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# West Berkshire Local Plan Review

## Phase 2 Transport Assessment Report

### July 2021

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#### Executive Summary

West Berkshire Council is currently undertaking a Local Plan Review, with the new Local Plan covering the period up to 2037. As part of this process, a Strategic Transport Assessment is currently in progress to examine the potential transport and travel impacts of the proposed Local Plan, and to outline appropriate mitigation measures.

This Phase 2 report follows on from the Phase 1 report published in December 2020. The Phase 1 report provides details of the three models that are being used in the assessment process. It also provides an assessment of the potential development sites identified through the Housing and Economic Land Availability Assessment process, with comparisons made between 2036 Core Forecast and 2037 Local Plan growth scenarios.

Phase 1 modelling results indicated that there would not be whole swathes of the highway network congested in 2037, but did identify some junctions and links that would be affected by the proposed Local Plan growth. These were particularly focussed near to the proposed strategic North East Thatcham site, indicating delays and congestion occurring around key junctions along the A4 corridor, with through traffic diverting onto unsuitable routes.

This report provides a focus on the North East Thatcham site. This has included a review of the trip rates used in the modelling process, as the strategic nature of the site lends itself to have a higher rate of internalised trips, which have been applied to the models.

A number of concept designs for highway mitigation measures have been assessed for five main junctions. These have taken into account constraints such as land availability, the presence of nearby critical infrastructure and the need to incorporate active travel measures. Each of the concept designs for the junctions have been tested using the transport models, with the preferred designs at this stage shown in Appendix X.

The model outputs also provides a performance assessment of the highway network in the Thatcham area. These indicate a reduction in delays and improvement in journey times as a result of the highway mitigation for the 2037 Local Plan growth compared to the 2036 Core Forecast background traffic growth.

However, mitigation measures will not be confined to highway improvements. There will be a need to encourage active and public transport to improve connectivity both within and between the site and the wider Thatcham area. Further details and analysis of the impact and suitability of such measures, including further revisions to the site trip rates, will be considered in the next phase of the assessment.

The report also includes an assessment of Local Plan growth on highway network performance in the centre of Newbury using the local transport model. The results highlight increases in traffic for both 2036 Core Forecast and 2037 Local Plan growth scenarios and the implications this has on the local road network. It is noted that not much more can be done to increase highway capacity in the Newbury area, and therefore supports the need to develop non-highway transport and travel measures.

The Council is required to consult with Highways England regarding the potential impact of the Local Plan on the Strategic Road Network. The report outlines the impact of traffic growth on the motorway junctions at Chieveley (J13) and Theale (J12). The results indicate that increases in congestion and delay are largely as a result of increase in traffic growth (including on the M4 itself) as opposed to being a result of Local Plan growth.

The Local Plan Transport Assessment is an iterative process, and there will be further assessment work undertaken as the mitigation packages evolve. In particular, results from the 2036 and 2037 forecasts indicate a need to develop non-highway measures to encourage more sustainable and smarter transport solutions. This is especially so when considering wider policy challenges such as responding to the need to reduce Carbon emissions and tackling climate change and to encourage healthy lifestyles. In addition, there is a need to recognise the impact of new technologies on people's lifestyle and transport choices. Further modelling work will be undertaken to assess the impact on these on the North East Thatcham site and the wider transport network, the results of which will be outlined in the next phase report.

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#### 1. Introduction

- 1.1 West Berkshire Council (WBC) is currently undertaking a Local Plan Review (LPR), with the new Local Plan covering the period up to 2037. The new Local Plan will provide the overarching principles that will guide future development in the district. It will replace the existing West Berkshire Local Plan Core Strategy 2016-2026 and Housing Sites Allocations Development Plan Document 2026.
- 1.2 As part of the LPR process, WBC are required to assess, consider and consult on options for meeting the housing, employment and other development needs of the district in a sustainable way. Transport issues will be one of the key considerations as part of this process and therefore a Strategic Transport Assessment (TA) is being undertaken to run concurrently with the LPR process to determine the potential impacts of the emerging draft Local Plan and to investigate possible mitigation measures to address such impacts.
- 1.3 This Phase 2 report follows on from the Phase 1 Transport Assessment report (summary in next chapter), produced in December 2020 to coincide with the Regulation 19 consultation. The Phase 2 report takes forward the issues identified by the outcome of the modelling work outlined in the Phase 1 report, looking into more detail the main locations identified and assesses the suitability of the potential mitigation measures that are likely to be required. The Local Plan Transport Assessment continues to be an iterative process, which will continue to evolve with further reports being produced in the run up to the Local Plan Inquiry.
- 1.4 The main focus of this report is concerned with the impact of and potential mitigation package required for the possible strategic development site at North East Thatcham (HELAA reference THA20), as this is the main preferred site being pursued by the Council as part of the Local Plan Review. In addition, the report touches on the impact of the Local Plan on the highway network in Newbury and on the Strategic Road Network, plus the potential impact of the COVID-19 pandemic on travel demand and how this may affect future travel patterns.
- 1.5 Although the transport assessment process has had a focus in assessing the highway impact of the emerging Local Plan, it should be noted that the mitigation required will not be solely reliant on developing highway mitigation and increasing capacity on the road network. The preferred mitigation will need to be a whole package approach, including being able to be reactive and receptive to new technologies and changes in behaviour.
- 1.6 It must be emphasised that this Phase 2 report does not seek to address and provide a complete mitigation for every affected junction or area highlighted in the previous Phase 1 report. Where this has been the case, more detailed junction

models and assessment may be needed at specific locations as and when appropriate.

## 2. Phase 1 Transport Assessment Report (December 2020)

- 2.1 The previous Local Plan Review Transport Assessment Phase 1 report was produced to coincide with the Regulation 18 consultation, which commenced in December 2020.
- 2.2 The report outlines the transport modelling process undertaken in the run-up to the Regulation 18 consultation, including the three transport models being used in the transport assessment process. Each model has been developed according to Department for Transport (DfT) guidance and further details are outlined in the Phase 1 report. The three models used are as follows;
  - **West Berkshire Strategic Transport Model (WBSTM) 2017** – a district-wide transport model with separate models for AM peak, inter-peak and PM peak hours.
  - **Newbury 2017 VISSIM model** – Local model focussing on the centre of Newbury for the AM and PM peaks.
  - **Thatcham 2108 VISSIM model** – Local model cordoned around Thatcham for the AM and PM peaks.
- 2.3 The Phase 1 report outlined the sites identified through the Housing and Economic Land Availability Assessment (HELAA) process
- 2.4 Comparisons between the 2036 Core Forecast and the 2037 preferred Local Plan development scenario indicated that there were no big differences in terms of impact on the highway network.
- 2.5 Initial results from the Phase 1 report highlighted that the transport modelling was indicating there were not whole swathes of the highway network in West Berkshire being identified as problematic by the end of the plan period in 2037. The modelling also highlighted that the general growth in road traffic over the plan period is forecast to result in delays at certain junctions, regardless of any proposed Local Plan development.
- 2.6 However, the modelling results did indicate that in some areas, the Local Plan development would result in longer delays at affected junctions and links. One such location was along the A4 corridor on the eastern side of Thatcham in the vicinity of the proposed strategic THA20 site at North East Thatcham.
- 2.7 The Phase 1 report recognises that the Transport Assessment is an iterative process and that further model runs would be required as the process progresses. This would include identifying and scoping the necessary mitigation required to address the areas of concern highlighted in the report. There was recognition that mitigation would not be solely related to delivering highway improvements, but also develop packages to encourage more sustainable and active travel.

