

# Chapter 5: Tackling Congestion





# Chapter 5: Tackling Congestion

This chapter sets out the Greater Nottingham response to addressing the Government's Tackling Congestion Shared Priority. It highlights the general issues concerning congestion and looks at the key areas of intervention and actions through which the congestion targets will be reached.

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## 5.1 Background

Congestion has become an everyday part of most people's lives. Although undesirable with significant impacts upon the economy, environment and travel convenience, it can be viewed as an indicator for a successful, vibrant economy. To some extent, congestion also has an influence on travel choice and demand in urban areas, particularly if priority is given to mass transit modes.

The tackling congestion shared priority has close linkages with the accessibility and air quality shared priorities. Consequently, introducing measures to tackle the problems of congestion will contribute towards achieving local accessibility and air quality objectives, both directly and indirectly. The relationship with the road safety shared priority, however, is not so clear and it may be argued that reducing congestion and increasing speeds could result in increased accident numbers and severity. It is important to recognise the concept of person delay and other objectives such as pedestrian priority and facilities for cyclists as well as the delays to general traffic in planning to manage the impacts of congestion.

The key impacts of congestion at a local level can be divided broadly into two areas. Firstly, environmental impacts including noise, air pollution, carbon dioxide and climate change and community severance. The second area is the impact upon trip reliability and journey time increases particularly for public transport vehicles. This has resulted in operators re-timetabling services to worst case timings in order to meet Traffic Commissioner reliability requirements. These impacts are expanded in Problems and Opportunities in Chapter 4.

Levels of congestion in urban areas are driven by the underlying demand for travel by road, which is, in turn, driven by economic growth, travel costs, population growth and trends in car ownership. Without intervention, the DfT's latest projections indicate that congestion will grow by 15% from 2000 to 2010<sup>1</sup>.

## 5.2 Greater Nottingham Issues

As outlined in Chapter 2: Vision and Objectives, Greater Nottingham has ambitious plans for growth, but there is a danger that increasing congestion will deter investment, degrade the environment and impact severely upon the operations of existing businesses and public transport operations. Through implementation of LTP1, Greater Nottingham has been largely successful in containing the pressures of traffic growth, particularly within the City Centre and inner traffic areas (see Figure 5.1). Chapter 4 sets out potential projections of the impacts of demographic change, development and regeneration plans and associated travel demand patterns.

In broad terms the Plan seeks to improve the capacity for people to access the City and district centres through investment across modes and the implementation of innovative and robust demand management policies to make best use of the existing transport networks. Extensive expansion of the road network would be intrusive, expensive and likely to increase traffic flows with consequential environmental impacts. The clear focus of this plan is to prioritise a comprehensive package of improvements to transport alternatives such as walking, cycling and

<sup>1</sup> Transport 2010: Background Analysis – DETR July 2000

public transport that will enhance the accessibility of the City and district centres.

The rural parts of the Plan area do not suffer from congestion to the same extent as the conurbation. Consequently, the majority of the interventions proposed have an urban focus. However, it is recognised that there are locations in rural areas where delays do occur, especially in peak periods. Several towns outside the conurbation, such as Eastwood and Hucknall, also suffer from congestion during the peaks and shopping times.

The Transport Innovation Fund (TIF) offers the opportunity for a step change in rising to this challenge and its potential is being explored with the Government, as identified in Chapter 12: Implementation Programme.

Described below are the four key areas of intervention that will be developed to deliver the tackling congestion shared priority objectives:

1. Improving transport choices,
2. Making better use of infrastructure,
3. Parking policy, and
4. Demand management and integration.

Interventions can either influence transport supply or travel demand. The strategy for tackling congestion focuses principally upon influencing travel demand through the provision of quality alternatives, optimising the use of the existing network and managing demand.

Table 5.1 below indicates the key policies which will be implemented to modify transport supply and demand and forms the basis of the Plan strategy to tackle congestion.

**Table 5.1: Key Supply and Demand Policies**

<b>Intervention Objective</b>	<b>Key Policies</b>
Improving transport choices	Bus investment Heavy/light rail Walking and cycling Smarter choices including Big Wheel marketing Freight strategy
Network management: Making better use of existing infrastructure	Intelligent transport systems Network management duty Highway signing strategy
Parking controls	On-street/off-street parking Parking standards
Promoting public transport growth through demand management and integration	TIF Workplace parking levy Integrated ticketing and potential regulation

## 5.3 Improving Transport Choices

At the core of the strategy to reduce congestion through reducing traffic volumes is the provision of high quality sustainable alternatives. This will be achieved through the following key policy areas.

### 5.3.1 Bus Strategy Measures

Commitment to maintaining and enhancing the quality and reliability of Greater Nottingham's bus network is fundamental to the local transport strategy and central to public transport provision for delivering reduced congestion on the highway network.

Greater Nottingham enjoys a comprehensive high quality network of bus services, operating at high frequencies, which attracts high levels of patronage.

The vision for the LTP2 period is to provide a bus system that is:

- Comprehensive in coverage,
- Frequent,
- Reliable and fast,
- High quality,
- Safe,
- Accessible,
- Easy to understand and use,
- Affordable, and
- Integrated.

This will be achieved through a range of interventions to bring about reduced journey times, improved reliability, improved provision of information, better ticketing arrangements and high quality, safe waiting areas.

Since 1997 the authorities have worked successfully in partnership with local bus operators, the Highways Agency, large employers, the Government Office and GNTP (which acts as the Strategic Action Team of the Sub Regional Strategic Partnership) delivering a programme of quality improvement corridors through the Greater Nottingham Bus Quality Partnership (BQP).

In return for operator commitments to invest in high quality modern low floor vehicles, customer care training and better information provision, the authorities have invested LTP capital in bus priority measures, bus shelters, real-time information, bus boarders/raised kerb stops and improved interchange facilities.

This approach, which will be extended through the next Plan period, saw significant journey time improvements for bus passengers in the early years of the first Plan with corresponding increases in patronage and modal share. To satisfy the requirements of the Traffic Commissioner, however, additional time has been included in bus timetables to allow for periods of congestion. Whilst this has improved service reliability, there has been a resultant increase in overall bus journey times.

Through the BQP, bus operators have identified key locations where congestion has created significant levels of service unreliability. Through this process a comprehensive programme of bus priority measures, including bus lanes and traffic signal priority, has been identified for the next LTP period. Figure 5.1 highlights bus priority locations within the conurbation.

In the first LTP the majority of bus measures involved roadspace reallocation along key radial routes into the City Centre. Whilst this is possible in some locations, the opportunities for simple roadspace reallocations are limited and the programme will include more ambitious proposals to provide additional capacity for buses. Partnership work on Punctuality Improvement Plans has already commenced and will be rolled forward into LTP2. The Bus Strategy Interventions with strong linkages through to reducing congestion are contained in Table 5.2 below:

**Table 5.2: Bus Strategy Interventions**

<b>Bus Strategy Area</b>	<b>Intervention</b>
Reliability and Speed	Bus Lane Implementation Bus Lane Enforcement Off Bus Ticketing Punctuality Improvement Plans work
Network Development	Link Bus Programme
Organisational Changes	Improved Partnership Arrangements Investigate regulatory framework options
Fares and Ticketing	Integrated Ticketing
Waiting Facilities	Improved Lighting, CCTV and Information Interchange Improvements
Information	Big Wheel Promotional Campaigns

A successful initiative which has been particularly effective in achieving modal shift has been the 'Link Bus' strategy. Essentially, these services provide outward extensions to Park and Ride services to key areas of employment, links between the hospitals and university sites based on the Ring Road, a dedicated link with Nottingham East Midlands Airport and improved integration with the core bus network and NET Line 1.

Since their introduction all Link Buses have seen a continuing trend of increased patronage. The Link Bus principle will be further developed and rolled into the LTP2 programme as a key plank of the City Council's Bus Strategy, starting with the Uni-Link that is now providing high frequency services between the City and Clifton Campus of The Nottingham Trent University and achieving congestion relief to the A453 corridor.



