**Item 13, Pages 3 - 51**

# 14/506264 – Land at Bicknor Farm

# Additional Transport / Highway Information

Additional highway information was requested by members at the Planning Committee Meeting on 7 July 2016. This note sets out the view of Maidstone Borough Council's independent transport consultant Mott MacDonald on the highway work carried out by the applicant and KCC's responses to the proposals.

This paper also covers bus prioritisation measures as well as proposing additional conditions and heads of terms.

KCC's comments are very detailed. Except for positively acknowledging the traffic generation assumed by the applicant, no mention is made about either flows or traffic distribution. It is therefore concluded that KCC accept the traffic flow, generation and distribution assumptions that underpin the assessments carried out in the TA.

**Discussion of VISUM Modelling**

*Executive Summary*

The Maidstone VISUM transport model has been used to test the strategic implications of Local Plan growth over the period to 2031 and the package of transport interventions identified in the Integrated Transport Strategy (ITS). **As a strategic model, it is unsuited to considering the local level transport impacts of individual planning applications. Despite this, however, KCC has relied upon the VISUM model outputs in making its objections to these applications**. It is standard practice to assess the local transport impacts of individual planning applications by undertaking detailed junction modelling using the LinSig, ARCADY and PICADY modelling software packages.

**The VISUM model covers the Maidstone urban area only**. It does not model in detail the rural areas of the Borough nor the M20 junctions and main motorway carriageway. The key data on which the model is based is 15 years old. For these reasons Highways England (HE), the highway authority for England's strategic motorway and trunk road network, has indicated that the VISUM model is unsuitable for use as a tool for assessing the impacts of the Local Plan on the motorway network.

**VISUM cannot model the impacts of junction capacity improvements in detail**. It can, however, assess how mitigation measures can reassign traffic across the highway network and their effect on travel time delay. In terms of the latter, VISUM predicts an increase in inbound travel time on the A274 Sutton Road corridor of just 1 minute 20 seconds in the year 2031 compared with the existing situation. This cannot be regarded as significant in the context of of the variations in traffic conditions that can typically be expected to occur on a day to day basis.

Traffic flows on the A274 Sutton Road in the year 2031 Do Something scenarios are predicted to increase by 400 vehicles during the AM peak relative to the existing situation, an increase of 38%. However, this increase cannot be attributed solely to the traffic generated by the application sites in south east Maidstone – it represents the cumulative impact of the full Local Plan objectively assessed housing need of 18,560 units, together with background traffic growth not associated with the Local Plan. **A comprehensive package of improvements to highway capacity, improvements to the already frequent and high quality bus services and the provision of comprehensive walking and cycling facilities connecting directly with existing routes has been been proposed to mitigate the transport impacts of the application sites**. Detailed junction capacity assessments using LinSig, ARCADY and PICADY conclusively demonstrate that the traffic impacts of proposed development in south east Maidstone can be mitigated to a situation where

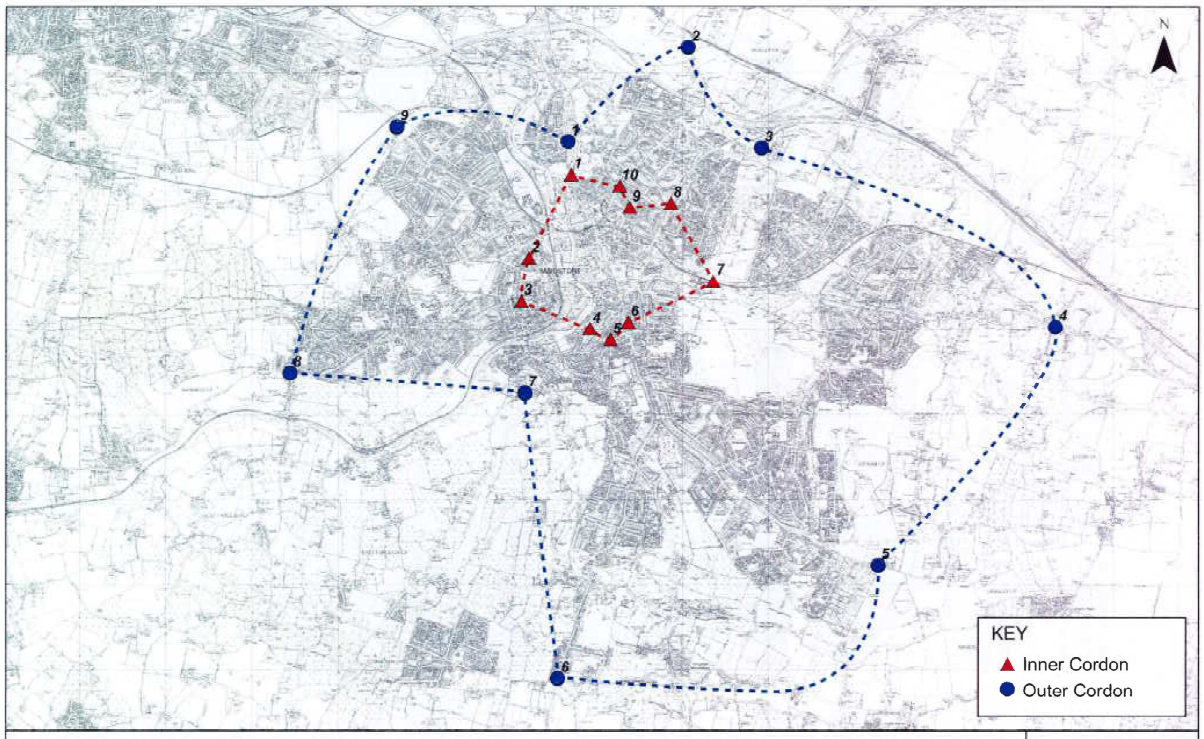
congestion is **lower** than if the developments were **not** built and if the mitigation was **not** implemented. The transport improvements proposed by the applicants will provide benefits to existing transport users on the corridor as well as mitigating the impact of proposed development.

VISUM model runs were also undertaken for the year 2022, including **all development identified for the South East Maidstone Strategic Development Location to the end of the Local Plan period**. In their original report to the 22 February 2016 JTB, KCC noted that the model results "*demonstrate a level of impact on the highway network that cannot be regarded as severe in the context of the National Planning Policy Framework*" (paragraph 5.1).

*Overview*

The Maidstone VISUM transport model has been used to test the strategic implications of Local Plan growth over the period to 2031 and the package of transport interventions identified in the Integrated Transport Strategy (ITS). Paragraph 3.6 of the joint KCC/MBC report to the Joint Transportation Board (JTB) on 7 December 2015 noted that "*VISUM does not model the impacts of local junction mitigation… It provides a strategic overview of movement patterns on the road network and the context for more detailed modelling at a local level*".

Only those ITS interventions within the Maidstone urban area have been tested by VISUM. Interventions specific to the Rural Service Centres and Larger Villages have not been tested as they fall outside the outer model cordon. This is shown in the figure below, taken from the *Maidstone Multi Modal Transport Model – Local Model Validation Report* (Jacobs, February 2011). The only trips from the Rural Service Centres and Larger Villages which will have been accounted for in the VISUM model will be those trips to the Maidstone urban area.




Maidstone Cordon Sites | Figure 7.1

Furthermore, VISUM does not fully model the M20 junctions and main motorway carriageway. The trip origin/destination matrices used within the model have been based upon 2001 London Area Transport Study (LATS) survey data, 2001 Census Journey to Work data and other roadside interview (RSI) data. Due to the age of the original 2007 base VISUM model produced by Jacobs, this was updated by Amey to a 2014 baseline using third party data from Transport Assessments and journey time data, but no new trip

origin/destination data was collected. It is possible that this may affect the accuracy of the VISUM forecasts, as trip patterns may have changed in the past 15 years. The DfT's WebTAG guidance advises that any trip origin/destination data over six years old should be replaced.

