



Melton Mowbray Distributor Road Option Assessment Report

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Appendix A. Long List of Options

Appendix B. Sifting using EAST

Appendix C. Options List for Further Assessment

1. Introduction & Options

1.1 Study Background and Objectives

This option assessment report follows previous analysis and reporting by Jacobs in terms of the Cumulative Impacts of proposed developments in Melton Mowbray, and appraisal of potential Inner and Outer 'Bypass' Options within Melton Mowbray in mid-2015, and the preceding Transport Evidence Base for Melton (Phase 1 & Phase 2 Reports) that underpin the above reports.

Further to this set of work, and the conclusions from it, Jacobs were commissioned by Leicestershire County Council (LCC) to undertake a similar modelling exercise and initial economic appraisal for a further set of highway intervention options to best support the current congestion issues in Melton Mowbray, and to support associated future growth in the town.

Key to this is the evidence base on scale and extent of current levels of traffic congestion in the town, and the scale and the scale of growth proposed.

As noted in the Cumulative Development Impacts work undertaken by Jacobs in 2015, currently traffic flows in both the north-south direction (on A606 Nottingham Road and Melton Road) and the east-west direction (on Thorpe/Saxby Road and Asfordby/Leicester Road) are restricted to the current network capacity, resulting in highly significant levels of congestion at almost all junctions in Melton Town Centre in both the AM and PM peaks.

This leads to high levels of delay, for all users either accessing, or passing through or across the town, with congestion levels especially on a delay per mile basis. Indeed, they are greater on a per mile basis than any other area of the County.

Further evidence from the Melton Transport Strategy Evidence Base (Phase 1 & Phase 2 Reports), that forms the evidence base for option identification and appraisal for key interventions in the town, demonstrates that through traffic within the town is a particular issue, especially north-south, with a requirement for an intervention to cross the river/ rail line in the town to both mitigate current congestion and traffic pinchpoints in the town, and to unlock significant further growth in the town.

As a result, main objective of this study is to assess highway options that are aimed at addressing the congestion issues within Melton Town Centre by diverting the through traffic away from the town centre onto more suitable, and local distributor roads, as well as accommodating future growth in the town.

In total four 'outer' distributor road options have been tested, which are as follows:

- A **Western Distributor Road**, the pink dashed line in Figure 1.1, Linking A606 Burton Road to the A607 Leicester Road to the A606 Nottingham road and on to Scalford Road;
- A **Northern Distributor Road** shown by the green line in Figure 1.1. This option will link A606 Nottingham Road to Scalford Road and Melton Spinney Road;
- A **Southern Distributor Road** represented by the dark blue line in Figure 1.1 joining the A606 Burton Road and the A607 Leicester Road; and,
- An **Eastern Distributor Road** presented by the orange dashed line in Figure 1.1. The Eastern distributor Road would link A606 Burton Road to the A606 Nottingham Road via B676 Saxby Road; A607 Thorpe Road; Melton Spinney Road and Scalford Road.

It should be noted that the different distributor road options (Figure 1.1) are only indicative at this stage and preferred routes have not been determined. Furthermore these are not the only options under consideration as part of the Melton Transport Strategy development, nor is the above to suggest that further public transport, walking and cycling and local sustainable measures are not important as part of complementary measures to developing an integrated and effective transport strategy for the town.

Nevertheless, given the scale of cumulative growth proposed, and the current high levels of delay (the highest of any Leicestershire town on a per mile basis), it is clear from the cumulative evidence base developed to date, that the above interventions are not only worthwhile of assessment, but are likely to form an important backbone to the final package of strategy measures required for the town.

The purpose of this analysis therefore is to identify which of the options provides the greatest transport benefits, and thereby also provides the greatest capacity for both congestion reduction, and to support continued economic growth in Melton. Initial analysis of costs are also presented, which is important from a deliverability, and future funding point of view.

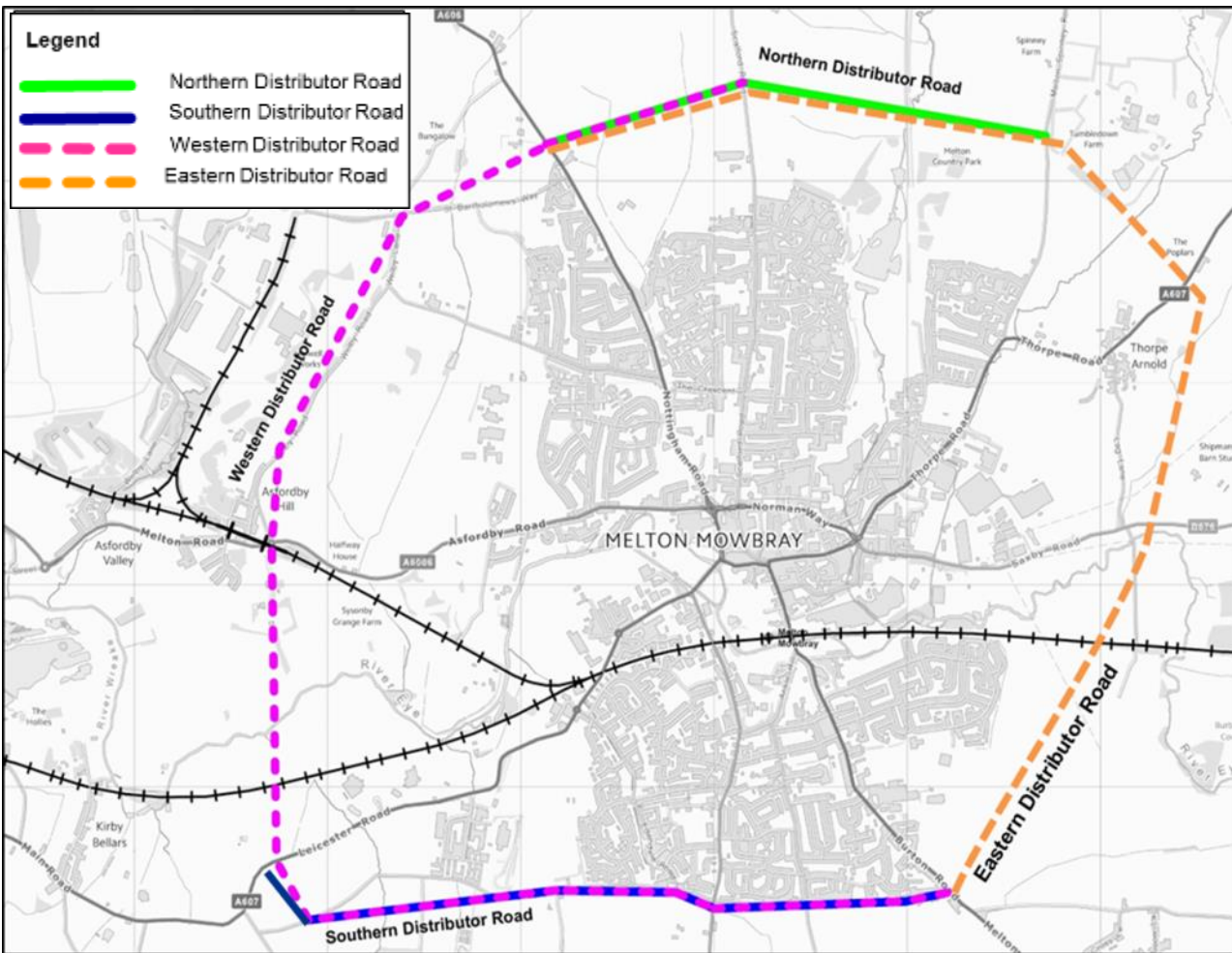


Figure 1.1 : Potential Distributor Road Options

1.2 Report Structure

The remainder of this report is set out as follows:

- Chapter 2 explains how potential transport options were generated to address existing traffic congestion, in conjunction with the Transport Evidence Base;
- Chapter 3 sets out the methodology for the transport modelling undertaken using the existing LLITM Model to assess the merits and transport benefits of the different options;
- Chapter 4 provides the modelling results for each distributor road option from the cumulative development scenario runs of the LLITM model;
- Chapter 5 provides the modelling results for each distributor road option from the higher growth runs of the LLITM model;
- Chapter 6 details the derivation of economic benefits for each of the distributor options;
- Chapter 7 details the derivation of costs for each of the distributor route options;
- Chapter 8 summarises the value for money of each option; and finally; and
- Chapter 9 summarises the non-monetised benefits of each option, summarises the key facts and concludes the results.

2. Generating Options

2.1 Introduction

This chapter details how potential transport options were generated to address existing traffic congestion in Melton Mowbray and support future growth of the town. The approach to generating options is represented in Figure 2.1, and follows best-practice advocated in DfT's transport analysis guidance, WebTAG.

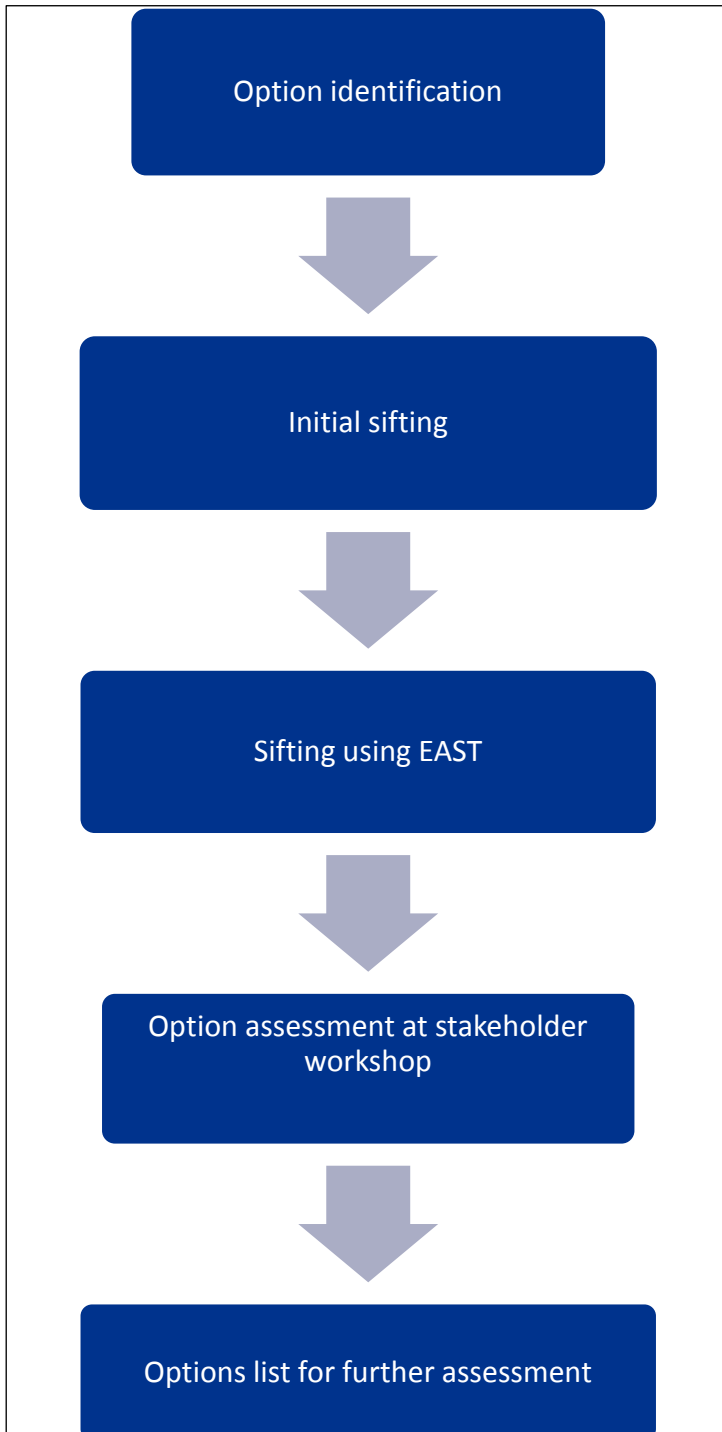


Figure 2.1: Approach to Options Assessment

2.2 Option Identification

DfT guidance¹ describes how a broad range of potential options should be considered in order to ensure that the most appropriate solution to an identified problem is pursued. Therefore, in line with this guidance, a long list of potential options was generated with an unbiased view of historic proposals and local aspirations.

The long list was informed by the transport evidence base produced, and the conclusions of the Melton Transport Study Phase 1 Stage 1, which in summary were that:

- The town centre is already congested;
- About one third of total traffic is from within the town, crossing the town centre;
- Longer distance through traffic is about one fifth of total traffic;
- HGV numbers are relatively low, but as they need to cross the town centre their impact is high, the the majority of HGV's travelling through the town;
- Melton is relatively self-contained, with an average car journey length of around 4km.
- There is highly significant rat running to avoid congested junctions.
- Low public transport connectivity, and slow journey times leads to a high car and walk/cycle share.
- Any additional development would have an area wide impact, impacting on all key 9 congestion points in the town; each of which is either at, or already exceeding operational capacity in the town centre-meaning that the network is at a critical point, and impacts of development are not individual junction and site specific.
- Major capacity improvements have the potential to remove up to 18,000 vehicle movements from the town centre per day by 2031.

Options were proposed at the workshop consultation events with Melton Borough Council, Leicestershire County Council and other stakeholders, including local residents, held in December 2014.

Jacobs also identified some additional transport options following the review of current and previous studies.

A wide range of options were compiled and included public transport, highway infrastructure, traffic demand management e.g. park and ride, land-use changes and cycling and pedestrian improvements.

The range of options also varied in terms of cost from low-cost such as a junction improvement to high-cost such as major highway infrastructure. Each option was placed in one of the following categories:

- Demand Management.
- Network Improvement.
- Non-motorised.
- Public Transport.
- Traffic Management.

¹ Department for Transport (2014), *Transport Analysis Guidance, An Overview of Transport Appraisal* [online]. Available from: <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/427073/webtag-tag-overview.pdf> [accessed: 7 June 2016]

2.3 Options Generated

In total, a long list of 60 transport options were identified and categorised as follows:

- 14 x Demand Management options.
- 17 x Network Improvement options.
- 5 x Non-Motorised User options.
- 16 x Public Transport options.
- 8 x Traffic Management options.

This list is included as Appendix A.

2.4 Initial Sifting of Options

Following generation of the long list, some options were removed because they were duplicated, too vague or irrational in the context of the detailed evidence base and current transport problems in the town that result.

Then an initial sifting of options was carried out following step 6 of the Department for Transport's Transport Analysis Guidance², as summarised in Box 2.1 below which sets out which options should be discarded.

Discard options that:

- Would clearly fail to meet the key objectives identified for intervention
- Do not fit with existing local, regional and national programmes and strategies, and do not fit with wider government priorities, and;
- Would be unlikely to pass key viability and acceptability criteria (or represent significant risk) in that they are unlikely to be:
 - Deliverable in a particular economic, environmental, geographical or social context e.g. options which would result in severe adverse environmental impacts which cannot be mitigated against or where the cost of doing so is too high;
 - Technically sound;
 - Financially affordable; and
 - Acceptable to stakeholders and the public.

Box 2.1: WebTAG Initial Sifting Criteria

The WebTAG criteria correspond to three main criteria which were used to sift the Melton Mowbray long list of options:

- Deliverability (including whether technically sound).
- Affordability.
- Acceptability.

For each criterion the following colours were used to determine whether a transport option was discarded or not:

² Department for Transport (2014), *Transport Analysis Guidance, The Transport Appraisal Process* [online]. Available from: <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/431185/webtag-tag-transport-appraisal-process.pdf> [accessed: 7 June 2016].

- Red: does not meet key viability and acceptability criteria.
- Amber: borderline in meeting / not meeting criteria.
- Green: does meet key viability and acceptability criteria.
- Purple: duplicate option (discarded).

If a particular option was classified as red for one or more of the sifting criteria than it was discarded from the options list.

If one or more amber criteria was assigned then a judgement on whether to retain or discard the option was made on a case by case basis. In each case an explanation to justify the decision is provided next to the option in the long list (Appendix A).

Following initial sifting, 36 transport options were removed from the long list.

24 options were taken forward for further sifting.

2.5 Sifting Using an EAST-based approach (MOAT)

A spreadsheet-based tool, called the Melton Option Appraisal Tool (MOAT), was developed and used for further sifting of the remaining options.

MOAT is based upon the Department for Transport’s Early Assessment and Sifting Tool (EAST), a decision support tool to develop, summarise and present evidence on options in a clear and consistent format.

EAST is designed to be used without having to obtain detailed evidence to allow options to be considered at an early stage of development. EAST is based around the five business case model approach advocated by the Department for Transport. The corresponding criteria used by MOAT to filter options are indicated in Table 2.1.

EAST Business Case	MOAT Option Filter
Strategic	Meets defined local objectives.
Economic	Economic value
Managerial	Deliverability
Financial	Cost
Commercial	Perceived value/ Deliverability

Table 2.1: Comparison of EAST Business Case Sift and MOAT Option Filter

The assessment has been evidence and objective led, and has been undertaken to correspond to the seven Melton Mowbray local objectives developed and agreed from the evidence base at a workshop with Leicestershire County Council and Melton Borough Council on 13th February 2015.

DfT guidance³ outlines how a clear set of objectives designed to address the identified problems should be set. The guidance indicates that objectives should be consistent with the following criteria:

- Be informed by an appropriate level of stakeholder engagement and by a realistic appreciation of the issues and context.
- Reflect opportunities and constraints.
- Reflect underlying causes.
- Avoid indications of preferred solutions.
- Be consistent with wider local, regional and national objectives identified in, but focused on addressing the identified need, rather seeking to contribute to all of these objectives.
- Enable more specific targets to be developed in due course.

The study objectives have been derived from these guidelines and are as follows:

1. Improve access to Melton Town Centre and the areas of potential development.
2. Reduce congestion on the local network; in particular key pinch points in and around Melton Town Centre.
3. Address HGV impact in Melton Mowbray Town Centre.
4. Improve connectivity to local and regional centres, for example Leicester and Nottingham.
5. Increase levels of walking and cycling within the study area.
6. Improve effectiveness of public transport facilities within Melton Mowbray.
7. Improve highway safety for all road users within the study area.

Each option was scored in a series of mixed working groups, on a five point scale from -2 to +2 to determine the contribution towards that objective.

The first two objectives in the list (improve access to Melton Town Centre and the areas of potential development, and reduce congestion on the local network; in particular key pinch points in and around Melton Town Centre) were given double the weighting factor as these are considered to be of higher priority than other study objectives.

An example option assessed using MOAT is included in Figure 2.2, covering all types of option; across modes, and of low and higher cost.

Following assessment of individual transport options against the above objectives, one option was discarded (MM-NI/13 A Short Western Bypass without connections to the northern or southern development areas), and a list of 24 options ranked by score was produced. This is included as Appendix B.

³ Department for Transport (2014), *Transport Analysis Guidance, The Transport Appraisal Process* [online]. Available from: <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/431185/webtag-tag-transport-appraisal-process.pdf> [accessed: 7 June 2016].

Option Details	
Option Number:	MM/PT-03
Option Description:	Improve/provide school bus services
Option Aim:	Reduce car trips to schools in particular during the AM Peak
Option Scheme Type:	Public Transport
Option Filtering	
Deliverability	Deliverable
Practical Feasibility	Feasible
Cost	<£250k
Perceived Value	May deliver value for money
Further Appraisal Required:	Judgement Required
Judgement Decision For Further Appraisal:	YES
Reason for Decision:	Success is dependent on cooperation of schools & parents, benefits are long term changes in travel habits, which may lead to a reduction in car trips generated by the schools
Option Appraisal	
Contribution towards the Study Objectives	Weighting Factor
1 Improve access to Melton Town Centre and the areas of potential development	2 Neutral
2 Reduce congestion on the local network; in particular key pinch points in and around Melton Mowbray Town Centre	2 +1
3 Address HGV impact in Melton Mowbray town centre	1 Neutral
4 Improve connectivity to local and regional centres for example Leicester and Nottingham	1 Neutral
5 Improve effectiveness of public transport facilities within Melton Mowbray	1 +1
6 Increase levels of walking and cycling within the study area	1 Neutral
7 Improve highway safety for all road users within Melton Mowbray	1 +1
8	1 Neutral
Overall Performance against the Study Objectives	+4
(*2 weighting factor applied to the 'highest priority' Study Objectives)	

Figure 2.2: MOAT Option Assessment

2.6 Option Assessment at Stakeholder Workshop

A workshop took place on 13 February 2015 at Melton Borough Council offices with council officer representatives from both the Borough Council and Leicestershire County Council. For each of the transport options taken forward from the EAST sifting the option appraisal process was reviewed and agreement was reached on the scoring i.e. the contribution to the study objectives. Two new options were added to the list of schemes:

1. MM/DM-17, Leicester Road car park: to relieve congestion in the town centre by providing a new car park on a key radial route.
2. MM/TM-07, Interim Management System; real time information for drivers on congestion: to encourage rerouting of traffic and to influence motorists travel patterns by providing information on congestion on key roads.

The MM-NI/13 Western Bypass option, was re-introduced to the list of schemes but based on providing a direct, continuous link through to the southern and eastern masterplan areas.

This was undertaken to allow further assessment, including more detailed traffic modelling to allow direct and comparative performance analysis against fuller route options, East vs. West.

2.7 Options List for Further Assessment

Following the stakeholder workshop a revised list of transport options was produced for further assessment and is included as Appendix C.

The Options List shown in Appendix C includes a ranking of the transport options for further assessment. The ranking is in terms of how well an option achieves against all seven local objectives. As can be seen the seven highest ranked options are bypass suggestions:

- MM/NI-04 Bypass/ Distributor Road in stages, sort out pinch points along inner ring road – jointly ranked first.
- MM/NI-06 Junction improvements and highway infrastructure link 1,2,3 south, west and north (3/4 link road) – jointly ranked first.
- MM/NI-09 Through traffic to be diverted around the town with an Eastern Distributor Road – jointly ranked first.
- MM/NI-11 Bypass, east, south and west – jointly ranked first.
- MM/NI-07 Northern Bypass – jointly ranked fifth.
- MM/NI-08 Through traffic to be diverted around the town via a Southern Bypass – jointly ranked fifth.
- MM/NI-16 Link road from Saxby Road to Melton Road with a dedicated school access to Birchwood School, Sherrard County School and Melton Vale Post 16 Centre - jointly ranked fifth.

All these options fall into the medium to high cost category, but their potential impact in terms of addressing the local objectives and the acceptability for such a major intervention amongst many of the stakeholders warranted further appraisal of bypass options.

Lower cost Inner bypasses also formed part of the assessment, but based on previous modelling of these results, led to relatively low scores, given their demonstrated limited ability to reduce traffic levels in the town centre, and to avoid impacts on adjacent junctions.

2.8 Summary

Through stakeholder engagement presenting the issues facing Melton Mowbray in terms of congestion and its threat to growth, a wide range of potential options were identified.

To ensure consistency with WebTAG guidance, an EAST-based approach was taken to sift and filter these options (60 in total) to a prioritised list of interventions using a bespoke option appraisal tool (MOAT), and using an evidence and objective-led approach, as follows:

1. Improve access to Melton Town Centre and the areas of potential development.
2. Reduce congestion on the local network; in particular key pinch points in and around Melton Town Centre.
3. Address HGV impact in Melton Mowbray Town Centre.
4. Improve connectivity to local and regional centres, for example Leicester and Nottingham.
5. Increase levels of walking and cycling within the study area.
6. Improve effectiveness of public transport facilities within Melton Mowbray.
7. Improve highway safety for all road users within the study area.

The prioritisation showed that the strongest performers against the local objectives (below) were generally bypass forms of intervention.

These were seen by some stakeholders as the necessary step change in network capacity required to accommodate development and traffic growth in and around the town, and so warrant further investigation.

Nevertheless, the remaining list of options is to be re-visited to identify complimentary interventions which safeguard the positive impacts of the bypass, mitigate the negative, as well as adding further value in their own right.

These are being progressed as part of local studies, to support the current bid for DfT development funding towards a significant highway intervention, and to maximise value from it for the town; and to maximise the extent of growth able to be delivered by the preferred option.

3. Transport Modelling Methodology

As with previous studies, this Options Assessment draws on the Leicester and Leicestershire Integrated Transport Model (LLITM) core scenario developed for the cumulative development testing in late 2014.

From this Core Scenario, each of the potential distributor road options has been coded into the model, and the LLITM model runs are used to assess flow changes impacts associated with each of the proposals. Given the key objective of reducing congestion, and in being able to support future development growth in the town, particular attention is paid in the analysis not only to flows on each of the options, but also the changes in delays at key junctions in Melton, and that are known to be (or become) congested, from the cumulative development assessment.

The LLITM model results have been used, with key flow changes and modelling outputs drawn from the SATURN highway assignment model of the full LLITM run, for comparative testing of the impact of each scheme in the town.

As previously, 2011 and 2031 forecast years of the model are used to proxy present and future travel conditions in the town. The travel demand in the 2031 LLITM Core scenario includes additional development of 2,250 dwellings, as per the cumulative development work. These two model years have been used as the Do Minimum models and form the benchmark against which the transport and economic impacts of the four scheme options are assessed.

Each of the potential distributor road options is coded as a single carriageway road into the LLITM Core scenario model, for both forecast years, and are based on the standard LLITM conventions for network coding.

The results of the model runs for the 2031 forecast year are used to assess the changes to travel patterns and associated impacts on traffic flows and link delays around and within Melton Mowbray Town Centre. Additionally, outputs of the models for both forecast years in terms of trip and cost matrices are used to undertake a high-level economic appraisal of each option using TUBA for comparative benefits, and outline cost-benefit analysis.

The process followed above for the cumulative development scenario was repeated in early 2016 for a land use scenario which includes higher levels of development: a 'higher growth scenario' aligned to the latest proposals informed by Melton Borough Council.

This new 'higher growth scenario' is based on an increase of 5,000 dwellings, rather than the 2,250 tested as part of the cumulative development scenario based on current applications coming forward.

The new housing locations are on the outskirts of Melton, with most growth on the southern edge of the town, as well as the north. This scenario also includes 20ha of employment associated with the Melton South SUE, and 10ha associated with Asfordby Hill Business Park.

Figure 3-1 outlines the roads and junctions referenced in the discussion of results for Melton Town Centre in the subsequent sections of the report. These are based on Transport Strategy Evidence Base conclusions, and the impacts of the cumulative development work and represent the key pinch points and congestion hotspots in Melton presently, and with future development growth to 2031.



Figure 3-1 : Roads and Junctions Referenced in Melton Town Centre

The cumulative development work, and associated transport strategy evidence within Melton has identified 9 traffic and congestion hot spots which are shown in Figure 3-2 and are as follows:

- 1) A607/Thorpe End
- 2) A607/Leicester Road
- 3) A607/Snow Hill
- 4) A607/A6006
- 5) A607/Scaford Road
- 6) A607/Dalby Road
- 7) A606/Mill Street
- 8) A606/Warwick Road
- 9) B6407/Warwick Road

As a result, and to ensure success of any proposed scheme, it is critical to investigate the impacts of the distributor road options on these junctions and issues in particular.

Otherwise the core objective of the transport strategy, to reduce congestion, and support further economic growth of the town will not be met.



Figure 3-2 : Traffic Hot Spots in Melton

The following sections discuss the results of the transport impact assessment of each distributor road in terms of change in traffic flow and link delays, particularly on these key central locations, for both AM and PM peak hours.

4. Option Results – Cumulative Development Scenario

4.1 Flows in Reference Case – 2031 AM Peak Hour

4.1.1 2031 Do Minimum without Intervention Scenario

Figure 4-1 shows the forecast flows for the AM peak hour in the 2031 Do Minimum scenario i.e. with no distributor roads in place, but with the cumulative development proposals i.e. at 2,250 dwellings.

The traffic flow on the roads is represented by the colours of the bands along the links with dark green less than 250 PCU per hour, light green 250-500, light orange for 500-750, orange 750-1000 and red for links greater than 1000 PCUs in the peak hour for the area around Melton.

Flows in this scenario are as per those reported in the cumulative development assessment work, with the highest inflow traffic towards Melton town centre are via the radial routes, which are namely A607 Leicester Road, A606 Nottingham Road, A607 Thorpe Road, A6006 Asfordby Road and A606 Burton Street. Significant traffic flows occur on Leicester Road (A607) and Asfordby Road in both directions west of Kirby Lane (nearly 1100 PCU towards town and 800 away from town).

Some of the traffic from A606 Nottingham Road routes travels via The Crescent (rat-running) to enter the town centre via Scafold Road.

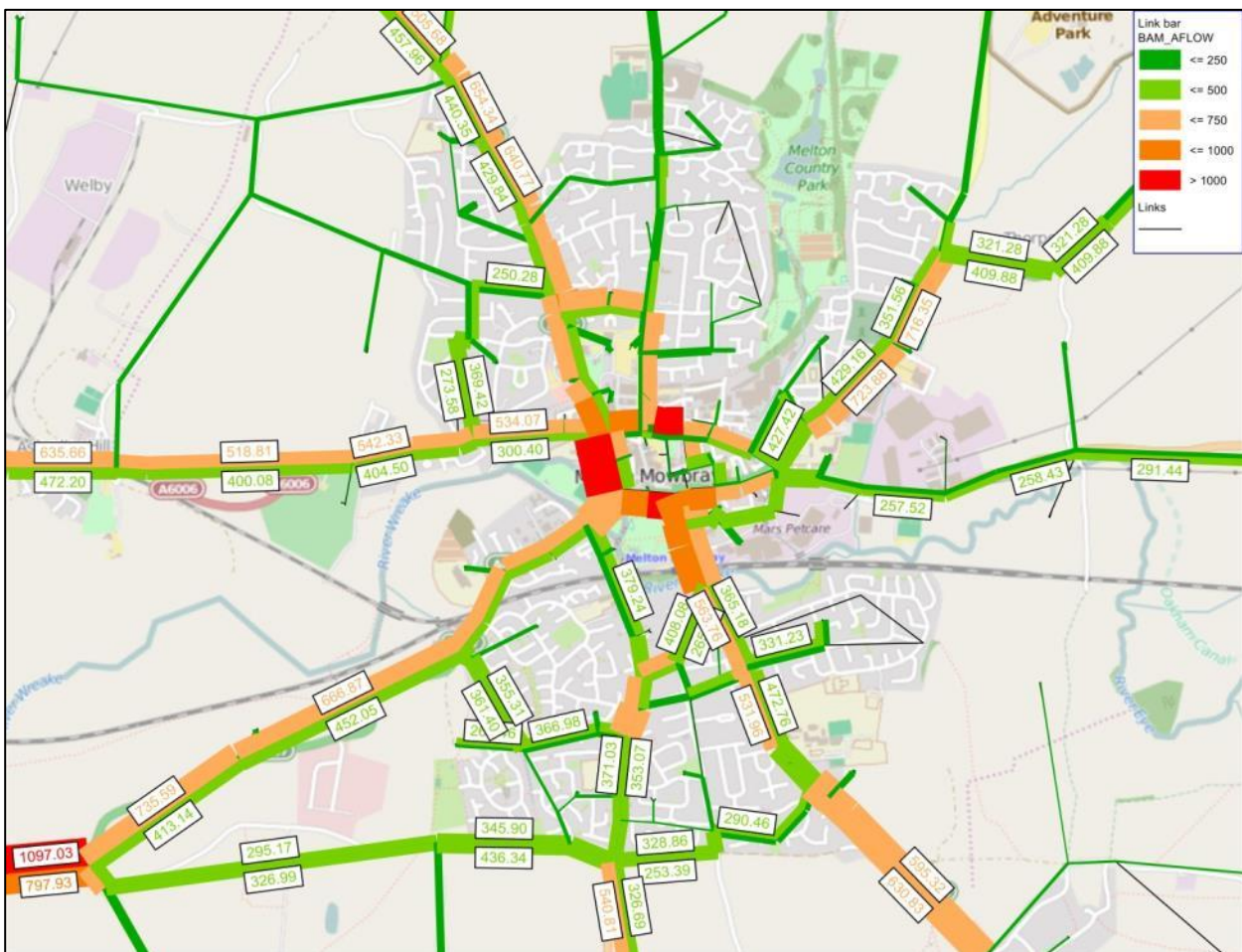


Figure 4-1 : 2031 AM Peak Hour Forecast Flows (PCU) around Melton in Do Minimum Scenario

Figure 4-2 shows the forecast flows in the AM peak hour in the 2031 Do Minimum scenario for Melton Town Centre.

The town centre itself experiences high volumes of traffic along Leicester Street, Wilton Road and A607 Norman Way in particular. It can also be seen that there are about 450 PCUs that rat run through local streets such as Chapel Street, King Street and Sage Cross to travel from A607 Norman Way to Sherrard Street. Similarly, some of the traffic from A607 Thorpe Road towards town appears to rat run through Kings Road.

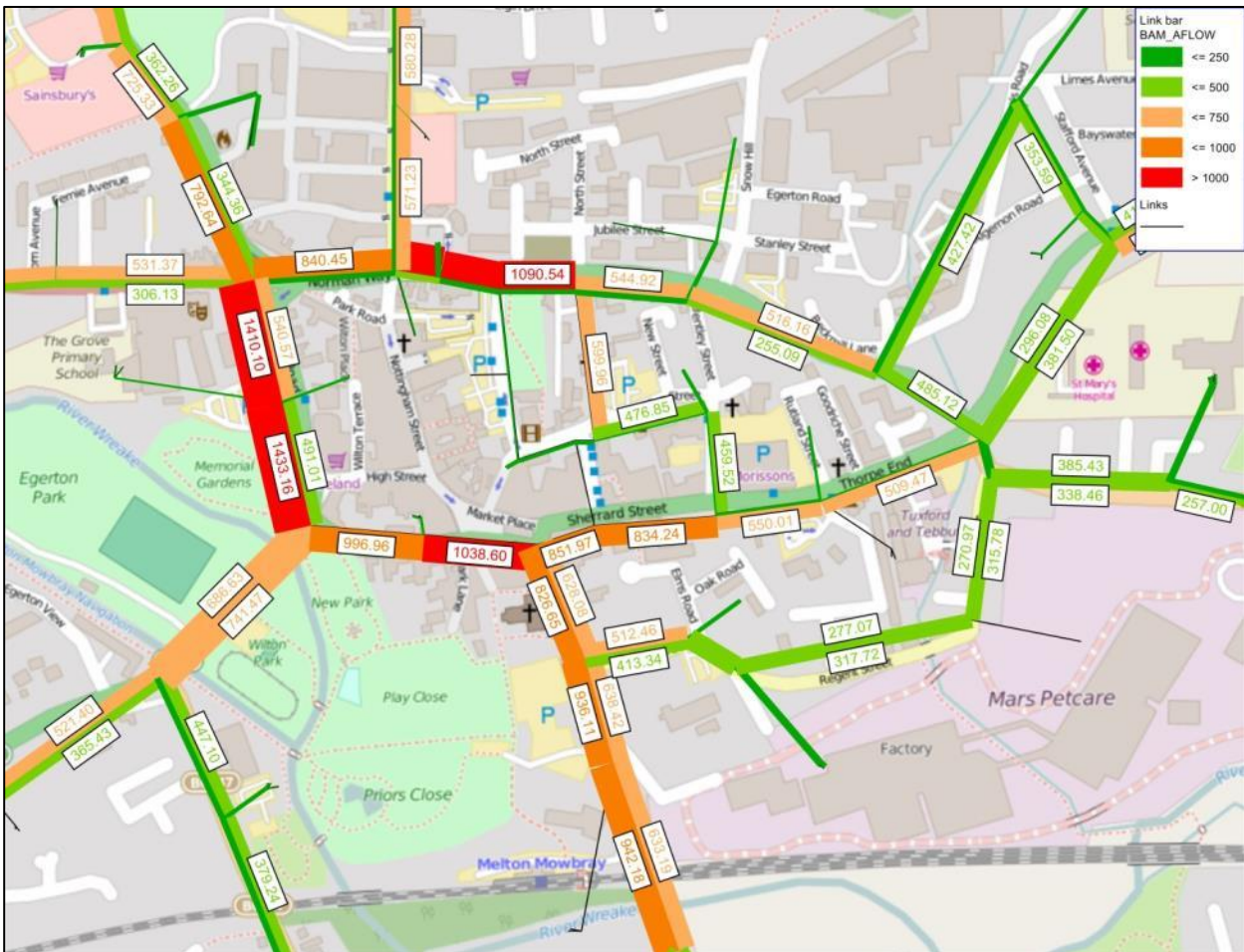


Figure 4-2 : 2031 AM Peak Hour Forecast Flows (PCU) within Melton Town Centre in Do Minimum Scenario

4.2 Flows with Distributor Road Options – 2031 AM Peak Hour

4.2.1 Western Distributor Road Option

A potential Western Distributor Road would create a link from the A606 to Leicester Road A607 to A6006 Ashfordby Road, and the A606 Nottingham road round to Scalford Road in the north.

Figure 4-3 for around Melton and Figure 4-4 within Melton Town Centre shows the forecast flows with a potential Western Distributor Road Option in place.

As the Western Distributor Road links the A606 between north and south of sides of the town, it can be seen that this results in a significant decline in vehicles travelling on radial roads (such as A607 Leicester Road and A6006 Asfordby Road) linking Melton with locations to the west. This traffic and through traffic along the A606 corridor transfer to the potential route, which has flows exceeding 900 PCU's in each direction on its busiest section (from A6006 to A607).

The potential route would result in higher traffic in both directions on Burton road, where it connects to Kirkby Lane. It can be seen that the traffic on Burton Road diverts to Kirkby Lane to access the route therefore increasing the flow on Kirkby Lane, which is a part of the Western Distributor road. As a consequence of this diversion, there is a decline in traffic on some sections of Burton Road (after the Kirkby Lane junction) and rat runners on a few local roads, such as Ankle Hill.

The Western Distributor Option provides a significant relief in traffic levels on Leicester Road where there is a significant decline on the approach towards Melton. The A607 Leicester Street Junction, is forecast to experience a significant decline in from 700 to <400 PCU on the Leicester Road approach. In addition the A607 to the south west of Melton experiences a significant decline in demand in both the north and southbound directions.

The A6006 Asfordby Road experiences a significant decline on flows into and out of Melton as well. This coupled with a decline in flows on all approaches at the A607/A6006 junction except Nottingham Road, with a significant decline occurring both on the A607 and A6006 approaches.

The final section of the Western Distributor Road which would link A607 to Scalford Road is forecast to reduce demand at the Scalford Road/Norman way junction and also reduces rat running occurring on The Crescent.

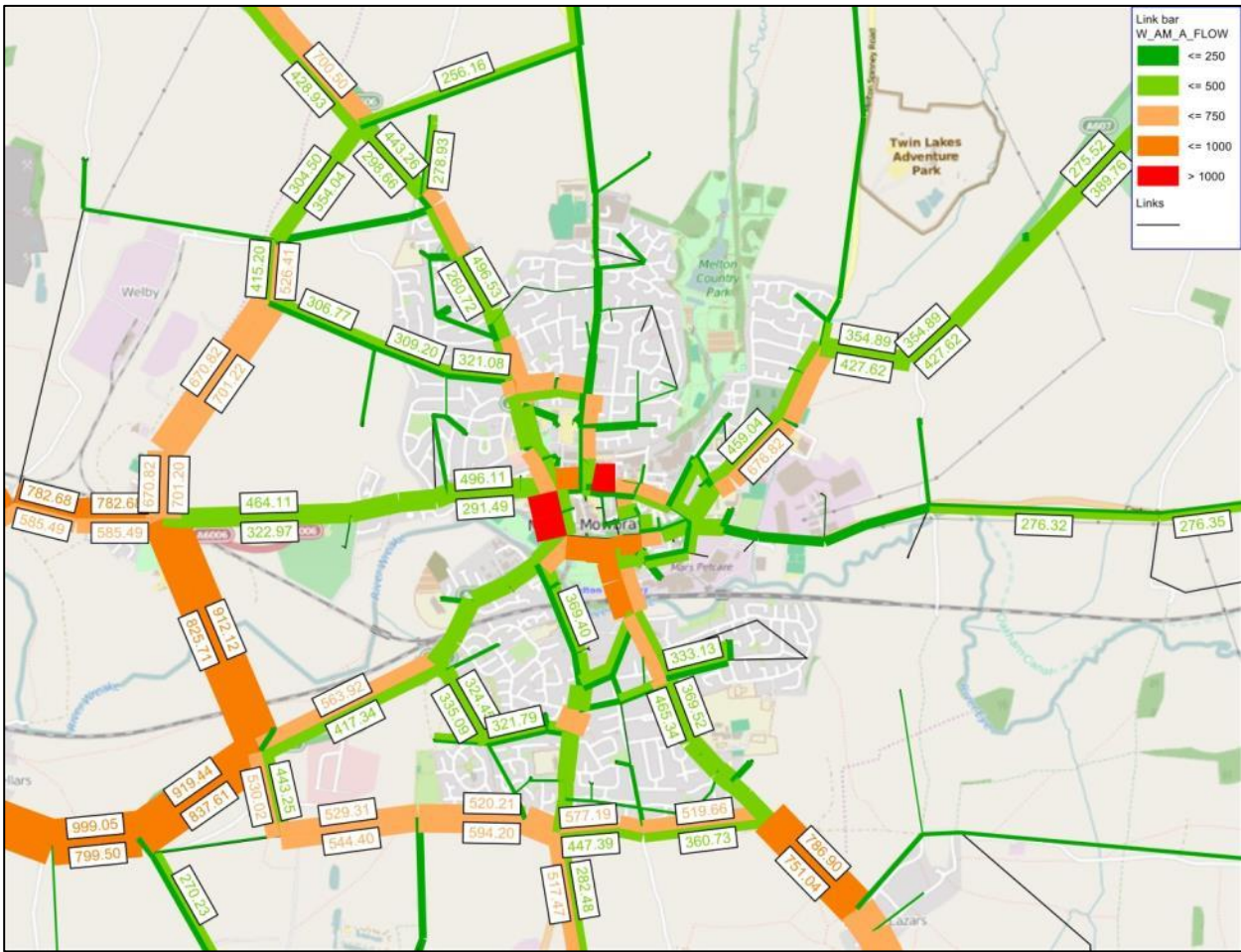


Figure 4-3 : 2031 AM Peak Hour Forecast Flows (PCU) around Melton with Western Distributor Road

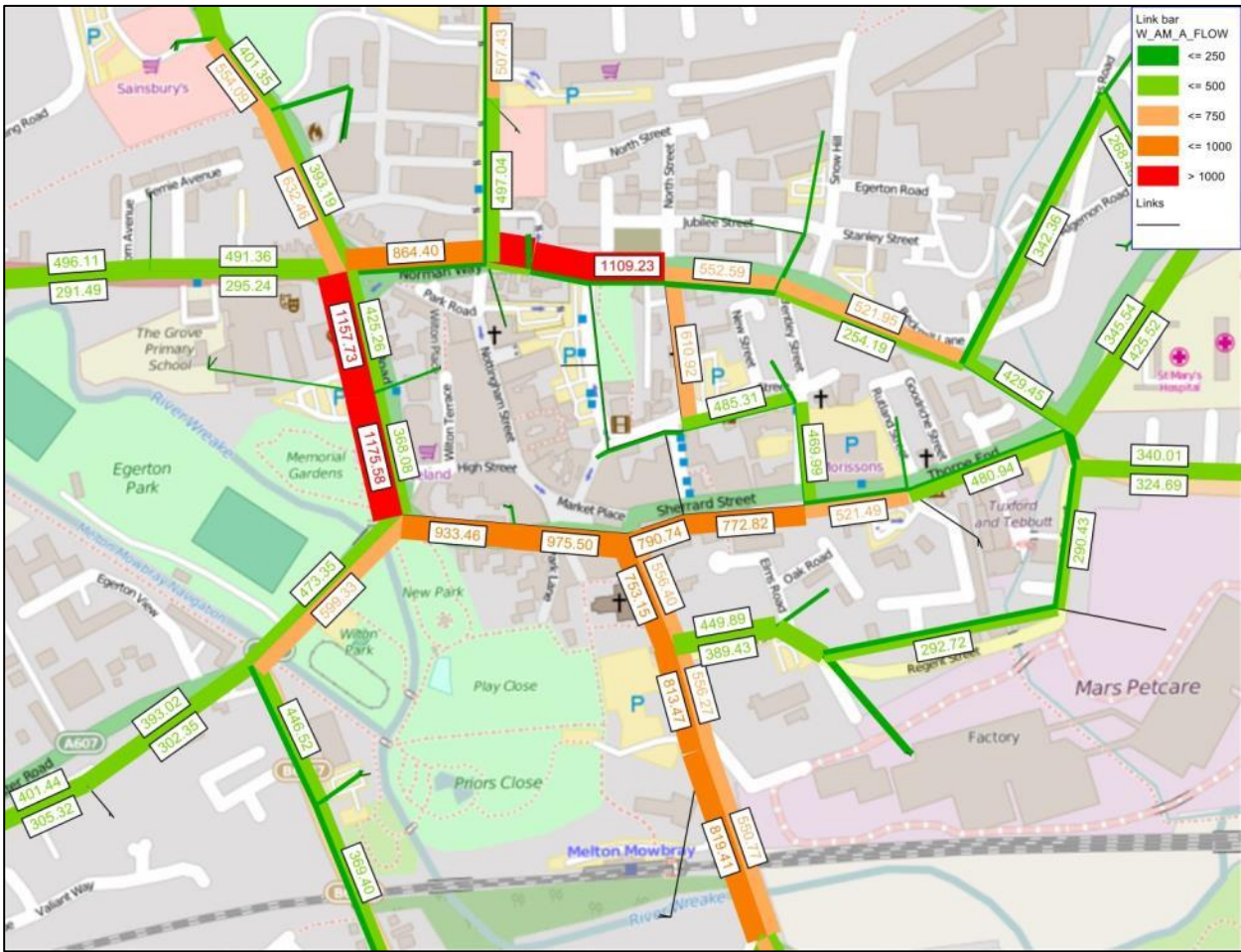


Figure 4-4 : 2031 AM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Western Distributor Road

4.2.2 Northern Distributor Road Option

A potential Northern Distributor Road would provide a link from the A606 Nottingham Road to Scalford Road and across to Melton Spinney Road. Similar to the other options, Figure 4-5 and Figure 4-6 present the traffic flows on links around Melton and in Melton Town Centre, respectively, for the AM peak hour in the 2031 scenario.

