Appendix A

Tackling Congestion in South Yorkshire

CONTENTS

Introduction

A.1 This draft congestion strategy sets out in more detail how various programmes of measures are intended to be implemented across South Yorkshire. The document firstly describes the current situation and requirements of the Traffic Management Act 2004, before illustrating how we intend to focus on the "Key Routes" across the county. These are the main arterial routes linking the main urban centres and strategic regeneration zones to the rest of the Region and beyond, which provide our principal capacity for accommodating peoples travel patterns. The toolkit for tackling congestion is then discussed, incorporating work already undertaken on both a consistent Parking Strategy across the county (crucial for the appropriate application of the Planning process). The important roles of both modelling/testing ; and monitoring progress towards out congestion targets are also discussed.

A.2 The South Yorkshire Transport Vision sees the development of high quality, car competitive public transport as a corner stone of a successful, modern sub-regional economy. A road network that is in good condition linked to car parking policies and other appropriate demand management measures to maximise the use of existing road space is seen as essential to minimise congestion and allow the free movement of people and goods, particularly on the Key Routes described earlier.

A.3 Congestion in South Yorkshire is essentially caused by high levels of private car traffic, predominantly on the journey to/from work. An obvious exception to this is the motorway network, providing longer distance inter-regional accessibility throughout the day and night. Occasional "high-impact breakdowns" have caused problems in the past, and these will inevitably continue. These will not however impact upon overall Performance Indicators.

A.4 A pro-active application of the responsibilities bestowed upon us by the Traffic Management Act 2004, and subsequent improvements to management processes is already reducing the impact of these occurrences. Our improving ability to both model route capacity and performance and predict and monitor congestion levels with the use of our new Intelligent Transport Systems strategy (SYITS) now also help deal with these occurrences and major event planning, and also the daily management of our network.

The Current Situation

Traffic Trends Across the Region

Authority	% change 1994-1999	% change 1999-2004	% change over last decade
Barnsley	7.5	9.3	17.6
Doncaster	8.6	15.2	25.1
Rotherham	7.5	13.3	21.8
Sheffield	7.3	6.0	13.7
South Yorkshire	7.7	10.5	19.0
(England)	6.8	12.7	20.5

Table A.1 Trends in Annual Area-wide Vehicle Mileage in South Yorkshire (Excluding Motorways and Trunk Roads)

City	% change 1994-1999	% change 1999-2004	% change over last decade
Sheffield	7.3	6.0	13.7
Hull	6.7	5.7	12.8
Southampton	6.2	6.0	12.6
Bristol	5.1	3.1	8.4
Liverpool	5.0	6.6	11.8
Nottingham	6.6	2.0	8.6
Newcastle	4.5	5.4	10.2
Leeds	5.5	10.5	16.6
Manchester	4.4	1.5	6.0
Salford	5.1	7.5	11.2
Birmingham	3.3	3.1	6.6
York	5.7	32.1	39.7
"Core Cities" Average	5.4	5.2 (excluding York)	10.8 (excluding York)

Table A.2 Total Area-wide Road Traffic Mileage in English "Core Cities"

A.5 Car ownership and traffic growth has been higher over the last decade in South Yorkshire, because regeneration of the local economy has started from a lower base than elsewhere. Over the last decade, the growth in local vehicle mileage across the sub-region has kept pace with the national increase of approximately 20%. Significantly, however, traffic in Doncaster and Rotherham (both free-standing "market towns") grew by 25% and 22% in the same period.

A.6 Interestingly, although the rate of growth in overall vehicle mileage in Sheffield was, at 13.7%, significantly less than the national average, this represents the highest increase in mileage for English "Core Cities" after Leeds and York. The average rate of growth in mileage for a "basket" of English Core Cities is 10.8%.

Period	Trunk (39 sites)	Motorway (77 sites)	Motorways and Trunk Roads
1999-2000	0.0%	0.0%	0.0%
2000-2001	2.4%	3.4%	3.2%
2001-2002	2.8%	2.1%	2.3%
2002-2003	3.9%	2.5%	2.8%
2003-2004	1.6%	1.9%	1.8%

Table A.3 The Annual Percentage Traffic Growth on Motorways in South Yorkshire

Trends in Traffic Entering the Main Urban Centres

Daily Movements into Urban Centres (12 hrs, 0700 – 1900)	Barnsley	Doncaster	Rotherham	Sheffield	Barnsley / Doncaster / Rotherham	South Yorkshire
Total person trips % change 1999-2004	-2.6	+7.5	-1.5	0	+2.7	+1.7
Total trips; annual average % change 1999-2004	-0.5	+1.5	-0.3	0	+0.5	+0.3
Total traffic flows; % change 1994-1999	0	+4.7	+1.4	+1.8	+2.03	+1.98
Total traffic flows; % change 1999-2004	+4.75	+6.6	+3.2	+2.5	+5.2	+4.3
Total traffic flows; Annual average % change 1999-2004	+1.2	+1.3	+0.6	+0.5	+1.0.	+0.9.

Table A.4 Daily Trends for Traffic Flows Accessing Central Areas (from the South Yorkshire Annual Cordon Counts)

A.7 By 2004, the numbers of person trips into our four main urban centres over a twelve hour period had risen by around 2% on 1999 levels. This relatively small increase at a South Yorkshire level masks a higher rate of growth in Doncaster (+7.5%) and a decline in Barnsley and Rotherham over that period (-2.6% and -1.5% respectively). Sheffield recorded no material change.

A.8 The numbers of vehicles accessing our main centres increased slightly (+4.3%) over the same period, with a similar trend of Doncaster showing the highest increase (+6.6%) and Sheffield the lowest (+2.5%). Both Barnsley and Rotherham showed an increase in traffic of +4.7% and +3.2% respectively.

A.9 Given that there has been an overall increase in travel across South Yorkshire at around +2.0% per annum over the past decade, the relatively static position in relation to trips into the main centres suggests this growth relates to development outside them. However, the South Yorkshire Spatial Strategy Vision, to be realised through the emerging LDFs and supported by RSS, expects the majority of future development activity to take place within the urban centres. Some growth in trips will therefore be likely over the next 5 years.

Daily Bus Based journeys into Urban Centres	Barnsley	Doncaster	Rotherham	Sheffield	Barnsley / Doncaster / Rotherham	South Yorkshire
% change 1994-1999	-25.0	-8.8	-9.5	+3.5	-14.0	-5.3
% change 1999-2004	-23.5	-1.6	-18.6	-5.2	-11.8	-8.5
% change 1994-2004	-48.5	-10.4	-28.1	-1.7	-25.8	-13.8
1994 % of all trips	26.1	19.3	20.1	33.1	21.2	25.5
1999 % of all trips	20.3	17.0	18.8	33.6	18.5	24.1
2004 % of all trips	16.0	16.0	15.5	31.9	15.9	21.7

Table A.5 Trends in Daily Bus Passenger Journeys to Central Areas

A.10 The general decline in daily bus patronage is reflected in the changes recorded in relation to bus-based journeys into central areas, shown in table A.5. For the 4 main centres, there has been a drop of around 14% in bus-based trips. The greatest decrease has been in bus trips into Barnsley centre where there has been a 48.5% fall between 1994 and 2004, followed by Rotherham (-28.1%).

A.11 When comparing this data with increases in overall vehicle flows in Barnsley and Rotherham, there has been a clear switch from bus to car. This might reflect increased levels of prosperity, or greater perceived attractiveness of the car to the bus, or both.

A.12 There is another point to highlight here. Bus patronage in Sheffield has historically been maintained at around 30-35% of all trips whilst the other three centres have started from a lower proportion of journeys made, with steeper rates of decline. At 2004 levels, the percentage of trips made using the bus over a twelve hour period in Sheffield is now double that of the rest of South Yorkshire.