For these reasons Highways England (HE), the highway authority for England's strategic motorway and trunk road network, has indicated that the VISUM model is unsuitable for use as a tool for assessing the impacts of the Local Plan on the motorway network. HE's Regulation 19 representation therefore objected to the Local Plan. The Borough Council is working towards the agreement of an alternative methodology with HE and KCC involving localised junction modelling at M20 Junctions 5 to 8 using the LinSig, ARCADY and PICADY modelling software packages.

In the context of south east Maidstone, LinSig, ARCADY and PICADY have already been used to assess the detailed impact of development proposals at individual junctions. The use of localised transport models to supplement strategic modelling tools such as VISUM is standard practice (notwithstanding the issues with the age and coverage of the Maidstone VISUM model), to consider junction capacity in detail and to confirm that identified transport mitigation measures will be effective. Results of the LinSig, ARCADY and PICADY modelling for the relevant junctions are presented separately.

Forecast VISUM models were built from the 2014 base model for 2031 (the end of the Local Plan period) and subsequently for an interim forecast year of 2022, at which time the first review of the Local Plan is scheduled to take place.

*VISUM Model Outputs*

Various scenarios have been tested for the 2031 forecast year, but only the Do Something 4a (DS4a, with the South East Maidstone Strategic Link (SEMSL)) and Do Something 4b (DS4b, without SEMSL) have tested the objectively assessed housing need of 18,560 units. However, the Do Minimum (DM) scenario (i.e. including committed highway schemes only (the Maidstone Bridges gyratory) and not the package of highway, public transport and walking/cycling improvements identified in the ITS) was re-run in June 2016 with the 18,560 housing units. A full report of the DM scenario outputs is awaited from KCC.

With regard to the 2022 forecast year, the Do Minimum and Do Something scenarios have both tested a revised housing target of 14,034 units, adjusted to remove the three broad locations for housing growth towards the end of the Local Plan period (Maidstone town centre, Invicta Park Barracks and Lenham) and the windfall sites expected to come forward between 2022 and 2031. **However, the 2022 target includes all development identified for the South East Strategic Development Location**.

A summary of the travel demand and network performance for the AM peak in each of these scenarios is provided in the table below.

| | **2014 Base** | **2022 DM** | **2022 DS** | **2031 DM** | **2031 DS4a (with SEMSL)** | **2031 DS4b (without SEMSL)** |
|---|---|---|---|---|---|---|
| Travel Distance (veh km) | 122,000 | 141,400 | 132,000 | 143,900 | 140,100 | 135,600 |
| *% difference vs 2014* | | *16%* | *8%* | *18%* | *15%* | *11%* |
| Travel Time (veh hours) | 8,300 | 10,700 | 9,100 | 11,000 | 9,300 | 9,700 |
| *% difference vs 2014* | | *29%* | *10%* | *33%* | *12%* | *17%* |
| Person Trips | 50,300 | 56,800 | 56,800 | 59,100 | 59,200 | 59,200 |
| *% difference vs 2014* | | *13%* | *13%* | *17%* | *18%* | *18%* |
| Vehicle Trips | 35,500 | 40,000 | 37,800 | 41,500 | 39,300 | 39,300 |
| *% difference vs 2014* | | *13%* | *6%* | *16%* | *11%* | *11%* |

When compared against the 2014 baseline, the results identify an increase in vehicle trips of 6% for the 2022 Do Something scenario. This increase is lower than the 13% predicted for the 2022 Do Minimum scenario, due to the positive effect of the ITS interventions including bus and walking/cycling improvements.

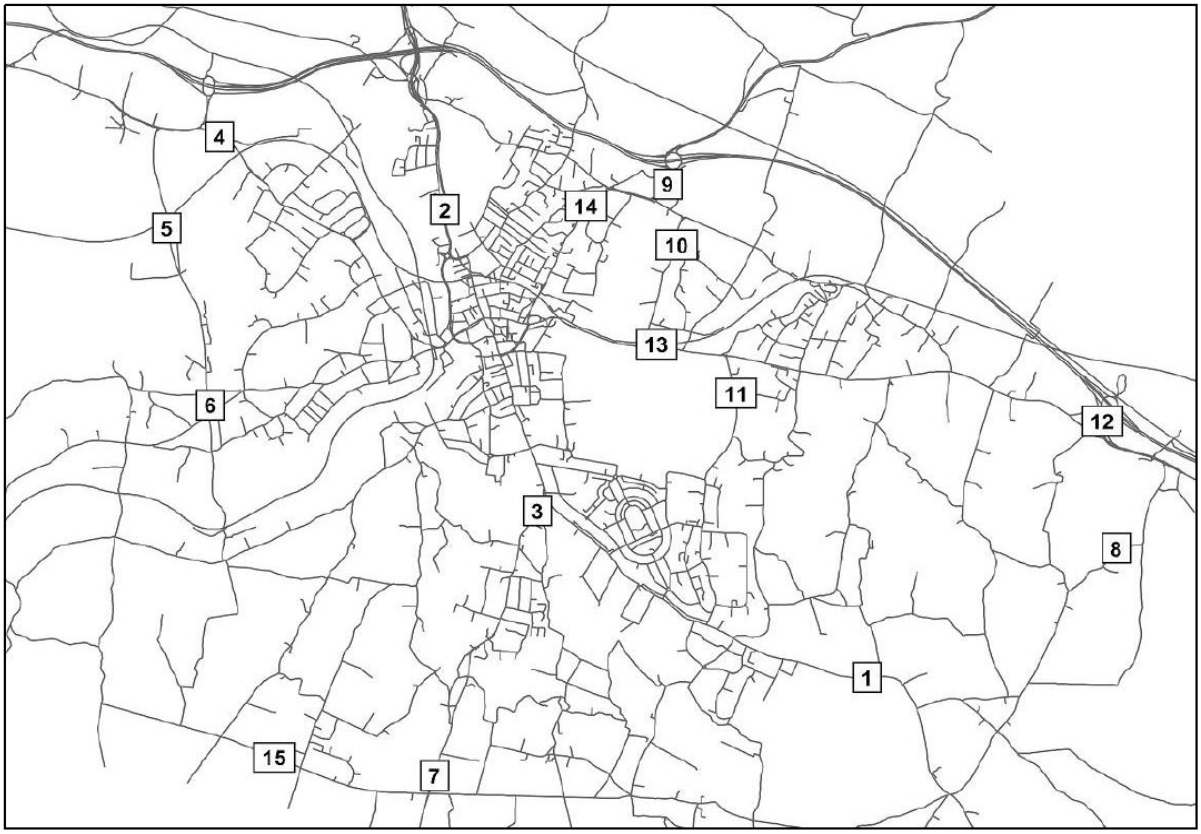
With respect to the 2031 scenarios, the Do Something 4a (with SEMSL) and 4b (without SEMSL) scenarios predict an 11% increase in vehicle trips relative to the 2014 baseline. This is lower than the 16% increase predicted by the Do Minimum scenario, again due to the positive effect of the ITS interventions.

The 6% increase in vehicle trips in the 2022 Do Something scenario is equivalent to an additional 2,300 vehicle trips on the highway network in the AM peak. A further 1,500 vehicle trips are predicted to be added to the highway network during the AM peak between 2022 and 2031. As the 2022 scenarios assume that the South East Maidstone Strategic Development Location and other Local Plan housing and employment allocations are fully built out, this increase can be attributed to traffic generated by the broad housing locations and windfall sites – representing less than 25% of the objectively assessed need of 18,560 housing units – and background traffic growth not associated with Local Plan development.

It is notable that in summarising the results of the 2022 model runs, paragraph 5.1 of KCC's original report to the 22 February 2016 JTB noted that the results "*demonstrate a level of impact on the highway network that cannot be regarded as severe in the context of the National Planning Policy Framework*".