The Northern Distributor is forecast to experience flow volumes of up to 400 PCUs eastbound from A606 to A607; with westbound flows being lower at just under 250 PCUs.

Key benefits are that the Northern distributor road reduces the demand on A607 Nottingham Road and Scalford Road to the south of the potential road on the approach to the town centre. It appears that traffic from A607 Nottingham Road diverts to the potential route to access A607 Thorpe Road via a section of Melton Spinney Road towards Melton Town Centre and partially towards Grantham direction. This also results in a minor increase in demand at A607/Thorpe End Junction.

There is an increase of about 100 PCUs in traffic routing via town streets (Chapel Street & King Street) from Norman Way to Sherrard Street and continuing southwards on the A606.

However, it is also of importance that this proposal does not reduce rat-running through the centre of the town, and that the traffic flow patterns north/south across Melton remain similar to the ones in the Do Minimum Scenario; i.e. with only northern parts of Melton town centre benefitting from the proposal.

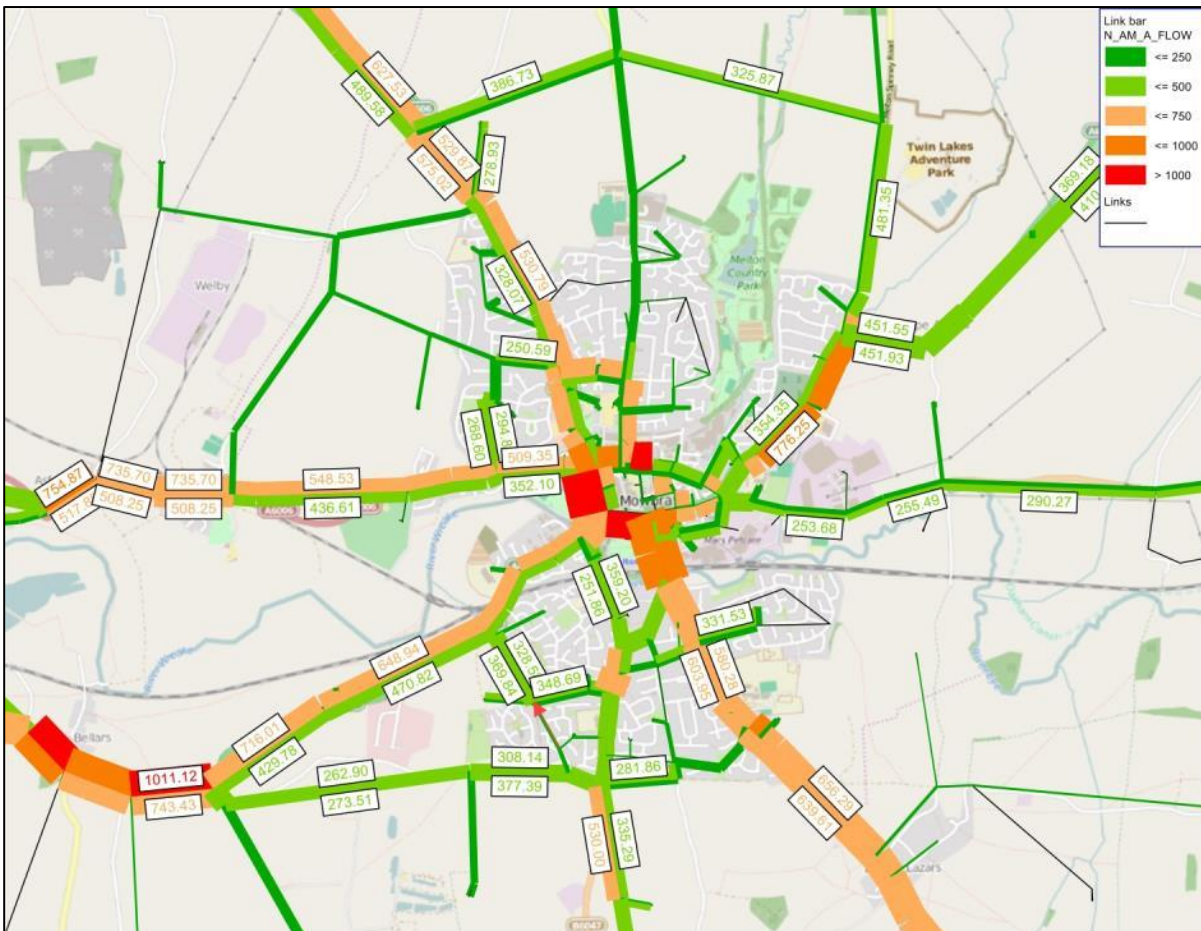


Figure 4-5 : 2031 AM Peak Hour Forecast Flows (PCU) around Melton with Northern Distributor Road

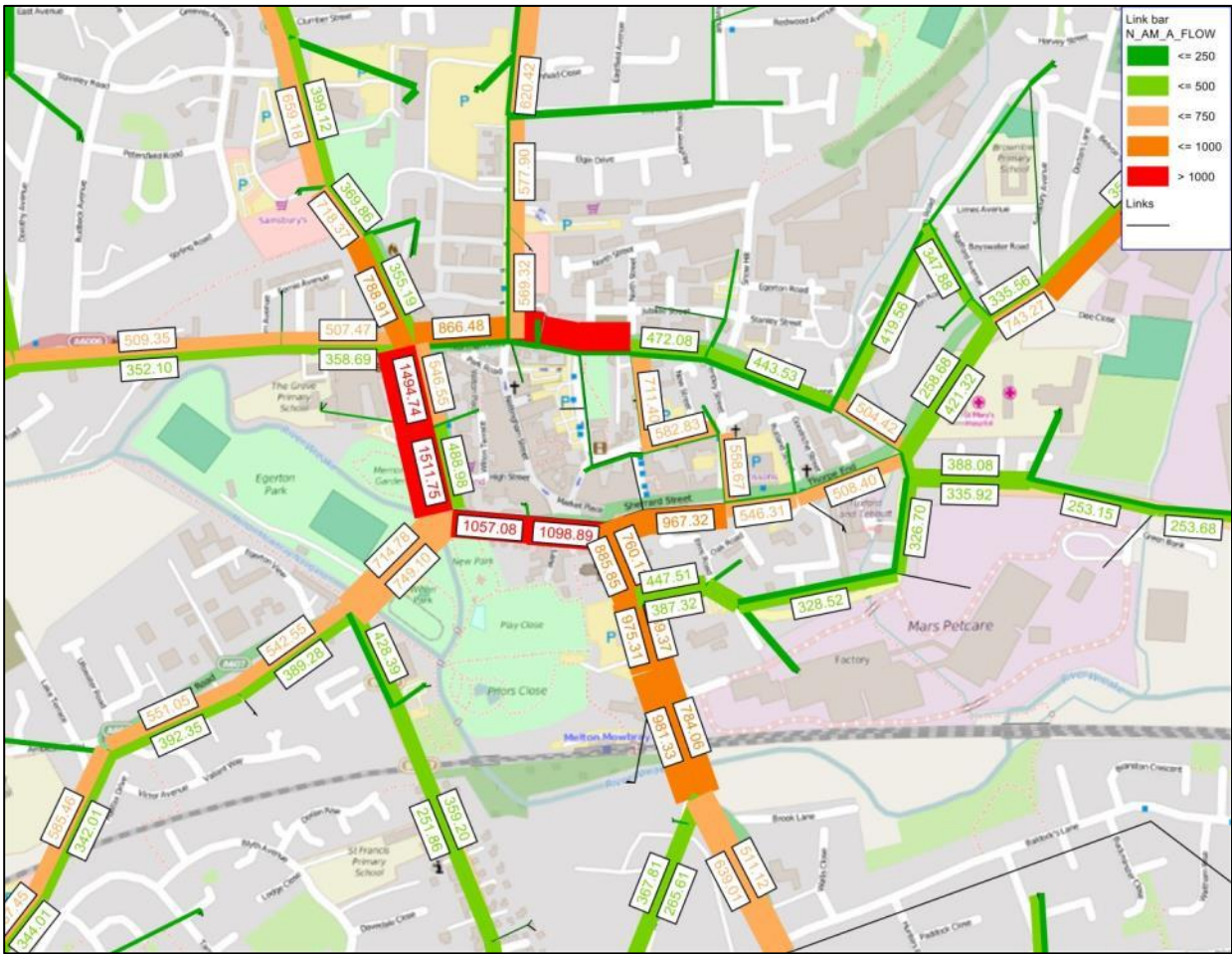


Figure 4-6 : 2031 AM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Northern Distributor Road

4.2.3 Southern Distributor Road Option

A potential Southern Distributor Road would provide a link from the A606 Burton Street to the A607 Leicester Road. Figure 4-7 represents the network flows around Melton and Figure 4-8 within Melton Town Centre; showing the subsequent demand for the AM peak hour in 2031 with the Southern Distributor Road present.

The Southern Distributor Road is forecast to have an hourly AM peak traffic flow of approximately 300-500 PCUs, depending on the section, with most traffic abstracted from adjacent minor routes to the south of Melton.

The impact of this is that there is very little flow changes in the centre of Melton itself with this option on its own.

As a result, the route has a limited impact in Melton town centre, with some, but not significant changes noted in demand on the A6006 and at A607/A6006 Junction into Melton town centre; although flows out of town along this road increase. As expected due to provision of higher capacity by the potential new route, there is a flow increase on the sections of Burton Road where it connects to the Southern road option. However, this does not reduce the traffic on the sections towards Melton Town Centre.

In fact, as shown in Figure 4-8, there is slightly higher traffic levels forecast at the junction of A606 Burton Road and Sherrard/Leicester Street. The higher flow on this junction is also caused by some traffic increases (of about 50 PCUs) noted through town centre roads and greater use of Asfordby Road compared to Leicester Road with a Southern Distributor Road Option only.

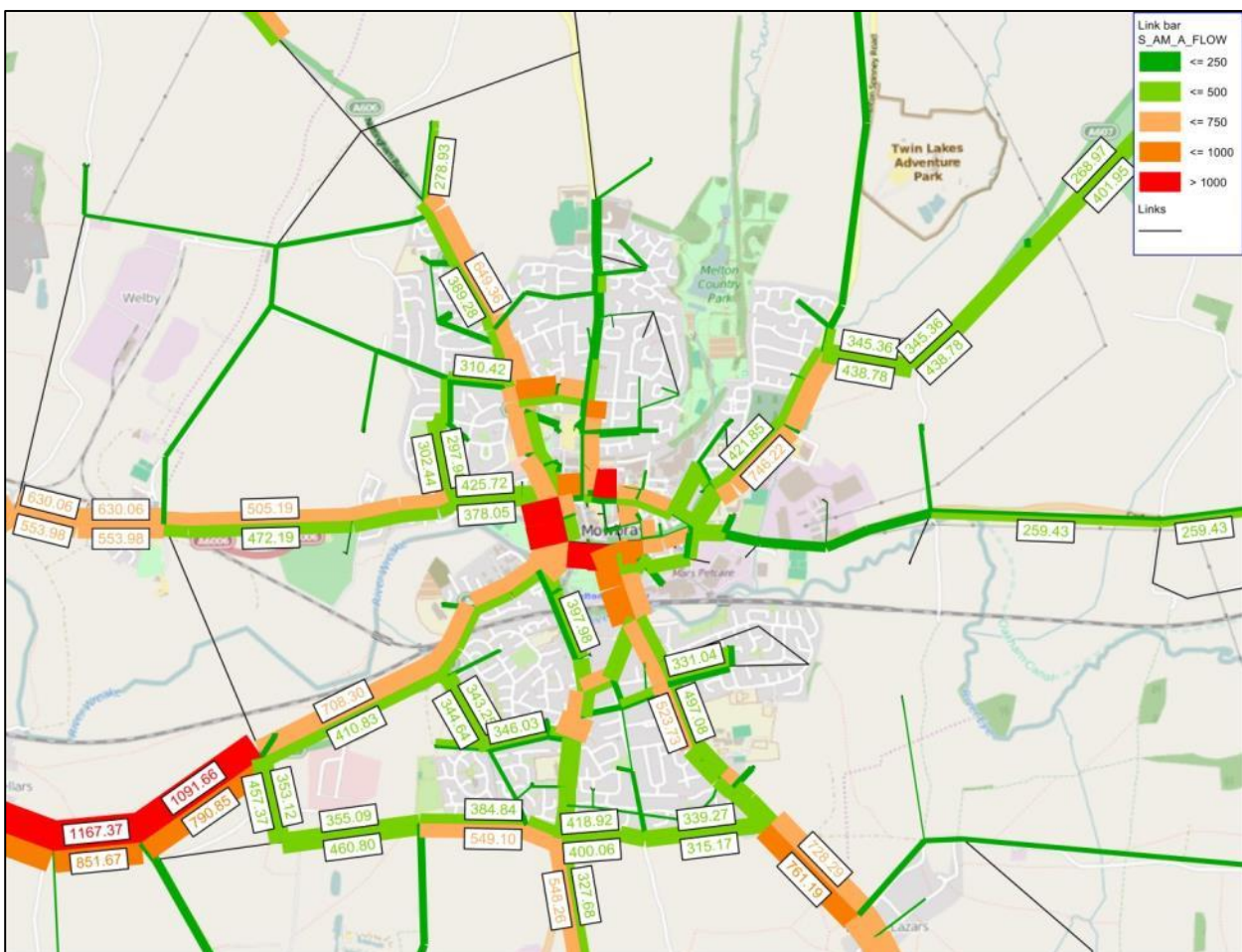


Figure 4-7 : 2031 AM Peak Hour Forecast Flows (PCU) around Melton with Southern Distributor Road

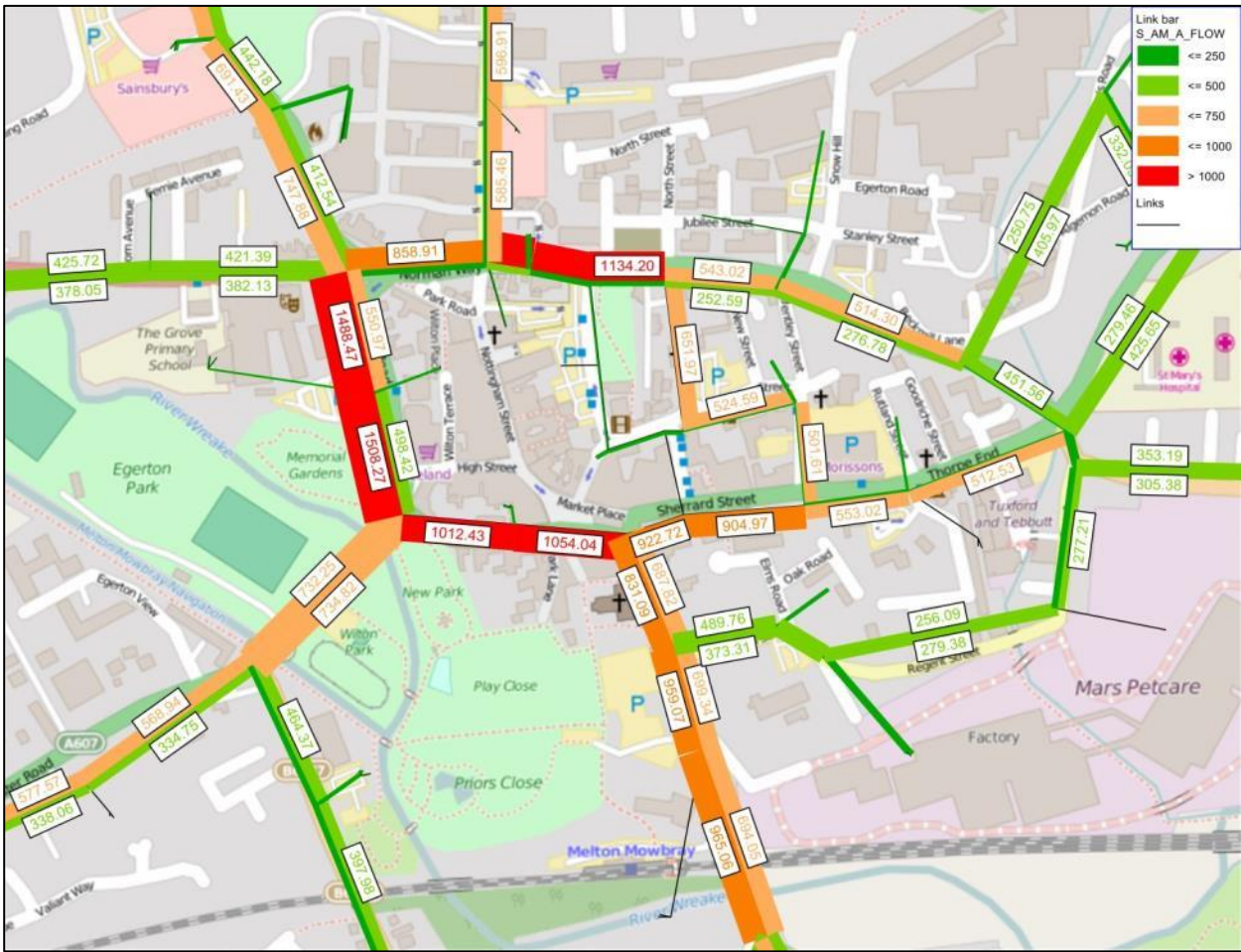


Figure 4-8 : 2031 AM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Southern Distributor Road

4.2.4 Eastern Distributor Road Option

A potential Eastern Distributor Road would link A606 Burton Road to the A606 Nottingham Road via B676 Saxby Road; A607 Thorpe Road; Melton Spinney Road and Scalford Road. Traffic flows on the network around Melton and within Melton Town Centre are presented in Figure 4.9 and Figure 4.10; showing the subsequent demand for the AM peak hour in 2031 with the Eastern Distributor Road present.

This shows that a potential Eastern Distributor Road is forecasted to attract around 750-850 PCUs in the AM peak hour, with the highest volume on the link between the A607 and B676 Saxby Road. This is similar to the Western Option, but it should be noted that the extent of this highest flow at around 800 PCUs an hour extends much further than the Western Option around Melton, and extends largely all the way around the option proposal. This is due to the fact that the Eastern route is 1.5km shorter than the western option, and as a result attracts more traffic; not just for short distances, but also for longer distance through movements- whether through or within the town. It also provides a much shorter route to the use of the present one-way system around in the centre of Melton.

Due to this, this option abstracts greater levels of traffic from the A607 and Saxby Road, Scalford Road and Burton Road approaches into Melton Town Centre reducing demand at the A607/Thorpe End and A606/Sherrard Street Junctions. The lower demand on A607/Thorpe End junction is mainly due to the much lower traffic on the Thorpe Road from Melton Spinney Road towards the town centre.

In general, the traffic flow on the town centre ring road is reduced to the most significant and greatest extent with an Eastern option, linking high flows roads of the A606 Nottingham Road and A606 Burton Road with the shortest distance and most direct route.

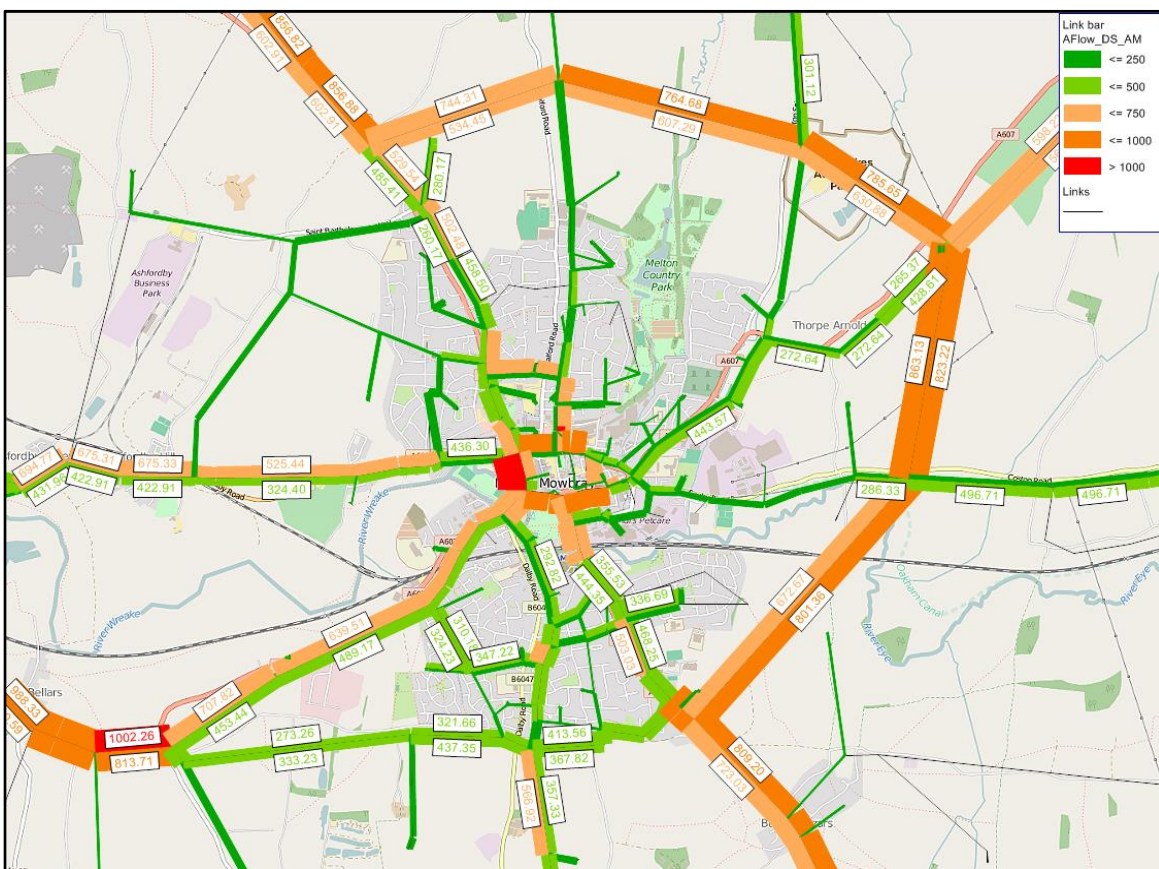


Figure 4.9 : 2031 AM Peak Hour Forecast Flows (PCU) around Melton with Eastern Distributor Road

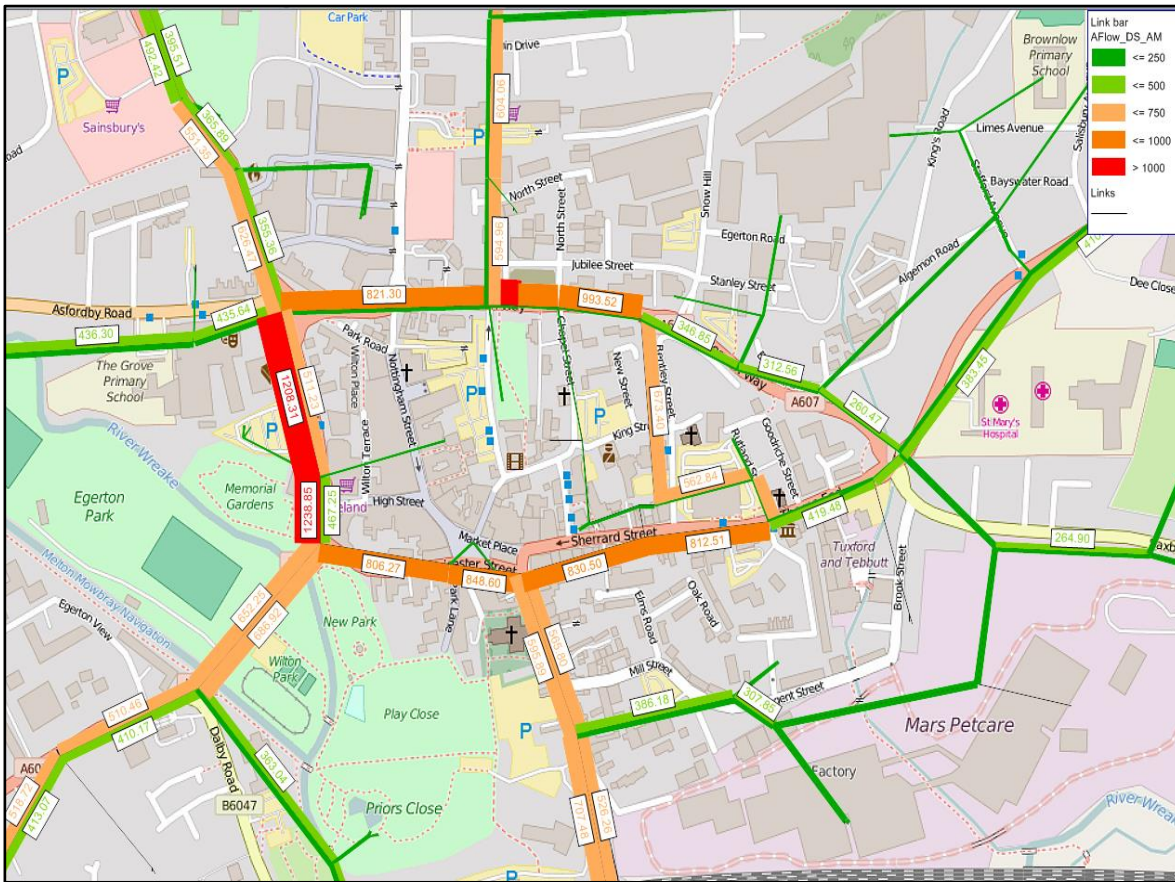


Figure 4.10 : 2031 AM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Eastern Distributor Road

4.3 Flows in Reference Case – 2031 PM Peak Hour

4.3.1 2031 Do Minimum without Intervention Scenario

Figure 4-11 shows the flows for the PM peak hour in 2031 Do Minimum, without intervention scenario around Melton and Figure 4-12 for within Melton Town Centre.

Generally the traffic patterns remain similar to the ones in the AM peak hour, with the exception that the highest demand occurs on the outward movements of the radial links from Melton.

Links with the highest demand are the A606 Burton Street, and links from Leicester Street and A607 Leicester Road along Wilton Road to Nottingham Road (A606). Leicester Road experiences a high demand to the west of the junction with Kirby Lane. Similar to the AM peak hour, there is rat-running through the town centre as a result of congestion and delay at other key junctions around the town centre.

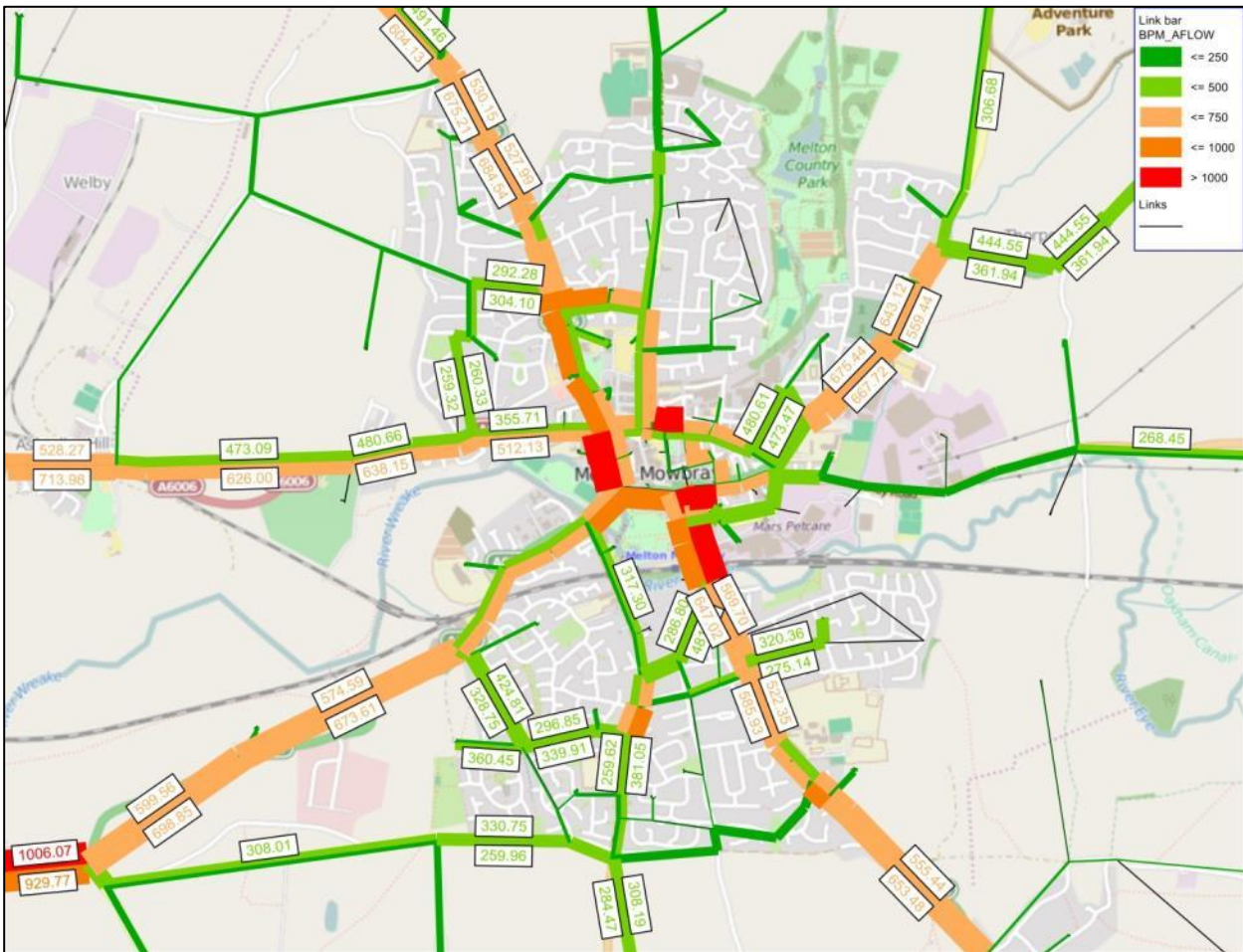


Figure 4-11 : 2031 PM Peak Hour Forecast Flows (PCU) around Melton in Do Minimum Scenario

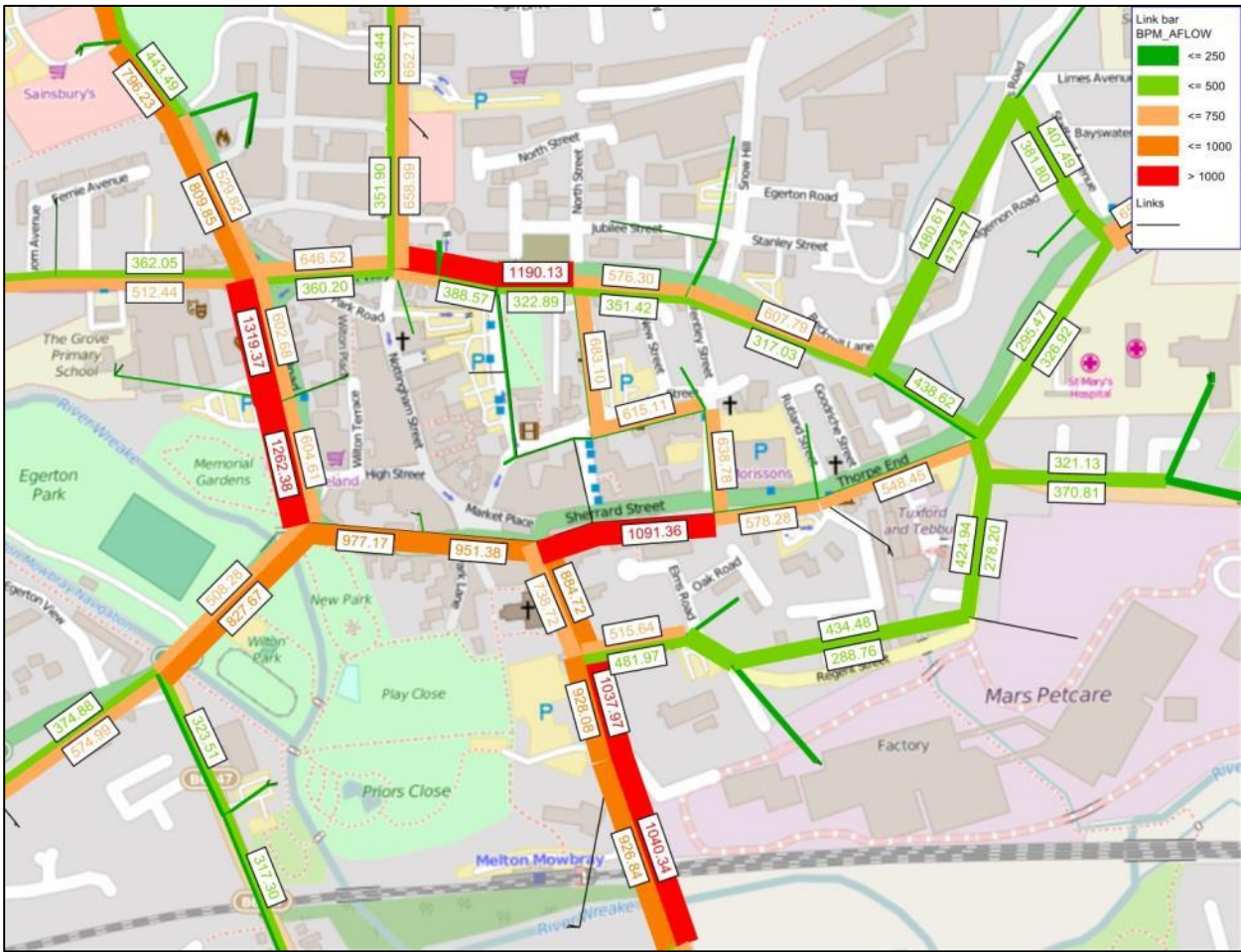


Figure 4-12 : 2031 PM Peak Hour Forecast Flows (PCU) within Melton Town Centre in Do Minimum Scenario

4.4 Flows with Distributor Road Options- 2031 PM Peak Hour

4.4.1 Western Distributor Road Option

As shown in Figure 4-13 and Figure 4-14 in the PM peak hour, with the Western Distributor Road, the scenario is forecast to generate a significant decrease in demand, occurring on A606 Burton Street and A606 Nottingham Road, as traffic is diverted via the new link road around the town centre.

The A607 Leicester Road and the A6006 Ashfordby Road also benefit from a decline in demand on the sections on the east of the potential route.

The Western Distributor Road option is forecast to carry 300-900 PCUs per direction, with the highest traffic occurring on a relatively short section between Ashfordby Road and Leicester Road.

Within Melton town centre there is a significant decrease on demand at the A607/A6006 junction with flow reductions on Wilton Road, Nottingham Road (about 300 PCUs on the outward direction) and Ashfordby Road. The A607/Scalford Road junction benefits from a decrease in demand on Scalford Road. The A607/Thorpe Road Junction has broadly similar demand, but rat running via Kings Road is reduced.

Flows along the Leicester Street / Wilton Road / Nottingham Road corridor reduce by over 200 PCUs northbound and 100 PCUs southbound.

There are reductions in rat running on The Crescent, and lower southbound flows (by 200 PCUs) on Scalford Road. This continues as a reduction of over 150 PCUs in southbound cross town centre flows from Norman Way to Sherrard Street (via Chapel Street and King Street), and larger declines (over 200 PCUs) occur on Sherrard Street, continuing southwards onto Burton Street.

There is a reduction in flows on local roads between A6006 and A606 situated to the north west of Melton Town Centre.

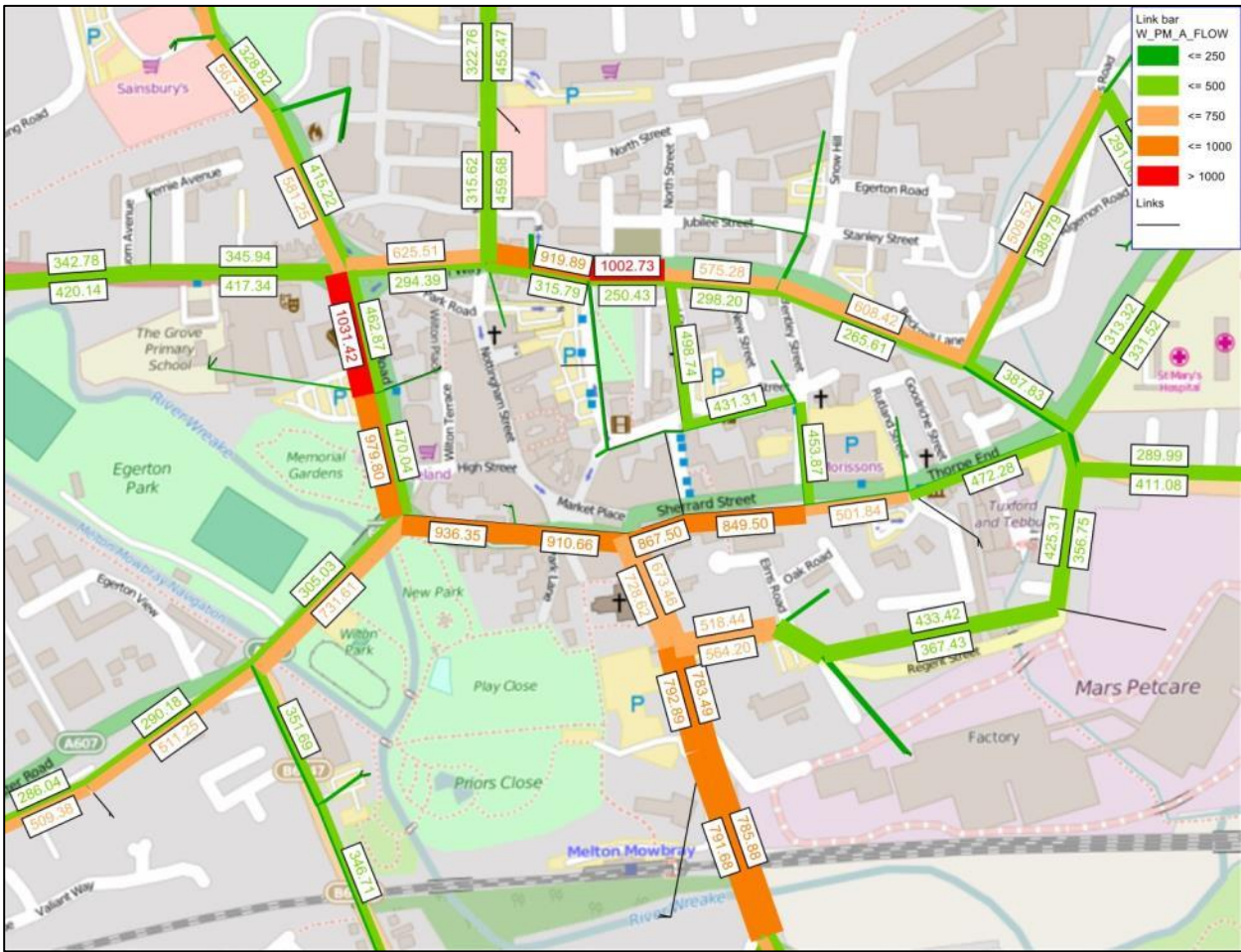


Figure 4-14 : 2031 PM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Western Distributor Road

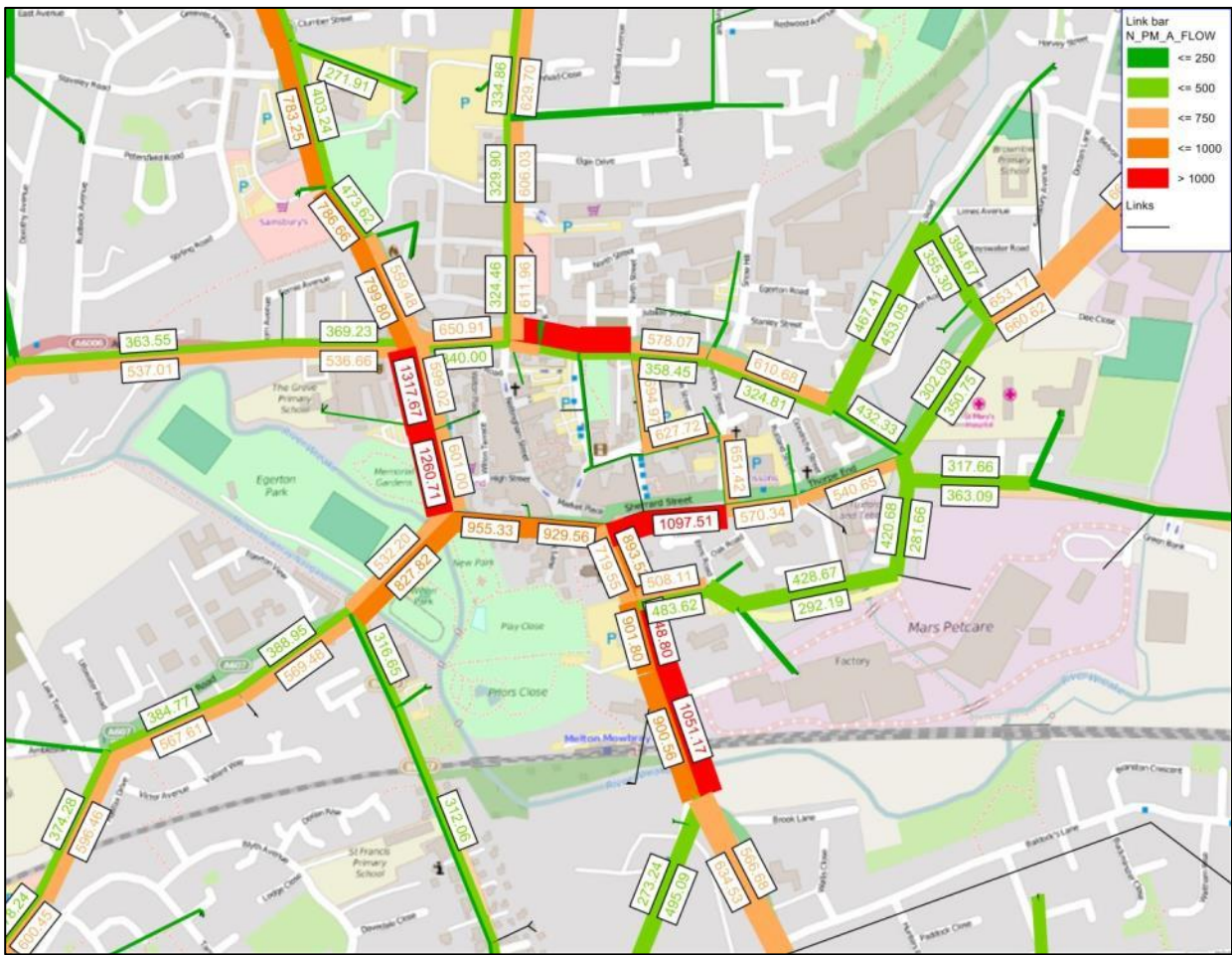


Figure 4-16 : 2031 PM Peak Hour Forecast Flows (PCU) within Melton Town Centre with a Northern Distributor Road

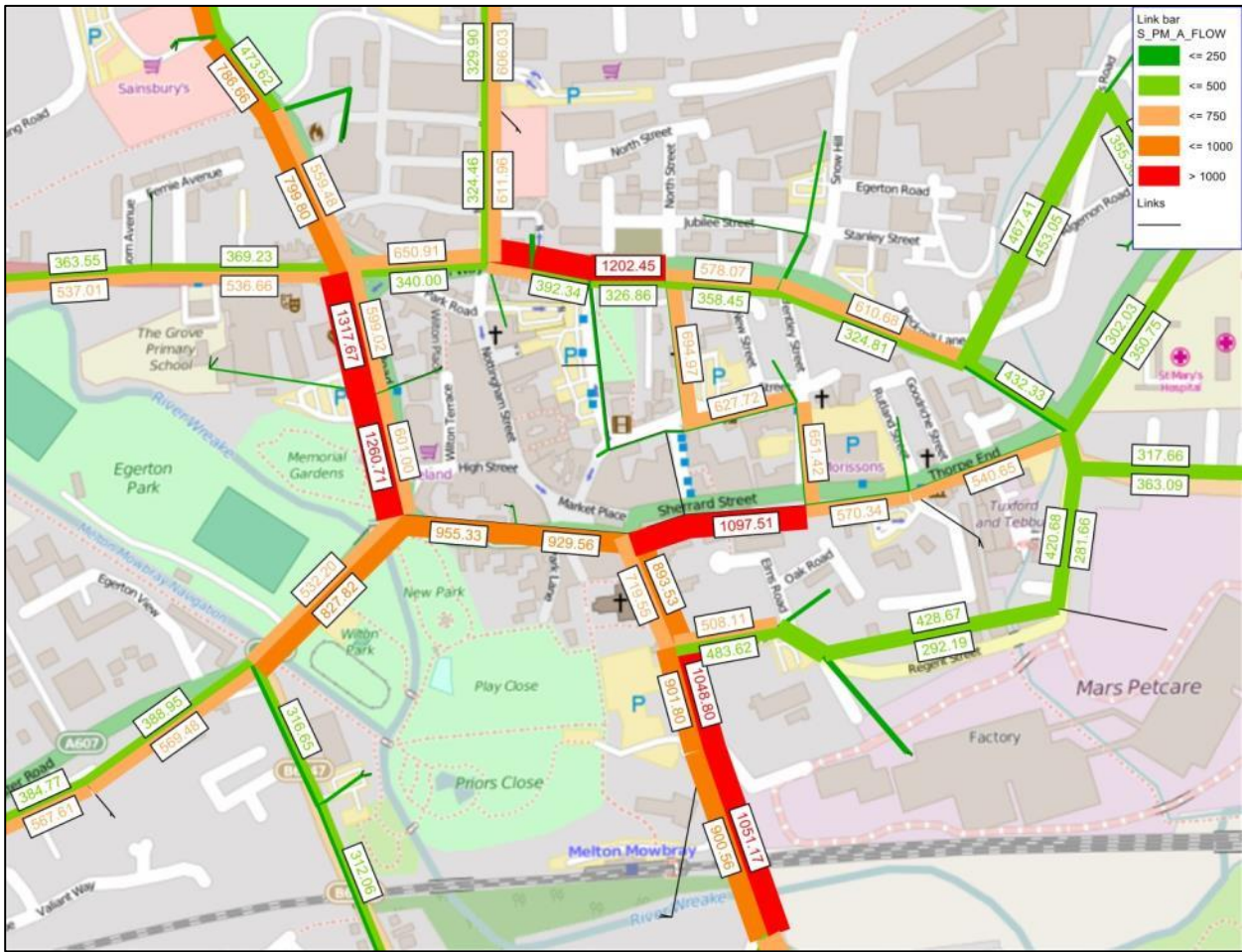


Figure 4-18 : 2031 PM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Southern Distributor Road

4.4.4 Eastern Distributor Road Option

The traffic flows for the PM Peak Hour in 2031 with a potential Eastern Distributor Road scenario are shown in Figure 4-19 for around Melton and Figure 4-20 for within Melton Town Centre. As with the AM peak hour, a significant amount of traffic is attracted to the Eastern Distributor Road, in particular traffic travelling from the north west of Melton to the eastern side of the town.