### 3. North East Thatcham site

- 3.1 The Regulation 18 consultation draft of the Local Plan included the identification of a preferred housing site at North East Thatcham (NET). This was identified during the HELAA process, and is strategic residential site of up to 2,500 dwellings. The overall NET site is the amalgamation of four separate sites put forward during the call for sites during the HELAA process. It is now being taken forward as a single site by the consortia of the four separate sites.
- 3.2 The initial modelling work outlined in the previous Phase 1 report used the standard TRICS trip rates for the assessment of the preferred Local Plan 2037 S1 scenario. The use of these rates is the accepted approach for the assessment of smaller sites where there is the assumption that development traffic will load onto the existing highway network at the nearest access point, with no internalisation of trips.
- 3.3 The use of standard TRICS rates however, is not suitable for the NET site, which is a large, strategic development site comprising four co-joining land parcels. The size of the site will result in several proposed access points onto the highway network on both Floral Way and the A4 to the north and east of Thatcham. In addition, the development site will comprise a range of local services, including retail facilities and schools. The site will be served by an internal road network (along with a pedestrian and cycle network) that will run the length of the site. This will allow for internalisation of trips, however the internal network will be designed so that through traffic does not divert onto the road network within the NET site.
- 3.4 Given the above, it has been considered appropriate that more specific trip rates relating to the type of development that is likely to be delivered through the proposed NET site. A set of revised trip rates have been developed using a range of data, including 2011 Census data for resident population, employment and mode of travel to work characteristics for the wards covering Thatcham. The split of trips over the peak hours has been established using data from the TRICS database for edge of town developments. These have been filtered down further to incorporate residential sites located in the South East of England that have been surveyed within the last eight years.
- 3.5 The revised trip rates for the NET site have since been agreed by the Council's Highways Officers, and have been incorporated into both the WBSTM and Thatcham local VISSIM model. These have then subsequently been used to undertake the assessments covered by this report. The new scenario used for the modelling process is a combination of the previous proposed Local Plan growth Scenario S1 (which includes NET), using the revised trip rates agreed for the NET site. For reporting purposes, it is referred to as S1R. Note, that this option does not include the HELAA sites located around Henwick Park (previous scenario S1a).
- 3.6 At the time of writing, it is expected that the NET will access the local highway network via new junctions on Floral Way and Harts Hill Road for the northern part of the development parcel. At the present time, further accesses are proposed onto the A4 at the Pipers Way roundabout and in the vicinity of Colthrop Lane, both of which will be incorporated into junction improvements proposed as part of the highway mitigation package. In addition, options are also being explored with regard to access via the Gables Way roundabout at the southeast corner of the site.

- 3.7 As previously mentioned, the transport modelling and assessment is an iterative process whereby a variety of mitigation options have been considered. While the results from the Phase 1 assessment outlined that the preferred 2037 Local Plan development scenario (S1) suggested that there would not be widespread congestion across the highway network, it did however, identify several junctions in the vicinity of the NET site forecasted to experience delays. These results helped to inform the next step of the Local Plan transport assessment process to look at developing concept designs for highway-based mitigation measures, with the emphasis on improving capacity and performance, rather than road building.
- 3.8 The development of highway measures to mitigate the impact of the NET site on the local highway network has been concentrated on improving highway capacity and performance of key junctions on the A4 corridor and Floral Way in the vicinity of the NET site. This process would provide better management of the existing highway infrastructure and make best use of the existing highway land available.
- 3.9 The process for the development of potential highway mitigation measures has involved developing concept designs for junction improvements, which were then tested using the traffic models to determine the efficacy of the design options. In developing the various options, constraints such as land availability and the presence of services, has been taken into account. In terms of land availability, designs have been limited to the extent of the highway boundary, and where required, land within ownership/control of the NET consortium. The concept designs also take into account the requirements for active travel (e.g. maintaining and enhancing pedestrian and cycle connectivity, particularly in relation to DfT LTN 1/20) and public transport (bus stop infrastructure).
- 3.10 It should be noted that designs for the highway measures are very much at the concept design stage to allow different options to be tested using the traffic models. The results of the modelling undertaken for this report outline the impact of the mitigation measures and access arrangements agreed at the time of writing. It is likely that on-going discussions between the NET site promoters and WBC Highways Officers and further development of the site's Design and Access Strategy that these designs will further evolve prior to the production of final designs to form part any potential planning application. Further modelling assessments will also take place once a package of non-highway measures to encourage sustainable travel choices and reduce car dependency from the site has been developed. The outcomes of the modelling for these iterations will be reported in the report for the next phase of the Local Plan Transport Assessment.
- 3.11 The focus on the transport modelling and preparation of concept designs for the possible junction improvements near to the NET site has been for the following junctions;
- Harts Hill Road / Floral Way
  - A4 Bath Road / Floral Way / Falmouth Way roundabout
  - A4 Bath Road / Pipers Way roundabout
  - A4 / Colthrop Lane junction
  - A4 / Gables Way / Crematorium roundabout

#### *A4 / Floral Way / Falmouth Way roundabout*

- 3.12 Results from the transport modelling indicates that as a result of traffic from the NET development, traffic queues are experienced on the Floral Way approach to the roundabout where it meets the A4. If no improvements are provided this would result in delays for existing local and NET traffic, with queues on Floral Way heading back up towards the Heath Lane roundabout. There would also have the effect of through traffic diverting off the A4 onto unsuitable local routes, such as that from Upper Bucklebury through to Cold Ash.
- 3.13 Concept design options have looked at improving capacity at the roundabout for traffic entering the roundabout from Floral Way (see Appendix A2). These will also take into the presence of the flood attenuation pond immediately to the east of the Floral Way arm, which may act as a constraint into what can be delivered.
- 3.14 The current concept design has included the development of a free left-turning lane from Floral Way to the A4 (east), which will then merge tie-in with the A4 east to create a multi-lane corridor along the A4. The concept design for the roundabout also includes the provision of a pedestrian/cycle crossing of the Floral Way arm to help maintain/enhance pedestrian and cycle connectivity. This will tie into the existing and proposed pedestrian/cycle infrastructure and will be compliant with current standards outlined in LTN1/20.