With respect to the A274 and A229 corridors, analysis of VISUM model outputs has necessarily been confined to the link flows and travel time routes published in Appendix E of the *Maidstone VISUM Transport Model Forecasting Report* (Amey, March 2016). This covers the 2014 base and 2031 Do Something 4a and 4b scenarios only as equivalent data for the updated 2031 Do Minimum (i.e. with the objectively assessed need of 18,560 housing units) and 2022 Do Minimum and Do Something scenarios is awaited from KCC.

The figure below shows the model network and the approximate location of the links for which directional traffic flows have been published in Amey's March 2016 report. Traffic flows for sites 1 and 3 are presented in the following table.

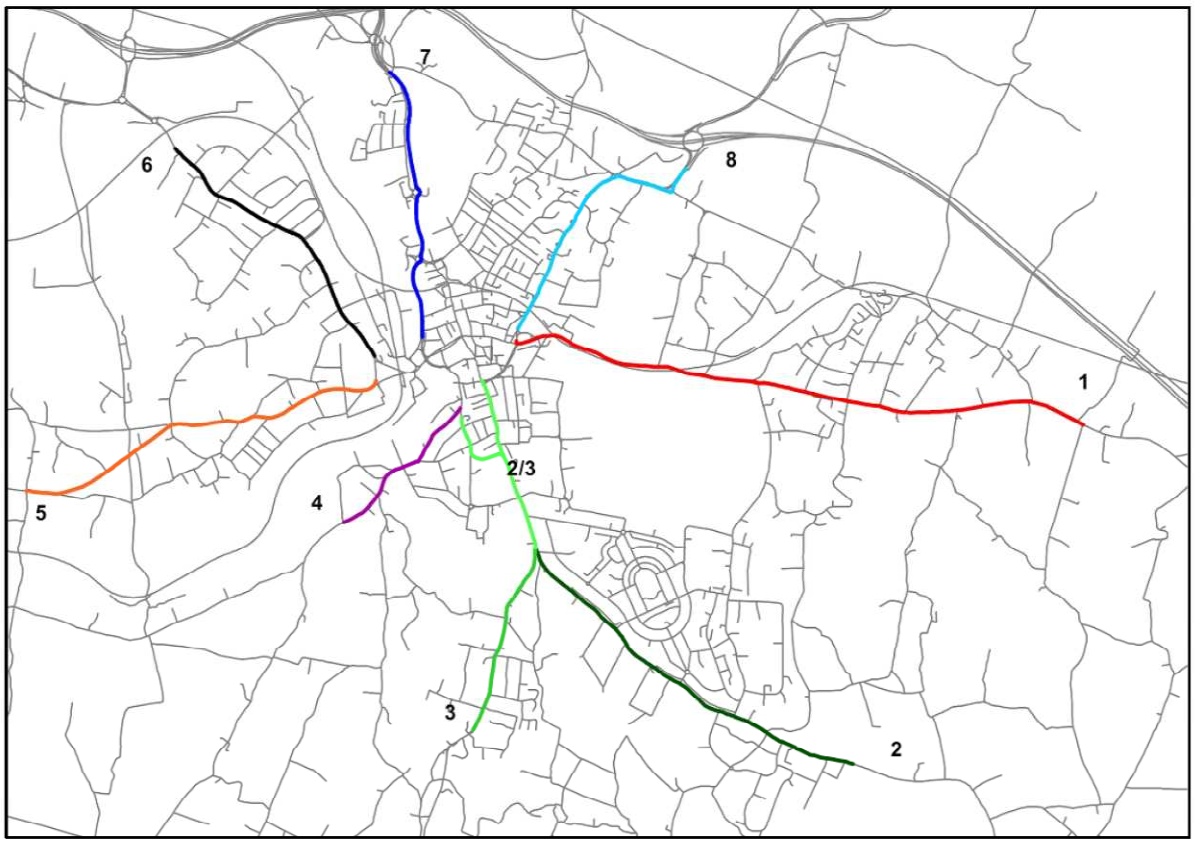



| Site | Link | 2014 | 2022 DM | 2022 DS | 2031 DM | 2031 DS4A (with SEMSL) | 2031 DS4B (without SEMSL) |
|---|---|---|---|---|---|---|---|
| 1 | A274 (W) | *1050* | *Data awaited* | *Data awaited* | *Data awaited* | *1450* | *1450* |
| 3 | A229 Loose Road (N) | *2600* | | | | *3000* | *3200* |

It can be seen that on the A274 (W) that traffic flows in the 2031 Do Something scenarios are predicted to increase by 400 vehicles relative to the 2014 baseline, an increase of 38%. On the A229 Loose Road (N), the equivalent increase is 400 vehicles for DS4a (with SEMSL) and 600 vehicles for DS4b (without SEMSL), an increase of 15% and 23% respectively. However, **these increases cannot be attributed solely to the traffic generated by the proposed developments in south east Maidstone** – this represents the cumulative impact of the full Local Plan objectively assessed housing need of 18,560 units, together with background traffic growth not associated with the Local Plan.

It must be reiterated that VISUM is a strategic highway model and is unsuited to the assessment of individual junction capacity. This is more robustly undertaken using the LinSig, ARCADY and PICADY modelling software packages, as is industry standard practice. VISUM can, however, model the impacts of mitigation measures to a degree, not to assess individual junction capacity but to assess how these mitigation measures can reassign traffic across the highway network and their effect on travel time delay.

With respect to travel times, Amey's March 2016 report presented forecast travel times from VISUM for eight key radial road corridors as shown in the figure below.




It can be seen from the above figure that travel time route 2 relates to the A274 Sutton Road and, north of the Wheatsheaf junction, the A229 Loose Road into Maidstone town centre. The table below shows the the AM peak inbound and outbound travel times for the A274, for the 2014 baseline and 2031 Do Something 4b scenario.

**Travel times in seconds – AM Peak**

| Route | 2014 | | 2031 DS4B (without SEMSL) | |
|---|---|---|---|---|
| | Inbound | Outbound | Inbound | Outbound |
| 2 - A274 Sutton Road | 738 | 602 | 818 | 713 |
| Difference vs 2014 | - | - | 80 | 111 |

The VISUM model predicts an AM peak inbound travel time for route 2 of 12 minutes 18 seconds for the 2014 baseline scenario. This compares with an inbound travel time for scenario 2031 DS4b of 13 minutes 38 seconds. This represents an increase in travel time of 1 minute 20 seconds.

In the outbound direction, VISUM predicts an AM peak travel time of 10 minutes 2 seconds in the 2014 baseline scenario, compared with 11 minutes 53 seconds for scenario 2031 DS4b. This represents an increase in travel time of 1 minute 51 seconds.

The increases in travel time predicted by VISUM in 2031 relative to the 2014 baseline **cannot be regarded as significant in the context of the variations in traffic conditions that can typically be expected to occur on a day to day basis**. Notwithstanding this, it appears from Appendix C of Amey's March 2016 report that the proposed junction capacity improvements at the A229 Loose Road/Armstrong Road/Park Way junction and the A274 Sutton Road/St Saviours Road junction have **not** been modelled in the VISUM Do Something

scenarios. Therefore it is likely that the beneficial impacts of the proposed junction improvements on travel time delay on the A274 corridor have been underestimated by VISUM.

**Assessment Results**

In this section, the drawings by the applicants of the relevant junctions together with their assessment results are presented. Different scenarios were considered in the transport documentation. The 2027 scenarios are included in this note showing a future situation with committed development without highway mitigation, and the future situation with committed and proposed development with highway mitigation where mitigation is proposed.