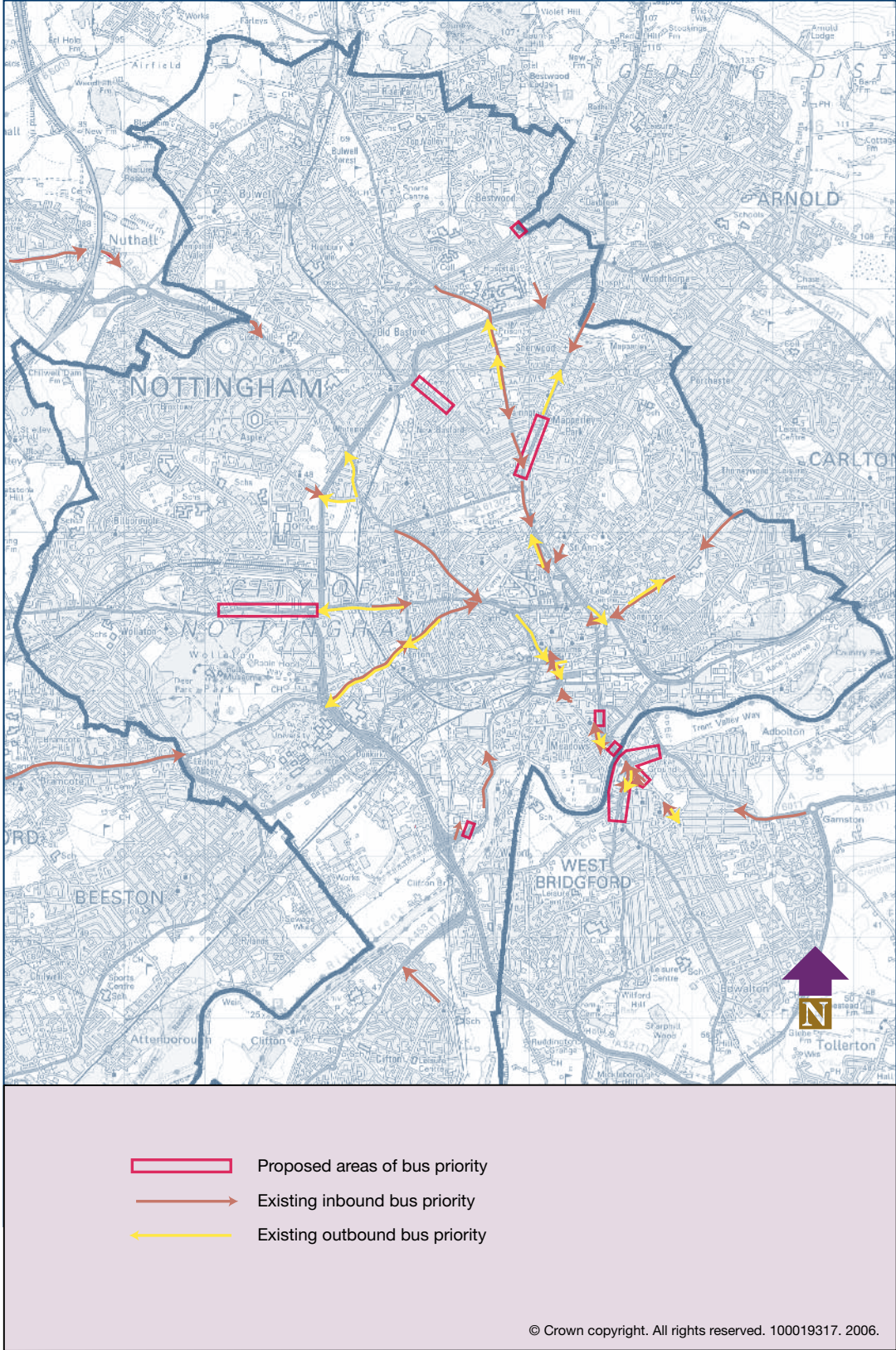
### 5.3.2 Park and Ride

The Plan area is now served by seven Park and Ride sites; five associated with NET Line 1 and two tendered bus-based sites. In total they provide almost 5,000 spaces and have been successful in attracting car users onto public transport for at least part of their journey, improving accessibility to the City Centre and reducing traffic volumes on key congested radial routes. The pricing strategy makes the services competitive with City Centre car parks and the ticketing arrangements enable flexibility and interchange between other bus services and NET Line 1.

The southern and western areas of the conurbation are not as comprehensively served. Three sites are proposed in the LTP2 to provide extended coverage to these areas:

- Gamston – A bus Park and Ride site was identified at Gamston in the first Plan period but not implemented largely due to difficulties with resolving issues associated with safeguarded land for a fourth Trent River crossing, access to the A52 Trunk Road which conflicted with short term proposals for an additional left turn lane and long term proposals to grade-separate the junction. A new location for a river crossing has been identified through the A52 Clifton Bridge to Bingham Multi-Modal Study that effectively releases land for the implementation of the Park and Ride site north of the A52. A feasibility study of this is now being undertaken and determination of the planning application on the previous site has been placed on hold pending the outcome. It is proposed to construct the new site in two phases. The first phase would be for 600 vehicles with an amenity building constructed within the Plan period. The second phase would be for a 400 space extension dependent on demand. Construction would start in 2007/8 at the earliest. The total estimated cost is £3.6 million to be funded through the LTP Integrated Transport Measures allocations. This facility will bring congestion relief benefits to the Lady Bay and Trent Bridge approaches.
- NET Phase 2 - Two further Park and Ride sites are proposed in connection with NET Phase 2 at Clifton South on the A453 corridor and at the Toton Lane Roundabout on the A52 corridor. These will provide a total of 2,400 additional spaces and will provide congestion relief to Clifton Bridge, A453 & A52 Trunk Roads and other local roads in the south-west quadrant and will result in all three approach routes into Nottingham from the three M1 junctions being served by tram based Park and Ride.
- Existing sites – Through the Plan period the expansion of some existing sites may also be considered, dependent on demand.

Figure 5.1: Bus Priority within Greater Nottingham



### 5.3.3 Nottingham Express Transit Phase 2

NET Phase 2 will provide substantial new public transport capacity, capable of moving large numbers of people quickly from the densely populated south and west of the conurbation and from the wider region through Park and Ride sites and feeder bus services. Light rail has a proven record of modal shift by existing car users, and its inherent benefits – high frequency fast services, long sections of segregated track and junction priorities ensuring a reliable service, and City Centre penetration allowing direct access to jobs and facilities – will ensure the tram is extremely competitive with the car on journey time and convenience. Implementing high capacity tram services on key corridors will also relieve bus stop and junction capacity congestion in the City Centre, allowing further bus service growth on other corridors where bus priority measures can be accommodated and where the bus will remain the dominant form of transport.

Expansion of the NET system will provide a further step change in public transport provision in the conurbation and therefore forms the single most important component of the integrated package of measures to tackle congestion and to meet growing travel demand in a sustainable way.

Further details on the NET Phase 2 proposals are included in Chapter 12: Implementation Programme.

### 5.3.4 Heavy Rail

There are a number of areas where improvements to heavy rail services and infrastructure are expected to contribute to improved transport choices and, hence, reduced traffic volumes and congestion. These include, for example, the Nottingham Station Masterplan Beeston Station access improvements, and extension of the Robin Hood Line to Bingham.

Heavy rail improvement proposals are described more fully in the section on meeting the needs of longer distance travellers contained, in Chapter 3: Wider Context.

### 5.3.5 Walking and Cycling

In the Plan area over 33% of residents own a bicycle<sup>2</sup>, however only 3% actually use a bicycle to travel to work<sup>3</sup>. In addition, 17% of the Plan Area's working population (aged 16 to 74) travel less than 2km to work and 24% travel less than 5km<sup>4</sup>. These statistics highlight the significant potential for more cycling and walking within the Plan area.

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<sup>2</sup> Nottingham, Derby and Leicester Personal Travel Survey 2003 (for GNLTP Plan Area)

<sup>3</sup> 2001 National Census

<sup>4</sup> 2001 National Census



Primary Pedestrian Routes are being developed to better link inner City residential areas to the City Centre along main corridors. The routes are being developed in phases, with priority being given to links through regeneration areas. Improvements will include widening and resurfacing footways, provision of convenient direct crossings of roads, reducing street clutter, improved street lighting, signing and environmental improvements. These routes will help reduce congestion by being made attractive routes for City Centre workers.

The programme of safer routes to schools is helping to encourage more children to walk or cycle to school. This is helping to reduce school run journeys which add to congestion particularly in the morning peak period.

A Strategic Cycle Route Network has been established based on main radial routes, orbital routes, traffic free and quiet routes. A programme of improvements to these routes is being developed and will include the existing as well as new cycle routes. The main radial and orbital routes are particularly important for people commuting by bicycle. A review of cycle facilities on these routes is being undertaken to develop a programme of improvements over the Plan period. Coordination with bus priority schemes, which include exemptions for cyclists in bus lanes, will form an important part of this programme.

When considering measures for cyclists, whether it be a dedicated cycling facility or part of another transportation scheme, the Institute of Highways and Transportation hierarchy of measures will be considered. Traffic reduction and traffic calming will be considered, followed by junction treatment (advance stop lines) and redistribution of the carriageway (on-road cycle lanes) followed by cycle tracks.

The following table identifies cycling strategy interventions that will contribute to tackling congestion within the Plan area.

### 5.3.6 Smarter Travel Choices

'Smarter Choices' encompasses a range of travel demand tools that may be employed to influence people's travel behaviour in favour of more sustainable modes such as walking, cycling, public transport use and car sharing.

'Making Smarter Choices Work'<sup>5</sup> advocates promotion of a number of key travel behaviour change measures. Research commissioned by the DfT found that an intensive smarter choices programme over 10 years could cut congestion significantly, with urban peak-hour traffic cut by as much as 21% and off-peak traffic by 13%. Nationally, traffic volumes could be cut by 11%.