Daily Car Based Journeys into Urban Centres (12 hrs, 0700 – 1900)	Barnsley	Doncaster	Rotherham	Sheffield	Barnsley Doncaster/ Rotherham	South Yorkshire
% total journeys 1994 -1999	71.3	73.9	72.9	59.0	72.7	69.3
% total journeys 1999-2004	72.6	74.5	74.2	59.4	73.8	70.2
Annual average % change 1999 – 2004	+0.9	+0.2	+0.4	+0.4	+0.5	+0.5.
% total journeys 2004 base	74.7	74.3	74.7	60.1	74.6	70.9

Table A.6 Daily Trends for Car Trips into Accessing Central Areas

A.13 For all main centres, car based journeys as a percentage of the total number of trips made have risen at a rate of about 0.5% per annum between 1999 and 2005. At a South Yorkshire level the car accounts for 71% of all trips into the main centres. However, there is again a clear split between Sheffield, where car-based journeys accounted for around 60% of all trips in 2004; and the other three main centres which shared an average value for car-based modal share of over 74%.

A.14 Similar analysis of travel during the 7am to 10 am peak period shows parallel trends. For example:

- the modal share of car based journeys into Sheffield at peak periods is exactly the same at 60% as the "daily" figures
- the percentage increase of vehicles accessing Sheffield centre at peak periods since 1999 is only marginally different (+2.1%) from the twelve hour trend (+2.5%)
- the drop in peak period bus patronage to our four main centres mirrors that shown over a twelve hour period (eg Sheffield, bus patronage reduced from 33.7% to 31.8% since 1999, compared with "daily" figures of 33.6% down to 31.9%)

Trends Concerning Traffic Speeds

Area	Peak Period Speed 99/00 (mph)	Peak Period Speed 2002 (mph)	Peak Period Speed 2004 (mph)	Peak Period % change 99/00-2004	Off Peak % change 99/00 - 2004
West Midlands	21.7	21.7	22.7	+1.0	+1.6
Greater Manchester	22.6	22.2	21.2	-1.4	+0.6
Leeds/Bradford	21.5	21.0	19.9	-1.6	+1.7
Tyneside	24.7	25.4	21.9	-2.8	+0.7
Merseyside	20.2	20.9	21.2	+1.0	+0.6
SHEFFIELD	15.7	17.3	17.4	+1.7	+1.9
Bristol	17.4	16.5	17.1	-0.3	+0.4
Nottingham	18.3	16.1	16.9	-1.4	+0.5
Hull	19.1	18.7	18.9	-0.2	-1.6
Leicester	17.5	15.9	15.5	-2.0	-0.8

Table A.7 Average Vehicle Speeds in English Cities (Excluding Urban Motorways)

A.15 An analysis of DfT information on average vehicle speeds shows that Sheffield's peak period vehicle speeds have remained relatively constant over the past decade (recovering from a dip in 1999/2000 of 15.7 mph to 17.4 mph in 2004).

A.16 Excluding motorways and trunk roads, Sheffield is showing the highest increase in peak and off-peak average vehicle speeds across the basket of English core cities. This is especially pertinent because the survey comments upon on the low proportion of dual carriageways and complete lack of motorways and trunk roads within the urban network.

Conclusions Concerning Trends

A.17 Overall trends have not been encouraging in sustainable travel terms over the last five years. Both car ownership rates and total traffic volumes within South Yorkshire; and traffic flows crossing our urban centres have increased, whilst car occupancy figures have remained constant, and bus patronage has declined.

A.18 It is also evident that the road network in areas of Barnsley, Doncaster and Rotherham (away from the urban centres and the motorway network) generally has more spare capacity at present than that in the more urban parts of the county, and therefore has less constraints upon growth in peak period traffic flows.

A.19 Further analysis of congestion issues see below) confirms the more “discrete” nature of congestion in these semi-rural areas, occurring mostly at strategic “hotspots”, ie junctions of the busiest main roads. Nevertheless, this spare capacity is being swiftly eroded by the increased need for travel created by economic growth.

A.20 Issues of traffic growth in South Yorkshire are complicated because levels of economic activity are increasing, from a comparatively low base. This is precisely why South Yorkshire currently has Objective 1 status. Car ownership is again growing from a low base and usage will inevitably grow in association with an increase in employment levels and prosperity.

A.21 Arguably, the greatest transport problems we face, and therefore challenges to overcome, are the potential spiralling of congestion stemming from regeneration of the local economy and the seemingly reducing ability of our bus network to provide an attractive alternative to the car. This is already very noticeable in the shift from bus to car based journeys in both Barnsley and Rotherham

A.22 There is at least some encouraging evidence in the trends relating to traffic speeds that Traffic Management strategies and interventions are enabling us to manage current traffic levels in our busiest urban areas more effectively than before. Nonetheless, congestion is now a significant problem in South Yorkshire, as summarized below:

- In Barnsley, Doncaster and Rotherham congestion is mostly a peak period problem occurring at a number of strategic junctions on a Key Routes providing access to the urban centres (inbound in the morning peak and outbound in the evening peak)
- The main exceptions to this are the A6182 White Rose Way between Doncaster and the M18/Finningley SEZ; and roads around the Dearne Valley where congestion occurs all day and is expected to increase as development pressures in the Enterprise Zone generate more traffic
- A limited number of strategic junctions suffer from serious congestion throughout the day, such as the Dodworth Road/Broadway junction near Junction 37 of the M1
- Conditions on the motorway network have generally deteriorated over the last few years. Since the opening of the M1-A1 link east of Leeds in 1997, traffic has redistributed such that, in the busy section of the M1 between J31 and J36, flows have increased by approx. 15%. Most of our motorway junctions are now under considerable pressure at peak periods, none more so than junctions 33, 34S and 34N on the M1
- Congestion in Sheffield follows typical patterns for larger urban areas. Problems are more acute and becoming more of a 12 hour problem around the central area (on and around the Inner Relief Road). This is also the case along the 2 main Objective 1 SEZ access spines (the Lower and Upper Don Valleys)

- All the main radial routes into Sheffield are congested in both peak hours during the week and, increasingly, on Saturdays. The Outer Ring Road experiences similar problems
- Sheffield's hilly topography contributes to its generally narrow main roads which reduce the scope for roadspace reallocation measures. Side roads are steeper and narrower than elsewhere which causes air and noise pollution wherever material "rat-running" takes place
- Because of this hilly topography, main roads in Sheffield are effectively one traffic lane narrower than in virtually all other "core cities"; with subsequently reduced scope for providing bus priorities, parking/loading facilities, right turn pocket lanes etc. within the existing highway boundary. This is where the application of UTC and SYITS becomes so important
- The impact of freight journeys on congestion levels has not been explicitly monitored to date. It is considered that freight has only a marginal impact on degrees of congestion (apart from "high impact, one-off breakdowns" of lorries and /or buses in our busiest urban centres). What is less established however, is the impact of congestion upon freight movements, and the consequences of freight traffic taking less appropriate routes when congestion occurs

A.23 Figure A.1 illustrates the degrees of congestion now experienced across South Yorkshire's main roads. This is based on a snapshot of preliminary ITIS data made available by DfT, and correlates closely with our LTP1 proxy indicators and local knowledge concerning congestion problems

Future Conditions

A.24 Because, to date, we have relied on proxy indicators for congestion rather than explicit measurements of congestion itself, it is very difficult to be certain about future levels of congestion. We know from analysis of trends over the last decade that:

- Vehicle mileage has increased by approximately 2.5% per annum. With current economic growth projected to continue vehicle mileage could also be expected to continue to rise at similar rates, resulting in an overall increase between 2004 and 2010 of 12.5%
- Similarly, traffic flows into our four main urban centres have been rising by around 1% each year since1999. This will result in an increase by 2010 of perhaps 3% in Sheffield City Centre, and 6% in Barnsley, Doncaster and Rotherham
- Average vehicle speeds have increased slightly in Sheffield due to improved UTC interventions. Even with the implementation of the SYITS programme, at best it may be possible for speeds to remain constant over the lifetime of LTP2
- Bus patronage into the four centres has dropped by around 14% over the last decade and could be expected to continue at the same rate without our intervention. Simply arresting this decline is our greatest challenge given the direct linkage to increased car use and hence congestion

The Traffic Management Act

A.25 In order to minimise congestion the Government expects local authorities to make the most efficient use of existing highway resources, including more active management of the road network. The Traffic Management Act 2004 imposes a new duty on local authorities to secure the expeditious movement of traffic and work with neighbouring authorities.

