
Derby LTP3 Options Development Paper

April 2010

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1 Introduction

1.1 Background

Delivering a Sustainable Transport System (DaSTS) has refocused transport policy in terms of its economic and environmental impacts, which alongside considerations of safety, quality of life and equality of opportunity, provides an important new context for transport schemes and strategies. However, in general DaSTS does not change the general direction of transport policy from LTP2 but it re-emphasises the priorities for transport.

The Long Term Transport Strategy developed as part of LTP2 considered a strategy covering the period 2006-2021 and an implementation plan covering the period 2006 - 2011. The strategy and implementation plan focused on different financial delivery options, in particular congestion charging and funding through the Transport Innovation Fund (TIF). However, a 6C's TIF Congestion Management Strategy was not taken forward. With the emergence of new Central Government transport policy and likely reductions in transport funding the Long Term Transport Strategy for Derby needs to be reviewed and updated.

Whilst the focus of the Long Term Transport Strategy is on Derby, it also recognises the linkages to wider Derby Housing Market Area (HMA). LTP3 is being prepared at the same time as the Derby City Core Strategy. The Core Strategy will be the main document of the Local Development Framework and will set out the City Council's strategic spatial planning vision for how Derby City will grow and change up to the year 2026. The Core Strategy will set the framework within which the LTP3 strategy and schemes will be delivered. For this reason the Long Term Transport Strategy will cover the period to 2026.

Prior to the 2008 Transport Act, Local Transport Plans were required to be renewed at least every five years. Plans included both a strategy and implementation plan that covered the five year period. It has now been left open to local authorities to decide how to deal with their transport strategy and implementation plan. They have the option to deal with them in separate documents and to renew the different parts on different timescales.

This working paper sets out the approach in reviewing and developing a preferred long term transport strategy for the Derby LTP area over the 15 year period to 2026. The strategy will help define future priorities for investment in transport and a short term plan of specific interventions covering the two year financial period between 2011/12 and 2012/13.

1.2 The Process of Developing LTP3

The Guidance on Local Transport Plans published in July 2009 provides clear advice to authorities on the process of developing their long term integrated transport strategies for LTP3. In order to develop an effective strategy and decide priorities for implementation, authorities are advised to follow the process recommended by Eddington:

- Clarify goals;
- Specify the problems or challenges the authority wants to solve;
- Appraise the options to resolve these challenges;
- Appraise the options and predict their effects;
- Select preferred options and decide priorities;
- Deliver the agreed strategy.

The following chapters cover the first four elements of this process. Chapter 3 summarises the issues that Derby's transport network faces now and in the future, and the goals and

local challenges that have been identified to overcome these problems. Chapter 4 provides a summary of the initial option generation and a comparison against the LTP3 local challenges.

Chapter 4 also describes the next steps, the selection of a preferred option and the development of priorities. This includes developing the implementation plan, which will define how the strategy will be delivered. The next chapter of this report broadly sets out the strategy development process.

2 Strategy Development and the Derby Area Transport Model

2.1 Long Term Transport Strategy Development

The aim of the strategy development process is to appraise options to improve or solve the identified transport problems in 2026. This strategy is set against meeting the Government's DaSTS objectives and the local challenges identified for the Derby LTP area. The focus at this stage is on policies and major initiatives that affect significant parts of the Derby LTP area, rather than on detailed interventions. The implementation plan will consider detailed interventions over the first two year period of the strategy to 2012/2013. Consideration of detailed schemes over a longer period becomes less meaningful because there is less certainty over funding. However, broad delivery options will consider longer term priorities to 2026 based on different funding scenarios.

Following the process suggested by Eddington, the development of the long term strategy is broken down into three stages.

Stage 1 - Identification of Transport Issues, Vision, Goals & Local Challenges

Stage 2 - Long Term Transport Strategy Development & Option Testing

Stage 3 – Development of the Delivery Strategy and Implementation Plan

A summary of Derby's transport issues, the LTP3 vision, goals and development of local challenges are summarised in the next chapter of this report. However, more detail on each of these can be found in the Issues and Problems Working Paper and the Proposed Vision, Goals and Challenges Consultation Paper.

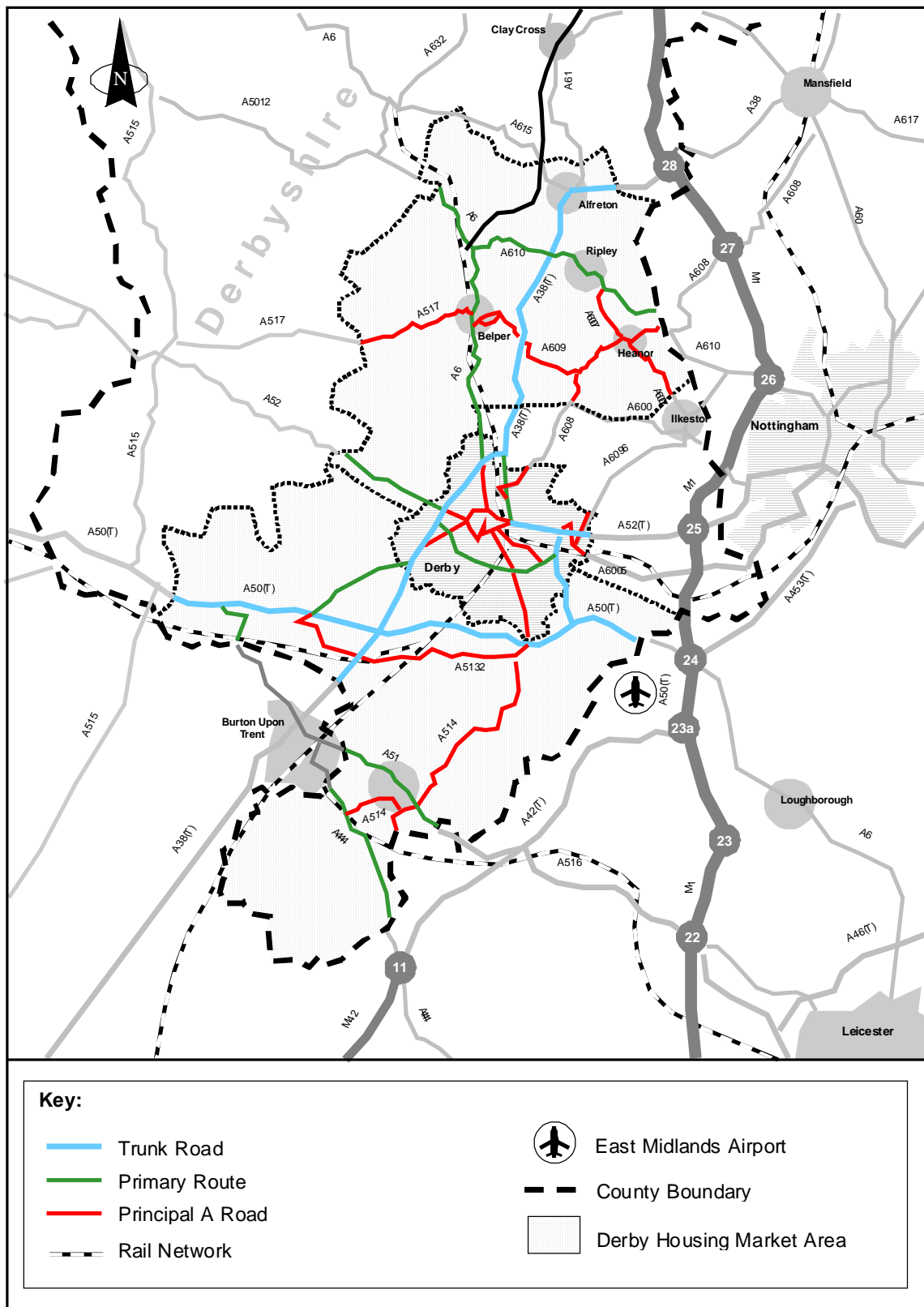
This working paper focuses on the Long Term Transport Strategy development and option testing. The main output will be to identify a series of options to take forward and appraise using the Derby Area Transport Model (DATM). From these tests a preferred package will be distilled and appraised based on the consideration of strategic alternatives and impacts on the environment through the Strategic Environmental Assessment.

The Long Term Transport Strategy will help to define transport priorities and an implementation plan of specific measures to take forward. This is the next stage of the LTP3 strategy development process and will be undertaken following consultation with the public on the Long Term Transport Strategy in June 2010.

2.2 LTP3 Area

The boundary of LTP3 will be focused on the administrative extents of Derby City. This is a change from LTP2, which included Derby City and the surrounding rural area. However, Derby and the Districts of South Derbyshire and Amber Valley have formed a partnership covered by the Derby Housing Market Area (HMA) in order to better deliver spatial planning. The three districts are intrinsically related by the availability and demand for economic and population land use growth. Whilst these areas are separated by administrative boundaries, spatially they are linked by a transport network that enables seamless cross boundary local journeys and more strategic regional and national journeys. **Figure 2.1** illustrates the LTP3 area and Derby HMA Area.

Figure 2.1: Major Transport Links covering Derby and Wider Housing Market Area



Derby has a typical transport network for a small historical city. It basically consists of a number of radial roads that diverge at the city centre and are interconnected by an inner ring road and outer ring road. The roads provide the main transport network for general traffic, freight, bus users, cyclists and pedestrians. They provide a range of functions from the main primary routes in and out of the City to a more local function where people and neighbourhoods live. LTP1 and LTP2 divided Derby into nine different areas, which are the city centre and the eight main transport corridors along which people travel to reach the city centre. These corridors are the focus of the majority of bus services within the Derby Joint LTP area.

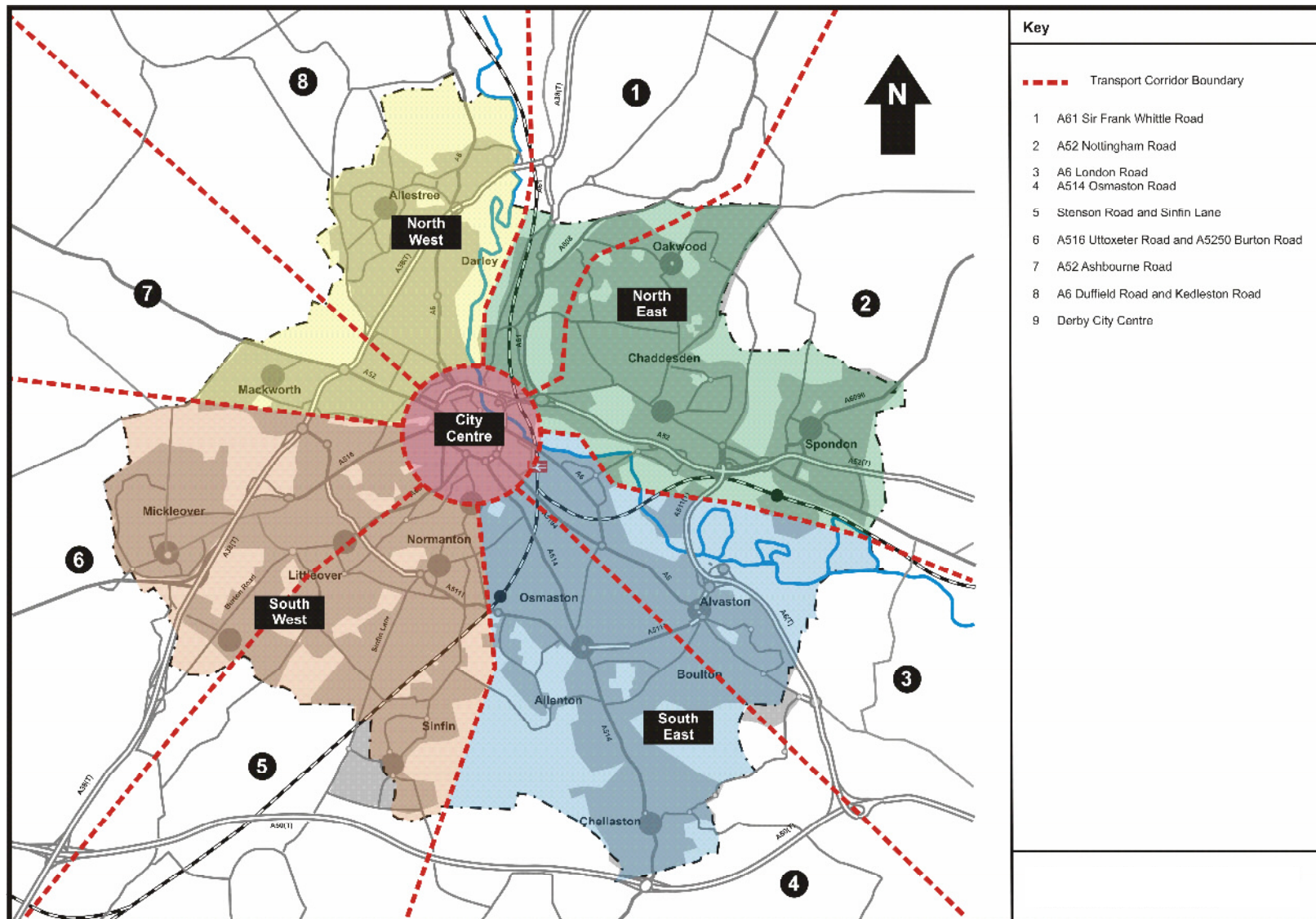
For the purpose analysing issues, particularly using DATM, and the design of solutions the corridors are grouped into sectors. Corridors are grouped together where they have a particular interrelationship. For example the A61 and A52 Nottingham Road are interlinked by the Pentagon Island, which controls both through traffic and city centre traffic on both corridors. In addition, the north west of derby is physically divided by the River Derwent.

