

Strategic Planning, Sustainability &Transportation Committee

18 August 2015

Is the final decision on the recommendations in this report to be made at this meeting?

Yes

Results of the VISUM Transport Modelling

Final Decision-Maker	Strategic Planning Sustainability & Transport Committee
Lead Director or Head of Service	Rob Jarman; Head of Planning & Development
Lead Officer and Report Author	Steve Clarke, Principal Planning Officer (Spatial Policy)
Classification	Non-exempt
Wards affected	All

This report makes the following recommendations to the final decision-maker:

1. That the Committee accepts the results of the transport modelling undertaken jointly by MBC and KCC and its implications for the preparation of the Integrated Transport Strategy and the Maidstone Borough Local Plan.

This report relates to the following corporate priorities:

- Keeping Maidstone an attractive place for all
- Securing a successful economy for Maidstone Borough

Timetable

Meeting	Date
Strategic Planning, Sustainability and Transportation Committee	N/A

Results of the VISUM Transport Modelling

1. PURPOSE OF REPORT AND EXECUTIVE SUMMARY

- 1.1 Transport is a key area of public policy for the Council (MBC) and a significant element of the emerging Local Plan. This report describes the context and analysis which has been carried out by MBC and Kent County Council (KCC), to inform the preparation of transport policy for the Borough. The Forecasting report for the Maidstone VISUM Transport Model is attached at Appendix 1 and the non-technical summary at Appendix 2.
- 1.2 The report comprises five sections, outlining the need for a transport strategy, the wider policy context, the transport options tested, the test results, and the implications for policy formulation. Three options for the future transport network are tested using the Maidstone VISUM transport model which is jointly commissioned by MBC and KCC. The amount of development modelled was 17,381 housing units, 151,000m² of employment land and 12,100m² of retail. Councillors will note that the housing figure modelled was not the Objectively Assessed Need of 18,560.
- 1.3 The three options are; 'do minimum' (DM), a highways package (DS1), and a sustainable package (DS2) and each option is tested for traffic flows, mode share and network performance. Due to the highways related nature of the model, the sustainable package is tested using a reduced number of vehicle trips by 2031 (1,395 vehicles in the AM peak and 1,351 vehicles in the PM peak) based on an assessment of Department for Transport (DfT) guidance (TAG M5.2) and taking 25% of the recommended allowance in the DfT guidance, as a proxy for the anticipated increase in walking, cycling and increased public transport use which is anticipated to result from the promotion of sustainable transport policies in the Local Plan and national and regional policy.
- 1.4 The results are presented in tables which show how journey times, journey numbers and mode share vary according to the options. As expected, congestion is seen to increase significantly with the 'do minimum' option (DM), with slightly less congestion for the 'highways package' (DS1) which includes the construction of the 'Leeds – Langley by-pass' and the greatest reduction is for the 'sustainable package' (DS2) which includes the same local highways improvements as DS1 (except for the Leeds-Langley by-pass) and a range of sustainable transport measures implemented.
- 1.5 Kent County Council has also carried out a fourth model option test known as DS3. This has modelled a revised housing number of 16,247 homes and a revised distribution pattern with 965 houses provided to the east of the proposed Leeds Langley Bypass (tested in the model) with 200 at Leeds and 765 in the Kingswood area. It includes the same highway capacity improvements as DS1 and DS2 and the changes in the area of M20 junction 7, at the A20/New Cut junction and Hermitage Lane pedestrian signals modelled in DS2 as well as increased bus frequency on radial routes of every 10 minutes (DS2 was every 7 minutes), and increased town centre parking costs (+50% by 2031) at publicly controlled car parks (also in DS2). The findings are attached in a summary report (attached at Appendix

5) that was presented to the Maidstone Joint Transportation Board on 22 July 2015.