#### *A4 / Pipers Way roundabout*

- 3.15 It is intended that this will be one of the access points onto the wider highway network from the proposed NET development. At present, the junction is essentially a 3-arm roundabout, where Pipers Way meets the A4. Pipers Way is an important local route for access to local businesses and residential areas, as well as to Thatcham railway station and across the Station Road level crossing towards Crookham Hill.
- 3.16 The process for choosing a suitable concept design has been complicated by the presence of a large piece of Gas infrastructure on the north side of the A4, immediately to the east of the proposed connection point to the NET site. This has acted as a constraint in developing suitable concept designs as it is a significant piece of service infrastructure that cannot be moved.
- 3.17 The evolution of concept designs for this junction has included looking at options for enlarging the existing roundabout and to replace the roundabout with a signalised crossroads junction (both single and staggered options). Each design has been tested using the transport models to test their efficacy and suitability. They also take into account other requirements, such as providing pedestrian and cycle connectivity, both along the A4 corridor and to/from the NET site, and retaining the existing Jet Black1 bus stops on the A4. In addition, further pedestrian and cycle improvements will be required to connect with existing facilities on Pipers Way to provide good pedestrian and cycle links between the NET site and Thatcham railway station.
- 3.18 Assessments of the various concept designs for this junction has indicated that a signalised crossroads junction to replace the existing 3-arm roundabout would offer the best performance. Given the constraint posed by the Gas infrastructure to the north of the A4, the concept designs have also considered the realignment of the Pipers Way arm where it meets the A4, to the west of its current alignment. This is considered necessary as it would allow for a single crossroads junction to be

achieved, and that there is likely to be insufficient space within the highway boundary to accommodate a staggered junction. The concept design also includes the provision of multi-lane approaches on the A4 either side of the junction to help improve capacity on the A4 and journey time reliability. The concept design for this junction is outlined in Appendix A2.

- 3.19 In addition, the concept design includes pedestrian and cycle connections from the NET onto the A4. The finalised design will need to tie this into the existing pedestrian and cycle infrastructure on the A4 corridor, which will need to be compliant with current standards outlined in LTN1/20. There is also a cycle path further down Pipers Way that links to the station, the wider non-highway measures will look to extend this to the A4 junction to provide a clear cycle route from the NET site to Thatcham station.

#### *A4 / Colthrop Lane junction*

- 3.20 Consideration has been given to providing an access point off the A4 to/from the NET site in the vicinity of the Colthrop Lane junction. At present, the A4 junction with Colthrop Lane is a left and right turn in and left out only priority junction, with unhindered movement along the A4.
- 3.21 Several design options have been considered to provide a full access junction at this location. This has included roundabout designs and options for signalised crossroads and staggered crossroads. It should also be noted that capacity on the A4 would be improved by providing multi-lane approaches on both sides of the junction. Detailed junction assessments using the transport models has indicated that the staggered signalised crossroads option would offer the best degree of mitigation in terms of performance on the wider highway network. This would be achieved by providing an access point to the NET to the west of the existing small access point. The concept design for the staggered signalised junction is shown in Appendix A3.
- 3.22 As is the case with other concept junction designs, consideration of pedestrian and cycle connectivity, that is compliant with LTN 1/20 standards, has been and will need to be included in the design process.
- 3.23 For the purposes of this Phase 2 report, the results of the transport modelling will include the addition of a concept design for a staggered signalised junction at this location. However, there may be options to provide access to/from the eastern parcel of the NET site and the A4 from the existing Gables Way / Crematorium roundabout (subject to agreement with landowners). If this could be achieved, then it may mean that a complex staggered junction arrangement would not be required. A limited priority arrangement into the site, similar to the existing Colthrop Lane, could be provided. This would have a benefit in providing one less junction on the A4 corridor, which would in turn, improve performance on the A4 itself.

#### *A4 / Gables Way*

- 3.24 At the present time, negotiations are underway to secure an access onto the northern arm of the roundabout.

#### *Impact on wider network*

- 3.25 The impact on the wider network, particularly the Northern Distributor Road along Heath Lane and Bowling Green Road has been examined to determine whether further improvements would be required.



- 3.26 The access arrangements for the northern end of the NET site proposes new priority junctions (with right turn lanes where appropriate) on both Floral Way and Harts Hill Road. Results from the modelling suggest that these will not cause problems.
- 3.27 In terms of Heath Lane, the results of the traffic modelling have indicated that these perform to a reasonable standard. Prior to the development of the highway mitigation measures, the modelling highlighted that with the NET development, traffic would be queueing eastbound onto Floral Way, caused by queues blocking back from the Floral Way roundabout with the A4. With proposed highway mitigation at the roundabout to provide extra capacity on the southbound arm, these queues are then substantially reduced, with traffic no longer blocking back towards Heath Lane.
- 3.28 Some queueing is recorded on Park Lane where it joins Heath Lane in the AM peak, however results from the model indicate that this clears over the course of the peak hour.
- 3.29 Further west along the NDR to Bowling Green Road and Tull Way, there are several local residential roads that access onto the NDR. Results from the transport modelling suggest that there is no significant increase in delays from these roads in accessing the NDR.

#### *Station Road Level Crossing*

- 3.30 The Council is aware of local concern regarding existing congestion and delays to road users around the Station Road Level Crossing. The level crossing has been incorporated into both the WBSTM and Thatcham VISSIM models, including the extent of closure typically occurring during modelled periods. Outputs from the modelling work using the WBSTM undertaken as part of the Phase 1 Transport Assessment report confirms that delays are experienced in all scenarios, including the 2017 Base and 2036 Core Forecast years.
- 3.31 The updated runs using the S1R scenario again shows that delays being experienced at the level crossing, with an increase in queuing during peak periods as a result of the development traffic. However, the model also indicates that these queues clear when the level crossing gates are open. A micro-simulation video from the model will be made available to show how the level crossing is forecast to perform.
- 3.32 The Thatcham VISSIM local model has been used to assess the performance of the NET site on the wider highway network in the Thatcham area. The assessment has included five scenarios, which are as follows:
- **2018 Base Year** – Existing conditions (pre-Covid-19).
  - **2036 Core** – No Local Plan, but includes TEMPro growth applied across the District.
  - **2037 S1** – 2037 with ‘Scenario 1’ Local Plan sites, TRICS-based trip rates for all sites.
  - **2037 S1R** – Scenario 1 with refined (and agreed) trip rates for the NET (THA20) site.

- **2037 S1R with mitigation** – S1R + signalised junctions at Pipers Way roundabout and Colthrop Lane, plus two lanes eastbound on A4 from Floral Way to Colthrop Lane.