*A274 / Site Access*

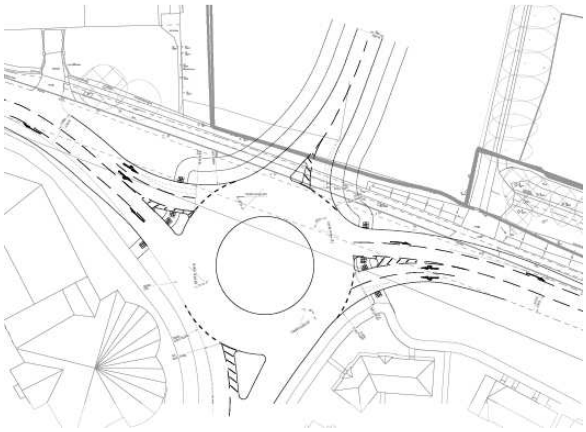


**Table 11: A274 Sutton Road / Langley Park – 2027 Base + Committed Flows AM & PM Peak Hour Assessments**

| Arm | AM | | PM | |
|---|---|---|---|---|
| | Q | RFC | Q | RFC |
| Arm A - Sutton Road (East) | 16 | 0.97 | 7 | 0.89 |
| Arm B - Langley Park (South) | 2 | 0.65 | 1 | 0.55 |
| Arm C - Sutton Road (West) | 6 | 0.86 | 70 | 1.09 |

**Table 12: A274 Sutton Road / Langley Park / Site Access – 2027 Base + Committed + Development Flows AM & PM Peak Hour Assessments**

| Arm | AM | | PM | |
|---|---|---|---|---|
| | Q | RFC | Q | RFC |
| Arm A - Sutton Road (East) | 4 | 0.81 | 3 | 0.75 |
| Arm B - Langley Park (South) | 2 | 0.69 | 1 | 0.58 |
| Arm C - Sutton Road (West) | 3 | 0.74 | 12 | 0.94 |
| Arm D - Site Access (North) | 0 | 0.22 | 0 | 0.15 |

The vehicular access to the site is proposed in form of a roundabout from the A274. The present 3-arm roundabout serving the Langley Park development would be altered to provide a 4-arm roundabout. Both the existing and the proposed roundabouts were tested within the transport documents submitted by the applicant. The results show significant improvements in terms of queues and RFC (ration of flow to capacity) with the proposed 4-arm roundabout when compared to the existing 3-arm roundabout in 2027.

Queues would decrease from 16 to 4 on the westbound approach in the morning and from 70 to 12 on the eastbound approach in the evening peak.

Delays which are not shown in the above tables are as follows in 2027:

| 2027 Delays in mins | 3-arm / base + committed | 4-arm / base + committed + dev |
|---|---|---|

| | AM | PM | AM | PM |
|---|---|---|---|---|
| A247 E | 1.0 | 0.5 | 0.3 | 0.2 |
| A247 W | 0.3 | 2.7 | 0.2 | 1.3 |

With the 4-arm roundabout the delays to traffic on A274 are less than half at this junction.

KCC commented as follows on these results: *"It is understood that minor modifications have been made to the site access roundabout in order to improve operational capacity. The Transport Assessment had previously indicated that the addition of a fourth junction arm and the associated development traffic would result in it approaching capacity in the PM peak.*

*The results of the updated capacity modelling highlight how the additional allowances made for nearby committed developments would result in the roundabout operating at or above capacity in both peak periods. The fourth junction arm added in conjunction with the proposed development is shown to alter the overall balance of the turning movements, such that through traffic on the A274 would subject to less queuing and delay.*

*This has resulted in an improvement to the forecasted operational conditions, although the junction would continue to operate at a level close to capacity in the PM peak.*

*Whilst these findings support the proposed access junction design, they continue to be relevant to the wider concerns expressed by KCC Highways regarding congestion and delay on the A274 corridor."*

KCC clearly confirms the improvement achieved at this roundabout. It is unclear how the demonstrated (and acknowledged) reduction in congestion and delay at this junction can still support their concerns expressed regarding congestion and delay on the A274 corridor.

*A274 / Willington Street / Wallis Avenue*

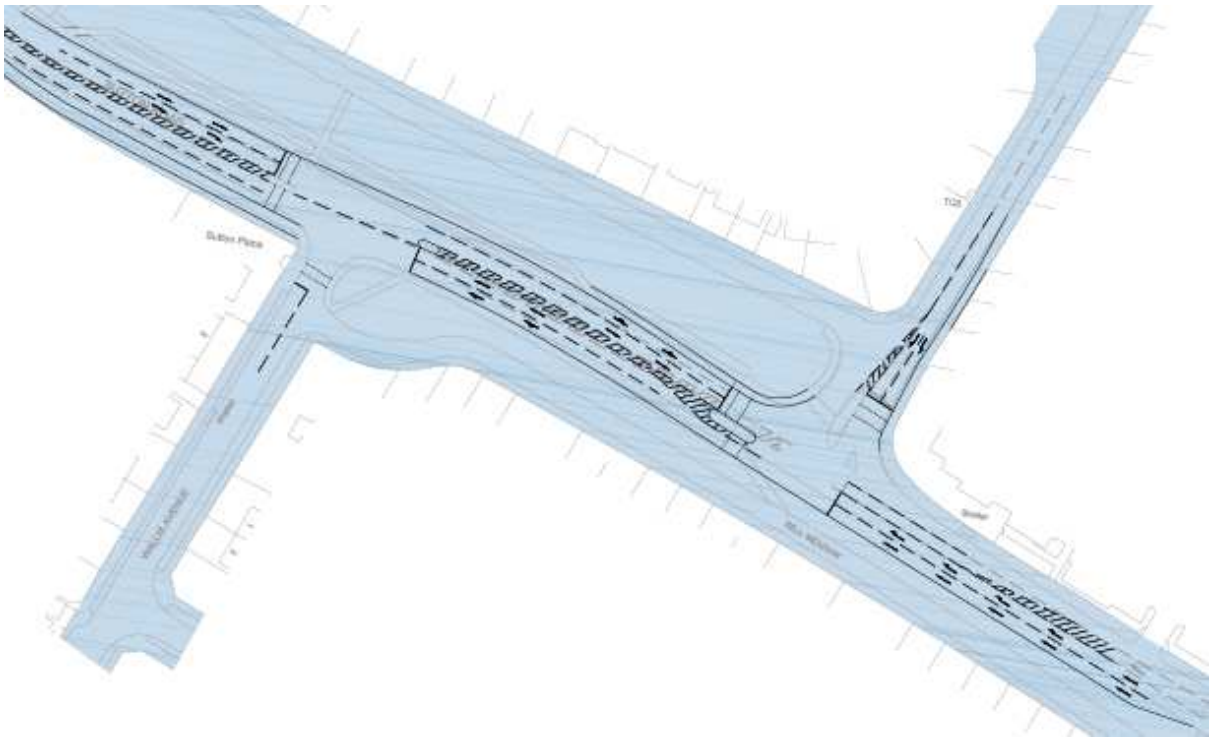


**Table 7: A274 Sutton Road / Willington Street / Wallis Avenue junction modelling**

| Scenario | AM | | PM | |
|---|---|---|---|---|
| | PRC | Max DoS | PRC | Max DoS |
| 2018 Base | -1.7% | 91.5 | 8.5% | 82.9 |
| 2018 Base plus Development | 9.2% | 82.4 | 13.3% | 79.5 |
| 2027 Base | -30.3% | 117.3 | -21.6% | 109.4 |
| 2027 Base plus Development | -17.6% | 105.9 | -13.0% | 101.7 |

The proposal for this junction put forward by the developer is almost identical to the latest scheme drawing produced by KCC's consultant Amey. It contains two lanes in each direction between the two junctions, both of which allow ahead movements, and two to one lane merges on the exits along A274.

The above table shows the headline results for the base without development flows scenario and with development flows scenario. The results show that in 2027 all scenarios would be significantly over capacity. They also show the "with development" scenario in 2027 to perform significantly better than the "without development" (base only) scenario. This demonstrates that by introducing the mitigation and adding development flows, the junction would operate significantly better than without mitigation and without development flows. Whilst the mitigation would not resolve existing congestion, the mitigation would entirely mitigate the development's impact at this junction leading to overall significantly lower average delays.