Both the authorities have been involved in this key area of demand management for many years and are considered as national exemplars in the field, embracing the majority of the policy options outlined in the guidance. Table 5.4 indicates examples of Smarter Choices already being delivered at the local level.

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5 Smarter Choices: Changing the Way We Travel, DfT, July 2004

**Table 5.3: Cycling Strategy Interventions**

Cycling Strategy Area	Intervention
Council Commitment	Continue to develop own travel plans and improve workplace facilities for cycling. Engage 'cycling champions' at senior officer and Member level.
Infrastructure	Improvements to the existing cycle route network and developing new cycle routes, particularly on-road cycle lanes. Ongoing programme of cycle parking provision.
Safety and Training	Programme of AIU schemes to reduce KSI's involving cyclists. Continue to develop cycle training for children and adults.
Marketing and Promotion	Big Wheel promotion campaign targeting cycling. Annual review and production of cycle maps. Special events.
Stakeholder engagement	Annual cycle forum event. Consultation on cycling schemes.
Wider engagement	Develop Travel Plans, which consider cycling provision, through the Commuter Planners Club particularly with education and healthcare organisations.
Planning and Cycling	Continue to seek developer contributions to improvements for cyclists through planning agreements.
Targets and Monitoring	Continue to expand cycle monitoring. Develop more automatic cycle counts.

**Table 5.4: Implementation of Smarter Choices**

Smarter Choice measure	Local Examples
Workplace Travel Planning	Internal Travel Co-ordinators - in post since 1996 Transport Partnership Officers - working with organisations Commuter Planners Club – business forum representing 50,000 employees IPMS (Integrated Parking Management System) smart system for allocating parking spaces at The Nottingham Trent University
School Travel Plans	School Travel Advisors appointed in 2004 Regional Schools Travel Adviser Safer Routes to School Programmes Road Safety Education Programmes Home to School Transport (LEA) Building Schools for the Future (BSF) Programme
Personalised Travel Planning	TravelSmart Meadows / Lady Bay national pilot scheme
Public Transport Information	NET/bus Marketing Printed/electronic information including TripText SMS Service/ Web-based TripTimes Service TravelWise Centre
Travel Awareness Campaigns	The Big Wheel TravelSmart Regional TravelWise Group Membership
Teleworking	Home working trials at both authorities
Teleconferencing	Keep the Wheels Turning Information Pack
Car Sharing/Car Clubs	Commitment to explore viability

Through the implementation of a Smarter Choices action plan and programme, Greater Nottingham will continue to build on the successes of measures already in place.

### Workplace Travel Planning

As people have become better off, they travel further and the demand for travel is only likely to increase in the future. In 2002 cars accounted for 85% of the total distance we travelled in the UK<sup>6</sup>.

Workplace Travel Plans aim to reduce the number of cars arriving to employment sites by encouraging staff to travel to work by public transport, on foot, by bike, by car share or through reducing the need to travel by encouraging teleworking or teleconferencing.

Both authorities have been leading advocates of travel plans since 1996 and as pioneers, continue to promote and support the benefits of good quality travel plans, particularly those with acute parking issues.

<sup>6</sup> National Travel Survey, DfT

Actions for the Plan period include:

- Development of robust systems for performance managing travel plans, working closely with employers to ensure that modal shifts can be assessed and used to create comparable benchmarks e.g. adopting the I-Trace database system which is being used within London boroughs,
- Continuing and strengthening the function of the Commuter Planners Club. This will entail the recruitment of new members and partnering with representative bodies such as the Nottinghamshire Chambers of Commerce and Industry and the Greater Nottingham Partnership,
- Continue to develop the authorities' own internal travel plans in order to lead by example,
- Support for employers through small-scale 'TransACT' grants, match funded projects and consultation,
- Assistance in local, regional and national travel awareness campaigns e.g. The Big Wheel, East Midlands Travelwise, Travel to school initiative and Association of Commuter Transport (ACT),
- Working closely with developers to adopt accreditable travel plans through the planning process,
- Reinforcing the links with mobility and health by working jointly with healthcare agencies,
- Publicising the benefits of teleworking as part of workplace travel planning,
- Promoting a culture where teleconferencing is routinely considered as an alternative to travel to business meetings,
- Using supplementary planning guidance document to encourage developers to understand and appreciate the associated benefits of travel plans, and
- Investigating the benefits of area based travel plans (ATP) and establishing at least one in the Plan area e.g. northwest quadrant of the City.

### School Travel Plans

School Travel Plans will make a significant contribution to reducing congestion around schools through encouraging and promoting sustainable travel options. This, in addition to supporting infrastructure that improves road safety around schools, contribute towards the quality of the local environment and air quality and address issues concerning the accessibility of education. Other benefits include increased health and fitness of pupils, increased travel awareness for parents and the local community and improved school environments. The aims are in line with those set out in the National DfES / DfT Travelling to School Initiative and 'Travelling to School – An Action Plan'.

The following actions are taking place to promote walking, cycling and public transport to combat increasing car use for travel to schools in Greater Nottingham:

- Implementation of a School Travel Strategy including a School Travel Plan programme.
- Continue and strengthen links with development programme such as Building Schools for the Future, Schools Re-organisation Programme, Road Safety and Safer Routes.
- To develop and implement a Promotion and Publicity Strategy for School Travel Plans.
- Initiate a major annual city-wide 'Walk to School' event targeting 100% of city primary schools.
- Coincide walking events with 'Walk to School' week annually.

- Support for relevant Big Wheel events e.g. Big Foot awards and Footprints.
- Support Surestart and Children Centre travel plans.
- Continued promotion of the Safemark scheme that encourages good behaviour by pupils travelling on public transport.
- Reinforce the School Travel Plan Advisory Service, including delivery of a travel plan programme.

### Smarter Choices Innovation Projects

As the long-term benefits of Smarter Choices measures are yet to be realised, an allocation has been made in the programme to investigate the effectiveness of a number of initiatives relating to influencing the travel behaviour of commuters. This is referred to as Smarter Choices Innovation Projects. A number of research commissions will be considered to help assess the potential of any given measure on changing travel behaviour. These may include looking at the impacts of initiatives such as telecommuting, home working and teleconferencing. Research has already started to look at the role of both leisure and residential based travel plans and how interventions can promote a change in travel mode decisions. The Nottingham Trent University is undertaking this work and will conclude in year one of the LTP.

Working from home or non-work sites is increasingly becoming more popular as the viability of the technology becomes more realistic. The expansion of broadband access has meant that a lot of forward thinking organisations are taking advantage of the opportunities that teleworking present e.g. reduced downtime due to less commuting, increased productivity and enhanced work life balance amongst employees.

A series of state of the art teleconferencing installations have been established at employers such as Capital One, Experian and New College Nottingham. As the cost of the technology reduces the authorities will seek to promote the take up of teleconferencing as a viable means of reducing travel demand.

### Car Sharing / Car Clubs

A car club gives people the choice of a fleet of vehicles parked in their neighbourhood. This gives them access to a car whenever they need it, but without the high fixed costs of individual car ownership. Car clubs are well-developed in Switzerland, the USA and Germany. Car clubs are seen as an innovative means of reducing car use and are emerging in many UK cities e.g. Leeds, London and Glasgow.

It usually involves a private company operating the scheme in conjunction with the Local Authority. The Local Authority may help with the development of car clubs by providing start up grants, designating on-street parking bays for car club vehicles, use the car during off peak times as company pool vehicles

The Smarter Choices funding programme will support the Local Authority's subscriptions for a city car club scheme and to ensure that the Big Wheel travel awareness campaign is suitably connected with the scheme. As city car clubs tend to be run by private companies, the company would undertake the initial risk investment, with the local authorities supporting the initiative by identifying and changing the designation of select parking bays to accommodate car club vehicles.



## Personalised Travel Planning

The results from TravelSmart project, which focused on two areas in Greater Nottingham, The Meadows and Lady Bay, suggested that individualised travel planning can change modal shift amongst households. In the case of TravelSmart it resulted in up to 14% less car journeys. Opportunities for implementing the most successful elements of the pilot within other parts of Greater Nottingham will be investigated.

## The Big Wheel

The nationally recognised travel awareness campaign branded as ‘The Big Wheel’ has been widely noted as being an example of best practice. Through its innovative branding, style and approach, The Big Wheel has been instrumental in promoting the integrated transport system in Greater Nottingham. The Big Wheel delivers a blend of media campaigns, local events, website and awards often in conjunction with companies, schools, students and the Arts Council. A number of familiarity and favourability surveys conducted by independent consultants have provided evidence that The Big Wheel campaign is raising the profile of travel options in Greater Nottingham and also has started to impact on people’s travel mode decisions. A notable event such as the Big Day Out, which attracted over 9,000 visitors at Nottingham Castle in 2005, also served as a unique consultation opportunity in preparation for this Plan.