3.33 Tables 3.33 and 3.6 below show the network statistics for the AM and PM peak hours respectively. The delays are presented as ‘network delay’ (that experienced within the VISSIM model network) and also ‘latent’ delay, which is the additional delay experienced by drivers as they are waiting to enter the network where it is queued. The impact of the addition of providing the concept design highway mitigation measures can also be seen in the heat maps for the 2037 S1R and S1R + mitigation forecast runs, which can be found in Appendix B. These clearly show the benefit of providing the concept designs for the highway mitigation measures outlined earlier in this report.

<b>Table 3.33 – Thattham VISSIM model Network Statistics: AM Peak Hour</b>									
	<b>2018 Base Year</b>	<b>2036 Core Forecast</b>	<i>2037 S1</i>	<i>% change from Core</i>	<b>2037 S1R</b>	<i>% change from Core</i>	<b>2037 S1R with mitigation</b>	<i>% change from Core</i>	<i>% change from S1R</i>
Total Vehicles	<b>8045</b>	<b>9,768</b>	11,222	14%	<b>9,887</b>	1%	<b>10,232</b>	5%	3%
Total Delay (s)	<b>1,090,840</b>	<b>2,633,982</b>	3,086,893	17%	<b>2,969,379</b>	13%	<b>2,770,416</b>	5%	-7%
Network Delay / Vehicle (s)	<b>136</b>	<b>265</b>	264	0%	<b>285</b>	8%	<b>269</b>	1%	-6%
Latent delay / Vehicle (s)	<b>0</b>	<b>27</b>	100	271%	<b>95</b>	250%	<b>11</b>	-60%	-89%
Total Delay / Vehicle (s)	<b>136</b>	<b>292</b>	365	25%	<b>380</b>	30%	<b>279</b>	-4%	-26%

3.34 The network statistics results for the AM peak hour show that the total number of vehicles and delays increase in the 2036 Core and 2037 Local Plan growth scenarios. If the 2037 Local Plan growth (2037 S1R) is applied without any highway mitigation, there would be an increase in queueing and delays across the Thattham VISSIM network. The inclusion of the evolving concept highway mitigation designs result in marked reduction in terms of delays to a level lower than that for the 2036 Core forecast.

3.35 Table 3.35 below shows the journey times across the Thattham VISSIM network for the AM peak hour (a plan showing the individual journey time routes can be found in Appendix C. This shows that in the 2037 S1R Local Plan growth scenario that journey times increase from both the 2018 Base and 2036 Core forecast, particularly in areas of the network in the vicinity of the NET site. However, the 2037 S1R + mitigation scenario show an improvement in some of these routes close to the NET site, especially for example, in terms of Route 6 southbound which includes Floral Way south to the A4 and then east to Gables Way.

		2018 Base	2036 Core	2037 S1	% change from Core	2037 S1R	% change from Core	2037 S1R with mitigation	% change from Core	% change from S1R
Route 1	EB	623	1038	893	-14%	1024	-1%	898	-13%	-12%
	WB	686	721	837	16%	880	22%	895	24%	2%
Route 2	EB	288	323	380	18%	376	16%	403	25%	7%
	WB	516	585	695	19%	551	-6%	712	22%	29%
Route 3	NB	538	663	1181	78%	685	3%	724	9%	6%
	SB	518	810	736	-9%	746	-8%	707	-13%	-5%
Route 4	EB	411	438	697	59%	469	7%	490	12%	4%
	WB	542	604	683	13%	564	-7%	648	7%	15%
Route 5	NB	325	603	618	2%	752	25%	698	16%	-7%
	SB	300	307	418	36%	514	67%	383	25%	-25%
Route 6	NB	295	310	359	16%	325	5%	339	9%	4%
	SB	338	729	579	-21%	798	9%	460	-37%	-42%

3.36 A pictorial representation of the impact of the highway mitigation schemes at the junctions along the A4 corridor can be seen in Appendix D. For information, the red lines shown on the A4 at some of the junctions are for modelling purposes only to indicate where lanes merge.

3.37 The network statistics from the Thatcham VISSIM model for the PM peak are shown in Table 3.37 below.

	2018 Base Year	2036 Core Forecast	2037 S1	% change from Core	2037 S1R	% change from Core	2037 S1R with mitigation	% change from Core	% change from S1R
Total Vehicles	7,793	9,167	9912	8%	9,260	1%	9799	7%	6%
Total Delay (s)	880,909	1,478,687	1,880,822	27%	1,535,266	4%	1,817,867	23%	18%
Network Delay / Vehicle (s)	112	155	175	13%	155	0%	185	19%	19%
Latent delay / Vehicle (s)	8	67	165	144%	136	102%	6	-91%	-95%
Total Delay / Vehicle (s)	120	222	340	53%	291	31%	191	-14%	-34%

3.38 These again show that the total number of vehicles and delays increase in the 2036 Core forecast and 2037 Local Plan growth scenarios when compared to the 2018 Base year. As is the case with the AM peak, with the addition of the 2037 S1R without any mitigation, there are large increases in queueing and delays across the VISSIM model area. However, with the addition of the concept highway mitigation measures (2037 S1R + mitigation), shows a reduction in total delays, again lower than that for the 2036 Core forecast.

3.39 Details on the performance of the six journey time routes for the AM peak period are as follows:

- For journeys route along the A4 corridor (Route 1), delays increase eastbound between the Northfield Lane and Pipers Way junction, more so for the 2036 Core and 2037 S1R scenarios. Westbound journeys increase between Gables Way and Pipers Way in both 2037 S1R scenarios.

- Route 2 eastbound journeys from Lower Way to the A4 at Chapel Street show slight increases until the junction with the A4, where delays increase, especially in terms of the 2037 scenarios. Westbound journeys remain roughly stable, although there are some increases close to the junction with the A4.
- For journeys from Station Road to Cold Ash Hill (Route 3), journey times increase gradually in all scenarios except for 2037 S1R, where there is a sharp increase in journey times approaching Heath Lane. This is due to westbound traffic on the Northern Distributor Road. Southbound journeys are roughly stable, except for the approach to the A4 junction where they increase significantly for both 2036 Core and 2037 S1R forecasts. These improve with the 2037 S1R+mitigation scenario, but are slower than the 2018 Base.
- Journey times between Benham Hill and Harts Hill Road (Route 4) are roughly the same for all scenarios with some delays on the approach to the Benham Hill roundabout, except for 2037 S1, where they increase further due to delays at the roundabout. Westbound journeys increase slightly for all scenarios, with further increases on the approach to the Benham Hill roundabout, with again the worst delays being experienced by the 2037 S1R scenario.
- Journeys between Station Road and A4 East (Route 5) show large growth in delays northbound on the approach to the A4 / Pipers Way junction for all scenarios compared to the 2018 Base. Southbound journey times for 2036 Core remain similar to 2018 Base, but increase in 2037 S1R scenario due to the new development junction at Colthrop Lane. These are mostly alleviated by the proposed mitigation.
- Journeys between Pipers Way and Cold Ash Hill (Route 6) show northbound journeys increasing gradually along the whole route in all future scenarios. Southbound journey times increase significantly on the Floral Way approach to the A4 / Falmouth Way junction, although this is mostly alleviated by the proposed mitigation included in 2037 S1R+mitigation.

