

Greater Nottingham

Broxtowe Borough Council
Erewash Borough Council
Gedling Borough Council
Nottingham City Council
Rushcliffe Borough Council

Transport Background Paper December 2012



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Greater Nottingham Core Strategies Transport Background Paper

1 Background

1.1 The councils of Broxtowe, Erewash, Gedling, Nottingham and Rushcliffe have worked together to develop a comprehensive transport evidence base for their Core Strategies. Broxtowe, Gedling and Nottingham are working together to prepare aligned Core Strategies, with Erewash and Rushcliffe preparing separate documents but with a high degree of alignment with the other councils.

1.2 The councils are working closely with the three highway authorities which cover the councils' administrative boundaries – Derbyshire County Council, Nottingham City Council and Nottinghamshire County Council together with the Highways Agency which manages the M1 and trunk roads in the area. The highway authorities have supported the councils above in testing the strategic transport impacts of their Core Strategies by using the Greater Nottingham Transport Model. This background paper has been prepared in consultation with the three highway authorities and the Highways Agency. It should be read in conjunction with the Main Report and Appendices which can be found on the Growth Point web site: www.gngrowthpoint.com

2 Greater Nottingham Transport Model (GNTM)

2.1 The Greater Nottingham Transport Model was originally developed by Nottingham City Council in 2001 to cover the Greater Nottingham Local Transport Plan area. In 2008 it was updated to include new travel demand and network data. The decision was taken in 2009 to expand the model geographically to include the whole of the Nottingham Housing Market Area (HMA) at a simulation level to enable detailed junction modelling to be undertaken and provide outputs suitable to inform the aligned Core Strategies. This was jointly funded by Nottingham City Council, Nottinghamshire County Council and Derbyshire County Council, the three local highway authorities. The Greater Nottingham Transport Model is jointly owned and operated by the aforementioned three local highway authorities.

2.3 The three highway authorities and the Highways Agency have agreed a Memorandum of Understanding (MoU) which sets out an agreed approach to the methodology and use of the Greater Nottingham Transport Model for the assessment of spatial strategy options and major development¹ within the Nottingham HMA.

3 Core Strategies Transport Modelling

3.1 On behalf of the authorities listed in paragraph 1 above, Nottingham City Council commissioned consultants MVA to undertake strategic transport modelling to demonstrate the impacts of the councils' core strategies.

¹ For the purposes of this MoU major development is generally defined as residential development in excess of 500 units or development greater than 10,000 sq. m (unless clear significant impacts from smaller development sites can be demonstrated, e.g. on sensitive sections of the Strategic Route Network.)

3.2 The key objective of the study is to identify whether there are any 'showstoppers' to delivering the Core Strategies i.e. sites that could not be accessed viably, and to identify the critical strategic infrastructure required to ensure the overall Core Strategy growth can be delivered without serious compromise to the performance of the transport network.

3.3 It is a high level, strategic assessment of assumed levels of growth and focuses on the Strategic Road Network (trunk roads and principal roads) and does not attempt to identify and mitigate impacts at every junction on the local road network. These local issues will be resolved through the Development Management process and planning procedures. A plan is appended which indicates the network for priority assessment within the study.

3.4 In summary the study aims to:

1. Model the transport impacts of growth in the Housing Market Area
2. Assist in the identification of potential mitigation strategies and measures and
3. Inform the Infrastructure Delivery Plan.

3.5 The transport model includes the levels of housing and employment growth within the councils' emerging Core Strategies and incorporates an allowance for the Hucknall area of Ashfield to ensure the cumulative area-wide impacts of development can be understood. More detail on the assumed housing and employment growth is contained within the main report and its appendices.

4 General Approach

4.1 The study seeks to assess the impact of development proposed in the councils' emerging Core Strategies over a 15 year period. The strategies set out proposals for a number of large strategic sites and overall housing numbers to be delivered over the plan period. The larger sites (over 300 dwellings) are specifically identified in the model – this includes strategic sites identified in the Core Strategies and sites above 300 dwellings which may be allocated in site specific Development Plan Documents. As the details of delivery on smaller sites will be the subject of future Development Plan Documents, wider growth has been distributed by electoral ward on the basis of each council's Strategic Housing Land Availability Assessment (SHLAA).

4.2 The study employs the latest version of the GNTM originally validated to a 2008 base year which has been continually updated and improved. The model comprises three main elements, as follows:

- Highway assignment model (SATURN) which represents the highway network roads and junctions,
- Public Transport model (CUBE Voyager) which includes buses, trams and rail and,
- A Demand Model which forecasts the levels and usage of each mode of transport.