The corridors and sectors are:

North East	1.	A61 Sir Frank Whittle Road
	2.	A52 Nottingham Road
South East	3.	A6 London Road
	4.	A514 Osmaston Road
South West	5.	Stenson Road and Sinfin Lane
	6.	A516 Uttoxeter Road and A5250 Burton Road
North West	7.	A52 Ashbourne Road
	8.	A6 Duffield Road and Kedleston Road
City Centre	9.	Derby City Centre

Figure 2.2 provides a thematic plan of Derby and shows each of the corridors and sectors following the numbered list above.

Figure 2.2 Derby Transport Corridors



2.3 Linkages to Local Development Framework & Derby Core Strategy

Each of the planning authorities in the Derby HMA are currently in the process of revising their development plans. As part of the Local Development Framework, or LDF, process the Core Strategy is the first in a series of documents the authorities will produce. The Core Strategy will set out a spatial vision for the delivery of strategic land use development and infrastructure up to a future year of 2026. Whilst the Derby HMA will be covered by two separate Local Transport Plans, Derby City Council and Derbyshire County Council are working closely together. The Councils will develop compatible transport strategies across the Derby HMA and agree to deliver plans that prioritise schemes to support this strategy and the 2026 spatial development plans.

2.4 DATM

In the development of LTP2 and the Long Term Transport Strategy (2006-2021), a significant amount of research and analysis was undertaken. The Derby Area Transport Study was underpinned by the development of a sophisticated transport model called the Derby Area Transport Model (DATM). The evidence base and testing of the strategy using the DATM provided a robust LTP that was marked as excellent by Department for Transport (DfT).

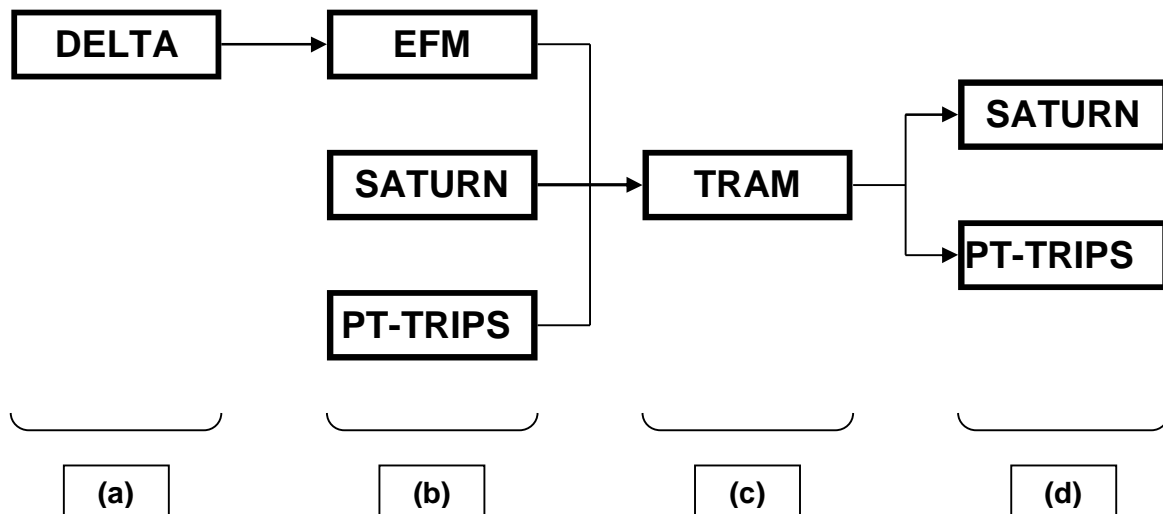
DATM is a multi-modal variable demand transport model. It can model several different types of transport mode and assess how these interact with each other. Unlike many traditional fixed matrix transport models, DATM can model changes in trip demand as a result of spatial destination, time of day, journey purpose and mode of travel. DATM will provide evidence to understand the underlying causes of transport problems now and help predict the situation in the future.

As part of the analysis of the long term transport strategy for LTP3, DATM has been updated to provide 2006 base year, 2016 and 2026 forecast reference cases to test transport options against. The base year model and the future scenarios are based on the same model that has been developed for the Core Strategy.

DATM consists of several computer software components linked together.

- DELTA – land-use model
- External Forecasting Model, EFM
- SATURN – highway assignment models
- PT-TRIPS – public transport assignment models
- Traffic Restraint Analysis Model, TRAM, – demand model.

How these individual elements work together is shown below:



DATM works in the following way.

- a) The DELTA model produces data on where people live and where people work or go to school.
- b) The information from DELTA is used in the EFM to estimate the demand for journeys, for example, from home to work, between different parts of Derby and the surrounding Joint LTP area. SATURN and PT-TRIPS provide information on the supply of capacity there is on the highway and public transport networks respectively to cater for people's journeys.
- c) TRAM takes the output from the EFM, SATURN and PT-TRIPS, effectively the demand for travel and the supply of network to carry it. TRAM then calculates:
 - frequency of journey
 - destination of journey
 - mode of travel
 - time of day
 - parking type and location
 - public transport crowding and operator response
 - walking and cycling.

Once this has been calculated, the information from TRAM is fed back into the SATURN and PT-TRIPS models where we can analyse the highway and public transport networks in more detail. It is at this stage where we are able to determine traffic flows on particular roads and the extent of queues and delays at junctions. We can also assess how crowded or delayed bus services are. We can further analyse this data to assess the environmental impacts of transport such as noise and pollution.

In order to test the impacts of future transport strategies two reference cases were developed for the years 2016 and 2026. The reference cases are future year predictions of the likely operation of the transport network, without any transport interventions, as a result of predicted changes in land use growth, travel habits and committed transport schemes. DATM includes a range of inputs that define how travel patterns are predicted to change in the future. These include:

- predictions of mode choice based on car ownership levels and predicted changes in travel costs;
- changes in social economic characteristics of the population represented in the model as a result of changes in employment, economic development, earnings and demographics such as age and household occupancy; and
- changes in trips types and frequency such retail, leisure, education, commuter and when these trips occur across the day.

Consultants working on behalf of the City Council will produce a report detailing the development of DATM in order to test the long term transport strategy. This will be provided as part of the supporting technical evidence to LTP3.

2.5 Strategic Environmental Assessment

A Strategic Environmental Assessment (SEA) is a fundamental part of the LTP3 and is a statutory requirement under European Directive 2001/42/EC 'on the assessment of certain plans and programmes on the environment' (the 'SEA Directive'). A Health Impact Assessment is required by all four of the UK White Papers on public health strategy. Further emphasis was given by the introduction of the Local Government and Public Involvement in Health Act 2007 and a specific requirement for HIA in the DfT LTP3 guidance 2009.

The overarching objective of the SEA Directive is:

"To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans... with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans... which are likely to have significant effects on the environment." (Article 1)

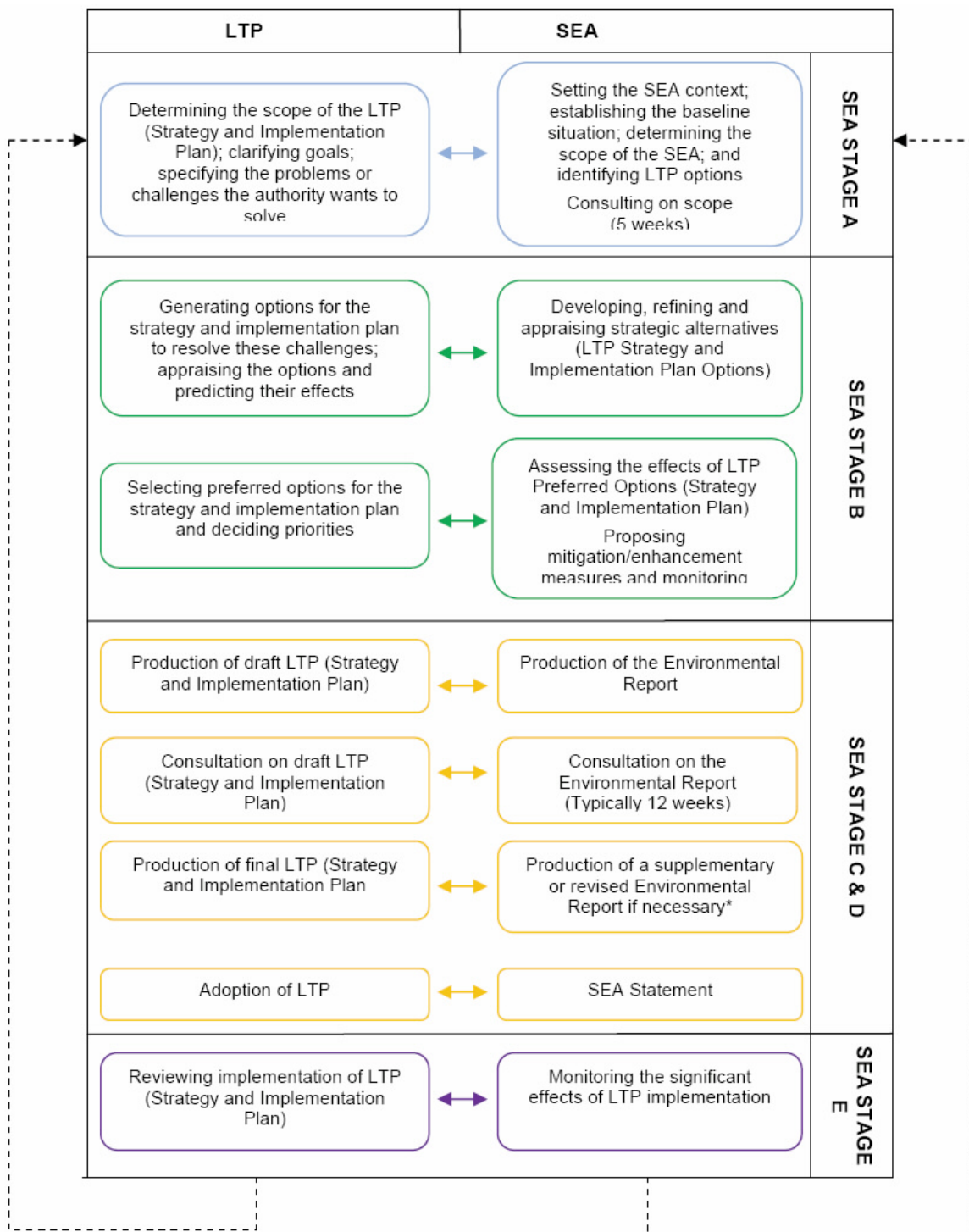
As such, the SEA and consultation with statutory consultees is an inherent part of the option development process and appraisal of options. The main requirements introduced by the SEA Regulations are that:

- the findings of the SEA are published in an Environmental Report (ER), which sets out the significant effects of the draft plan, in this case LTP3;
- consultation is undertaken on LTP3 and the ER;
- the results of consultation are taken into account in decision-making relating to the adoption of LTP3; and
- information on how the results of the SEA have been taken into account is made available to the public.