- 1.6 A fifth model option test has been carried out by Kent County Council known as DS3a. This has modelled a similar quantum of housing to that modelled in DS1 and DS2. However, details of the specific quantum and the distribution pattern were unavailable at the time of writing the report.
- 1.7 The results of the transport modelling suggest that in Maidstone over the next 15 years, we will see a substantial increase in travel demand due to new development and background growth. While highway improvements can go some way to ameliorating the situation, they will not be enough to mitigate this increase. Network conditions are likely to continue to deteriorate from the present situation unless measures are put in place to reduce travel demand.
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2. INTRODUCTION AND BACKGROUND

- 2.1 Transport is a key area of public policy for local authorities and a significant element of the emerging Maidstone Borough Local Plan (MBLP). As such, it is important that all those involved in the formulation of policy in this crucial area have a coordinated policy position.
- 2.2 This report comprises five sections as follows:
- Need for a transport strategy for Maidstone
 - National, regional and local context for policy development
 - Transport options tested
 - Results of transport options testing
 - Implications for the transport strategy
- 2.3 The content is drawn primarily from the draft Maidstone Integrated Transport Strategy (ITS) which has been prepared by the Planning Policy team. The principal partner in the strategy preparation is Kent County Council which has been directly involved through modelling and options testing undertaken by Amey, consultants commissioned by KCC and MBC.

Need for an integrated transport strategy

- 2.4 Maidstone, as the county town and dynamic borough, faces transport challenges which are not uncommon across the country. These challenges may be characterised as increasing road congestion which arises as a result of population and private car usage growth, leading to environmental degradation and health and environmental implications through more pollution, parking and so on.
- 2.5 Furthermore, Maidstone has relatively poor public transport infrastructure compared with similar sized towns in the South East such as Dartford/Gravesend, Chelmsford and compares unfavourably with neighbouring towns in Kent. 2011

census data shows that Maidstone has a higher than average usage of, and dependence on, the private car and there are also economic implications from lost time and perceptions that conditions are deteriorating significantly.

- 2.6 As well as existing conditions, the Local Plan which the Borough is required to produce proposes approximately 18500 extra houses and more employment and economic activities throughout the Borough, and clearly there are impacts on transport networks which need to be mitigated if the situation is not worsen. However, future planning needs to be kept separate from dealing with the present situation and existing concerns should not fetter a full understanding of the implications of future development which will continue whether there is a plan or not.
- 2.7 The strategy that is needed for Maidstone should also be an integrated one, which means that it is necessary for it to encompass transport provision across all modes. Recent research has shown comprehensively that traffic always outgrows road capacity if no other demand restricting measures are put in place, and this would certainly be the case in Maidstone. The strategy will also need to take account of the borough's geography as sustainable modes of transport are more feasible in some locations and for some journeys than others.

National and regional context

- 2.8 National transport policy is the responsibility of the Department for Transport (DfT) and local authorities through the statutory planning process. The DfT's stated vision is for:
- “a transport system that is an engine for economic growth but one that is also greener and safer and improves quality of life in our communities”
- 2.9 This vision is reflected in the National Planning Policy Framework (NPPF) which emphasises the importance of rebalancing the transport system in favour of sustainable transport modes whilst encouraging local authorities to plan proactively for the transport infrastructure necessary to support growth.

Paragraphs 29 & 30 state:

'29. Transport policies have an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objectives. Smarter use of technologies can reduce the need to travel. The transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel.'

'30. Encouragement should be given to solutions which support reductions in greenhouse gas emissions and reduce congestion. In preparing Local Plans, local planning authorities should therefore support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport.'

Paragraphs 34 and 35 state:

'34. Plans and decisions should ensure developments that generate significant movement are located where the need to travel will be minimised and the use of

sustainable transport modes can be maximised. However this needs to take account of policies set out elsewhere in this Framework, particularly in rural areas.

35. Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Therefore, developments should be located and designed where practical to

- accommodate the efficient delivery of goods and supplies;
- give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
- create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;
- incorporate facilities for charging plug-in and other ultra-low emission vehicles; and
- consider the needs of people with disabilities by all modes of transport.'