In parallel this distributor option attracts demand traversing from the south east (via Burton Road) and south west (via Leicester Road and Kirkby Lane) to the north of Melton. As with the AM peak hour the most utilised section is from B676 Saxby road to A607 with a combined demand of almost 2,000 PCUs at its highest level.

This is greater than the Western option at its peak, and as per the AM peak, it can also be shown that higher levels of flow extend along a longer section of the distributor roads length.

As a result, it has the greatest benefits in reducing through traffic, especially that within Melton itself, due to the significantly shorter distance and time to traverse. Within the town centre the distributor road reduces demand along Norman Way in particularly between A607/A6006 and A607/Scalford Road junctions; and along Sherrard Street by up to 200 vehicles. Similar to the AM peak hour, the traffic flows on all other main town centre routes are also generally reduced as a result of shift of traffic to the potential route.

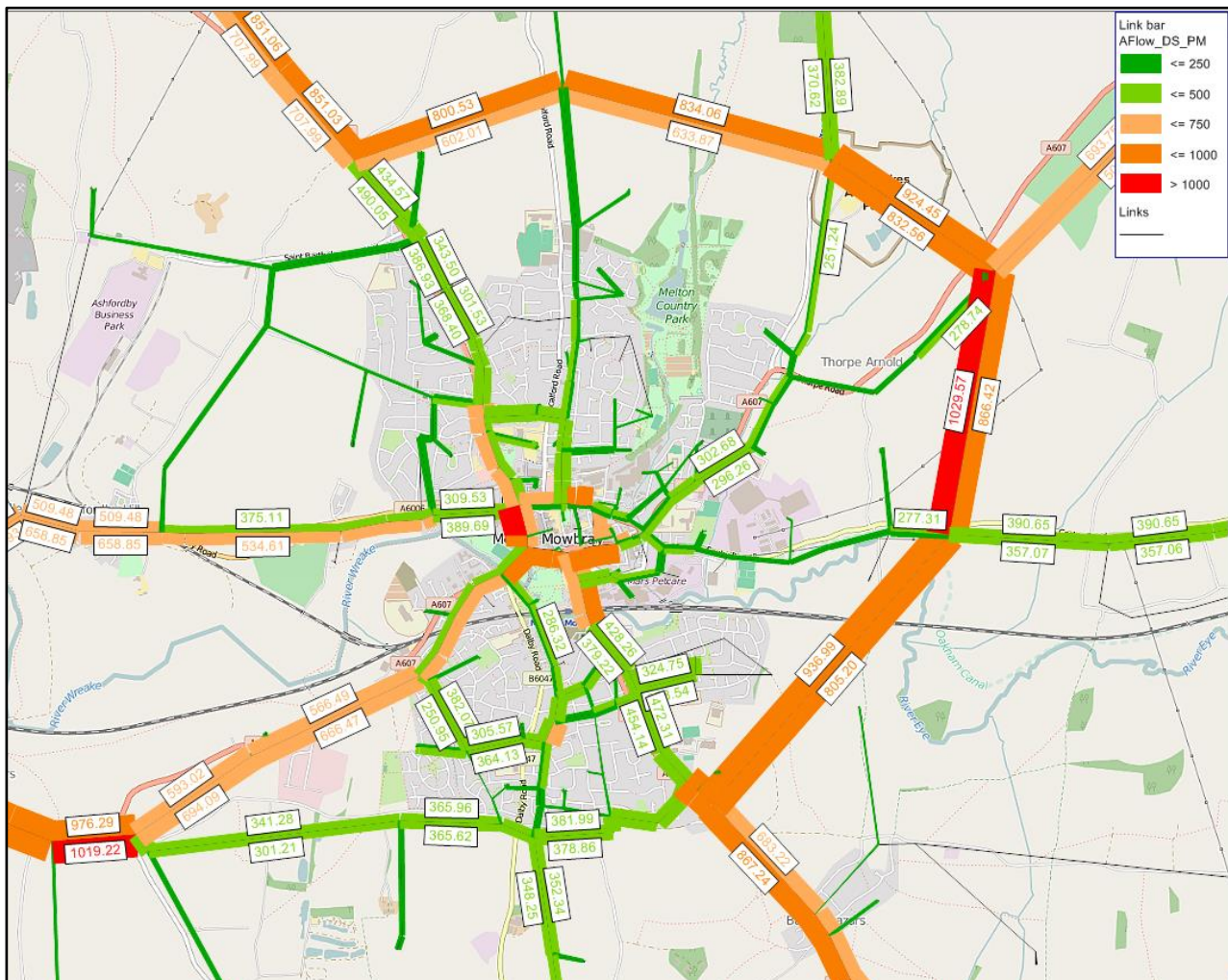


Figure 4-19 : 2031 PM Peak Hour Forecast Flows (PCU) around Melton with Eastern Distributor Road

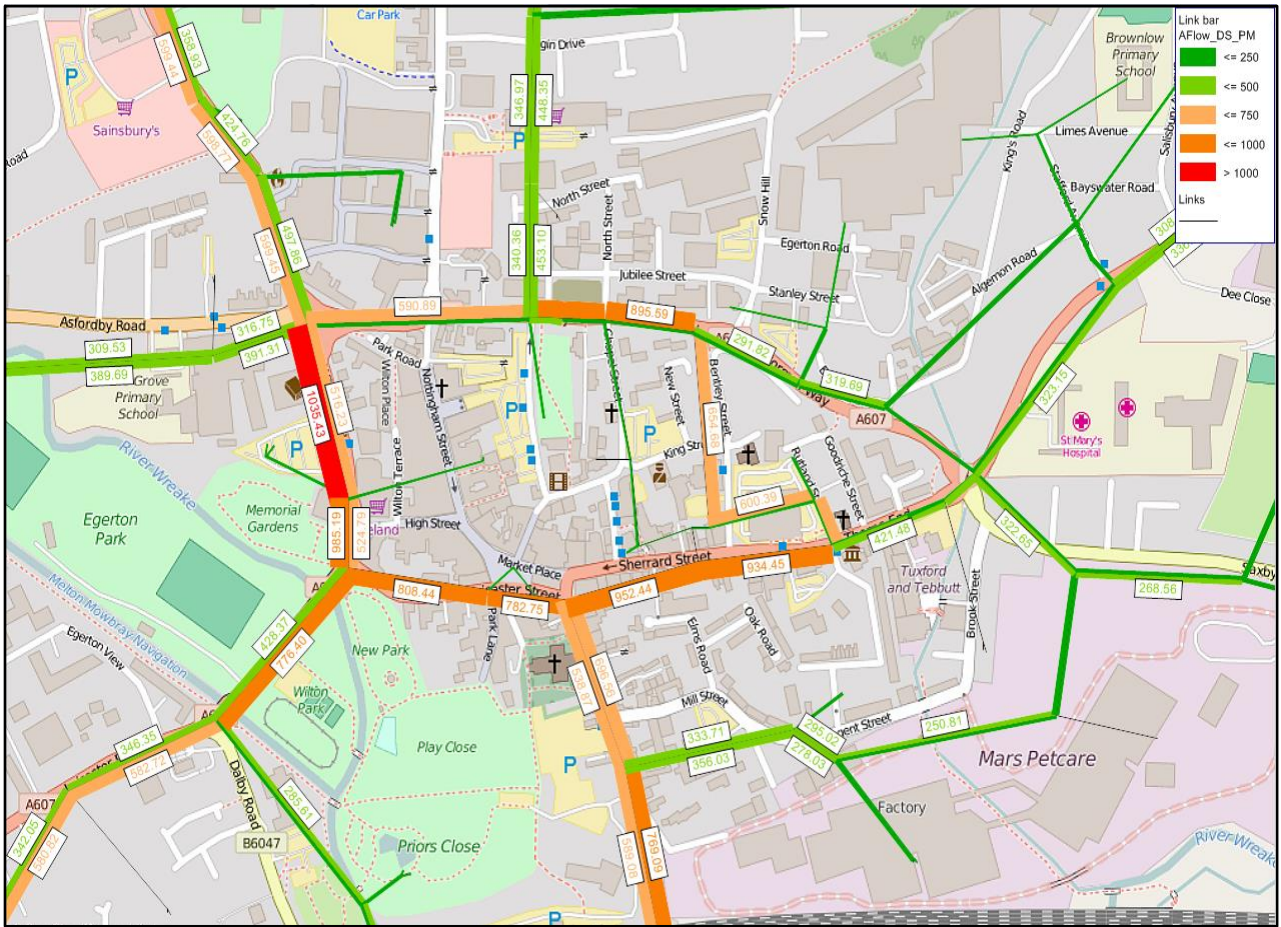


Figure 4-20 : 2031 PM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Eastern Distributor Road

4.5 Delay Changes with Each Option – 2031 AM Peak Hour

The following sub-section assesses the impact of each distributor road on total delay (seconds) on road links and at junctions around Melton Town Centre. This analysis tends to follow that of traffic flows (and indeed understanding travel flows is the key to understanding the differences in delay reduction created by each of the options).

As noted in the introduction, the assessment focuses on Melton Town Centre where the delays are greatest, and that is the core objective in reducing future congestion, and in accommodating future growth in the town.

4.5.1 2031 Do Minimum Scenario – Delay Changes

In order to assess the impacts of the options on the link delays, it is first important to understand the situation prevailing in the Do Minimum scenario, with no intervention in place. In this assessment links are classified based on their total delays by using the colour bands which are bounded by red band for the delays greater than 300 seconds (>5 minutes on average) and by the dark green band for delays less than or equal to 60 seconds shown in green (>1 minute on average)

As shown in Figure 4-21, there are three junctions experiencing significant delays on their approaches.

These are the junctions on A607/A6006, A607/Scalford Road and A607/Thorpe End Road. In addition the A607/Leicester Road, A607/Dalby Road and A607/Snow Hill junctions also experience level of delays that are significant, but at lower levels than compared to the three junctions mentioned above.

As noted in the cumulative development work, given the closeness of these junctions, delays on a per mile basis are particularly acute, given several of these junctions need to be traversed to cross the town.

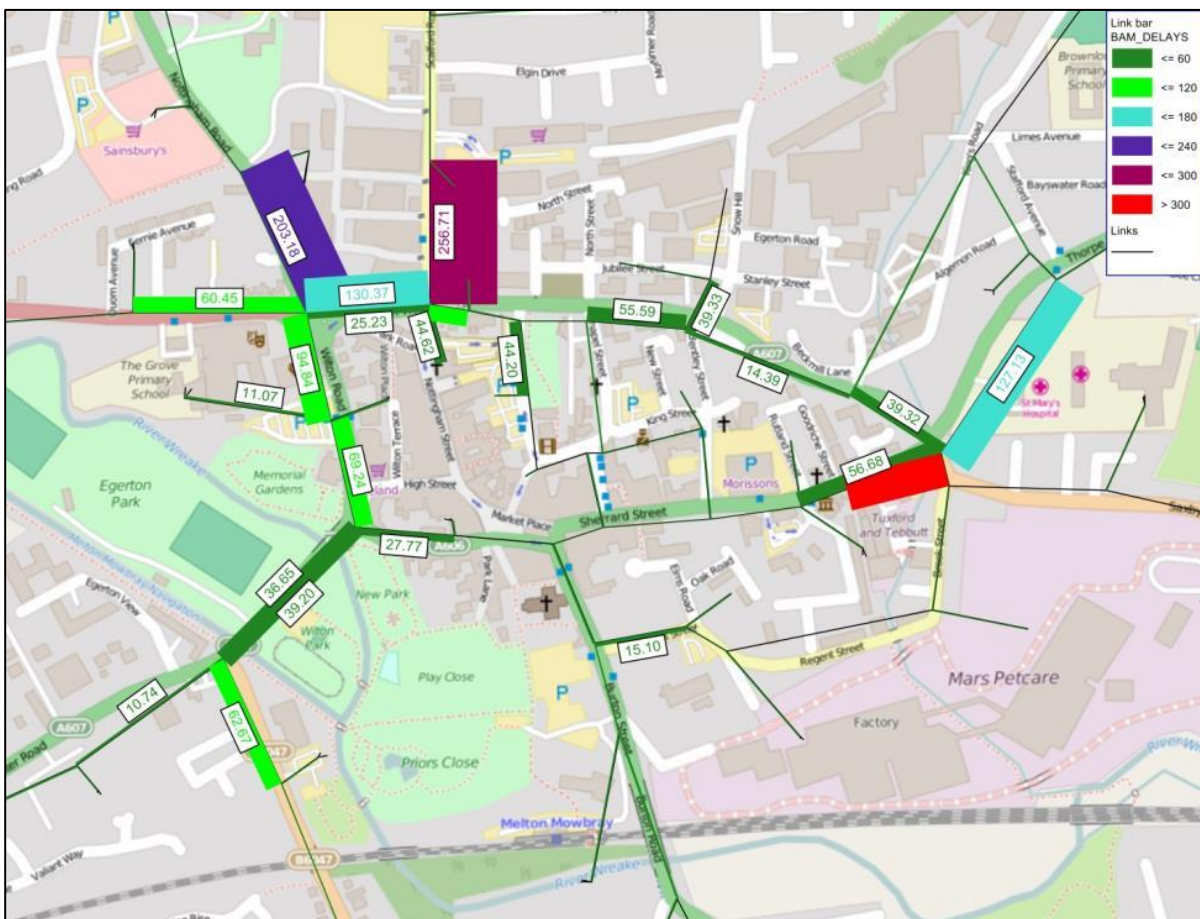


Figure 4-21 : 2031 AM Peak Hour Total Link Delay (sec.) within Melton in Do Minimum Scenario

4.5.2 Western Distributor Road Option - Delay Changes

For the purpose of comparing the options against the Do Minimum scenario in terms of link delays, plots of network difference between each option scenario and the Do Minimum scenario have been prepared.

Figure 4-22 shows the total delay difference between the Western Distributor Road (Do Something) and the Do Minimum networks. Negative values are shown by blue bars and positives are represented in green.

Overall, it appears that the implementation of the Western Distributor Road significantly reduces delays on some of the major junctions within Melton Town Centre, with the highest delay decline occurring on the junction between A607/A6006 followed by the A607 junctions with Scaford Road, Thorpe Road and Leicester Road. There are also delay reduction benefits to A607/Dalby Road junction.

Given the length of the Western route, the decongestion of the Town Centre majorly occurs on the western side, due to the transfer of traffic to the Western route.

Besides these links, it can also be noted that there are small reductions in delay over a section of Norman Way Road (close to Snow Hill) and a section of Thorpe End road.

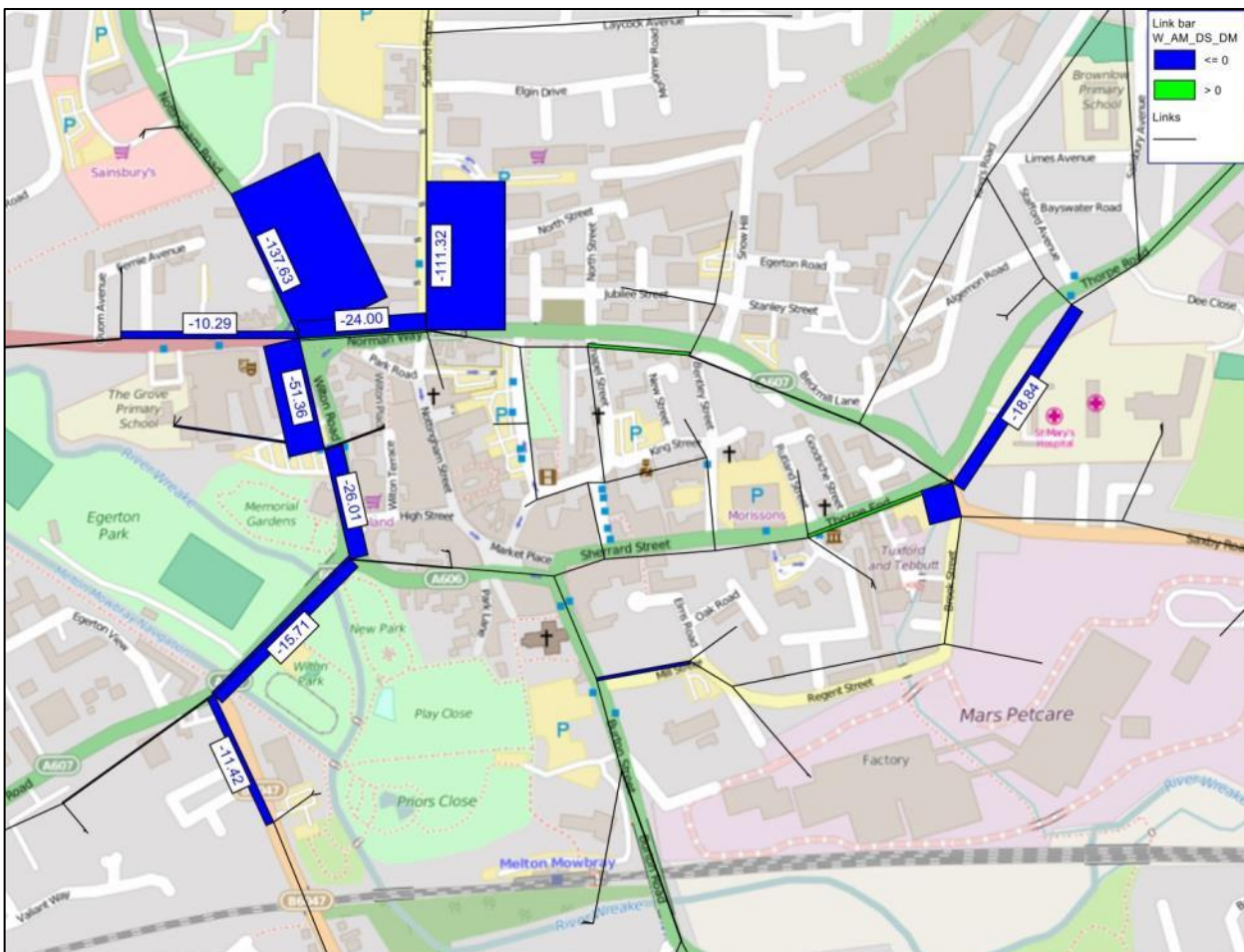


Figure 4-22 : 2031 AM Peak Hour Change in Total Link Delay (sec.) within Melton with Western Distributor Road

4.5.3 Northern Distributor Road Option- Delay Changes

As shown in Figure 4-23 a potential Northern Distributor Road would significantly reduce delays on the A607 Norman Way junctions with Nottingham Road and Scalford Road by over a minute per vehicle.

However, these delay reductions are less significant compared to a full western route.

Additionally, delay reductions of less than 20 seconds occur on the A607/Snow Hill junction and on the Thorpe Road approach of the junction with A607 Norman Way. However, the delay reduction on the Thorpe Road may be counteracted by the increase on the Saxby Road approach, resulting in minimal delay improvement on the overall junction.

Slight delay increases also occur over a part of Wilton Road, Leicester Road and Dalby Road, but otherwise changes are localised to the Nottingham Road and Scalford Road junctions with Norman Way.

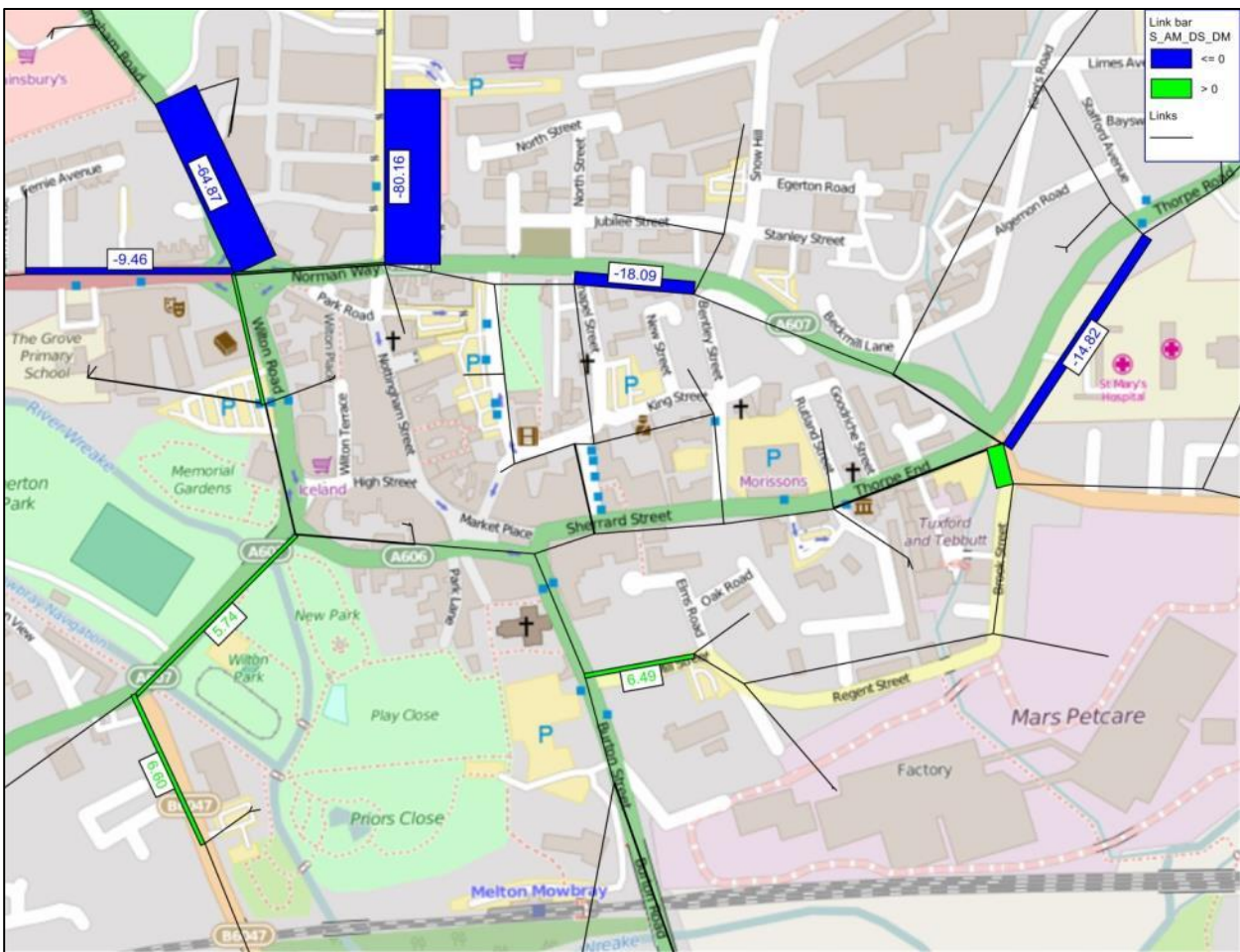


Figure 4-23 : 2031 AM Peak Hour Change in Total Link Delay (sec.) within Melton with Northern Distributor Road

4.5.4 Southern Distributor Road Option - Delay Changes

A similar assessment has been undertaken for the Southern Distributor Road option, in Figure 4-24.

The implementation of this potential distributor road does not appear to have any significant benefits in terms of reducing congestion within Melton Town Centre.

Indeed, a delay increase on the Asfordby Road approach of the A607/A6006 junction is highly noticeable compared to few locations of delay declines, which are not as prominent as the Western or Northern Distributor Road Scenarios. This is as a result of additional flow on Leicester Road (to the south of Melton) that means there is a small, but nevertheless significant, increase on flow on Ashforby Road as a result of the potential option.

A slight decline in delay is noted at the A607/Scaford Road junction and the A607/Thorpe End junction, but similar to the previous Northern option, the overall delay on the A607/Thorpe End junction remains unchanged, as the decrease in delay of one of the approaches is cancelled out by the delay increase of the other. A section of Dalby Road approaching Leicester Road is also forecast to benefit from the proposals- at about 15 seconds on average per vehicle.

As noted in the flow change plots previously, limited delay reduction is noted in Melton Town Centre by this option alone.

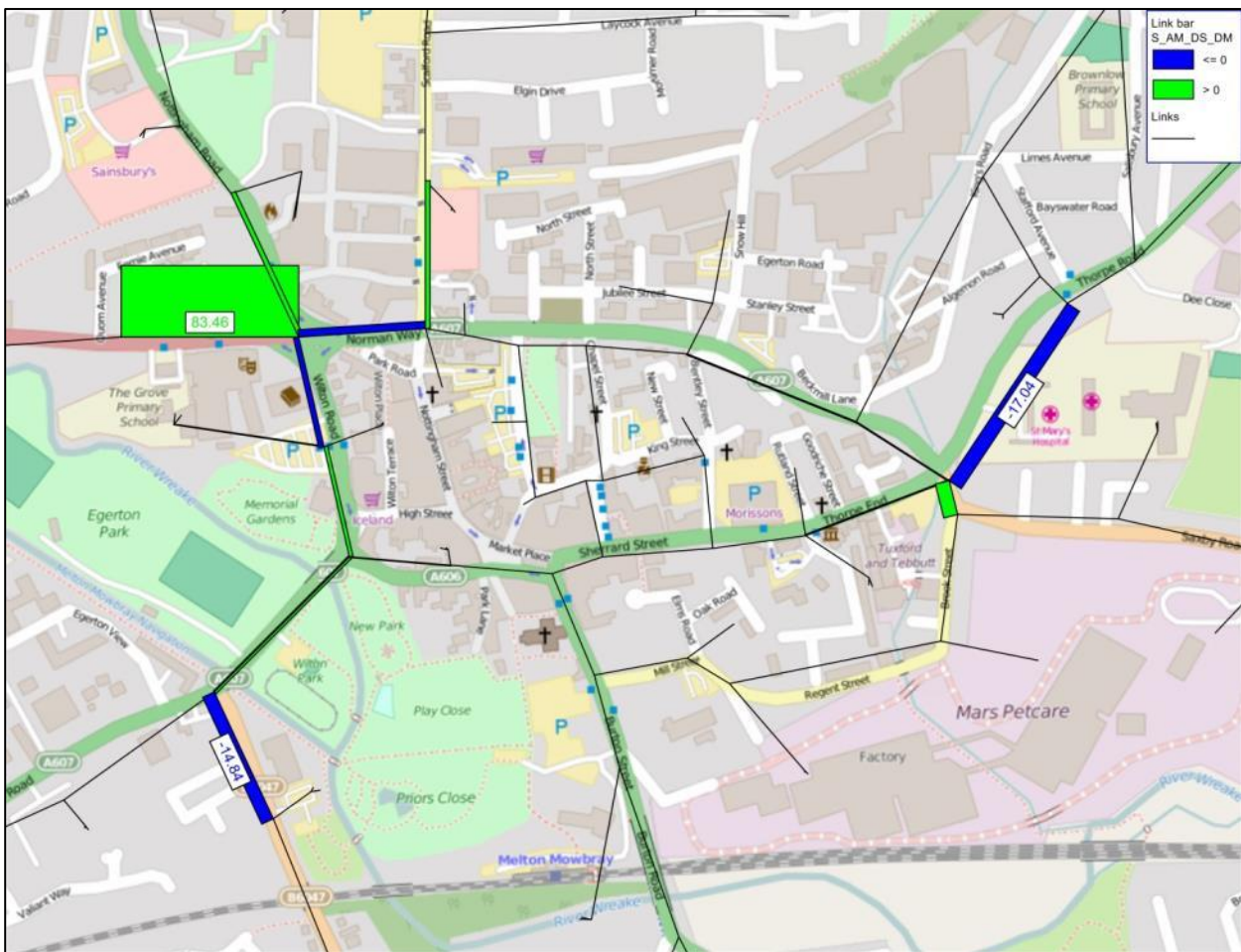


Figure 4-24 : 2031 AM Peak Hour Change in Total Link Delay (sec.) within Melton with Southern Distributor Road

4.5.5 Eastern Distributor Road option - Delay Changes

The impact of the Eastern Distributor Road on the delays of the links within Melton Town Centre is also assessed through the comparison of this network with the Do Minimum. The result of this assessment is shown in Figure 4-25 (but please note this has needed to be rescaled due to the size of the benefits).

In this scenario, there is forecast to be a significant decline in delay of at least 2-3 minutes to occur at each of the A607/A6006 and A607/Scaford Road Junctions. These junctions also benefit from a decline in delays in excess of one minute on Norman Way.

In addition the delay decreases on all arms of the A607/Thorpe End Junction with a major decline of over a minute on Thorpe Road and over two minutes on Saxby Road. Cumulative reductions in delay across the town, therefore approach 3-5 minutes, depending on the exact route taken.

Smaller reductions in delay occurs at key town centre junctions including; A606/Sherrard Street, A607/Snow Hill and A607/Leicester Street junctions.

This option also benefits the section of Dalby Road approaching Leicester Road with the 20 second decline in delay; as noted in the Southern option, and has the most comprehensive reductions of any option.

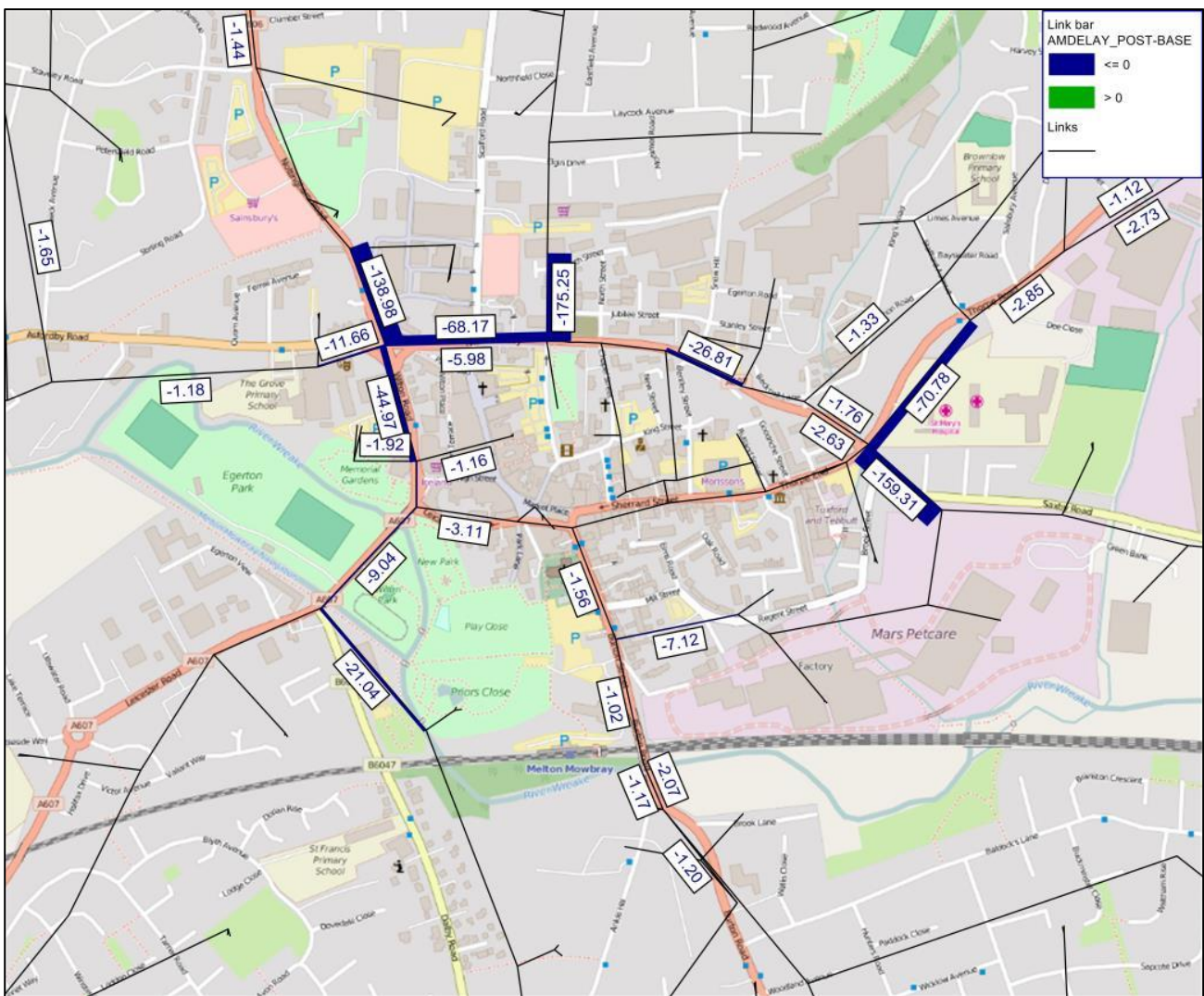


Figure 4-25 : 2031 AM Peak Hour Change in Total Link Delay (sec.) within Melton with Eastern Distributor Road

4.5.6 Summary of Delay Changes in AM Peak Hour

Table 4-1 summarises the overall changes in delays at key junctions and routes around Melton, for each of the distributor road scenarios for the AM peak hour.

In this peak hour, the Eastern Distributor Road is demonstrably the most successful at decreasing delays within Melton, benefitting all junctions, followed by the Western Distributor Road.

		Western Distributor Road	Northern Distributor Road	Southern Distributor Road	Eastern Distributor Road
Decrease in total Delay(seconds) at Key Junctions	A607 / A6006	✓	✓		✓
	A607 / Leicester Street	✓			✓
	A607 / Scalford Road	✓	✓		✓
	A607 / Snow Hill		✓		✓
	A607 / Thorpe End	✓			✓
	A606 / Sherrard Street				✓
	A607 / Dalby Road	✓		✓	✓
Decrease in total Delay(seconds) on key radial routes	A6006	✓	✓		✓
	A606 Nottingham Road	✓	✓		✓
	Scalford Road	✓	✓		✓
	A607 Thorpe Road	✓	✓	✓	✓
	A606 Burton Street				✓
	A607 Leicester Road	✓			✓

Table 4-1 : Summary of Schemes Impacts on AM Peak Hour Delay

4.6 Delay Changes with Each Option – 2031 PM Peak Hour

The same approach as in the AM peak hour is followed to assess the impacts of the distributor road options on change in link delays within Melton Town Centre network in the PM peak hour in 2031. Generally the same picture holds as per the AM peak hour, although the benefits of the Northern Distributor Road option, as noted within the flow change analysis, are reduced.

4.6.1 2031 Do Minimum Scenario – Delay Changes

Figure 4-26 shows the delays for the PM peak hour in the Do Minimum scenario i.e. with no distributor road options. Overall the delays in this peak hour are lower than those in the AM Peak Hour, except for few links such as A607 at Snow Hill, Leicester Road at Dalby Road and Thorpe End.

In this scenario many of the delays are on radial links heading out from Melton with the most significant delay of over 3 minutes occurring on B676 Saxby Road followed by a delay in excess of 2 minutes on A607 Thorpe Road. Approaches on the Norman Way junctions at A6006 Ashfordby Road and at Scalford Road have delays close to one minute. In the outbound direction from the town centre the greatest delay is on Leicester Road A607 with the delay of over 90 seconds and A606 Burton Road approaching Ankle Hill with the delay of 40 seconds.

There are eastbound delays in excess of one minute on Norman Way at Snow Hill, and on Thorpe End as well as Regent Street westbound approach to Burton Street, which represent high levels of delay on a cumulative, per mile basis given the close proximity of the junctions.

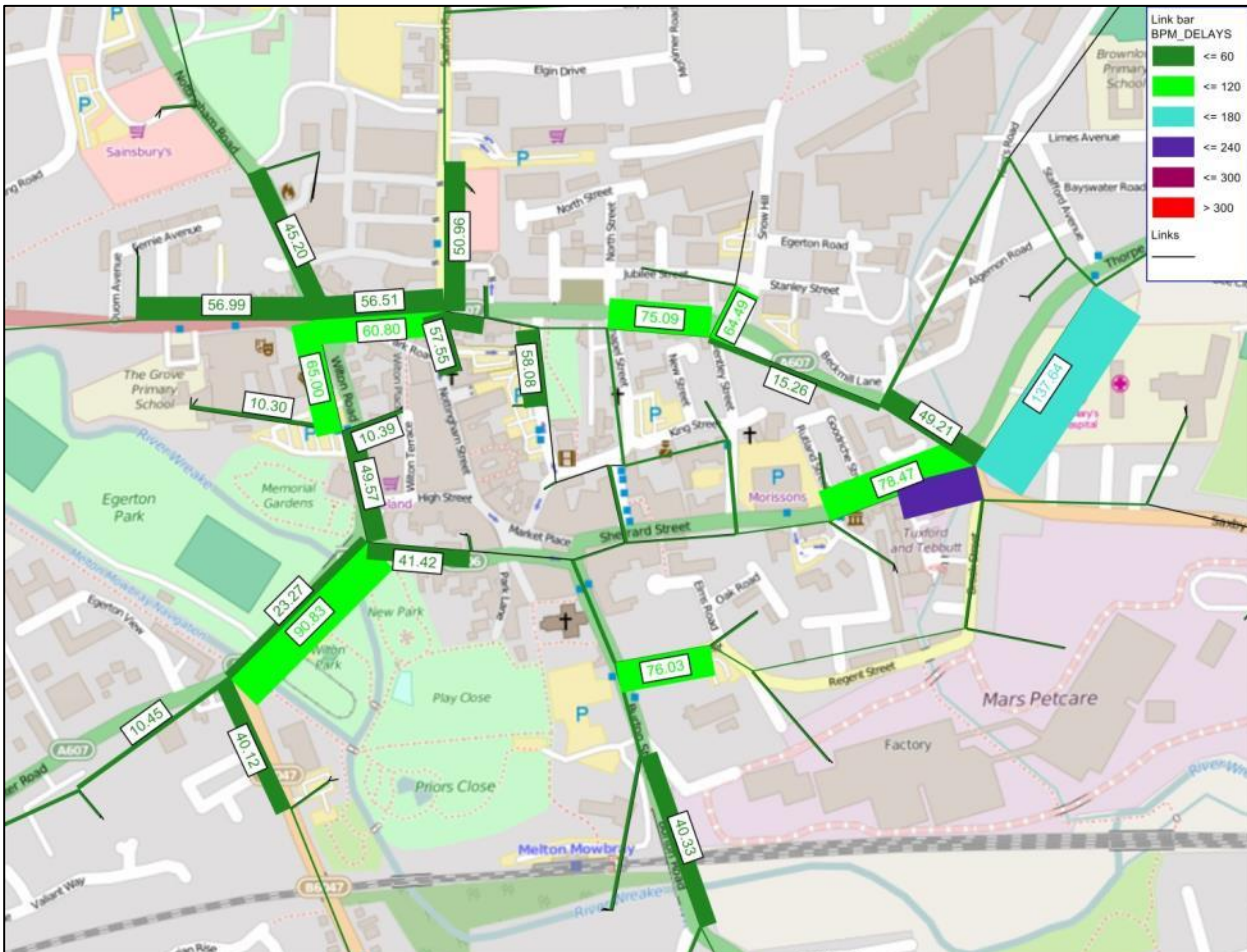


Figure 4-26 : 2031 PM Peak Hour Total Link Delay (sec.) within Melton in Do Minimum Scenario

4.6.2 Western Distributor Road Option – Delay Changes

Figure 4-27 shows the difference in delays between the Western Distributor Road scenario and the Do Minimum scenario. The blue bars represent a delay reduction and the green bars denote a delay increase.

With a potential Western Distributor Road, delays are forecast to decrease significantly on the A607 Leicester Road outbound with benefits also noted on Wilton Road. The Western Distributor Road reduces delays on each of the northern approaches to the A607/A6006 and the A607/Scalford Road junctions, and along Norman Way between these two locations. The traffic at A607/Thorpe End junction also benefit from lower level of delays per vehicle.

In addition there are reductions of delay for exiting traffic from Regent Street onto Burton Road (by over 40 seconds), and a further half minute is saved on the A606 approaching Ankle Hill.