SEA extends the evaluation of environmental effects from individual projects to the broader perspective of regional, county and district level plans. It is a systematic process that identifies and predicts the potential significant environmental effects of plans and programmes, informing the decision making process by testing different alternatives or options against environmental sustainability objectives.

The main work component stages for the preparation of the Derby LTP3, both from a transport planning and SEA perspective, are shown in **Figure 2.3** below.

Figure 2.3 - LTP and SEA Process Stages and Links



* An updated Environmental Report may only be required if significant changes are made to the LTP between draft and final versions.

2.6 Local Area Agreement Targets

The second round of Local Transport Plans (2006-11), originally included a number of short term targets that provided a measure of performance against the delivery of stated objectives. These included a mixture of mandatory targets set by Government and local targets.

In 2007 the Department of Communities and Local Government, CLG, published a new National Indicator Set, NIS. From 2008 all other sets of indicators, including Best Value Performance Indicators and Performance Assessment Framework Indicators were abolished. This new indicator set provided a clear statement of national outcome and a single set of indicators, which flowed from the priorities identified for central and local government in the 2007 Comprehensive Spending Review.

Local authorities and local partnerships introduced Local Area Agreements (LAAs). This is an agreement with Central Government of up to 35 designated targets from the National Indicator Set (plus 17 statutory educational attainment and early years ones). They set out the strategic direction and local priorities that will make the community a better place to be. They are three year agreements that replace the previous multiple national performance framework, Derbys LAA runs to March 2011. The area performance was assessed against the 35 NI's chosen through a Comprehensive Area Assessment, CAA, carried out by the Audit Commission.

However, the CAA was abolished by the new Government and the future of Local Strategic Partnerships is uncertain. The future of the National Indicator Set is also uncertain. Unlike for previous LTPs, DfT will not formally assess the LTP3, impose any additional mandatory targets or require submission of monitoring reports, separate from the LAA Framework. Authorities are therefore accountable to their communities for the quality and effective delivery and monitoring of their transport strategies.

Transport national indicators are shown in **Table 2.1** below. Derby City is only required to report on NI47 and NI 178 as part of the 35 targets included in the LAA. The table also identifies criteria that could be used to measure the performance of options through the option appraisal process.

Table 2.1: Local Targets for National Indicators

NATIONAL INDICATOR	EXAMPLES OF PERFORMANCE CRITERIA
NI 47: People killed or seriously injured in road traffic accidents	Accident rate savings (monetised using national information)
NI 167: congestion- average journey time per mile during the morning peak	<ul style="list-style-type: none"> • Time savings (monetised using national information); • Number of junctions with a v/c \geq 0.85, 1.00 (non monetised); • Average travel time by mode and trip purpose (monetised using national information)
NI 175: Access to services and facilities by public transport, walking and cycling	Accessibility measures
NI 176: Working age people with access to employment by public transport (and other specified modes)	-

NATIONAL INDICATOR	EXAMPLES OF PERFORMANCE CRITERIA
NI 177: Local bus and light rail passenger journeys originating in the authority area	-
NI 178 Buses running on time	Link transit time (previously monetised)
NI 186: Per capita reduction in CO2 emissions in the LA area	Improvement in air quality (non monetised)
NI 188: Planning to adapt to climate change	-
NI 194 Level of air quality – reduction in NO2	-
NI 198: Children travelling to school- mode of transport usually used	Mode split by trip purpose (non monetised)

Consideration of current and the likely future direction of National Indicators will need to be considered in the strategy development process and monitoring of the implementation plan.

2.7 Appraisal of Strategy

The Guidance on Local Transport Plans 2009, provides clear advice on the appraisal of transport options. Further detailed guidance is provided on the Government’s web based Transport Assessment Guidance WebTAG.

The New Approach to Appraisal (NATA) is an appraisal framework that aims to improve the consistency and transparency with which transport decisions are made. NATA sets out the Government’s five over-arching transport objectives, namely; environment, safety, accessibility, economy and integration. The DfT requires that all forms of transport proposals, including LTPs, are appraised against these objectives. The usual format is to present the information using Appraisal Summary Tables (AST).

Guidance states that authorities should consider appropriate and proportionate methods of appraising identified options. An appraisal of transport options, their costs and benefits and value for money will help prioritise the measures to be included in the LTP. It is important that appraisal measures greenhouse gas and air quality impacts.

The strategy options will cover a wide range of interventions and as such necessitates broad indicators to tests impacts against key objectives. For the initial testing of options these will be:

- **Congestion** – changes in average network speeds, delays (overall and per KM), flow/capacity ratios (overall and per KM), total trips and trip lengths.
- **Safety** – application of standard accident rates and monetary values to forecast changes in vehicle kilometres on highway links within the LTP area. This assessment will be undertaken using COBA.
- **Environmental** – changes in emissions including CO₂, NO_x, PM₁₀, and CO at the roadside as a result of changes in speeds and flows.
- **Accessibility** – Identify changes in modal share
- **Economic Benefits** – TUBA will be used to appraise the economic benefits based on the 2026 model outputs.

TAG Unit 2.5 states that Appraisal Summary Tables are required for each transport strategy or plan that is developed.

3 Local Challenges and Summary of Issues

3.1 Transport Related Issues and Problems

A review of the current transport related issues and problems have been undertaken. A detailed working paper has been produced that looks at current evidence and future situation in Derby City and the wider Derby Housing Market Area.

The paper draws on evidence gathered from other transport related studies that have recently been undertaken, national statistics, work currently being developed as part of the core strategy and the 2008 LTP Progress Report. In addition, some preliminary consultation has information has been gathered from the following sources:

- Results of the National Highways and Transportation Public Satisfaction survey 2009 received in September 2009;
- LTP2 Progress Review workshop with LTP Steering Group, held in September 2008 to discuss the delivery of LTP2; and
- workshops and events held with Neighbourhood Boards in 2009 organised and facilitated by Derby City Planning department, addressing a range of planning issues, including transportation. Relevant comments have been summarised in this document.
- Feedback from the Core Strategy Options Consultation
- Consultation on the LTP3 Vision, Goals and Challenges.

In summary, the main transport related issues that were identified in the Issues and Problems Working Paper are as follows.

- National, regional and local statistics suggest that the general long term trends in transport and travel trends that were identified in LTP2 have not significantly changed. Unless there is a significant economic increase in the cost of owning and running a private car, then peoples' willingness to travel by alternative modes is unlikely to change. That is unless they are offered better reliability, improved travel times or they understand the alternative benefits such as to protect the environment or improve personal health. The latter can only be achieved through raising peoples' awareness of transport and the use of smarter choices.
- Changing travel habits and the issues that they generate are intrinsically linked to social demographic characteristics and land use development. The future demographic changes in population and planned growth in both housing and employment are going to have a significant impact on future travel patterns for Derby. Population in Derby is predicted to grow by 37,000 between 2006 and 2026. In addition the City Centre has seen significant investment in retail, office, leisure and public realm over the LTP2 period.
- Within the Derby PUA, congestion is predicted to increase in the weekday AM Peak (0800-0900). Traffic levels already have a detrimental impact on the environment and Air Quality Management Areas (AQMAs) have already been designated in Derby where NO₂ and PM₁₀ levels exceed Government air quality objectives. Congestion not only impacts on general traffic but also the reliability of public transport.
- During LTP2 many targeted safety and traffic management schemes and a variety of road safety initiatives have been implemented. However, the main road safety targets have not been met.
- In general, accessibility across Derby is good for all segments of the community including those from disadvantaged communities. However, increasing congestion

will undoubtedly increase travel times to essential services, particularly in areas where the capacity of the road network is estimated to be under greatest pressure. For Derby the issues of accessibility are localised where people from disadvantaged communities have less transport choices. The problems are perhaps more complex than can be identified by the accessibility modelling. For example, the impact of new developments such as the hospital poses many accessibility issues.

- Walking and cycling are intrinsically linked to the accessibility strategy and provision of wider equitable transport choices. Derby seems to be bucking the trend to be slightly above the national average mode share of 15%. Derby as a 'Cycle Demonstration Town' has implemented a strategy to improve infrastructure and education. However, there is still investment needed to provide a continuous network of cycle routes and to fund future training programmes. There is currently no walking strategy to take forward.
- Bus transport will remain the main public transport mode for Derby. Therefore, maintaining its quality and reliability is fundamental to meeting transport challenges in the future. Whilst improvements to infrastructure and services have helped to deliver the long term transport strategy, it is evident that there are still some issues and gaps that need to be considered. These include delays on some routes, concessionary fare funding gap and perception that bus fares are expensive in derby.
- The capacity of the A38(T) Derby junctions on the west side of the City is a significant constraint to the longer term development of urban extensions. The delays that are caused by the junctions have a severe impact on not only strategic traffic using the trunk road route but also local traffic crossing the route. Indeed, measures such as bus priority cannot be implemented until the junctions have been improved. The Highways Agency has proposed grade separation of these junctions; however, the delivery of the scheme depends on Central Government funding. Conversely the scheme may encourage extra traffic along the route.
- The main issue for rail is improving access to the rail station by a choice of modes, particularly public transport and sustainable travel modes.
- The airport is an important facility for Derby and not just because it provides air transport to national and international destinations. It is also important for employment, business and economic development. However, its location means that access to the airport is predominately car dependant, which reduces accessibility for people who do not have access to a private car.
- The volume, vehicle weight and journey length of road freight has significantly increased in recent years. For Derby City the main issues connected with freight is the impact that they have on the road network.
- The transport asset is the most valuable asset owned by the council. A transport network that is safe, serviceable and sustainable is vital to the economic wellbeing of the city. However, this is becoming increasingly difficult as significant components are now nearing the end of their expected service lives and pressures increase as demand for travel increases.
- The choice of transport mode for many people's journey is often decided by the availability and price of parking in close proximity to their chosen destination. It is important that we manage parking within Derby to provide a level of parking that ensures long term prosperity of the city centre, which is not undermined by a lack of accessible parking for shoppers and visitors. Future development in the city centre will generate the need for new city centre parking lost through new development as well as seeking to re distribute existing demand, to make better use of existing parking stock. Whilst there have been significant progress made on delivering parking initiatives and legislation across the city, there is still some unresolved

parking issues that may impact on the future delivery of the Long Term Transport Strategy.

- Funding remains a serious constraint. The integrated transport block will not support major infrastructure improvements and the transport regional funding allocation is under increasing pressure from rises in scheme costs.

Transport related problems are interrelated with other issues such as spatial planning, health, education, economic growth and changing population demographics. These are difficult to show all of these graphically, however, **Figure 3.1** provides a summary of some of the more geographical issues. In addition, the diagram also identifies key city locations and neighbourhood centres.

3.2 Vision, Goals and Challenges

The central focus of LTP3 is the Transport Vision, which has been influenced by recent and emerging guidance, updated evidence and consideration of local priorities through improved community partnership mechanisms. Local, regional and national priorities and the Sustainable Community Strategy vision were used to develop the proposed transport vision for Derby. LTP3 vision is defined as:

‘To provide people living and travelling within Derby with viable travel choices and **effective** and **sustainable** transport networks.’