Paragraph 41 states:

'41. Local planning authorities should identify and protect, where there is robust evidence, sites and routes which could be critical in developing infrastructure to widen transport choice.'

2.10 Similarly, KCC in its overall 'Vision for Kent', the county-wide strategy for the social, economic and environmental wellbeing of Kent's communities has three major ambitions:

- "Grow the economy by supporting business, including improvements to the transport network and the provision of broadband
- Tackle disadvantage by..... provision of comprehensive, reliable and affordable public transport
- Put the citizen in control...including support for community bus and rails schemes."

2.11 While the Transport Delivery Plan for Kent (2010) concentrates on major strategic issues such as the Lower Thames crossing, Operation Stack and Foreign Lorry Road Charging, the Local Transport Plan for Kent (2011) re-emphasises; 'Growth without Gridlock', 'A Safer and Healthier County', 'Supporting independence', 'Tackling Climate Change' and 'Enjoying Life in Kent' and the promotion of sustainable transport policies.

Local policy context

2.12 The above national and county policy context and MBC's own Sustainable Community Strategy (2013) (SCS) promotes the integrated nature of a transport strategy for the Borough. The SCS acknowledges the significance of congestion and the overriding aim of an integrated transport strategy to provide genuine transport choice for residents, businesses and visitors.

- 2.13 The Maidstone Borough-wide Local Plan 2000 recognises the need for the promotion of sustainable transport and encouraging a modal shift away from a reliance on the use of the private car. It recognises the need to produce an integrated Transport Strategy (policy T1) and the need to prioritise bus and hackney carriage access along identified corridors (Policy T2) and promoted Park & Ride (policy T17).
- 2.14 The present draft MBLP, known as the Regulation 18 version, is presently being consulted widely, and incorporates policies for sustainable transport and the promotion of public transport. These will be strengthened as a result of representations made for inclusion in the Local Plan Publication which is the next stage of plan preparation.
- 2.15 Existing draft policies seek to promote accessibility, and economic prosperity, and the significance of Maidstone as a regional transport hub. Specifically, improvements to the transport network identified in the Local Plan include minor highways improvements and the promotion of public transport including park and ride and bus prioritisation.

Transport modelling

- 2.16 In support of the preparation of the draft ITS and transport policies, KCC and MBC have jointly commissioned traffic modelling, using the existing Maidstone VISUM model, to assess the impact of alternative transport infrastructure options on Maidstone's transport network at a strategic level. VISUM assesses the impact of forecast demand for travel by car, commercial vehicle, bus and rail and aims to give a "big picture" output to inform strategic, rather than tactical, decisions.
- 2.17 The model tests the impacts of highway improvements, bus service changes and other transport interventions to ascertain their impacts on Maidstone's highway network performance. It provides important information on which to inform future policy decisions regarding capital investment and promotional activities.
- 2.18 Five scenarios for travel patterns within the Borough have been tested using the VISUM model relating to the period covered by the Local Plan, up to 2031, as follows:
- 2031 Do Minimum (DM) forecast. This models the situation in 2031 based on the impacts on the existing transport network (plus 'committed schemes') of an additional 17,381 houses, 151,000 m² of employment, 12,100 m² of retail space and the Bridges Gyratory Scheme built, but with no further actions taken in terms of network improvements. This provides the worst case scenario for the transport network in the future and is used as a benchmark for understanding the predicted impacts of two further transport schemes (tested in subsequent model runs) which may be implemented in the future.
 - 2031 The Highway Package (DS1): the impacts of new development as in DM above on the transport network which includes a range of small scale

junction improvements and the development of the Leeds – Langley bypass. A list of the interventions for DS1 is attached at Appendix Three.