3.40 Table 3.40 below shows the journey times across the Thatcham VISSIM network for the AM peak hour (a plan showing the individual journey time routes can be found in Appendix C):

<b>Table 3.40 – Thatcham VISSIM model journey times – PM peak</b>										
	Dir	2018 Base	2036 Core	2037 S1	% change from Core	2037 S1R	% change from Core	2037 S1R with mitigation	% change from Core	% change from S1R
Route 1	EB	626	869	811	-7%	748	-14%	882	1%	18%
	WB	637	701	990	41%	896	28%	892	27%	0%
Route 2	EB	301	318	352	11%	346	9%	338	6%	-2%
	WB	306	315	320	2%	312	-1%	312	-1%	0%
Route 3	NB	534	580	575	-1%	567	-2%	637	10%	12%
	SB	493	518	549	6%	529	2%	535	3%	1%
Route 4	EB	414	480	519	8%	462	-4%	477	-1%	3%
	WB	422	464	472	2%	453	-2%	467	1%	3%
Route 5	NB	334	340	467	37%	390	15%	514	51%	32%
	SB	321	365	635	74%	565	55%	465	27%	-18%
Route 6	NB	296	301	316	5%	307	2%	350	16%	14%
	SB	293	307	327	7%	324	6%	351	14%	8%

3.41 Details of the performance of the six journey time routes for the Pm peak period are as follows;

- Journeys along the A4 corridor (Route 1), show increases eastbound towards the Benham Hill roundabout, but are roughly stable for the rest of the route. Westbound journey times increase to the Floral Way junction in both 2037 S1R scenarios.
- Eastbound journeys from Lower Way to the A4 at Chapel Street (Route 2) increase very slightly in all scenarios. Westbound journeys remain roughly stable for the whole route in all scenarios.
- Journeys from Station Road to Cold Ash Hill (Route 3) northbound increase gradually throughout the whole route, although these increase more significantly in 2037 S1R+mitigation, due possibly more vehicles being able to enter the network and causing extra congestion in the more central parts. Southbound journey times increase slightly in all future scenarios.
- For journeys between Benham Hill and Harts Hill Road (Route 4), shows that both eastbound and westbound journeys increase throughout the whole route in all future scenarios, but not by a huge amount.
- Journeys between Station Road and A4 East show large delays northbound on the approach on Pipers Way to the A4, compared to the 2018 Base. These are worst with the 2037+mitigation scenario, although journey times are roughly stable after the A4 / Colthrop Lane junction. Southbound journeys increase with both 2037 S1R scenarios as a result of the new development junction at Colthrop Lane, however these are alleviated somewhat by the proposed mitigation.
- Journeys between Pipers Way and Cold Ash Hill (Route 6) show that northbound journey times remain roughly the same in all future scenarios, except for 2037 S1R+mitigation, where they increase on the approach to the A4 / Falmouth Way junction. Southbound journey times increase gradually in all future scenarios, but not by a huge amount.

#### *Non-highway mitigation measures*

3.42 The results from the WBSTM and Thatcham local VISSIM models suggest that there will be a significant increase in traffic on the local road network in both the 2036 Core and 2037 Local Plan growth scenarios. So far, attention has been given towards developing an effective highway mitigation package that will off-set the forecasted highway impact of the NET on the road network in the local vicinity of the site (particularly the A4 corridor and the NDR). However, there is also an equally important need to develop a package of non-highway based mitigation measures to help not only to limit the number of car journeys generated by the development, but to provide residents of the NET site with a range of choices to encourage sustainable travel and develop healthy lifestyles.

3.43 It is envisaged that any development for the NET site will aim to maximise connectivity both within and to the existing local footway and cycle infrastructure in the vicinity of the site. There is an expectation that a high-level of pedestrian and

cycle connectivity, with commodious, attractive and legible routes connecting the various parts of the development. This will include linkages to the proposed new schools and local centre from the residential areas.

- 3.44 Providing opportunities to travel sustainably from the site to the existing areas of the town are also important. The development will need to provide excellent pedestrian and cycle connectivity with existing networks outside of the site. It will be important that the A4 corridor and Floral Way do not act as a barrier for pedestrian and cycle movements to other parts of the Thatcham area, such as the town centre and railway station.
- 3.45 It is likely that the package of active travel measures for the NET site may include:
- Linkages to West Berkshire Council's Local Walking and Cycling Infrastructure Plan (LCWIP – adopted 2021). It should be noted that the A4 from the Gables Way roundabout through to Newbury town centre is identified as a 'Strategic Cycle Corridor in the LCWIP. This will need to be considered when designing access to the site and the highway mitigation measures at the key junctions discussed, which will be expected to be provided to standards outlined in DfT Local Transport Note TN1/20.
  - Provide a high level of connections with existing footway and cycle networks both within the site and connections to existing areas. This will especially connections across Floral Way and the A4 corridor to prevent these from acting as a barrier to movement. Again, the provision of the measures will need to be considered in preparing the designs for the highway mitigation measures discussed above, including ensuring that access is provided to the Jet Black1 bus stops on the A4 corridor.
  - Ensure that there is wider connectivity to existing parts of Thatcham (e.g. to the railway station, Colthrop Industrial Estate and the town centre). This may need to be achieved by addressing gaps in the existing infrastructure to help provide more seamless and comprehensive routes for non-motorised users.
  - Cycle parking will be expected to provide a high level of cycle parking, consistent with the Council's own Cycle and Motorcycle parking standards, for all residential units, schools and other uses.
- 3.46 As well as encouraging active travel, public transport will also have a key role in ensuring that car trips are kept as low as possible. At the present time, Thatcham is reasonably well-served by public transport, with the Jet Black1 (Reading to Newbury) passing along parts of the A4 corridor just to the south of the site. In addition, there are other local services serving other parts of the town. In terms of rail services, Thatcham railway station offers regular services to Reading and Newbury, with an hourly service through to London Paddington (bolstered with more frequent services in the peaks).
- 3.47 It would be expected that a strategic development the size of the NET site to provide, and sustain, bus services to serve the site. Therefore, concept options are currently being developed to design a bus service to serve the site. These proposals are expected to provide frequent connections to key locations in the town, such as the town centre and railway station, and may be tailored to serve existing residential areas on the northeast side of the town. The new service(s) will take into

the internal layout of the site so that all residential parcels of the site are within an accepted 400m walk of a bus stop. It is expected that further liaison with local bus operators, particularly Reading Buses, will take place as these options are developed.

