

## **2. PLANNING AND LAND USE**

### **2.1 INTRODUCTION**

2.1.1 Recognition of the intrinsic linkage between land use planning and transportation planning has been fundamental to the A453 MMS Study process. This has a particular focus in terms of the context for the development of transport strategy and the forecasting of the future patterns and characteristics of travel using the transport model. These forecasts form the main basis for the development and assessment of the transport strategies and options described in later sections of this report.

2.1.2 A fundamental input required for this process is to be able to reflect as accurately as possible future land use changes in and around the Study area. This can then be accounted for through the transportation modelling process and future strategy, and thus unsure that the transport options that come forward for testing will be based on a robust and defensible methodology. Clearly, this is not a simple task as the time span for the Study implies the need to address these factors over a 20-year period, which extends well beyond the 2011 expiry of current Local and Structure Plans. The team has therefore had to develop a methodology to enable analysis to progress beyond current thinking.

2.1.3 In addressing the future year planning and land use projections for the A453 Study Area the timescale has been broken down into two distinct periods, these being:

- 2000 - 2011 reflecting time frames for Local and Structure Plans, and
- 2012 - 2021 reflecting the remaining study timescale.

2.1.4 This is compatible with a Study base year of 2000 as a reference point and for validation of the transportation models, an intermediate forecast year of 2011 and main forecast year identified within the Study brief of 2021.

2.1.5 Single planning scenarios have been prepared for the base year 2000 and the intermediate forecasting year 2011 reflecting the robustness of data available for these years. For 2021 a 'base-case' has been identified reflecting a most likely outcome, and sensitivity tests defined to reflect uncertainty over the period beyond existing Structure and Local Plans.

### **2.2 APPROACH**

#### **Outline**

2.2.1 The travel characteristics of the Study area comprise a mixture of longer distance strategic movements coming to or passing through the Greater Nottingham area, movement between Derby and Nottingham and their respective hinterlands, and local movements within the Study area. Both the Transport Model and planning data needs have been specified to reflect this context.

2.2.2 The estimation of current and future planning and land use characteristics has been addressed by utilising both local and national data sources as follows:

- The DTLR National Trip End Model (NTEM) database. (NTEM is a database created by the DTLR from statistical records to provide a national picture of travel demand arising from the current and future pattern of housing, employment, shopping etc.)
- Regional Planning Guidance and the East Midlands Regional Local Government Association (EMRLGA) Group
- County Structure Plans
- Local/Unitary Authority Development Plans
- Consultation with County/Borough and City Council Officers
- Data from Local Authorities.

The NTEM database has been adopted as the main framework for the preparation of Study planning input in that it provides:

- National coverage recognising local authority advice but controlled to national and regional forecasts.
- Data for 5 yearly intervals during the plan period and to a level of detail (e.g. breakdown of total population to social/behavioural groups) appropriate for input to the transportation models.
- Consistency with other MMS studies in progress locally and nationally.
- Compatibility with Local Authority County, District and Ward boundaries on which the Transport Model zoning system is based.

2.2.3 For Core Districts relating to the Study area, detailed comparisons have been made with data and advice available from the Local Authorities. In some cases local data has been used to adjust/substitute for NTEM data to provide the essential local focus to the Study. These Core Districts are identified in Table 2.1.

**Table 2.1 Core Districts for Assessment of Planning Data.**

<b>Nottinghamshire</b>	<b>Derbyshire</b>	<b>Leicestershire</b>
Ashfield Bassetlaw Broxtowe Gedling Mansfield Nottingham Rushcliffe	Derby City South Derbyshire Erewash	Charnwood Leicester City North West Leicestershire

2.2.4 Much of the work undertaken related to the preparation of population and household data comprising the main determinants for personal travel. Whilst every effort was made, no suitable source of employment data was identified independent of that on which NTEM data was based, so NTEM based employment data was adopted directly for all Study reference years.

2.2.5 This report provides an outline of the approach to preparation of Study planning data inputs and presents summary results.

### **Study Zoning System**

2.2.6 Population, household and employment data were prepared for each of the 192 zones comprising the analysis units of the Transport Model. Fully described in the Model Development and Validation Report, zones were defined to be compatible with Local Authority Ward, District and County boundaries, with the finest scale in the core Study area and the urban areas of Greater Nottingham and largest scale in remote areas. The NTEM planning database was provided at an intermediate 'NTEM Zone' level comprising 3-6 NTEM zones per District and only a single zone for Unitary Authority areas including Nottingham City and Derby City.

2.2.7 Breaking down of NTEM data to the A453 model zoning system was a key element of data preparation, especially for the forecast years.