- 2031 The Sustainable Package (DS2): the impacts of new development as in DM above on the transport network which includes the implementation of a range of sustainable transport initiatives, including improved bus frequencies, a Linton Crossroads Park and Ride service and enhanced walking and cycling facilities. A list of the interventions for DS2 is attached at Appendix Four.
- 2031 DS3: Includes the same highway capacity improvements as DS1 and DS2 and the changes in the area of M20 junction 7, at the A20/New Cut junction and Hermitage Lane pedestrian signals modelled in DS2 as well as increased bus frequency on radial routes of every 10 minutes (DS2 was every 7 minutes), and increased town centre parking costs (+50% by 2031) at publically controlled car parks (also in DS2).

Whilst DS3 includes the Leeds-Langley bypass as in DS1, it has tested a lower number of houses: 16,247. The spatial distribution of development is also different and 965 houses have been modelled located to the east of the new road (approximately 200 at Leeds and 765 in the Kingswood area).

- 2031 DS3a: Includes the same transport interventions as DS3. It has tested a similar number of houses to DS1 and DS2 although details of the specific quantum and distribution of housing were unavailable at the time of writing. KCC report that under this scenario the transport network would operate significantly better than DS1 and only slightly worse than DS2, although the results of the model run were unavailable at the time of writing. Accordingly, the results of the DS3a model run have not been included in the table below. This report thereafter considers the results of the four traffic modelling scenarios DM, DS1, DS2 and DS3 only.

Model Run Results

TRIPS	2014	2031 (DM)	% change from 2014	2031 (DS1)	% change from 2014	2031 (DS2)	% change from 2014	2031 (DS3)	% change from 2014
Person trips	50300	58600	17%	58600	17%	56600	12%	57,800	+15%
Vehicle trips	35500	41500	17%	41600	17%	37700	6%	38,600	=9%
MODE SHARE	2014 %share	2031 (DM) %share	% change from 2014	2031 (DS1) %share	% change from 2014	2031 (DS2) %share	% change from 2014	2031 (DS3)	% Change from 2014
Car	80%	81%	1%	82%	2%	75%	-5%	76%	-4%
Bus	11%	11%	0%	10%	-1%	15%	4%	15%	4%
Rail	9%	8%	-1%	8%	-1%	10%	1%	9%	0%
NETWORK PERFORMANCE	2014	2031 (DM)	% change from	2031 (DS1)	% change from	2031 (DS2)	% change from 2014	2031 (DS3)	% change from 2014

			2014		2014				
Total travel distance (vehicle km)	121900	144300	18%	146600	20%	126800	4%	135,500	+11%
Total travel time (vehicle hours)	8200	11400	38%	10800	30%	8500	3%	8,800	+7%

2.19 The results of the four traffic modelling scenarios have been analysed, and in all four cases tested, the network performance is expressed in terms of traffic flows and minutes of delay on the road network in the AM peak, which is generally worse than the PM peak, in comparison with the current situation (2014 base year). It should be noted that 84% of the additional traffic flows are the result of the planned new development, and 16% comprises what is termed as 'background growth', or the result of 'natural' increase without extra development.

2.20 As mentioned above, the DM scenario provides a 'worst case' in that no improvements other than the Bridge Gyratory are included. Consequently, journey times would be extended throughout the network due to increased traffic flows and this may be used as a benchmark to gauge the impact of alternative scenarios where investment takes place.

2.21 The DS1 scenario is essentially a highways based option which shows a similar increase from 2014 in the total number of trips taken when compared with the 'do minimum' option.

2.22 The DS2 scenario promotes sustainable transport and public transport, walking and cycling. As a strategic highway model, there are limitations to VISUM's ability to take into account more localised sustainable transport measures. As such, the anticipated increase in walking and cycling in DS2 can only be represented in the model by a reduction in vehicle trips and this can be seen on the slide.

2.23 The DS3 scenario tested a lower number of dwellings in a different spatial pattern of development and as such is not strictly comparable with the other three scenarios tested. Nevertheless, the outcomes are worse in all cases than the DS2 scenario.