KCC's response comments as follows: "*It is understood that the applicant has modified the previously proposed improvement to the A274 Sutton Road/Willington Street/Wallis Avenue junctions to incorporate additional carriageway widening on both Sutton Road approaches.*

*The modifications have incorporated adjustments to lane allocations on Sutton Road. Of particular note are the alterations to the eastbound Sutton Road arrangement, which enable both lanes on the approach to the Willington Street junction to accommodate straight ahead movements. This change has required the westbound Sutton Road approach to be reduced from three lanes to two, where only one lane is now available for straight ahead movements.*

*The capacity results highlight how this change, coupled with the additional development traffic, will result in a substantial worsening of westbound congestion on Sutton Road in the AM peak hour, causing this movement to operate over capacity and queue lengths to more than double.*

*The Transport Note has sought to argue that this impact should not be regarded as severe when viewed against the capacity modelling outputs as a whole and taking account of the comparisons that can be made between the worst performing junction arms.*

*This view undervalues the importance of the A274 (Sutton Road) as a key arterial route serving south and south eastern Maidstone and the extent to which existing congestion will be made worse. Concerns of this nature were recently acknowledged by the Secretary of State for the Department of Communities and Local Government, who in agreeing with the recommendation of a Planning Inspector to dismiss a planning appeal for major residential development at Boughton Lane, Loose, drew attention to the Inspector's view 'that the level of regularly occurring congestion in this part of Maidstone is more than usually severe.' (paragraph 15). The Secretary of State also agreed that piecemeal development could have the effect of 'exacerbating existing problems rather than contributing to a workable solution' and could 'adversely affect the delivery of a successful plan-led development and infrastructure strategy' (paragraph 16).*

*In the case of this planning application KCC Highways has concluded that the proposals would result in a severe impact on the A274 in the absence of effective mitigation.*

*The previous comments of KCC Highways therefore remain pertinent and the objection to this development proposal is maintained on account of the unacceptably severe impact on the highway network."*

The headline results presented above clearly demonstrate the overall improvement in junction operation with the mitigation proposed. It is accepted that the trade off for a significant improvement in conditions in the eastbound direction, will be an increase in queuing in the westbound direction. The table below presents the assessment results in terms of queuing:

| Queues in pcu | 2027 Base + Committed / Committed Layout | | 2027 Base + Committed + Development / Proposed Layout | | Difference in Queues | |
|---|---|---|---|---|---|---|
| | AM peak | PM peak | AM peak | PM peak | AM peak | PM peak |
| A274 / Willington Street | | | | | | |
| A274 WB | 79 | 53 | 91 | 50 | +12 | +3 |
| A274 EB | 80 | 66 | 61 | 61 | -19 | -5 |
| Willington St | 88 | 55 | 44 | 35 | -44 | -20 |
| A274 / Wallis Avenue | | | | | | |
| A274 WB | 11 | 12 | 19 | 9 | +8 | -3 |
| A274 EB | 17 | 96 | 18 | 43 | +1 | -53 |
| Wallis Ave | 15 | 10 | 14 | 19 | -1 | +9 |

The increases in queuing in the westbound direction at this junction are significantly outweighed by the reduction in queuing in the eastbound direction along the A274 as well as the reduction in queuing on Willington Street.

*A274 / Horseshoes Lane*

**Table 13: A274 Sutton Road / Langley Park – 2027 Base + Committed Flows AM & PM Peak Hour Assessments**

| Arm | AM | | PM | |
|---|---|---|---|---|
| | Q | RFC | Q | RFC |
| B-C | 5 | 1.21 | 1 | 0.62 |
| B-A | 18 | 1.18 | 5 | 0.89 |
| C-AB | 0 | 0.09 | 1 | 0.27 |

**Table 14: A274 Sutton Road / Langley Park / Site Access – 2027 Base + Committed + Development Flows AM & PM Peak Hour Assessments**

| Arm | AM | | PM | |
|---|---|---|---|---|
| | Q | RFC | Q | RFC |
| B-C | 6 | 1.33 | 2 | 0.85 |
| B-A | 24 | 1.29 | 7 | 0.97 |
| C-AB | 0 | 0.09 | 1 | 0.28 |

The results for 2027 show that there would be no additional queuing on A274, the addition of the development traffic therefore has no impact on the A274. Although Horseshoes Lane exceeds theoretical capacity with the development flows added, the increase in queuing is not significant, with queues increasing by 6pcus for right turners out of Horseshoes Lane.

KCC's response comments as follows: *"The updated capacity modelling analysis demonstrates how this junction will operate over capacity and conditions will be worsened by the additional development traffic.*

*The Transport Note argues that the impact is not severe and no mitigation is proposed.*

*KCC Highways regards the worsening of conditions on this part of the A274 to contribute to the overall severe impact that would arise on this route and mitigation should be provided prevent further delays to road users."*

As set out above, any additional delays at this junction would only affect vehicles exiting Horseshoes Lane. A potential improvement scheme fully mitigating this junction was considered by the application to the South of Sutton Road. It was however considered that such an improvement could lead to induced demand along this lane which would not be desirable due to the type of road and its width restrictions. No mitigation at this junction is therefore suggested by any of the applications but a solution would be possible.

**'Rat Running'**

At the Planning Committee Meeting of 7 July 2016, a survey demonstrating "100,000 vehicles rat running along the lanes" was cited by members. To date, we have not had sight of this survey and therefore are not able to comment on the survey.

The applicant of South of Sutton Road in their original TA dated October 2015 considered the potential for rat running along Gore Court Road and the B2163 through Leeds village. The relevant paragraphs for Gore Court Road are as follows:

Paragraph 5.2.6: *"As can be seen from Table 5-2 the traffic flows on Gore Court Road can be considered relatively light, with no more than 118 vehicles in the morning peak hour travelling southbound and 84 vehicles travelling northbound. This equates to an average of no more than two vehicles per minute in either direction, which suggests that the route is of limited attractiveness as a 'rat-run'."*

Paragraph 5.2.7: *"Traffic speed was also recorded by the ATC, and this shows vehicles entering the urban area travelling at 34.61mph (85th percentile) and heading north away from the urban area at 35.21mph (85th percentile), which reflects Gore Court Road's limited width and restricted forward visibility. It should be noted that Gore Court Road is subject to a 60mph speed limit at this location."*

Given the highway improvements proposed by the applicant and the junction assessment results presented in this paper which show improved junction performance at the key junctions, it is considered unlikely that the development would result in rat running along the lanes to the north of Sutton Road.

Notwithstanding the above, an additional Section 106 Heads of Terms is suggested to monitor and if necessary mitigate any impact in respect of rat running.

**Public transport improvements and Modal Shift**

Public transport improvements, including bus prioritisation are put forward as part of the highways mitigation for housing proposals on the A274. Such improvement will assist in encouraging modal shift: the change from the use of the private car to other forms of transport. Such improvements include:

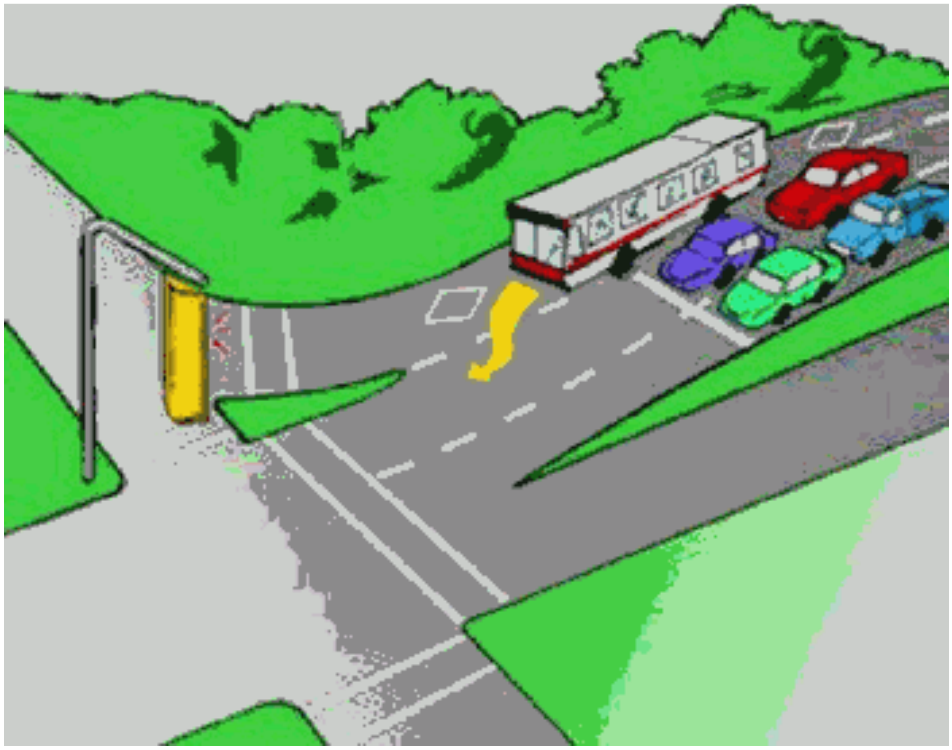
- **Bus improvements** Including
    - bus prioritisation at key junctions on the A274,
    - prioritisation of individual buses via transponders,
    - bus stop improvements including real time information systems and shelters,
    - improvements to ticketing (such as smart ticketing).

- **Improving walking and cycling** improving access to bus stops and to provide alternatives to the private car.
- **Increasing bus** frequency from 12 minutes to 6 minutes overall.

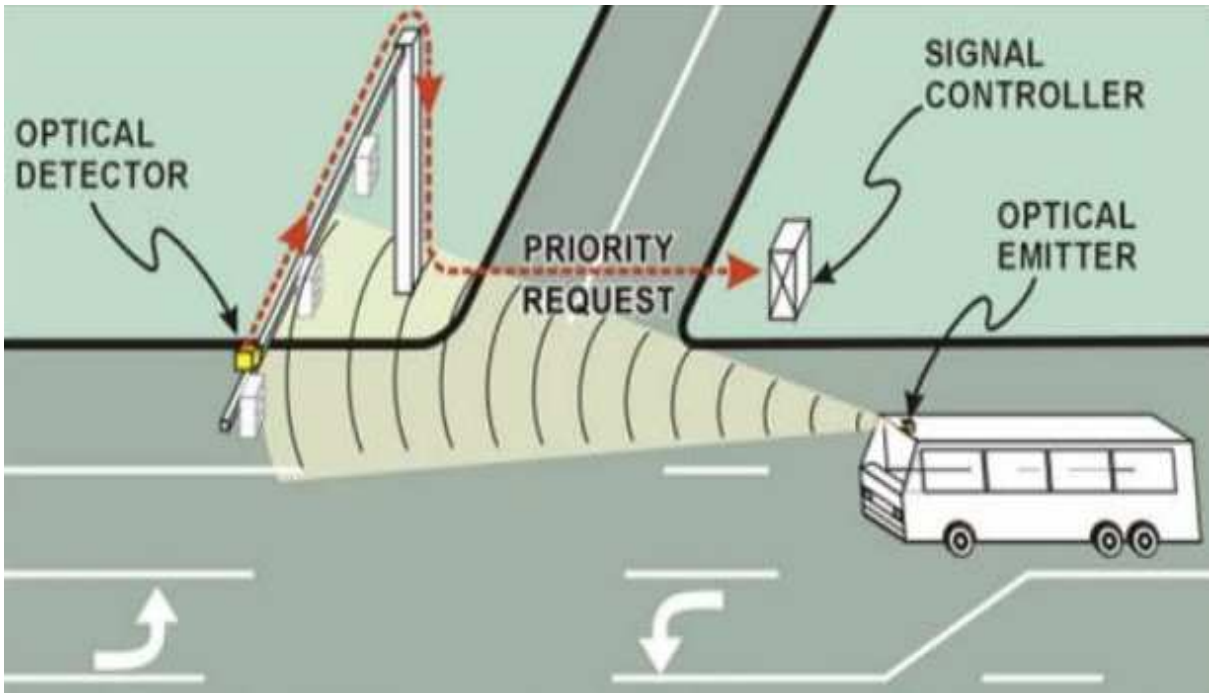
The housing proposals include Section 106 contributions to provide for the above improvements. The Transport Assessment of the applications make no assumption about modal shift, apart from the alternative solution for the Wheafsheaf junction where a conservative 3% modal shift is assumed.

**Examples of bus prioritisation**

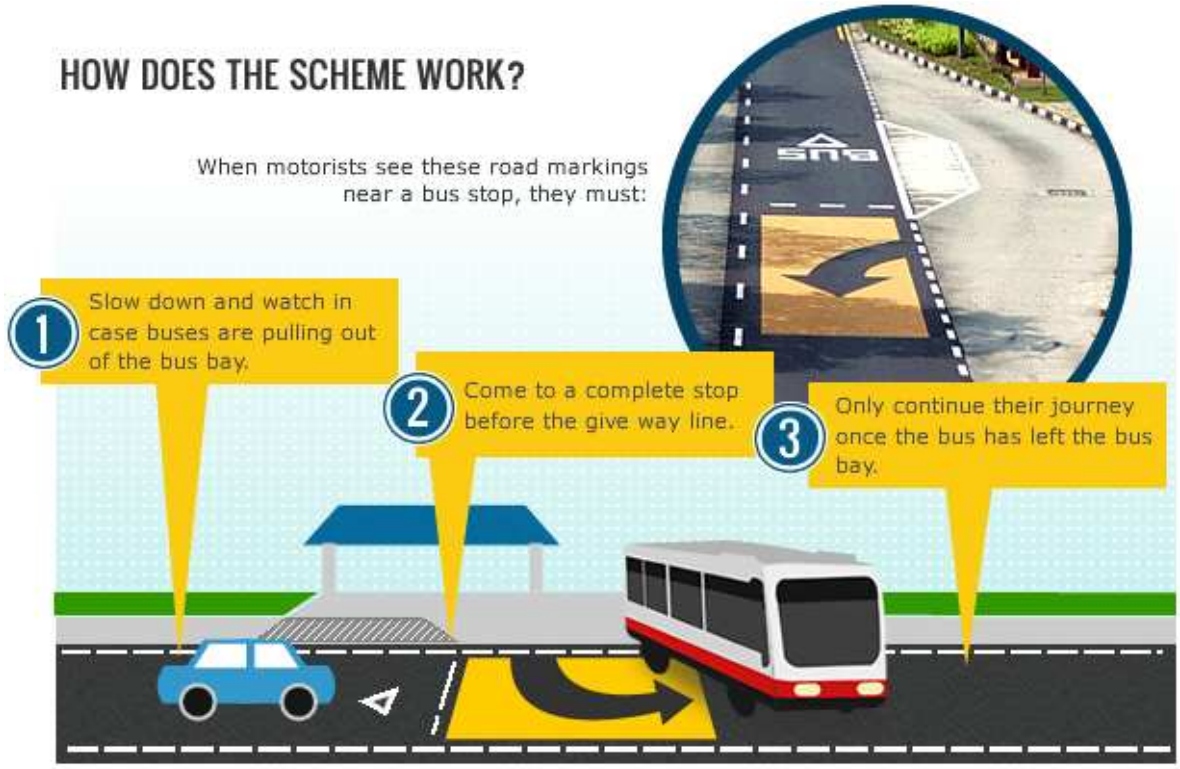
**Pre-signals** to allow buses to pull ahead of traffic in advance of a signalised junction



**Bus prioritisation via transponder, which allows the bus to communicate to the signal ahead, altering the signal to prioritise the bus at the junction**




**Bus Stop pull-out priority, allowing buses priority to pull out of bus stops**




It is a traffic offence if motorists do not give way to buses or stay in the yellow box marked **Give Way to Buses.**

***Transport Conclusions***

The proposed housing allocations at the south east strategic development location are well related to existing development and existing bus routes and walking and cycling facilities. The transport improvements proposed by the developers consist not just of junction capacity improvements, but improvements to the 82 bus service to Maidstone town centre (this is already high quality with frequencies of up to every 8 minutes, low emission vehicles and on board WiFi), together with the provision of walking

and cycling routes and crossing facilities to connect seamlessly with existing infrastructure and provide an attractive choice of travel modes for work, education, business and leisure purposes.