4.3 The model is provided with changes in highways and public transport networks and development proposals and forecasts future travel patterns taking into account assumptions on car ownership levels, fuel prices etc.

5 Scenarios

5.1 Three scenarios have been developed to enable comparative assessments. These are described below.

2008 Base – The base case represents the position in 2008 when the model was developed. This provides a useful bench-mark for other scenarios to be tested against.

2028 Reference Case – This includes assumptions relating to development and transport networks and represents what is likely to happen without the proposed Core Strategies.

The assumptions include:

- Residential development within the HMA constructed since 2008, sites with planning permission and sites allocated in Local Plans,
- Non-residential development within the HMA constructed since 2008 is included, however, the overall growth levels to reflect employment growth are derived from TEMPRO² between 2008 and 2028,
- Outside the HMA area both residential and non-residential growth is in line with TEMPRO forecasts,
- Transport infrastructure with committed public sector funding eg NET lines 2 and 3, dualling of the A453 etc, and highway infrastructure associated with development with planning permission, e.g. Sharphill Woods Edwalton, are included.

2028 Core Strategies – This represents the impacts of full growth proposals. The assumptions include:

- Specific residential and employment strategic sites
- Wider growth distributed by ward on the basis of each council's SHLAAs

5.2 Comparisons can be made between the scenarios to assist in understanding the relative and possible cumulative impacts. The detailed development and transport assumptions, which have been provided by local planning and highway authorities, can be found in the Main Report and Appendices.

5.3 It should be noted that the 2028 Reference Case includes development which may have already occurred since 2008 and further development which is already approved, committed or allocated (including funded and committed transport schemes). The approach taken to the transport assessment for the Core Strategies, therefore enables the councils to understand the consequences of both committed development/background growth and of additional growth in the Core Strategies, and how the impacts of this growth can be mitigated.

6 Mitigation Packages

6.1 The first stage of the study presented details of the forecast impacts assuming no mitigation, except that committed through planning obligations associated with

² TEMPRO is a data set of trip rates provided by the Department for Transport based on population and employment growth assumptions

developments with extant planning permission. The next stage assesses the mitigating impacts of a Smarter Choices Package³ and a Public Transport Package.

Smarter Choices Mitigation Package

6.2 The Reference Case and Core Strategies scenarios include the Key Component of the Nottingham Urban Area Local Sustainable Transport Fund scheme (LSTF) as this is a funded scheme. The Key Component includes:

- Smartcard Development and Integrated Ticketing;
- A Community Smarter Travel Hub in Bulwell aimed at developing more effective community approach to deliver locally focused sustainable travel advice and services;
- Provision of an enhanced package of business travel support (Worksmart); and
- Active Travel Solutions, supporting school travel plan development and delivering promotion of walking in primary schools.

6.3 As part of the Smarter Choices Mitigation Package, the main bid LSTF has been modelled. This includes rolling out the Key Component scheme to all areas of the model currently within the LSTF Key Component area. including the establishment of a Community Smarter Travel Hub in Ilkeston.

6.4 In addition to the LSTF main bid measures, targeted smarter choice packages have also been provided to each core strategy site, with the intention of providing site specific smarter choices measures such as Worksmart and personalised school and home travel planning to all Core Strategy sites.

6.5 As the GNTM does not explicitly model Smarter Choices, assumptions on the impacts of typical interventions, based on nationally accepted evidence, have been used. These include a shift to public transport through improved accessibility measures (e.g. more direct pedestrian links to bus stops) and transfer from car to walking/cycling for journeys under 5km. Both these result in reduced car trips and corresponding reductions in congestion.

Public Transport Mitigation Package

6.6 The aim of the public transport mitigation strategy is to ensure that each Core Strategy development has the benefit of high frequency, attractive bus services. Developing the strategy to serve the strategic sites involved a review of existing public transport service levels from each development to identify gaps in service. Public transport improvements to be delivered as part of the Reference Case developments were assumed to be in place.

6.7 Conservative improvements to services were then identified which were considered necessary to make the sites acceptably accessible by public transport. These included:

- Upgrading of existing bus routes to a minimum of 15 min frequency
- Extension and upgrading of existing bus routes
- Extension of existing routes with 15 min frequency (or better)

³ Smarter Choices is about making greener healthier travel choices a realistic and attractive option for journeys to work, school and leisure by encouraging workplace, school and personalised travel planning; improving public transport information and marketing; promoting car sharing and car clubs; encouraging low carbon transport; and encouraging working from home and teleconferencing to reduce the need to travel

- New 15 min frequency services

6.8 The Public Transport Mitigation scenario builds on Smarter Choices Mitigation, and therefore incorporates all changes previously made to public transport connections and walk links.