The vision, goals and challenges for LTP3 are consistent with DfT’s Guidance on Local Transport Plans, July 2009, and the national transport goals and challenges set out in Delivering a Sustainable Transport System (DaSTS), which replace the shared priorities of LTP2. The five national transport goals are:

- Support economic growth
- Tackle climate change
- Contribute to better safety, security and health
- Promote equality of opportunity
- Improve quality of life and a healthy natural environment

The City Council has considered Derby’s contribution to the national transport goals and are consulting on the following five overarching goals for transport in Derby to achieve the LTP3 vision:

- **Support growth and economic competitiveness, by delivering reliable and efficient transport networks**
- **Contribute to tackling climate change by developing and promoting low-carbon travel choices**
- **Contribute to better safety, security and health for all people in Derby by improving road safety, improving security on transport networks and promoting active travel**

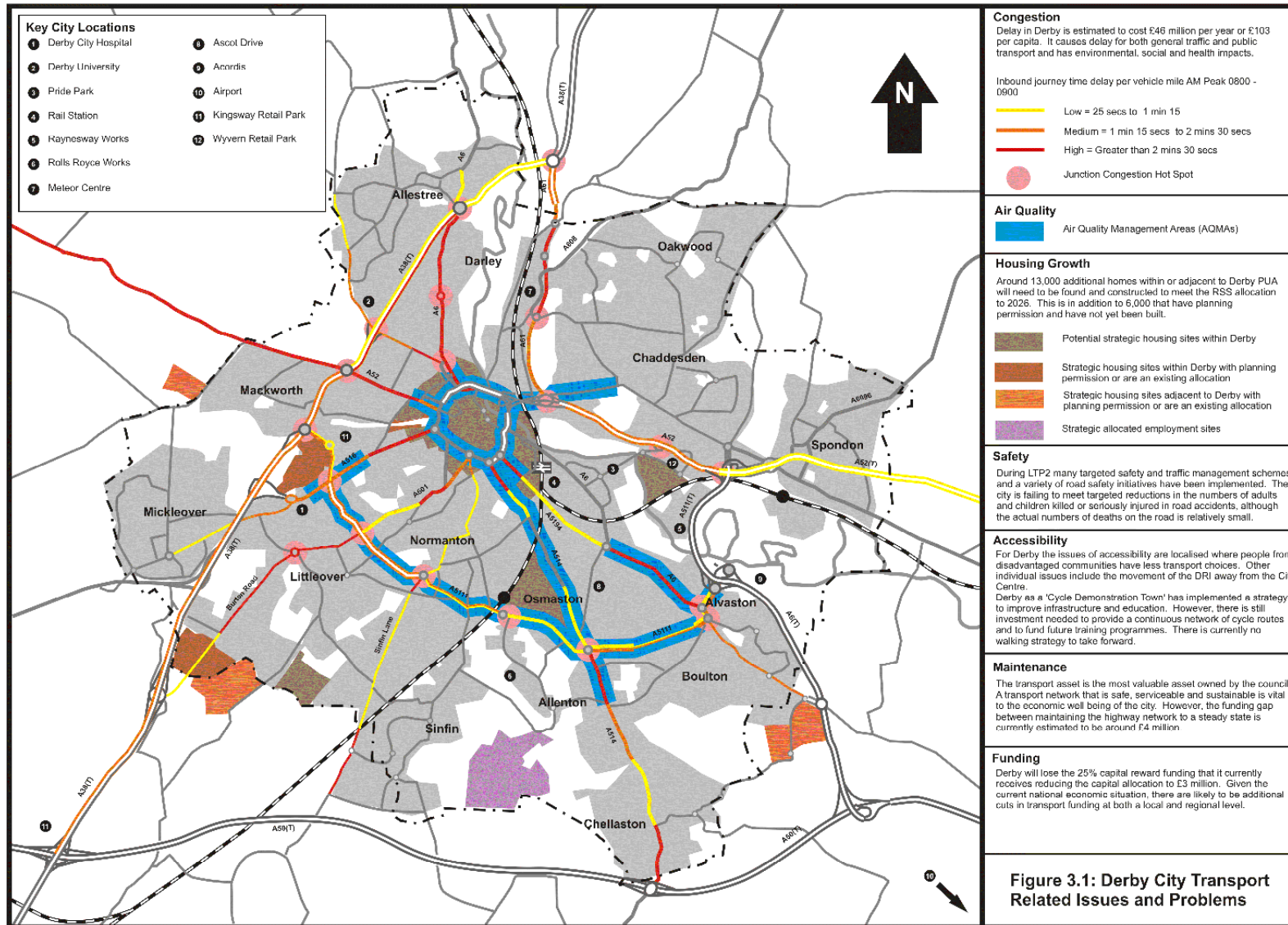
- Provide and promote greater choice and equality of opportunity for all through the delivery and promotion of accessible walking, cycling and public transport networks, whilst maintaining appropriate access for car users
- Improve the quality of life for all people living, working in or visiting Derby by promoting investment in transport that enhances the urban and natural environment and sense of place

To achieve these goals, and based on the evidence gathered on current and future issues affecting transport, the City Council has identified the following local challenges facing Derby:

- | | |
|------------|--|
| DC1 | Provide network efficiency, reduce unnecessary delays and facilitate economic activity |
| DC2 | Maintain and improve transport infrastructure to address existing and future needs |
| DC3 | Minimise the effects of unpredictable events on the transport network, and enhance adaptation to the effects of climate change |
| DC4 | Minimise the negative effects of travel and existing and new transport infrastructure on local communities, air quality and the wider environment |
| DC5 | Minimise transports contribution to climate change and improve energy efficiency |
| DC6 | Provide safer travel opportunities and reduce road casualties |
| DC7 | Provide good access to employment opportunities, key facilities and services for all residents and visitors to the Derby LTP area |
| DC8 | Encourage and enable all people and businesses to use sustainable travel options |
| DC9 | Enhance the integration of transport in the urban environment to provide safe, secure and multifunctional space, promoting greater social interaction and natural surveillance |

The LTP3 vision, goals and challenges are fully consistent with the Government's five overarching transport objectives of environment, safety, economy, accessibility, and integration set out in the New Approach to Appraisal (NATA). The results of consultation upon the vision goals and challenges will be used to inform the creation of measurable objectives and indicators for LTP3. The local challenges will be used in the option development process to assist in the appraisal of options.

Figure 3.1 Derby City Transport Related Issues and Problems



4 Long Term Strategy Options

4.1 Introduction

In order to develop an effective long term transport strategy that meets the local challenges and National goals, the LTP needs to consider the best evidence available and a wide range of options, funded through either capital or revenue expenditure. It should compare policies and packages of options, which could generate better results than individual schemes. However, the combinations could be boundless and some common sense needs to be exercised in order to distil options into a manageable number. As such, the option generation phase needs to be undertaken in a structured way so that it is transparent, cost effective and meets the requirements of the Strategic Environmental Assessment.

For the purposes of generating options for Derby's LTP, the process has been broken down into three steps:

- Development of key principles that reflect current transport policy and Central Government Priorities.
- Initial sift of options against Derby LTP3 local challenges, risks, deliverability and costs
- Development of broad tests or packages of tests to be appraised using Derby Area Transport Mode

The following sections describe each of these steps in detail including a summary of the option list and initial sifting process and reasons for rejecting some options.

4.2 Key principles

The economic benefits of transport and costs, particularly on environment as a result of congestion, is a national issue and has been strongly reflected in central Government policy over the past decade. The publication of the 1998 Transport White Paper moved policy away from predicting and providing for traffic in favour of delivering a more sustainable, equitable and integrated transport system.

Delivering a Sustainable Transport System (DaSTS) has refocused transport policy emphasising the challenge of transport in supporting strong economic growth while at the same time reducing greenhouse gas emissions. The Stern report leaves no doubt about the massive economic price we will pay if we fail to address climate change, to which motorised travel is a significant contributor. The focus of policy is no longer just about reducing congestion it is about reducing the carbon footprint of transport by either helping people reduce their need to travel or switching to lower carbon modes.

As a first step in the process of developing a long term transport strategy, key principles were used to guide the development of a long list of interventions:

- Measures to reduce the need to travel; particularly by motorised modes
- Measures to increase use of alternatives to the car;
- Measures to make best use of the available road capacity, supported by targeted new infrastructure.

This methodology ensures that the principles of current transport policy and central Government priorities are considered. However, maintaining the reliability and resilience of existing transport networks is a key Government objective in support economic competitiveness and reducing congestion. Eddington recommended that targeted new infrastructure and capacity to improve the performance of existing networks should only be considered where there is a need to meet growing demand.

4.3 Long Term Transport Strategy Options Long List

Table 4.1 (see the end of this document) sets out the long list of options that were compiled from officer input, consultation, current best practice and research and the LTP3 Guidance. The options are categorised against the key principles, basically separating the options into network management measures; public transport, walking and cycling alternatives; and measures that make best use of the available road capacity.

As a first sift the options have been assessed against the Derby LTP3 local challenges. The local challenges identify specific transport problems and issues that Derby faces, now and in the future, that need to be overcome in order to meet strategic transport related goals. The goals and challenges are basically derived from a framework of national DaSTS goals and challenges, regional objectives, corporate policies and local issues and problems.

In addition, consideration is also given to risk, deliverability and cost. Whilst the objective of the long term transport strategy is to identify how challenges will be addressed to 2026, and is in part aspirational, it also has to be realistic. For example, based on Derby's predicted population and physical size it is very unlikely that Trams will be a viable option over the next 15 years because of their high costs compared to the population catchment needed to support such a transport system. There isn't the economy of scale to generate enough revenue to support such transport infrastructure. A summary of the definitions are given in table 4.2.

Table 4.2

	High	Medium	Low
Cost	Options over £10 million that could only be met through the Regional Funding Allocation or additional Government funding. High future maintenance requirements	Options that equate to 75% of the annual block allocation currently £3 million. Funding would have to be met through a phased approach using LTP3 block, or the Regional Funding Allocation or additional Government funding	Cost can be met within LTP3 block allocation, revenue or S106 contributions. Low future maintenance requirements.
Deliverability	Technically complex. For example large infrastructure options that need to overcome physical constraints, requires third party land or planning	Proven options that have been delivered outside the authority. Likely technical issues that require further clarification.	Proven options that have been delivered by the authority before.

	permission.		
Risk	Likely strong public opposition or unproven technology.	Some public opposition or issues to be resolved.	General public support expected or minor issues to resolve.

The following sections provide details of the options listed in Table 4.1 and the evidence to support their inclusion or exclusion in the long term transport strategy.

4.3.1 Measures to reduce the need to travel

Travel demand management is the application of strategies and policies to reduce travel demand, specifically that of single-occupancy private vehicles. In transport as in any network, managing demand can be a cost-effective alternative to increasing capacity.

The transport sector in the UK accounts for about 23% of total carbon dioxide emissions, and within this, road traffic is one of the fastest growing sources. Transport also produces other greenhouse gases, including nitrous oxide, methane and hydro fluorocarbons. In addition, increases in vehicle travel are linked to a range of other problems including poor urban air quality, road injuries and fatalities, and reduced physical activity. Managing travel is seen as central to the effort to reduce greenhouse gas emissions from urban transportation, improved public health and stronger communities, and more prosperous and liveable cities.

Spatial Land Use Planning

Land use planning has probably the most important role to play in reducing the need to travel by private car. The proximity to services, education and employment opportunities can have a major influence on mode choice and travel behaviour. In addition, the proximity and quality of the transport system can exert some influence on its use. Regionally the EMDA Three Cities Agglomeration and Accessibility Study Draft Report (March 2010) has made an initial conclusion that better integration of land use planning policies with sustainable transport considerations should be a long term target across the sub-region.

The Core Strategy will set out the broad location of strategic land use development in Derby up to 2026. The strategy is being developed in partnership with the other local authorities within the HMA area. Options for spatial patterns of development are currently being prepared and transport is a key consideration of the assessment of strategic land use. The Core Strategy will seek to provide the most sustainable spatial development plan for Derby. A number of strategic housing sites are currently being considered and will be modelled using an extended version of DATM to test their impacts on the transport network. The transport study that is being undertaken as part of the Core Strategy will be informed by the development of the long term transport strategy and is aligned to the local challenges of LTP3.

As such, spatial land use planning will form an important part of the long term transport strategy, but the development of policy will be undertaken through the Core Strategy. It will not be specifically tested as an option. **Measures to encourage walking and cycling**

Derby is a relatively compact city with a radius from the centre to the outer suburbs of approximately 3 miles. As such, there is significant potential for trips to be made by either

walking or cycling. Particularly, when the Issues and Problems Paper highlights that 64% of people travelling to work in Derby commute by private car and 55% travel less than 3 miles.

A number of issues were highlighted in the Issues and Problems Report on cycling and walking including the need for safer cycle routes across the city, a lack of continuous cycle routes, the need to encourage more walking and cycling in schools, and that there is no walking strategy.

The benefits accrued by increased levels of cycling and walking are acknowledged to contribute to wider policy objectives. For example, improve general health and fitness, reduce pollution and the emission of CO₂ and to help tackle congestion. The more recent Department for Transport publication, 'Delivering a Sustainable Transport System' reiterates the role in which particularly cycling can play toward achieving the following goals: economic growth, reducing greenhouse gas emissions, enhancing the local environment, improving public and personal health and to improve accessibility. As such, walking and cycling score strongly against the local challenges.

In order to test walking and cycling in DATM, general improvements in walking and cycling will be modelled to reflect capital and revenue investment in infrastructure improvements, training and promotional measures. These will reflect the emerging Cycle Derby Strategy for the city and city centre Wayfinder Strategy, which is a strategy to aid pedestrian and cycling navigation in the city centre. The Cycle Derby Strategy includes a list of improvements to the cycle network.