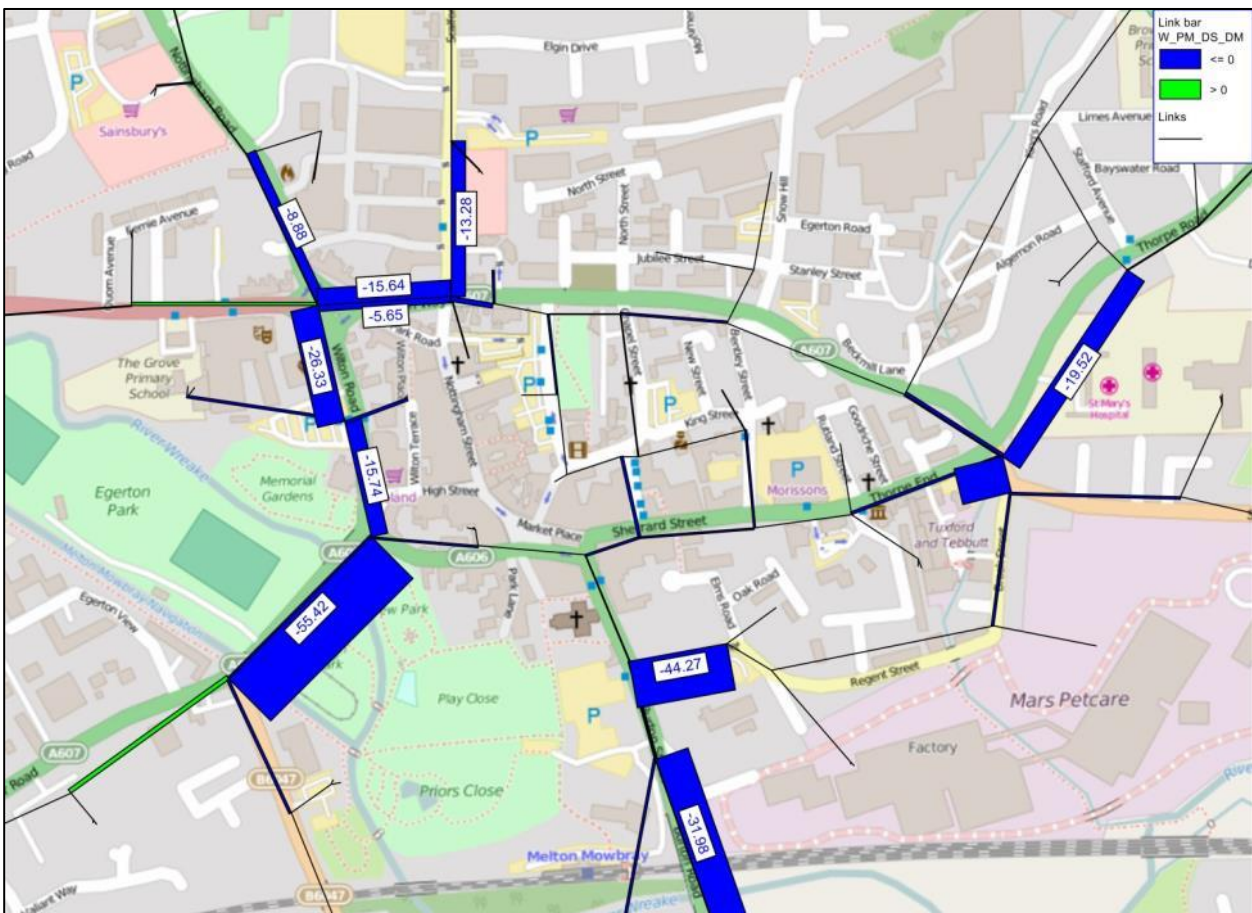


Figure 4-27 : 2031 PM Peak Hour Change in Total Link Delay (sec.) within Melton with Western Distributor Road

4.6.3 Northern Distributor Road Option - Delay Changes

The impact of the Northern Distributor Road shows a slight decline in delays at the A607/Snowhill Junction as well as the A607/Thorpe End junction, as shown in Figure 4-28.

However, this scheme also results in slightly higher delay on a number links within the town centre such as Saxby Road, Brook Street (about 39 seconds), Leicester Street, Leicester road approaching Dalby Road and the A606 approaching Ankle Hill.

In general the benefit of the Northern Road is felt less in the PM peak hour compared to the AM Peak Hour, which shows more acute decongestion of Melton Town Centre- and especially inbound at Nottingham Road and Scaford Road junctions. This follows the analysis of the previous section.

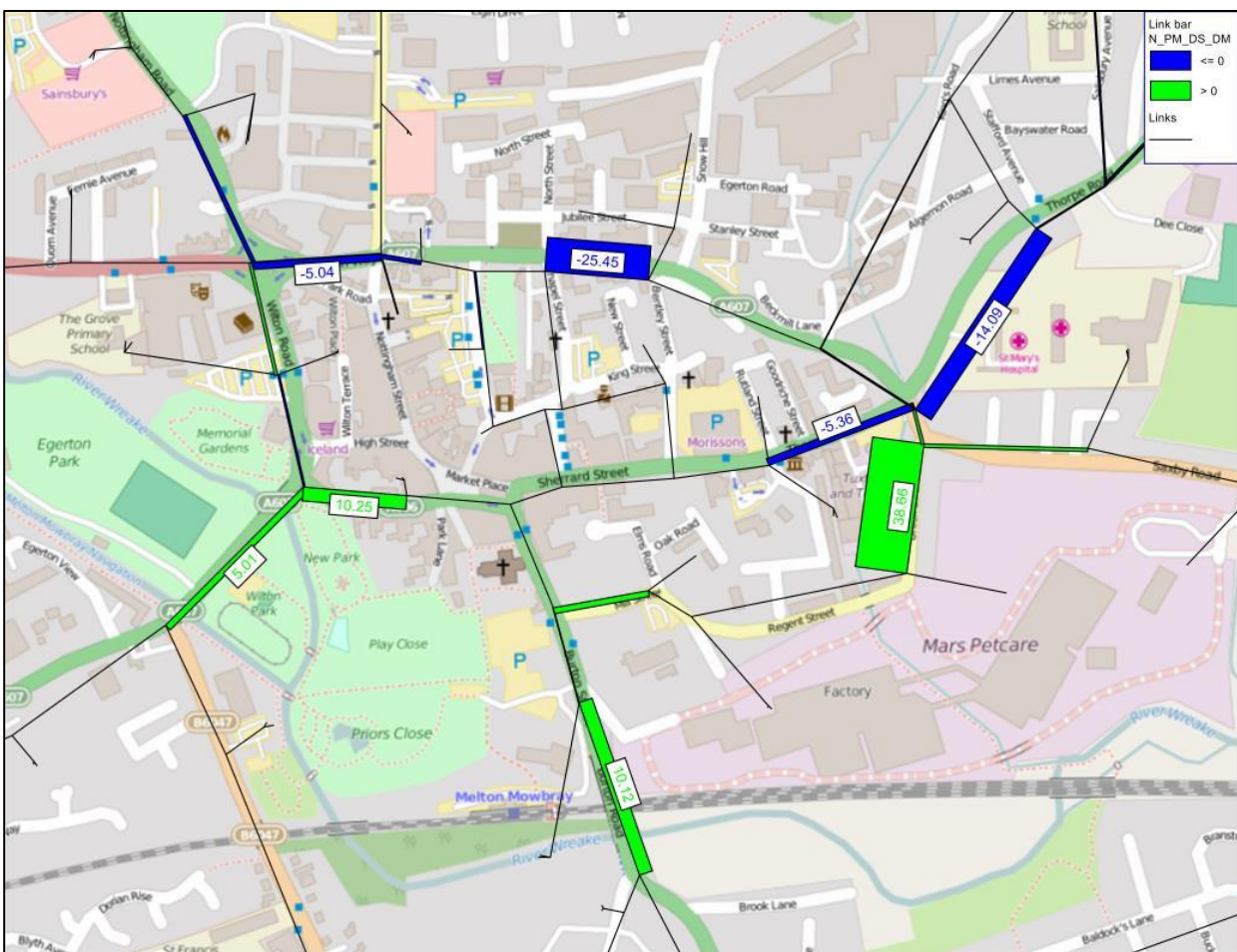


Figure 4-28 : 2031 PM Peak Hour Change in Total Link Delay (sec.) within Melton with Northern Distributor Road

4.6.4 Southern Distributor Road Option - Delay Changes

As with the AM peak hour, the Southern Distributor Road is not forecast to have significant impact on delay reduction in Melton Town centre. Figure 4-29 shows the impacts of this distributor road on the delays of the town centre links.

With the Southern Distributor Road in place, delays decline at the A607/Thorpe junction with savings of around 15 seconds on the A607 Thorpe Road. There are a few other small reductions in link delays in other sections of the network.

Increases in delay occur for some arms at the A607/A6006 and the A607/Scalford Road junctions and on Brook Street approaching Saxby Road, but these are generally small.

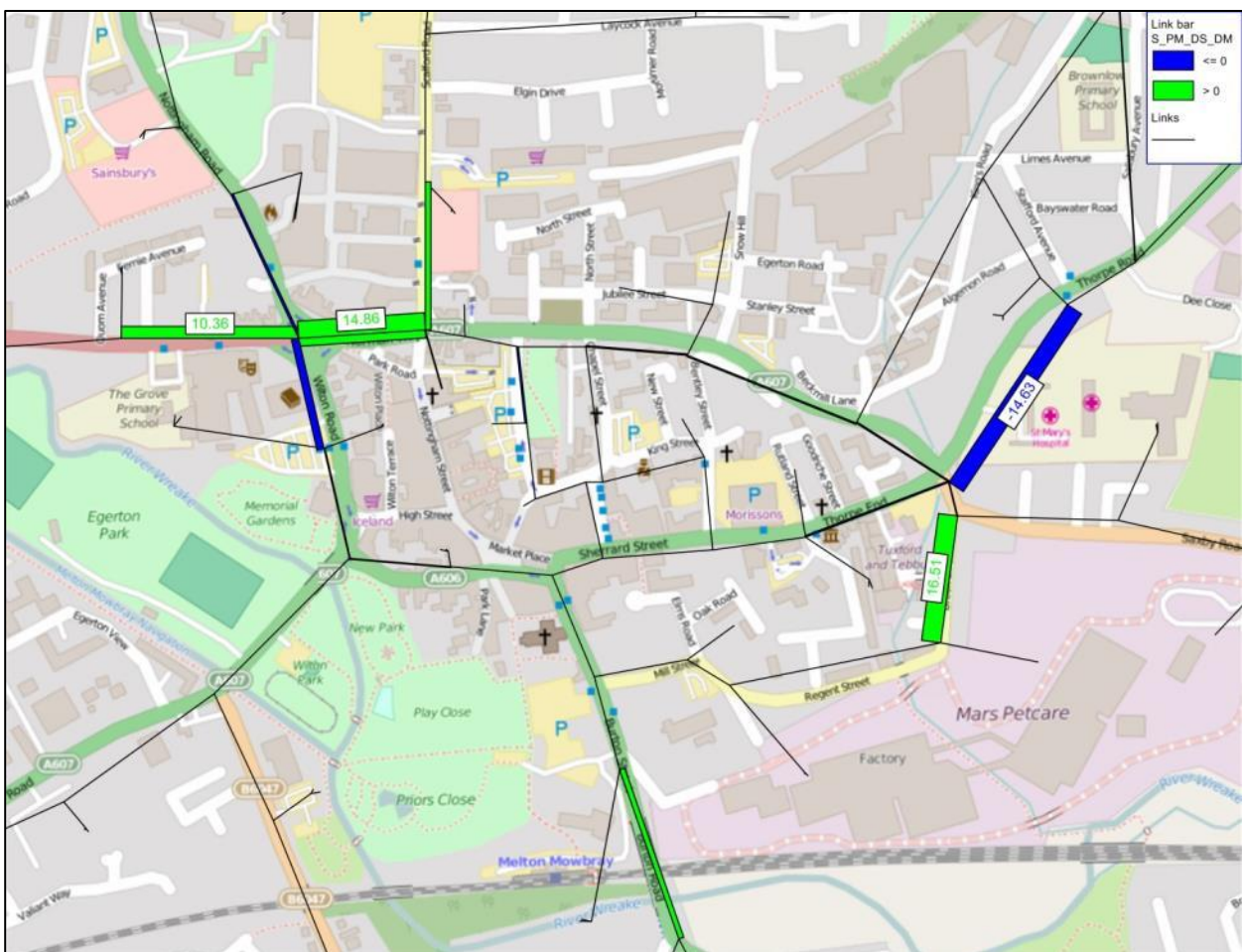


Figure 4-29 : 2031 PM Peak Hour Change in Total Link Delay (sec.) within Melton with Southern Distributor Road

4.6.5 Eastern Distributor Road Option - Delay Changes

Figure 4-30 shows the total delay changes in the PM peak hour on Melton Town Centre links as result of a potential Eastern Distributor Road.

With this potential scheme, link delays decrease comprehensively across the town centre, although there are slightly smaller benefits to the western side of the town.

The junction with the greatest decline in delays is the A607/Thorpe End junction with a declined of over two minutes on B676 Saxby Road, and over 80 seconds on the A407 Thorpe Road.

This is accompanied with a slight decline in delay of just under five seconds on the A607 Norman Way. A number of road segments along the A607 Norman Way road benefit from declines in delays, among which the eastbound direction experiences the highest decline of up to 48 seconds, which cumulatively represent between 2-4 minutes of benefit across the town, depending on the exact route taken.

This option also benefits the section of Leicester Road approaching Dalby Road with the 45 second decline in delay and a delay decline of more a minute for the traffic exiting from Regent Street onto Burton Road.

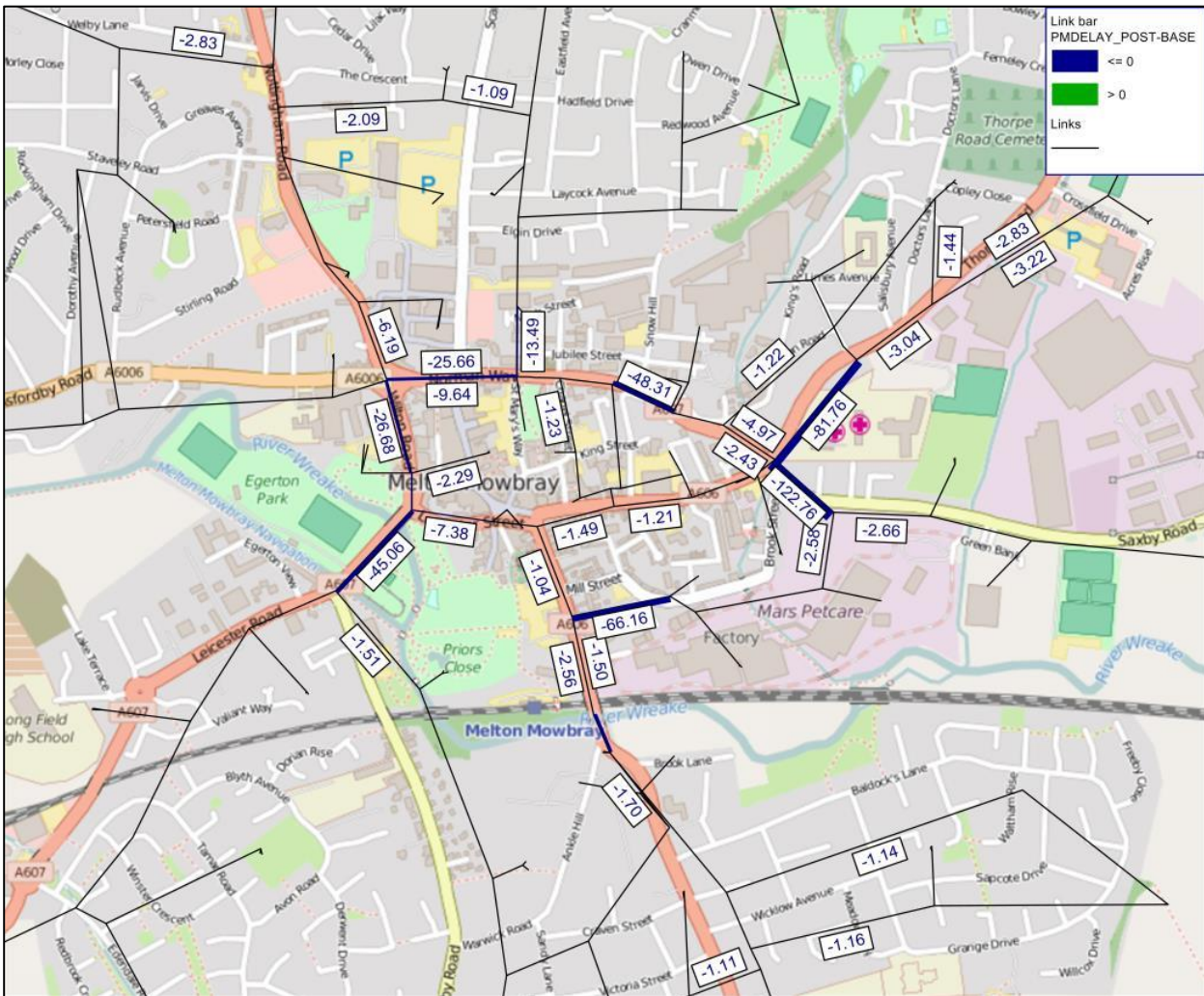


Figure 4-30 : 2031 PM Peak Hour Change in Total Link Delay (sec.) within Melton with Eastern Distributor Road

4.6.6 Summary of Delay Changes in PM Peak Hour

Table 4-2 summarises the overall changes in delays at key junctions and links around Melton Town Centre for each of the distributor road for the PM Peak Hour.

Similar to the AM peak hour, the Eastern Distributor Road stands out as the most successful option in meeting the key objective of delay reduction at key junctions in Melton Town Centre, followed by the Western Distributor Road.

		Western Distributor Road	Northern Distributor Road	Southern Distributor Road	Eastern Distributor Road
Decrease in total Delay(seconds) at Key Junctions	A607 / A6006	✓	✓		✓
	A607 / Leicester Street	✓			✓
	A607 / Scalford Road	✓	✓		✓
	A607 / Snow Hill	✓	✓		✓
	A607 / Thorpe End	✓	✓	✓	✓
	A606 / Sherrard Street				✓
	A607 / Dalby Road	✓			✓
Decrease in total Delay(seconds) on key radial routes	A6006				
	A606 Nottingham Road	✓	✓		✓
	Scalford Road	✓			✓
	A607 Thorpe Road	✓	✓	✓	✓
	A606 Burton Street				✓
	A607 Leicester Road	✓	✓		✓

Table 4-2 : Summary of Schemes Impacts on PM Peak Hour Delay

Based on the traffic flow analysis, and delay reduction impacts, it can be seen that an Eastern Distributor Road is the most successful option in meeting the key objectives of congestion reduction and to best accommodate future growth associated with current levels of Cumulative Development Proposals at key junctions in Melton Town Centre.

5. Option Results – Higher Growth Scenario

5.1 Flows in Reference Case – 2031 AM Peak Hour

5.1.1 2031 Do Minimum without Intervention Scenario – Higher Growth Scenario

Figure 5-1 shows the forecast flows for the AM peak hour in the 2031 Do Minimum Higher Growth scenario i.e. with no distributor roads in place.

The scenario for 2031, as agreed with Melton Borough Council, includes an additional 5,000 dwellings and Melton SUE and Ashfordby Hill employment locations, above the levels in the 2031 LLITM Core scenario.

As with the cumulative development option results in the previous section, the traffic flow on the roads are represented by the colours of the bands along the links with dark green less than 250 PCU per hour, light green 250-500, light orange for 500-750, orange 750-1000 and red for links greater than 1000 PCUs in the peak hour for the area around Melton.

Flow patterns in this higher growth scenario are as per those reported in the cumulative development assessment work, with the highest inflow traffic towards Melton town centre are via the radial routes, which are namely A607 Leicester Road, A606 Nottingham Road, A607 Thorpe Road, A6006 Asfordby Road and A606 Burton Street. Significant traffic flows occur on Leicester Road (A607) west of Kirby Lane (over 1100 PCU towards town and nearly 800 away from town).

Some of the traffic from A606 Nottingham Road routes travel via The Crescent (rat-running) to enter the town centre via Scalford Road. The Crescent has nearly 800 PCU Eastbound in the AM peak.

It can be seen that the Higher Growth scenario impacts roads to the South, in particular Kirby Lane and Dalby Road which have increased traffic levels (compared with the cumulative scenario) due to the new development sites.

Figure 5-2 shows the forecast flows in the AM peak hour in the 2031 Do Minimum Higher Growth scenario for Melton Town Centre.

The town centre itself experiences high volumes of traffic along Leicester Street, Wilton Road and A607 Norman Way in particular. It can also be seen that there are about 550 PCU's that rat run through local streets such as Chapel Street, King Street and Sage Cross to travel from A607 Norman Way to Sherrard Street. Similarly, some of the traffic from A607 Thorpe Road towards town appears to rat run through Kings Road.

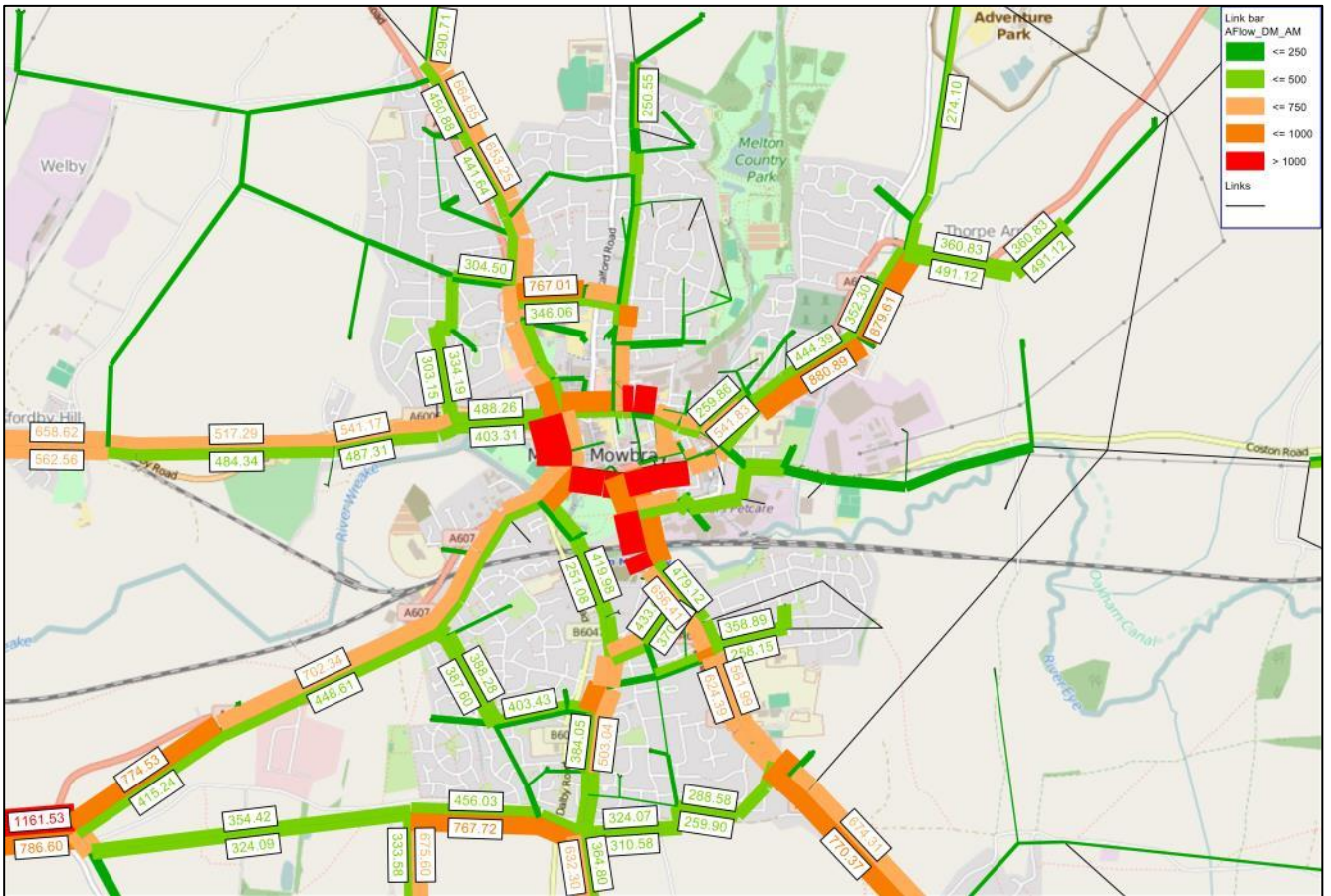


Figure 5-1 : 2031 AM Peak Hour Forecast Flows (PCU) around Melton in Do Minimum Higher Growth Scenario

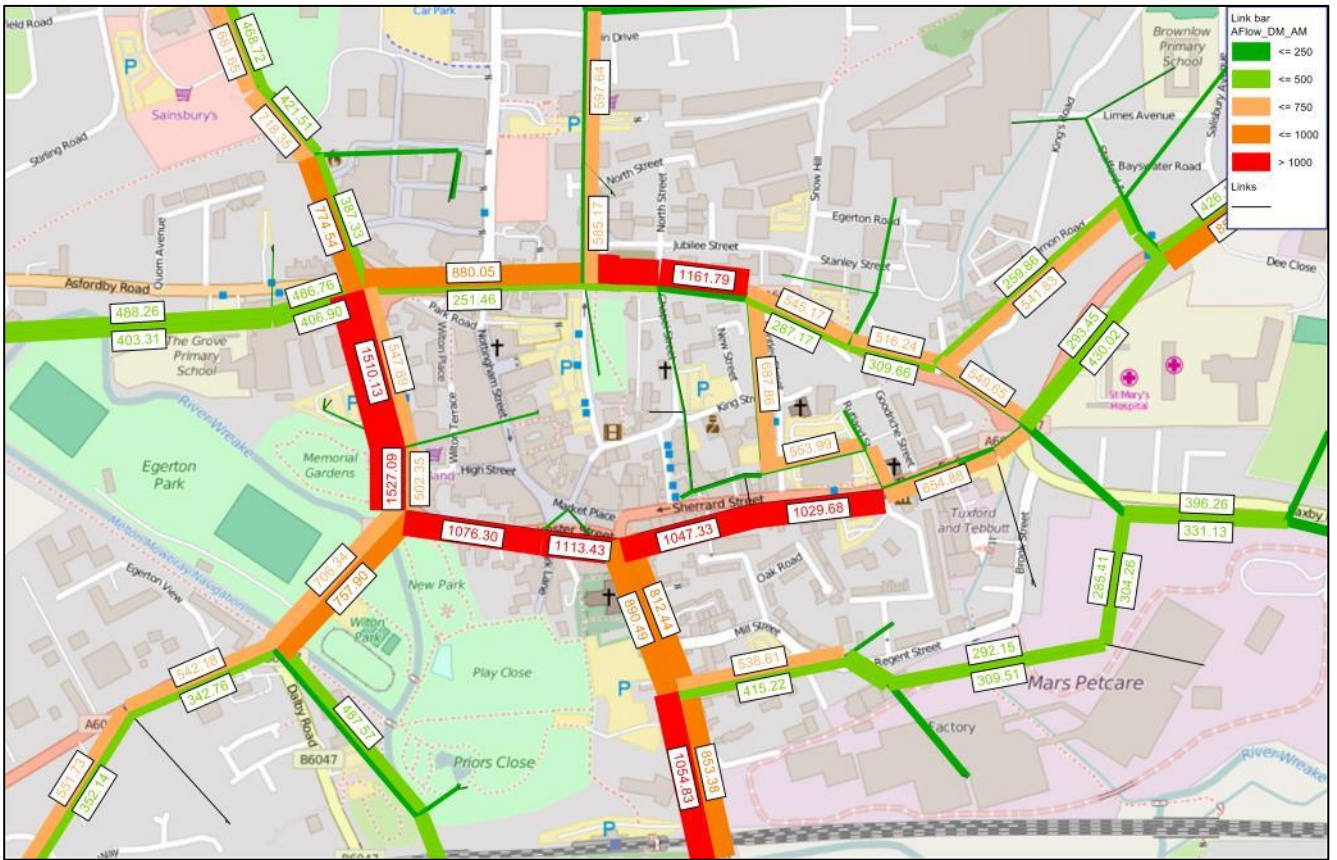


Figure 5-2 : 2031 AM Peak Hour Forecast Flows (PCU) within Melton Town Centre in Do Minimum Higher Growth Scenario

5.2 Flows with Distributor Road Options – 2031 Higher Growth Scenario AM Peak

5.2.1 Western Distributor Road Option

A potential Western Distributor Road would create a link from Burton Rd A606 to Leicester Road A607 to A6006 Asfordby Road, and the A606 Nottingham road round to Scalford Road in the north.

Figure 5-3 for around Melton and Figure 5-4 within Melton Town Centre shows the forecast flows with a potential Western Distributor Road Option in place, for the Higher Growth scenario.

As the Western Distributor Road links the A606 between the north and south sides of the town, it can be seen that this results in a significant decline in vehicles travelling on radial roads (such as A607 Leicester Road and A6006 Asfordby Road) linking Melton with locations to the west. This traffic and through traffic along the A606 corridor transfer to the potential route, which has flows exceeding 1100 PCU's southbound, and about 900 northbound, on its busiest section (from A6006 to A607).

The potential route would result in higher traffic in both directions on Burton road, where it connects to Kirkby Lane. It can be seen that the traffic on Burton Road diverts to Kirkby Lane to access the route therefore increasing the flow on Kirkby Lane, which is a part of the Western Distributor road. As a consequence of this diversion, there is a decline in traffic on some sections of Burton Road (after the Kirkby Lane junction) and local roads, such as Ankle Hill.

The Western Distributor Option provides a significant relief in traffic levels on Leicester Road where there is a significant decline on the approach towards Melton. The A607 Leicester Street Junction, is forecast to experience a significant decline in flow from 700 to below 500 PCU on the Leicester Road approach. In addition the A607 to the south west of Melton experiences a significant decline in demand in both the north and southbound directions.

The A6006 Asfordby Road experiences an increase in flow from 650 to 850 PCU west of the distributor road. To the east of the distributor road there is a significant decline in flows into and out of Melton as traffic is diverted onto the new outer radial route.

The final section of the Western Distributor Road which would link A607 to Scalford Road is forecast to reduce demand at the Scalford Road/Norman way junction and also slightly reduces the level of rat running occurring on The Crescent.

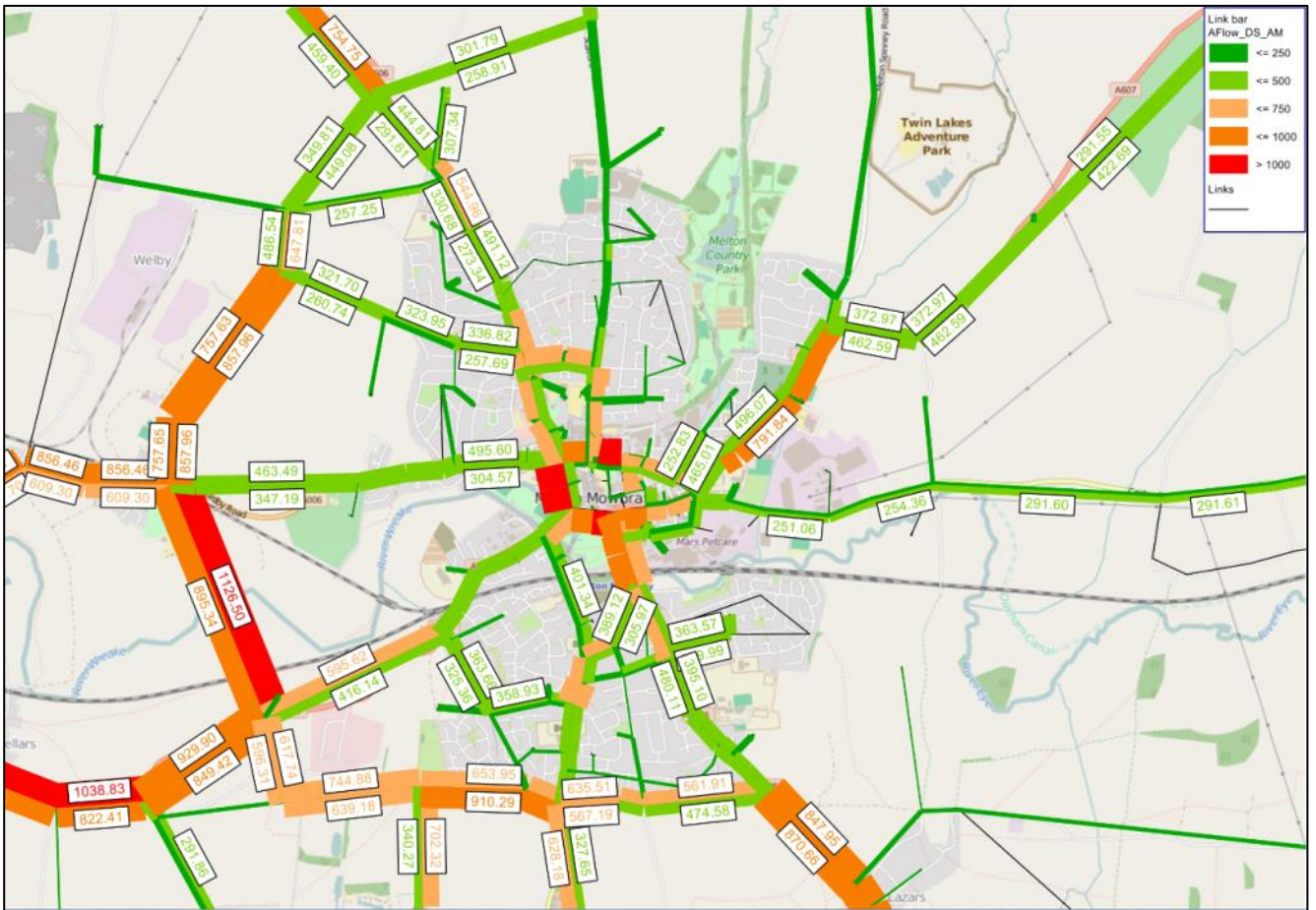


Figure 5-3 : 2031 AM Peak Hour Forecast Flows (PCU) around Melton with Western Distributor Road – Higher Growth

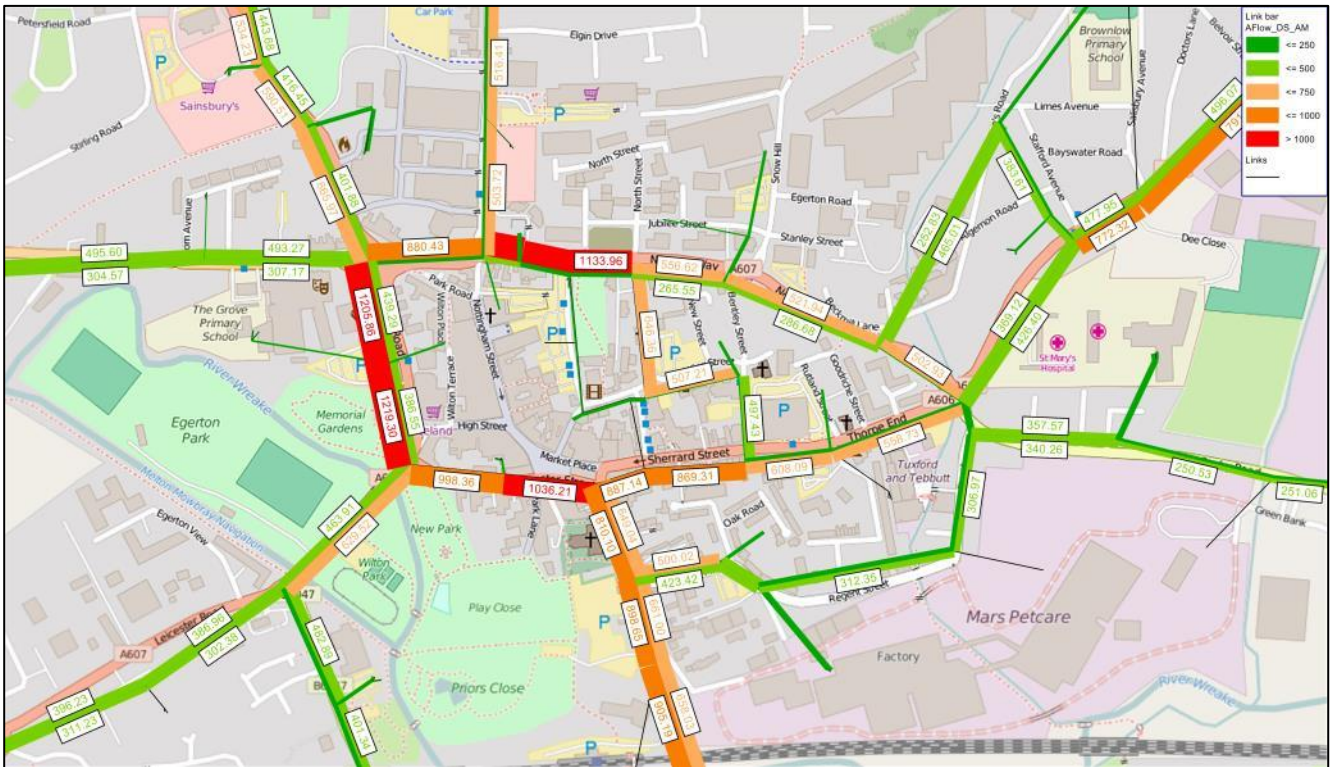


Figure 5-4 : 2031 AM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Western Distributor Road – Higher Growth

5.2.2 Northern Distributor Road Option

A potential Northern Distributor Road would provide a link from the A606 Nottingham Road to Scalford Road and across to Melton Spinney Road. Figure 5-5 and Figure 5-6 present the traffic flows on links around Melton and in Melton town centre, respectively, for the AM peak hour in 2031 higher growth scenario.

The Northern Distributor is forecast to experience flow volumes of nearly 500 PCUs eastbound from A606 to A607; with westbound flows being lower at just under 300 pcu's.

Key benefits are that the Northern distributor road reduces the demand on A607 Nottingham Road and Scalford Road to the south of the potential road on the approach to the town centre. It appears that traffic from A607 Nottingham Road diverts to the potential route to access A607 Thorpe Road via a section of Melton Spinney Road towards Melton Town Centre and partially towards Grantham direction. This also results in a minor increase in demand at A607/Thorpe End Junction.

The Northern distributor road has very little impact on the traffic pattern elsewhere in Melton, and does not reduce rat-running through the centre of the town; i.e. with only northern parts of Melton town centre benefitting from the proposal.

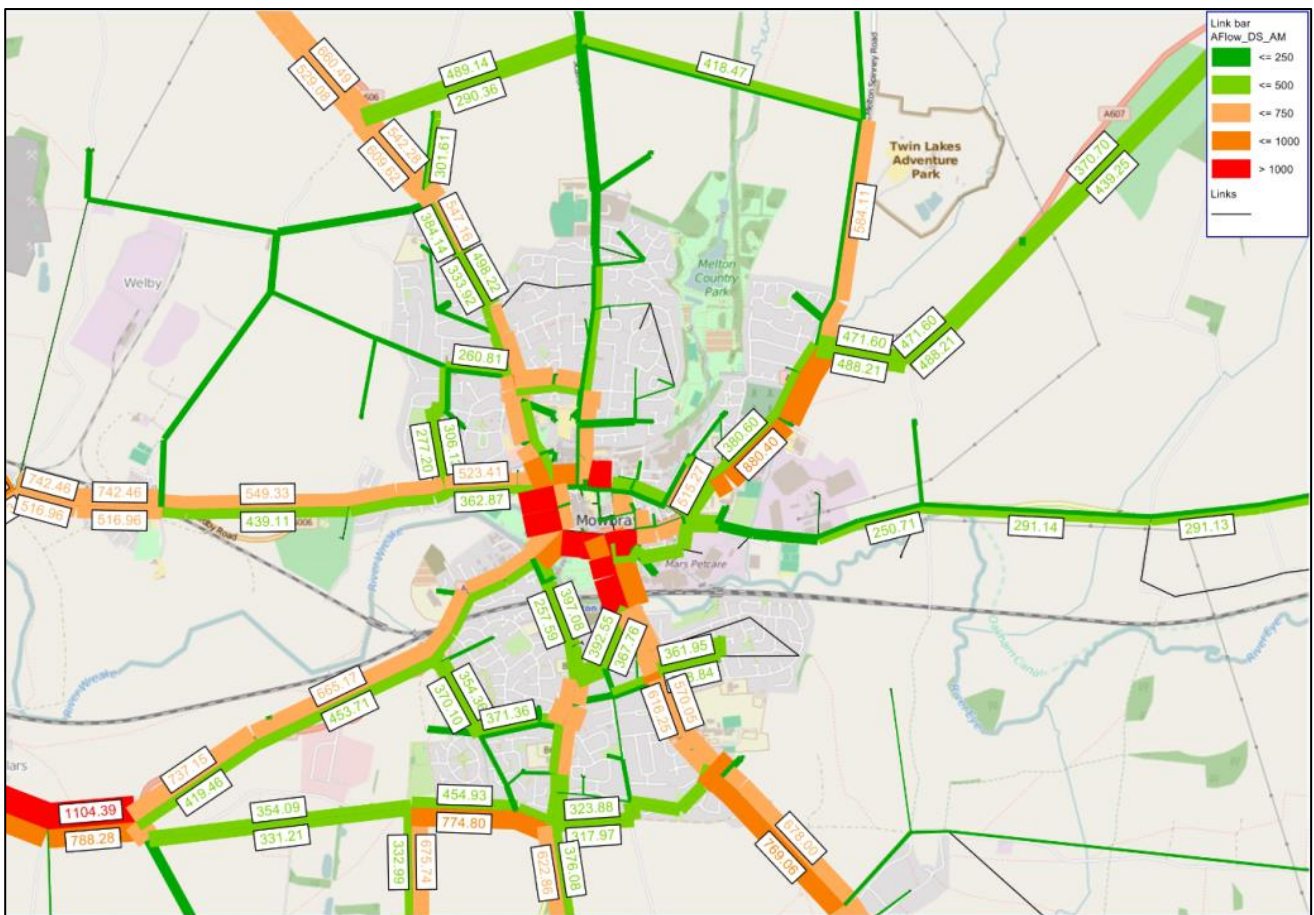


Figure 5-5 : 2031 AM Peak Hour Forecast Flows (PCU) around Melton with Northern Distributor Road – Higher Growth

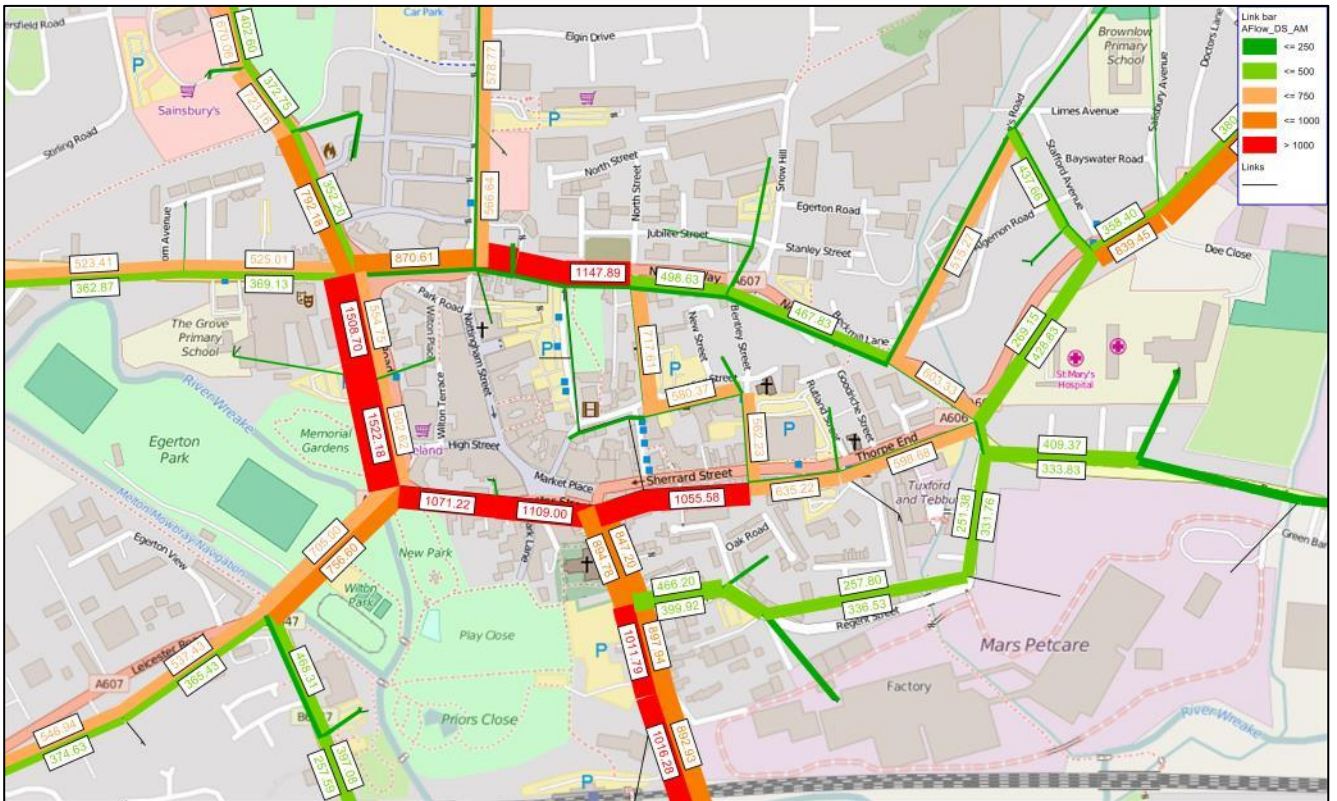


Figure 5-6 : 2031 AM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Northern Distributor Road – Higher Growth

5.2.3 Southern Distributor Road Option

A potential Southern Distributor Road would provide a link from the A606 Burton Street to the A607 Leicester Road. Figure 5-7 represents the network flows around Melton and Figure 5-8 within Melton Town Centre; showing the subsequent demand for the AM peak hour in 2031 higher growth scenario with the Southern Distributor Road present.

The Southern Distributor Road is forecast to have an hourly AM peak traffic flow of approximately 400-900 PCUs, depending on the section, with most traffic near to where the new developments will be located, from Dalby Rd westward. There is an increase in traffic of about 150PCUs using the proposed new section of road as opposed to Kirby Lane, but this has very little impact on flow changes in the centre of Melton itself.