The above directly contributes to the delivery of the balanced package of transport interventions set out in the Integrated Transport Strategy . The 2022 Do Something and 2031 Do Something 4b VISUM models have tested these interventions. The model outputs demonstrate that the transport impacts of the proposed development in the south east area (as well as across the whole Maidstone urban area) can be mitigated to a level where the residual impact is less than severe. Furthermore, KCC have themselves acknowledged in summarising the results of the 2022 model runs, which included all development identified for the South East Strategic Development Location to the end of the Local Plan period, that the results *"demonstrate a level of impact on the highway network that cannot be regarded as severe in the context of the National Planning Policy Framework"* (paragraph *5*.1 of the original report to the 22 February 2016 JTB).

The detailed junction modelling undertaken using LinSig, ARCADY and PICADY conclusively demonstrates that the traffic impacts of proposed development in south east Maidstone can be mitigated to a situation where congestion is **lower** than if the developments were **not** built and if the mitigation was **not** implemented.

**The level of impact on the highway network of the planned developments in south east Maidstone, following mitigation, cannot therefore be regarded as severe in the context of the National Planning Policy Framework**. As well as mitigating the impact of proposed development, the transport improvements proposed by the developer will provide benefits to existing transport users on the corridor.

**I** **Amended Conditions**

**Amendment to condition 8 as follows:**

8) A Landscape and Ecological Management Plan (LEMP) shall be submitted to and approved in writing by the local planning authority prior to the commencement of the development. The content of the LEMP shall include the following:

a) Description and evaluation of features to be managed.

b) Ecological trends and constraints on site that might influence management.

c) Aims and objectives of management.

d) Appropriate management options for achieving aims and objectives.

e) Prescriptions for management actions.

f) Preparation of a work schedule (including an annual work plan capable of being rolled forward over a five year period).

g) Details of the body or organisation responsible for implementation of the plan.

h) On-going monitoring and remedial measures.

i) Details of the measures to protect the 15metre buffer area between the development and the ancient woodland of Bicknor Wood.

j) Details of the measures to ensure connectivity is retained between the reptile receptor site and proposed development through a habitat and wildlife corridor to ensure that reptiles can re-colonise the site once construction works have been completed.

k) Confirmation that the areas of open space shall be designated as public open space for the benefit of residents and visitors to the site.

The LEMP shall also include details of the legal and funding mechanism(s) by which the long term implementation of the plan will be secured by the developer with the management body(s) responsible for its delivery. The plan shall also set out (where the results from monitoring show that conservation aims and objectives of the LEMP are not being met) how contingencies and/or remedial action will be identified, agreed and implemented so that the development still delivers fully functioning biodiversity objectives. The approved plan will be implemented in full accordance with the approved details.

Reason: In order to ensure long term management of the site in the interests of public amenity and access and to ensure a satisfactory setting and external appearance.

**Recommended additional conditions:**

- No building shall be occupied until underground ducts have been installed to enable it to be connected to telephone and internet services, electricity services and communal television services without recourse to the erection of distribution poles or overhead lines within the development hereby permitted. Notwithstanding the provisions of the Town and Country Planning (General Permitted Development) (England) Order 2015 or any other or subsequent Order revoking or re-enacting that Order, no distribution pole or overhead line shall be erected within the site of the development hereby permitted.

  Reason: In the interests of proper planning.

- No development shall take place until details of the following matters have been submitted to and approved in writing by the Local Planning Authority:

  i) Details of the roof overhangs and eaves,
  ii) Details of windows and doors including garage doors,
  iii) Details of window reveals and recesses,
  iv) Details of decorative brickwork, lintels to fenestration, string courses and plinths.

  Reason: To ensure a satisfactory appearance to the development.

**AIR QUALITY RE OFFSETTING EMISSIONS (Calculation of Mitigation/Compensation)**

Due to the scale of this proposal, a calculation of pollutant emissions costs from the vehicular traffic generated by the development should be carried out, utilising the most recent DEFRA Emissions Factor Toolkit and the latest DEFRA IGCB Air Quality Damage Costs for the pollutants considered, to calculate the resultant damage cost.
The calculation should include:

- Identifying the additional trip rates generated by the proposal (from the Transport Assessment);
- The emissions calculated for the pollutants of concern (NOx and PM10) [from the Emissions Factor Toolkit];
- The air quality damage costs calculation for the specific pollutant emissions (from DEFRA IGCB);
- The result should be totalled for a five year period to enable mitigation implementation.

- The calculation is summarised below:
  Road Transport Emission Increase = Summation [Estimated trip rate for 5 years X Emission rate per 10 km per vehicle type X Damage Costs]
  The pollution damage costs will determine the level of mitigation/compensation required to negate the impacts of the development on local air quality.
- No development shall commence until the developer has developed a scheme detailing and where possible quantifying what measures or offsetting schemes are to be included in the development which will reduce the transport related air pollution of the development during construction and when in occupation. The report should be submitted to and approved by the Local Planning Authority, prior to development. [The developer should have regard to the DEFRA guidance from the document *Low Emissions Strategy -using the planning system to reduce transport emissions January 2010.]*

Reason: to ensure the impact of the proposal upon air quality is mitigated.

**Suggested Additional Heads of Terms**

**'Rat Running' Monitoring**

Within six months of the first occupation of any development within sites designated by policies H1(7); H1(8); H1(9) or H1(10) the respective applicants shall commence 'rat running' monitoring of the highway routes to the north of A274 Sutton Road linking with the A20 Ashford Road. Three Automatic Traffic Count (ATC) survey points shall be undertaken for a period of one week, 24 hours a day, at locations to be agreed by the Council, in the same week every year for a period of 5 years beyond the first commencement of each of the abovementioned sites. A Monitoring Report will be produced within four weeks of the completion of each annual survey and submitted to the Council for review and agreement. It will incumbent upon the Council to respond to this data within a 28 day period.

Should the Monitoring Report identify significant adverse traffic flow conditions (a quantum to be determined) arising from 'rat running' activity, as decided by the Borough Council, then the Council will enact the Trigger to release the S106 Contribution sum of Two Hundred Thousand Pounds (£200,000) to be paid towards suitable mitigation.

The 'rat running' mitigation scheme will be devised by the Council and Highway Authority and implemented by the Highway Authority.

**'Rat Running' Mitigation Sum**

The Rat Running Mitigation Sum is Two Hundred Thousand Pounds (£200,000) to be split proportionately between sites H1(7), H1(8), H1(9) and H1(10) on the basis of housing unit numbers.

**Additional Information**

The applicant has submitted additional plans and information to address concerns raised by members on 30th June committee meeting summarised as follows:

<u>Design & Appearance</u>

Computer generated images of the house types have been provided to enable members to gain a feel of the quality design that will be provided (which will be included in the presentation at the committee meeting) together with further details of materials to be used to reflect the quality and character of the surrounding area.

| Facing Material | Manufacturer | Detail |
|---|---|---|
| Walls - Facing Brick | Wienerberger | Maple Red Multi |
| | | Sunset Red Multi |
| | | Harvest Buff |
| Walls - Render | K-rend | Polar White |
| Walls – Tile Hanging | Cemex Russell Concrete Plain | Cottage Red |
| | | Antique Red |
| Walls - Weatherboard | Marley Eternit Cedral | Dark Brown |
| | | White |
| Roofs – Concrete Interlocking Tiles | Cemex Russell Concrete Grampian (now Sandtoft) | Terracotta |
| | | Slate Grey |
| | | |

Landscaping

A revised Landscaping and Ecological Mitigation Strategy Plan and associated Landscape Design Strategy have been submitted to incorporate all changes and recommendations to date to show an appropriate level of open space, tree planting and enhancement and to demonstrate that the scheme provides a large central open space as well as many other smaller informal green spaces. In addition, Tree Constraints and TPO Tree Plans, Tree Retention and Protection Plans, Arboricultural Impact Assessment and associated reports have been submitted for further clarification on the landscape impact and enhancement.