- 3.48 Rail services from Thatcham railway station will need to form part of the sustainable travel options available to residents of the NET site. It is expected that connectivity between the site and the station will be enhanced with improved walking and cycling routes, as well as a regular bus service. Therefore the package of sustainable transport measures will need to include ensuring that Thatcham station has a suitable level of passenger facilities to encourage rail use. Such improvements may include increased secure cycle parking or a cycle parking hub (similar to that being provided at Newbury and Theale stations), additional waiting shelters and ticket vending machines). Consultation with the train operator (currently GWR) or Great British Railways will need to determine the appropriate level and scope of the mitigation required.
- 3.49 In order to encourage and promote active and sustainable travel choices to help engender long-term travel habits, a comprehensive travel planning package will need to be developed for the site. As the NET site is a consortium of four individual HELAA sites; it is proposed that there will be an overarching travel planning arrangement to cover the whole NET site. This will have the benefit of ensuring that there is consistency in developing and applying the various elements of the non-highway based package, and in terms of undertaking the necessary monitoring and reporting to assess the successful implementation of the package. At this stage, it is considered that this would be provided by West Berkshire Council, with contributions being provided from each of the parcels, possibly on a cost per unit basis.
- 3.50 Monitoring will be a key component of the travel planning element as this will help determine the efficacy of the proposed measures, as well as assessing progress towards achieving modal share targets, particularly in relation to that for reducing single occupancy vehicle journeys. As part of this process, it would also be expected that a mechanism will be developed that would enable the provision of remedial measures to be introduced should the monitoring indicate that the level of car trips is higher than the targets set for the site.
- 3.51 As well as catering for the various residential parcels of the site, it will be expected that any new schools on the site will have bespoke school travel plans developed, which will be signed up to the Modeshift STARS for schools portal. This would be in line with West Berkshire's Sustainable Modes of Travel to Schools strategy.
- 3.52 Should the NET site be taken forward for development, it is likely that the build out period will take place at a time when there will have been considerable advancements in vehicle, mobility and information technologies than is the case at the present time. Therefore the design of the site and the associated transport and travel measures will need to be alert to and receptive of the expected technological advancements in terms of transport and personal mobility that are currently taking place and will continue to develop apace over the lifetime of the new plan period.
- 3.53 The next phase of the LPR TA work will be to assess the potential level of impact that the non-highway based transport mitigation measures will have in limiting car use from the NET site. This will include further developing the potential measures

outlined above and to provide an evidence base to determine the potential impact that this may have on reducing car journeys. Once this has been established, new revised trip rates will be applied to the WBSTM and Thatcham local VISSIM models to take into account the reductions in car traffic that may be achieved by the non-highway transport package.

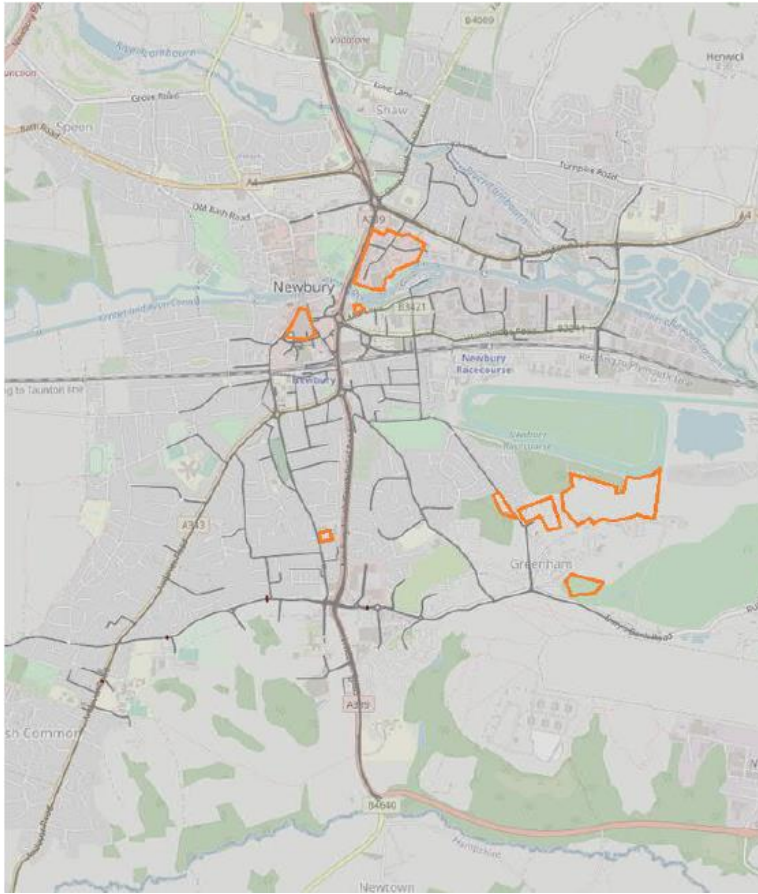
#### 4. Newbury

- 4.1 Assessment work has been undertaken to look at the impact of the proposed 2037 Local Plan growth scenarios on the local highway network in the centre of Newbury. This has been undertaken using the Newbury local VISSIM model. The revised 2037 scenario takes into account the Local Plan development scenario S1a, which was used for the outputs presented in the Phase 1 Transport Assessment report. This has moved on from the previous 2036 Core Forecast report to reflect the new timescales for the West Berkshire Local Plan. Note, the S1a scenario includes growth associated with the NET site, using the WBSTM trip rates.
- 4.2 It should be noted that as is the case for the 2036 Core Forecast report, that the current Local Plan Core Strategy strategic development site at Sandford has been included in the 2037 assessment. This includes the agreed package of highways mitigation measures incorporated in the forecast highway network. The list of highway improvements used for the 2036 Core Forecast assessment remained the same for the 2037 assessment.
- 4.3 Other than Sandford, there are no major strategic development sites proposed in the Newbury area proposed by the emerging Local Plan. However, there are a number of smaller sites in the Newbury area that have been identified through the HELAA process and included as part of the preferred Local Plan development scenario S1a. The extent of the Newbury local VISSIM model and the location of the possible development sites included in scenario S1a are shown in Figure 4.3 below;
- 4.4 Comparisons have been undertaken between the numbers of vehicles in the 2017 matrices and the 2036 Core Forecast with the 2037 S1a assessments to determine the differences in terms of vehicle numbers. These can be seen in Table 4.4 below;

**Table 4.4 – Newbury VISSIM matrix totals (AM & PM peak)**

Vehicle Type	2017 Base Year	2036 Core	2037 S1a	Diff to Base Year	Diff to 2036 Core
<i>AM Peak Hour (08:00 – 09:00)</i>					
Lights	15,234	18,867	19,275	4,041 / 27%	408 / 2%
Heavies	405	456	456	51 / 13%	0 / 0%
<i>PM Peak Hour (17:00 – 18:00)</i>					
Lights	15,849	19,235	19,640	3,941 / 24%	405 / 2%
Heavies	179	212	212	33 / 18%	0 / 0%





**Figure 4.3 – Extent of Newbury VISSIM model & S1a development sites**

4.5 Overall network performance statistics were extracted from the 2037 S1a local models, to compare average delay per vehicle in the network with the 2017 Base and 2036 Core Forecast models. In addition, average journey times were assessed from a number of routes across the modelled area. Speed heat maps for both the AM and PM peaks for the Newbury VISSIM model, can be found in Appendix E.