A.26 Within the Act, DfT has highlighted a range of tasks to be delivered. Each of the four Districts has now appointed a Traffic Manager in accordance with the Act. In addition a Yorkshire Traffic Managers Group (YTMG) comprising representatives from South, West, and Nortn Yorkshire and the East Riding, Yorks and Hull has been established to improve communication and provide consistency of implementation of the Network Management Duty under the Act.

A.27 Chaired by the Sheffield Traffic manager, YTMG is developing a Network Management Plan Framework for the region to be launched later in 2006.

A.28 Each District will develop its own ways of managing the highway network related to the unique circumstances of the area, but within the common overall approach agreed to ensure consistency and maximise progress against not only the specific tasks but ultimately our shared LTP2 targets. The key points of the Common Approach are summarised as follows:

- Integration with wider work and objectives
- A shared appreciation of the need for excellence in communications and Information Management
- The use of a Road User and Network Hierarchy, with graduated monitoring regimes, modelling/predictive techniques and treatment toolkits as appropriate
- Organisation of planned events and manage incremental change
- Partnership working with Public Transport Operators, the Police, the Highways Agency and adjacent highway authorities
- Equity of treatment for utilities and highway authorities

Key Routes

A.29 The concept of “Key Routes" was put forward in the Draft LTP2 document, building on discussions with DfT (Robert Devereux) in 2004.

A.30 At that stage, Key Routes were defined as being those main roads on which congestion was most significant, creating barriers to the Sub Region’s continued economic regeneration (and also that of the Yorkshire and the Humber region).

A.31 As part of our ongoing analysis, we have identified the need to make better linkages between the degree of congestion on our main roads and the subsequent impact this has on the operating conditions for bus operators; levels of air pollution; and the barriers to economic growth and social inclusion.

A.32 We have therefore identified a Network of Key Routes, based on those main roads which form the arteries of accessibility to and between the principal urban centres of South Yorkshire, and which connect them to our areas of both community rebuilding and economic regeneration. These arteries also connect to other centres external to the

county, eg Wakefield, Worksop and Chesterfield locally and Leeds, Hull and Manchester further afield.

A.33 However, the Key Network also includes the busiest bus routes which form the core of our Quality Bus Partnerships programme (and which between them carry 90% of all bus passenger journeys in South Yorkshire). Problems of congestion on the Key Network inevitably create problems of reliability and punctuality for buses, so a joined-up intervention strategy is required.

A.34 Figure A.2 illustrates the Network of Key Routes now identified.

A.35 The Key Routes go to the heart of our LTP strategy in tackling the shared priorities and form the backbone of our capital programme. This is focussed on where we most need to:

- Improve operating conditions for bus operators by tackling problems of reliability and punctuality
- Manage congestion and reduce delays and unpredictable journey times on our most heavily trafficked roads, thereby removing the barriers to economic growth and social inclusion (both within South Yorkshire and more widely throughout the Region)
- Improve air quality and address the prevention of casualties (as routes with highest levels of traffic also experience the worst air pollution, especially in slow moving conditions, and accidents)
- Provide facilities and improvements that support the movement of freight

A.36 The resources available to us over the next 5 years through the LTP are quite limited. Using the Key Route Network as a focus for prioritising expenditure on measures we have identified as most likely to bring benefits and meet targets will maximise the impact of that investment. Proposals for major schemes have also been assessed to ensure their full alignment with our strategy and contribute to addressing the challenges and problems we have identified within each Key Route. Although the LTP has been written, and its targets set, on the basis of no new major schemes coming forward in LTP2, we have identified how they could bring value for money and complement our area based strategies and intervention programmes.

A.37 The Key Routes network will allow us to prioritise expenditure within and between shared priority areas. In particular they provide a framework in which to consider the connectivity between measures to address bus priority, the different elements of the congestion toolkit and the benefits of accessing areas of regeneration and renewal adjacent to the key Routes, while taking into account the particular and specific local circumstances, conditions and pressures experienced in each Key Route.

A.38 The table below lists our Key Routes Network, illustrating how they provide connectivity across the four main Shared Priorities and the over-arching public transport theme. Each Key Route contributes to most of the above, with further connections to external networks and either economic and / or community rebuilding initiatives. The table is completely illustrative and is not intended to indicate any degree of priority for individual corridors in advance of analysing the results of Congestion Delay Indicator surveys and the DfT's "ITIS" data when available. It is intended to assess the relative priorities of Key Routes as part of the congestion target-setting exercise in the Summer of 2006.

Key Route	"Core" Bus Service	Congestion Problems	Air Quality Problems	Road Safety Problems	Accessibility Issues
A628(W) Barnsley - Manchester	·	■	■	■	■
A61 Barnsley - M1 J36	■	·	■	·	■
A61 Barnsley - Wakefield	■	■	·	·	■
A633 (N) Barnsley - Wath	·	■	■	·	■
A628(E) Barnsley - Pontefract	■	·	·	■	■
A635 Barnsley - A1(M) - Doncaster	■	■	·	■	■
A6195 / A633 M1 - Dearne Valley - Conisbro'	·	·	■	■	■
A19 Doncaster - Selby	■	■	·	■	·
A638 Doncaster - Bawtry	■	■	·	■	·
A638 Doncaster - A1(M) - Pontefract	■	■	·	■	·
A630 Doncaster - M18 J4	·	■	·	■	■
A6182 Doncaster - M18 J3	·	■	·	■	■
A614 / A18 Doncaster - M18 - Thorne	■	·	·	■	■
A630 Doncaster - Rotherham	■	■	■	■	·
A633 (S) Rotherham - Wath	■	■	■	·	■
A631 Rotherham - M18 J1 - Bawtry	■	·	·	■	·
A630 Rotherham - M1 J33	·	■	■	■	■
A629 Rotherham - M1 J35 - Chapeltown	■	·	·	■	·
A6178/A6109 Rotherham -M1 J34 - Sheffield	■	■	■	■	■
A630 / A57 Rotherham - M1 J33 - Sheffield	·	■	■	·	■
A61 Chesterfield Road, Sheffield	■	■	■	■	·
A61 Penistone Road, Sheffield	■	■	·	■	■
B6079 Sheffield - Hillsborough	■	■	■	■	
A625 Ecclesall Road, Sheffield	■	■	·	■	
B6388 Sheffield - Gleadless	■	■	·	■	■
A6135 / B6053 Sheffield - Halfway	■	■	·	■	■
A6178 / B6200 Sheffield - Woodhouse	■	·	■	·	■
A57 Sheffield - Manchester (S10 QBC)	■	■	·	■	·
A6102 Sheffield ORR	■	■	■	■	■
A621 Abbeydale Road, Sheffield	■	■	·	■	·
A6135 Sheffield - Chapeltown	■	■	·	■	■
A634 Retford - Maltby	·	■	·	■	■
A618 Rotherham - Killamarsh	·	■	■	■	·
A631 Wickersley Road, Rotherham	·	■	·	■	■
A57 Sheffield - Worksop	·	■	·	■	■
A61 Sheffield IRR	■	■	■	■	■
A6123 Rotherham ORR (South)	·	■	■	■	■
A616 M1 J35A - Manchester	·	■	·	■	■
A6022 Mexborough - Swinton	·	■	■	■	■
A6195 Darfield - Shafton	·	■	■	·	■
A637 Barnsley - M1 J38 - Huddersfield	·	■	·	■	■
A6021 Rotherham IRR (East)	■	■	■	■	·

Table A.8 Key Routes, a Summary of "Connectivity" Across the Shared Priorities

Links to Local Public Service Agreements

A.39 There are several LTP-related LPSAs already in existence, most of them focussed on road safety. Very recently, Barnsley have led on a wider, second generation LPSA looking at many different facets of building a sustainable community, incorporating both road safety and congestion reduction within a theme of Environmental Well-being. Links are also made to Air Quality as part of this theme within the LPSA, so that a series of trends can be determined.