6.9 The improved bus services by site are summarised in the table below.

Table 1 – Public Transport Services

Strategic Site	District	Public Transport Improvements Modelled
Rolls Royce	Ashfield	Amberline extended/diverted to site and frequency improved to 15 min
Severn Trent/Boots	Broxtowe	Citylink 1 extended to Beeston and increased frequency
Field Farm	Broxtowe	The Two (Rainbow 2) extended into the site
Stanton Ironworks and West of Quarry Hill	Erewash	Service 14 extended to site, increased frequency and linked to i4 (Rainbow 4), Ilkeston Station, shuttle bus to Ilkeston Station and Toton NET Park and Ride
Waterside	Nottingham	Citylink 2 increased in frequency
Remainder of Boots	Nottingham	Citylink 1 extended to Beeston and increased frequency
North of Papplewick Lane	Gedling	Increased frequency of Service 141 and 228
Top Wighay Farm	Gedling	New shuttle bus service to Hucknall NET/Rail stations
Westhouse Farm	Gedling	Increased frequency of Service 141 and 228
Park Road/Hollinwood	Gedling	No improvements proposed (already receives 15 min frequency service)
Howbeck Road	Gedling	
Broad Valley Farm	Gedling	Increased frequency of Service 141 and 228
North of Bingham	Rushcliffe	Service 90 and 54, Bingham Express and Red1 diverted into the site
RAF Newton	Rushcliffe	
Clifton South	Rushcliffe	New shuttle bus service from the development to Clifton NET Park and Ride and diversion of other local services to the development.

6.10 The assumption is that the improved services will either operate commercially or be pump-primed through developer contributions (in the form of CIL or S106) until such time that they are commercially viable.

7 Outputs

7.1 Each stage of the study has produced a series of outputs to enable comparisons to be drawn between scenarios, providing an understanding of the likely cumulative impact of growth.

7.2 A range of outputs and indicators have been used to help comparisons to be made. These network wide indicators include :

- Total highway trip numbers
- Public transport modal share
- Average speeds
- Congestion expressed as Journey Time to/from Work in minutes
- CO₂

7.3 The results from the modelling and analysis are summarised in the table below which illustrates the forecast changes of each indicator between scenarios as they develop.

Table 2 - Global Indicator Comparisons

Indicator	Scenario									
	2008 Base		2028 Reference Case (Base + 22,099 houses)		2028 Core Strategies (Ref Case + 26,964 houses)		Smarter Choices Mitigation		Public Transport Mitigation	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Highway Trips (Passenger Car Units)	198,000	212,600	233,600	252,750	241,450	261,850	237,925	258,189	237,512	257,763
Public Transport Mode Share	14.7%		14.6%		14.7%		15.3%		15.9%	
Average Speeds (MPH - Network Wide)	28.8	28.1	26.9	25.6	25.6	24.4	26.3	25.0	26.3	25.0
Congestion (Average Journey to/from Work Times - Minutes)	13.7	14.6	14.7	15.9	15.4	16.3	15.2	16.3	15.1	16.2
Carbon (Mega-tonnes per annum)	1.634		2.355		2.455		2.429		2.425	

7.4 In addition to the global indicators above, detailed modelled outputs are presented in the appendices of the main report showing changes in traffic flow, (highway network), average journey times (route specific) and junction performance expressed as the ratio of volume of traffic to theoretical capacity (location specific).

Local Impacts

7.5 To help understand the local impacts of the Core Strategy sites, including traffic distribution patterns and congested junctions, some further analysis has been undertaken at a district level. Whilst the local impacts are represented in the plans included in the main report, the impacts are based on the full Core Strategy housing and employment growth.

Interpretation of Indicators

7.6 The indicators have been chosen and presented in a way to help understand the scale and severity of the impacts forecast from the assumed housing and employment growth across the Housing Market Area, and provide a residual value for these indicators assuming fairly conservative levels of Smarter Choices and Public Transport Mitigation.

7.7 It can be seen that the Core Strategy with Smarter Choices and public transport mitigation packages does not represent a significant worsening of traffic conditions across the area when comparing the 2028 Reference Case to the 2028 Core Strategies Scenario.