### **2.3 DATA FOR YEAR 2000**

2.3.1 Population, household and employment data for each model zone for the year 2000 was initially prepared by interpolation between NTEM data sets for 1998 and 2001. Uniquely, the 1998 data was provided at Ward level and this greatly facilitated breakdown to the A453 MMS zoning system.

2.3.2 NTEM population data was compared with independent data provided for Nottinghamshire, Derbyshire and Leicestershire by the Local Authorities. There was a good correlation generally between data sources at District and at NTEM zone level giving a high level of confidence in the data. However in Rushcliffe District, the balance between West Bridgford and the remainder of the District was adjusted to match the Local Authority advice. Comparisons were also made at MMS zone level for the Core Districts identified in Table 2.1, following which the population distribution between zones was adjusted to match local data in the following districts:

- Nottingham City
- Gedling
- Broxtowe
- Rushcliffe
- Erewash and
- North West Leicestershire

### **2.4 DATA FOR FUTURE YEARS**

#### **General Approach**

2.4.1 Having established an accurate set of base year planning data, it was necessary to derive planning data both for the intermediate forecast year of 2011 and the Study design year of 2021. Both population and employment data have been derived using a number of sources using a two-stage approach:

- Estimation of Study Adopted data for NTEM zones at 2011 and 2021; and
- Distribution of Study Adopted data to A453 zones.

Within this approach the following steps have been followed:

- Obtain 2011 & 2021 NTEM data (District & NTEM Zone Level);
- Obtain 2011 & 2021 Local data;
- Comparison of alternative data sources;
- Local Consultation;
- Establishment of Study Adopted Data set(s) by disaggregation of District level data to NTEM Zone level; and
- Disaggregation of Study Adopted Data set(s) to A453 Zone level for modelling.

Whilst the basic approach has been the same for both the forecast years, some adjustments have been necessary to take account of the availability of local data.

- 2.4.2 Similarly to the base year, emphasis was placed on the more important population and household data as this directly influences the level of travel demand. No independent data was available for employment so NTEM data was broken down directly to MMS zone level using best available local information.

#### **FORECAST YEAR 2011**

- 2.4.3 Planning data for 2011 was prepared in consultation with District Planning Officers within the framework of Local and Structure plans. For Rushcliffe District this activity coincided with the Public Inquiry into the Local Plan, and data was based upon planning officers best advice.
- 2.4.4 Comparison of district population totals from NTEM and Local Authority sources over the core districts showed generally good correlation save for Gedling (12.5% differences), Nottingham (8.4%) and South Derbyshire (10.5%). For these districts, local authority totals were substituted into the database. The breakdown of district total population to MMS zones was undertaken based upon site specific development information provided by the local authorities and summarised in Working Paper 18. The resulting 2011 zone totals were checked for logical progression from the year 2000.
- 2.4.5 For employment data, no suitable independent criteria could be identified and breakdown to MMS study zones was undertaken using proportions calculated from year 2000 data but incorporating advice from planning officers, summarised in Working Paper 18.

#### **FORECAST YEAR 2021**

- 2.4.6 To prepare data for 2021, the procedure was adjusted to reflect the greater level of uncertainty associated with this longer term scenario for which Structure and Local planning policies have yet to evolve.

- 2.4.7 The two main changes to the approach were:
- a) Local data input was based upon Regional Planning Guidance (RPG) through advice from planning officers of the EMRLGA.
  - b) A 'base case' was established representing a most likely future land use scenario with sensitivity tests identified to examine the implication of locally important variations.
- 2.4.8 Base case forecasts were again based upon the adoption of the NTEM database as the strategic data source in order to maintain consistency with the national and regional context for MMS studies. Modifications incorporating local data were confined to the Core Districts identified in Table 2.1.
- 2.4.9 For population and households, local data was substituted for the following districts in agreement with the EMRLGA group:
- Derby City
  - South Derbyshire
  - North West Leicestershire
  - Nottingham
  - Broxtowe
  - Gedling
  - Newark
  - Rushcliffe
- 2.4.10 Consultation with the EMRLGA group, Nottinghamshire County Council and Nottingham City Council highlighted that the NTEM projected population for the City was unrealistically high. Lower local forecasts were substituted, and the excess population redistributed around the South Nottinghamshire Districts. Examination of the predicted growth from 2011 also identified unlikely reductions in population for Gedling and South Derbyshire and 2011 forecasts were adopted for 2021 to resolve the apparent anomaly.
- 2.4.11 Breakdown of the resultant NTEM zone populations to MMS zones was undertaken recognising guidance on the more likely scale and location of development provided by the planning officers. This is summarised in Working Paper 18.
- 2.4.12 It is important that these forecasts are reflected in the distribution from NTEM Zone level to A453 Zone level for use in the modelling process. Whilst not generally specific in terms of the scale of development, the information received locally in relation to the 2021 period represents the most realistic predictions for the pattern of development in the area. By applying this process to the distribution adjustments have been made in and around the core area to reflect the best information available.
- 2.4.13 Again, it has not been possible to obtain independent locally determined estimates of 2021 employment levels. The local authorities do not produce figures for this long-term period.

