

Melton Local Development Framework

Traffic appraisal of the Direction of Growth Options and associated bypasses in the Core Strategy (Preferred Options)

Introduction

1. Melton Borough Council has sought the views of Leicestershire County Council as the Highway Authority on the traffic implications of three potential strategic housing locations (A, B, C) contained in the Core Strategy (Preferred Options) development plan document.
2. The Highway Authority has carried out a traffic assessment with the use of a traffic model. In 2004 Steer Davies Gleave was commissioned by Leicestershire County Council to build a transport model of Melton Mowbray using "Saturn" software. The base network and matrix is set at year 2003. However, the strategic housing locations have been assessed on a 2016 matrix but on the 2003 network for comparison.
3. The model covers the town of Melton Mowbray. The main radial routes Nottingham Road, Scalford Road, Thorpe Road, Saxby Road, Burton Road, Dalby Road, Leicester Road and Asfordby Road are all included.
4. The traffic model is based on peak time traffic flows in the morning (8-9am) and peak time in the evening (5-6pm). An inter-peak time (average hour between 9am-5pm) has also been modelled.
5. The model assessed the effects of four possible bypass options that could each service one or more of the three strategic housing locations. However, for the purpose of this report the three best performing bypass options that directly relate to one of the three strategic housing locations have been chosen for comparisons. The bypasses and the associated strategic housing locations are shown on the plan at Appendix 1.
6. An appraisal of the 3 strategic housing locations has been carried out by:
 - i) looking at the likely traffic flow changes arising if no additional new road links are provided (i.e. the development traffic is loaded onto the existing base network);
 - ii) looking at the strategic housing locations in connection with the following 3 partial bypass options:
 - a southern and western (SW) bypass between the A606 (Nottingham Road) and A606 (Burton Road) connected to Strategic Housing Location A (estimated cost of bypass £21.7m).
 - a southern and eastern (SE) bypass between the A607 (Leicester Road) and A607 (Thorpe Road) connected to

Strategic Housing Location B (estimated cost of bypass £22.5m).

- a northern and western (NW) bypass between the A607 (Leicester Road) and A607 (Thorpe Road) connected to Strategic Housing Location C (estimated cost of bypass £20.5m).

The estimated construction costs of the bypasses given above do not include any land compensation, public Inquiry and design costs etc.

Strategic Housing Locations without a bypass

7. There would clearly be overloading on a number of radial and town centre roads if one of the strategic housing developments were to proceed without a suitable bypass. In terms of a network-wide traffic analysis, a summary of the overall impact of development at each of the 3 strategic housing locations is shown in Table 1 below and are compared to the base situation.

Table: 1

No Tempro Growth development without a bypass

	peak trips	Total Travel Time pcu hrs	Travel Distance pcu kms	Overall Average Speed kph	Average Journey Time mins	Average Journey Distance km
Base	AM	646.8	23284.1	36.0	4.9	2.9
	PM	690.4	23538.6	34.1	5.2	2.9
A (south)	AM	787.1	24509.4	31.1	5.4	2.8
	PM	842.1	25408.7	30.2	5.7	2.8
B (east)	AM	885.1	24780.9	28.0	6.0	2.8
	PM	873.1	26225.3	30.0	5.9	2.9
C (north)	AM	849.8	24640.5	29.0	5.8	2.8
	PM	845.1	26147.5	30.9	5.7	2.9

Tempro Growth: refers to local development other than that currently being proposed (allocated development but not developed)

pcu: refers to passenger carrying units

pcu hrs: refers to total time (hours) spent on the network

pcu kms: refers to total distance (kilometres) covered

8. For ranking purposes, strategic housing location A has the highest network-wide average speed followed by C, and then B. Location A also provides the shortest overall distance travelled, along with the least amount of time spent on the network.

Strategic Housing Locations with an associated bypass

9. The results of the network-wide analysis for the strategic housing locations with the relevant bypasses are shown in Table 2 below:

Table: 2

		No Tempo Growth development with a bypass				
		Total Travel Time	Travel Distance	Overall Average Speed	Average Journey Time	Average Journey Distance
peak trips		pcu hrs	pcu kms	kph	mins	km
Base	AM	646.8	23284.1	36.0	4.9	2.9
	PM	690.4	23538.6	34.1	5.2	2.9
A (south)	AM	571.6	25636.4	44.9	3.9	2.9
	PM	575.9	26657.2	46.3	3.9	3.0
B (east)	AM	623.3	25703.4	41.2	4.2	2.9
	PM	635.7	25886.0	40.7	4.3	2.9
C (north)	AM	565.3	26278.3	46.5	3.8	3.0
	PM	553.6	27625.7	49.9	3.7	3.1

This assumes if the bypasses were built today the above Table 2 needs to be compared with Table 1.