7.8 The highway network is forecast to be more congested in 2028 than in the 2008 situation as a result of the cumulative residual impacts of traffic. However, it can be seen that the comparison between the 2028 Reference Case and the 2028 Core Strategies Scenario, which identifies the impacts of the Core Strategies growth, over and above development which has already been developed/allocated or approved demonstrates a relatively modest worsening of impacts between these scenarios. For example, the average AM peak journey time increases from 14.7 minutes in the 2028 Reference Case to 15.1 minutes in the 2028 Core Strategies scenario.

7.9 Historic evidence would tend to suggest that it would be reasonable to expect that travellers would change their travel behaviour to respond to congested traffic conditions in an incremental way as travel demand grows and traffic conditions worsen. Accordingly it could be argued therefore that the 2028 Core Strategies modelling results represent a worst case scenario which would be unlikely to materialise. It is hoped that the continued success of sustainable transport policies promoted by the local highway authorities will continue to influence travel patterns and a shift towards more sustainable modes of travel such that the forecast residual traffic impacts are minimised.

8 Limitations and Assumptions

8.1 Transport modelling is a tool which enables the councils to understand potential strategic impacts on the transport network and the impacts of mitigation measures making reasonable assumptions regarding the likelihood of funding and delivery.

8.2 In drawing conclusions from the study, the councils have had regard to the limitations of a theoretical transport modelling exercise and in particular the need to undertake future reviews as new proposals emerge or changes take place to the transport network and public transport services. A summary of the key limitations and assumptions of the model are set out below:

- The model provides an overview of the likely transport network impacts of all growth up to 2028. It does not account for phased development over time which may result in incremental changes in travel behaviour over the plan period.
- Linked with the above, the model does not reflect the historic 'real life' experience of travel patterns in Greater Nottingham. Historic trends tend to suggest that the impacts of the Core Strategies would be less severe than illustrated in the model.
- The mitigation strategy includes conservative estimates for improvements to public transport corridors and a limited number of new interventions (such as Ilkeston Station) based on the high probability of securing funding for these schemes. However, the highway authorities have an excellent track record of securing major funding to support sustainable transport and will continue to pursue appropriate interventions over the 15 year plan period.
- The model assumes that new and existing public transport services modelled in the mitigation scenarios are not constrained by capacity which is standard modelling practice. Therefore detailed site specific transport modelling is required to further refine the model as proposals emerge. However, it should be noted that consultation on potential capacity to serve new sites has been undertaken with major transport operators. The model does not include the impacts of shuttle buses which may link sites with future NET services.

9 Key Conclusions

9.1 Based on the evidence provided through the transport modelling exercise, plus the knowledge of past experience, an examination of the global indicators leads to the conclusion that, whilst there will be an impact, the Core Strategy housing and employment growth can be delivered without significant detriment to the operation of the transport networks, assuming the delivery of currently committed schemes and delivery of the Smarter Choices, Public Transport and local highway mitigation and access improvements through the development management process and public sector funding streams.

9.2 The modelling indicates that, subject to the implementation of Smarter Choices and Public Transport measures, major strategic highway interventions are not required and there are no 'showstoppers' to prevent the scale of growth anticipated in the core Strategies coming forward. However, there will be a need for localised highway improvements on key routes informed by the outcome of route strategies and site specific transport assessments.

10 Mitigation Costs

10.1 The model assumes that Local Authorities will continue to pursue a strategy which supports the promotion of walking and cycling, the application of Smarter Choices travel planning and maximises the use of public transport.

10.2 Whilst the model is at a strategic level and detailed costs for transport mitigation measures are difficult to estimate, it is essential that the councils have a broad understanding of the likely costs of integrated transport measures and that these are realistic and affordable over the plan period. This will inform the councils' Infrastructure Delivery Plans, preparation for the Community Infrastructure Levy, more detailed Development Plan Documents and wider funding and investment programmes.

Smarter Choices

10.3 The councils have a strong track record in working with developers to negotiate Smarter Choices and public transport packages aimed at shifting travel patterns towards sustainable modes from the very first occupation of dwellings/site. At Edwalton, for example, a Section 106 agreement has been secured which includes the provision of a bus to/from the city at 10 minute intervals from 7am to 7pm for a 12 year period with free use for residents. At the former Cotgrave Colliery new bus services will be complemented by a travel package with free bus pass at occupation of new dwellings.

10.4 Whilst the cost of Smarter Choices packages will vary from location to location and will need to be assessed as part of the overall viability of a development, it is possible to estimate a cost range for Smarter Choices Packages based on previous experience.