Total trips

TRIPS	2014	2031 (DM)	% change from 2014	2031 (DS1)	% change from 2014	2031 (DS2)	% change from 2014	2031 (DS3)	% change from 2014
Person trips	50300	58600	17%	58600	17%	56600	12%	57,800	15%
Vehicle trips	35500	41500	17%	41600	17%	37700	6%	38,600	9%

2.24 For both DM and DS1, it can be seen that both person and vehicle trips increase by 17% when compared with 2014 levels. The DS2 option then reduces the total

number of trips to reflect the planned introduction of sustainable transport policies and the reduction of trips proposed.

2.25 In assessing this aspect of the model, rather than basing it on achieving a specific mode share, DfT guidance (TAG M5.2), which it is acknowledged is not specific to walking and cycling, has been examined to help identify how car travel can be removed if investment in walking and cycling is made. A figure of 25% of the levels recommended in the DfT guidance has then been used. The net result is a reduction by 2031, of 1,395 vehicle trips in the AM peak and 1,351 vehicle trips in the PM peak. Such an approach has been underlined by studies in towns like Darlington, Worcester and Peterborough where walking and cycling has increased as a result of the introduction of sustainable transport policies which produce less person and vehicle trips as a result.

2.26 DS3 performs better than DM and DS1 but not as well as DS2.

Mode share

MODE SHARE	2014 %share	2031 (DM) %share	% change from 2014	2031 (DS1) %share	% change from 2014	2031 (DS2) %share	% change from 2014	2031 (DS3)	% change from 2014
Car	80%	81%	1%	82%	2%	75%	-5%	76%	-4%
Bus	11%	11%	0%	10%	-1%	15%	4%	15%	4%
Rail	9%	8%	-1%	8%	-1%	10%	1%	9%	0%

2.27 The four modes shown show quite similar results for the DM and DS1 options, with slight increases in car use for both options from 2014, similar slight variations between DM and DS1 in bus and rail use. The DS2 option shows a 7% increase in public transport use (5% bus+ 2% rail) and 6% decrease in car use.

2.28 It should be noted that the car mode share includes Park and Ride trips for all options, and accounts for 1% of car trips in DM and DS1 but this rises to 4% in DS2. For DS3 the Park & Ride option at Linton has not been modelled. There will be a need for effective bus prioritisation measures to assist in the running of an effective Park & Ride system as well as other service buses in order that there is a time-advantage in taking the bus rather than continuing the use of the private car. Such measures would need to be reflected in the emerging policies of the Local Plan and also the ITS.

Network performance

NETWORK PERFORMANCE	2014	2031 (DM)	% change from 2014	2031 (DS1)	% change from 2014	2031 (DS2)	% change from 2014	2031 (DS3)	% change from 2014
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Total travel distance (vehicle km)	121900	144500	18%	146700	20%	126900	4%	135,500	11%
Total travel time (vehicle hours)	8200	11400	38%	10800	30%	8500	3%	8800	7%

2.29 For DM, it can be seen that the 'do minimum' option demonstrates considerable increases in distances travelled (18%) but an even greater increase in travel time (38%), highlighting that congestion increases across the network. This is to be expected, and results for specific road links tested are consistent (such as A20 Ashford Rd, A274 Sutton Road, and A229 Loose Road), indicating that an average additional 3 to 4 minutes is added to journey times for these links (NTS Figure 3-5 AM peak).

2.30 For DS1, both total travel distance and time taken increase by 20% and 30% respectively from 2014 and the total distance travelled is slightly greater (2%) than the DM option which may be due to choosing to use the new Leeds – Langley bypass as opposed to other local roads. Despite the increase in distance travelled compared with the DM option, travel time decreased by 6%, suggesting less congestion when compared with DM. Thus, while network performance deteriorates from 2014 with this option, it is a bit better than DM. Looking at the three specific important links tested (A20, A274, A229), it will take between 1.5 and 2.5 minutes longer to travel these links than at present (2014), and up to 2 minutes less than the DM option to travel the same links. (Figure 3-5).

2.31 For DS2, both total travel distances and time taken are marginally increased (by 3% and 4% respectively.) from 2014 but reduced compared with DM (by 12% and 26% respectively.) Looking at the three specific links, journey times are within one minute greater or in some instances quicker than the present situation (2014).