Emerging Policy H1(9) requires that the scheme provides at least 1.23ha of open space, the planning application scheme provides for 2.34ha open space which is almost twice the policy requirement and considerably more than nearby proposals, both permitted and in planning.

Drainage

The Environment Agency was the statutory consultee in relation to this planning application, on the submission of further information, they confirmed in July 2015 that they were satisfied that the drainage strategy was acceptable and a suitably worded condition restricting ground infiltration was satisfactory.

However, Kent County Council are now the statutory consultee on these matters and have commented on the subsequent planning application (Ref. 16/503775) requiring further information, particularly in relation to ground infiltration. The applicants have reviewed their comments and have revised the Drainage Strategy accordingly, this will be attached to subsequent emails; Section 5 as well as the calculations and drainage strategy drawing have been updated. The applicants do not consider it necessary to undertake ground infiltration at this point, some 18 months after submission of the application and following a supportive response from the Environmental Agency. Furthermore, the infiltration testing on adjacent sites shows that the infiltration is poor, our drainage strategy accounts for this worst case infiltration scenario. However, given the response of KCC on the new planning application, it is considered that ground infiltration testing could adequately be dealt with by planning condition; as an assumed a worst case scenario has been considered and an appropriate drainage strategy (as demonstrated) can be implemented.

Air Quality

During the Committee meeting on 7th July considering land north of Bicknor Woods and land south of Sutton Road, the matter of air quality was raised. An Air Quality Assessment was submitted with the original application and the conclusions of this report state that the following:

- Impacts from dust during construction phase are at worst 'low', but suitable mitigation (ie. a dust mitigation plan) will result in a less than significant impact, planning conditions can adequately control any likely impacts;
- Impacts arising from traffic movements results in negligible significance, this is based on a worst case scenario.

Conclusion

In summary, we consider that we have adequate dealt with all matters raised at the previous Planning Committee. Emerging Policy H1(9) requires that certain criteria is met, we have addressed each one of these in full as follows:

1. An undeveloped area of land to the east is retained as a setting to Rumwood Court;
2. A 15m buffer to the Ancient Woodland is proposed;
3. Development protects both the setting of Rumwood Court and Bicknor Farm House;
4. Public footpath KM94 is retained and its setting enhanced;
5. Access is taken from A274, Sutton Road;
6. Pedestrian and cycle links are proposed to neighbouring sites;
7. A Noise Assessment was submitted and demonstrates no significant impacts;
8. An Air Quality Assessment was submitted and demonstrates no significant impacts and any impacts arising from construction can be adequate mitigated;
9. Open space provision totals 2.34ha, almost twice the policy requirement;
10. The agreed highways assessment and mitigation proposals include bus prioritisation;
11. The agreed highways assessment and mitigation proposals includes improvements to the junctions of Willington Street/Wallis Avenue and Sutton Road;
12. The agreed highways assessment and mitigation proposals includes a package of measures to reduce traffic congestion on Sutton Road and Willington Street;
13. The agreed highways assessment and mitigation proposals includes improvements to the capacity of the A229/A274 Wheatsheaf Junction;
14. The scheme provides for cycle links and public rights of way;
15. The agreed highways assessment and mitigation proposals includes contributions to local bus services.

The applicants consider that the submission of the additional and revised material demonstrates that the proposal is wholly policy compliant whilst also making a contribution to the Council's 5 year housing land supply as the site is currently included within the Council's calculations.

**The recommendation remains unchanged**

APPENDIX

**Traffic Flows / Traffic Generation / Traffic Distribution**

Existing flows are based on traffic surveys that were undertaken in June and July 2014. Traffic surveys carried out within 3 years of an application being submitted are usually considered up to date enough to be valid to establish an existing traffic situation.

Background growth to the future years has been applied using TEMPro (Trip End Model Presentation Program) which is based on the National Trip End Model (NTEM), the DfT's model used in transport planning which includes forecasts on population, employment, households by car ownership, trip ends and simple traffic growth factors. Committed development has also been included. This is the standard approach taken in Transport Assessments.

Development flows were calculated based on TRICS, the tool used nationally to calculate traffic generation of developments. It is based on surveys at various different development types across the UK and Ireland. The traffic generation proposed is presented in the TA. It should be noted that the TRICS data has not been adjusted to allow for any modal shift from either the significant investment in public transport, footways and cycleways proposed by the developer or the travel plan measures. The traffic distribution is presented in the transport documents.

Given KCC's responses were very detailed but make no mention of either flows or traffic distribution, it can be concluded that KCC accept the traffic flow, generation and distribution assumptions that underpin the assessments carried out in the TA.

**Robustness of LinSig Modelling**

KCC stated during the meeting on 7 July 2016 that officers had undertaken detailed assessments of the A274 / Willington Street / Wallis Avenue junction. In a meeting involving KCC, MBC and the Land South of Sutton Road's transport consultant in February 2016, the LinSig modelling and KCC's assertion that the models would "become unstable" with "lower levels of confidence" and the results would likely be "distorted" that was raised by KCC in response to the Land South of Sutton Road application, was discussed. Clarification was requested and liaison between the applicant's transport consultant and KCC's Traffic Signal Team was suggested. No further information, nor alternative modelling of this junction has been received from KCC since then that would further substantiate their assertion that the numbers would be "unstable" or "distorted".

JCT Consultancy Ltd who produced the LinSig modelling in the Land South of Sutton Road transport documents responded to KCC's response as follows:

"It is over generalised to say that model results will always be unacceptably distorted in cases where the highway network being modelled is over capacity. In some cases, high levels of congestion in traffic models can distort results if not suitably identified and addressed; however, in most cases a well constructed traffic model should be capable of forecasting the relative performance of development and highway mitigation options even where oversaturation occurs. In any event, it would not be correct to dismiss modelling as flawed simply because over capacity exists without identifying specific issues with the model and demonstrating that any issue will actually lead to distortions in the comparison of options. Depending on the circumstances, in many cases a model operating over capacity will be more stable than a model operating at capacity as the random effect of arriving traffic will have less of an effect"

Recent Local Growth Fund business case submission to the South East Local Enterprise Partnership (SELEP) in respect to Phase 1 of the Maidstone Integrated Transport Package includes similar junction

improvements at this junction. The following statements in this document should be considered in relation to the differing views with regards to the LinSig modelling carried out in the TA:

- *"A main objective of the Willington Street junction improvements is to reduce delay and congestion on the A274 and A20 corridors and on Willington Street. This will allow the existing network to operate more efficiently and also present some potential capacity to accommodate the future trip growth arising from new development in and around Maidstone"* (Page 22);
- *"LinSig is assumed to be a robust tool for this assessment"* (Page 27)

In conclusion, LinSig is the industry-standard tool to assess signalised junctions. There is no evidence to suggest that results would be "distorted" or "unstable" in oversaturated conditions. It is correct that modelling is never perfect and always ever a best approximation. Modelling is based on a layout and input flows. Given the proposed layouts can be achieved within the highway boundary and there is no objection in principle to such improvements, the same levels of confidence should be applied to both layouts tested (Do Nothing / Do Something). KCC have not objected to the flows (existing / future / development) in any of their responses, these being the other key element to a LinSig model. With both input elements to the LinSig models being clearly defined, there is therefore no reason to suggest that the model results should lack in confidence.