2.4.14 The RPG states that over 5,600 Ha of land is committed for employment development and that both the EMLRGA and East Midlands Development Agency (EMDA) are of the opinion that this level of provision will be sufficient to meet their growth aspirations. Some doubt has been cast over the accuracy of these figures by the report of the panel from the Public Examination into the RPG. Questions are raised as to the level of analysis of the data and suggestions made that a clearer framework for economic development in the region through a comprehensive approach to addressing future land supply and need should be found. Given the uncertainties that exist in relation to the employment data from the RPG, and in the absence of any other data source, the approach has been to take the NTEM employment projections for 2021 and apportion them on the basis of an adjusted 2011 distribution. (This has been based on the Local Authority consultations and the identified spatial implications of the RPG). This ensures that, as far as possible, the local perspective continues to be reflected through the methodology.

## **2.5 LOCAL DEVELOPMENT ISSUES AND SENSITIVITY TESTING**

2.5.1 In order to recognise the considerable uncertainty of forecasting to 2021, a series of sensitivity tests has been defined to address the main aspects of uncertainty raised in consultation with the EMRLGA officer group. These may be summarised as follows:

- a) Scale and location of development in Rushcliffe
- b) Scale of growth at Waterside in Nottingham City
- c) Potential distribution depot near M1, Junction 24
- d) Growth of East Midlands Airport

2.5.2 Rushcliffe District Council has expressed concern about the scale of population growth for the District implied in the Base Case figures and has also advised of the considerable uncertainty of the distribution of population growth between the main potential sites at RAF Newton and Edwalton. The Study team is also aware of the potential housing site at Clifton Pastures to the south west of Clifton, which previously featured in the Local Plan but is not currently favoured by the District.

2.5.3 Nottingham City Council has indicated possible different levels of housing development at Waterside on the Southern fringe of the City Centre.

2.5.4 Recent uncertainty regarding the outcome of the Public Inquiry into alternative sites for a Distribution Depot in the vicinity of Junction 24 has been resolved by the Inspector recommending the site of the former Castle Donington Power Station. This assumption had already been incorporated into the Base Case on advice of the Local Planning Office.

2.5.5 The East Midlands Airport has considerable potential for the growth of movements of passengers and airfreight, but the likely scale of growth is uncertain pending government consideration of the findings of a DTLR sponsored study of future air traffic at London and in the Regions (RASCO). Pending the results of the RASCO study, the Study Team has identified two potential development scenarios in consultation with the airport operators:

- a) Maximum utilisation of the existing facility would imply approximate doubling of air passengers from just over 2 million passengers per annum in 2000 to around 4mppa. Growth beyond this point would require a major planning approval and reconsideration of the airport land transport strategy. This assumption has been adopted for the Base Case 2021 and also for 2011.
- b) Further doubling of patronage to 8mppa. Due to uncertainty associated with the transport strategy associated with planning permissions for such expansion, this can only be considered as a sensitivity test.

2.5.6 Three sensitivity tests were defined to examine the implications of different assumptions on the robustness of the transport strategy. The range of alternative development assumptions is summarised in Table 2.2, where the Base Case assumption is shown in emboldened text.

**Table 2.2 Alternative Development Assumptions for Key Sites**

Site	Description	Sensitivity
<b>East Midlands Airport</b>	The RPG seeks to limit the growth of East Midlands Airport in policy terms to simply that development directly associated with air travel. However, this does not mean that there will not be varying levels of growth associated with the rise in use of the airport.	Usage: <ul style="list-style-type: none"> <li>• <b>4 Million passengers per annum.</b></li> <li>• 8 million passengers per annum</li> </ul>
<b>RAF Newton</b>	The growth in population at RAF Newton is dependent on a number of factors and could vary significantly.	Growth: <ul style="list-style-type: none"> <li>• 500 homes</li> <li>• <b>1500 homes</b></li> </ul>
<b>Edwalton Housing</b>	Put forward by Rushcliffe Borough Council with an aim for 2250 homes. The level of development will effect directly the A453.	Growth: <ul style="list-style-type: none"> <li>• <b>1125 homes</b></li> <li>• 2250 homes</li> </ul>
<b>Waterside Regeneration, Nottingham</b>	Focus for housing & regeneration in central Nottingham. Currently aiming to provide significant housing.	<ul style="list-style-type: none"> <li>• <b>3000 homes proposed.</b></li> <li>• Sensitivity of +1000 homes</li> </ul>
<b>Clifton Pastures Housing</b>	Former Local Plan site south-west of Clifton, predominantly housing.	<ul style="list-style-type: none"> <li>• <b>Nil</b></li> <li>• 2000 homes</li> </ul>