As a result, the route has a limited impact in Melton town centre, with some, but not significant changes noted in demand on the A6006 and at A607/A6006 Junction into Melton town centre. As expected due to provision of higher capacity by the potential new route, there is a flow increase of approximately 100 PCUs in each direction on the sections of Burton Road where it connects to the Southern road option. However, this does not reduce the traffic on the sections towards Melton Town Centre.

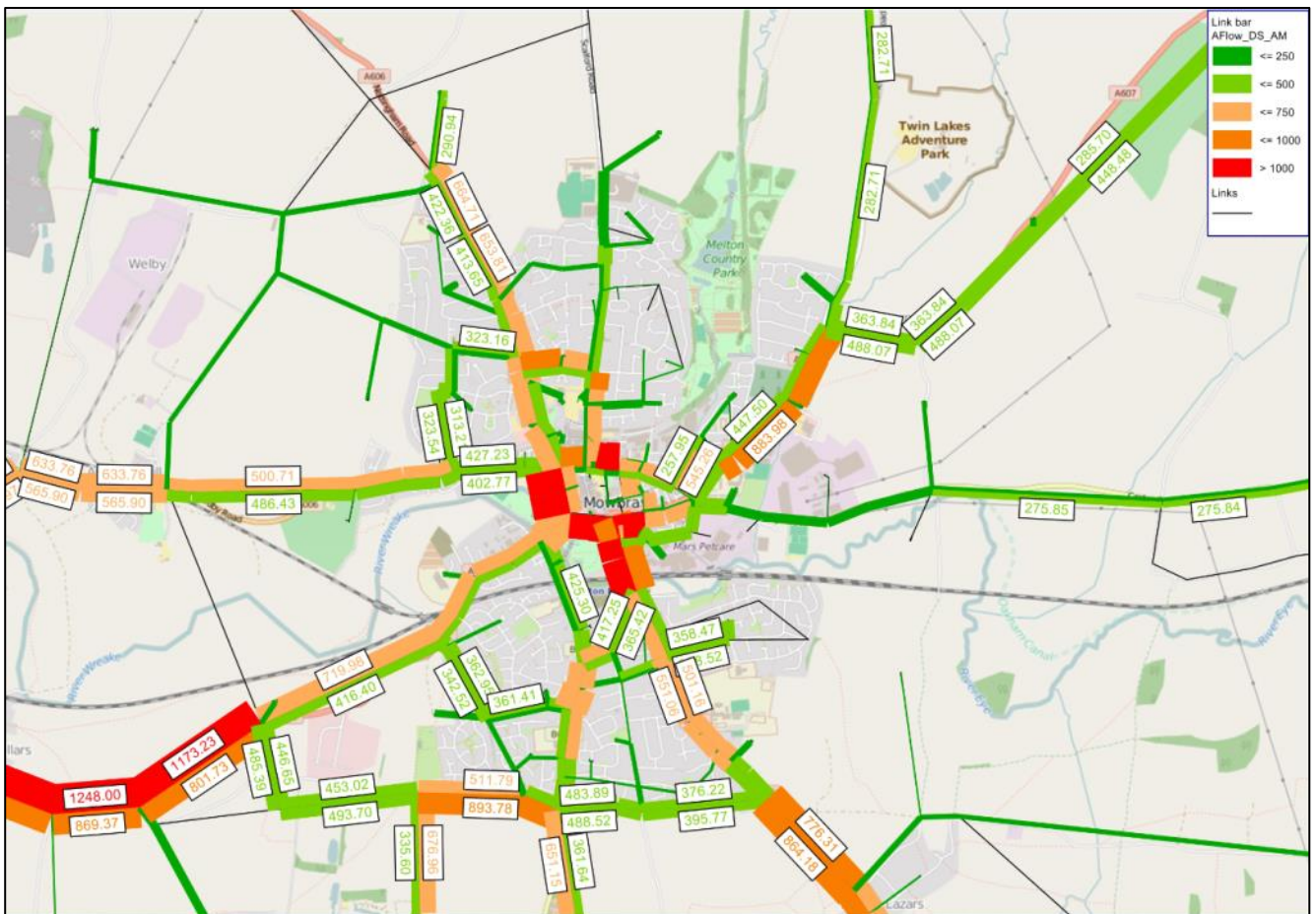


Figure 5-7 : 2031 AM Peak Hour Forecast Flows (PCU) around Melton with Southern Distributor Road – Higher Growth

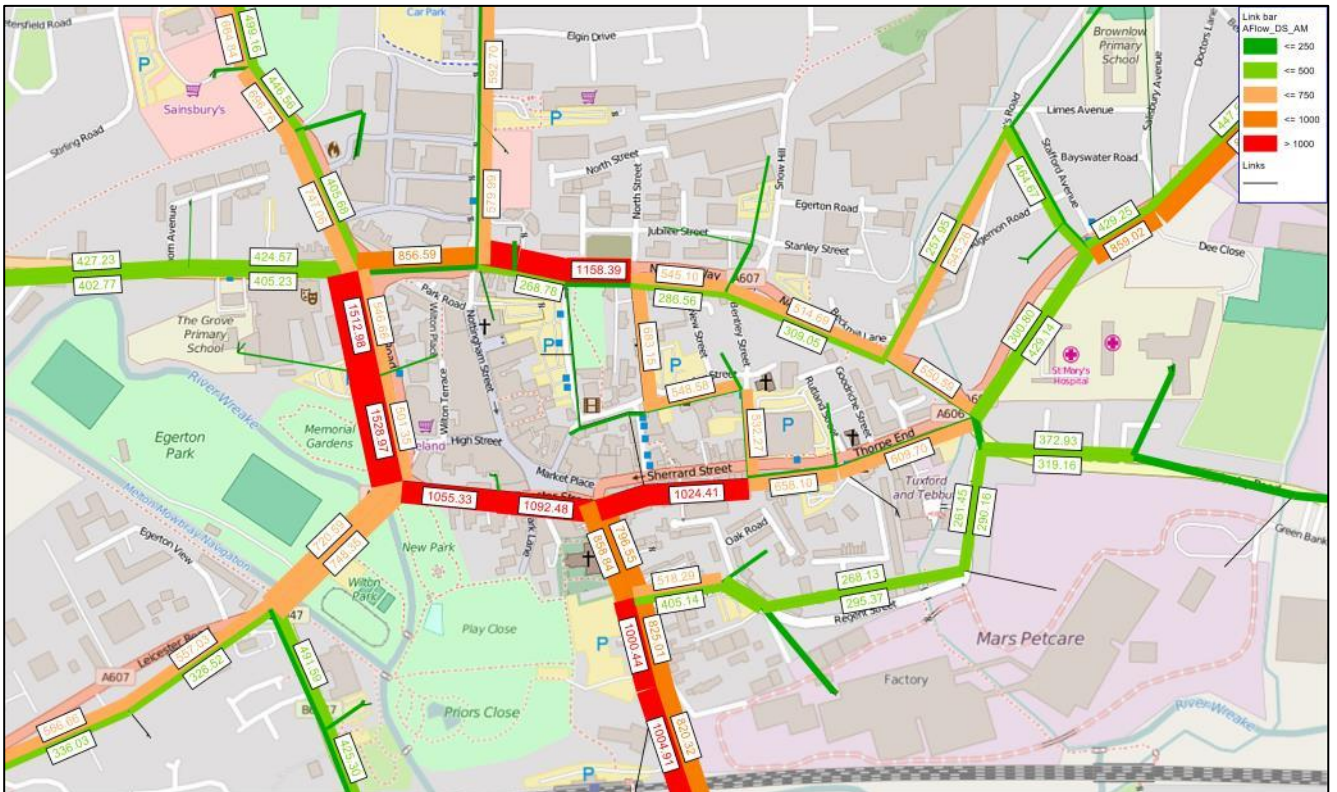


Figure 5-8 : 2031 AM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Southern Distributor Road – Higher Growth

5.2.4 Eastern Distributor Road Option

A potential Eastern Distributor Road would link A606 Burton Road to the A606 Nottingham Road via B676 Saxby Road; A607 Thorpe Road; Melton Spinney Road and Scalford Road.

Traffic flows on the network around Melton and within Melton Town Centre are presented in Figure 5-9 and Figure 5-10; showing the subsequent demand for the AM peak hour in 2031 higher growth scenario with the Eastern Distributor Road present.

This shows that a potential Eastern Distributor Road is forecasted to attract around 800-950 PCUs in the AM peak hour, with the highest volume on the link between the A607 and B676 Saxby Road. As with the cumulative scenario, the Eastern Distributor Road carries higher flows over most of its length due to its shorter length than the western option for through north to/from south traffic.

As a result, this option abstracts greater levels of traffic from the A607 and Saxby Road, Scalford Road and Burton Road approaches into Melton Town Centre greatly reducing demand at the A607/Thorpe End and A606/Sherrard Street Junctions. The lower demand on A607/Thorpe End junction is mainly due to the much lower traffic on Thorpe Road from Melton Spinney Road towards the town centre.

Traffic flow on the town centre ring road is reduced to the most significant and greatest extent with an Eastern option which provides a direct and shortest distance route between the A606 Nottingham Road and A606 Burton Road.

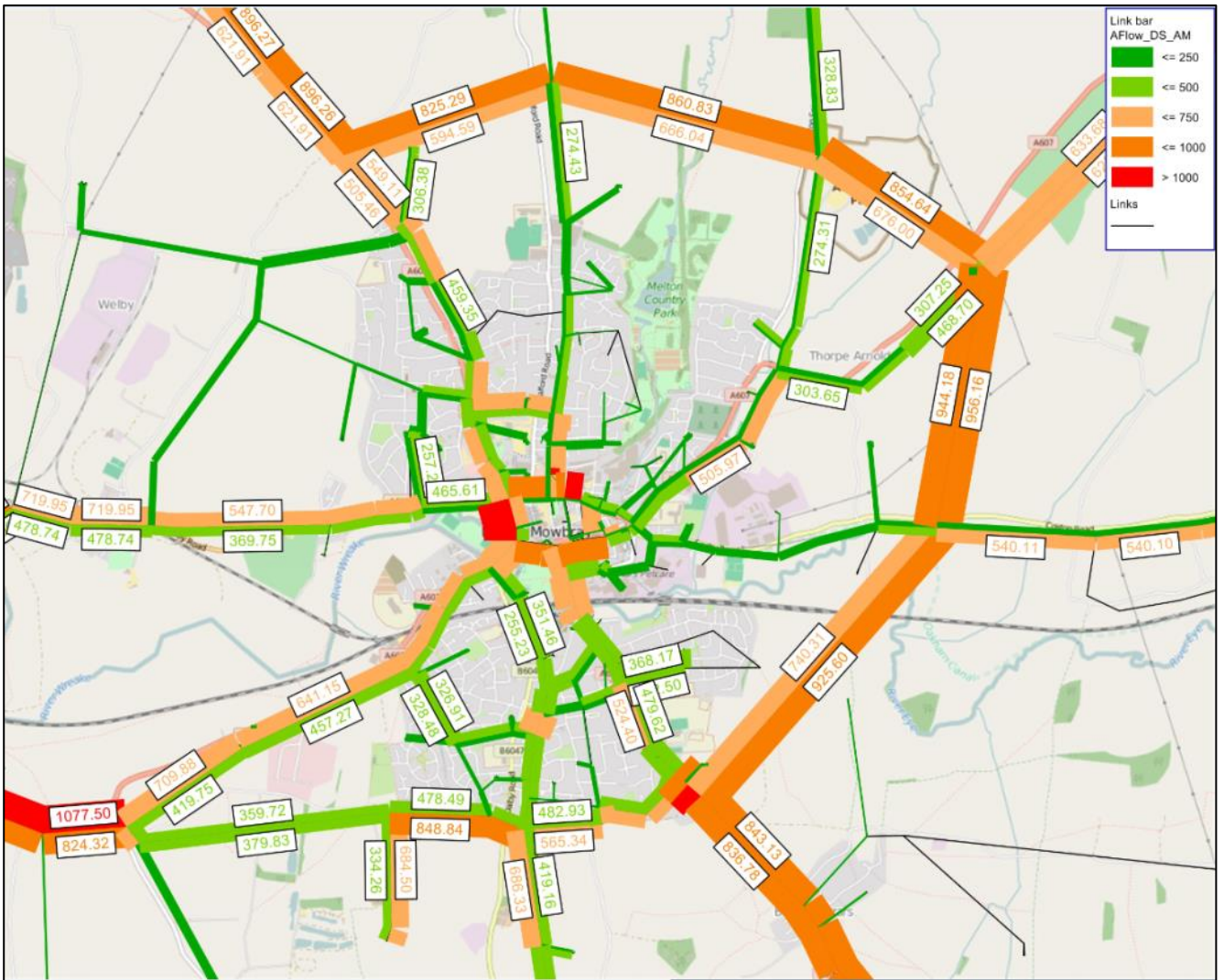


Figure 5-9 : 2031 AM Peak Hour Forecast Flows (PCU) around Melton with Eastern Distributor Road – Higher Growth

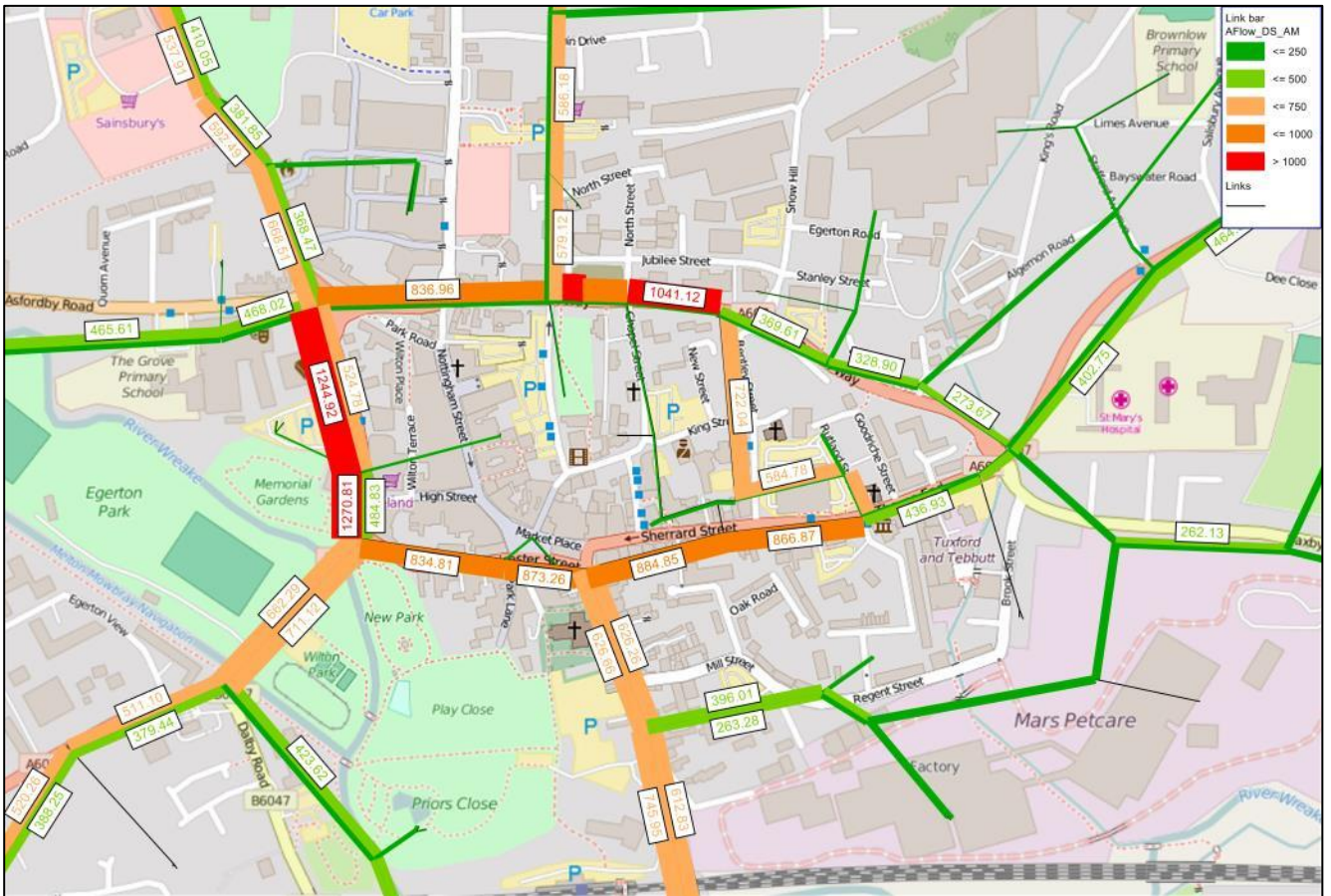


Figure 5-10 : 2031 AM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Eastern Distributor Road – Higher Growth

5.3 Flows in Reference Case – 2031 PM Peak Hour

5.3.1 2031 Do Minimum without Intervention Scenario –Higher Growth

Figure 5-11 shows the flows for the PM peak hour in 2031 Do Minimum Higher Growth, without intervention scenario around Melton and Figure 5-12 for within Melton Town Centre.

Generally the traffic patterns remain similar to the ones in the AM peak hour, although highest demand now occurs on the outward movements on the radial links from Melton.

Links with the highest demand are the A606 Burton Street, and links from Leicester Street and A607 Leicester Road along Wilton Road to Nottingham Road (A606). Leicester Road experiences a high demand to the west of the junction with Kirby Lane. Similar to the AM peak hour, there is rat-running through the town centre as a result of congestion and delay at other key junctions around the town centre. The links with highest traffic levels are on the same as those in the PM peak for the cumulative scenario, although Leicester Street now additionally also carries over 1000 PCUs.

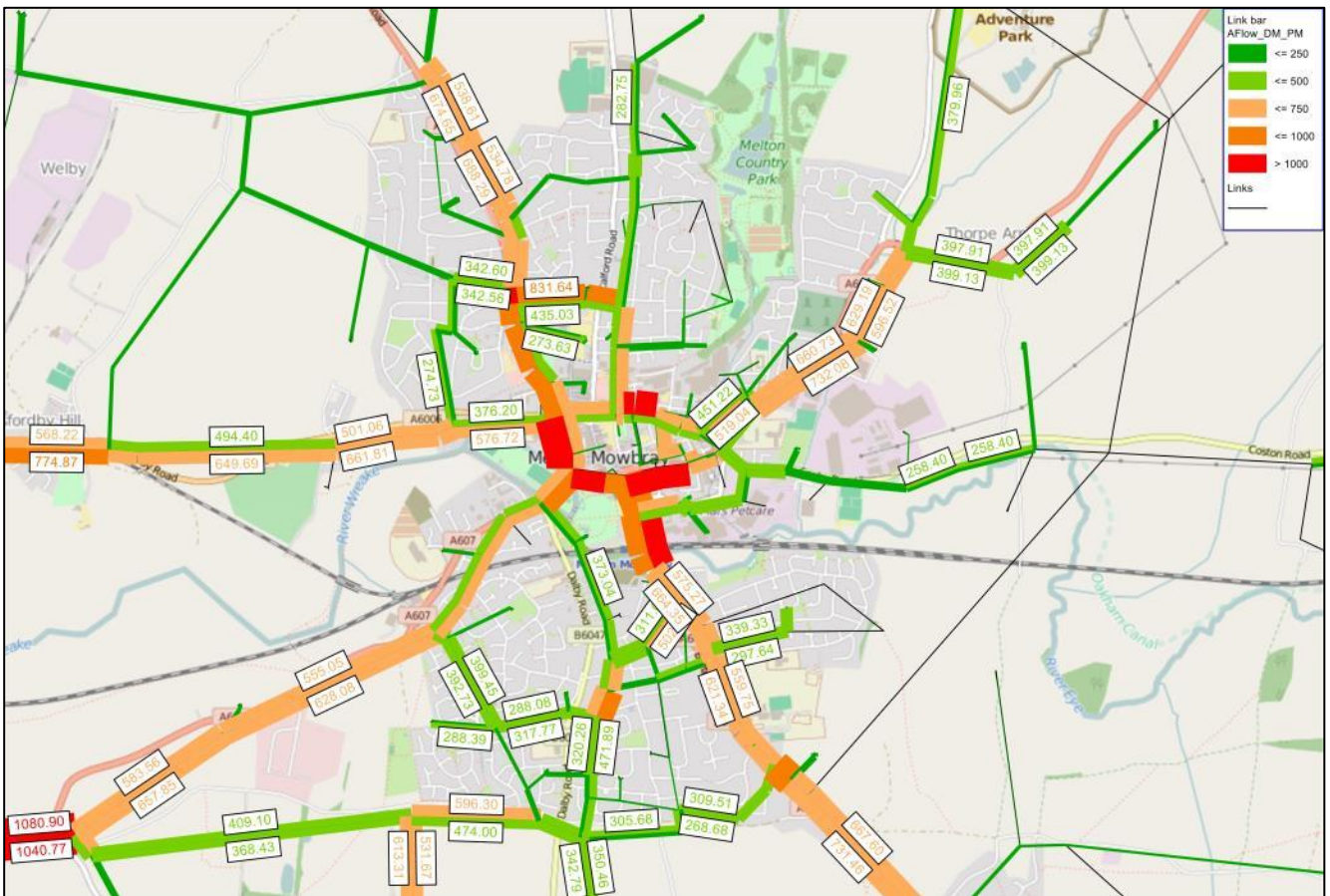


Figure 5-11 : 2031 PM Peak Hour Forecast Flows (PCU) around Melton in Do Minimum Scenario – Higher Growth

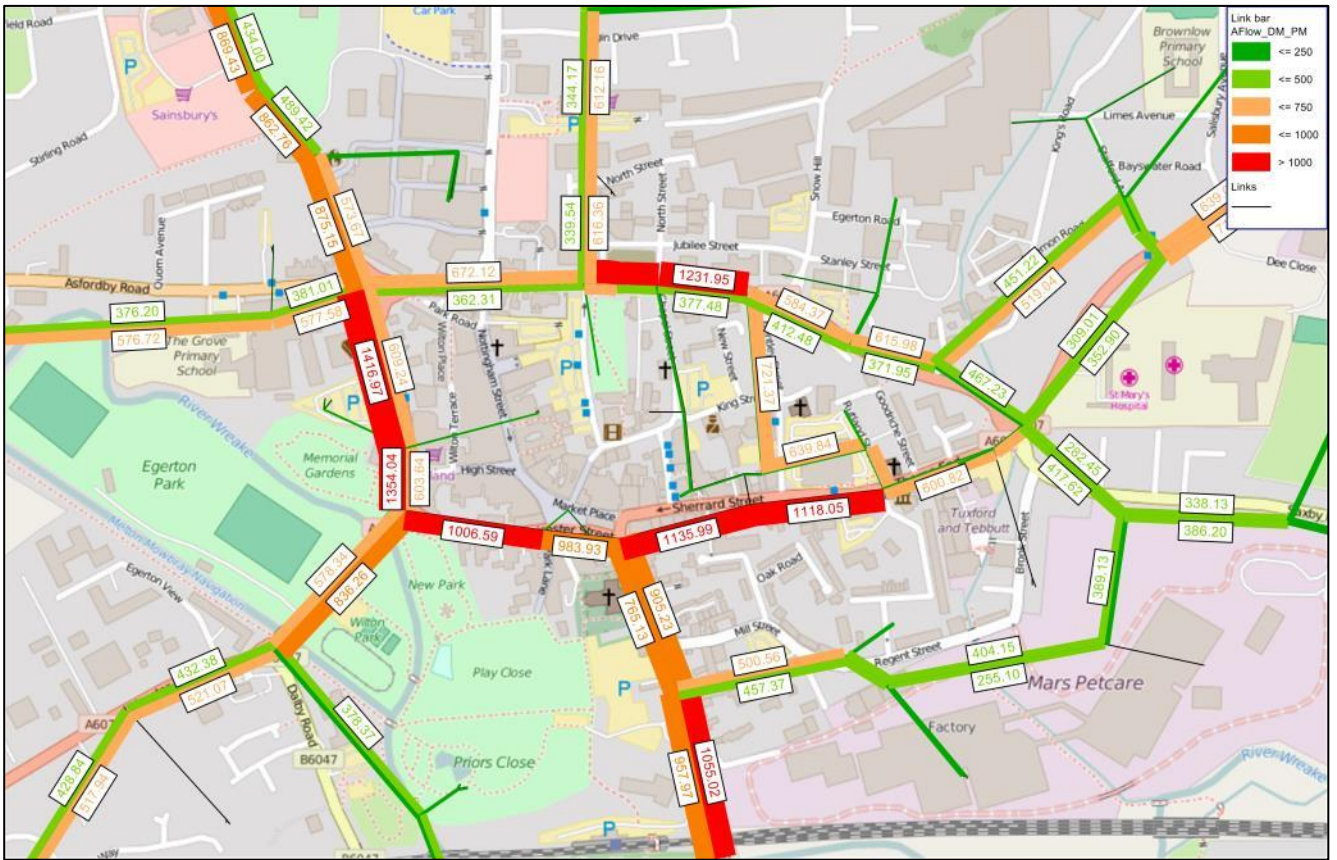


Figure 5-12 : 2031 PM Peak Hour Forecast Flows (PCU) within Melton Town Centre in Do Minimum Scenario – Higher Growth

5.4 Flows with Distributor Road Options- 2031 Higher Growth Scenario PM Peak

5.4.1 Western Distributor Road Option

As shown in Figure 5-13 and Figure 5-14 in the PM peak hour, with the Western Distributor Road, there is forecast to lead to a significant decrease in demand, occurring on A606 Burton Street and A606 Nottingham Road, as traffic is diverted via the new link road around the town centre.

The A6006 Asfordby Road also benefits from a decline in demand on the sections on the east of the potential route, however, there is no significant decrease in traffic seen on the A607 Leicester Road into Melton.

The western distributor road option is forecast to carry maximum flows of 1,000 PCUs southbound and 850 northbound between Leicester Road and Welby Lane.

Within Melton town centre there is a significant decrease on demand at the A607/A6006 junction with flow reductions on Wilton Road (about 350 PCUs), Nottingham Road and Ashfordby Road. The A607/Scaford Road junction benefits from a decrease in demand of over 100 PCUs on the approach from Scaford Road, this is largely due to the reductions in rat running on The Crescent. The A607/Thorpe Road Junction has broadly similar demand, but rat running via Kings Road is reduced. Traffic rat-running across the town centre (Norman Way to Sherrard Street) is reduced by about 150 vehicles, and this reduction continues southwards on Burton Road.

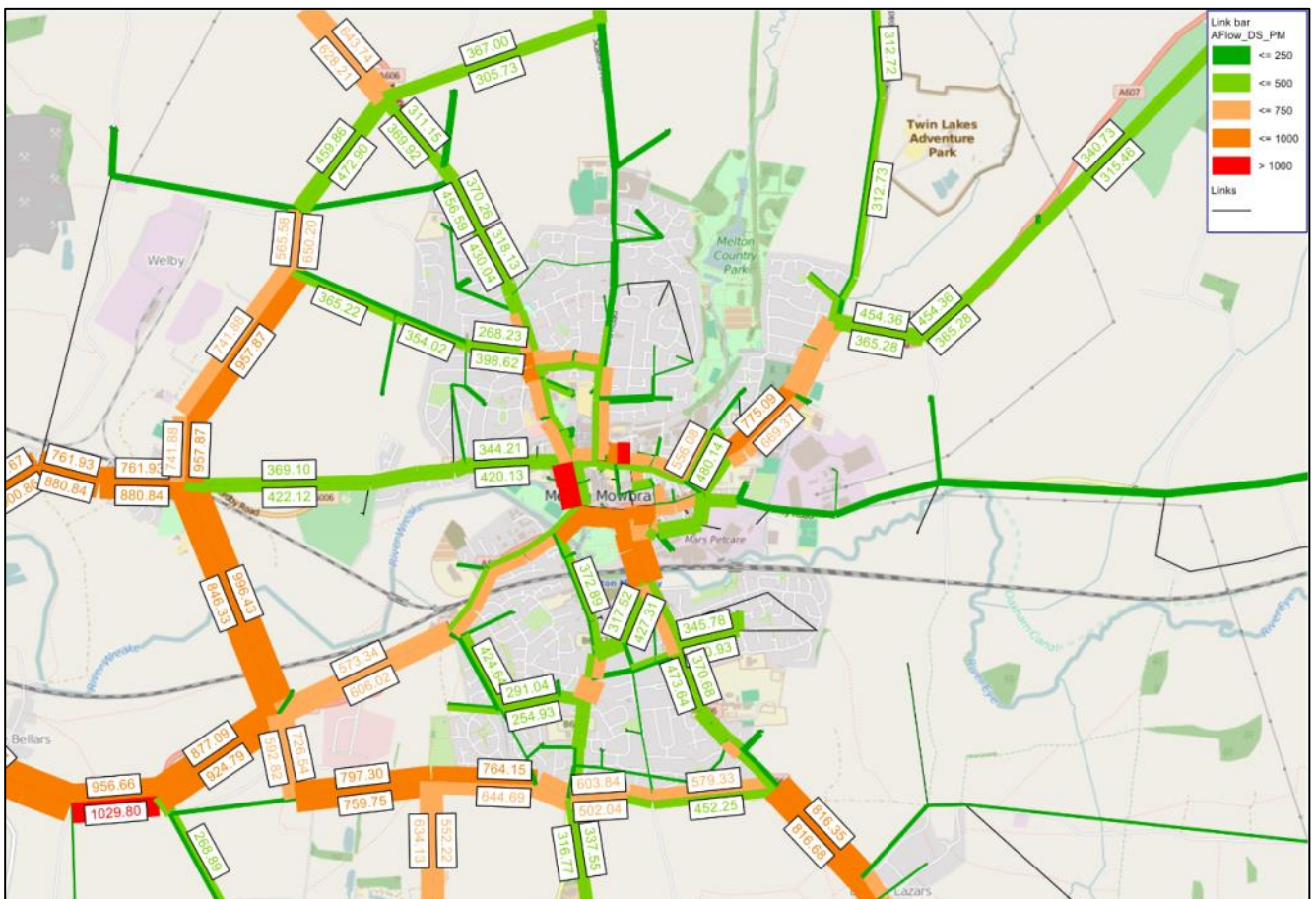


Figure 5-13 : 2031 PM Peak Hour Forecast Flows (PCU) around Melton with Western Distributor Road – Higher Growth

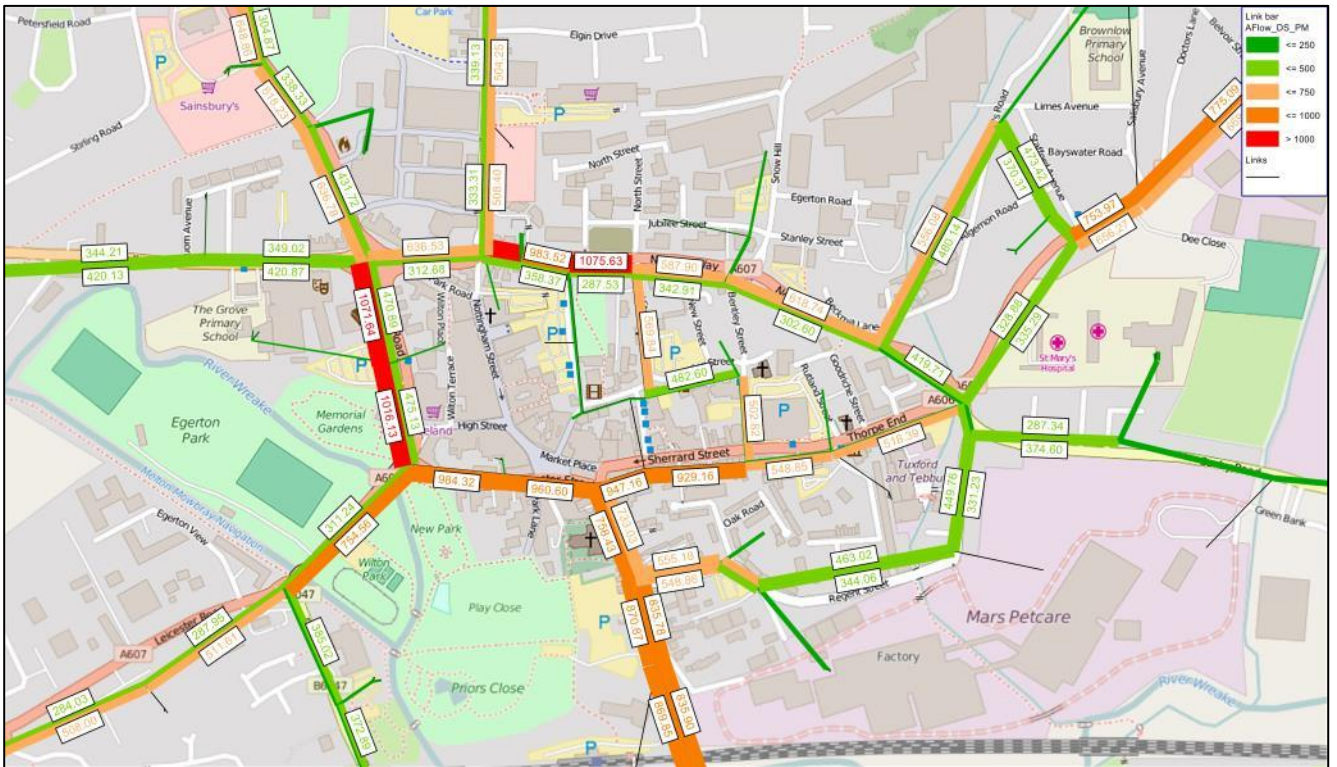


Figure 5-14 : 2031 PM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Western Distributor Road – Higher Growth

5.4.2 Northern Distributor Road Option

The forecast traffic flows for the PM peak hour in 2031 the higher growth scenario with the Northern Distributor Road in place are shown in Figure 5-15 for around Melton and Figure 5-16 for within Melton Town Centre.

The Northern Distributor Road is forecast to attract flows of between 300-500 PCUs in the PM peak hour with the higher growth scenario. This is significantly more than what would be expected in the cumulative development scenario alone- and due to higher growth in this scenario to the North.

The main impact of this option is a reduction in flows of approximately 100 PCUs in each direction on the A606 Nottingham Road between the new distributor road and the town centre. An increase in demand is observed on Melton Spinney Road between the new distributor road and the A607 Thorpe Road outward bound. To the south and west of Melton there are no noticeable improvements on the network and the traffic patterns are largely identical to those of the Do Minimum scenario.

The traffic pattern in the town centre is broadly similar with and without the Northern distributor road, except flows are generally marginally lower.

The scheme is less effective in the PM peak hour, and there are not the same levels of delay for inbound traffic on Nottingham Road, Scaford Road or Melton Spinney Road, unlike the AM peak hour scenario that encourages additional traffic to use the route.

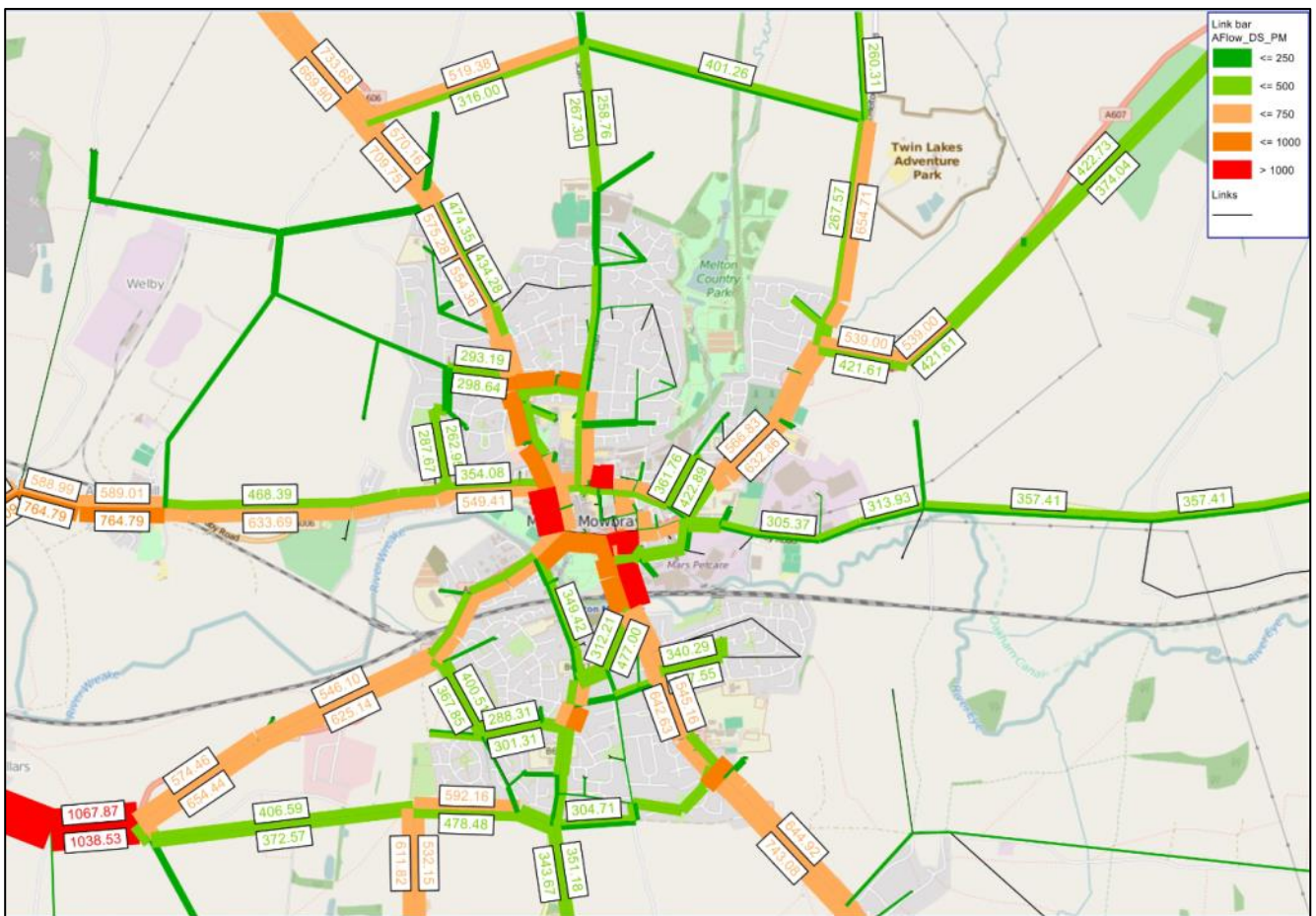


Figure 5-15 : 2031 PM Peak Hour Forecast Flows (PCU) around Melton with Northern Distributor Road – Higher Growth

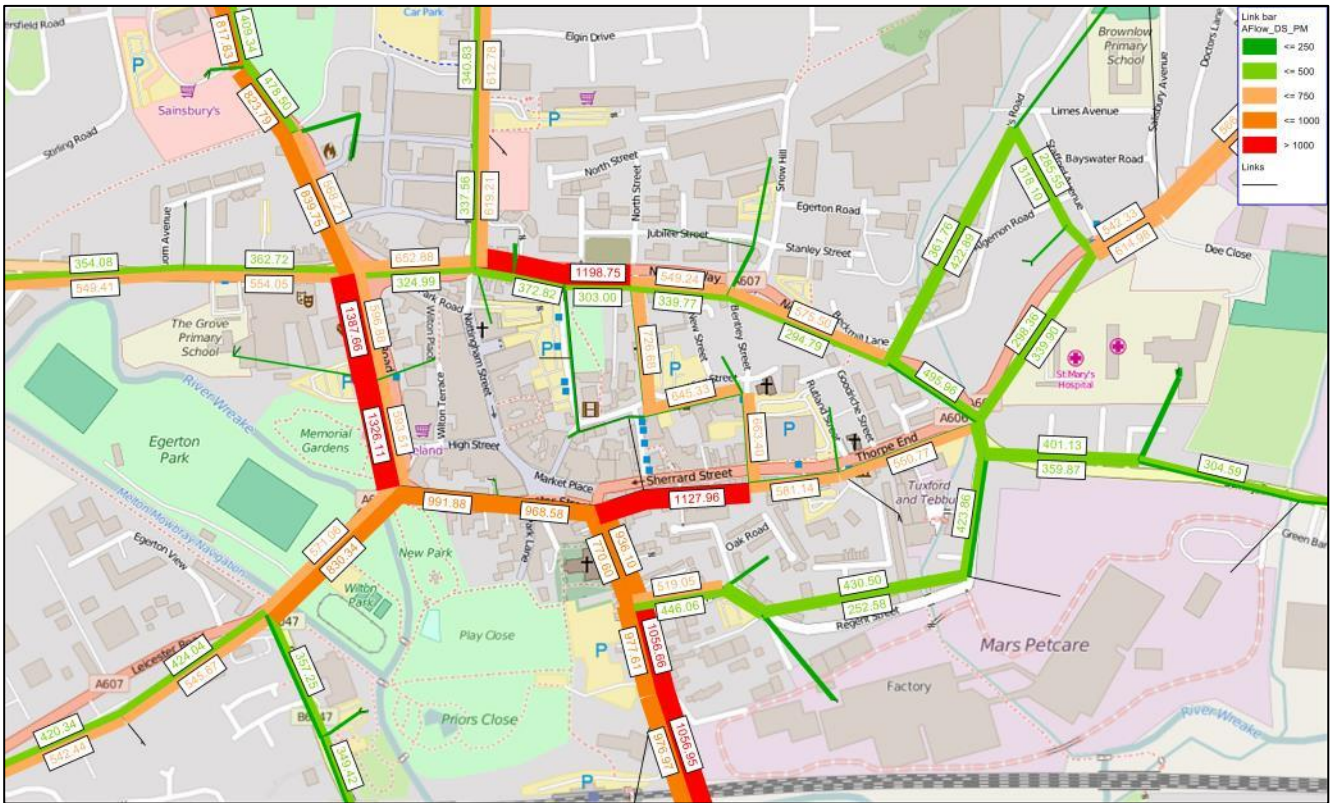


Figure 5-16 : 2031 PM Peak Hour Forecast Flows (PCU) within Melton Town Centre with a Northern Distributor Road – Higher Growth

5.4.3 Southern Distributor Road Option

Figure 5-17 shows forecast flows for around Melton and Figure 5-18 for within Melton Town Centre with the implementation of the Southern Distributor Road.

The Southern Distributor Road has flows of between 300 and 600 PCUs throughout the potential link, which are slightly higher than the Northern option. However, as per the AM peak hour, the majority of this flow is comprised of either development traffic, or traffic that transfers from other routes in the south of Melton, rather than having significant impacts and benefits on the town centre junctions.

Flow changes in Melton Town Centre are small (generally below 30 PCUs), providing limited reductions to the town centre.