The Big Wheel, which is managed by the Greater Nottingham Transport Partnership, has a Service Level Agreement with the Local Authorities that sets out a comprehensive list of activities and objectives on an annual basis.

Key initiatives include:

- Commuter Planners Big Wheel Travel Planning Awards,
- GNTP Forums,
- Promotion and dissemination of major integrated strategic transport schemes and initiatives related to wider development agenda,
- Materials and dissemination of Link Bus concept to business, key influencers and the general public,
- Big Wheel branding of bus stops and stations,
- Annual Familiarity and Favourability surveys,
- Cycling and walking marketing strategy, and
- LTP2 stakeholder and public consultations.

## 5.3.7 Freight

The Greater Nottingham Freight Quality Partnership was set up following the ‘Nottingham Delivering the Goods Group’ customer survey carried out in 1999. The aim of the partnership is to encourage local best practice in environmentally sensitive, economic, safe and efficient freight transport. It provides a forum for local businesses, the Councils and representatives from the freight industry to work together to realise this aim.

A ‘Delivering the Goods’ customer survey has been carried out which highlighted issues related

to congestion. These included congestion and delays on main routes, illegally parked vehicles obstructing kerbside delivery points and service areas, poor traffic signing and information. In the last plan period some of these issues have been addressed. For example the introduction of decriminalised parking enforcement has enabled more effective enforcement of parking violations.

Poor routing of lorries results in wasted time and unnecessary mileage which adds to the problem of congestion and can be particularly intrusive in rural villages. To overcome this, the authorities are developing a Highway Network Management Plan which will review strategic lorry routes, direction signing and local access to city, district and main freight destinations. The authorities will produce a road freight map for the Plan area, and will inform a proposed regional multi-modal freight atlas.

Access to many retail destinations is time restricted and a lorry arriving too early or too late at a delivery / pick-up point can have adverse effects on the highway network and the operations of the freight operator. To address this problem, publicity and information in connection with local access restrictions such as the Clear Zone in the City Centre and the Turning Point scheme will continue to be updated and disseminated to freight operator representatives and is available on line at:

 [www.itsnottingham.info](http://www.itsnottingham.info)

The volume of road freight in the East Midlands is equivalent to 140,000 truck journeys per day and is forecast to grow significantly, 28% by 2010 and 58% by 2020<sup>7</sup> which will have an adverse effect on the existing highway network. To address this the authorities will support the Regional Freight Strategy policies to achieve freight modal change as described in the 'Meeting the needs of longer distance travellers' freight section contained in Chapter 3.

### 5.3.8 Powered Two Wheelers

With their efficient use of roadspace, Powered Two Wheelers (PTWs) can make a positive contribution towards Tackling Congestion and the generally low fuel consumption rates of typical commuter-type PTWs can also bring air quality improvements.

Their role in improving transport choice has been recognised within the first Plan period and secure parking facilities have been provided at locations on street and within the Queen's Drive Park and Ride site. In addition, most of the NET Line 1 Park and Ride sites also reserve parking spaces dedicated to PTWs although they are under-utilised at present. Within the City Centre where all on street parking is controlled, PTWs are exempt from the pay-and-display and short-stay restrictions and are free to park all day without charge. Typically five PTWs can fit into a single car parking space maximising the efficiency of the use of kerbside space.

It is intended to continue the provision of secure PTW parking facilities through the next Plan period, both on-street and at other locations as appropriate, for example by providing hitching rails at the NET Park and Ride sites to improve security.

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<sup>7</sup> Towards a Regional Freight Strategy; East Midlands Regional Assembly February 2005

## 5.4 Making Better Use of Existing Infrastructure

Effective management of the existing transport network can provide significant congestion benefits and may represent a value for money alternative to the provision of large scale new infrastructure and maximise the benefits of new or upgraded infrastructure.

### 5.4.1 Intelligent Transport Systems

The Greater Nottingham area has a long history of the use of traffic management techniques now known collectively as Intelligent Transport Systems or ITS, ranging from the Zone and Collar experiments in the 1970s to the continued operation of the Traffic Control Centre (TCC) for over 30 years run jointly between the authorities.

The Traffic Management Act 2004 provides a renewed platform on which to operate and expand the use of ITS, and nests well with the other LTP policies for the area concentrating on making better use of existing highways rather than simply building more.

The aim is to turn data into information and information into action, either by the local authorities and their partners (to adjust traffic signals, carry out enforcement, amend operations etc.) or by travellers (to alter journey times/routes, Plan alternatives etc.)

For the new Plan period the key pillars for the use of, and investment in, ITS in Greater Nottingham will be to better integrate existing systems, (some of which are in the control of partner organisations) whilst seeking opportunities for using capital investment to reduce revenue costs (or achieve more with the same revenue), all within the framework of urban traffic management and control standards and protocols.

Specific projects will include:

- Increased linkages between the various CCTV control rooms to provide real-time images of traffic conditions. This project will start within Nottingham as part of the relocation of the TCC in 2006 (a result of Trinity Square redevelopment proposals), which will then allow over 100 additional CCTV sites to be used for traffic purposes. This is to be rolled out across the area during the Plan period,
- The area's two main bus operators have a growing number of vehicles fitted with forward facing cameras. The potential for these to provide not only evidence for the prosecution of bus lane infringements, but also live video of events which are causing delays is being actively explored. A trial of MESH wireless communications will take place during 2005 which, if successful could lead to a low cost solution and could be combined with bus Automatic Vehicle Location to provide much improved levels of reliability,
- Expansion of CCTV in strategic locations – the new Traffic Management Act will require the declaration of priority routes, and it can be expected that some of these will be roads where the ability of the TCC to intervene is currently significantly hampered by the lack of CCTV. In addition to the opportunities listed above, some key locations will need new CCTV installations which will use modern methods of communication (wi-fi, web etc) to reduce

ongoing running costs,

- Expansion of Automatic Number Plate Recognition (ANPR) – Nottinghamshire Police have secured funding for a ‘ring of steel’ around the City Centre and this is being designed so that additional units can be placed at strategic points to give live journey time information as well as having crime fighting benefits,
- Introduction of strategic variable message signs – linked with ANPR and the car park occupancy system already in place, information signs will be used to advise drivers of anticipated delays and, by placing signs close to Park and Ride sites, will actively promote the use of buses and trams as alternatives for City Centre access.
- The use of automated management techniques such as Microprocessor-Optimised Vehicle Actuation (MOVA) and Split, Cycle and Offset Optimisation Technique (SCOOT) will be extended to more signalled junctions where appropriate. Both of these systems are able to respond to fluctuations in traffic flow and patterns as they happen, whilst retaining the links necessary for the successful operation of a co-ordinated network of traffic signalled junctions. MOVA has been shown to reduce average delays by up to 13% at isolated junctions<sup>8</sup> whilst SCOOT has been shown to reduce delays by up to 15% in linked traffic systems. There is additional evidence that MOVA can reduce accidents at sites with high speeds if installed in appropriate locations<sup>9</sup>,
- Strategy management – tools are now available which will increase automation of traffic control systems to ensure consistent approaches to planned events. The TCC has installed Siemen’s COMET and will rollout the strategy management tool over the next few years, and
- Improving links with others – the authorities actively participate with the National Traffic Control Centre through the Traffic Information Service and with the recently opened Regional Traffic Control Centre located in the Plan area. The model developed for the interface between the NET Control Room and TCC shows how such close working can give a significant benefit. Links with the emergency services already exist, with fire stations having ‘green waves’ and TCC having access to certain Police radio channels, and the opportunities to improve the service offered to ‘blue light’ vehicles will be further explored.

### 5.4.2 Advanced Direction Signing and Variable Message Signs

Freight Transport Association state that at any one time 16% of traffic is lost. Whilst it is unclear what evidence exists to support this, the message it conveys is important. Even if not actually lost, a significant level of traffic in the City Centre in particular, is thought to be circulating, seeking on or off-street parking spaces.

Consultants were commissioned in 2004 to undertake a study into directional signing in Nottingham and its immediate environs to identify a more effective signing strategy in consultation with the County Council, the Highways Agency, Experience Nottinghamshire and GOEM.

The priority areas of focus for the study were:

- Directing/encouraging traffic to use appropriate Park and Ride facilities to reduce City Centre traffic volumes,

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8 TRL Report RR279

9 TRL RR279 and TRL671

- Directing cross-city traffic to routes to avoid the City Centre,
- Creating a zoning system in the City Centre to enable effective direction of traffic to appropriate off-street parking, and
- Providing real-time on-line City Centre parking availability information to enable informed advanced trip making decisions to be made.

The use of standard advanced directional signs, and variable message signs (including free-text signs) was explored and a strategy identified to optimise the performance of the network and, critically, reduce City Centre traffic volumes and, thereby, reduce congestion. To complete the strategy, the estimated costs are in the region of £5 million. This could be funded from a number of sources including LTP, Integrated Transport Measures block allocation and developer contributions, in particular for City Centre variable message signs which have been included in Section106 agreements for three major City Centre developments.