10. The strategic housing location and associated bypass which would retain the highest network-wide average speed is C (NW bypass) followed by location A (SW bypass). Location C produced the greatest relief to roads in the central part of the town. A comparison of the effects on the main town centre routes of the various strategic housing locations and associated bypasses is shown in Tables 3 to 5 below.

Table 3: Strategic Housing Location A (SW bypass)

TC Route	Base traffic flows	2016 base traffic and development (no bypass)		2016 base traffic and development (with bypass)	
	pcu	pcu	% change	pcu	% change
Norman Way	13,600	15,500	+14%	12,200	-10%
Sherrard St. /Thorpe End	9,900	11,600	+17%	7,400	-25%
Leicester St	9,000	9,800	+9%	7,700	-14%
Wilton Road	19,500	21,100	+8%	14,900	-24%
Totals	52,000	58,600	+13%	42,200	-19%

pcu=passenger carrying units. The percentage is compared against the base traffic flow.

Table 4: Strategic Housing Location B (NE bypass)

TC Route	Base traffic flows	2016 base traffic and development (no bypass)		2016 base traffic and development (with bypass)	
	pcu	pcu	% change	pcu	% change
Norman Way	13,600	16,100	+18%	12,800	-6%
Sherrard St. /Thorpe End	9,900	10,500	+6%	8,500	-14%
Leicester St	9,000	9,500	+6%	9,200	2%
Wilton Road	19,500	20,800	+7%	18,100	-7%
Totals	52,000	58,600	+13%	48,600	-7%

Table 5: Strategic Housing Location C (NW bypass)

TC Route	Base traffic flows	2016 base traffic and development (no bypass)		2016 base traffic and development (with bypass)	
	pcu	pcu	% change	pcu	% change
Norman Way	13,600	16,100	+18%	10,200	-25%
Sherrard St. /Thorpe End	9,900	11,600	+17%	6,200	-37%
Leicester St	9,000	9,700	+8%	6,200	-31%
Wilton Road	19,500	20,600	+6%	13,200	-32%
Totals	52,000	58,600	+13%	35,800	-31%

Other Development Options

11. In addition to the three large strategic housing locations, the Borough Council has indicated smaller housing locations dispersed around the north, west and south edges of the town as an alternative development option. These have not been modelled, but in terms of a town-wide impact the size and dispersed location of these sites is unlikely to result in the developments incorporating a bypass. Although equivalent financial contributions could be made to the construction of a bypass, there would be no early benefits associated with the building of new road links between some of the radial routes that would occur through the development of the larger strategic sites in order to open them up for development. A further potential issue with contributions is that in practice costs will invariably exceed the estimated figure and if the road works are actually carried out by the developer it avoids this risk falling on the authority.
12. The Borough Council also identified potential strategic employment locations that have not been modelled but should be closely sited to the bypass to minimise travel and maximise contributions to the bypass. The strategic employment area should be located along the strategic network with links to existing residential areas and the proposed strategic housing site to minimise vehicular journeys and provide opportunities for walking/cycling and use of public transport.
13. In addition to the traffic modelling work a simplistic Accessibility Matrix has also been applied to generally rank the relative public transport, walking and cycling opportunities of the strategic housing locations. This is shown in Appendix B and results in strategic housing location A being marginally better than B and C.

Conclusions

14. The strategic housing location C to the north with the associated bypass (NW) is considered to represent the best highway strategy as it is the cheapest in construction costs and provides greater relief in the town.
15. Strategic Housing location A to the south and the associated bypass (SW) is provisionally estimated to be the second best highway strategy. The bypass would be the second cheapest to build and potentially offers value for money.
16. It is likely that all the bypasses tested cannot be achieved solely by developer funding and public funding would also be necessary.
17. The A607 Leicester Road is the major carrier of heavy goods vehicles (HGV) with the majority of commercial vehicle trips being attracted to the south west as it connects to the wider trunk road network A46, M1, M69, M6, A14, A42, and A50, which leads to the major cities/ports/airports in the country. Therefore to minimise the number of new HGV trips passing through the town, the strategic employment site should be located near a bypass connecting to the A607 west of the town.

18. The strategic housing location must also be capable of securing high frequency bus services into the town and to schools and have facilities to make it easy to walk and cycle to local amenities.
19. On the basis of the Accessibility Matrix at Appendix B, the strategic housing location A to the south appears to offer the best opportunity to provide walking and cycling to local amenities at an early pre-bypass stage. However, strategic housing location C gives greater long-term benefits.
20. Additional accessibility can be achieved if the bypass (in its function as a local distributor road) has walking and cycling facilities and is in close proximity to the town but far enough away for a development to take place. The strategic housing location should have good connections to the proposed employment area to minimise vehicular journeys.
21. A final point is that this modelling work does not take account of any future employment sites.