10.5 Significant funding has already been secured for the implementation of Smarter Choices packages via the Local Sustainable Transport Fund. This is accounted for in the model as part of the Reference Case. Approximately 27,000 dwellings are included in the model beyond the Reference Case and for these dwellings it is estimated that the cost of additional Smarter Choices packages would range between £500 to £1,000 per dwelling.

10.6 The following overall costs are estimated and are included in the Infrastructure Delivery Plan:

Local Sustainable Transport Fund (secured)	£15m
Future Smarter Choices Packages	£13.5m - £27m
Total	£28.5m - £42m

10.7 It should be noted that the LSTF programme includes at least £10m to directly support public transport.

Public Transport

10.8 The model assumes that new strategic sites will be provided with a public transport service of at least a 15 minute frequency. Some sites are already well served or have the potential to be well connected with minor adjustments to existing

services. Others may require an initial developer funded subsidy to support operation of a new or extended service.

10.9 Currently approximately 89% of public transport services in Nottingham City are run commercially. In Nottinghamshire County the figure is approximately 90% and Derbyshire 85% of services are commercial. This reflects the current distribution of population in and on the edge of urban areas. The Core Strategy seeks to continue this pattern of growth in locations readily accessible by existing and new commercial services.

10.10 *Nottingham City Transport* and *Trent Barton* are the primary public transport operators in the Greater Nottingham area and have commented on the councils' Infrastructure Delivery Plan. They have indicated (without prejudice to decisions on future services) that for the most part new, development proposed in the Core Strategies is likely to be served by existing commercial services or alterations to existing services. Those sites where an initial developer funded subsidy might be required to support new or extended services are listed below:

- Waterside (Nottingham City)
- Edwalton (public transport package already included in S106)
- RAF Newton (public transport package under negotiation)
- Bestwood Village
- East Leake
- Stanton Regeneration Site (costs of public transport package included in Derbyshire County Council Infrastructure Delivery Plan and Greater Nottingham Infrastructure Delivery Plan)
- Cotgrave (public transport package already included in S106)

10.11 This does not infer that these are the only sites where contributions to appropriate transport packages will be sought as site specific integrated transport packages and contributions will be informed by transport assessments and site viability. However, it does allow broad assumptions about the general costs of provision of new services to be made. Nottingham City Council and Nottinghamshire County Council estimate the average cost of a new bus service (operating Monday to Saturday 7am to 7pm on at least an hourly basis) as approximately £125,000 to £150,000 per year per service.

10.12 These costs have been taken as a minimum requirement for the above sites and are included in the Infrastructure Delivery Plan (excluding sites where public transport packages have already been negotiated). As site specific Development Plan Documents emerge, significant clusters of smaller sites will be reviewed. It should also be noted that the existing LSTF programme includes at least £10m to directly support public transport.

Public Transport Priority - Corridor Improvements

10.13 The transport model includes modest assumptions regarding the introduction of bus priority measures on a limited number of selected routes. The highway authorities consider that it is reasonable to assume GPS bus priority systems could be introduced on at least 10 main routes during the plan period. Costs based on current GPS systems have been estimated at an average of approximately £100,000 per corridor (based on installation at 10 junctions per route). This overall cost of £1m for 10 routes has been included in the Infrastructure Delivery Plan.

10.14 In addition to the intelligent transport systems, it is reasonable to assume that some physical PT infrastructure measures (bus lanes, bus gates etc) would be desirable to realise the bus journey time improvements modelled on selected corridors. For Nottinghamshire County Council, it is estimated that the cost of this over the plan period may be approximately £10m and would be implemented subject to funding opportunities arising to support delivery.

10.15 Nottingham City's current Local Transport Plan Implementation Plan includes £500k per annum to support Bus Infrastructure Schemes, and assuming the same level of spending across the plan period, a total of £8m to £10m may be available to support such schemes.

10.16 In Nottingham City, Bus Transit Corridor schemes (such as Daleside Road at an estimated cost of £5m) will be promoted to the Local Transport Body for prioritisation but currently have no committed funding.

Major Public Transport Interventions

10.17 Three major public transport schemes are included in the transport model - Nottingham Express Transit (NET) Phase Two, Nottingham Station Hub and Ilkeston Station. NET Phase 2 and the Station Hub are both currently under construction with confirmed funding. The funding package for Ilkeston Station is currently being developed by Derbyshire County Council with £2m already confirmed by partners and a funding bid for the remaining cost to be submitted to the Department for Transport.