Make provision for electric cars or alternatives

Transport for London considers electric cars to be the closest 'near to market' green technology with a 30-40% less carbon dioxide emission rate than petrol or diesel vehicles. Regional development agency One North East plans to allow electric cars in bus lanes as part of its strategy. A consistent national approach will be required if these vehicles are to have recharge points across the country to facilitate longer distance journeys. For the purpose of the long term transport strategy LTP3 it was felt that the technology is not sufficiently advanced to include infrastructure and finance for electric vehicles in the options to be tested; the technological progress will be monitored and reviewed when appropriate.

Smarter Choices

Smarter choices are techniques for influencing people's travel behaviour towards more sustainable transport modes. They also seek to improve public transport, cycling, walking and marketing services such as travel awareness campaigns. A number of interventions that are covered by Smarter Choices are listed below:

- workplace travel plans
- School travel plans
- Cycle training
- Personalised travel planning
- Public information and marketing
- Travel awareness campaigns
- Car clubs

- Car sharing schemes
- Teleconferencing
- Home shopping etc

A weakness identified in the Problems and Issues paper is that we have not yet fully engaged a comprehensive Smarter Choices strategy. Evidence suggests that the potential impact Smarter Choice measures can have may have been previously underestimated. The results of the Sustainable Travel Demonstration Towns have recorded a 9% reduction in car trips during the commuter peak, and a 10-22% increase in bus travel, 26-30% increase in cycle trips and a 10-13% increase in walking trips (Summary of Sustainable Travel Town results evaluation, DfT website). Derby's own experience as a Cycle Demonstration Town has shown a 12% increase in cycle trips manually counted in the last quarter of 2006 compared to the 2005 baseline (Analysis and synthesis of evidence on the effects of investment in six Cycling Demonstration Towns Nov 2009). Smarter Choice measures were also raised in consultation on the LTP3 Proposed Vision, Goals and Challenges responses and at LTP3 Steering Group meetings.

Smarter Choice measures, when used effectively, meet the 9 LTP3 local challenges as shown in Table 4.1. In particular, Smarter Choices can be effective measures in reducing CO₂ and in encouraging more active travel. The King Review, 2008, examined the potential for CO₂ reduction, part II of the report published in March 2008, picked up on the challenges set out in part I and made a series of recommendations. These include "using lower carbon alternatives to the car: promoting public transport, walking and cycling, through increasing their availability and attractiveness and improving information, and encouraging people to make efficient use of cars- for example through car sharing and car clubs – for journeys where this is the best option". Nationally two thirds of the adult population do not meet the recommended activity levels - encouraging people to travel sustainably - to walk and cycle will have a positive effect on health.

Smarter Choices measures can be successful in tackling congestion provided they are carefully targeted, encouraging people to switch transport modes from single occupancy cars. If the public transport, cycle and walking network is relatively good then Smarter Choices provide the potential to deliver significant benefits at relatively low cost. Government is keen for local authorities to explore innovative low cost transport solutions to their problems. The use of Smarter Choices is seen as a key element of any future transport strategy and as both capital and revenue budgets are likely to decrease in the short term there is a need for the long term strategy to identify options for spending at different levels (Westminster Briefing, Thursday 11 March, Phil Killingley Local Transport Strategy, DfT). In order to test the sensitivity of smarter choices and understand the impact they will have, compared to the level of resources invested, we will test smarter choices at both high and low levels of investment on each sector of the city.

The EMDA Three Cities Agglomeration and Accessibility Study Draft report March 2010 has undertaken an initial review of a long list of options for the region and options that were based on more intensive application of smarter choices measures to facilitate behavioural change away from use of the private car to more sustainable travel modes scored reasonably well.

Integration of transport in the design of new development

Including;

Mitigation and developer contributions

Travel plans and monitoring

We now have the Developer Contributions Supplementary Planning Document which sets formulae to determine the appropriate level of developer contribution, this SPD ensures that all developments contribute towards providing the transport solutions set out in the Local Transport Plan in a consistent manner.

During the planning process we request transport assessments and travel plans so that we can better understand the impacts of developments and how the developer proposes to mitigate where new trips by non sustainable travel modes are generated.

4.3.2 Measures to increase use of alternatives to the car

Bus Rapid Transit

Bus rapid transit (BRT) is a high profile mode using buses on existing carriageways or in dedicated lanes, it can be an innovative, high capacity, solution to improve urban mobility.

BRT has been raised during consultation with Strategy Managers, Members and consultation on the proposed Vision Goals and Challenges. In the Problems and Issues paper we have identified that existing bus services are affected by congestion and that the quality of bus provision across the city is not consistent.

Against the LTP3 local challenges BRT does perform relatively well, as shown in Table 4.1. However, against deliverability, risk and particularly cost it does not perform as well. BRT is expensive because the majority of the route it runs on needs to be dedicated in order to guarantee its reliability and speed. Indeed, initial feasibility costs for Mick/Mack were estimated at £22 million at 2002 prices and exclude any assessment of risk. For Derby, which is relatively small in radius, it is likely BRT will compete with the existing bus network unless it serves a separate function such as new housing sites or park and ride facilities.

The EMDA Three Cities Agglomeration and Accessibility Study Draft report March 2010 has undertaken an initial review of a long list of options for the region. Options that were based on new very high quality public transport corridors using trams or advanced forms of BRT gained some of the highest scores among all the options considered in the qualitative prioritisation exercise. However, DfT has indicated that local schemes costing £30 million or above are unlikely to be considered affordable, particularly considering future funding constraints.

Bus rapid transit measures along key corridors including the proposed Mick/Mack route were included in the TIF Congestion Management Study as part of the Core Complementary measures included in the Innovative Package Scenario. The reduction in congestion and improvement in journey speeds would result from the effectiveness of the Innovative Package Scenario in encouraging people to use non-car modes in peak times. The initial modelling results predict that the number of morning peak bus trips would be 70% higher under the Innovative Package Scenario than under the Current Strategy Continuation Scenario.

It was felt that BRT could only be tested as part of a package of measures, an element of which would raise the significant amount of revenue necessary for the level of investment required. The long term proposal to introduce BRT on the disused rail line that links the Mickleover and Mackworth areas to the city centre is being tested as part of the work done for the Core Strategy. Mick/Mack was not prioritised in the Regional Funding Allocation and as such is likely to be at most a future long term transport aspiration. It is felt that this scheme could only be justified if it supports a large concentration of residential development in the south west sector of the City.

Trams

Trams or trolleys, rail borne vehicles of lighter weight than a train and run on tracks, have also been raised during strategy manager consultation.

Tram systems are expensive to implement and operate. The Nottingham Express Transit (NET) phase 2 is estimated to cost in the region of £400 Million. This is more than ten times the cost of our Connecting Derby project. In addition to the initial outlay required to build the lines and purchase the trams there are the ongoing costs of maintenance of track and tram, energy costs and staff costs. The scale of these operating costs means that a tram system needs to be capable of generating a large amount of fare revenue to cover these costs without the need for a subsidy. 5.1.7 The Derby Area Transport Study in 2004 looked at the potential for a tram system in Derby. The study conclusion was unequivocal, and concluded that Derby is too small to be able to generate the critical mass of passenger numbers, to make a tram system financially viable. This is without considering the affordability of the hundreds of millions of pounds that would be required to build the system in the first place.

In this current period of austerity, and beyond, it is highly unlikely that Derby could afford to build a tram system. Furthermore, even if the city could afford to develop such a system it is highly unlikely that it would be financially viable to operate without significant ongoing public subsidy.

On this basis we have determined that we cannot consider trams as part of long term transport strategy up to 2026. We suggest that this position is reviewed at some point in the future as future developments in trams and their associated infrastructure could change the result of this assessment.

Corridor Bus Priority Improvements

The Problems and Issues paper identified that the quality of bus provision across the city is not consistent and that there were gaps in the delivery of the Strategic Integrated Transport Schemes due to a lack of funding and resources. Bus priority measures are to be tested on each sector of the city, as a stand alone option and tested along with park and ride facilities.

Bus priority improvements can include the following:

- Bus priority at signals
- Bus lanes
- Real Time Information
- Refurbished bus stops and access kerbs

Improvements to bus services can be secured when a local authority enters into a Statutory Quality Partnership with a bus operator. The local authority provide some of the measures

set out above and in return can specify minimum standards for buses using these facilities such as low floor, low emission, CCTV cameras, high standards of presentation and cleanliness etc. So far there have only been 2 SQP's under the powers given by the Transport Act 2000, in Sheffield and Barnsley

All options scored reasonably well in the qualitative initial assessment of options against the local challenges set out in Table 4.1. In the EMDA 3 Cities Agglomeration and Accessibility Study draft report options based on small scale interventions to extend and enhance bus priority scored moderately well in the initial prioritisation exercise. However, there remains a question over whether these types of measures need to be delivered on a corridor basis to provide any benefits or whether minor improvements across the city provide tangible benefits.

Park and Ride

The option of introducing park and ride on strategic radial routes will encourage mode shift into the city centre and reduce congestion, as well as help integrate other demand management strategies. Park and Ride has proven to provide many tangible benefits in other cities and towns. For Derby if it is linked to a wider parking management strategy and public transport corridor improvement strategy for the city, it will help to manage the overall supply and demand of long stay and short stay parking.

Park and ride meets many of the local challenges, as shown in Table 4.1 and the need for more park and ride sites was raised in consultation on the LTP3 Proposed Vision Goals and Challenges. In the draft report EMDA 3 Cities Agglomeration and Accessibility Study options that included additional park and ride facilities coupled with bus priority measures along the corridors scored reasonably well. However, Park and Ride is relatively expensive - individual feasibility studies carried out as part of SITS work has shown that each site will cost between £3 million and £5 million. Existing testing of Park and Ride sites around Derby has shown that they do provide benefits. However, they are influenced by a range of factors not least the availability of city centre parking.

Overall Decrease in Bus Fares

The cost of bus travel is an issue that has been raised through consultation and identified in the Issues and Problem Paper. Derby has a very good level of bus services and coverage across its network. Services are mostly operated by commercial operators. A fare decrease could be secured if the Council were to enter into a Quality Bus Contract scheme or as part of a wider initiative where there are tangible commercial benefits. QBC's are effectively the control of routes through setting up and tendering contracts and are an option where one would be required in order to implement an LTP strategy. However, they are not popular and to date very few have been implemented under the current legislation, Sheffield City Council are currently trying to implement a QBC and are meeting strong resistance from the main bus operator in the city. The alternative to reducing fares would be cross subsidisation by the authority, however, this has obvious costs implications.

An option to reduce fares did form part of a package of measures tested for LTP2 that also included demand management measures and frequency enhancements as well as fare reductions. An overall fare reduction across the 3 Cities has been given some initial consideration in the East Midlands Three Cities Agglomeration and Accessibility Study draft report March 2010 and was ruled out in an initial sifting of options because they appear unaffordable from likely future LTA revenue budgets.

As well as an overall fare reduction it could be possible to devise options for sectors of the population - free bus travel for all children in full time education, for example, through some form of financial subsidy. Strategy managers were concerned that this option – as a stand alone option - would be unaffordable from likely future LTA revenue budgets. This option has been considered in the East Midlands Three Cities Agglomeration and Accessibility Study draft report March 2010 and was ruled out from further consideration for the same reason – affordability.

The reduction in fares is likely to make bus travel more attractive and encourage mode shift. As such, it ticks many of the local challenges and will be tested through DATM.

Increase in Bus Frequencies

The LTP2 Progress Report, December 2008 identified that there are limited bus services in certain areas of the city. An increase in bus frequencies to meet the same standard across the city was included in tests for LTP2, they indicated that bus patronage increased but there were no congestion benefits - probably due to the number of bus vehicles on the public highway. The transport economic benefits were positive indicating a positive impact on accessibility.

Again increasing bus frequencies meet many of the local challenges. Although there are issues over how this option might be funded, providing a high level of bus service provision across the whole network might highlight the potential to be still gained from bus transport.

Orbital Bus Route

Requests for an orbital bus route were received in the National Highways Transport Public Satisfaction survey 2009. The same issue has been raised in responses to consultation on the proposed Vision, Goals and Challenges. The request is made more frequently following the relocation of the Royal Derby Hospital from the city centre. An orbital bus service linking existing and future employment and housing sites came out moderately well in meeting the local challenges as summarised in Table 4.1. However, Strategy Managers are concerned that an orbital service would not, in practice, be well used. Other similar services such as the city centre orbital bus route have failed where there has been a perceived demand. An orbital bus service operating half hourly along an indicative route prepared for the TIF study and has been included as a test in order to provide a more definitive response.