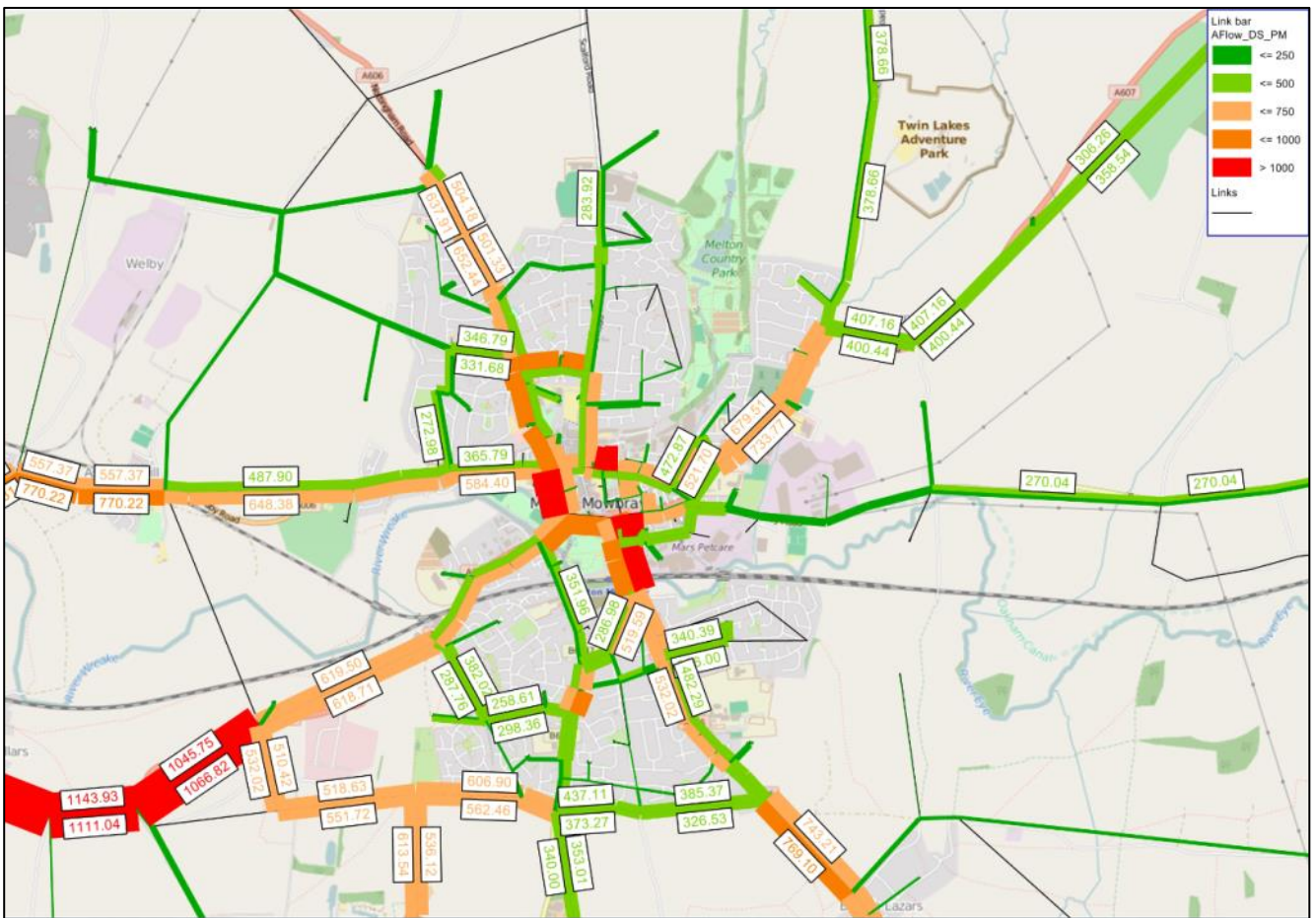


Figure 5-17 : 2031 PM Peak Hour Forecast Flows (PCU) around Melton with a Southern Distributor Road – Higher Growth

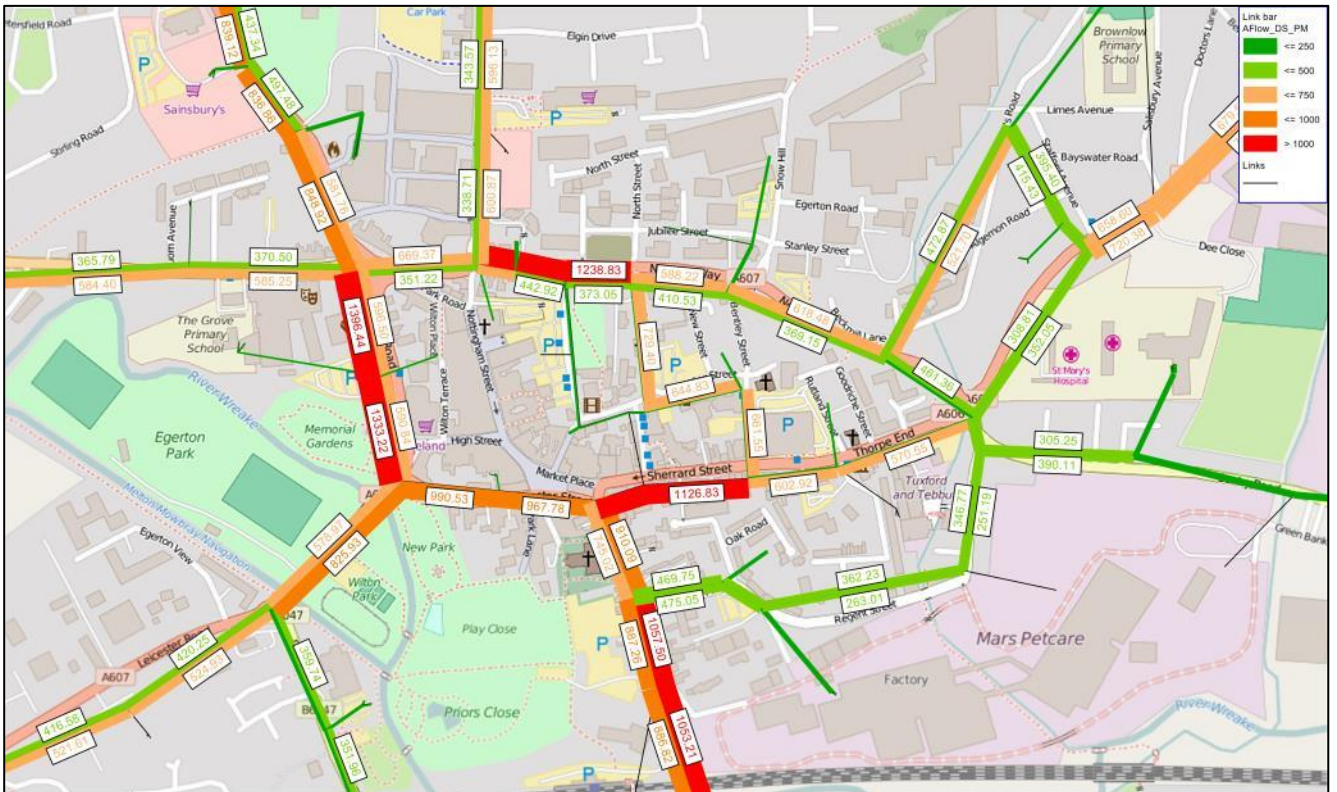


Figure 5-18 : 2031 PM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Southern Distributor Road – Higher Growth

5.4.4 Eastern Distributor Road Option

The traffic flows for the PM Peak Hour in 2031 higher growth scenario with a potential Eastern Distributor Road scenario are shown in Figure 5-19 for around Melton and Figure 5-20 for within Melton Town Centre. As with the AM peak hour, a significant amount of traffic is attracted to the Eastern Distributor Road, in particular traffic travelling from the north west of Melton to the eastern side of the town.

In parallel this distributor option attracts demand traversing from the south east (via Burton Road) and south west (via Leicester Road and Kirkby Lane) to the north of Melton. The most utilised section is from B676 Saxby road to A607 with a combined demand of 1200 PCUs northbound and 900 southbound at its highest level.

This is greater than the Western option at its peak, and as per the AM peak, it can also be shown that higher levels of flow extend along a longer section of the distributor roads length. As a result, it has the greatest benefits in reducing through traffic, especially that within Melton itself, due to the significantly shorter distance and time to traverse.

Within the town centre the distributor road reduces demand along Norman Way by up to 200 PCUs, Sherrard Street by up to 200 PCUs and Wilton Road by 300 PCUs. Similar to the AM peak hour, the traffic flows on all other main town centre routes are also generally reduced as a result of shift of traffic to the potential route.

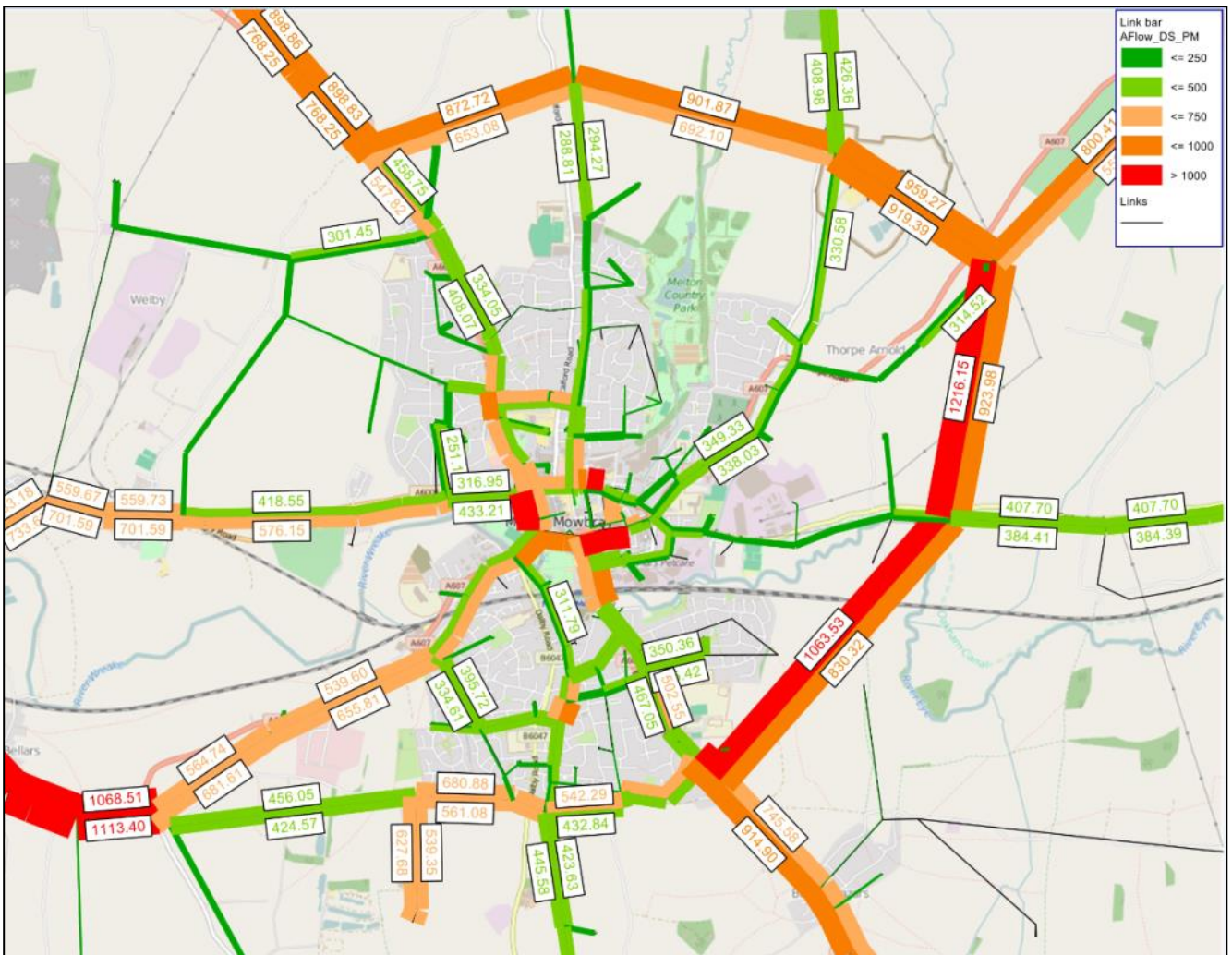


Figure 5-19 : 2031 PM Peak Hour Forecast Flows (PCU) around Melton with Eastern Distributor Road – Higher Growth

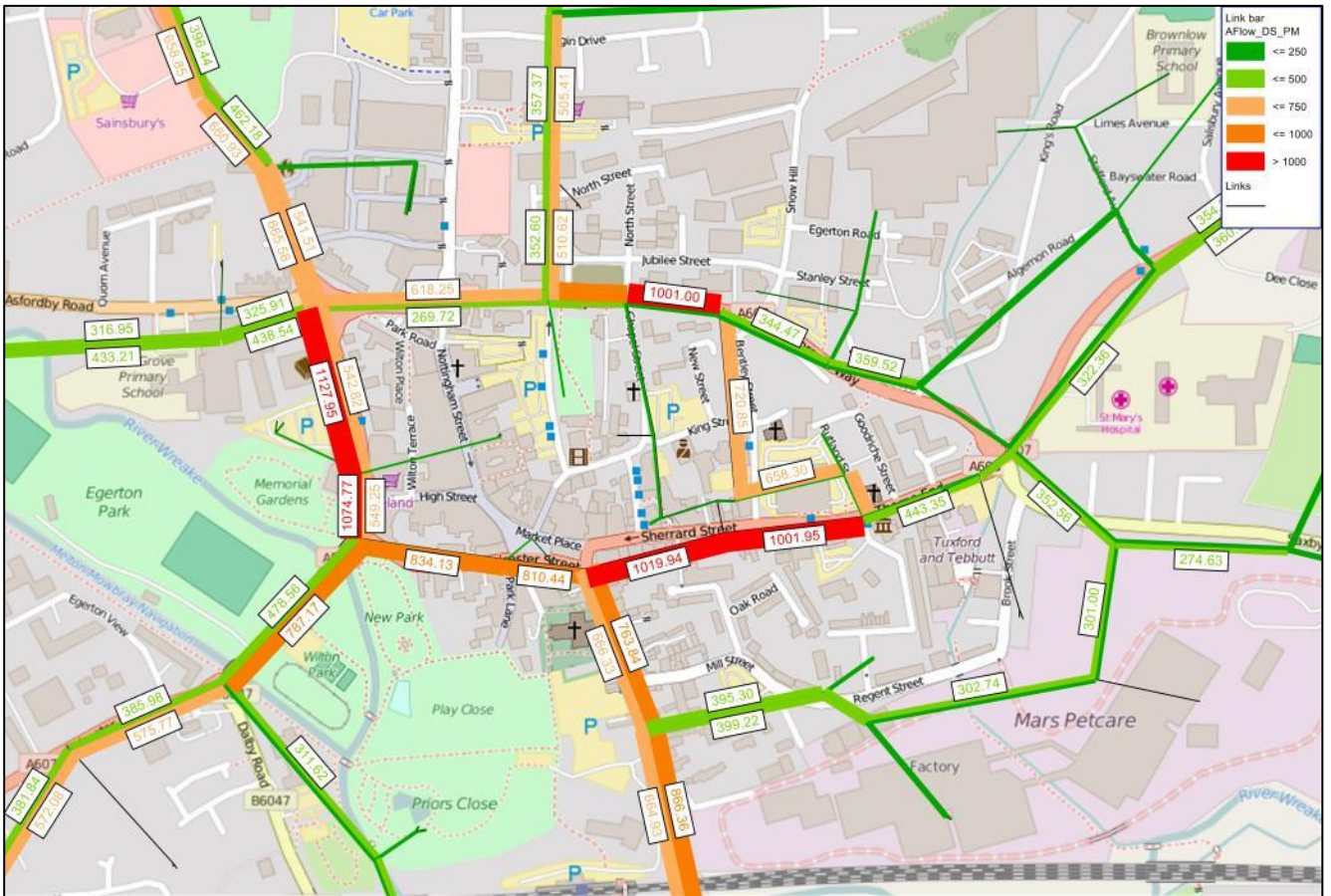


Figure 5-20 : 2031 PM Peak Hour Forecast Flows (PCU) within Melton Town Centre with Eastern Distributor Road – Higher Growth

5.5 Delay Changes with Each Option – 2031 Higher Growth AM Peak

As with the cumulative growth scenario, the impact of each distributor road on total delay (seconds) on road links and at junctions around Melton Town Centre will be assessed in this section. This analysis tends to follow that of traffic flows (and indeed understanding travel flows is the key to understanding the differences in delay reduction created by each of the options). As noted in the introduction, the assessment focuses on Melton Town Centre where the delays are greatest, and that is the core objective in reducing future congestion, and in accommodating future growth in the town.

5.5.1 2031 Do Minimum Scenario – Delay Changes

In order to assess the impacts of the options on the link delays, it is first important to understand the situation prevailing in the Do Minimum Higher Growth scenario, with no intervention in place. In this assessment links are classified based on their total delays by using the colour bands which are bounded by red band for the delays greater than 300 seconds (>5 minutes on average) and by the dark green band for delays less than or equal to 60 seconds shown in green (>1 minute on average)

As shown in Figure 5-21, there are three junctions experiencing significant delays on their approaches.

These are the junctions on A607/A6006, A607/Scaford Road and A607/Thorpe End Road.

As noted in the cumulative development work, given the closeness of these junctions, delays on a per mile basis are particularly acute, given several of these junctions need to be traversed to cross the town.

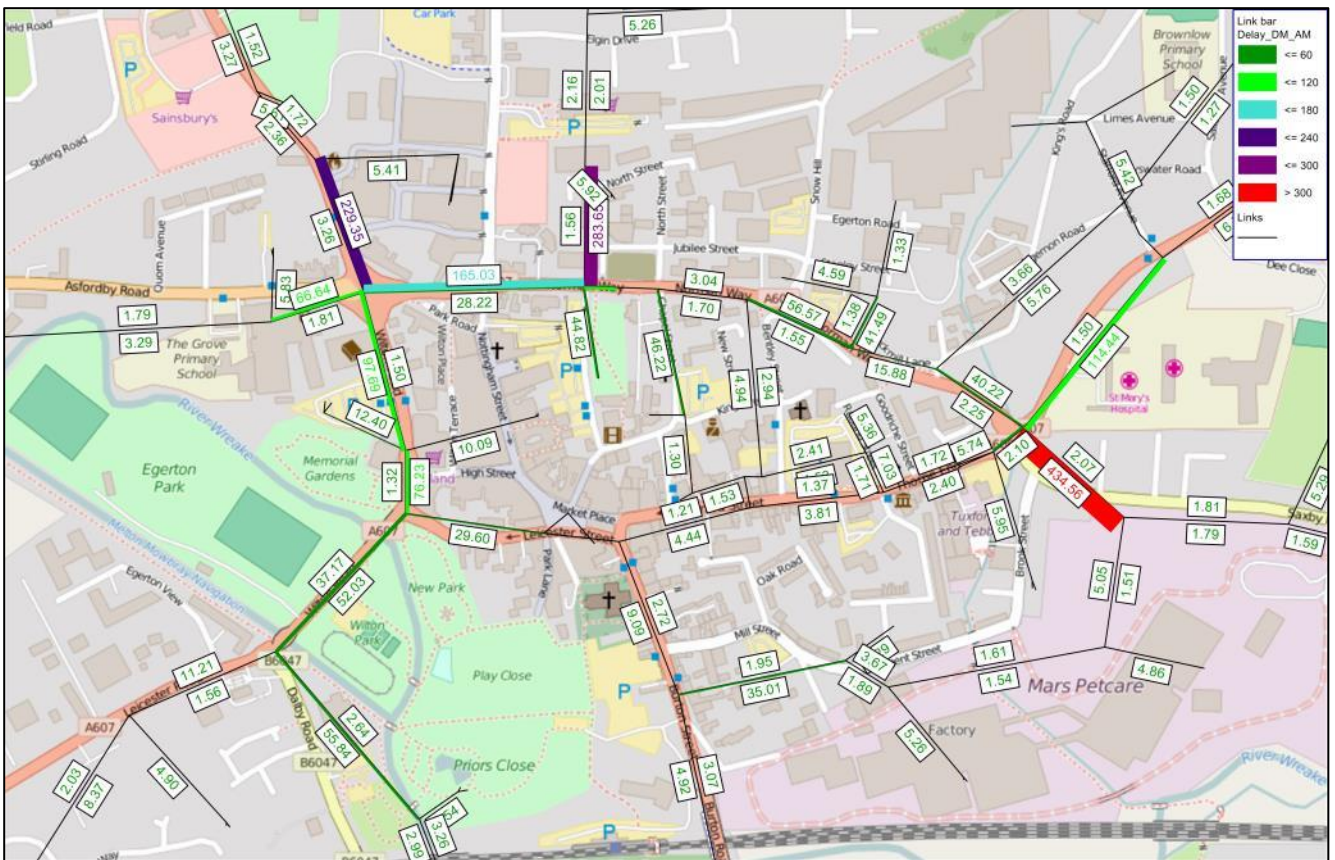


Figure 5-21 : 2031 AM Peak Hour Total Link Delay (sec.) within Melton in Do Minimum Scenario – Higher Growth

5.5.2 Western Distributor Road Option - Delay Changes

For the purpose of comparing the options against the Do Minimum scenario in terms of link delays, plots of network difference between each option scenario and the Do Minimum scenario have been prepared.

Figure 5-22 shows the total delay difference between the Western Distributor Road (Do Something) and the Do Minimum networks, both with the higher growth scenario. Negative values which represent decreases in delay are shown by blue bars and positives are represented in green.

Overall, it appears that the implementation of the Western Distributor Road significantly reduces delays on some of the major junctions within Melton Town Centre, with the largest delay reductions occurring on the A607/A6006 and A607/Scafold Road junctions. Nottingham Road approach has delays reduced by over 2 minutes, while Scafold Road has delays reduced by over 90 seconds.

Given the location of the Western route, it is not surprising the decongestion of the Town Centre majorly occurs on the western side, due to the transfer of traffic to the Western route. Changes to the east and south of the town centre are considerably smaller.

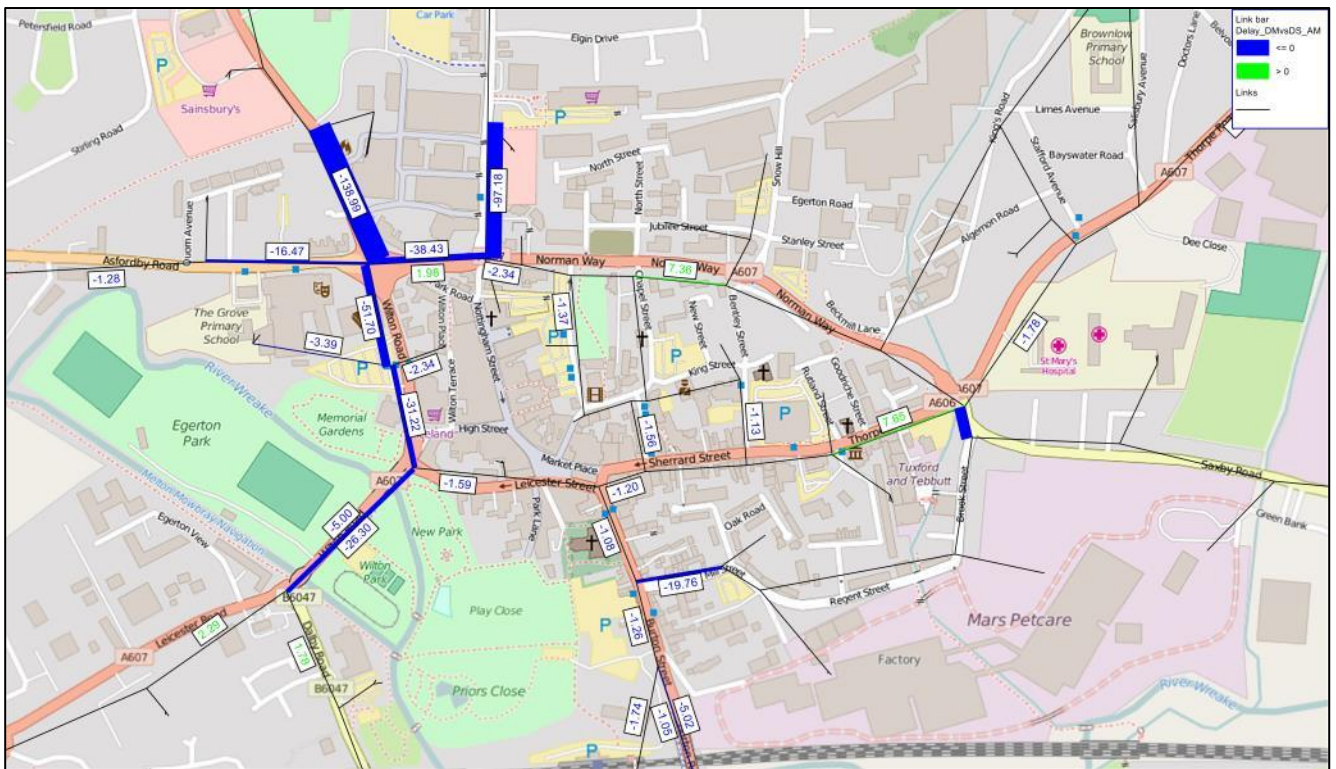


Figure 5-22 : 2031 AM Peak Hour Change in Total Link Delay (sec.) within Melton with Western Distributor Road – Higher Growth

5.5.3 Northern Distributor Road Option- Delay Changes

As shown in Figure 5-23 a potential Northern Distributor Road would significantly reduce delays on the A607 Norman Way junctions with Nottingham Road and Scalford Road by over a minute per vehicle.

These delay reductions are less significant compared to a full western route. The remainder of the town centre has only small changes in delay.

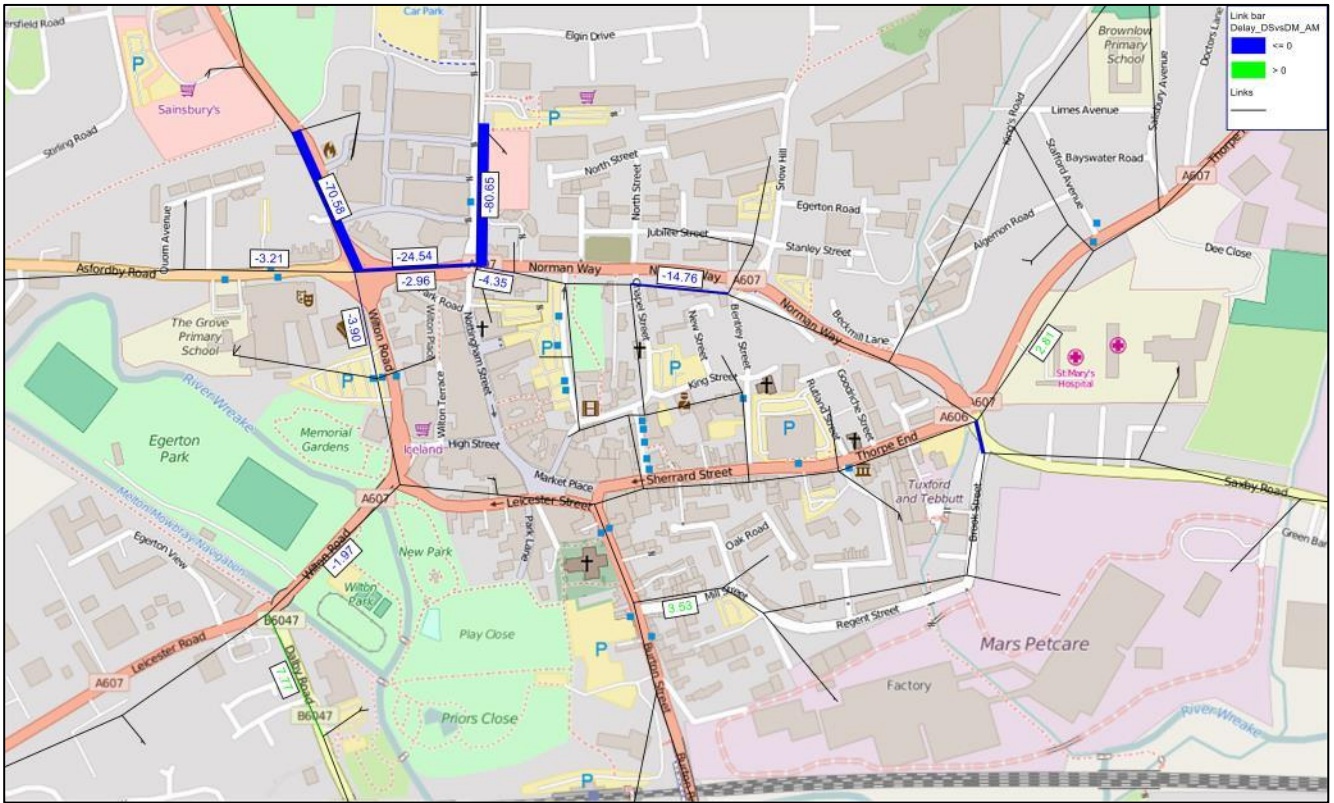


Figure 5-23 : 2031 AM Peak Hour Change in Total Link Delay (sec.) within Melton with Northern Distributor Road – Higher Growth

5.5.4 Southern Distributor Road Option - Delay Changes

Similar assessment is undertaken for the Southern Distributor Road option, in Figure 4-24.

The implementation of this potential distributor road does not appear to have significant benefits in terms of reducing congestion within Melton Town Centre. A small reduction in traffic on the Asfordby Road approach is coupled with an increase in delay entering the A607/A6006 junction from the west. There are also small increases in southbound delays on A606 Nottingham Road and Scalford Road.

Otherwise, there is very little change in delay within Melton Town Centre by this option alone, as per previous scenarios.

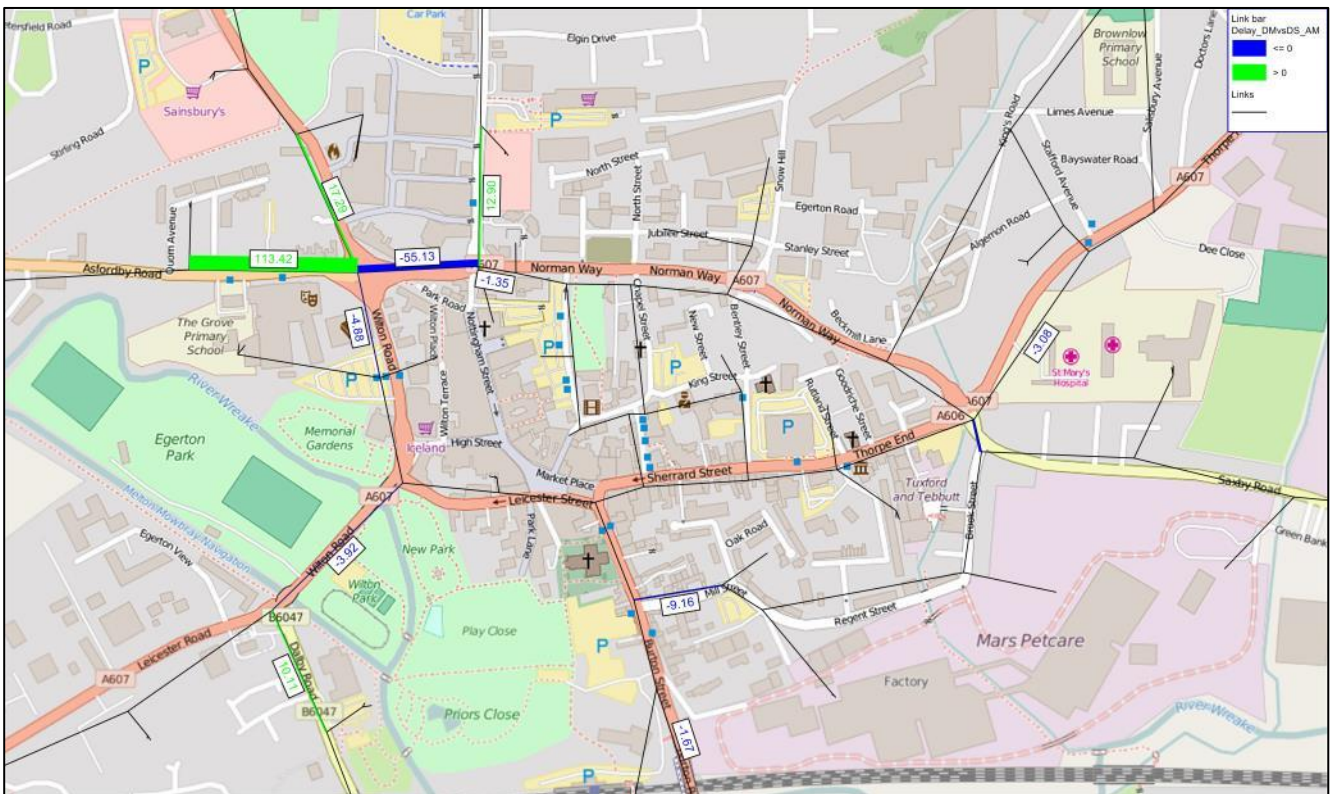


Figure 5-24 : 2031 AM Peak Hour Change in Total Link Delay (sec.) within Melton with Southern Distributor Road – Higher Growth

5.5.5 Eastern Distributor Road Option - Delay Changes

The impact of the Eastern Distributor Road on the delays of the links within Melton Town Centre is shown in Figure 5-25.

In this scenario, there is forecast to be a significant decrease in delay of approximately 2-3 minutes is forecast for the Southbound approaches at each of the A607/A6006 and A607/Scaford Road Junctions. Norman Way and Wilton Road also see significant reductions in delay.

Cumulatively the level of delay reductions are between 3-5 minutes, depending on the route taken.

In addition there are large delay decreases at A607/Thorpe End Junction with a reduction in delay of 40 seconds for Thorpe Road and over three minutes on Saxby Road.

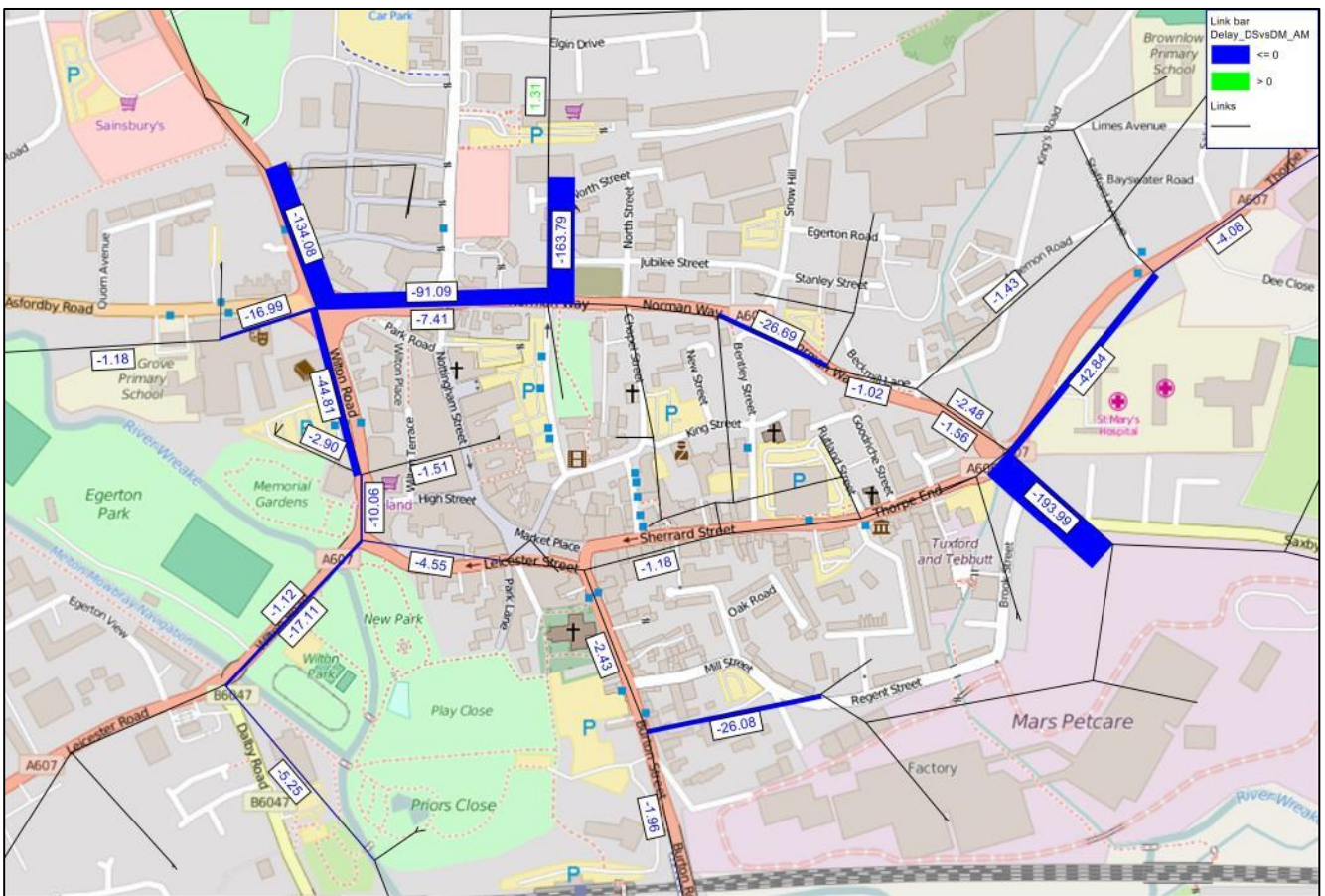


Figure 5-25 : 2031 AM Peak Hour Change in Total Link Delay (sec.) within Melton with Eastern Distributor Road – Higher Growth

5.5.6 Summary of Delay Changes in AM Peak Hour – Higher Growth

Table 5-1 summarises the overall changes in delays at key junctions and routes around Melton, for each of the distributor road scenarios for the AM peak hour.

In this peak hour, the Eastern Distributor Road is demonstrably the most successful at decreasing delays within Melton, benefitting all junctions, followed by the Western Distributor Road.

		Western Distributor Road	Northern Distributor Road	Southern Distributor Road	Eastern Distributor Road
Decrease in total Delay(seconds) at Key Junctions	A607 / A6006	✓	✓		✓
	A607 / Leicester Street	✓			
	A607 / Scalford Road	✓	✓	✓	✓
	A607 / Snow Hill		✓		✓
	A607 / Thorpe End				✓
	A606 / Sherrard Street				
	A607 / Dalby Road	✓			✓
Decrease in total Delay(seconds) on key radial routes	A6006	✓			✓
	A606 Nottingham Road	✓	✓		✓
	Scalford Road	✓	✓		✓
	A607 Thorpe Road				✓
	A606 Burton Street				
	A607 Leicester Road	✓			✓

Table 5-1 : Summary of Schemes Impacts on AM Peak Hour Delay – Higher Growth

5.6 Delay Changes with Each Option – 2031 PM Peak Hour

The same approach as in the AM peak hour is followed to assess the impacts of the distributor road options on change in link delays within Melton Town Centre network in the PM peak hour in 2031 Higher Growth scenario.

2031 Do Minimum Scenario – Delay Changes

Figure 5-26 shows the delays for the PM peak hour in the Do Minimum scenario i.e. with no distributor road options.

Overall the delays in this peak hour are lower than those in the AM Peak Hour, except for few link – Thorpe Road, A607 Leicester Road at Dalby Road, Leicester Street and Snow Hill.

In this scenario many of the delays are on radial links with the most significant delay of over 5 minutes occurring on B676 Saxby Road / Brook Street, followed by a delay in excess of 2 minutes on A607 Thorpe Road.

Approaches on the Norman Way junctions at A6006 Asfordby Road and at Scafford Road have delays close to one minute. In the outbound direction from the town centre the greatest delay is on Leicester Road A607 with the delay of over 2 minutes approaching Dalby Road.

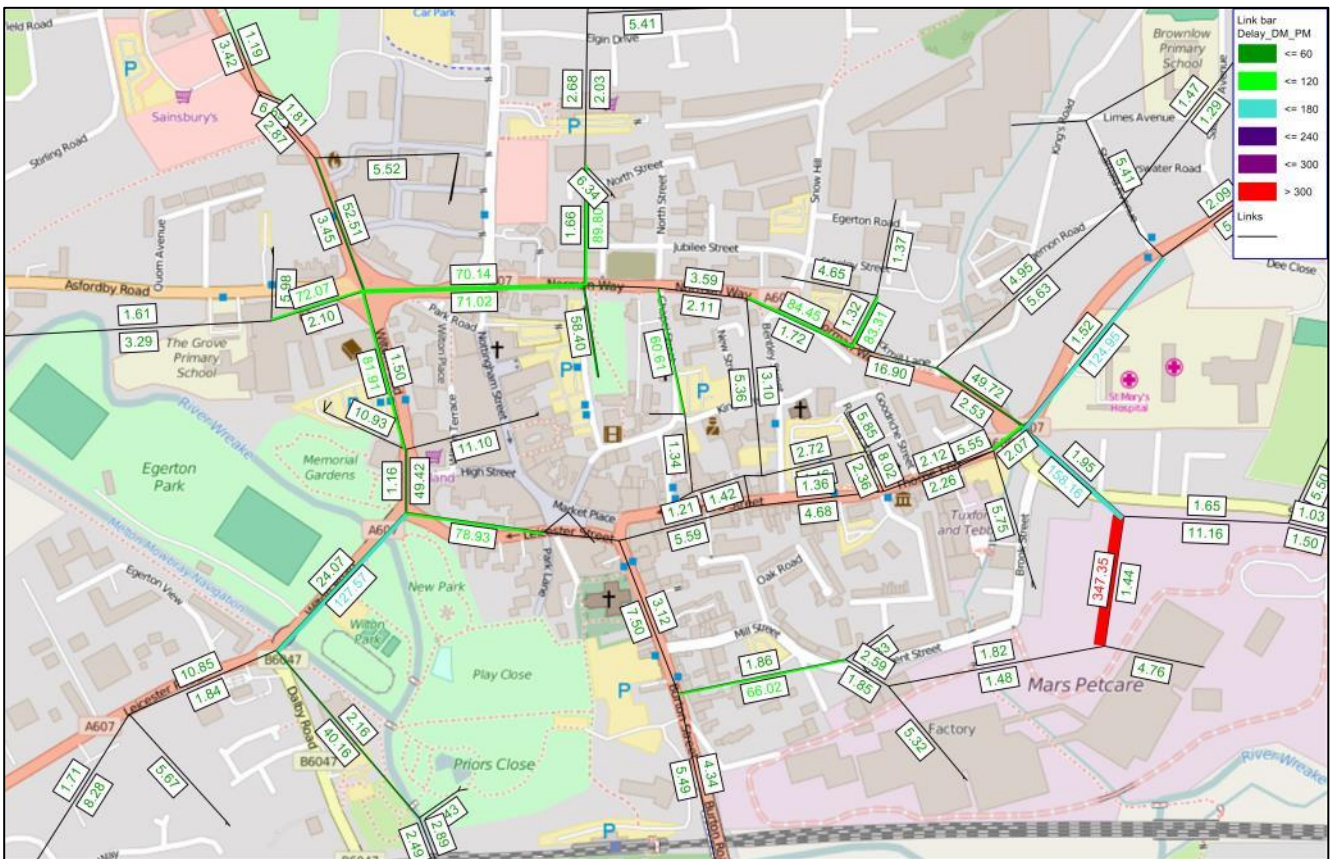


Figure 5-26 : 2031 PM Peak Hour Total Link Delay (sec.) within Melton in Do Minimum Scenario – Higher Growth

5.6.1 Western Distributor Road Option – Delay Changes

Figure 5-27 shows the difference in delays between the Western Distributor Road scenario and the Do Minimum scenario, in the higher growth scenario.

With a potential Western Distributor Road, delays are forecast to decrease significantly (by about one and a half minutes) at the A607 Leicester Road / Dalby Road junction. There will also be additional decrease in delay on Wilton Road and Scalford Road approaches to Norman Way (A607).

In addition there are reductions of delay for exiting traffic from Brook Street onto Saxby Road, and almost a further minute is saved on the A606 approaching Ankle Hill.

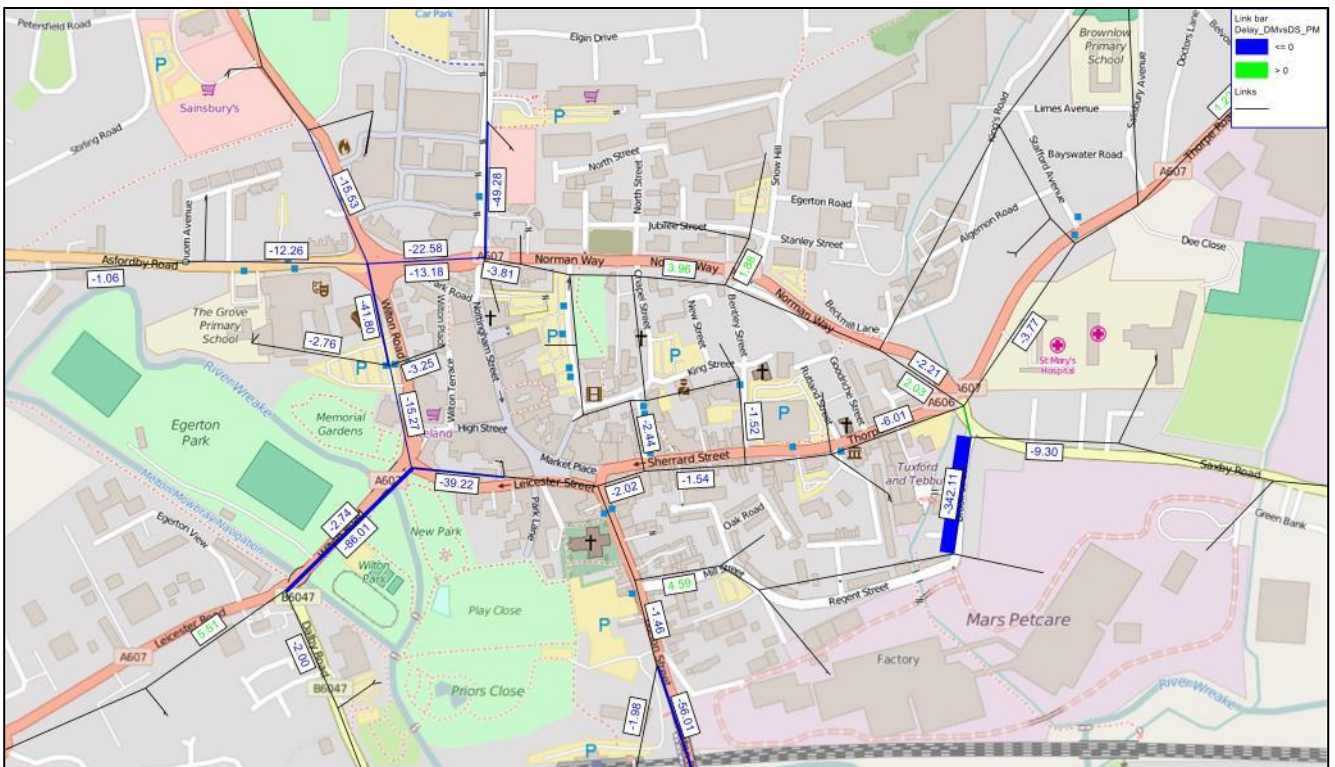


Figure 5-27 : 2031 PM Peak Hour Change in Total Link Delay (sec.) within Melton with Western Distributor Road – Higher Growth

5.6.2 Northern Distributor Road Option - Delay Changes

The impact of the Northern Distributor Road shows a slight decline in delays at the A607/Scafold Road, A607/Snowhill and Leicester Street/Leicester Road junctions as shown in Figure 5-28, together with a larger reduction at Brook Street / Saxby Road.