*Network Performance AM peak hour*

4.6 Table 4.6 below compares a summary of network statistics with modelled flows for the AM peak period. This shows that along with an increase in the number of vehicles from the 2017 Base through to the 2036 Core and 2037 S1a forecasts, that delays also increase. This includes an increase of 00:40 (13%) from the 2036 Core compared to 2037 S1a forecasts, however it should be noted that the 2036 Core forecast spreads the Local Plan growth across the District.

**Table 4.6 – Newbury VISSIM Network Statistics – AM Peak**

Network Statistic	2017 Base Year	2036 Core	2037 S1a	Diff (to 2036 Core)
Total vehicles	16,832	20,440	20,864	423 / 2%
Average time (mm:ss) / Vehicle	05:03	07:03	07:27	00:23 / 5%
Average speed (mph)	17	12	11	0 / -4%
Average delay (mm:ss) / Vehicle	02:08	04:28	05:12	<b>00:40 / 13%</b>

4.7 Analysis of journey times in the AM peak show that these increase significantly on most routes for 2037 S1a scenario compared to the 2017 Base, and are in most cases higher than the 2036 Core forecast (which assumes growth spread across the West Berkshire District). Notable differences between the 2036 Core and 2037 S1a forecasts include:

- Journey times increase on the A339 in the northbound direction by 04:27, with the delay mainly occurring on the approach to the A343 Burger King roundabout. In the southbound direction, journey times decrease by 00:55 due to less congestion at the Robin Hood gyratory.
- Journey times decrease on the A343 and Greenham Road in the eastbound direction, due to less congestion on the A343. In the westbound direction, journey times increase by 03:44 due to congestion at the Greenham Lane roundabout.
- Journey times along Hambridge Road westbound increase by 03:03, largely as a result of increased delays at the Hambridge Road roundabout and the Hambridge Road / Boundary Road junction.
- Journey times from Market Street to Faraday Road increase by 00:51 due to longer delays at the A339 / Fleming Road junction (01:11). From Faraday Road to Market Street, they increase by 00:36.
- Journey times from Park Road to Turnpike Road eastbound increase by 00:45. In the westbound direction they decrease by 01:35 due to less congestion on the A4 westbound.

*Network Performance PM peak hour*

4.8 Table 4.7 below compares a summary of network statistics with modelled flows for the AM peak period. This shows that along with an increase in the number of vehicles from the 2017 Base through to the 2036 Core and 2037 S1a forecasts, that delays also increase. This includes an increase of 00:23 (8%) from the 2036 Core compared to 2037 S1a forecasts, however it should be noted that the 2036 Core forecast spreads the Local Plan growth across the District.

**Table 4.7 – Newbury VISSIM Network Statistics – PM Peak**

Network Statistic	2017 Base Year	2036 Core	2037 S1a	Diff (to 2036 Core)
Total vehicles	17,130	20,436	20,669	233 / 1%
Average time (mm:ss) / Vehicle	05:18	06:22	06:45	00:23 / 6%
Average speed (mph)	17	13	12	-1 / -10%
Average delay (mm:ss) / Vehicle	02:33	04:20	04:33	<b>00:23 / 8%</b>

4.9 Comparisons of journey times indicate that these increase significantly between 2017 Base and 2037 S1a forecast, but are quite volatile between 2036 Core and

2037 S1a. Notable differences between the 2037 S1a and 2036 Core forecasts include;

- Journey times on the A339 southbound increase by 02:52 largely as a result of congestion at the Robin Hood gyratory.
- Journey times decrease by 01:41 on the B3421 eastbound due to a reduction in delays along the route.
- Journey times decrease between Market Street and Faraday Road by 02:33 due to reduced delays at the Market Street / Cheap Street junction. From Faraday Road to Market Street, they decrease by 00:47.
- Journey times between Park Road and Turnpike Road increase by 02:07 largely as a result of increased delay at the Robin Hood gyratory. In the opposite direction, they decrease by 01:14 due to a reduction in delay along the A4 London Road corridor, which outweighs an increased delay at Robin Hood (which may be a result of less vehicles travelling along the A4 due to delays at Robin Hood).
- Journey times from Kiln Road to B4494 increase by 02:14, and by 00:47 in the reverse direction. These are both due to increased congestion at the Robin Hood gyratory.
- Journey times from the Golf Club to Battle Road (westbound) increase by 04:14 due to delays at the A339 / Pinchington Lane crossroads. In the eastbound direction, they increase by 00:55.

4.10 Further runs of the Newbury local VISSIM model will be undertaken with the revised traffic demand based on that agreed highway and transport mitigation package agreed for the proposed strategic North East Thatcham development.

4.11 It should be noted that other than the committed scheme contained in the 2036 Core and 2037 S1a forecasts, that there is not much more that can be done to significantly increase highway capacity in the town centre. This would suggest that a focus will need to be made in developing measures towards managing demand for travel with the development of active travel, public transport and smarter choices options.

## **5. Impact on the Strategic Road Network**

5.1 The preparation of the Local Plan Transport Assessment is required to assess the potential impact of Local Plan development on the Strategic Road Network (SRN) in West Berkshire, in this instance the M4 and the A34. In addition, Highways England (HE), the body responsible for the management of the SRN, are statutory consultees for the Local Plan process. Following the Regulation 18 consultation, the Phase 1 report, the Council has commenced formal engagement with HE.

5.2 Transport modelling outputs from the WBSTM has identified that both for the 2036 Core and 2037 S1R forecasts, some points around junctions 12 (Theale) and 13 (Chieveley), where there may be some delays on affected links. It should be noted

that both the 2036 Core and 2037 Local Plan growth forecast models include HE's Smart Motorways improvement from Junction 12 eastwards.