The first phases of implementing the strategy are underway. These include the erection of experimental variable message signs to two key car parks and public consultation on the proposed City Centre zoning and variable message sign system called 'parks<sup>smart</sup>'. In advance of implementing the full 'parks<sup>smart</sup>' system, all City Centre operated off-street car parks have been installed with data monitoring systems which are connected to the Traffic Control Centre.

### 5.4.3 Network Management

The Traffic Management Act 2004 places a Network Management Duty (NMD) upon local authorities, emphasising the importance of the active and co-ordinated management of the road network. The strategies and planning undertaken to meet the duty should endeavour to keep traffic flowing within the context of the range of their other duties and responsibilities, including those applicable locally, regionally and nationally.

#### Network Management Duty Plan

Although not mandatory, the Councils recognise the need for a formal plan to develop systems and procedures which will provide both proactive and reactive responses to network management and they are in the process of producing such plans.

The plans will focus on measures to relieve congestion and disruption. This will include the development, improvement and enhancement of the highway and changes in its use through new works, signing improvements, Traffic Regulation Orders, public transport provision and the promotion of walking, cycling and public transport use.

The Plan will promote a continuation of the proactive approaches to the co-ordination of street and road works and other temporary activity on the highway, as well as to parking management. It will also establish the appropriate measures required to respond to unplanned events through incident management, enforcement, media broadcasting, interactive signing and sharing network information in the region. It will identify activities on the highway and methods to minimise congestion and disruption, document diversionary routes and specify where possible how incidents will be managed.

Central to the plan will be a review of the current management arrangements, roads hierarchy, traffic sensitive routes and other designations and classifications. The plan will be developed in accordance with the Local Development Framework, and influence/be shaped by emerging development proposals. These include the restructuring of schools, major housing improvement schemes and extensive developments within the City.

The Plan will define both the overall long and short term objectives, policies, standards and procedures that the two Councils will need to achieve in order to successfully satisfy the NMD, as well as the detail of how this will be achieved. The key to the Plan will be the development of the Network Hierarchy and User Classification which will enable it to focus on the most efficient options to address congestion and disruption to all road users whilst maintaining the duties and responsibilities that it already has.

### **Traffic Manager (Nottingham City Council)**

Stewart Thompson was formally appointed as Traffic Manager for Nottingham City Council on 23rd December 2005, ending the interim arrangements during a review of staffing over the previous 12 months. This is a senior management appointment at tier 3 within the City Development Department. The level was chosen to reflect the importance of the role, and the need to develop a network management strategy to minimise congestion. The traffic manager is responsible for the Traffic Control Centre, Highway Network Management, Traffic Management and Road Safety.

With this range of responsibilities the Traffic Manager can reactively deal with incidents and congestion on the network as well as proactively co-ordinating road works, authorising works on the highway, licensing activities on the highway and introducing Traffic Regulation Orders to deal with both short term and long term traffic problems. The appointment at level 3 ensures that the Traffic Manager has sufficient authority within the organisation to take decisive action when dealing with incidents or situations where planned works will cause congestion.

During 2006 a new team leader will be appointed to Highway Network Management. This person will be responsible for producing the NMD Plan that will be complementary to the work undertaken by Nottinghamshire County Council and the Highways Agency. It is also proposed that in 2006 a small restructuring will increase the size of the Network Management Team and that a level 4 post be created to jointly manage this team and the Traffic Control Centre. The joint management of these two teams will strengthen the delivery of both reactive and proactive actions that can be undertaken to minimise congestion.

### **Traffic Manager (Nottinghamshire County Council)**

The County Council has appointed Peter Goode into the specific role of Traffic Manager. He has extensive experience in network management matters, including operations governed by the New Roads and Street Works Act and Highways Act. He is also involved in several regional and national bodies, including being chair of the National Street Works Highways Group, working on related matters. He is therefore ideally placed to share with, and learn from, other authorities' experiences.

The County Council has recognised the crucial role that the Traffic Manager will have in ensuring



that there is effective and impartial authority-wide implementation of the Traffic Management Act and the NMD. Reporting directly to the Assistant Director of the Transportation Division, within the Environment Department, the Traffic Manager will, by virtue of his status, be able to have an influence over the wide range of matters related to the NMD. Being outside of the operational delivery arm of the Council (contained within the Highways Division of the Department) he will retain impartiality.

The Traffic Manager will be responsible for developing the County Council's NMD Plan, working closely with other parts of the Council, other authorities and stakeholders.

In developing the role, status and responsibilities of the Traffic Manager, the County Council has taken full regard of the advice given in the NMD Guidance. The Council is confident that with the appointment of the Traffic Manager and the responsibilities and status that the post will carry, the County Council will be ideally placed to fully integrate the NMD within the other duties and responsibilities that the Council already has, to bring about a reduction in congestion and disruption to all road users.

### **Integration across Authorities**

There is a clear recognition by senior management within the Councils that the concepts behind the NMD need to be fully understood by all those within the organisations as well as any other agencies who may have an influence on the highway network and its capacity and operation. A great deal of work has already been undertaken in disseminating information and raising awareness and this will be further enhanced by the Traffic Managers who will act as 'champions' to implement the Duty and in ensuring that detailed information is cascaded throughout the authorities and other external bodies.

Examples of the success already achieved in integrating the Duty within the authorities' existing work are that School Travel Plans are being developed and that the Duty is a consideration in planning issues, particularly relating to parking standards and impacts upon the network from development generated traffic. School travel significantly increases congestion on the network and School Travel Planning and the provision of Safer Routes to School are seen as complementary processes aimed at reducing this congestion. Within the LTP period, finance will continue to be allocated to the Safer Routes to School programme. The engineering measures in this programme are complemented by the work of the School Travel Planning officers who work in the Education Department.

### **Partnership Working and Cross Boundary Co-ordination**

The authorities acknowledge that the NMD requires a Plan-wide approach to the planning and delivery of services. The two authorities have been working very closely since Local Government Review in 1998 and have excellent working relationships. There will be a need to build upon this and relationships with other adjoining authorities to work in partnership with them, the Highways Agency and stakeholders to deliver a seamless service which reflects the needs of road users.

In addition to detailing the internal relationships within each authority the NMD Plan will set out the cross boundary and joint working arrangements between the Councils and neighbouring

authorities and the Highways Agency to ensure that the aims of the Duty are fully complied with.

The two Councils have for many years continually developed cross boundary protocols and relationships with neighbouring authorities and organisations. Examples of this are membership and proactive work through the Bus Quality Partnership and associated Bus Punctuality Improvement Partnership, the Nottinghamshire Freight Quality Partnership, and the Nottinghamshire Road Safety Partnership. The two authorities also hold joint co-ordination meetings and regular meetings with the Highways Agency and its agents for planning works.

It is recognised that management of the network needs to be undertaken across the conurbation, and this is taken into account in the proposed development of the Traffic Control Centre, the interactive signing strategy, the public transport strategy and the expansion of the tram network.

Outside of the Plan area, the authorities are fully involved in the East Midlands Highway Authorities and Utilities Committee, the award winning EMPReSS project and the Midlands Best Value Group, as well as being involved in the National Street Works Highways Group and HAUC(UK). As a direct consequence of the NMD, the County Council was responsible for instigating and implementing the East Midlands Traffic Managers Forum and continues to organise and host these successful meetings in pursuance of regional working.

### **Network Hierarchy and User Classification**

A fundamental building block in achieving much of the NMD is the development of the Network Hierarchy. The authorities have already undertaken work in establishing a hierarchy relating to traffic sensitivity of certain roads and this will form the basis of developing a much more detailed hierarchy that is fully reflective of the overall importance of particular roads within the network and is also related to the class of road user. This will enable a matrix of network hierarchies for different users to be developed allowing the authorities to identify those parts of the network where certain policies and actions can most usefully be developed to assist in minimising congestion and disruption for the different classes of road users.

In reviewing Network Hierarchies and User Classifications it will be essential to agree cross boundary protocols to achieve continuity across the wider networks and for these hierarchies to support transport strategies, works and event co-ordination, incident management and information strategies. Throughout this process there will be a focus on establishing a clear hierarchy of roads within the network and identifying priority routes.

### **Decriminalised Enforcement**

The Councils recognise the importance of decriminalised powers in the management of congestion. The illegal use of bus lanes by other road users degrades the level of priority offered to buses, encourages further abuse, and ultimately reduces bus service reliability and punctuality, diminishing their attraction as viable, quality alternatives to the private car.

Decriminalised parking enforcement was introduced by the City Council in October 2002 and the County Council is now actively pursuing the introduction of the same powers for the remainder of the Plan area in 2007. A clear priority has been established for enforcement



focussing on the tram alignment, bus lanes, and the primary network in order to reduce delays to passengers and drivers. In 2006, the City will introduce bus lane enforcement using the Transport Act 2000. This will enable officers to deter drivers from entering bus lanes in addition to parking in them. In 2007, subject to the implementation of the relevant parts of the Traffic Management Act 2004, the City Council will also apply for decriminalised powers to deal with moving traffic offences, to further support other policies which address congestion. Proposals have already been developed for the electronic enforcement of the 'Clear Zone'. All of these decriminalised powers will be used and prioritised by the Traffic Managers as part of the network management responsibilities. This is covered more fully in Chapter 4: Problems and Opportunities.