2.5.7 The sensitivity tests may be summarised as follows:

- a) Double patronage at East Midlands Airport (to 8mppa)
- b) Transport Strategy viability with Reduced growth in Rushcliffe  
Rushcliffe population at 2011 level (-10,600 = - 4000hh)  
Reduce Edwalton (-1125 hh) Newton (-1500 hh)  
Distribute remaining reduction in Rushcliffe.

- c) Implications of Concentrated Housing Development
  - Add Clifton Pastures (2000hh)
  - Maximise Edwalton (2250hh)
  - Distribute balance in Rushcliffe

2.5.8 The purpose of these tests has been to assess the robustness of the transport plan rather than to determine land use policy which is the prerogative of others.

## **2.6 DISTRIBUTION OF GROWTH**

2.6.1 The forecast changes in population adopted for the A453 MMS for the period 2000 to 2021 (Base Case) are shown in Table 2.3 for each District within the 3 Counties of Nottinghamshire, Derbyshire and Leicestershire. The same table shows the NTEM base data and local forecasts derived from the advice provided by the EMRLGA/RPG group of officers for 2021.

2.6.2 Overall, the forecasts from local guidance based on the RPG are lower than the national NTEM forecasts, especially in the three cities. The Local data for 2021 indicates only 0.5% increase in the population of Nottingham. Of the districts with most potential for contributing to travel in the A453 corridor, Rushcliffe has particularly high forecast growth both in NTEM (13.8%) and RPG (18.2%) figures for 2021. Districts in the northern part of Leicestershire, together with South Derbyshire district, are also expected to experience high growth.

**Table 2.3 Forecast Changes in Population for Core Districts**

DISTRICT	NTEM DATA			STUDY DATA				
	2000	2011	2021	2000	2011	2021		
						RPG	Basecase/Source	
Amber Valley	116638		119647	116638	NTEM	118130	119647 NTEM	
Bolsover	71119		72561	71119	NTEM	71641	72561 NTEM	
Chesterfield	100510		105380	100510	NTEM	104044	105380 NTEM	
Derby	237589	246575	257373	237589	246575	254109	254109 Local	
Derbyshire Dales	70457		71077	70457	NTEM	70175	71077 NTEM	
Erewash	107751	108118	108994	107751	108118	107613	108994 NTEM	
High Peak	89516		95964	89516	NTEM	94747	95964 NTEM	
NE Derbyshire	98491		102697	98491	NTEM	101395	102697 NTEM	
South Derbyshire	81927	87560	93432	81927	96721	92247	96721 Local 2011	
Blaby	86947		92590	86947	NTEM	88109	92590 NTEM	
Charnwood	157753	171010	180144	157753	171010	171426	180144 NTEM	
Harborough	75888		83146	75888	NTEM	79123	83146 NTEM	
Hinkley & Bosworth	98568		108414	98568	NTEM	103167	108414 NTEM	
Leicester	298312	321920	335941	298312	321920	319684	335941 NTEM	
Melton	46717		51314	46717	NTEM	48831	51314 NTEM	
NW Leicestershire	84847	86065	89971	84847	86065	82763	82763 Local	
Oadby & Wigston	53334		59672	53334	NTEM	56784	59672 NTEM	
Rutland	37324		51191	37324	NTEM	48714	51191 NTEM	
Ashfield	108342	112427	115159	108342	112427	114332	115159 NTEM	
Bassetlaw	105444		107703	105444	106687	106939	107703 NTEM	
Broxtowe	109095	108610	108573	109905	108610	113467	113467 Local	
Gedling	108909	102120	98145	108909	114903	114903	114903 Local 2011	
Mansfield	97878		92350	97878	94130	91688	92350 NTEM	
Newark	104021		101671	104021	102293	106616	106616 Local	
Nottingham	290147	313119	328546	290147	286735	291700	291700 Local	
Rushcliffe	107452	116456	122256	107452	116456	127053	127053 Local	
Derbyshire	974000	998000	1027000	974000	1007000	1014000	1027000	
Leicestershire	940000	1006000	1050000	940000	1006000	999000	1045000	
Nottinghamshire	1031000	1056000	1074000	1031000	1042000	1067000	1069000	