Highway Interventions

10.18 It is not anticipated that major highway interventions will be required over the plan period. However there will be a need for localised improvements and measures to protect the operation of the principal road network. These are likely to mainly include junction improvement schemes. The cost of local highway interventions will be determined by route strategies and transport assessments at a site specific level as part of detailed master-planning and planning application stage.

Strategic Route Network (SRN)

10.19 Transport modelling indicates that it may be necessary to consider a number of junction improvement schemes to maintain the effective operation of the SRN. These will be developed through the Highway Agency's Route Strategies but from work already undertaken it is evident that a number of junctions on the A52 between QMC and Bingham will need to be improved in order to support development in the corridor and to safeguard the operation of this strategic route. The indicative cost of these measures is in the order of £15m - £18m. In addition, M1 junctions 25, 26 and 27 will come under increased pressure as a result of proposed development in the Core Strategies and in neighbouring districts. These impacts may require localised measures to be brought forward at these junctions and this will be subject to review by the HA in consultation with local highway authorities and through the development management process.

10.20 Highway Agency funding for the SRN in the area (other than for committed schemes) is uncertain and all necessary measures may not be capable of delivery directly by developers. Potential sources of funding for such schemes are considered in Section 11.

10.21 Once the trunk road route strategies have been determined it will be necessary to consider the significance of the remaining residual traffic impacts and the need for further junction improvements on selected local highway authority corridors. The councils have identified a network of routes for which demand management will be particularly important (See key routes plan). Further transport assessments will need to have regard to these routes where relevant.

11 Sources of Funding

11.1 Derbyshire, Nottingham and Nottinghamshire Councils have an excellent track record of securing funding for and delivering sustainable transport schemes via national programmes and local negotiation. A package of funding sources will be required to deliver the mitigation measures and transport priorities outlined in this report and the Infrastructure Delivery Plan.

11.2 Site specific integrated transport packages and local highway measures will normally be expected to be supported via S106 agreements and negotiated as part of the planning application process. The authorities are mindful of the need to balance infrastructure requirements with wider viability issues and this will be assessed at the planning application stage.

11.3 Councils are currently considering the introduction of the Community Infrastructure Levy and this funding route is more suited to delivering area wide improvements such as bus priority corridors. The councils will continue to support sustainable transport measures through Local Transport Plan investment programmes and bidding opportunities such the Local Sustainable Transport Fund as they arise.

11.4 A number of interventions are likely to be required to support the efficient operation of the strategic route network including at junctions on the M1 and the A52. Funding from the Highways Agency is uncertain and developer contributions may not support all the necessary works. The councils will work to identify appropriate funding via their own Local Transport Programmes, CIL and emerging devolved local funding regimes. Indicative costs for these schemes are included in the Infrastructure Delivery Plan.

12 Further Work

12.1 The work completed to date takes a strategic approach to transport modelling and confirms that there is no requirement for any single large infrastructure scheme. Further transport assessment will be required at planning application stage as detailed proposals emerge for each strategic site. Table 3 sets out the status of transport modelling work for strategic site allocations where delivery is expected to commence in the first five years of the plan period.

Table 3 – Core Strategies Allocated Sites

Site	Location	Status
Field Farm	Broxtowe	Transport Assessment progressing as part of planning application. Developer led.
North of Papplewick Lane	Gedling	Transport Assessment progressing as part of current planning application. Developer led
Top Wighay	Gedling	Preliminary access details developed. Transport Assessment to be progressed as part of current planning application. Developer led
Clifton South	Rushcliffe	Transport Assessment to be progressed in preparing a planning application for the site. Developer led.
Melton Road	Rushcliffe	Transport requirements agreed as part of planning application
North of Bingham	Rushcliffe	Transport Assessment progressing as part of current planning application. Developer led.
Former RAF Newton	Rushcliffe	Transport Assessment progressing as part of current planning application. Developer led.
Cotgrave Colliery	Rushcliffe	Transport requirements agreed as part of planning application

12.2 As the Highways Agency's Route Strategy work develops, further consideration will be given to modelling the impact of works to preferred junctions using the GNTM. Smaller sites will be identified through site specific Development Plan Documents. The councils will need to review potential clusters of sites and their impacts on the highway network and potential mitigation measures.

12.3 As proposals emerge, developers will be encouraged to make use of the Greater Nottingham Transport Model to promote consistency of approach and the ability to consider the cumulative impacts of development.

Appendix 1 Plan of Key Routes