Integrated Bus Ticketing

Locally for Derby, a weakness identified in the LTP2 Progress Report December 2008 by the Steering Group was the lack of an integrated ticket across operators.

A proposed scheme could centre on a day ticket which would allow travel on most local bus services within Derby, regardless of operator type. This would allow unlimited travel for the whole day with only one fare, i.e. passengers can make as many journeys as required.

In the case of London, Smart and Integrated ticketing has been shown to encourage travel by public transport by, reducing boarding times with a high Benefit Cost Ratio (BCR) of over 7 (A strategy for integrated and smart ticketing, unpublished 2009). Nationally, incentives to promote the integration of bus services are a key priority in the future development of public transport as a whole. Whilst this strategy fits the London transport model, as it is predominately well served by public transport, may prove to be problematic when considering a scheme outside of London. The Department for Transport's collaborative

report, An Analysis of Urban Transport 2009 identifies the following concerns of introducing wide scale implementation of Smart and Integrated ticketing for local authorities:

- Commercial concerns about losing market share, obtaining fares share of revenue, OFT reaction and the lack of freedom over fares
- Uncertainty about the technology
- Significant up front costs
- Absence of leadership
- Lack of innovation

The onus will be on Local Authorities and Operators to develop integrated ticketing themselves using the arrangements provided by the Transport Act 2000 and the OFT Block Exemption. Research undertaken for Derby City Council January 2010 concluded that price would be very influential for most car and bus users ('Integrated Ticket Research 2009' by Qa Research for Derby City Council 12 January 2010).

Whilst initial inroads have been made to establish people's opinion of introducing an integrated ticket and to identify an acceptable price, we have yet to understand the wider benefits of implementing a scheme like this across Derby in terms of mode shift, end to end trips and associated costs. The EMDA Three Cities Agglomeration and Accessibility Draft Study, March 2010 has undertaken an initial review of introducing a Smartcard Integrated Ticketing option to improve the seamless public transport journey. The outcomes were relatively modest and suggest that the scheme would fare better if introduced in conjunction with a smartcard with associated discounts. The report also suggests that there is little evidence to suggest that on its own integrated ticketing would have a major impact on the levels of public transport use.

It should be noted that no formal decision has been made to take forward Smart Integrated Ticketing for Derby as the following items are still to be resolved between the bus operators, Arriva Midland and Trent Barton with Derby City Council:

- Pricing – cost of the ticket
- Supply of ticket – bus operators believe that this should be subsidised.

Integrated smart card ticketing will be tested using DATM, however, the option test will not include rail because it would be difficult to model anything that is tangible.

Improved bus information

Improved bus information has been identified as an option and tested under the Smarter Choices Option.

High Occupancy Vehicle (HOV) Lanes

Similarly to bus lanes, HOV lanes dedicate part of the carriageway for the exclusive use of vehicles containing two or more occupants. Typically buses, minibuses, taxi's and cars with more than two occupants are permitted to use HOV lanes.

Derby is a mature city whose form and built fabric was set out many years ago prior to the invention of the motor car. This is reflected in the city's highway network, the majority of which are single carriageway roads passing through predominantly residential areas.

It is considered that there are few opportunities for developing HOV lanes within the city. This is mainly due to the physical constraints of the network which mean that there is not enough road space to provide HOVs without extensive localised carriageway widening. This is likely to be expensive, disruptive and unpopular, particularly as this is likely to be within residential areas.

We will consider HOV lanes in the future if opportunities are found to reallocate the use of existing road infrastructure. As such, HOV lanes were not tested as a stand-alone option.

District Centre Improvements

District centre improvements can include reviewing parking layout and restrictions, provision of bus infrastructure and priority as well as environmental improvements. District Centre Improvements have been assessed qualitatively in Table 4.1 against the 9 LTP3 local challenges and it scores moderately well; however, previous experience of implementing district centre improvements has shown that they are resource intensive schemes. It would be difficult to model the impact of a district centre improvement and so they have not been put forward as an option for testing for the long term strategy; however, as this measure does meet the local challenges it will be included in the long term strategy should the necessary level of funding be available in the future.

Improvements to Spondon Station and rail services between Derby and Nottingham

Spondon Station and rail services are maintained and operated by East Midlands Trains through a 5-7 year franchise. As such, the City Council does not have direct control over the station or services. There is no provision in the current franchise to increase the frequency of rail services stopping in Spondon. However, we will continue to work with East Midlands trains to explore viable improvements.

Improving accessibility to and from key employment and key services

In the LTP3 Problems and Issues Paper some gaps in the accessibility strategy were identified including limited bus services, perceived barriers to bus use such as an unclear pricing structure, lack of orbital bus route and a lack of continuous cycle routes. Providing good access to employment opportunities, key facilities and services for all residents and visitors to the Derby LTP area is one of the LTP3 local challenges. All the options have been assessed qualitatively against this goal and it will be met by options being put forward for testing such as measures to encourage walking and cycling, a decrease bus fares and increase bus frequencies, integrated ticketing, an orbital bus route and highway maintenance. This goal will also be met by measures that will be included in the long term strategy but that will not be put forward as an option test including, for example, through spatial land use planning policies.

High Speed Rail link

HS2 Ltd was created in January 2009 to look at the feasibility of, and business case for, a new high speed rail line between London and the West Midlands and to consider the case for high speed rail services linking London, northern England and Scotland. HS2 will improve connectivity and potentially improve the economy of the local area if a station is located near to Derby.

HS2 is a major future national rail scheme that is being sponsored by Central Government and we will continue to promote the City Council's support for the scheme.

4.3.3 Measures to make best use of the available road capacity, supported by targeted new infrastructure.

Sustained investment in highway infrastructure to steady state

The National Highways and Transport Public Satisfaction survey 2009, identified that there was some dissatisfaction with the condition of the highway. Winter maintenance and the impact of the recent cold winters has raised the profile of maintenance further as consultation on the proposed Vision, Goals and Challenges for LTP3 has shown. The Highway Infrastructure Long Term Funding Needs report, January 2010, has indicated that the capital funding required to maintain the carriageway to a 'steady state' will be approximately £6.5m per annum. Planned maintenance is urgently required at site specific locations such as London Road Bridge and Uttoxeter Old Road Bridge where we are aware that restrictions will have to be regularly reviewed in order to ensure safety and where no maintenance will ultimately result in closure. The option test for maintenance has been profiled to enable us to understand what the implications for the network are if maintenance work is reactive as it is at present, the impact of investing £6.5m to maintain carriageways in a 'steady state' and a further test over and above this to carry out maintenance work in a more sustainable way giving carriageway surfaces a longer lifecycle with the benefit of less network disruption.

In the EMDA 3 Cities Agglomeration and Accessibility Study draft report March 2010 options based on increased investment in maintenance to reduce delays caused by emergency roadworks had a low score. The work on the HAMP has highlighted the need to review how maintenance work is prioritised as at current spending levels carriageways and footways will not be maintained to a steady state. At present we do not understand what the exact implications are although it can be assumed that where the highway becomes unsafe it will be necessary to introduce restrictions on speed and weight, for example, and ultimately it would be necessary to introduce road closures. Work on the risk register for the HAMP is underway.

Network management enhancements

These are measures to facilitate the expeditious movement of traffic, for example Variable Message Signing, traffic signal controls, parking restrictions including red routes etc, travel Information. In the Problems and Issues paper we identified that delay due to traffic congestion in Derby is estimated to cost £46 million per year with environmental, social and health impacts. These traffic management measures will enable the authority to manage flow more efficiently but their impact on mode shift may be limited. Against the local challenges network management enhancements score highly against providing network efficiency, reducing unnecessary delays and facilitating economic activity as well as minimising the effects of unpredictable events on the transport network, including the effects of climate change. In the options for the LTP3 long term transport strategy, network management enhancements will be tested on a corridor basis.

Road Safety Improvements

In the Problems and Issues paper we identified that it can be difficult to find engineering solutions to accident problems; that it can be difficult to quantify the impact of education, training and publicity but we do have gaps and need to improve road safety in deprived areas implement our Strategic Integrated Transport Schemes and fully engage in a Smarter Choices strategy. There are road safety implications of all the options to be tested including the Strategic Integrated Transport Schemes within the sector tests, measures to encourage

walking and cycling, 20mph zones and limits, network management duties and where training and education falls within the Smarter Choices test.

Network wide 20 mph limits and zones across city except radial routes and local distributor roads

In the Problems and Issues paper we identified that there needs to be further improvements in road safety in deprived areas. Recent advice from the DfT endorses the installation of 20mph limits and zones into streets that are primarily residential in nature and into town and city streets where pedestrian and cycle movements are high. The new advice says the wider benefits of 20mph limits include “quality of life and community benefit and encouragement of healthier more sustainable modes such as walking and cycling. In order to understand the impact a 20 mph restriction will have, including the potentially negative effects of rerouting traffic and longer bus journey times, a 20mph zone/limit test in an option put forward for testing.

Targeted new infrastructure to facilitate planned growth- land use planning such as Alvaston Bypass Extension, Spondon Bypass

We consider that there is a role for targeted new transport infrastructure where it can deliver wider benefits, particularly in terms of new housing or economic regeneration. Such schemes that would fit into this category would be the A50 - Wilmore Road link. This will provide access to a planned new employment area known as Chellaston Business Park in the south of the city.

Other potential new road schemes that have been identified on the long list are Alvaston Bypass Extension and Spondon Bypass.

The route alignment of the Alvaston Bypass Extension has been protected in successive development plans since the 1950's. The aim of the scheme is to relieve traffic congestion in Alvaston District Centre. This would be achieved by allowing traffic to travel into the city from the south east via the A6 Alvaston Bypass to the junction with the A5111 Raynesway, and then join the bypass extension to avoid Alvaston District Centre, rejoining London Road in the vicinity of Alvaston Park.

There have been significant changes to the highway network in the Alvaston area over last 10 years. The Alvaston Bypass Trunk Road was constructed and opened to traffic in 2003. This road provided a direct link between the A50 to the south of the city and the A5111 at Raynesway.

A major project to grade separate the junction between the A6 and A5111 trunk roads is almost complete. This junction will also provide access to Derby Commercial Park. This is a major business park that is being developed with approximately 2 million square foot of floor space and is expected to generate in the region of 3,000 jobs.

There are similar plans to develop a site to the west of Raynesway for business uses which also has the potential to generate a significant number of new jobs. The Alvaston Bypass Extension would assist in providing access to the West Raynesway site and Derby Commercial Park, provide improved access to new employment sites and help to improve traffic congestion and air quality throughout Alvaston District Centre.

The development of Chellaston Business Park is being taken forward and it may be some time before there is the need or demand to develop the West Raynesway site. The Council

does not now intend to act as scheme promoter for Alvaston Bypass. Extension and so we have decided not to include this scheme as part of our long term transport strategy. Due to the linkages to commercial developments the Council will still support the bypass extension as a developer led scheme.

Spondon is a suburb of Derby located on the eastern side of the city straddling the A52 Brian Clough Way. The A6096 is a busy principle road that links towns to the north east of Derby to the A52. Traffic accessing the A52 has to travel through the centre of Spondon. The nature of the junctions with the A52 in this area means large numbers of HGV's travel through the heart of the residential area. As this is one of the older parts of Derby the roads and footways are narrow in places making some parts unwelcoming for pedestrians.

A suggestion that has been put forward is to promote a bypass of Spondon. This would link the A6096 directly to the A52. The bypass would run parallel to the edge of the urban area allowing environmental improvements to be obtained within Spondon itself.

Currently the suggested bypass of Spondon has no basis in planning policy. Our initial assessment has indicated that the costs of the scheme are likely to be significant, particularly to engineer and construct a new all moves junction with the A52. Previous experience has also shown that the provision of a significant new link, which increases road capacity, is likely to lead to induce a significant level of traffic onto the new road. This is likely to create new environmental issues in the area and could lead to further problems upstream in the village of Kirk Hallam, and through Ilkeston.

Unless there are significant benefits in supporting growth and economic competitiveness then there is little justification for bypass schemes. They do not meet climate change objectives of reducing CO₂ emissions but simply shift the problems else where.