A.40 The following indicators have all been measured on each radial route individually in 2005, the overall picture then to be an aggregate of each route as follows:

2008 Barnsley Performance	**Without LPSA**	**With LPSA**	**Targeted % change**
All day traffic flows	+6% p.a.	+5.4%	-10%
Peak traffic flows	+3% p.a.	+2.85%	-5%
Congestion level	*To be agreed with DfT*	*To be agreed with DfT*	Held at 2005 levels
Journey times	Average peak 36.13 minutes	Average peak 32.56 minutes	10% improvement
Car occupancy	1.39 persons per car	1.46 persons per car	+5%
Bus occupancy	10.49%	11.01%	+5%
Modal split	+*3.2%* towards car	0% change	3.2% away from car
Air quality	+8% NO2 (over 3 years)	+7.75%	-3% (-5% in AQMAs)
Accidents - KSIs	808 over 6 years (1999 to 2004)	687 over 6 years	-15%

Table A.9 Barnsley LPSA2 Agreement

A.41 The work on Barnsley's indicators and targets described above has also been fed into the wider South Yorkshire review of LTP targets and Performance Indicators, as described later in this document.

The Toolkit for Tackling Congestion

A.42 Congestion is already a significant problem on South Yorkshire's motorways and Key Routes. Without significant intervention it is anticipated that this will increase and become more widespread. Our Strategy for addressing congestion in LTP2 is therefore to cap congestion by making more, better, improvements to public transport, specifically the "core" bus services which cater for so many passenger journeys, and by getting more performance out of our existing highway network by the use of UTMC systems as part of the *SYITS project*. A specific focus on Key Routes is proposed.

A.43 These Key Routes provide the core access to South Yorkshire's commercial centres and places of economic opportunity and accommodate the majority of existing and proposed future Quality Bus Corridors. This is a very significant overlap between our Bus and Congestion Strategies, and forms the basis of our overall programme of interventions.

A.44 The Key Routes are at the core of our Congestion Strategy. However, delivering the level of bus reliability and punctuality required to "make the difference" to overall levels of bus patronage will require significant investment from a variety of partnerships and stakeholders other than the LTP, and over an extended time period stretching beyond LTP2.

A.45 A more robust demand management strategy is now being applied as part of a package of interventions to encourage modal shift away from the private car whilst enabling sustainable regeneration. The four Local Development Framework documents in South Yorkshire will be central to our demand management strategy when adopted, working iteratively with the LTP2 to inform and empower both documents and promoting an overarching planning and transport policy to reduce the need for travel.

A.46 New development needs to be accessible by all modes and therefore located close to existing or potential public transport and walk/cycle routes. Specifically, the sustained success of the Objective 1 Programme depends on this.

A.47 An increased emphasis on travel planning will ensure the modal shift benefits of "soft measures" are secured through the planning process and by the proactive engagement with existing employers to address commuting and business travel behaviours. Firm parking controls and pricing structures, along with the active promotion of public transport and a newly defined Park and Ride Strategy will also play their part.

A.48 Our congestion strategy is in line with the Regional Transport Strategy (RTS) contained in the Regional Spatial Strategy (RSS), which calls for a co-ordinated approach to demand management across the region. In the short to medium term this will be by stronger use of a mix of existing powers and mechanisms as local conditions justify. Moves towards the more "extreme" demand management measures such as area-wide road charging are felt to be beyond the timescale of LTP2 and the RSS proposes that these be made in co-ordination with other regions, led first by a strong national policy framework.

A.49 South Yorkshire's vision for sustainable economic growth needs to be supported by a sustainable transport system that is capable of tackling existing congestion problems and limiting the future incidence of congestion. Addressing congestion is vital to provide sustainable access to the many thousands of new jobs being created through the Objective 1 Programme. Traffic flows on the Key Routes need to be to be managed so that this economic growth can be sustained and allow South Yorkshire to compete with other regions and access national and international markets. This must be done in a way that minimises increases in traffic flows.

A.50 In support of the above, the Memorandum of Understanding - Strategic Transport Initiative (MOUSTI) has been developed by the Highways Agency in close co-operation with the South Yorkshire partners to identify where investment in transport infrastructure is required, including demand management measures. Major improvements to the Motorway network will be delivered through the South and West Yorkshire Motorways Best Use Study (SWYMBUS) Programme.

A.51 The question remains as to when and where it might be appropriate to develop and implement stronger demand management measures such as congestion charging, road user pricing or workplace parking levies. The South Yorkshire partners share the current Regional view that local economic conditions and traffic conditions do not necessitate congestion charging in advance of national progress on this.

A.52 To deliver our LTP Congestion Strategy we have developed a "toolkit" of interventions with a range of different proposals designed to contribute to meeting congestion targets. We have commissioned the Arup Consultancy to advise on the options for tackling congestion across the County. This review of possible measures has highlighted a number of broad categories, according to the type of impact that the measures are trying to achieve. These are:

- Demand management measures – reducing the overall demand /need for travel; controlling car parking; promoting Park and Ride
- Making the best use of the existing highway network (including motorways and trunk roads); together with other associated traffic management measures
- Improving travel choices and exploring innovative ways of modifying travel behaviour, including the scope for charging mechanisms

A.53 These three broad categories are discussed in more detail below.

Demand Management

A.54 More than any other area of LTP2, the degree to which demand management measures are used has to be weighed against the impact upon the fragile economy of the County, and the region as a whole. The LTP has to be informed by the wider economic and social strategies already in place and now emerging, primarily through the Regional Spatial Strategy, Sheffield City Regional Development Plan and our LDFs.

A.55 The four South Yorkshire based LDFs now in preparation are similarly developing policies to achieve sustainable development. Within LDFs, a suite of documents will be prepared, namely a core document containing strategic policies; more detailed policies of a spatial nature; and Supplementary Planning Documents for specific "topics". Transport policies will feature in all three layers, and the PTE and Districts are aiming to produce a family of transport policies much of which will be common to all four South Yorkshire LDFs, with local policies also sharing these themes whilst nurturing local distinctiveness.

A.56 All existing and emerging national, regional and local policy is therefore supportive of the need to augment existing demand management strategies, to make them more effective in reducing congestion and locking in the benefits delivered by our programme of public transport priority measures.

A.57 Our approach to Demand Management will be to consider a range of different measures, set out below. In the longer term, road user or workplace parking charging might be considered as part of this approach within the context of a national policy. Clear criteria would need to be met, including evidence that the economic benefits of relieving congestion in this way will outweigh potential disbenefits and the existence of high quality alternatives to car use.

A.58 One early application of a more robust, targeted and integrated approach to Demand Management is the Lower Don Valley, an area where congestion is already a problem and where on-going regeneration proposals are likely to see even more traffic.

A.59 Our approach to Demand Management features the following elements:

- A cohesive Parking Strategy (developed in line with the RSS), incorporating a consistent approach to maximum parking standards (via the LDFs) and a reviewed

Park and Ride strategy are summarized below. The strategy focuses on the provision of quality short-stay parking to foster the viability of urban centres, and managing the availability and price of long-stay provision in support of congestion targets (in tandem with further Park and Ride provision)

- An expansion and acceleration of Controlled Parking Zones, extending existing central area zones, the creation of new zones designed to restrict parking in areas of congestion, linked to a continued programme of residents parking schemes
- A comprehensive set of clear planning guidelines, from the RSS through South Yorkshire Guidance and LDFs to Local Area Agreements for communities, that include policies aimed at reducing the need to travel
- A more effective, structured, Travel Plans process, with better coordination, monitoring and enforcement. Councils and other major employers to lead by example
- Continued programmes of conventional traffic management/traffic calming measures, for example, measures to restrict inappropriate journeys to work made by car drivers at speed through residential areas; implementation of HOV lanes etc
- Progressively more robust measures to reduce car journeys will be introduced, particularly at peak times and in locations where their impact is greatest. Site specific and area-wide UTC systems will feature more widely, not only in the four urban centres but as an integral tool along the Key Routes

A Countywide Parking Strategy

A.60 The availability of car parking is one of the main factors in determining whether people choose to travel by car. To reduce peak hour congestion the amount of long-stay car parking needs to be controlled. A strategic parking policy will therefore be central to the LDFs, and a single cohesive Parking Strategy has been developed to draw all parking issues together. Again led by the Arup Consultancy, the developmental work on the strategy has recognised the need to have a consistent approach to parking across the South Yorkshire authorities, but consistency does not have to mean total uniformity.

A.61 The South Yorkshire Parking Strategy is structured in terms of countywide measures followed by spatially specific proposals for each District. This recognises the differing levels of congestion and other traffic-related indicators across the area, most notably between the built up urban area of Sheffield and most of Rotherham, and the more discrete, almost “market -town” nature of the Barnsley-Doncaster Coalfields area.

