilometre rating, and only Minehead has a greater height difference between the lowest and highest point of the built-up area.

4.103 However, levels of cycling, as measured by the mode share for the journey to work, are considerably higher in Yeovil than the average for Somerset (4.6%) with only four other towns achieving a higher percentage (Burnham, Bridgwater, Taunton and Street).

Table 4.3 – Comparison of topography and cycle commuter mode share with other Somerset settlements

Town (flattest to hilliest)	Contours per km	Hilliness category	Mode share for cycling to work	Difference between highest and lowest point	Built up area within 10m of town centre
Burnham & Highbridge	0.0	Flat	8.1%	10m	100%
Bridgwater	0.6	Reasonably flat	10.5%	20m	90%
Taunton	1.45	Hilly	8.6%	-	-
Wellington	1.46	Hilly	5.3%	50m	60%
Cheddar	1.85	Hilly	2.0%	40m	90%
Street	2.05	Hilly	6.8%	40m	60%
Frome	2.12	Hilly	2.5%	30m	30%
Minehead	2.20	Hilly	5.2%	110m	50%
Glastonbury	2.31	Hilly	3.6%	80m	40%
Ilminster	2.35	Very hilly	1.8%	60m	50%
Shepton Mallet	2.36	Very hilly	2.4%	50m	70%
Chard	2.45	Very hilly	3.3%	70m	60%
Wells	2.50	Very hilly	3.5%	60m	50%
Yeovil	**2.86**	**Very hilly**	**6.2%**	**80m**	**30%**
Crewkerne	4.31	Very hilly	1.2%	60m	40%
Wincanton	4.31	Very hilly	2.3%	50m	40%

4.104 Despite Yeovil being 'Very Hilly' it has already been seen that the levels of home to work cycling are greater than the Somerset county average which suggests that the hilliness is not consistent across all the urban area. Indeed the plan in Figure 4.1 shows quite clearly that there are several corridors which follow the contours making them much more cycle-friendly.

4.105 The steepest hill is clearly on the south west side of the town (Hendford Hill) where the land rises approximately 40m at a gradient of approximately 10%. The plan shows that the areas within 10m of the town centre are along an east-west corridor with key roads including Preston Road, A3088 Lysander Road and the A30 Sherborne Road (and along Lyde Road) largely following, rather than crossing, contours.

4.106 It is also important to consider other corridors away from the town centre where there may be large numbers of car trips. These were identified in the Baseline Review of Transport Conditions where it was shown that one of the largest movements is between the north east area of Yeovil and the Houndstone area. This corridor follows the 80m contour and should also be considered as potentially attractive for cycling.

4.107 There is likely to be little demand for cycling along any north-south corridor as there are significant changes in gradient on all routes. Therefore, any improvements to the cycle network should be concentrated on the east-west corridors identified above.

4.108 Although the focus of the YTSR is on the movement of traffic around Yeovil it is important to also consider the possible contribution of cycling to trips coming from outside the Yeovil urban area.

4.109 To understand the potential demand for cycle routes to nearby settlements an assessment was made of eleven villages within a 5km crow-fly distance of Yeovil. The categories for estimating demand, shown in the Table 4.4 below, are based on the distance to the settlement from Yeovil and the number of (10m) contours which need to be crossed.

Table 4.4 – Potential demand for cycle routes between Yeovil and nearby settlements

Settlements within 5kms	On-road distance (km) from town centre	Contours per kilometre	Estimated demand for a cycle route
Barwick	3.6	2.5	Low
Bradford Abbas	4.5	3.3	Very Low
Chilthorne Domer	4.5	2.4	Low
East Coker	4.6	2.2	Low
Mudford	4.8	3.3	Very Low
Nether Compton	5.0	2.8	Low
Odcombe	5.7	2.3	Low
Over Compton	4.0	2.5	Low
Stallen	5.8	2.2	Low
Trent	5.8	2.9	Low
West Coker	5.2	3.1	Very Low