### **Management of Works and other Activities**

Coordination of works and other activities on the highway is carried out at a number of levels under the umbrella of the joint coordination meetings. In developing a NMD Plan the councils will incorporate best practice in co-ordination of activities on the highway, as well as reviewing procedures and protocols to ensure that disruption is managed effectively across the network. The Traffic Management Act seeks to tighten the existing regulatory framework within which works are undertaken in the highway, providing authorities with greater powers to co-ordinate and manage works. The authorities will seek to make full use of these provisions to more effectively manage activities, with the principal aim of minimising disruption and reducing congestion. Although the new legislation associated with noticing and permits has yet to be introduced, it is recognised that there is a need to review the manner in which the full range of activities are managed to ensure that parity is applied irrespective of works promoter.

The two authorities will continue to work collaboratively in co-ordinating works and other activities and in developing strategies for dealing with planned and unplanned events across the Plan area. In particular this will include:

- The development of a clear hierarchy enabling the authorities to ensure that the new powers are used in the most appropriate manner and that resources are allocated to greatest effect,
- Ensuring that all works promoters are aware of the priority routes and the conditions applying to them,
- Continuing to proactively coordinate planned works and other events through joint coordination meetings and shared processes,
- Identifying areas for improvement of the proactive approach to the management of works in progress and enforcement of conditions, and
- Developing contingency plans for responses to unplanned events and improving communications to other authorities and the public.

The authorities will continue to work closely with the key works promoters to ensure that works are planned to reflect the priority given to those more important parts of the highway network. This will ensure that these promoters are able to develop working methods which will complete works in the most appropriate manner to minimise disruption, whether this be through night, off-peak or shift working or the adoption of alternative construction methods.

The authorities have held joint coordination meetings since the transfer of the highway authority role to the City Council and it is intended that this will continue. These meetings are a key

element in the coordination process and are embodied within the statutory requirements for coordination. However, additional techniques and methods will continue to be developed to ensure that works and other events are well planned and coordinated and that long-term programmes are shared between works promoters to provide greatest opportunity for joint, sequential or phased working to minimise disruption.

As indicated above, implementation of the full scope of the powers is anticipated in the early part of the LTP period. Whilst the exact detail is therefore still unknown it is anticipated that there will be the opportunity to introduce measures to control activities in a more prescriptive manner than has hitherto been possible. In particular, the authorities will examine the provisions relating to permit schemes and consider whether to apply to introduce such a scheme.

### **Incident Management**

It is recognised that, no matter how comprehensive and detailed forward planning of events may be, the occurrence of unplanned incidents cannot be avoided. The Councils already have policies and procedures in place for the effective and efficient 24 hour management of incidents on the highway network. This is carried out in partnership with other organisations such as the Emergency Services, the Emergency Planning Authority and the Environment Agency, as well as other traffic authorities. It is recognised, however, that further work should be undertaken in this area to identify the nature of such incidents and establish a prioritised assessment process to determine policies for dealing with them. Contingency plans will be established for responses to unplanned events, including emergency diversion routes for key locations to ensure that in the event of incidents pre-established arrangements can be put in place to keep traffic moving. The Councils will also seek ways to improve communications to other authorities and the public by examining the processes used to provide and receive information concerning events impacting on the highway network, including that provided by and to the Highways Agency through their Traffic Control Centres.

Accidents are just one type of unplanned occurrence which can disrupt the highway network and strategies are in place to reduce road casualties and their consequences, including the resultant delays on the network.

### **Information Strategies**

The provision of timely and accurate information to road users is an essential part of the NMD and as such the Councils have done much in developing existing systems and exploring new technologies. The two Councils jointly fund the Traffic Control Centre that monitors traffic movement and provides real time traffic control over many traffic signal installations countywide. Real time information is conveyed onto the local media and disseminated via the authorities' web sites and proposals have been prepared for the introduction of interactive signs to assist car parking and the movement of vehicular traffic. A recent move of the TCC has enabled much of its equipment to be updated and there will be consequential operational benefits and greater opportunity to develop technology.

The County Council was one of the founding and proactive authorities responsible for the development of the award winning EMPReSS web site that allows road users to look at data related to road works seamlessly across authority boundaries. Information related to longer

term works co-ordination is available via the East Midlands HAUC web site allowing utilities, developers and authority staff to view works programmes.

The two authorities have also worked closely together on the 'Big Wheel' project that gives detailed information on various travel options available to people planning their journeys as well as information about major works on the network.

The Roads Information Framework is a joint initiative involving the Highways Agency, DfT and local authorities. It is intended to improve the data that is collected on the highway network and how this information is used. Further information is contained within Section 3.9 of Chapter 3: Wider Context.

### **Measurement, Monitoring and Indicators**

As far as possible, the effectiveness of the processes relating to the NMD will be monitored by means of measurement and indicators used in association with other aspects of this Plan. However, it is anticipated that additional indicators will need to be developed alongside those relating to the Intervention Criteria when this has been established.

Quantitative data will also be used to identify areas of congestion, as well as to estimate the benefits of any proposed remedies and to prioritise actions to be taken.

### **5.4.4 The Ring Road**

Greater Nottingham has a traditional highway pattern comprising a network of radial routes leading to the Inner Ring Road which defines the core of the City Centre. Strategic orbital movements are accommodated on a partial Ring Road which runs around the south, west and north of the conurbation, with an intermediate boulevard system serving more local trips. The Ring Road suffers severe congestion problems throughout the day but

particularly during the peak periods, affecting all users (private cars, public transport and freight). As a result it does not provide an attractive enough route for many cross-city journeys. It is proposed to develop and introduce a scheme aimed at improving the attractiveness of the route through reducing congestion, making better use of this important strategic section of the network, improving journey times and reliability for buses and providing traffic relief to the congested City Centre. This is expanded in the Major Schemes section contained in Chapter 12: Implementation Programme.

## **5.5 Parking Policy**

Parking policy is one of the most powerful tools available to local authorities in managing travel demand in terms of location, pricing and times of availability. Both authorities recognise the need to adopt an integrated approach to controlling parking provision and its use in the context of land use and transport planning. A joint parking strategy was adopted which seeks to balance the demands for parking in a way which maintains economic viability and reduces congestion.

The strategy sets the context for an integrated demand management approach to managing parking in the Plan area and adopts a comprehensive restraint based approach to managing parking provision, based around the following elements:

- On-Street and Off-Street Parking Controls,
- Restraint based development control policies, and
- Workplace Parking Levy (City only).

The nature of travel patterns in the Plan area are such that greatest demand for parking exists in the City and district centres, and to a lesser degree around employment sites and major leisure facilities such as the football grounds and the National Ice Centre. The parking policies adopted have been developed to respond to these pressures in a manner consistent with Government Guidance as set out in PPG 13, PPG 6 and Regional Planning Guidance.

### 5.5.1 On-Street and Off-Street Parking Controls

Demands for on-street parking are varied, relating to commuter or business use close to employment sites, shopping or tourism related uses close to the City, district centres and shopping centres on radial routes and residential demands in areas of high density housing with limited parking provision off street. As pressure to use land more efficiently increases, off-street parking provision will become more restrained and reduced and it will become more necessary to manage and prioritise the use of on-street parking carefully.

In the mid-1990s a Controlled Parking Zone (CPZ) was introduced in the City Centre. This meant that the usage of every section of kerbside space was controlled by a Traffic Regulation Order which was aimed at rationalising on-street parking provision and providing short-term parking for shoppers and visitors.

However, a shortfall in adequate levels of enforcement resulted in widespread abuse of the CPZ, so in response the City Council introduced on-street parking charges in 2001 using a system of pay-and-display meters. These permitted short-term parking only and provided the resources to enforce parking bays, but not for other parking violations.

Building on these steps, the City Council introduced Decriminalised Parking Enforcement in October 2002. This gave the authority the powers to enforce all on-street parking throughout the City's administrative boundary. The County Council are now also pursuing the introduction of Decriminalised Parking Enforcement which will contribute to the reduction of congestion throughout the whole Plan area.

The powers to enforce parking offences effectively has significantly increased the ability to manage the network and ensure that short-term parking spaces are not used/abused by commuters and remain available for shoppers and visitors. The alternatives for commuters without a parking space provided by their employers are limited to using commercial off-street parking, Park and Ride or transfer to other sustainable modes.

## 5.5.2 Residents' Parking Schemes

Residential areas, throughout the conurbation, subject to external parking pressures will continue to be considered for residents' parking schemes subject to resources being available. As City Centre parking has become more restrained through pricing and effective enforcement, these pressures increase and additional restrictions and enforcement need to be put in place. In addition, the level of parking control within residential areas along the route of NET Line 1 was increased to ensure that informal Park and Ride associated with the new tram-line did not exacerbate local parking problems.