A.62 This includes a zonal approach to common ceilings for parking standards, and continues this theme into the introduction and extension of Controlled Parking Zones (CPZs), for example in the Lower Don Valley around Meadowhall as well as around the four main urban centres. Free Central Area parking will be removed in its entirety, and modest charges will be introduced in suburban centres to assist enforcement and turnover.

A.63 Pricing policy is also central to the effectiveness of any Parking Strategy. The South Yorkshire pricing strategy is specifically geared to short-stay parking, meeting the needs of visitors rather than commuters. Levels of long-stay parking are consistently being both decreased and made more expensive around the County.

A.64 Car parking policies within all four Districts’ LDFs are therefore geared towards striking the balance between the need for regeneration and both our local and the Governments national objectives for sustainability. Although there is a need to apply ceilings to parking provision within new development, we recognise the need to provide adequate public short-stay parking in our urban centres for shopping and leisure purposes so as to ensure their economic viability.

A.65 A start is now being made on developing a Car Club, based initially in Sheffield City Centre, which will enable people to occasionally use a vehicle provided from a "car pool" as the need arises. This has been shown elsewhere to bridge the gap between conventional car rental firms and the need/desire to own one's own vehicle. Considerable interest is being shown by carpool operators and it is hoped to have the Car Club operational by Christmas 2006.

A.66 Similarly, we recognise the need to provide better facilities for people with mobility difficulties, who often have no alternative than to use the car. A reduction in general purpose on-street parking in our urban centres will provide an opportunity to improve dedicated parking facilities for people with mobility difficulties, and also enables further improvements to the pedestrian environment to be made.

A.67 The South Yorkshire partners feel there is a need to limit the provision of Private Non-Residential Parking (PNR) in particular in and around the Urban Centres. To lead the way, Rotherham MBC have introduced a Workplace Parking Levy at their own sites as part of their Corporate Travel Plan.

A.68 With the introduction of policies to discourage commuter parking within the District Centres, displacement of some parking to residential areas is inevitable. Depending upon the level of impact made, this will probably require the extension of existing Residents Parking Schemes. In Sheffield a more or less continuous Residents Parking Zone extending around the city centre is now proposed.

A.69 The South Yorkshire LTP partners successfully introduced Decriminalised Parking Enforcement (DPE) in 2005. This will reinforce the new roles arising from requirements of the Traffic Management Act as described earlier. The combination of on-street DPE and the management of the car parks within each District has operational advantages and is now securing effective management and control.

A Park and Ride Strategy

A.70 Within the overall Parking strategy, a consistent Park and Ride Strategy has now been adopted for South Yorkshire. The purpose of the strategy is to determine how and where P&R can make a valuable contribution to South Yorkshire and, where it can, ensure that the facilities and services are optimised to realise its full benefits, making an effective contribution towards our LTP targets. The Park and Ride strategy is included within the South Yorkshire Parking Strategy appended to this document but key points relating to congestion are outlined below.

A.71 Because the car is still the preferred choice for many despite improved public transport provision, the strategy therefore looks to provide new P&R sites achieving the following objectives:

- Relieving traffic congestion on major transport corridors especially during peak hour periods
- Increasing city/town centre parking provision out of the urban centre thus releasing key urban sites for development
- Assisting the promotion of public transport
- Contributing to the LTP target of achieving modal shift

A.72 The strategy provides an assessment process to successfully achieve these objectives whilst avoiding the potential negatives that less well designed schemes can bring about. The strategy is also intended for use at other high demand destinations with limited car parking such as hospitals, etc, and discussions with other public sector partners eg Health Authorities are progressing well.

A.73 Specific links between P&R and key Quality Bus Corridors (QBCs) are proposed wherever possible. These will greatly enhance the benefits of the significant investment already being made in QBCs. Cross-cutting work on creating physical priority for buses and locking in the benefits for buses by reallocating road space from cars is seen as central to the QBC Programme (including the Yorkshire Bus Phase 2 major project), and is at the heart of our South Yorkshire bid for Transport Innovation Funds.

Travel Planning

A.74 Government research shows that travel plans can play a very important role in reducing the demand for travel and contributing to other ways of reducing congestion. The LTP partners therefore support their implementation and are looking to increase the robustness of the Travel Plans process. In South Yorkshire the Objective 1 programme and the key development sites and Strategic Employment Zones within it are being particularly targeted for the implementation of Travel Plans to mitigate the effects of development related traffic. With their concentrations of employment opportunities these locations need to be focal points for improved public transport, cycling and walking facilities.

A.75 We have jointly produced guidance for developers on how to put together a travel plan specific to their site. New developments which meet the criteria for a travel plan as outlined in PPG13 are required to develop a plan either as a planning condition or through a Section 106 agreement. All new developments at major Strategic Economic Zones (SEZs) are being conditioned to have travel plans, and travel plan co-ordinator has been employed to work with companies in the Lower Don Valley.

A.76 Existing businesses are also being encouraged to develop travel plans, through publicity campaigns such as Care4Air, which is integrating the sustainable travel message with air quality management. This is seen as an important strand of activity to maintain in the long term. In order to keep track of the progress of travel plans in organisations throughout the county, the South Yorkshire Travelwise Group has developed an accreditation scheme that makes awards to companies who adopt and implement travel plans.

A.77 In addition to businesses, schools have been identified as a major source of traffic at certain times of day. In conjunction with the LEAs, using grant funds from the DfT/DfES a team of school travel plan advisors are employed across the county to help schools implement travel plans to meet government targets. Good progress has been made in their first year.

A.78 South Yorkshire TravelWise is another important partnership forum for the exchange of ideas and best practice, drawing together all officers working on travel plans across the county. It has an award winning, extensive website which includes a free car share database and access to diverse sustainable transport information at local, regional and national scales. The website was designed to support everyone involved in the implementation of travel plans and to help individuals in making their sustainable travel choices.

Making Best Use of the Existing Highway Network

A.79 The upsurge in economic activity arising from Objective 1 intervention will increase pressure on the highway network, emphasising the need to make best use of the existing infrastructure and to lock in the benefits of investment to improve that infrastructure (on both local and national roads). The latest techniques and technologies

such as Intelligent Transport Systems (ITS) based on the UTMC (Urban Traffic Management and Control) specifications are already being progressed and developed to manage congestion and help deliver modal shift targets. Better use of the existing road network will come through the use of ITS to implement strategies to combat congestion as described below.

A.80 Sheffield and Leeds are partners in developing selective priority for pubic transport through the SPRUCE initiative which will be launched in 2006, this will make use of information generated by the Real-Time Information Initiative within the Yorkshire Bus (Phase 1) project. Trials at Manor Top, Sheffield on the Supertram system have proved very successful in providing selective detection and variable priority timing plans without unduly impacting on general traffic on the Outer Ring Road**.**

A.81 Because the network will be close to capacity for long periods incidents such as breakdowns and accidents could have serious impacts on congestion. We will actively manage the network, monitoring operation from 7am to 7pm throughout the week and intervening when conditions warrant variations from pre-planned automatic responses. Travellers will be informed about normal network operation and any deviation from it. The effectiveness of infrastructure improvements, the impact of developments on congestion and the effects of other policies that could affect the network will be tested using the modelling techniques described later. The complexity of the interactions of congested networks will increasingly require the use of micro-simulation as the main modelling tool. The micro-simulation models already prepared for Sheffield City Centre and the Sheaf Valley, S10 and Penistone Road QBCs will be progressively extended to the remaining Key Routes in Sheffield. Appropriate models will be developed for Key Routes in other districts.