2.32 For DS3, both total travel distance, (a similar situation to DS1 in that the new bypass road may be chosen as opposed to other local roads) and also total travel time increase. This also performs better than the 2014 situation, however, DS2 still performs better overall.

3. AVAILABLE OPTIONS

3.1 Ultimately in Maidstone, over the next 15 years, there will be a substantial increase in travel demand due to both new development and also background growth that will happen anyway. While highway improvements can go some way to ameliorating the situation, they will not be enough to mitigate this increase, and network conditions will continue to deteriorate from the present situation.

- 3.2 Government advice in the NPPF is clear in its emphasis on the importance of rebalancing the transport system in favour of sustainable transport modes whilst encouraging local authorities to plan proactively for the transport infrastructure necessary to support growth.
- 3.3 It could be said that the only way to improve matters is to reduce the number of cars on the network and the incorporation of the demand reduction policies so clearly set out in national, county and local policies and programmes, into the Maidstone Borough Local Plan.
- 3.4 The alternative to this approach is a reliance on highway improvements as a way forward with no additional and specific sustainable transport measures. This is not advocated in Government advice.
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4 PREFERRED OPTION AND REASONS FOR RECOMMENDATIONS

- 4.1 That the Committee accepts the results of the transport modelling undertaken jointly by MBC and KCC and its implications for the preparation of the Integrated Transport Strategy and the Maidstone Borough Local Plan.
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5 CROSS-CUTTING ISSUES AND IMPLICATIONS

Issue	Implications	Sign-off
Impact on Corporate Priorities	The adoption of the local plan will assist in the delivery of the Council's corporate priorities	Head of Planning & Development
Risk Management	A key risk to the local plan programme relates to the Council's ability to provide a package of sustainable transport measures alongside the infrastructure necessary to support planned growth.	Head of Planning & Development
Financial	The cost of the modelling has been funded jointly by MBC and KCC. The cost has been met from the existing budget. The financial implications of the modelling will need to be assessed to identify and address the funding requirements. The funding requirements will need to take account of available resources which may impact on other council priorities.	Section 151 Officer & Finance Team
Staffing	N/A	Head of Planning & Development
Legal	There are no legal implications directly arising from this report, although the Legal Team continues to provide advice and guidance on local plan matters and to review any legal implications of reports	Legal Team

Equality Impact Needs Assessment	An integrated transport strategy that tackles transport challenges through a combination of modes will take into account the needs of all groups including those without access to a car. An alternative strategy reliant on highway improvements will not promote equal access to employment, services and social opportunities, and is likely to lead to increased social exclusion amongst lower income groups in particular.	Policy & Information Manager
Environmental/Sustainable Development	The implementation of an integrated transport strategy to promote sustainable travel where possible will encourage a reduction in single occupancy car travel and in turn a reduction in congestion and carbon emissions relative to a “do minimum” situation. An alternative strategy reliant on highway improvements is likely to generate more traffic than the additional capacity provided, increasing congestion and carbon emissions.	Head of Planning & Development
Community Safety	N/A	Head of Planning & Development
Human Rights Act	N/A	Head of Planning & Development
Procurement	Consultants are used to prepare specialist or technical evidence to support the local plan and are appointed in accordance with the council’s procurement procedures	Head of Planning & Development & Section 151 Officer
Asset Management	N/A	Head of Planning & Development

6 REPORT APPENDICES

The following documents are to be published with this report and form part of the report:

- Appendix 1: Forecasting Report Maidstone VISUM Transport Model
 - Appendix 2: Forecasting Report Non-technical Summary Maidstone VISUM Transport Model
 - Appendix 3: List of transport interventions for DS1
 - Appendix 4: List of transport interventions for DS2
 - Appendix 5: KCC report on DS3 presented to Maidstone Joint Transportation Board on 22 July 2015
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7 BACKGROUND PAPERS

None