## 5.5.3 Management and Control of Off-Street Provision

Off-street parking provision comprises:

- Public off-street parking (multi-storey and surface car parks),
- Park and Ride (tram based, bus based and rail based), and
- Private (non residential) parking.

The charging structure of the various types of parking controlled by the authorities seeks to prioritise short term shopper and visitor parking in the City and district centres, with progressive increases in the charges for longer term parking. Charges for Park and Ride are also set to be consistent with the parking strategy. The off-street parking pricing policy seeks to discourage all day commuter parking. Although a certain amount of this is available, the cost is prohibitive to many users and certainly far in excess of using the alternative, more sustainable modes.

The establishment of a WPL in the City would complement other on-street and off-street parking policies and allow a comprehensive, strategic view to be taken over the priority and use of car parking. This should enable a significant step change in progress to be made in respect of travel demand management and corresponding outcomes in terms of LTP2 targets.

The level of provision of parking is managed in a manner to complement the guidance in PPG13 and PPG6. Active controls are in place to minimise the availability of long-stay commuter parking through the rigorous application of parking standards and pricing

mechanisms through planning conditions and obligations placed on developers. The attractiveness and vitality of the City as a key retail and leisure destination in the region is however maintained through the provision and promotion of short stay spaces. Both these are also boosted through tram and bus Park and Ride facilities as set out above.

Significant new developments will change the current extent of provision but will also favour short term parking for visitors and shoppers. These include Broadmarsh, Trinity Square and Eastside Island Site redevelopment schemes.

In addition, investment in car park management systems as detailed earlier in this chapter will help maximise the use of existing provision and minimise the impact of congestion associated with circulating traffic.

The need to protect the role of the City and district centres in the face of external competition and the developing use of e-commerce will however remain a priority and be kept under review. Particular emphasis will be placed upon the monitoring of the performance of the City and district centres through the new Annual Monitoring Report as required by the Office of the Deputy Prime Minister. Adjustments to the supply of short-term shopper and visitor provision will be considered in the light of this performance and the policies contained in the City of Nottingham Local Plan and the emerging Local Development Scheme and Framework.

### 5.5.4 Cycle Parking

There are over 800 public cycle parking spaces within the City including secure cycle lockers within City Centre car parks. The authorities will continue to increase the number and quality of cycle parking which is considered by cyclists as one of the most important elements of cycling infrastructure provision.

### 5.5.5 Restraint Based Development Control Policies

Parking standards for new development have an important long-term role to play, and this is reflected in PPG 13 which requires a more restraint based approach to parking provision. Parking provision has a major influence in determining modal split, and historically more spaces have been allowed in the less sustainable, out-of-town locations encouraging car dependent businesses to disperse from more restrictive central locations.

A study of the sub-region was undertaken to inform and recommend an appropriate review of car parking standards. The study concluded that a review of existing standards is needed, and this should concentrate on employee provision. A methodology is applied by all local planning authorities to achieve more consistent maximum parking levels for new employment development and has now been incorporated in the Regional Transport Strategy. Parking Standards are however being further reviewed to inform the review of the Regional Transport Strategy.

In recognition of the powerful role parking controls play in managing travel demand and modifying behaviour, the City Council adopts challenging parking standards within its Development Plans. In the City, even more restrictive parking standards are adopted than those suggested in PPG13, particularly for new office development. The authority currently imposes maximum standards of 1 space per 40m<sup>2</sup> outside the City Centre and 1 space per 100m<sup>2</sup> within; PPG13 suggests 1 space per 30m<sup>2</sup>.

The Parking Standards require restraint level parking in suburban areas so that employment will not be attracted by easy parking arrangements away from central, accessible areas.

While the level of demand for parking is not as high in district centres compared with the City Centre, it is still important to balance access by car with that by public transport, cycling and walking.

Existing policy is being applied rigorously through the development control procedures.

Planning permission for major development that is likely to generate additional journeys will be granted subject to conditions or planning obligations to secure the following:

- The implementation and ongoing monitoring of an approved travel plan for the development to reduce car use,
- New or improved public transport access to the site, including the provision of infrastructure and/or financial support for bus, tram, Park and Ride or rail services;
- New or improved pedestrian and cycle access/facilities in the vicinity of the site, and
- Off-site highway works to facilitate public transport and walking and cycling access to the site and mitigate the impacts of development traffic in local residential areas.

## 5.6 Local Charging and the Transport Innovation Fund (TIF)

Work towards the development and implementation of a Workplace Parking Levy (WPL) scheme within the City is continuing. The scheme would secure faster progress towards congestion reduction, increased public transport provision and usage and other key targets, particularly when the full impact of the revenue expenditure is also taken into account.

The City Council considers the introduction of a WPL scheme offers the potential for short/medium term transport benefits to be realised in a financially efficient manner in advance of the potential establishment of a national Road User Charging (RUC) scheme.

Further detail on the Workplace Parking Levy scheme is contained within Chapter 12: Implementation Programme. The Chapter also outlines how the authorities are proceeding in relation to opportunities associated with the Government's Transport Innovation Fund.

## 5.7 Linking of Programmed Schemes with Congestion Priorities

Table 5.5 sets out the areas of investment within the LTP programme that will contribute towards the Tackling Congestion strategy as set out above. These relate to the LTP2 Scheme Assessment matrix contained in Chapter 12: Implementation Programme, Table 12.4.



Table 5.5: Areas of Investment and Links with Tackling Congestion

	Improving Transport Choices	Making Better Use of Existing Infrastructure	Parking Policy
<b>Bus priority schemes:</b>			
Whole route treatments		√	
Eastside Transport Strategy	√	√	
<b>Public transport interchanges:</b>			
Upgrading of interchange facilities	√	√	
<b>Park and Ride schemes:</b>			
Park and Ride expansion	√	√	√
<b>Bus infrastructure schemes:</b>			
Bus location and electronic information	√		
Ticketing	√	√	
<b>Pedestrian and cycling schemes:</b>			
Pedestrian routes	√		
Shared pedestrian / cycle network	√		
Cycle network	√		
<b>Smarter travel choices:</b>			
Travel plans	√	√	√
Other behavioural change measures	√	√	√
<b>Traffic management:</b>			
Intelligent transport systems		√	√
Highway directional signing		√	
<b>Other:</b>			
Decriminalisation of parking enforcement		√	√



## 5.8 Congestion Monitoring, Modelling and Target Setting Appendix

### Monitoring

The City Council has played a leading role in discussions with the DfT and the nine other large English conurbations (London, West Midlands, West Yorkshire, South Yorkshire, Greater Bristol, Tyne and Wear, Merseyside, Greater Manchester and Leicester), in the formulation of the indicator for urban congestion (LTP7). Following much debate and deliberation the DfT has decided to use average journey time per person mile related to the change in travel expressed in person miles. The indicator will be surrounded by a basket of other indicators as background information, such as area wide network speeds, occupancy or bus mode share on the targeted routes, area wide traffic (LTP2) and changes in peak period traffic flows to the City Centre (LTP6). The final composition of these supplementary indicators is still to be decided.

A comprehensive programme of surveys commenced in Autumn 2005 to monitor baseline congestion levels on all the main radial routes in the conurbation and on the A6514 Ring Road orbital route. The routes are shown in Figure 5.2 and will be monitored as follows:

Key routes (Autumn 2005, then repeated annually)

1. A610 from A6096 junction Awsworth to Canning Circus,
2. A611 from south end of Hucknall Bypass to Mansfield Road,
3. A60 (N) from Leapool Roundabout to Huntingdon Street,
4. A612 from Burton Joyce to Pennyfoot Street,
5. A6011/A60 from Gamston Roundabout to Canal Street (via Lady Bay Bridge),
6. A6011/A6520/A60 from Gamston Roundabout to Canal Street (via Trent Bridge),
7. A60 (S) from Ruddington to Canal Street,
8. A453 from Ring Road to Castle Boulevard,
9. A6005 from County Boundary to Wilford Street, and
10. A6514 Ring Road from Derby Road to Mansfield Road and return.

Other radial routes (Spring 2006 then repeated bi-annually)

11. A609 from Trowell to Canning Circus,
12. A6002/B682 from Moor Bridge to Mansfield Road,
13. A6002/B682/unclassified from Moor Bridge to Alfreton Road,
14. B684 from Woodborough turn to Huntingdon Street,
15. B686 from Colwick Loop Road to Manvers Street and
16. A606 from Tollerton to Loughborough Road.