A.82 Our approach to Making Best Use of the Highway Network features the following elements:

- Creation of a South Yorkshire Traffic Information and Control Centre, as part of the SYITS project, to manage traffic in the Sheffield/Rotherham conurbation and to co-ordinate the separate control systems in Barnsley and Doncaster
- Extension of central control capability to all junctions and pedestrian crossings on the Key Network to allow automatic strategy selection and local and area-wide public transport priority
- Monitoring of key parts of the network by CCTV and automatic systems to allow early identification of incidents and implementation of planned responses;
- Integration of the Network Management Duty of the Traffic Management Act, to tackle current congestion problems and better balance the competing demands of road users (including statutory undertakers etc)
- A structured bus-friendly approach to this Network Management Duty through the adoption of Bus Punctuality Improvement Partnerships (PIPs) in all four South Yorkshire districts; Our PIPs are now established and proving to be a usefully focussed means of resolving bus “hotspots”
- An enhanced programme of bus (and tram) priority measures such as bus lanes, bus gates, bus priority signals, linked to the above
- Improved bus boarding infrastructure, plus a better ticketing process using the pilot *YORCARD* smartcard project, hopefully leading to a more generally available integrated approach
- The roll-out of our new Intelligent Transport System SYITS (see below)
- Selective capacity improvements at pinch points through road layout modifications and signal control at junctions
- Decriminalised Parking Enforcement focusing on locations where illegally parked vehicles obstruct through traffic, again focused on Key Routes

- Adoption of civil enforcement powers for bus/tram lanes and gates (with rollout of Camera Enforcement systems at two key tram gates in Sheffield in summer 2006); and for other traffic regulations as they become available
- Co-ordination of vehicle recovery

Partnership with the Highways Agency

A.83 The role of motorways in South Yorkshire is central to any sustainable access strategy. Congestion on the motorways has an immediate impact on the performance of key local roads, and problems occurring on many of the key routes listed above in turn impact on the motorways. Drivers make choices based on how they interpret conditions across the whole (single) highway network as they see it, and it is therefore important that the HA and the South Yorkshire partners maintain and improve upon their already high levels of liaison and cooperation.

A.84 Colleagues at the Highways Agency have worked closely with us over recent years, particularly with regard to transport related matters associated with the Objective 1 Programme and with the advent of Intelligent Transport Systems. The SYITS project has close links with jointly developed VMS strategies on and around the M1 motorway and its junctions, and the proposed Variable Message Signing System in the Lower Don Valley is an excellent example of a project which straddles both motorway management and local network management.

A.85 Classifying the M1, M18 and A1M as Key Routes in the same sense as other selected strategic local routes will maximise consistency of monitoring and enable Best Practice to be shared, whilst recognising that measures appropriate for treating the motorway are inevitably different from roads with lower speeds. The HA's M1/M621 Route Management Strategy (RMS) recognises the importance to local authorities transport strategies of the motorways and how they are operated. The RMS recognises the need for the HA to work with local authorities to recognise and manage congestion in day to day operation, and in the development of schemes to alleviate it in the future. The proposals arising from this LTP will provide infrastructure, systems and procedures to manage the interface between the motorways and other parts of the strategic network. They will be developed in close liaison with the HA as a key stakeholder.

A.86 The Motorway Network in South and West Yorkshire suffers from considerable degrees of congestion at certain times of the day, with problems being particularly acute at junctions 33 and 34 on the M1, at the M1/M62 junction and on the M62 south of Leeds. The motorways and other trunk roads across the Region have recently been assessed through the Northern Way Initiative for the benefits likely to accrue to the national economy were selective improvements to be made.

A.87 Prior to this, the South and West Yorkshire Motorways Best Use Study (SWYMBUS) had identified a series of improvements to the M1 and M62, required to maintain effective operation of these national arteries. A programme of measures has been submitted by the HA to Government and approval in principle given to delivering parts of this programme this in a timescale compatible with LTP2.

A.88 In parallel with the above, Highways Agency colleagues attend the Yorkshire Traffic Managers Group to share best practice with regard to Traffic Management Act duties and to jointly provide a consistent approach for control of our respective networks. A common approach to Information Systems and how we relay messages to car drivers in the most appropriate and timely manner is particularly relevant to minimising the impacts of congestion.

A.89 Similarly, close co-operation between the Highways Agency and the South Yorkshire partners enabled the development of the Memorandum of Understanding - Strategic

Transport Initiative (MOUSTI), helping us to predict and manage the effects of the Objective 1 Regeneration Programme and identify where investment in transport infrastructure is required to mitigate this, including demand management measures.

South Yorkshire Intelligent Transport System (SYITS)

A.90 The South Yorkshire Intelligent Transport System Project (SYITS*)* has been awarded ERDF Objective 1 funding of £10.48m. Work started in December 2005 and the project will be completed by December 2008, but will be developed and extended further within our ongoing LTP process.

A.91 SYITS provides a centrally controlled traffic management and information system for South Yorkshire, linked to national, regional and neighbouring systems to provide high quality public and private transport options for travellers. It will allow the South Yorkshire authorities to make best use of the transport network, minimise environmental impact, and respond flexibly to incidents and traffic growth. Travellers, operators and designers will be provided with reliable information about all transport modes on which to base decisions about journeys, strategies and new investment.

A.92 Components of the system will include:

- A state of the art South Yorkshire traffic control centre to monitor network operation using CCTV, automatic traffic detection and environmental measuring equipment. This will initiate responses to breakdowns and accidents and provide information to parking enforcement staff about illegally parked vehicles causing obstructions
- Modernised control systems and communications at existing signalled junctions and conversion of other key junctions to co-ordinated central monitoring and control
- Automatic strategies to control areas of the network in response to changing conditions, minimising delay for travellers and providing priority to public transport
- Information systems to let travellers know about problems on the network using the internet, mobile telephones, voice messages and on-street information points. Traffic Camera images and Traffic Alert information are already available on the Sheffield City Council website (follow the Traffic Cameras link from the home page). Mobile phone information will be available from summer 2006
- Variable Message Signs (VMS) on the approaches to and around the Sheffield Inner Ring Road and at other points on the strategic road network to show the number of spaces available in multi-storey car parks and provide information about problems and delays on the road network. In Sheffield, signs are already installed on Charter Row, and at Crystal Peaks district shopping centre. Additional VMS will be installed around Sheffield city centre by summer 2006
- Links to the South and West Yorkshire real-time bus passenger information system, to national, regional and neighbouring authorities control centres and to the emergency services to achieve seamless control of traffic using the local and motorway networks together with integrated traveller information. Real-time information for bus passengers and selective priority at traffic signals for buses will become available in early 2006

A.93 Initial development will concentrate on the M1 Strategic Economic Zones, the links between Sheffield and Rotherham and journeys to and from the centre of Sheffield. The ongoing work, to be funded by the second Local Transport Plan, will expand the system beyond these areas with specific reference to its interface with Key Routes.

Work Item	2005/06	2006/07	2007/08	2008/09	*Total*
Central Systems:					
• Control centre and communications	25	350	210	150	735
• Systems development	25	510	355	163	1053
• Central PT priority systems		229	173	287	689
• On-bus/on-street equipment		100	425	150	675
Barnsley:					
• Traveller information		25			25
• Network Control		50	450		500
• Public Transport Priority		15	29		44
Doncaster:					
• Traveller information		115	80	80	275
• Network Control		200	400		600
• Public Transport Priority		22	35		57
Rotherham:					
• Traveller information		120	80	75	275
• Network Control		100	355	470	925
• Public Transport Priority		33	27	10	70
Sheffield:					
• Traveller information	532	1077	467	105	2181
• Network Control	52	468	810	660	1990
• Public Transport Priority	22	68	56	32	178
Project administration	15	68	66	60	209
TOTAL	671	3,550	4,018	2,242	10,481

Table A.10 Summary of Objective 1 funded elements of South Yorkshire Intelligent Transport System SYITS) Programme (£000)

Other Traffic Management Measures

A.94 Congestion hot spots for both buses and general traffic will be identified through modelling and monitoring. Specific pinch-points on Key Routes and others will be targeted for congestion reduction measures, making use of the ITS tools described above, and further measures including:

- Public transport priority measures such as bus lanes, bus gates and local signal priority in addition to the extensive countywide programme already underway on QBCs. QBCs provide a coherent package of priority measures along the whole length of key bus services to create a “big bang” approach. The “S10” QBC is due to be launched in September 2005 with a further tranche of 3 corridors in Summer 2006, providing a major launch pad for public transport operations
- Junction control and highway layout modifications to increase capacity at pinch points
- Improved crossing facilities, to enhance conditions for non-motorised travellers with minimum delay to other traffic
- Improved infrastructure for better/easier accessibility, eg “level boarding” at bus stops

- Developing links with the police, Highways Agency (HA), motoring and recovery organisations so that breakdowns and vehicles obstructing the highway can be moved as quickly as possible, with priority given to key routes during the peak periods
- Buying in additional Police enforcement resources via the Partnership (jointly with bus operators), and designing measures to be self-enforcing wherever possible

Improved Travel Choices

A.95 A great deal of work on travel choices is being undertaken within the Accessibility Strategy, and is often cross-cutting. Those aspects of providing greater choice of travel which make most contribution towards reducing congesting are as follows.