Road Freight

In the Problems and Issues Working Paper we have identified that the volume, weight and journey length of road freight has significantly increased in recent years leading to increased costs of damaged infrastructure and significant congestion. One of the strategy gaps identified in the paper is inefficient routing of heavy goods vehicle traffic around and through the city. Officers attend a regional forum to discuss road freight issues which have a regional impact and include routing and signing, HGV parking and stop overs. It would not be appropriate to test the measures that could be incorporated into a freight strategy; however, as identified in the draft Network Management Plan we need to work towards a Road Freight Strategy and incorporate measures in the long term transport strategy for LTP3.

Street works and Street Work Permit Scheme

A street work permit scheme could be introduced with the objective of reducing the adverse impacts of street works on local residents, businesses and bus passengers. It would not be possible to model a street works permit scheme. While a scheme would not be tested as an option, scheme as set out in the Network Management Plan would be part of the long term strategy.

An option to model the impact of an increase in investment in highway maintenance both in line with the Long Term Funding Needs report and at a higher, sustainable level on the network management duty had been proposed.

Parking Management

Parking is a viable tool for managing traffic and traffic growth and is a key element in delivering many of the overarching transport policies within our current Long Term Transport Strategy. However, the difficult issue is trying to strike the right balance between supply and demand and the types of parking systems/legislation put in place without undermining other transport interventions, such as park and ride.

Without some form of road user charging, managing travel demand and access into the city centre through parking remains one of the only network management tools that could be implemented. However, the benefits are unlikely to be significant unless parking demand is introduced as part of a package of measures such as providing alternatives to car travel. The two tests proposed include:

- Reducing the supply of long stay parking in the city centre and relocating long stay to short stay parking to discourage commuter parking
- Increasing long stay parking charges to discourage commuter trips by single car occupancy into the city.

One of the likely issues with parking management is the availability of private public car parking that could undermine the effectiveness of parking as a network management tool. Hopefully the modelling will identify how private public parking influences any parking strategy in the future.

Parking management measures score relatively well against a number of local challenges. However, they are likely to be unpopular with the public.

Noise Management schemes through engineering and better low noise surfacing to be included as part of maintenance strategy.

Motorised forms of transport are common sources of road pollution with road traffic being the main one. Noise pollution on roads arises from the effects of vibration of roads and other infrastructure. Defra noise maps will only be available in 2011, prior to this a number of First Priority Locations have been identified in Derby for Noise Action Plans. It is anticipated that a noise action plan will be developed during the life time of LTP3. (LTP3 SEA Scoping Report)

Low Emission Zones

A Low Emission Zone (LEZ) is a geographically defined area where vehicles that do not meet certain emission criteria are charged to enter. They can be introduced with other measures such as an engine switch off Traffic Regulation Order and the offer of free 'eco driver' training sessions. There is some uncertainty over the costs involved - in the EMDA regional report the cost of LEZ's are considered uncertain and will require further investigation before conclusions can be drawn. LEZ could be effective tools in addressing certain local and regional goals which impact on air quality but would have a neutral impact on congestion or mode shift and so is not appropriate to put forward for testing as an option. LEZ's would not be ruled out of the long term strategy.

A38 Derby Junctions Grade Separation

Congestion around the A38 Derby junctions has a significant impact regionally and locally. Highway delays and stress on the Strategic Road Network and on the inter-urban highways and peak hour vehicle delay is considered to be particularly serious on the A38 north of Derby. Proposals to grade separate the three Derby junctions have been put forward as a

priority for investment in the Regional Funding Allocations. The ability to deliver the long term transport strategy is dependent on the A38 Derby junctions proposed grade separation. The Highways Agency timetable now means that they anticipate carrying out public consultation in December 2011 and a preferred route announcement in August 2012 and commencing work in November 2016 with an anticipated project close out of August 2020.

The A38 is operated and maintained by the Highways Agency and as such is not within the City Council's control. We will continue to work with the HA to support the promotion of the scheme at a regional level. The scheme is assumed to be delivered by 2026 in the model reference case.

Road User Charging

The 6Cs Transport Innovation Fund, TIF, Congestion Management Study (2008) was undertaken in partnership with Derby, Leicester and Nottingham City Councils, together with Derbyshire, Nottinghamshire and Leicestershire County Councils.

The overall aims of the study were:

- Investigate the extent and severity of traffic congestion over the next 10-20 years and the effects it may have on the local economy and on local people
- To research how, in the medium to long term future, congestion could be managed and reduced across the sub-region

Traffic surveys undertaken concluded that where delays were at its most severe the worse affected areas by congestion are the radial routes running into and out of Derby, including the Inner and Outer Ring Roads.

In order to understand how congestion will impact on the future and how it can be managed for Derby, the following scenarios were developed, compared and tested to 2016 and 2026.

- Do Nothing Scenario
- Current Strategy Continuation Scenario
- Innovative Package Scenario

The evidence base that was developed through the study concluded that an innovative package including congestion charging and a range of other complementary transport measures could more effectively tackle future congestion, and provide greater economic benefit, than continuing with the current strategy under the usual public sector funding constraints.

A decision was made by the 6Cs leaders not to progress the study further to the stage of submitting a business case to Government. There are two main outcomes for the City Council in not taking forward the TIF Congestion Management Strategy.

1. Testing within DATS for LTP2 showed that distance based road user charging, when introduced in conjunction with other measures as part of our long term transport strategy, had the most potential to tackle congestion within the Derby Joint LTP area. Alternatives could include increasing car park and on street parking charges, and reducing the availability of long stay parking in the city centre. However, these will not be as effective as congestion charging.
2. The second outcome was that as part of TIF, Derby would have received significant capital from Central Government and revenue generated by congestion charging to

invest in transport schemes. Without TIF there is a major long term investment gap for the future.

The EMDA 3 Cities Agglomeration and Accessibility draft report had scored a national or regional road user charging highly in the initial prioritisation exercise; however, as established during the TIF study work it will be difficult for a road user charging scheme to gain public and political acceptance particularly against the current economic background. As road user charging schemes have been thoroughly tested in the 6Cs Congestion Management Study it has not been necessary to carry out further tests for the LTP3 long term strategy. A road user charging strategy could be reviewed again in the future.

Work Place Parking Levy

The TIF 6Cs Congestion management study 2008 concluded a preference towards an 'Innovative Package Scenario' with the option to introduce a Work Place Parking Levy (WPL). WPL involves charging businesses for the number of free spaces they provide for employee parking, and is seen as a means of directly addressing congestion and as a source of funds to potentially invest in alternative modes other than the private car. Nottingham City Council plan to introduce a WPL and in studies done for the Nottingham proposal the following points are worth noting;

- A relatively low direct impact on congestion
- Encouragement of employers to participate in 'Smarter Choices' type activities, particularly Workplace Travel Plans
- Generation of modest funds for an investment in package of alternatives to car travel that would be expected to have an impact in reducing congestion

The TIF study concluded that Derby would not take forward WPL in isolation of Nottingham and Leicester, there is little evidence that the introduction of WPL alone will change peoples travel habits or provide any benefits in isolation of the innovative package scenario option. Strategically, even though car demand would be reduced, and some decongestion occurs, the benefits of WPL will be eroded by induced traffic. In particular, terminating traffic in a busy area where a levy has been imposed may be replaced by traffic without a local trip end, without any discernable change in traffic flows. Furthermore, there is no guarantee that employers would pass on the charges or remove spaces. A WPL could be seen as just a revenue raising measure with little impact upon travel mode if implemented in isolation.

Without any discernable benefits from a WPL, it is likely that the scheme will be publicly unpopular and as such will not be included in the strategy.

4.4 Modelling of Options

DATM provides a tool to help analyse the current transport problems within Derby and predict the likely transport problems that we will face in the future, as a result of economic and land use growth and changing travel patterns. It can predict the possible impacts of transport options and strategies providing a range of statistics and outputs that will be fed into economic, accident and environmental appraisal models.

The objective of the broad option testing is to develop a preferred transport strategy to cover the period to 2026. The focus at this stage is on policies and major initiatives that affect significant parts of the Derby LTP area, rather than on detailed interventions. The long term strategy will help define future priorities for investment in transport in Derby, and a short term

plan of specific interventions covering the two year financial period between 2011/12 and 2012/13.

Not every strategy option can be directly modelled using the Derby Area Transport Model. This is because not all options can be represented within a strategic transport model or would provide tangible results. For example, network management options such as Freight Quality Partnerships or Street Work Permit Scheme. There are benefits of including these options in the long term transport strategy but the justification is based on current evidence and wider benefits that cannot be quantified by the model. Table 4.1 is colour coded showing which options could be directly modelled using DATM, those options that can be indirectly modelled and the options that cannot be modelled.

In total, there are 11 broad option tests, set out in Table 4.2, that have been identified to be modelled using DATM.

Table 4.2: Options Tests to be Undertaken Using DATM

1a	Reduction in Public Long Stay Parking in City Centre tested incrementally for example 40% reduction. The parking will be converted to short stay parking.
1b	Increase City Centre Long Stay parking charges tested incrementally 20% and 40% increase.
2	Integrated smart card bus ticketing.
3	Increased Bus frequency on all urban services with less than a 10 minute headway during peaks. Inter urban services half hourly in the peak and hourly off peak. Orbital bus service operating on outer ring road linking with employment sites and residential areas.
4	Measures to encourage walking and cycling.
5,6,7,8	Smarter choices, public transport and traffic management Improvements across North West, North East, South East and South West Sectors of the City High investment in Smarter Choices Investment in bus priority and traffic and network management improvements Investment park and ride sites on strategic radial corridors to the City Centre
9	Closure of London Road Bridge

10	Introduction of residential 20 mph zones using two discreet residential areas as an example.
11	Network Wide Urban Traffic Control, such as Scoot, MOVA and CCTV.

The options will either be modelled on an individual basis across the whole network or together incrementally across the different sectors and corridors of the City as set out in Figure 2.2.

The reason for modelling options on a corridor and sector basis is that some options, specifically bus priority improvements, park and ride, network management and smarter choices, are interrelated in terms of their benefits and dis-benefits. The options will be incrementally modelled using the hierarchy approach of demand management first, alternative to the car and then measures to make best use of the available road capacity.

The other main motive for modelling options on a corridor and sector basis is that the benefits and dis-benefits will be different across Derby depending on the existing transport network and demand for travel. This will provide an understanding of how similar options perform on a corridor basis and help in the prioritisation of the implementation plan.

The strategy options at this stage are broadly assessed on a set of core indicators to test the impacts against challenges. Section 2.7 of this report summarises these but basically they include indicators on Congestion, Safety, Environmental, Accessibility and Economic Benefits.

4.4.1 Preferred Strategy Option and Delivery Strategy

The modelling will provide a number of functions to help develop the preferred long term transport strategy option. It should be noted that the modelling is not the only input into this process and it will be refined through the consultation that is planned for June 2010, the SEA and consultation on the draft LTP document from November 2010 to January 2011.

The modelling will help to understand the performance of options on a network wide and transport corridor basis. Although we have based the option generation process on a hierarchy the results will determine whether the demand management options for example, best meet our LTP3 goals, local challenges and national goals compared to options that make best use of the available road capacity.

The modelling will also provide results that will help us to understand the benefits of different funding scenarios. For example, low level investment in bus priority across a number of corridors compared to high level investment on one corridor. Again, the model will not provide all the answers and evidence will be drawn from other sources.

5 Conclusion

The long term transport strategy developed as part of LTP2 considered a covering the period 2006-2021 and an implementation plan covering 2006 - 2011. The strategy and implementation plan focused on different financial delivery options, in particular congestion charging and funding through the Transport Innovation Fund (TIF). However, a 6C's TIF Congestion Management Strategy was not taken forward. With the emergence of new central Government transport policy and likely reductions in transport funding the long term transport strategy for Derby needs to be reviewed and updated.

This working paper sets out the approach in reviewing and developing a preferred long term transport strategy for the Derby LTP area over the 15 year period to 2026. The strategy will help define future priorities for investment in transport and a short term plan of specific interventions covering the two year financial period between 2011/12 and 2012/13.

For the purposes of generating options for Derby's LTP, the process has been broken down into three steps:

- Development of key principles that reflect current transport policy and Central Government Priorities.
- Initial sift of options against Derby LTP3 local challenges, risks, deliverability and costs
- Development of broad tests or packages of tests to be appraised using Derby Area Transport Model

The initial sifting process has eliminated a number of options from consideration and identified options that should still be considered as part of the longer term strategy, but are unlikely to be delivered because of future funding constraints or risk. Whilst the objective of the long term transport strategy is to identify how challenges will be addressed to 2026, and is in part aspirational, it also has to be realistic. Government has made it very clear that they want more innovation at less cost in the future.