However, this scheme also results in slightly higher delay on a number links within the town centre such as Saxby Road and Mill Street (about 1 minute).

In general the benefit of the Northern Road is felt less in the PM peak hour compared to the AM Peak Hour, which shows more acute decongestion of Melton Town Centre- and especially inbound at Nottingham Road and Scafold Road junctions.

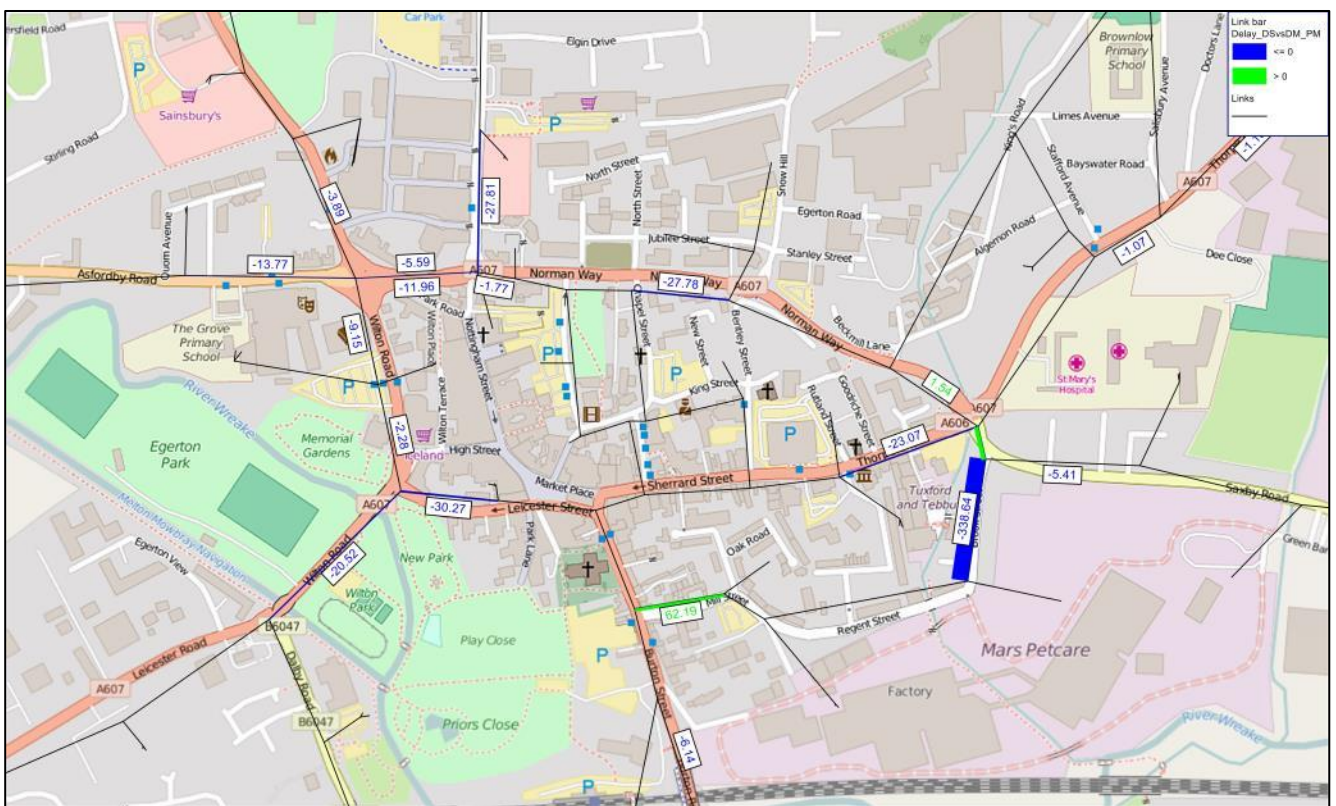


Figure 5-28 : 2031 PM Peak Hour Change in Total Link Delay (sec.) within Melton with Northern Distributor Road – Higher Growth

5.6.3 Southern Distributor Road Option - Delay Changes

As with the AM peak hour, the Southern Distributor Road is not forecast to have significant impact on delay reduction in Melton Town centre. Figure 5-29 shows the impacts of this distributor road on the delays of the town centre links.

With the Southern Distributor Road in place there are a few small reductions in link delays, for instance 30 seconds on Leicester Street, although there are benefits at Brook Street/Saxby Road; as with all options.

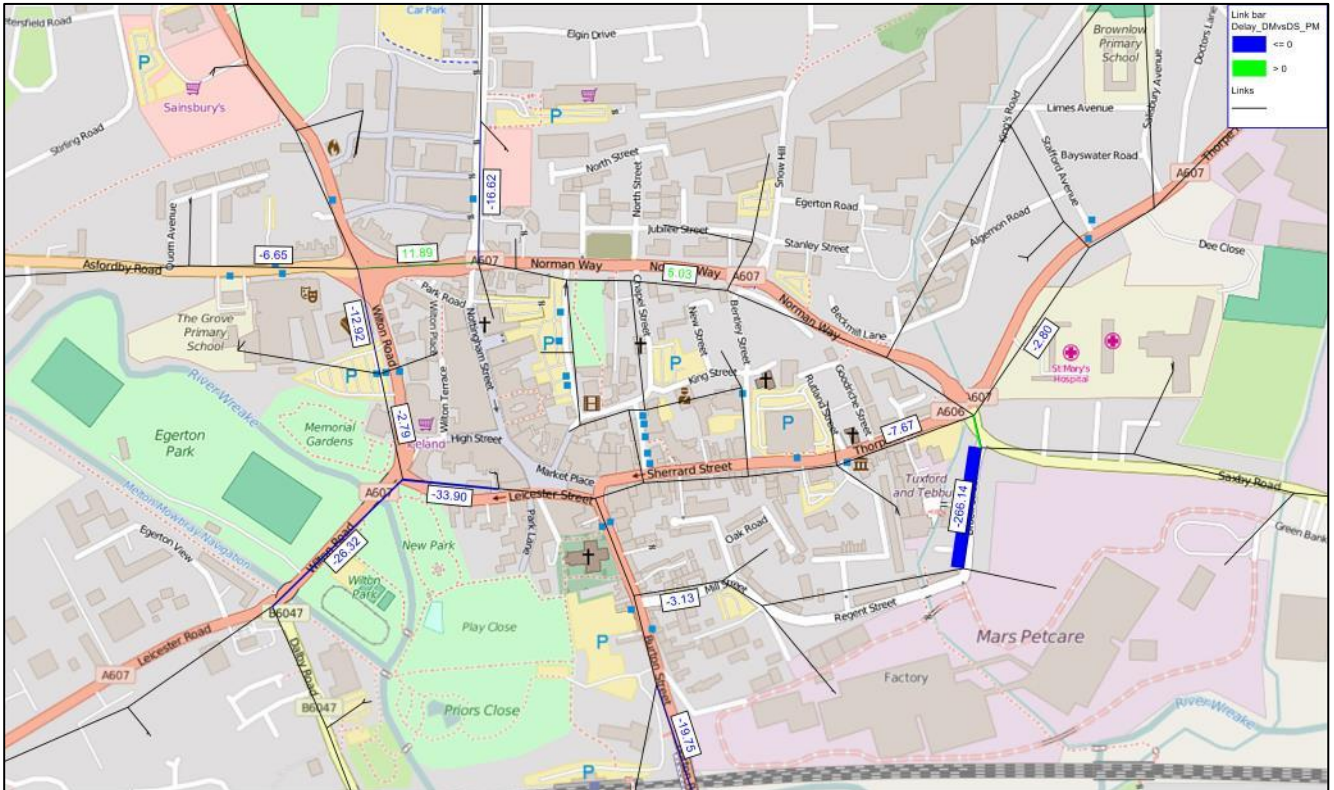


Figure 5-29 : 2031 PM Peak Hour Change in Total Link Delay (sec.) within Melton with Southern Distributor Road – Higher Growth

5.6.4 Eastern Distributor Road Option - Delay Changes

Figure 5-30 shows the total delay changes in the PM peak hour on Melton Town Centre links as result of a potential Eastern Distributor Road.

With this scheme link delays show some decrease across the town centre, although there are slightly smaller benefits to the western side of the town.

The junction with the greatest decline in delays is the A607/Thorpe End junction with a reduction of over one minute at each of the B676 Saxby Road and A407 Thorpe Road approaches. This is accompanied with reduced delays along A607 Norman Way eastbound (totalling over a minute). Wilton Road and Leicester Street delay both decreases by about 40 seconds.

This option also benefits the section of Leicester Road approaching Dalby Road with decrease in delay of 75 seconds and a decrease of nearly a minute for the traffic exiting from Mill Street onto Burton Road. Once again, the Brook Street exit onto Saxby Road has reduced delays.

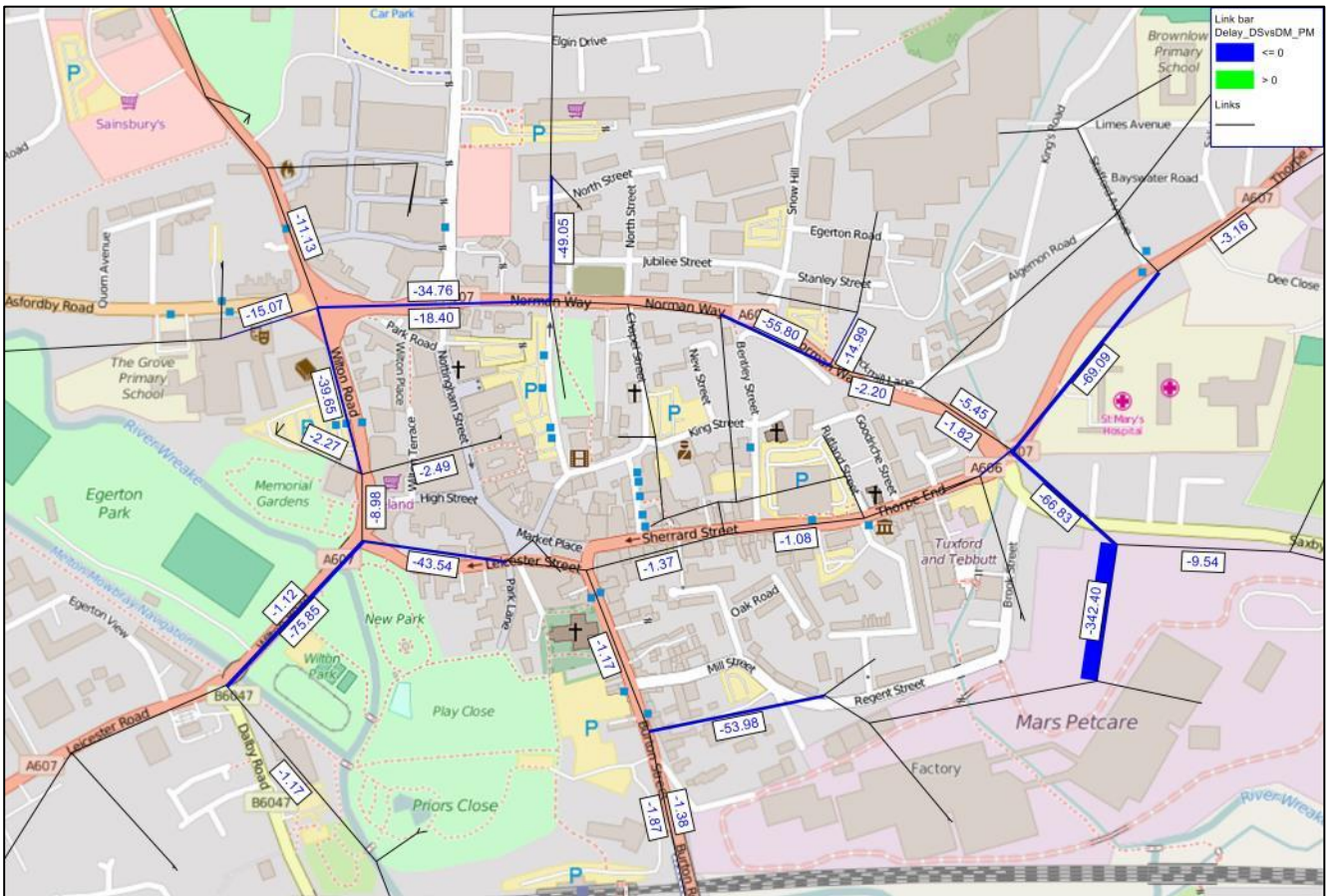


Figure 5-30 : 2031 PM Peak Hour Change in Total Link Delay (sec.) within Melton with Eastern Distributor Road – Higher Growth

5.6.5 Summary of Delay Changes in PM Peak Hour – Higher Growth

Table 5-2 summarises the overall changes in delays at key junctions and links around Melton Town Centre for each of the distributor road for the PM Peak Hour.

The Eastern Distributor Road is the most successful option in meeting the key objective of delay reduction at key junctions in Melton Town Centre; and across both sides of the town.

		Western Distributor Road	Northern Distributor Road	Southern Distributor Road	Eastern Distributor Road
Decrease in total Delay(seconds) at Key Junctions	A607 / A6006	✓	✓	✓	✓
	A607 / Leicester Street	✓	✓	✓	✓
	A607 / Scalford Road	✓	✓		✓
	A607 / Snow Hill		✓		✓
	A607 / Thorpe End				✓
	A606 / Sherrard Street				
	A607 / Dalby Road	✓	✓	✓	✓
Decrease in total Delay(seconds) on key radial routes	A6006	✓	✓	✓	✓
	A606 Nottingham Road	✓			✓
	Scalford Road	✓	✓	✓	✓
	A607 Thorpe Road				✓
	A606 Burton Street				
	A607 Leicester Road				

Table 5-2 : Summary of Schemes Impacts on PM Peak Hour Delay – Higher Growth

Based on the traffic flow analysis, and delay reduction impacts, it can be seen that an Eastern Distributor Road is the most successful option in meeting the key objectives of congestion reduction and to best accommodate the higher growth scenario at key junctions in Melton Town Centre.

6. Economic Benefits

6.1 Overview

As shown in the previous two chapters, each scheme option provides both some (and varying) benefits to road users by generally reducing their cost of travel.

In order to determine whether a scheme provides value for money, it is necessary to understand the monetary benefits offered by each scheme.

The transport model outputs for the two model years of 2011 and 2031, cumulative and higher growth, are used to undertake the economic appraisal of the schemes over 60 years from the opening year; that is from 2011 to 2070.

It should be noted that the analysis in this section represents an outline economic appraisal only and does not fully meet WebTAG standard that would be required as part of further business case or scheme progression work.

This is primarily due to the fact that the existing 2011 scenario has been used to reflect the opening year of the scheme in modelling terms, and that a range of further economic assessment regarding safety, noise, air quality, carbon and potential dependent development analyses (and land value benefits) would also need to be carried out to support further scheme progression.

New DfT values of time are also due to become formal guidance in July 2016, and any future work would also be required to follow these new values to underpin future investment decisions.⁴

Nevertheless, the results are particularly suitable and robust in terms of their comparative performance between options, as each of these factors are consistent between them, and to inform strategy development based on differences between the options, especially where these are significant.

6.2 Transport Benefits Monetary Valuation – Methodology

Travel time saving benefits are derived by comparing the travel times in the Do Minimum scenario with travel times in the Do Something scenario.

It will generally take a shorter time to travel through the study area when the scheme is implemented and these time savings are converted into a monetary value.

For the appraisal of travel time and Vehicle Operating Cost (VOC) benefits, trip and skim matrices from the traffic models are entered into the Transport User Benefit Appraisal (TUBA) software, along with other scheme specific data.

TUBA assesses travel time savings over the entire modelled area and then applies monetary values known as Values of Time (VoT) to derive the equivalent monetary benefits of those time savings. Default VoT parameters and forecast changes in their values over future years are included in the TUBA economics file (as used within TUBA version 1.9.5).

When road vehicles are used they incur costs such as fuel, maintenance and wear and tear. These costs are known as Vehicle Operating Costs (VOC). When the scheme is implemented, a variety of changes in speed and distance could occur:

- Traffic that transfers onto the uncongested links will experience less delay and therefore have quicker journeys. However, some of that traffic may travel a slightly longer distance. Such traffic therefore has a mixture of increases and decreases in VOC.

⁴ These VoT updates and required segmentation updates are currently being input into a new version of the LLITM model, expected in September 2016.

- Other traffic may re-route to take advantage of reduced travel times but this can result in longer distances being travelled (even if they are quicker). Such traffic therefore has a mixture of increases and decreases in VOC.
- Other road users in the study area could experience increased journey times due to increases in traffic caused by variable demand responses. Such traffic could have an increase or decrease in VOC depending upon the resultant speeds.

In summary, there is a mixture of increases and decreases in VOC, and TUBA is also used to determine the overall VOC benefits or disbenefits.

WebTAG VOC parameters and forecast changes in their values over future years are included in the TUBA economics file (as used within TUBA version 1.9.5).

TUBA also calculates the changes in Indirect Tax Revenues as a result of changes in speed and distance. These changes affect the amount of fuel being used and therefore affect the amount of taxes the Government receives.

A summary of the process by which TUBA is used to calculate the Travel Time, VOC and Indirect Tax benefits of each scheme is provided in Figure 6-1.

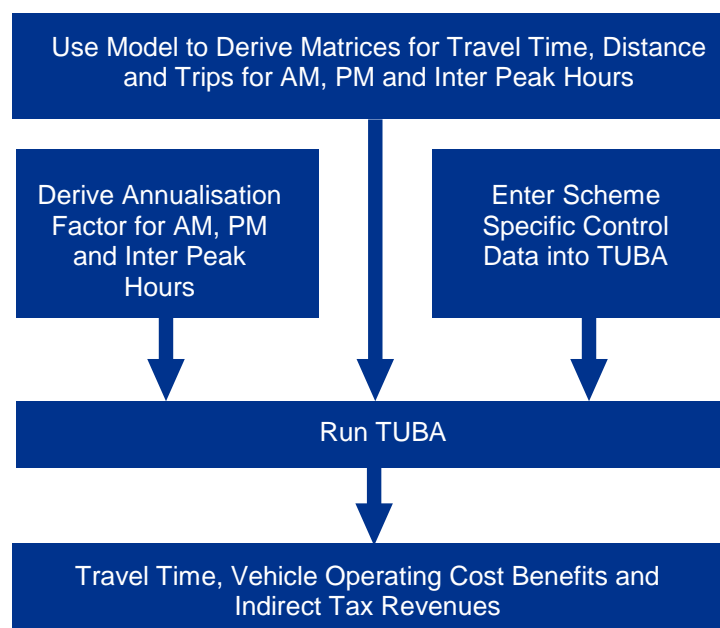


Figure 6-1 : Derivation of Travel Time, Vehicle and Operating Costs Benefits and Indirect Taxes

The modelled peak hours are converted into TUBA time periods using the standard procedures outlined in the TUBA User Manual. This involves expanding the model outputs to their annual equivalents, as explained below.

The AM and PM weekday peak LLITM models were developed to represent the periods of 0800-0900 and 1700-1800 respectively. The Interpeak model was developed to represent average traffic conditions between 1000 and 1600.

Analysis of traffic flow at several locations around Melton Mowbray was undertaken to understand if any adjacent time periods had similar flows to those in peak periods, and could therefore also be represented by each traffic model. This information was used to produce 'annualisation factors', which indicate how many hours per year are represented by each model. These factors are used to allow TUBA to calculate annual user benefits. A graph showing this traffic flow analysis is provided in Figure 6-2.

It was found that the AM model could be used to represent only 1.5 hours of AM peak period traffic conditions, while the PM model could represent 2 hours of PM peak period traffic conditions over the three hours of the respective peak periods. This represents relatively short peak periods, recognised as typical for the Melton network.

The interpeak hour was developed to represent average traffic conditions between 1000 and 1600. From the traffic flow analysis, it can be seen that similar traffic flows are observed between 0700 and 0800 and between 1800 and 1900. It was therefore considered that the Interpeak model could be used to represent these hours in the TUBA analysis.

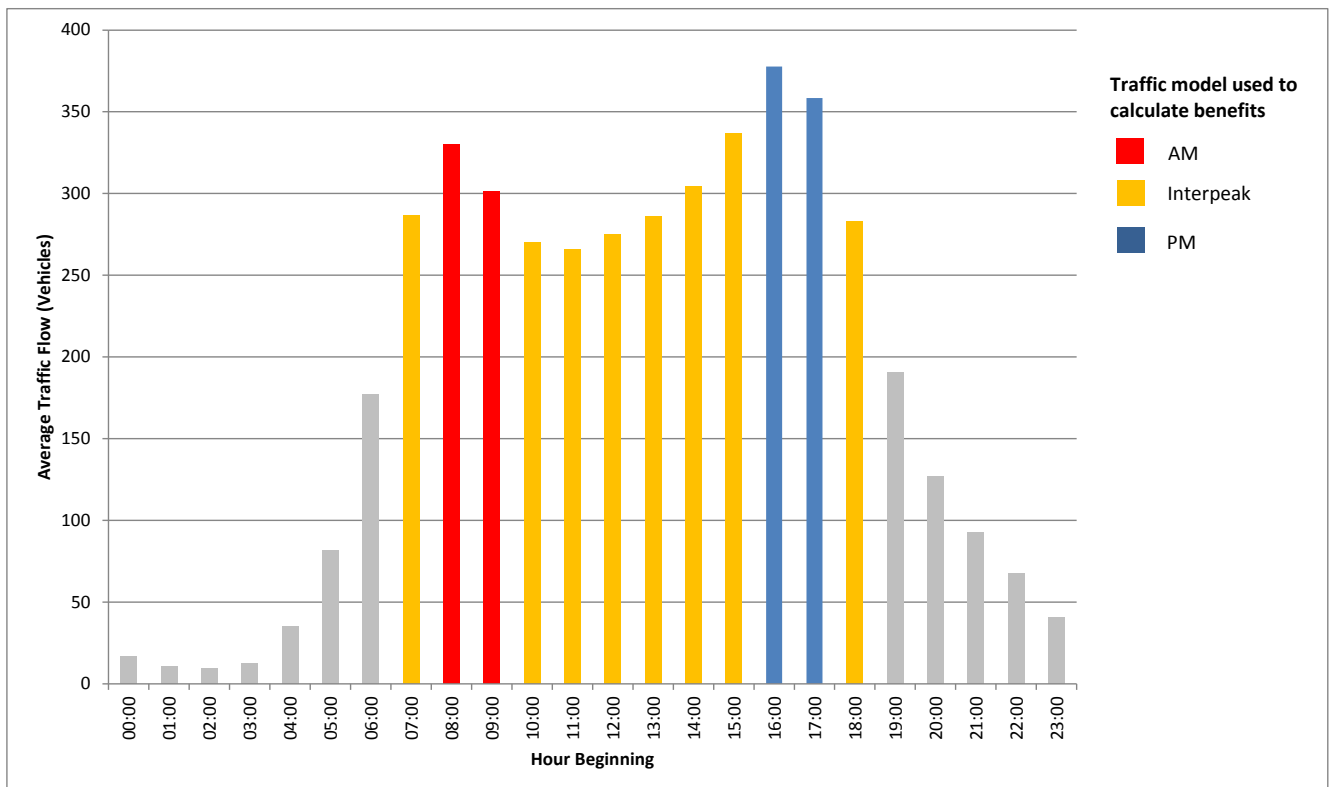


Figure 6-2 : Traffic Flow Analysis to Determine Annualisation Factors

A summary of the annualisation factors used to expand the weekday model outputs to their annual equivalents is shown below:

*Weekday AM Peak: 253 working days * 1.5 hour period = 380*

*Weekday Average Interpeak period: 253 working days * 6 hour period = 1,518*

*Weekday PM Peak: 253 working days * 2 hour period = 506*

*Weekday Shoulder Peaks: 253 working days * 2.5 hour period= 632*

Any benefits during weekends, bank holidays and night-times are excluded from this assessment; which is advised in terms of WebTAG guidance in the absence of specific weekend/off-peak models.

This adoption of only the weekday daytime periods therefore provides a conservative estimate of the scheme benefits; and for business case purposes it is generally recognised that the incorporation of off-peak and weekend benefits tends to add around 20% onto the total level of scheme benefits otherwise assessed.

TUBA interpolates or extrapolates the data from modelled years to estimate the benefits for the un-modelled years over the period of 60 years.

It is vital to ensure that TUBA results look sensible- not only in terms of their profiles, but also in terms of their spatial patterns of those users who benefit. Otherwise, given the size of the LLITM model, and potential associated noise with its size, it is very easy to get results that are either counter-intuitive, or are driven by parts of the model that would not be expecting to producing significant levels of benefit/disbenefits from the flow change analyses.

To ensure that only benefits/disbenefits that are directly attributable to each distributor road option were included in the economic assessment and for the ease of output analysis, the traffic model zones (973 in total) were therefore aggregated into the 15 sectors shown in Figure 6-3.

Any benefits that were accrued for trips which would not be affected by a new distributor road option were removed from the economic assessment results. For example, any benefits/disbenefits for trips between Birmingham & Leicester were removed from the analysis as they would not route through Melton Mowbray, and ensures a specific focus of the benefits of the scheme itself (and for Melton/ Melton District primarily).

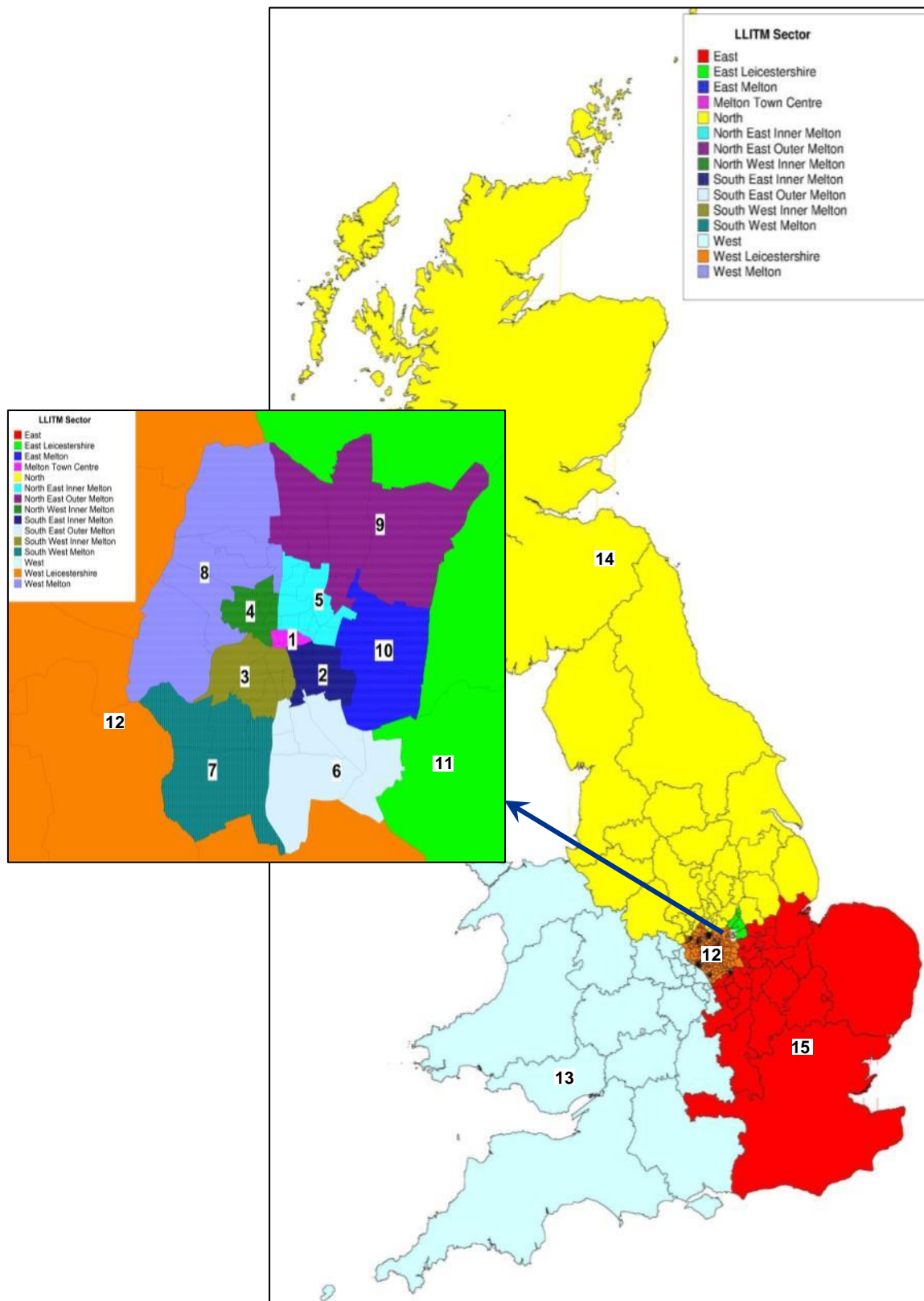


Figure 6-3 : LLITM Model Sectors

6.3 Transport Benefits Monetary Valuation – Results

The results of TUBA are the monetised values for the benefits incurred by transport users. A summary of these benefits for each scheme is provided in Table 6-1 for the cumulative development scenarios and Table 6-2 for the higher growth scenarios, in terms of Present Value of Benefits (PVB).

As expected the benefits from travel time saving and VOC are positive, which are the result of distributor road in each option. Reducing these two main elements of travel cost implies less fuel consumption and therefore results in negative values for indirect tax revenues, which are considered as loss of revenue. However, the magnitude of revenue loss due to indirect tax is very low compared to the overall benefits gained, especially in Northern, Western and Eastern Distributor Roads.

In all four schemes, the majority of benefits are contributed by travel time savings. For the cumulative development scenario, the Eastern Distributor road would provide the highest level of travel time benefits (£104m), which is twice the level of the Western Distributor Road (at £49.5m).

The higher growth scenario gives slightly lower travel time savings of £99.5m for the Eastern Distributor road, but higher benefits for the Western Distributor road at £65m. This is reflected in the flow and delay change plots earlier in this report, and in both scenarios represents a highly significant difference between the scenarios.

The Northern and Southern Distributor Roads would provide significantly lower levels of user benefits in both the cumulative and higher growth scenarios, however it should be noted that there is a significant enhancement to the Northern Route travel time benefits in particular with higher growth.

This is a function of the additional growth to the North, otherwise directly impacting on Nottingham Road/ Salford Road that is mitigated for by the provision of a Northern Route. Such a route also forms part of an Eastern Distributor Road option, that is important to consider in terms of potential scheme phasing.

Benefit	Southern Distributor Road	Northern Distributor Road	Western Distributor Road	Eastern Distributor Road
Travel Time	£14.1m	£21.8m	£49.5m	£103.9
VOC	£2.2M	£1.4m	£3.3m	£6.4m
Indirect Tax Revenues	-£0.8m	-£0.5m	-£1.5m	-£2.5m
Total PVB	£15.5m	£22.7m	£51.3m	£107.8m

Table 6-1 : Travel Time, VOC and Indirect Tax Benefits (2010 prices, discounted to 2010) – Cumulative Development

Benefit	Southern Distributor Road	Northern Distributor Road	Western Distributor Road	Eastern Distributor Road
Travel Time	£27.6m	£48.4	£65.5m	£99.5
VOC	£0.7M	-£1.1m	£2.3m	-£2.1m
Indirect Tax Revenues	£0.8m	£2.0m	£0.3m	£3.8m
Total PVB	£29.1m	£49.3m	£68.0m	£101.3m

Table 6-2 : Travel Time, VOC and Indirect Tax Benefits (2010 prices, discounted to 2010) – Higher Growth

A breakdown of the benefits by time period for the cumulative scenario is shown in Table 6-3. This shows that the benefits are fairly evenly distributed across all periods of the day for the Northern and Western Distributor Roads.

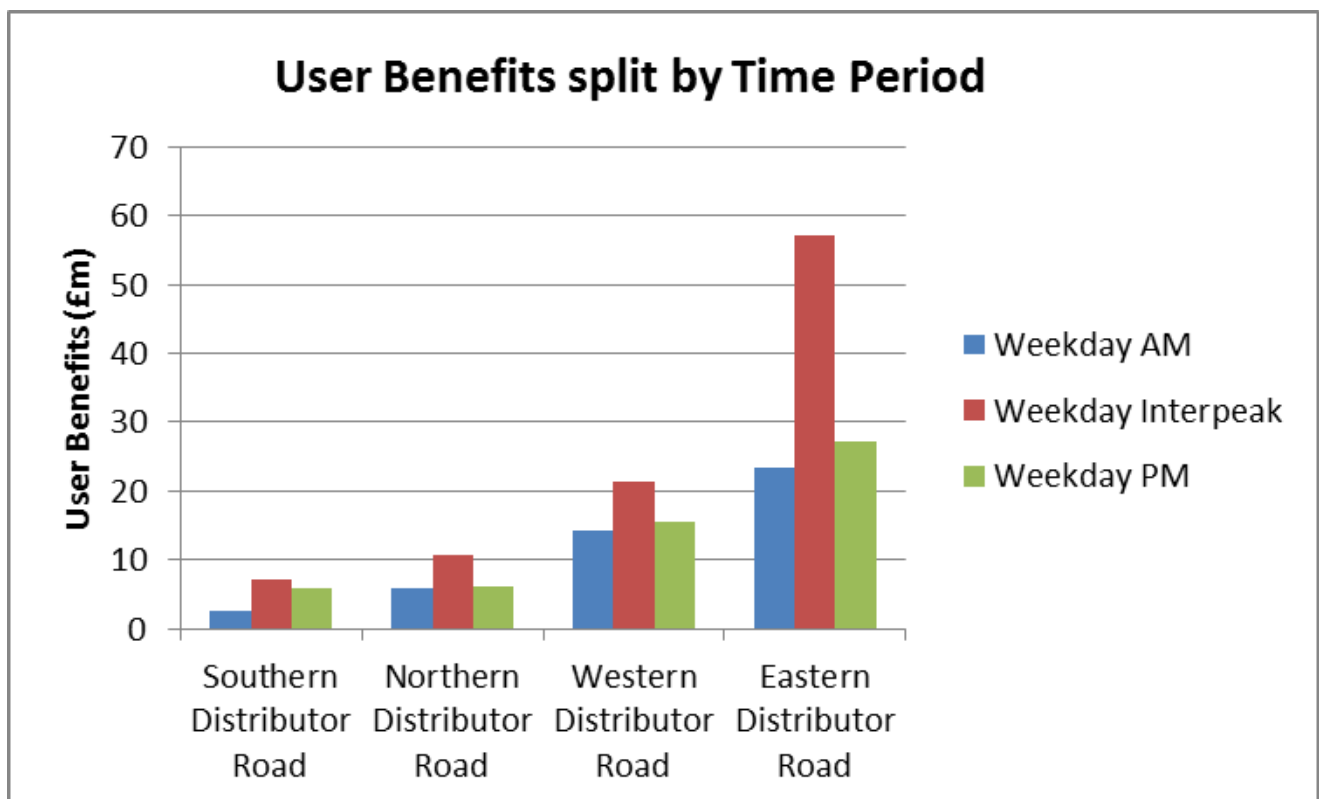
Whilst there are the greatest benefits in the AM and PM peak for the Eastern option, it should also be noted that the Interpeak benefits are also significantly higher than any other option.

Although the most significant relief from congestion is likely to occur during the AM and PM peaks, there are also significant benefits during the Interpeak period as this represents a much longer period each day.

This is important in the context of the function of the town, and in terms of the Eastern route being 1.5km shorter than the Western route, meaning it is a more attractive diversion route compared to routing through the town centre for the full duration of the day.⁵

Time Period	Southern Distributor Road	Northern Distributor Road	Western Distributor Road	Eastern Distributor Road
Weekday AM	£2.5m	£5.9m	£14.3m	£23.5m
Weekday Interpeak	£7.2m	£10.7m	£21.4m	£57.2m
Weekday PM	£5.8	£6.1m	£15.6m	£27.1m
Total	£15.5m	£22.7m	£51.3m	£107.8m

Table 6-3 : User Benefits split by Time Period, Cumulative Scenario



⁵ Without any further traffic management or complementary measures that may ensure this for either option in any case in the future

Table 6-4 shows a breakdown of the benefits by time period for the higher growth scenario. In the higher growth scenario the benefits are more evenly spread throughout the day, which is considered to be due to the additional employment developments increasing traffic flows during the AM and PM peak hours.

Time Period	Southern Distributor Road	Northern Distributor Road	Western Distributor Road	Eastern Distributor Road
Weekday AM	£3.7m	£10.3m	£16.1m	£24.7m
Weekday Interpeak	£15.7m	£19.9m	£26.8m	£38.9m
Weekday PM	£9.7	£19.1m	£25.2m	£37.7m
Total	£29.1m	£49.3m	£68.0m	£101.3m

Table 6-4 : User Benefits split by Time Period, Higher Growth

The benefits are also categorised based on journey purpose and presented in Table 6-5 and Table 6-6. For all the distributor schemes, the majority of benefits are provided to non-commuting, non-business trips (e.g. leisure trips).

Commuting trips are generally lower for all options in Melton than elsewhere, due to relatively short peak hours, and higher levels of leisure travel than elsewhere at a 24-hour level.

As part of a full DfT compliant business case, the economic benefits from other sources such as environmental impacts and safety improvements would be monetised and included within the economic appraisal. These impacts are usually much smaller in scale than travel time savings, and have not been included in this comparative assessment between a number of options (rather than a preferred and next best alternative option only at the next stage of strategy development).

Journey Purpose	Southern Distributor Road	Northern Distributor Road	Western Distributor Road	Eastern Distributor Road
Business	£2.7m	£4.5m	£11.4m	£21.4m
Commuting	£0.4m	£3.2m	£7.3m	£14.0m
Other non-business	£12.4m	£15.0m	£32.6m	£72.4m
Total	£15.5m	£22.7m	£51.3m	£107.8m

Table 6-5: User Benefits by Journey Purpose, Cumulative Development Scenario

Journey Purpose	Southern Distributor Road	Northern Distributor Road	Western Distributor Road	Eastern Distributor Road
Business	£3.6m	£5.6m	£15.7m	£20.8m
Commuting	£1.3m	£4.4m	£10.0m	£15.2m
Other non-business	£24.2m	£39.3m	£42.4m	£65.3m
Total	£29.1m	£49.3m	£68.0m	£101.3m

Table 6-6: User Benefits by Journey Purpose, Higher Growth Scenario

Based on the transport benefit analyses, it can be seen that an Eastern Distributor Road has the greatest benefits, in both cumulative development and higher growth scenarios, and that there is a very significant difference in the total level of benefits compared to other options

6.4 Gross Value Added (GVA) Benefits

In addition to the direct user benefits described in the rest of this chapter, it is possible for transport schemes to provide wider economic benefits to the area by increasing the Gross Value Added (GVA) of the local area. GVA measures the total value of goods and services; i.e. economic activity. In its simplest terms, it is GDP at a local/regional level excluding indirect taxation.

There are two key mechanisms by which transport schemes produce GVA benefits. One is based on the number of new jobs created, and the second is based on enhanced productivity of existing jobs. This is summarised as:

1) More jobs = Additional wages = Higher GVA

2) Higher productivity = Higher profits = Higher GVA

In the case of the first mechanism, transport plays an important role in economic growth by allowing additional jobs to be accommodated in a certain location. This applies especially to areas suffering from congestion and poor transport connectivity. These jobs are therefore not created by the transport scheme itself, but are supported by the increase in accessibility facilitated by the scheme; i.e. the jobs and GVA benefits are (to varying proportions) dependent on the transport scheme.

Based on 2,250 dwellings being directly unlocked by the full distributor road schemes as a result of present levels of congestion and full development 'dependency', additional GVA benefits have been calculated for each scheme option.

This calculation was based on HCA and English Partnerships (2014) guidance on the number of jobs supported per dwelling, and on allowances to make for deadweight, leakage and displacement of housing from adjacent areas. This ensures compliance with the Treasury's Green Book, and ensuring that the final appraisal value is net additional in terms of its value to the local economy and output GVA.

Based on growth of 2,250 dwellings, these additional GVA benefits for the full Western route are calculated at £24.0m per annum (in 2015 prices). The Southern and Northern route options are assumed to unlock 1,000 dwellings and 1,250 dwellings respectively, resulting in proportionately lower GVA benefits than the full Western or Eastern routes.

A summary of GVA benefits for each of the schemes, per annum is provided in Table 6-7.

GVA Benefit	Southern Distributor Road	Northern Distributor Road	Western Distributor Road	Eastern Distributor Road
Total GVA Benefits (per annum)	£13.4m	£10.6m	£24.0m*⁶	£24.0m

Table 6-7 : GVA Benefits, Gross- Cumulative Development Scenario (Housing only)

It should be noted that GVA benefits are an important consideration in terms of future LEP engagement and involvement with any scheme.

This GVA assessment is not necessarily a DfT wider impacts calculation, as would be calculated in a full business case for DfT (as this assumes land use is fixed), but which would be very much smaller than GVA values based on direct housing and job creation.

⁶ It should also be noted that, at present, the full extent of housing growth is attributed to a full western or full eastern option based on the extent of traffic flow changes and delay reductions at this level of growth, but that future dependent development analysis as part of a full business case should formally confirm.

However, it is important in demonstrating the economic and growth potential offered by the distributor road options- especially in the context of the Strategic Economic Plan’s objectives, and devolved, local decision making to secure future LEP prioritisation and Growth Deal funding for preferred options that deliver high GVA outcomes.

Comparative values, including the value of levels of higher growth supported by the schemes, are shown in Table 6-8 below.

It should also be noted that, the values are significantly enhanced given the jobs unlocked as part of this scenario; especially to the South East of the town, and that are also considered to be unlocked by a full western or eastern route from the modelling and flow change analyses above.

A western route has slightly higher potential GVA benefits given that this route may also unlock growth at Asfordby Hill, although the number of jobs growth here is comparatively smaller, and with further evidence require to confirm that transport infrastructure represents the constraint to unlock the site’s commercial growth potential.

GVA Benefit	Southern Distributor Road	Northern Distributor Road	Western Distributor Road	Eastern Distributor Road
Total GVA Benefits (per annum)	£159m*7	£11m	£365m	£342m

Table 6-8 : GVA Benefits, Gross Higher Growth Scenario

Based on the GVA benefits it can be seen that a western or eastern route provide for a highly significant uplift in Melton’s economy, comprising approximately £350m per annum, in 2015 prices by 2031.

A western route has potentially slightly higher benefits, although further commercial evidence should be sought to confirm the dependency of further growth at Asfordby on direct transport improvements.

From the above it is also demonstrated, that to maximise economic performance of any route, connections to/from a western or eastern route, should also continue to the Melton employment SUE to the south of the town.

⁷ Incorporating the full extent of Melton South SUE Employment, although in practice this would likely need to be supported by a western or eastern route to fully unlock based on the transport evidence above. GVA benefits of the housing unlocked alone remain at £13.4m per annum.

7. Scheme Costs

7.1 Overview

Part of the economic assessment process is to derive the costs associated with the scheme development; which include construction, land, preparation and supervision costs (and inflation to scheme opening year).

Capital costs of maintenance also need to be considered, as the appraisal is undertaken over 60 years.

The rest of the chapter will explain how these two elements, scheme costs and maintenance costs, have been derived. The flow diagram for the derivation of the costs of the scheme is shown in Figure 7-1 below.