Public Transport - Buses

A.96 Whilst rail based transport can appeal to car users and carry very high passenger numbers it is limited in where it can provide a service. The bus will continue to carry the bulk of public transport passengers in South Yorkshire and hence make an area-wide contribution to reducing congestion. We will therefore pay particular attention to attracting more people to use the bus. The full Bus Strategy is available on request but key points relating to the Congestion theme are outlined below.

A.97 During this LTP we will target our improvements to the bus, through:

Making the most of what we've got:

- Focused on public transport's key selling points, highlighting where and when it is successful. Maximising and selling those strengths and reducing the impact of negatives
- A continuation of the Quality Bus Corridor programme. This is the focus of LTP spend in the near future, linked with the outcome of funding decisions fore the Yorkshire Bus (Phase 2) Project proposed jointly with West Yorkshire and Bus Operators
- Providing improved bus priority and passenger information through the application of Intelligent Transport Systems

Specific actions for identifiable groups and locations:

- Targeting specific market segment(s) and journey purpose combinations. Targeting specific geographic areas or corridors of greatest potential.
- Facilitating occasional use of public transport by car drivers through encouraging take-up of the Yorcard smartcard by extending its use beyond public transport purposes eg for parking.

A.98 For the former we will identify and extend a plateau of good and attractive bus service frequencies and hours of operation, buses receive priority on these routes, customers and potential customers are well informed of the services, ticketing purchase is easy, such as with an easily topped up Yorcard, and costs are attractive relative to car use. Buses will be the most attractive choice for particular journeys.

A.99 For the latter we will identify and extend the good and attractive network where there is potential, again as part of our QBC/Yorkshire Bus proposals wherever appropriate. Building on the Network of Key Routes, we will identify zones and specific "congestion hotspots" where delay impacts on bus patronage, and improvements targeted on the reasons for non-use. This would include a new approach to targeted marketing/promotion campaigns, ensuring potential customers are aware of the improvements made and the relevant benefits they will find.

A.100 In each case our actions will be prioritised on the elements of the overall journey (from in-home to in-destination) that customers and potential customers say matter the most.

Public Transport - Heavy Rail

A.101 Significant improvements to inter regional rail links and between South Yorkshire's urban centres are vital to the transformational agenda set by our emerging spatial strategy. Rail can also provide an attractive alternative to the car for some local journeys. Carrying these issues forward, we have now produced a new rail strategy covering the next 20 years.

A.102 In the short to medium term it is considered that the limited investment available for the local network should be mainly concentrated on delivering an efficient operation of the existing South Yorkshire rail network. Investment will therefore need to be focused on:

- Improving the reliability and general performance of the network through the new franchises, particularly the Northern franchise
- Providing faster links between Leeds and Sheffield via Barnsley
- Improving access, standards and upgrading of facilities at existing local stations
- Interchange development, such as Doncaster Interchange
- Potential Park and Ride expansion at some local stations

A.103 Longer term strategic projects are also being evaluated to provide better connectivity between Barnsley and Doncaster, from Rotherham to strategic rail routes and to Robin Hood Airport (Doncaster Sheffield) from the rest of South Yorkshire.

Public Transport - Light Rail

A.104 The Sheffield Supertram system already carries high volumes of passengers along key corridors and a significant percentage of these are potential car travellers. Making the most of this and continuing or exceeding the existing system's annual 3% patronage growth is a high priority.

A.105 A key limitation to this future growth will, however, be the actual capacity of the system by 2007/08. It will then be necessary to add a further four tram sets to the existing fleet to allow further growth during this LTP period.

A.106 Possible extensions to the system would make a step change addition to these numbers as well as improving strategic links between Sheffield and Rotherham. Proposals for extensions to the existing system have therefore been developed and refined through a series of studies. A submission for funding is currently being pursued with the DfT, to commence work during this LTP period.

Walking and Cycling

A.107 A core element of the overall LTP strategy is to get more people walking and cycling, in particular to replace short car trips. Our urban structure will be made more conducive to walking and to create conditions where people to walk and cycle locally to shops, schools, jobs and amenities in key areas.

A.108 Public involvement and our participation in the Yorkshire and Humberside Regional Cycle Benchmarking Project and the English Regions Cycling Development Team (ERCDT) Cycle Assessment Process has provided a best practice knowledge base

upon which we have based future cycling actions plans for improvements to infrastructure, promotion and training provision.

A.109 We will produce a strategic cycling network in 2006 and a Public Rights of Way Improvement Plan by 2007 with emphasis placed on improving links existing networks such as the National Cycle Network and Trans Pennine Trail. New strategic cycling and walking projects will be prioritised based on their ability to contribute to our shared priority objectives.

A.110 Locally, our cycling and walking policies and programme of projects will be based on the requirements of Community Plans, adopted School/Workplace Travel Plans and Safer Routes to School projects. Existing and proposed development and regeneration initiatives will be used to implement cycling and walking infrastructure projects. For example, in the Dearne Valley, Waverley AMP and emerging town centre renaissance projects.

A.111 Linked to the above, a new programme of measures arising from approved School Travel Plans. Good progress is now being made, not only towards the Government's targets for School Travel Plans adopted and the associated Grant available, but also in providing LTP match-funding for walking/cycling measures requested by children through the School Travel Plan process – in addition to Safe Routes to School projects. Cycling and walking projects will therefore form a major part of the LTP capital programme in most parts of South Yorkshire.

Modelling and Testing the Preferred Strategy

A.112 Preparation and implementation of the congestion strategy and those developed for other LTP themes will rely on continued analysis and testing of predicted outcomes in order to ensure the compatibility and, ultimately, success of projects contained within the capital programme. To this end, we have formulated a three tier modelling strategy as follows:

- At the "top" level, use of a strategic model (based on that already used for the SWYMMS study) to continue to inform strategic choices, and to input to and confirm transport policies proposed within both the Regional Spatial Strategy (RSS) and four emerging Local Development Frameworks (LDFs)
- At a "District-wide" level, extended use of existing network models to examine more closely the impact upon traffic distribution and route selection of, for example, the emerging Masterplan work for Rotherham town centre and the Lower Don Valley areas
- At a more detailed and localised level, extended use of microsimulation models to develop operational plans for control of the network and analyse the impact of specific projects

A.113 Most of this modelling will not be complete until the Autumn of 2006. Approximately £150,000 has been expended on strategic and middle-tier modelling work in 2005/6, with a further £200,000 in 2006/07. This has been greatly helped by contributions from Yorkshire Forward, in recognition of how this modelling informs access strategies for key Objective 1 Regeneration "Clusters of development".

Targets and Monitoring

Targets

A.114 Work with the DfT continues on undertaking Congestion Delay surveys on an agreed "batch" of Key Routes, combined with the results of the national ITIS surveys when these become available. Because of this, congestion targets will generally be reviewed in the Summer of 2006 and targets established in July. This will also reflect updated work concerning Travel trends across the region and into our urban centres, as discussed earlier in this appendix and in the main document. Appendix H contains a fuller description and explanation of mandatory and local indicators relating to congestion.

Measuring Congestion

A.115 Public and private transport congestion will be measured for morning, evening and inter-peak periods, together with average waiting times for pedestrians at signalled crossings. Subject to availability of DfT GPS-based data we will also consider measurement of weekend congestion at some known busy locations.

A.116 Monitoring information will be used to:

- Monitor trends and identify key congestion hot spots
- Test the effectiveness of measures
- Continue to inform the development/refinement of our implementation strategy and "toolkit" of measures
- Inform DfT, partners, neighbouring authorities and the public

A.117 As described in the work on the Barnsley LPSA, all-day and peak hour traffic flows will also continue to be monitored on all main radial and strategic orbital routes so as to confirm congestion monitoring and provide correlation between trends.