For each route surveys are carried out on a Tuesday, Wednesday and Thursday in the morning peak period (07.00 to 10.00 hours), inbound to the City Centre on the radial routes and in both directions on the Ring Road. Each route is divided into segments; the start and end points of these being where significant changes in people movements take place, eg. at major road junctions or bus stops. Car, light van, heavy goods vehicle and bus occupancies are monitored at each survey point along with a classified passing count for all motor vehicles. In addition

vehicle registration number surveys are carried out for buses so that bus journey times can be derived for each segment of the route. It is not necessary to monitor non-bus journey times as these can be derived from ITIS GPS based data provided by the DfT.

**Baseline Data**

Provisional baseline data for the key routes monitored in Autumn 2005 is outlined in Table 5.6 below. Due to the serious delay in the delivery of ITIS data from DfT it has been necessary to use the Authorities’ own moving observer journey time data for non-bus traffic. ITIS data is expected in March 2006, at which time it will be incorporated into the baseline calculations and the figures updated.

**Table 5.6: Provisional Baseline Congestion Data - Key Routes Autumn 2005**

Route	Average Journey Time per Person Mile (Seconds)	Person Miles Travelled
A610	196	49,850
A611	290	16,550
A60(N)	276	30,900
A612	207	20,700
A6011/A60	272	13,900
A6011/A6520/A60	251	20,550
A60(S)	217	20,700
A453	210	6,150
A6005	215	29,250
A6514 clockwise	206	25,250
A6514 anti-clockwise	216	27,950

**Targets**

The deadline for setting a target for the congestion indicator has been extended to July 2006 due to the delay in the delivery of ITIS data. The authorities’ strategies to tackle congestion are clearly set out in sections 5.3 to 5.7 above and a comprehensive and robust survey programme for monitoring congestion in Greater Nottingham has been established. A database has been developed to automatically analyse the base data collected, incorporating statistical tests for potential survey errors and allowing for simple sensitivity testing by varying future projections in people movements and journey times to quantify future changes in the indicator. This, combined with the modelling outputs outlined below, will form a sound base for target setting. However, the authorities would not wish to set any targets until the ITIS data is available and has been fully validated.

## Modelling

The Nottingham Multi-Modal Transportation Model (NMMTM) was used to identify the contribution that investment strategies will have on delivering key transport performance targets, in particular with respect to the Tackling Congestion Shared Priority. The model was developed, inter alia, to support the Annex E Appraisal of the Major Integrated Transport Scheme for the City Centre, the 'Turning Point' which received full acceptance in October 2003, and has been used as the tool to assess options and provide outputs to inform the A52 Bingham to Clifton Bridge Multi-Modal Study commissioned by the Highways Agency and GOEM. It is also being used to assess the transport impacts of NET Phase 2, large scale development proposals, the Ring Road Major transport scheme and Nottingham Station Masterplan.

## Outputs

Outputs from the model were used to quantify the level of impact that the LTP will deliver and enable a more analytical, evidence-based approach to target setting to be adopted.

The key indicators for which modelled outputs were used to assess impacts include:

- Traffic flows– AADT across the Plan area and peak hour flows into the urban centre,
- Vehicle delays and person delays,
- Mode split,
- Public transport passenger numbers – bus and tram, and
- Park and Ride usage – bus and tram.

## Forecast Year Assumptions

All tests were undertaken for 2011 (as this represents the final year of the second full LTP period) and included committed transport schemes and current City / County forecasts for economic development growth factors.

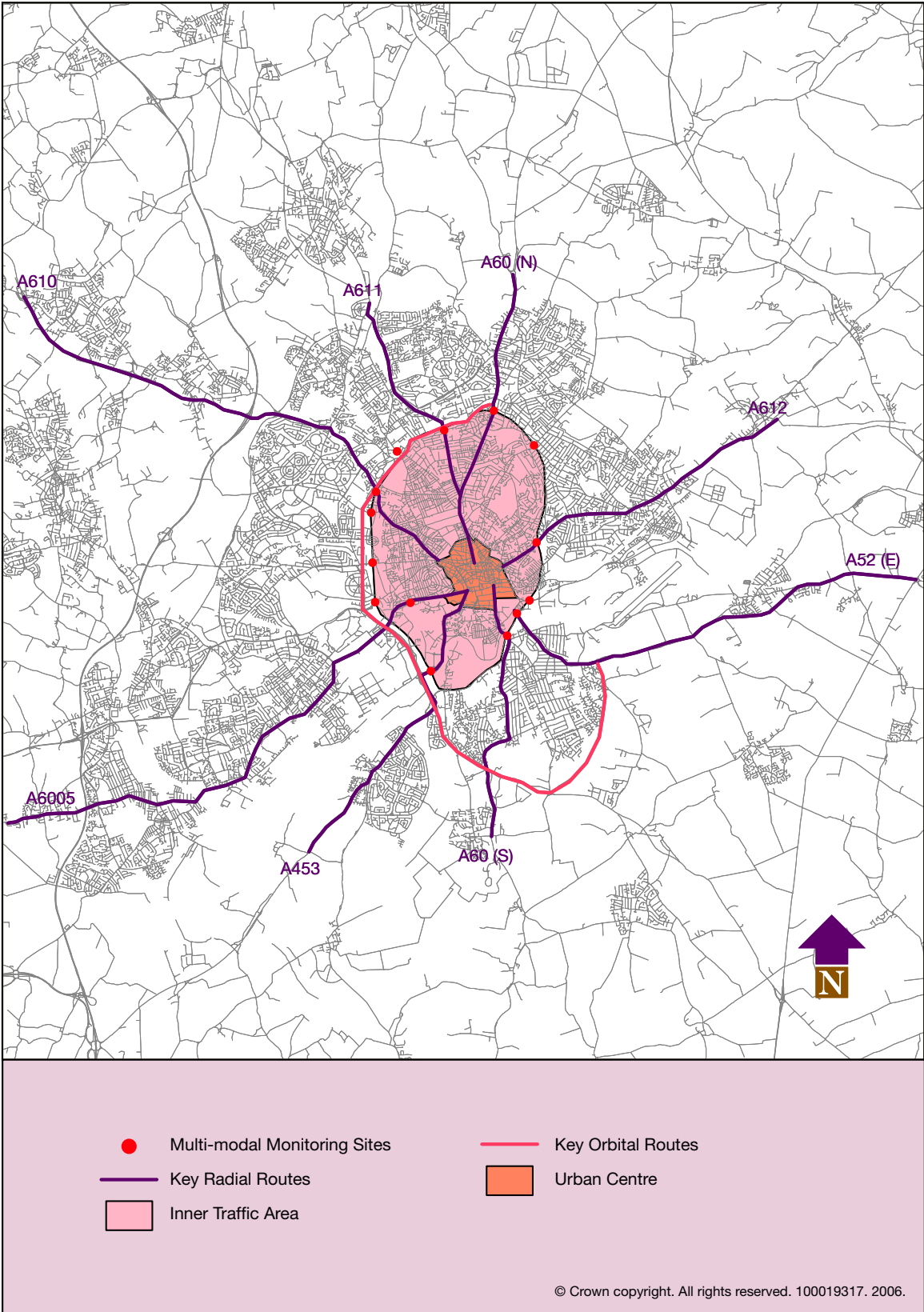
The LTP2 scenario includes the areas of investment programmed within the next LTP which are within the range of sensitivity of the model and include the programme of Bus Quality Partnership priority schemes and the Gamston Park and Ride site. It has not been possible to model all the measures included in the LTP investment programme (as described in Chapter 12: Implementation Programme) and it has therefore been necessary to approximate the impacts of some measures on the basis of experience from LTP1 and impacts elsewhere. In accordance with the LTP guidance the impacts of proposed major schemes have been modelled separately.

## Analysis and Reporting

Analysis and reporting of results is based upon outputs from the NMMTM. Impacts are presented at a Plan area and tight urban centre area level.

LTP-Wide Assessment - to reflect the wider opportunities available for route and mode choice, the impacts of transport interventions at the wider spatial level were analysed on a transport corridor or sector (north/northwest, west/southwest and south/southeast/east/northeast) and aggregate basis. These broad corridors include the key routes, NET (Line 1), Park and Ride sites and frequent bus service routes.

Figure 5.2: Urban Centre and Key Routes



Within these three sectors the impacts of the investment options were assessed at a disaggregate level but reported and presented on an aggregated basis as appropriate.

Urban Centre - this is defined as the Nottingham Local Plan City Centre area. The impacts of transport investment was considered globally within this area and the results will be presented on an aggregated basis. The urban centre area and key routes are indicated in Figure 5.2.

### Target Setting

The outputs from the model were used as the basis to inform the target setting process for indicators relating to traffic flow, public transport usage and informing the development of congestion targets. More information on indicators and targets, their measurement and monitoring can be found in Chapter 13: Targets and Monitoring.

### Model Development

Along with similar models in use in Derby and Leicester the NMMTM is being used to inform the development of the regional land-use and transport interaction model PTOLEMY (**P**lanning **T**ransport and **L**and-use for the **E**ast Midlands Economy). This model is being developed and funded jointly by a partnership including the East Midlands Regional Assembly, the emda, the Highways Agency and Nottingham East Midlands Airport.