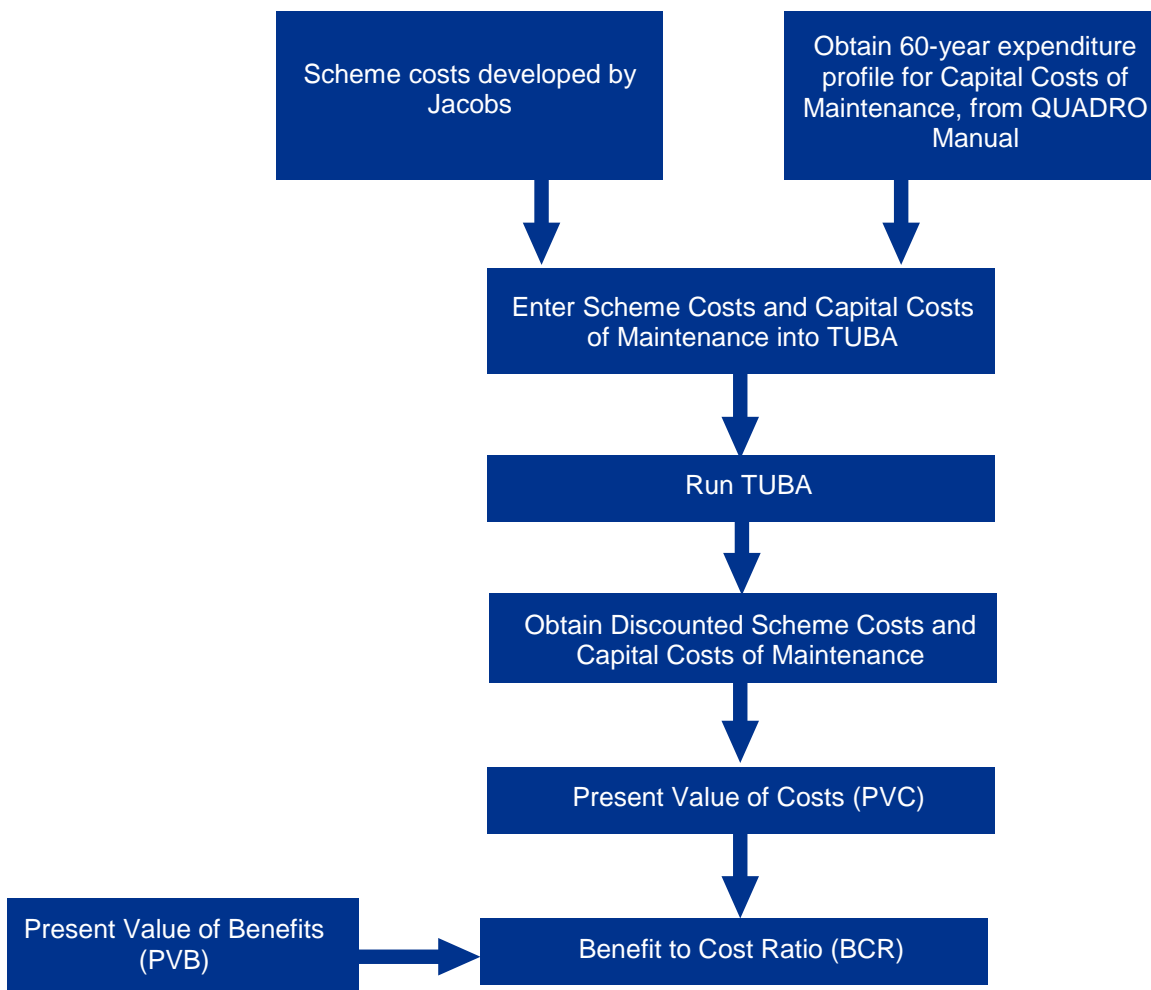


Figure 7-1 : Procedure for the Derivation of Costs

7.2 Scheme Costs

7.2.1 Western Distributor Road Option

Construction costs for the full Western Distributor route were derived based on a bill of quantities approach undertaken by Jacobs.

This cost, which included an allowance for risk and future inflation, was estimated at £47.0m in market prices at a Q1 2015 price base. Details of the cost estimates are as per the Jacobs Costing Report (2015) about the route options.

As this cost included construction works only, several adjustments were made to provide a fuller indication of the true scheme costs:

- **Preparation and Supervision Costs:** standard allowances of 12% and 15% respectively were included.
- **Land Costs:** an allowance was included for land costs (including Part 1 claims);
- **Optimism Bias:** an allowance of 44% was made, as recommended by WebTAG guidance for a scheme at this early stage of appraisal.

The total scheme cost for the Western route following these adjustments was calculated as **£93.0m** (Q1 2015 prices) for the purposes of economic appraisal.

It should be noted that this cost differs from the Present Value Cost (PVC) used in economic appraisal as this is discounted and deflated to 2010 prices– see section 7.4 for details.

This reflects the anticipated full cost of the scheme, and no assumptions regarding potential developer contributions have been made.

7.2.2 Northern and Southern Distributor Road Options

The scheme costs for the Northern and Southern Distributor roads were based on those calculated for the full Western Distributor road.

The construction costs were derived on a pro-rata basis dependent on the length of each scheme compared to the Western route, with an allowance made for the different number of structures required in each scheme.

The same adjustments for land, preparation & supervision and optimism bias described above were also applied.

The total costs estimated for the Northern and Southern Distributor roads were **£26.1m** and **£29.3m** respectively (Q1 2015 prices), that include a similar 44% Optimism Bias the purposes of Economic Appraisal.

This reflects the anticipated full cost of the scheme, and no assumptions regarding potential developer contributions have been made.

7.2.3 Eastern Distributor Road Option

Construction costs for the full Eastern route were similarly derived based on a bill of quantities approach undertaken by Jacobs.

This cost, which included an allowance for risk and future inflation, was estimated at £36.7m in market prices at a Q1 2015 price base. Details of the cost estimates are as per the Jacobs Costing Report (2015) about the route options. As per other options, with the same adjustments for land, preparation and supervision and optimism bias above applied, the Eastern route scheme cost came out at **£72.6m** (Q1 2015 prices).

7.3 Capital Costs of Maintenance

If a new scheme is constructed, there is also a corresponding change in amount of maintenance required on the road network.

For example, while extra maintenance work will be required on a new distributor road, there may be a reduction in maintenance on other roads which experience a reduction in traffic.

These changes in maintenance costs should be considered when estimating the total cost of a transport scheme. They are known as the ‘capital costs of maintenance’, and represent the cost of labour, machinery and materials required to maintain the highway network.

The changes in the capital cost of maintenance over a 60 year appraisal period are estimated for each scheme. They are based on standard road maintenance profiles and costs, as provided in the Table 4/1 of the QUADRO manual (*DMRB Volume 14, Section 1, Part2, Chapter 4*).

A summary of these changes in costs are provided in Table 7-1, in 2015 prices. These are then added to the capital costs to derive a final cost for the purposes of economic appraisal.

Scenario (over 60 years)	Southern Distributor Road	Northern Distributor Road	Western Distributor Road	Eastern Distributor Road
Do Minimum – maintenance of existing road	£9.5m	£11.4m	£11.6m	£11.6m
With Scheme – maintenance of new road plus existing road	£11.3m	£12.7m	£25.9m	£22.7m
Increase in capital costs of maintenance	£1.8m	£1.3m	£14.3m	£11.1m

Table 7-1 : Capital Costs of Maintenance (2015 prices)

7.4 Present Value of Costs

In order to use the costs estimated above in economic appraisal, they should be adjusted to be compatible for direct comparison with the monetised benefits of each scheme (see Chapter 7).

The costs are converted from a stream of costs over several years to a single figure known as the Present Value Cost (PVC). As part of this process, costs are also converted into market prices, as required by economic appraisal using an appropriate factor of 1.19.

The PVC is calculated using the discount rates from the DfT's standard appraisal assumptions to a 2010 Price base- and incorporated the capital cost on construction and capital costs of maintenance. The PVC for each option is shown in Table 7-2.

Cost	Southern Distributor Road	Northern Distributor Road	Western Distributor Road	Eastern Distributor Road
Scheme Cost	£29.3m	£26.1m	£93.0m	£72.6m
Maintenance Cost	£0.3m	£0.1m	£3.9m	£2.9m
Total PVC	£29.6m	£26.1m	£96.9m	£75.5m

Table 7-2: Present Value Costs (2010 prices, discounted to 2010)

The PVC of each can be directly compared with the Present Value of Benefits (PVB), to provide an understanding of each scheme's outline value for money- as shown Chapter 7.

Based on initial cost analysis, it can be seen that an eastern distributor road is estimated at 22% cheaper than a full western route.

There is little difference between a northern and southern route, although there are significantly different traffic benefits for Melton Town Centre.

8. Value for Money Assessment

8.1 Assessment Summary

To understand whether each scheme offers value for money, the schemes' PVB are compared to the PVC. The primary statistic used is the Benefit to Cost Ratio (BCR) and is simply the ratio of PVB to PVC.

The BCR only considers benefits calculated within the confines of the DfT's core WebTAG appraisal framework, which, for reasons detailed earlier is indicative, if comparable between options.

This currently excludes any benefits arising from an increase in GVA, or, for example, additional benefits that could be derived from potential off-peak and weekend benefits. For this reason, an indicative BCR with and without these is presented in the table below.

Finally it should be recognised that the scheme costs at this stage also have a potential variance to them, which means that for option development purposes it is always most prudent to identify a potential BCR range.

This is reported as the core metric below based on 'traditional' sources of scheme benefits, with an additional annual GVA value also incorporated that is best targeted as part of the strategic case for intervention, and to support LEP engagement and future Growth Deals.

Whilst these values have been placed side-by-side, as is best-practice, they cannot be added to together as they represent two different measures of welfare gains from transport schemes. A summary of the value for money and potential economic benefit of each scheme option is provided in Table 8-1.

Category	Southern Distributor Road	Northern Distributor Road	Western Distributor Road	Eastern Distributor Road
Benefits (PVB)	£15.5m	£22.7m	£51.3m	£107.8m
Costs (PVC)	£29.6m	£26.1m	£96.9m	£75.5m
BCR	0.5	0.9	0.5	1.4
Potential BCR + Off Peak & Weekend Benefits	0.6	1.0	0.6	1.7
BCR Range Costs ±20%	0.4-0.8	0.7-1.3	0.4-0.8	1.2-2.1
Annual GVA Benefits	£13.6m	£11.4m	£24.0m*	£24.0m

Table 8-1 : Value for Money Summary – Cumulative Development Scenario

The analysis above is based on the cumulative development scenario.

In traditional transport terms it can be seen that the level of transport benefits associated with the Eastern route is double that of the western route, which leads to a BCR that is likely to offer 'medium' value for money, with a BCR potentially approaching 2 ('high' value for money).

This is the only scheme that could support a 'traditional' business case route to delivery, as all other BCR's are of a level that would generally be considered unattractive for use of central government funding.

The northern section of the full western route has the highest BCR, with the southern route the lowest. However, given the overall levels of transport benefit obtained, the analysis is highly suggestive of the fact that the full extent of these routes would need to be provided by the respective developers; and in terms of solving core issues within Melton town centre itself; not fully mitigated by a northern or southern route in isolation.

Category	Southern Distributor Road	Northern Distributor Road	Western Distributor Road	Eastern Distributor Road
Benefits (PVB)	£29.1m	£49.3m	£68.0m	£127.4m
Costs (PVC)	£29.6m	£26.1.3m	£96.9m	£75.5m
BCR	1.0	1.9	0.7	1.7
Potential BCR + Off Peak & Weekend Benefits	1.2	2.3	0.8	2.0
BCR Range Costs ±20%	0.8- 1.5	1.6- 2.8	0.6- 1.1	1.4- 2.5
Annual GVA Benefits	£159m**	£11m	£365m	£342m
Annual GVA Benefits- Net	£48m	£3m	£109m	£102m

Table 8-2 : Value for Money Summary- Higher Growth

An Eastern route, supported by the Northern route that comprises part of the route is the only scheme that could support a 'traditional' business case route to delivery, as all other BCR's are of a level that would generally be considered unattractive for use of central government funding.

This analysis does not yet incorporate private sector contributions, and/or delivery of elements of each route that would form part of the route proposals.

Both of these have the ability to significantly reduce the cost of the schemes from those used above, and enhance future delivery/ progression of the preferred option.

⁸ Incorporating the full extent of Melton South SUE Employment, although in practice this would likely need to be supported by a western or eastern route to fully unlock based on the transport evidence above. GVA benefits of the housing unlocked alone remain at £13.4m per annum.

9. Non-Monetised Benefits

9.1 Objectives Analysis

It is important to recognise that the transport, transport user benefit and financial impacts and differences between the schemes above are not the only factors in determining a potential choice of option.

There are a number of other, non-monetised objectives that should also be considered in an options appraisal process. These should be aligned with an objective led process- and these objectives have been developed from the Evidence Base associated with the Melton Transport Strategy, to ensure consistency of appraisal and logic.

The seven objectives from the previous evidence base, to meet the current and future transport challenges in Melton are shown below in Table 9.1, and along with 4 additional objectives linked to the specific impacts and potential benefits of the above distributor road options has been used to assess the full range of potential non-monetised benefits from each of the comparative routes.

The form a wider set of objectives against which the core eastern & western routes are compared, and to see whether there are any meaningful differences between options in terms of their detail, in addition core transport strategy objectives, and preceding monetised analysis.

Wider Transport Strategy Objectives	
1	Improve access to Melton Town Centre enabling full potential
2	Improve access to the areas of potential development enabling full potential
3	Reduce congestion on the local network, in particular key pinch points in and around Melton Town Centre
4	Reduce impact on rat run routes
5	Improve access to HGVs around town centre
6	Remove HGV through traffic in Melton Mowbray town centre
7	Improve connectivity to local and regional centres for example Leicester and Nottingham
8	Promote a quality road space in town centre suitable for non-transport uses and attractive to inward investment
9	Increase levels of walking and cycling within the study area.
10	Improve highway safety for all road users within the Study Area
11	Improve connectivity between public transport services within Melton Mowbray

Table 9.1- Wider Transport Strategy Objectives

Based on the evidence in the proceeding chapters, and outputs from a stakeholders workshop, the results of the comparisons of the Eastern and Western options are shown in Table 9.2 across an extended set of objectives.

To ensure that a variety of views could be taken into account stakeholders at the session were broken into three groups, and the feedback from each of the three groups is recorded below to inform a more comprehensive analysis of any potential differences between the options.

Objective:	Group 1 Assessment	Group 2 Assessment	Group 3 Assessment	Comments On Decision
Improve access to Melton Town Centre enabling full potential	East	East	East	An Eastern route provides more in terms of higher overall numbers of vehicles using the route. The maximum loading of traffic on the Eastern and Western routes are similar, but the eastern route showed a relatively even/consistently high loading along the entire length. This therefore makes the town centre more accessible to traffic that needs to access the town itself. These benefits are spread across the town more widely compared with the west.
Improve access to the areas of potential development enabling full potential	East	West (plus Southern)	East	An Eastern Route supports development in both the cumulative development and higher growth scenarios. An Eastern route also maximises employment at existing sites, would enable more existing businesses to stay put, ensuring a greater proportion of the strategic employment site at Asfordby Hill is kept free for new/growing businesses rather than just relocating from elsewhere in the town. Further commercial evidence is needed to understand whether growth at Asfordby Hill could occur with an Eastern Route (only). A Western plus Southern route was based on the need to link to Melton Spinney Road; this could be achieved through Eastern route too in conjunction with a Southern route.
Reduce congestion on the local network, in particular key pinch points in and around Melton Town Centre	No Difference	East	East	Both routes achieve benefits towards objectives however given that East positively affects more junctions assumed this equates to the better overall benefit. Particular area where east had more benefit than west was to the south of the town centre, i.e. Burton Street, Sherrard Street.
Reduce impact on rat run routes	East	East	No Difference	Assessment of the evidence shows that the East offers relief to more congested junctions therefore encouraging greater use of appropriate routes. East saw greater reductions on town centre rat runs whereas west saw greater reductions in residential areas in the west of the town on existing routes to avoid the town centre.
Improve access to HGVs around town centre	East	East	East	As above
Remove HGV through traffic in	East	West (plus Southern)	East	All groups found this difficult to distinguish. If employment development was to 'go west' then west provides a direct connection for HGVs however

Melton Mowbray town centre				overall relief for HGVs crossing the town centre could be better met with an eastern option. However, East could also allow more trips to/from the existing industrial area on that side of the town to avoid going through the town completely.
Improve connectivity to local and regional centres for example Leicester and Nottingham	West	West	West	For Leicester and Nottingham links west was agreed as preferable. East offers benefits in relation to lesser trafficked destinations such as Peterborough, Oakham and Grantham.
Promote a quality road space in town centre suitable for non-transport uses and attractive to inward investment	East	No Difference	East	An Eastern route provides relief across more junctions and therefore offers more opportunity for changes to the town centre. However neither probably offers 'transformational' opportunities
Increase levels of walking and cycling.	East	East	No Difference	As above
Improve highway safety for all road users within the Study Area	East	East	East	New purpose built road constructed to modern standards is generally safer than old/non-purpose built roads through town. As the eastern route appears to have potential to attract more traffic off the old roads through the town than the western route, it is possibly marginally better in safety terms.
Improve connectivity between public transport services within Melton Mowbray	No Difference	No Difference	No Difference	The delivery of the growth itself will improve viability of the PT network and therefore both West & East benefit the public transport network in this way. In terms of reliability improved junction performance will add to PT journey time reliability and therefore the Eastern route may have a marginal advantage

Table 9.2- Wider Transport Strategy Objectives- Assessment between Options

Based on a wider range of objectives it can be seen that no option is preferable against the full set of objectives, but that for the majority of these broader Melton Transport Strategy objectives it has been found against the evidence base and above results that an Eastern Route is likely to offer greater levels of benefit.

This corroborates evidence on the transport user benefits, and cost differences between the options in earlier sections.

However, given the fact that a Western+Southern option was considered to have benefits against some of the above objectives; it was recommended that an Eastern Route should also be developed to directly link to a southern route and to maximise benefits of an Eastern Option too.

9.2 Overall Conclusions & Strategy Development

This option assessment report has conducted a WebTAG and EAST based assessment of a series of evidence and objective-led options for the town of Melton Mowbray.

This process used stakeholder and local groups to both identify a full set of 60 different options- across all modes, transport and non-transport options, and scales of intervention for assessment.

Through deliverability and cost criteria, a shortlist of 24 options were ranked and distilled against the objectives, leading to a series of comparative analyses between lower cost inner bypass routes, and four different potential outer distributor roads for Melton.

This process has been developed to be in line with (and supported by) the Transport Strategy evidence base, and the cumulative development impacts assessment in the Town, from which the need for a strategic highway option has been developed, given both the scale of both existing congestion, and the extent of future growth planned in the town.

This is to be supported by lower cost, more immediate proposals and complementary measures to be progressed from the assessment as part of local delivery of a final transport package for the town. This has the aim of supporting the overall development of the most effective package for Melton, with a strategic intervention as it's backbone- given the current extent and levels of congestion in the town, and the scale of growth both proposed, and already coming forward, in the town.

The analysis has drawn on best practice use of the LLITM model, a range of transport user benefits analysis and GVA evidence, and a further set of objective led non-monetised criteria to assess comparative differences between options.

This is important as it ensures that both local and national objectives are met and considered through the analysis, as well as ensuring continuity with the Melton Transport Strategy more generally.

The report demonstrates that based on the traffic flow analysis, and delay reduction impacts, that an Eastern Distributor Road is the most successful option in meeting the key objectives of congestion reduction and to best accommodate future growth associated with current levels of cumulative development proposals at key junctions in Melton Town Centre.

This also holds in the second scenario, where an Eastern route is also demonstrably able to better accommodate future higher growth at key junctions in Melton Town Centre.

As a result, and from a transport user and benefits perspective, it can also be seen that an Eastern Distributor Road has the greatest benefits in both cumulative development and higher growth scenarios, and that there is a very significant difference in the total level of benefits compared to other options.

Based on initial cost analysis, it can be seen that an Eastern Distributor Road is estimated at 22% cheaper than a full western Route and that has been subject to inflation, risk and additional optimism bias and maintenance cost calculation as part of the economic appraisal undertaken in this report.

A full eastern route, as noted throughout this report, has the greatest impact and benefits on the key objective of congestion reduction across Melton town centre. Correspondingly it also has the greatest traditional level of transport benefits being double the size of those associated with its comparator, a full western option.

In traditional transport terms this represents a very significant difference, and is primarily driven by the shorter route and resultant quicker journey time connecting key routes north-south across Melton. However, it is also driven by clear benefits across the full extent of the day, rather than potentially requiring additional traffic management to achieve full-day benefits, as may be required with a Western option.

Both of these factors in favour of an Eastern Route are important in terms of future progression of the scheme, but also in terms of making a robust case at future stages of scheme development. This is in terms of planning,

outline business case production and indeed the future deliverability of the scheme as well as attracting public and private sector funding.

The evidence also demonstrates that whilst there is little difference between a northern and southern Route in terms of cost, there are significantly different traffic benefits for Melton town centre.

A Northern option has considerably enhanced benefits for the town centre compared to a southern route on its own; and whilst not sufficient to fully accommodate either cumulative development or higher growth levels of growth, is important in terms of phasing and ensuring early benefits to the town of an Eastern Distributor Road, of which the northern section provides a significant part.

From the BCR analysis, it has been demonstrated that an eastern route, supported by the northern route that comprises part of the route, is the only scheme that could support a 'traditional' business case route to delivery, as all other BCR's are of a level that would generally be considered unattractive for use of central government funding.

In the higher growth scenario, and supported by significant jobs growth to the SUE, it is also concluded that a southern option should form part of an Eastern Route to the town, and be directly connected to it.

The above analysis does not yet incorporate private sector contributions (although it should be noted that in DfT terms these do not impact the BCR). However, these (and would) help support the delivery of each route as well as to reduce overall cost to the taxpayer as well as ensuring enhanced 'additionality' from the use of taxpayer funds that is increasingly important to demonstrate to DfT through competitive challenge bidding for funding.

Given the scale of growth envisaged in the higher growth scenario, it is clear that developer contributions, and their corresponding locations in helping define and shape the route of the northern and southern sections of an eastern route have a critical role to play.

These should also be able to significantly reduce the cost of the schemes from those assessed above, and correspondingly enhance future delivery/ progression of a preferred eastern route on the grounds set out in this report.

Based on traffic flow and delay changes, user benefits, cost analysis and a wider range of economic growth and locally-led objectives, it has been demonstrated that an Eastern Distributor Road Option is a preferred option for the town.

In other words, the evidence above demonstrates that it is best able to solve existing congestion issues in the town, as well as being best placed to accommodate the significant levels of growth coming forward.

Appendix A. Long List of Options

ID	Scheme Type	Scheme	Origin	Affordability	Deliverability	Acceptability	Decision	Justification of Decision
MM/NM-03	Non-Motorised	Promote change in behaviour, safe cycle routes, public transport and pedestrian friendly routes which are enjoyable to use.	stakeholder				Y	Non-infrastructure scheme involving travel planning and marketing etc.
	Demand management	Special market day traffic measures: permanent signing, temporary parking restrictions, temporary road closures, vehicle bans, enforcement improvements, offsite parking	Jacobs				Y	Acceptability doubtful as benefits would be on market days only and would require police co-operation to work.
MM/DM-12	Public							
MM/PT-01	Transport	New free parking area with a bus link	stakeholder				n	Unlikely to be affordable or deliverable due to difficulty and cost of finding land for parking or an existing car park and cost of operating bus services.
MM/PT-09	Transport	2 South & 2 North park & ride Schemes	stakeholder				n	Unlikely to be affordable or deliverable due to difficulty and cost of finding land for parking or existing car parks and cost of operating bus services / associated infrastructure.
MM/NI-01	Network Improvement	Improve Dalby Road mini roundabouts	stakeholder				n	May mean junction widening to increase capacity which would require land acquisition and have a negative impact on local residents.
MM/NI-14	Network Improvement	New road linking A607 (Thorpe Road) and B676 (Saxby Road), by extending Dee Close or Crossfield Drive	stakeholder				n	Would require purchase of land. Would benefit A607 to B676 movement, but both roads would still lead to same junction so wouldn't benefit any other routing. Could open up land to the east of/along the new road for development. Dee Close option would result in loss of sports fields.
MM/TM-01	Management Traffic	Check traffic signals in town centre and Norman Way & Thorpe Way	stakeholder				Y	Relatively low cost and little impact on residents.
MM/DM-15	Management Public	Edge of centre car park; congestion charge	stakeholder				n	New car park unlikely to be deliverable or affordable. Congestion charge highly unlikely to be acceptable or affordable (operation).
MM/PT-02	Transport Public	Provide buses to key supermarkets	stakeholder				Y	Affordability / deliverability for these bus improvements alone questionable.
MM/PT-07	Transport Public	Park & ride off A6006	stakeholder				n	Unlikely to be affordable due to difficulty and cost of finding land for parking and cost of operating bus services.
MM/PT-08	Transport Network	Park & Ride Specifically provided for Tuesday Market days	stakeholder				n	Unlikely to be affordable due to difficulty and cost of finding land for parking and cost of operating bus services. Benefit on market days only.
MM/NI-02	Network Improvement	Tweaks to existing roads e.g. make Mill Street one way, utilise rat runs	stakeholder				n	Extensive use of residential roads for through traffic unlikely to gain local political support.
MM/NI-03	Network Improvement	Install new roundabouts in key points e.g. Burton Lazars, Burton Road (A606)	stakeholder				n	May be more likely to slow flow of traffic on A606 and therefore not acceptable.
MM/NI-05	Network Improvement	Junction improvements & highway infrastructure on southern inner relief road	stakeholder				Y	Assuming that relatively low cost and acceptable.
MM/NI-12	Network Improvement	Realigned B676 (Saxby Road)	stakeholder				n	Seems unlikely that funding could be secured, hierarchy of roads based on function suggests moving traffic from an A road to a B road should not be an aim.
MM/NI-16	Network Improvement	Link road from Saxby Road to Melton Road with dedicated school access to: Birch Wood School, Sherrard County School & Melton Vale Post 16 Centre	Jacobs				Y	Affordability questionable: would require new river crossing (tunnel / bridge).
MM/PT-13	Transport Public	Introduce a direct rail services from Melton to Loughborough & Nottingham	Jacobs				Y	Affordability in question: issues of line capacity, rolling stock availability etc.
MM/PT-14	Transport Public	Introduce a half hourly rail service between Melton & Leicester	Jacobs				Y	Affordability in question: issues of line capacity, rolling stock availability etc.
MM/NI-13	Network Improvement	Western bypass	Jacobs				Y	Affordability an issue: significant amount of land required.
MM/DM-04	Demand Management	HGV management plan. Levy through traffic	stakeholder				n	The cost and acceptability of a levy on through traffic is likely to stop this scheme, HGV management alone would pass sifting.
MM/DM-06	Demand Management	Ban HGV except for access	stakeholder				n	Would need ongoing enforcement action. Deliverability a barrier as HGVs need access or alternative routes.
MM/DM-13	Demand Management	Introduce a station travel plan	Jacobs				Y	Benefits of a station travel plan for town would be more significant in combination with improved rail services.
MM/PT-03	Transport Public	Improve/provide school bus services	stakeholder				Y	Deliverability for these bus improvements alone questionable.
MM/DM-16	Management Traffic	Review weight restrictions on roads	stakeholder				n	Difficult to deliver in isolation as needs to be part of a wider HGV management plan.
MM/TM-04	Management Demand	Make Mill Street & Regents Street one way (eastbound)	stakeholder				Y	Would legitimise more direct movement from south to east.
MM/TM-06	Management Demand	Make Norman Way one way	stakeholder				Y	Affordable and deliverable and may reduce junction pressures, but without mitigation could increase rat running.

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ID	Scheme Type	Scheme	Origin	Affordability	Deliverability	Acceptability	Decision	Justification of Decision
MM/DM-08	Demand Management	Look at school start and finish times and review catchments (flexi work times)	stakeholder	Green	Green	Green	Y	Relatively low cost option, but risk of not receiving approval. Collaboration and cooperation with the schools in and around Melton would be necessary.
MM/DM-14	Demand management	Implement town-wide personalised travel planning project in conjunction with / without new housing developments	Jacobs	Green	Green	Green	Y	Relatively low cost option, which could work well in conjunction with new development.
MM/TM-05	Traffic Management	Look at inner relief road & convert to one way system	stakeholder	Green	Green	Red	n	Relatively low cost and deliverable, concern of rat-running on parallel routes.
MM/NI-04	Network Improvement	By pass in stages, sort out pinch points along inner ring road	stakeholder	Red	Green	Green	n	Other bypass options would cover this.
MM/NI-06	Network Improvement	Junction improvements & highway infrastructure link 1,2,3, south, west and north (3/4 link road)	stakeholder	Red	Green	Green	n	Cost likely to be prohibitive with need to cross river and rail lines.
MM/NI-07	Network Improvement	Northern bypass	stakeholder	Orange	Orange	Green	Y	Cost likely to be high: significant land take.
MM/NI-08	Network Improvement	Through traffic to be diverted around the town southern bypass	stakeholder	Orange	Orange	Green	n	Scheme could be costly: significant land take. Constraints such as rail lines and rivers question deliverability.
MM/NI-09	Network Improvement	Through traffic to be diverted around the town eastern bypass	stakeholder	Orange	Orange	Green	n	Scheme could be costly: significant land take. Constraints such as rail lines and rivers question deliverability.
MM/NI-10	Network Improvement	new A1-M1 Link	stakeholder	Red	Green	Green	n	A major scheme with associated costs. Only of benefit when a motorway incident occurs, other measures could be considered.
MM/NI-11	Network Improvement	By pass east, south and west	stakeholder	Orange	Orange	Green	n	Scheme could be costly: significant land take. Constraints such as rail lines and rivers question deliverability.
MM/NI-15	Network Improvement	Use former railway alignment between A6006 and A606	Jacobs	Red	Green	Green	n	Scheme would be costly: rail line constraint.
MM/NI-17	Network Improvement	Improve/upgrade Leg Lane	Jacobs	Green	Green	Green	n	Duplicate of MM/NI-09 (eastern bypass)
MM/DM-05	Traffic Management	Restrict parking at schools	stakeholder	Green	Orange	Green	n	Scheme has issues with deliverability as it would require cooperation of schools and potentially could be difficult to enforce. May not be acceptable with increased parking in surrounding areas.
MM/TM-03	Traffic Management	Review need for traffic lights in on key radial routes and within the town centre	stakeholder	Green	Green	Green	Y	Affordability would depend on scale of changes required.
MM/TM-02	Traffic Management	Town-wide 20mph speed limit (excepting strategic roads)	Jacobs	Green	Green	Green	Y	Low-cost option. Opposition from the public is possible. Would not normally not be implemented on main arterial roads.
MM/DM-01	Demand Management	HGV management plan	stakeholder	Green	Green	Green	Y	Relatively low-cost and would generally be acceptable.
MM/DM-02	Demand Management	Introduce work place parking levy	stakeholder	Red	Green	Red	n	Highly unlikely to be affordable or acceptable in a town of this size.
MM/DM-03	Demand Management	Imposing timing restriction on roads, introduce congestion charge	stakeholder	Red	Green	Red	n	Practicality of time-based driving restrictions unlikely to be acceptable for all road users. Congestion charge highly unlikely to be acceptable or affordable (operation).
MM/DM-07	Demand Management	Congestion charge	stakeholder	Red	Green	Red	n	Congestion charge highly unlikely to be acceptable or affordable (operation).
MM/DM-09	Demand Management	Review the school traffic plans	stakeholder	Green	Green	Green	Y	Easy to deliver with support from schools and parents.
MM/DM-10	Demand Management	Employment growth in town to be managed	stakeholder	Green	Green	Red	n	Long term planning of development in the town centre would ensure that non-car modes are encouraged and that traffic impacts of development are mitigated.
MM/DM-11	Demand Management	Relocation of livestock market	Jacobs	Red	Green	Green	n	Costs would be significant. Not likely to be acceptable due to recent investment at existing site.
MM/PT-04	Public Transport	Need later services (bus & train)	stakeholder	Orange	Green	Green	n	Costs (in relation to benefits) may be questionable.
MM/PT-05	Public Transport	Better connectivity by bus	stakeholder	Orange	Green	Green	n	Duplicate of MM/PT-16
MM/PT-06	Public Transport	Bus only area in town: Leicester Road, Burton Road & Thorpe End	stakeholder	Red	Green	Red	n	Main issue: deliverability (alternative routes for other traffic).
MM/PT-10	Public Transport	Move the station & combine with park & ride	stakeholder	Red	Green	Orange	n	Affordability main issue when works to close existing station taken into account.
MM/PT-11	Public Transport	Edge of town and central car parks	stakeholder	Orange	Green	Green	n	Cost and availability of land present barriers.
MM/PT-12	Public Transport	Introduce more bus routes which serve north and south of Melton Mowbray	Jacobs	Orange	Green	Green	n	More affordable as part of package of bus improvements across town / area.
MM/PT-15	Public Transport	New park and ride station between Melton and Leicester	Jacobs	Red	Green	Green	n	Cost depends on if a new service is provided or amending an existing service. Would provide a sustainable option to private car, for those living in the south of Melton and those from potential new developments in the south of Melton would have an alternative to driving to existing station.
MM/NM-01	Non-Motorised	Promote short journeys through accessible services	stakeholder	Green	Green	Green	n	Option not understood.
MM/NM-02	Non-Motorised	Safe cycle routes especially for schools	stakeholder	Green	Green	Green	Y	Improved routes could whole town and likely to be acceptable.
MM/NM-04	Non-Motorised	Improve footpath connections with villages. Look at dedicated network of walking routes within the town and connecting surrounding villages.	stakeholder	Green	Green	Green	Y	Cost would be dependent on scale of improvements.
MM/NM-05	Non-Motorised	Promote walking, cycling with parking interchanges.	stakeholder	Green	Green	Green	Y	Dependent on securing suitable car parks.
MM/PT-16	Public Transport	Develop bus strategy for Melton Mowbray and improve network within town and to destinations outside.	Jacobs	Green	Green	Green	Y	More affordable as package of measures to improve bus travel.

Appendix B. Sifting using EAST

ID	Scheme Type	Scheme	Sort by Rank		Estimated Scheme Cost	SO1	SO2	SO3	SO4	SO5	SO6	SO7	Decision
			Rank	Total		Improve access to Melton Town Centre and the areas of potential development	Reduce congestion on the local network; in particular key pinch points in and around Melton Mowbray Town Centre	Address HGV impact in Melton Mowbray town centre	Improve connectivity to local and regional centres for example Leicester and Nottingham	Improve effectiveness of public transport facilities within Melton Mowbray	Increase levels of walking and cycling within the study area	Improve highway safety for all road users within Melton Mowbray	
MM/PT-13	Public Transport	Introduce a direct rail services from Melton to Loughborough & Nottingham	1	10	£1m - £5m								Cost is dependent on if a new service is provided or amending an existing service, as potentially new rolling stock could be required. The scheme would provide a sustainable option to private car, and would make better use of existing infrastructure i.e. the station.
MM/PT-14	Public Transport	Introduce a half hourly rail service between Melton & Leicester	1	10	#REF!								Cost is dependent on whether new rolling stock would be required. The scheme would maximise existing infrastructure and provide a sustainable option to private car.
MM/NI-07	Network Improvement	Northern Bypass	3	9	#REF!								Scheme is likely to be costly, dependent on the amount of land required, which maybe through the country park. The scheme would reduce congestion and open up new land for development.
MM/NI-16	Network Improvement	Link Road from Saxby Road to Melton Road with dedicate school access to: Birch Wood School, Sherrard County School, Melton Vale Post 16 Centre	4	8	#REF!								By providing access to the schools the link road would help divert traffic school traffic in the town centre. But would not resolve issues on the western side of Melton Mowbray. The link would also improve access to the hospital and potentially open up land for new development.
MM/NI-05	Network Improvement	Junction improvements & highway infrastructure on southern inner relief road	5	6	#REF!								The scheme could relieve rat running on Mill Street, and congestion to the south, and may not reduce through traffic along key diagonal movements across the town, or encourage traffic by non car modes.
MM/TM-01	Traffic Management	Check traffic signals in town centre, Norman Way & Thorpe Way	5	6	<£250k								This scheme is likely to provide good value for money, but it is unlikely to meet all the objectives as an independent option. The improvements may not be enough to resolve congestion issues and therefore it is a short term solution.
MM/TM-03	Traffic Management	Review need for traffic lights in on key radial routes and within the town centre	5	6	<£250k								This scheme is likely to provide good value for money, but it is unlikely to meet all the objectives as an independent option. The improvements may not be enough to resolve congestion issues, in short a short term solution. Cost is dependent on the number of junctions that would be assessed.
MM/DM-01	Demand Management	HGV management Plan	8	5	<£250k								Insufficient as a standalone scheme. The potential for this scheme depends on the methodology of controlling HGV movements, and the implications of how HGVs would be re-routed.
MM/DM-12	Demand management	Special Market day traffic measures: permanent signing, temporary parking restrictions, temporary road closures, vehicle bans, enforcement improvements, offsite parking	8	5	<£250k								Benefits would be on market days only and therefore would not resolve average day levels of congestion and traffic impact in Melton Mowbray. Therefore this scheme is not sufficient as a standalone option.
MM/PT-16	Public Transport	Develop bus strategy for Melton Mowbray and improve network within town and to destinations outside	8	5	£250k - £1m								Cost is dependent on number of new bus services and network improve measures that are required, investigation will be required into the impact of an bus priority measures may have on existing infrastructure.
MM/DM-01	Traffic Management	Make Norman Way one way	11	4	#REF!								Implementing a one way system on Normal way is could increase rat running through Brook Street/Mill street from vehicles travelling from A607 or B676 towards Nottingham. Negatives may out weigh positives.
MM/DM-08	Demand Management	Look at school start and finish times and review catchments (flexi work times)	11	4	<£250k								The scheme would be difficult to implement and as it would impact on school catchments it may be opposed by residents/parents. Collaboration and cooperation with the schools in around Melton would be necessary in order for the scheme to be successful.
MM/DM-09	Demand Management	Review the school traffic plans	13	3	#REF!								Easy to deliver with support from schools and parents. The cost is dependent on the schemes that could be implemented after the travel plans have been reviewed. As a standalone it would not address all the objectives.

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ID	Scheme Type	Scheme	Sort by Rank		Estimated Scheme Cost	SO1	SO2	SO3	SO4	SO5	SO6	SO7	Decision
			Rank	Total		Improve access to Melton Town Centre and the areas of potential development	Reduce congestion on the local network; in particular key pinch points in and around Melton Mowbray Town Centre	Address HGV impact in Melton Mowbray town centre	Improve connectivity to local and regional centres for example Leicester and Nottingham	Improve effectiveness of public transport facilities within Melton Mowbray	Increase levels of walking and cycling within the study area	Improve highway safety for all road users within Melton Mowbray	
MM/NM-03	Non-Motorised	Promote change in behaviour, safe cycle routes, public transport and pedestrian friendly routes which are enjoyable to use.	13	3	£250k - £1m								Cost is dependent on the scope of the public transport provision and walking/cycle routes that would be required. As a standalone the scheme is unlikely to address the objectives.
MM/PT-03	Public Transport	Improve/provide school bus services	13	3	#REF!								Success is dependent on cooperation of schools & parents, benefits are long term changes in travel habits, which may lead to a reduction in car trips generated by the schools
MM/DM-13	Demand management	Introduce a Station Travel Plan	16	2	<£250k								Melton Station has a relatively low patronage. Therefore the impact of the travel plan may not be limited across Melton Mowbray.
MM/DM-14	Demand management	Implement town-wide personalised travel planning project in conjunction with / without new housing developments	16	2	#REF!								Cost is dependent on what incentives are included and the scope of the personalised travel plan. On going cost could be incurred for management and maintaining personalised travel plan service.
MM/TM-04	Traffic Management	Make Mill Street & Regents Street One Way (Eastbound)	16	2	#REF!								Investigation would be required in to whether these streets are suitable for an increase in traffic volume in particularly HGVs. May encourage rat running through alternative streets through the south west of Melton Mowbray.
MM/NM-02	Non-Motorised	Safe cycle routes especially for schools	19	1	<£250k								Only targets a small demographic, and would need ongoing support and collaboration from local schools.
MM/NM-04	Non-Motorised	Improve footpath connections with villages. Look at dedicated network of walking routes within Melton Mowbray and connecting surrounding villages.	19	1	<£250k								Cost is dependent on the extent of the footpaths/walking network required to connect Melton Mowbray to the surrounding areas, though the distances may be significant and therefore unlikely to attract frequent users.
MM/NM-05	Non-Motorised	Promote walking, cycling with parking interchanges.	19	1	#REF!								Cost is dependent on if any existing sites could be used or if new sites would be developed. The car parking would attract users and therefore cause an increase in traffic on the surrounding network.
MM/PT-02	Public Transport	Provide buses to key supermarkets	19	1	<£250k								Would require collaboration with supermarkets and potential on going running cost if the bus service required subsidising.
MM/TM-02	Traffic Management	Town-wide 20mph speed limit (except strategic roads)	19	1	<£250k								Opposition from the public is possible. Low-cost option, would not normally not be implemented on main arterial roads.
MM/NI-13	Network Improvement	Western Bypass	24	0	#REF!								As a standalone the scheme would only resolve issues generated by traffic from the north east and south east and would not have a significant impact generated by traffic heading to/from Leicester or Nottingham.

Appendix C. Options List for Further Assessment

Scheme					SO1	SO2	SO3	SO4	SO5	SO6	SO7
ID	Scheme Type	Scheme	Rank	Estimated Scheme Cost	Improve access to Melton Town Centre and the areas of potential development	Reduce congestion on the local network; in particular key pinch points in and around Melton Mowbray Town Centre	Address HGV impact in Melton Mowbray town centre	Improve connectivity to local and regional centres for example Leicester and Nottingham	Improve effectiveness of public transport facilities within Melton Mowbray	Increase levels of walking and cycling within the study area	Improve highway safety for all road users within Melton Mowbray
MM/NI-04	Network Improvement	By pass in stages, sort out pinch points along inner ring road	1	High cost							
MM/NI-06	Network Improvement	Junction improvements & highway infrastructure link 1,2,3, south, west and north (3/4 link road)	1	Medium to high cost							
MM/NI-09	Network Improvement	Through traffic to be diverted around the town with a Eastern Bypass	1	High cost							
MM/NI-11	Network Improvement	Bypass; east, south and west	1	High cost							
MM/NI-07	Network Improvement	Northern Bypass	5	High cost							
MM/NI-08	Network Improvement	Through traffic to be diverted around the town via a Southern Bypass	5	High cost							
MM/NI-16	Network Improvement	Link Road from Saxby Road to Melton Road with dedicate school access to: Birch Wood School, Sherrard County School, Melton Vale Post 16 Centre	5	Medium to high cost							
MM/NI-17	Network Improvement	Improve/upgrade Leg Lane	8	Medium to high cost							
MM/PT-14	Public Transport	Introduce a half hourly rail service between Melton & Leicester	9	Medium to high cost							
MM/TM-07	Traffic Management	Interim Management system; real time information for drivers on congestion	9	Medium cost							

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Scheme				SO1	SO2	SO3	SO4	SO5	SO6	SO7	
ID	Scheme Type	Scheme	Rank	Estimated Scheme Cost	Improve access to Melton Town Centre and the areas of potential development	Reduce congestion on the local network; in particular key pinch points in and around Melton Mowbray Town Centre	Address HGV impact in Melton Mowbray town centre	Improve connectivity to local and regional centres for example Leicester and Nottingham	Improve effectiveness of public transport facilities within Melton Mowbray	Increase levels of walking and cycling within the study area	Improve highway safety for all road users within Melton Mowbray
MM/NI-14	Network Improvement	New road linking A607 (Thorpe Road) and B676 (Saxby Road), by extending Dee Close or Crossfield Drive	11	Medium cost							
MM/DM-17	Demand Management	Leicester Road car park	12	Medium cost							
MM/NI-05	Network Improvement	Junction improvements & highway infrastructure on southern inner relief road	13	Medium cost							
MM/NM-01	Non-Motorised	Promote short journeys through accessible services	13	Low cost							
MM/TM-03	Traffic Management	Review need for traffic lights in on key radial routes and within the town centre	13	Low cost							
MM/DM-01	Demand Management	HGV management Plan	16	Low cost							
MM/PT-16	Public Transport	Develop bus strategy for Melton Mowbray and improve network within town and to destinations outside	16	Medium cost							
MM/DM-09	Demand Management	Review the school traffic plans	18	Low cost							
MM/NM-03	Non-Motorised	Promote change in behaviour, safe cycle routes, public transport and pedestrian friendly routes which are enjoyable to use.	18	Medium cost							
MM/PT-03	Public Transport	Improve/provide school bus services	18	Low cost							

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Scheme					SO1	SO2	SO3	SO4	SO5	SO6	SO7
ID	Scheme Type	Scheme	Rank	Estimated Scheme Cost	Improve access to Melton Town Centre and the areas of potential development	Reduce congestion on the local network; in particular key pinch points in and around Melton Mowbray Town Centre	Address HGV impact in Melton Mowbray town centre	Improve connectivity to local and regional centres for example Leicester and Nottingham	Improve effectiveness of public transport facilities within Melton Mowbray	Increase levels of walking and cycling within the study area	Improve highway safety for all road users within Melton Mowbray
MM/DM-13	Demand management	Introduce a Station Travel Plan	21	Low cost							
MM/DM-14	Demand management	Implement town-wide personalised travel planning project in conjunction with / without new housing developments	21	Low cost							
MM/NM-02	Non-Motorised	Safe cycle routes especially for schools	21	Low cost							
MM/TM-02	Traffic Management	Town-wide 20mph speed limit (except strategic roads)	21	Low cost							
MM/TM-04	Traffic Management	Make Mill Street & Regents Street One Way (Eastbound)	25	Medium cost							