A.118 We are now supplementing our annual cordon counts with data from core and rotating automatic census points to help build up our understanding of the pattern of traffic flows in South Yorkshire, including the distinctions between peaks, inter-peak, evening and weekend flows. This is particularly important as the economy grows and reinforces the need to recognise the resulting potential increases in traffic flows.

A.119 DfT has now provided GPS-based traffic speed data to help establish the baseline position on the level of congestion in South Yorkshire and quantify progress. Historical journey time information will also be derived from this, and will be held on a server maintained by SYPTE, with access provided to all LTP partners.

A.120 Changing the frequency of the Household Travel Survey will also be a significant improvement. This was biennial, but is now undertaken on a rolling basis allowing frequent updates in information about household trip rates and travel patterns.

A.121 In addition to an expanded programme of traffic surveys (including occupancy levels, cycling and pedestrian flows) we are reinforcing our existing use of journey time surveys. We will use a common survey methodology, co-ordinating the routes to be surveyed and the timing of surveys, in order to provide additional information from business and the public regarding the affect of congestion on sustainable economic growth.

A.122 Real-time monitoring of the most important routes (focussing initially on the defined key routes) will be established using Automatic Number Plate Recognition (ANPR) cameras installed in association with SY Police. This will be supplemented by annual journey time surveys carried out on all the key routes of the strategic network and again augmented by the detailed GPS-based traffic speed information to be supplied by the DfT.

Delivery Programme

A.123 To implement our congestion strategy, our 5 Year Action Plan can be summarized as shown below against the three strands of the congestion 'toolkit':

Demand Management Measures	**Making Best Use of the Existing Highway Network**	**Improving Travel Choice**
Use Local Development Frameworks to integrate transport and land use planning to reduce demand for travel and promote sustainable development with choice of travel Implement, Coordinate, monitor and enforce a more effective Travel Plans process as a means of reducing demand for travel and promoting choice Implement the South Yorkshire Parking Strategy, including a framework of firmer parking controls and pricing structures to encourage modal shift from the car for journeys to work Promote Park and Ride facilities in appropriate locations Expand and accelerate the programme of Controlled Parking Zones in central areas, linked to adjacent Residents Parking schemes, to limit parking in areas of congestion	Work with Highways Agency to address congestion problems on the motorway and trunk roads network, including the roll out of SWYMMBUS Focus actions to address "congestion hotspots" on the Key Routes Network, especially those involving "Core " Bus Services, using selective capacity improvements, road layout modifications and signal control Integrate the Network Management Duty of the Traffic Managers and develop a structured approach to addressing bus punctuality and reliability through the adoption of Bus Punctuality Improvement Partnerships (PIPs) Implement site specific and area-wide Intelligent Transport Systems initiatives through the SYITS project in the main urban centres and along Key Routes to make best use of capacity and balance competing demands of road users	Deliver a further 6 Quality Bus Corridors on the Key Routes Network Deliver an enhanced programme of bus priority measures on the Key Routes, including bus lanes, bus gates, priority signals linked to PIPs Introduce Camera Enforcement of Bus Lanes and Gates to maximise their effectiveness Link Bus priority measures to other Bus Strategies that promote and enhance the attractiveness of the bus as a car-competitive alternative mode of travel Link Bus Priority measures to Housing Market Renewal and other Accessibility initiatives, focussing on interchange with walking facilities and environments Continue to deliver programmes of measures to improve and encourage walking and cycling as alternatives to the car, linked to effective Travel Plans

Demand Management Measures	Making Best Use of the Existing Highway Network	Improving Travel Choice
Implement traffic management measures to control the flow of traffic into congested areas, and to restrict inappropriate car trips through residential areas	Build upon the successful introduction of Decriminalised Parking Enforcement, focused on urban centres and Key Routes Improve co-ordination of vehicle recovery	Continue close cooperation with schools in establishing School Travel Plans and delivering LTP match-funded projects arising from these. Also linked to Safe Routes to School projects

Table A.11 Main Elements of Congestion 5 Year Action Plan

A.124 To deliver these elements over the period of LTP2 we have provisionally earmarked approximately £14 million from the Integrated Transport Block over the 5 year period of LTP2. The tables below A.12 and A.13) illustrate how we intend to break this allocation down, providing a practical demonstration of the toolkit of measures to be used over the next five years.

Congestion Work Item	Description
Strategic Congestion Modelling	Modelling of network to evaluate impact of policies; plus options-testing for individual LTP measures
Bus Priority Hotspots	A range of priority measures at individual sites including: bus lanes, signal installations, system and equipment installation
Bus Priority Management and Enforcement	Effective enforcement through Camera Enforcement; improved signing and lining strategies, signalling strategies, focused Decriminalised Parking Enforcement
Bus PIP Partnership work	Small-scale measures and TRO packages
Demand Management	Positive Land-Use Policies using LDFs to ensure appropriate development; Signalling and VMS strategies to limit flows approaching congested areas and junctions
Parking Management	Controlled Parking Zones; Residents' Parking schemes. Use of Variable Message Signs to indicate available parking spaces in urban centres
Congestion Management – UTC Networks	Development and extension of UTMC systems; updating /reviewing signal timings, CCTV etc, combining with *syITS* programme to maximise effectiveness
Congestion Management – Layout Improvements	Physical adjustments to road layout; junction signallisation and improvements, major TRO / signing packages etc
Network Monitoring	Monitoring and enforcement equipment; Variable Message Signs; surveys

Congestion Work Item	Description
Freight Related Measures	Signing and lining schemes specific to freight management
Travelwise	South Yorkshire-wide publicity, marketing and awareness campaigns
Workplace Travel Plans	Effective Monitoring and Enforcement process; Measures carried out using LTP contributions to Developer-led schemes (includes funding of staff where appropriate)

Table A.12 Summary of Measures in our Congestion Toolkit

Element of Congestion Toolkit	Key LTP2 Actions	Other Parallel or Longer Term Interventions
Key Route Improvements:		
• Selective Provision of New Key Routes	Sheffield Inner Relief Road; A628 Dodworth By-Pass	YF/O1 contributions; FARRS developer contributions
• Tackle Strategic Traffic Hotspots	Junction improvements: • A631 West Bawtry Road • Sheffield IRR junction imps Sheffield "Traffic Watch" Action Plan	SWYMBUS programme to M1, M18, A1M; Junction improvements at M1 J33,37
• Provide Bus Priority Measures	Revitalised QBC Programme, eg A638 More bus lanes eg A625 Ecclesall Road Bus Lane/Gate Camera Enforcement (eg Hillsborough) Programme of "Bus Hotspots"	Yorkshire Bus Project; Bus Punctuality Improvement Plan Partnerships
Park and Ride	Wadsley Bridge, Sheffield (tram-related); Lower Don Valley; Upper Don Valley	Developer-funded site on A638, Doncaster
Parking Management	Controlled Parking Zones; • accelerated extensions to urban centres; • First-time CPZ in LDV	Cohesive SY Parking Strategy
Demand Management	Traffic flow management; Area wide traffic calming Child Safety Zones	Roll-out of LDFs & RSS
Network Management	Extensions to UTMC; Introduction of SPRUCE; "Metroduct" system in Sheffield	Roll-out of SYITS
Intelligent Transport Systems	Introduction of Real-time Information; "Connect Sheffield " (legible city); VMS strategies	New SY Traffic Information and Control Centre; Roll-out of SYITS; M'way VMS partnership with HA

Element of Congestion Toolkit	Key LTP2 Actions	Other Parallel or Longer Term Interventions
Bus Service Enhancement	Introduction of YORCARD; Introduction of FTR	Bus Quality Partnerships
Rail Enhancement	Penistone Rural Links Partnership; Doncaster Rail Interchange; "Sheffield Station Gateway"	Train Operator Partnerships; Supertram Extensions and Privately funded diversions
Travel Planning	Effective Process for monitoring and enforcement	MOUSTI Agreement with HA for Development Planning
Car Clubs	Launch Car Club Development Plan	Partnership with operators
Pedestrian Networks	Match-fund STP measures; Extend Safe Routes to School; Continued programmes of crossings	DEFRA funding for School Travel Plan measures
Cycle Networks	Address gaps in Strategic Cycle Network	Partnership working with SUSTRANS

Table A.13 Summary of Measures in our Congestion Toolkit