The emerging main options from the initial sifting exercise include:

- Land use concentration and integration with existing transport nodes
- Smarter choices
- Management of long stay City Centre parking to discourage commuter trips
- Integrated and smart card bus ticketing
- Increased bus frequency on all urban services
- Measures to encourage walking and cycling.
- Bus priority measures
- Park and ride
- Improving accessibility to and from key employment and key services

- Sustained investment in highway infrastructure to steady state
- Network management enhancements such as reduce on-street parking, red routes, VMS & MOVA
- Road Safety Improvements
- Network wide 20 mph zones across city except radial routes
- Targeted new infrastructure to facilitate planned growth
- Integration of transport in the design of new development
- Freight quality partnership
- Street Work Permit Scheme
- Noise Management schemes through engineering and better low noise surfacing to be included as part of maintenance strategy.
- A38 Grade Separation
- London Road Rail Bridge Replacement

The objective of the broad option testing is to develop a preferred transport strategy to cover the period to 2026. From these tests a preferred package will be distilled and appraised based on the consideration of strategic alternatives and impacts on the environment through the Strategic Environmental Assessment.

The focus at this stage is on policies and major initiatives that affect significant parts of the Derby LTP area, rather than on detailed interventions. The long term strategy will help define future priorities for investment in transport in Derby, and a short term plan of specific interventions covering the three year financial period between 2011/12 and 2013/14.

Not every strategy option can be directly modelled using the Derby Area Transport Model. This is because not all options can be represented within a strategic transport model or would provide tangible results.

In total, there are 11 broad option tests that are set out in that have been identified to be modelled using DATM. The next step of the process will be to assess each of the options and consider different levels of investment. The modelling will provide a number of functions to help develop the preferred long term transport strategy option. It should be noted that the modelling is not the only input into this process and it will be refined through the consultation that is planned for June 2010, the SEA and consultation on the draft LTP document between November 2010 and January 2011.

Possible Options to Meet LTP3 Local Challenges Table 4.1

Key Theme	Strategy Option	Potential Direct Linkages to Other Strategy Options	Description	Viable Option for Long Term Strategy (Y/N)	LTP3 DATM Test (Y/N)	LTP3 Local DASTS Challenge									Score	Cost	Deliverability	Risk	Comments			
						DC1	DC2	DC3	DC4	DC5	DC6	DC7	DC8	DC9								
Measures to reduce need to travel	A3	C15, C16, A6, Bs	Smarter Choices: For example 'Big Wheel' type marketing, car club schemes, travel planning, school travel plans, home shopping and personalised travel planning.	Y	Y	✓											12	Low	High	Low	Benefits compared to costs are likely to be high. Can only really be tested as part of a package. On its own Smarter Choices makes no sense.	
	A4	A3, Bs	Reduction in Long Stay Parking in City Centre	Y	Y	✓	✓										8	Low	Med	High	Previous testing indicated that reducing long stay parking had slightly negative economic benefit because of loss of revenue. However, this does not include re-building Chapel Street.	
	A6	A3, Bs	Spatial land use planning and integration with transport to reduce the need to travel.	Y	N	✓												21	Low	High	Low	LDF will test this strategy
	A7	A3, Bs	Spatial land use planning and integration with transport to reduce the need to travel.	Y	N	✓												21	Low	High	Low	LDF will test this strategy
Measures to increase use of alternatives to the car	B1	As, B1 to B9, B11	BRT such as Mick/Mack	Y	N	✓	xxx	✓									12	High	Low	High	Cost for Mick Mack is estimated to be around £22.9 million discounted to 2003 prices. This demonstrates the level of costs of these types of schemes.	
	B2	As, B1 to B9, B11	Corridor Bus Priority Improvements assumed to be traffic neutral by design	Y	Y	✓	x										14	Med	Med	Med		
	B3	As, B1, B2, B5, B6, B11	Park and Ride	Y	Y	✓	xx	✓									11	High	Med	Med	The success of Park and Rides is connected to a number of factors including location, existing bus services, quality and branding. They are costly, need planning permission and not always popular if located near residential areas. The best locations for Derby are likely to be outside of the City boundary.	
	B4	A3, B2, B5, B6, B9, B11	Overall decrease in bus fares	Y	Y	✓												12	High	Low	Low	This can be easily tested but not sure how it could be delivered. May require a network wide bus contract or subsidy. The latter would be very costly and the Council cannot support it.
	B5	A3, B2, B6	Increased bus frequency on all urban services with less than a 10 minute headway during peaks. Inter urban services half hourly in the peaks and hourly off peak.	Y	Y	✓												12	High	Low	Low	As above.
	B6	A3, B2, B3	Integrated bus ticketing	Y	Y	✓												9	Low	Med	Low	Requires partnership working and third party agreement between bus operators
	B7	A3, C3	Measures to encourage walking and cycling including education infrastructure and schemes such as cycle to rent	Y	Y	✓	x	✓										18	Med	High	Low	What about the Mick Mack route? Turning this into a cycle route would safeguard the route as a transport route for the future.
	B8	A3, C11	Make provision for electric cars or alternatives	Y	N		x	✓										5	High	Med	Low	Likely that the uptake of electric cars will be driven by technological advances and regulation of petrol and diesel cars through fuel or taxation. The benefits cannot be modelled.
	B9	A3, B1, B2, B3, B4, B5, B6, B11	Improved bus information for example, marketing, Real Time Information, printed information, interchange, service disruption and electronic information including journey planner.	Y	Y	✓												17	Low	High	Low	Many of these initiatives are already being delivered or will be part of benefits derived from smarter choices. However, improvements could be made to RTI. Suggest testing certain elements as part of strategic public transport improvements on the corridors.
	B10	A3, C11	High Occupancy Vehicle (HOV) Lanes	N	N	✓	xx	✓										5	Med	Med	Med	There is not the capacity to deliver a network of HOV lanes with the highway boundary. However, where there are opportunities these should be considered.
	B11	B1, B2, B3, B4, B5, B6, B7, B9, C1, C3, C4, C7	Improving accessibility to and from key employment and key services such as the rail station, hospital, Pride Park, University and East Midlands Airport.	Y	Y	✓	x	✓										10	Med	Med	Low	Other initiatives will cover this option for example smarter choices. However, there may be individual schemes such as an orbital bus route that could be tested as part of the option strategy or implementation plan.
	B13	A3	High Speed Rail link (Birmingham to Scotland or new line) and potential for new station node	Y	N	✓												13	N/A	N/A	N/A	This is a national rail scheme
	B14	As, B1 to B9, B11	Trams	N	N	✓	xxx	✓										12	High	Low	High	Trams are not affordable. The level of costs of the infrastructure will outweigh the economic returns. Derby is basically not large enough to support this type of fixed transport infrastructure.
	Measures to make best use of available road capacity, supported by targeted new infrastructure	C1	B11, C3	Sustained investment in highway infrastructure to steady state	Y	Y	✓	✓	✓									17	High	High	Low	Work on the emerging HAMP has identified an estimated £6m investment annually is required to keep the carriageways in a 'steadt state'. It will be necessary to look at how we prioritise maintenance in the strategy.
C2		C3	Network management enhancements such as reduce on-street parking, red routes, VMS & MOVA	Y	Y	✓												11	Med	High	Low	An increase in the
C3		A6, C1, C3	Road Safety Improvements	Y	Y	✓												13	Med	High	Low	Road safety benefits are mainly generated across other interventions. The City Council has delivered a programme of engineering schemes. Issues now surround random accidents and alternative measures such as education, training and publicity. Continued partnership working through Road Safety Partnership.
C4		A3, B7, C17, C3	Network wide 20 mph zones across city except radial routes	Y	Y		x	✓										9	High	Med	Med	20mph restrictions on residential roads introduced as limits where speeds are already approx 25 mph or less and as zones where traffic calming measures are required to reduce speeds. This test will establish the potential impact of delays and rerouting that may occur as a result of area wide 20 mph restrictions, this will be used in conjunction with qualitative assessments.
C5			Targeted new infrastructure to facilitate planned growth	Y	N	✓																
C6			New Road Schemes: Alvaston Bypass Extension, Spondon Bypass	N	N	✓	xx	✓	xxx	xx	✓	xxx	✓	✓				1	High	Low	High	The Core Strategy may identify pieces of infrastructure that will be needed to open access to land. For example the Southern Derby Link Road identified in the South Derbyshire Public Inquiry. Road schemes are costly and should only be considered as a last resort. There may be justification of supporting a road scheme if it opens up access to development or there is a strong wider economic benefit such as supporting regeneration. Also the increase in highway asset will increase long term maintenance costs.
C7		C3, B7	Integration of transport in the design of new development	N	N	✓	xx		xx	xx	x	xxx						-7	High	Low	High	This is currently done through the Local Development Framework and Supplementary Planning Documents. The design and access requirements are set out in SPD's before the developer comes forward with a planning application. Other issues that may need to be considered are a review of parking standards.
C8		C1, C3	Freight quality partnership	Y	N	✓			✓	✓	✓	✓	✓	✓				20	Low	High	Low	A partnership exists but this has lost momentum. Access of HGV's is already managed through weight limits and loading times. However, this could be taken further by stricter weight limits forcing companies to break-up their bulk. However, these are the types of strategies that need to be taken through a partnership.
C9		C1	Street Work Permit Scheme	Y	N	✓			✓	✓	✓	✓						6	Low	High	Low	Likely to include some capital investment upfront but the scheme should be self sustaining. Unlikely that it can be tested.
C10		C1	Noise Management schemes through engineering and better low noise surfacing to be included as part of maintenance strategy.	Y	N	✓			✓	✓	✓	✓						10	Low	High	Low	
C11		C1	Low Emission Zones	Y	N				✓	✓	✓							7	High	Med	Low	The Council will need a noise action plan in the future. DEFRA has done some work to identify noise problems in Derby. Most of these are located on the Highways Agency's roads.
C12		C3, B2	A38 Grade Separation	Y	N	✓	xx	✓	x	✓	✓	✓	✓					8	High	Low	Low	Current scheme in operation in G. London only covers HGVs. It needs to be extended to cover all vehicles to be effective, however, at the present time it would be difficult and costly to enforce. HGVs in Derby are currently controlled by access restrictions to the City Centre. This in effect has the same effect as a low emission zone.
C13		C1	London Road Rail Bridge Replacement	Y	N	✓												7	N/A	N/A	N/A	This is a regional scheme that is being promoted by the HA. Derby City Council will continue to support the scheme to reduce accidents, reduce congestion, allow housing growth to the west of the city and allow the local authority to better manage the local road network.
C14			District Centre Improvements	Y	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓				20	High	Low	Low	This is a regional scheme that is being promoted by the HA. Derby City Council will continue to support the scheme to reduce accidents, reduce congestion, allow housing growth to the west of the city and allow the local authority to better manage the local road network.
C15		A3, Bs	Road User Charging	Y	N	✓	x	✓	✓	✓	✓	✓	✓	✓				7	Med	Med	Med	Experience has shown that implementation of district centre improvements have been resource intensive and it has been difficult to show the associated benefits other than where this has improved the streetscape and sense of place (DC9); however, as this measure does provide benefits it will be included in a long term strategy should there be a significant demand for further schemes and should resources become available in the future.
C16		A3, Bs	Work Place Parking Levy	N	N	✓			✓	✓	✓	✓	✓	✓				16	High	Low	High	The benefits of some form of congestion charge are high when delivered as a package with public transport and smarter choices investment. However, deliverability, cost and wider economic risk of Derby delivering scheme in isolation makes this option unlikely. Continued promotion of such a option should be through a national/regional scheme.
C17		A3, Bs	Increase City Centre Long Stay parking charges	Y	Y	✓			✓	✓	✓	✓	✓	✓				7	High	Low	High	and there are arguments over its impact. The Nott's scheme effectively would cost employees £1.60 per day. There are arguments that employers will not pass this on and when compared to daily public parking charges it is small. In addition it does not have any impact on business or other trip types during the peak. There is a significant implementation risk because it is unlikely to be publically popular.

 Individual test using DATM	 To be considered as a potential option to be included in strategy but will not be tested using DATM
 Part of wider package testing using DATM	 Not a Strategy Option