- 5.3 Outputs from the WBSTM indicate that there is not much in the way of additional delay with the 2037 Local Plan growth scenario (S1R) with mitigation compared to the generic traffic growth within the 2036 Core forecast. However, compared with the 2017 Base Year there are, as may be expected, some increases in delay due to traffic growth. This can be seen in Appendix F, which shows the modelled delays for the AM peak hour at M4 Junctions 13 (Chieveley) and 12 (Theale) for 2017 Base, and 2036 Core and 2017 Local Plan (S1R + mitigation) forecasts.
- 5.4 The main issues identified by the modelling relating to the SRN are;
- There is a general significant increase in traffic demand in the AM peak on the M4 Westbound off-slip to Junction 12, which does increase delay and queuing on this approach. This may be able to be addressed by optimisation of the traffic signals on the roundabout. Most of this growth is apparent with the 2036 Core forecast, but increases slightly with the 2037 Local Plan growth.
  - In addition, there is an increase in demand on the M4 Eastbound through Junction 12, which causes increased delay and queuing back on the on-slip to the roundabout. This evident in the 2036 Core forecast, due to generic traffic growth and is no worse with the Local Plan growth scenario.
  - At M4 Junction 13, there are significant queuing and delays across the junction mainly due to an increase in demand on the M4 Eastbound, but this is no worse with the 2037 Local Plan growth scenario.
- 5.5 The model shows similar observations in the PM peak where increased traffic demand on the M4 mainline causes additional queuing and delays on the slip-roads and through the junction. Like the AM peak, this is due to overall traffic growth not necessarily related to the proposed Local Plan growth.
- 5.6 Further engagement with HE will continue during the remainder of the LPR TA process.

## **6. Implications of the COVID-19 Pandemic**

- 6.1 At the time of development of the Local Plan Transport Assessment, there has been widespread disruption to people's everyday lives as a result of the Covid-19 pandemic and the restrictions and social distancing guidelines that have been put in place to curb the spread of the virus. This has had a fundamental impact on people's working and shopping practices with a significant increase in the number of people being able to work or be educated from home and in home shopping.
- 6.2 There is a very strong likelihood that the new work and lifestyles that people have been required to adopt at times over the course of the pandemic may have a long-term effect on travel behaviour. For instance, some workplaces wherein the past largely adopted a 5-day in the office culture may adapt to more agile working and hybrid working practices whereby employees work part of the week at home and the rest in the office. West Berkshire Council is likely to be a case in point with most office-based staff likely to be coming in to the office for around two days per week.

- 6.3 In addition, the travel advice surrounding public transport use has seen patronage on bus and rail services plummet from the levels they were at before the start of the pandemic. It is likely to be some time before public confidence in these has been restored and usage returns to anywhere near pre-Covid levels.
- 6.4 As a result, it is considered imperative that some consideration is given to the impact of the travel patterns and behaviours arising from the Covid-19 pandemic as these may have implications for the modelling and assessment work for Local Plan Transport Assessment.
- 6.5 An initial assessment was undertaken using WBC's automatic traffic counters along the A4 corridor for 2019 (before the Covid-19 pandemic) and in 2020 between the first and second national lockdown periods. This highlighted that the period between the two lockdown periods, there was a 17% reduction in car demand. However, it should be noted that although the 2020 information was taken outside of lockdown periods, there will still a number of Government restrictions and travel advice still influencing people's behaviour.
- 6.6 At the time of writing, there have been further easements still in terms of Government advice and restrictions, although many business have yet to return to near-normal operating practices. Nationally, car use appears to have sprung back to almost pre-Covid levels in many locations, although not so much at peak times (more spread out with a wider morning peak). This may be due in part to a public reluctance in using public transport, with bus and rail operators continuing to report patronage well below pre-Covid levels.
- 6.7 In addition the increased popularity of home shopping appears to have resulted in fewer shopping trips being made. However, this has led to an increase in home deliveries, with more LGV's using the roads.
- 6.8 Against the backdrop of this situation, it is likely that further sensitivity testing will need to be undertaken in the next few months to understand what the longer-term implications of the Covid pandemic may have on people's choices. It is expected that a further analysis of traffic and travel movements will be undertaken in autumn 2021 to help gain an understanding of these.

## **7. Non-highway transport and travel mitigation measures**

- 7.1 The overall forecast for traffic growth within the 2036 Core forecast model indicates that further solutions are required to manage demand for travel other than solely looking at measures to increase highway capacity and improve network performance. Wider policy issues, such as climate change, the need for carbon reduction, encouraging healthy lifestyles and providing opportunities for all necessitates the need to develop a comprehensive package of non-car measures.
- 7.2 These measures have already been discussed as part of the non-highway measures for the NET site, however they will have a role to play for Local Plan and other development sites elsewhere in the West Berkshire district. In particular, the development of new sites in the Newbury area will need to maximise opportunities for sustainable and active travel, as the results from the Newbury local VISSIM modelling indicate that other than current committed schemes, there are very limited

opportunities for improving highway capacity in the town centre. This suggests the need to develop more sustainable and active travel choices to help manage demand.

- 7.3 The Local Plan is being developed at a time when there are fast changing technologies and changes in behaviour. The transport policies being developed for the new Local Plan and those for the forthcoming review of the Council's Local Transport Plan, will need to recognise and be flexible towards the emergence of new transport technologies, and in particular, the Future Mobility agenda.
- 7.4 The Transport Assessment and associated identified packages of mitigation measures will also need to consider the role of 'Future Mobility' and how this will likely influence personal travel behaviour and lifestyle choices. The continued advancement of technologies and the global, combined with the need to decarbonise transport are having a dramatic change on the automotive industry, which in turn is likely to influence travel patterns in West Berkshire over the lifetime of the new Local Plan. Huge developments are taking place in the development of electric vehicles, connected and autonomous vehicles, car-pooling and sharing, as well as micro-mobility such as e-scooters. Further technological advancements in smart card data and ticketing will also enable more seamless journeys.
- 7.5 The implications of these will be explored further in the next phases of the LPR TA.

## **8. Next Steps**

- 8.1 The transport modelling and TA work is an iterative process and further model runs using all three transport models will continue to be undertaken as the preferred development scenario evolves as the LPR process moves forward. This will include for both the WBSTM and Thatcham VISSIM models relating to further refinement on the concept designs for the highway mitigation measures outlined earlier in this report.
- 8.2 Further assessments using the Newbury VISSIM local model will be undertaken once the outputs from the WBSTM have been finalised in relation to the highway mitigation associated with the NET site and a reduction factor applied in relation to the development of the package of non-highway transport and travel mitigation measures.
- 8.3 It is anticipated that this further modelling work will continue to be undertaken as part of the LPR TA up to the Regulation 19 submission, with further Transport Assessment reports being produced for future phases.
- 8.4 Engagement with Highways England will continue, so that they can satisfy themselves that the proposals in West Berkshire will not have an adverse impact on the Strategic Road Network which they manage. Engagement with relevant neighbouring authorities will also be sought where it is appropriate.
- 8.5 It should be again stressed that the mitigation measures required to address the areas of concern highlighted by the transport modelling work will not be solely focussed on developing highway improvements. The mitigation package will also include the development of sustainable and smarter transport solutions that will provide people with greater opportunities to choose more sustainable travel and

active lifestyle options. The impact of this mitigation package will be modelled in future assessments of the transport models, especially that being developed for the NET site.

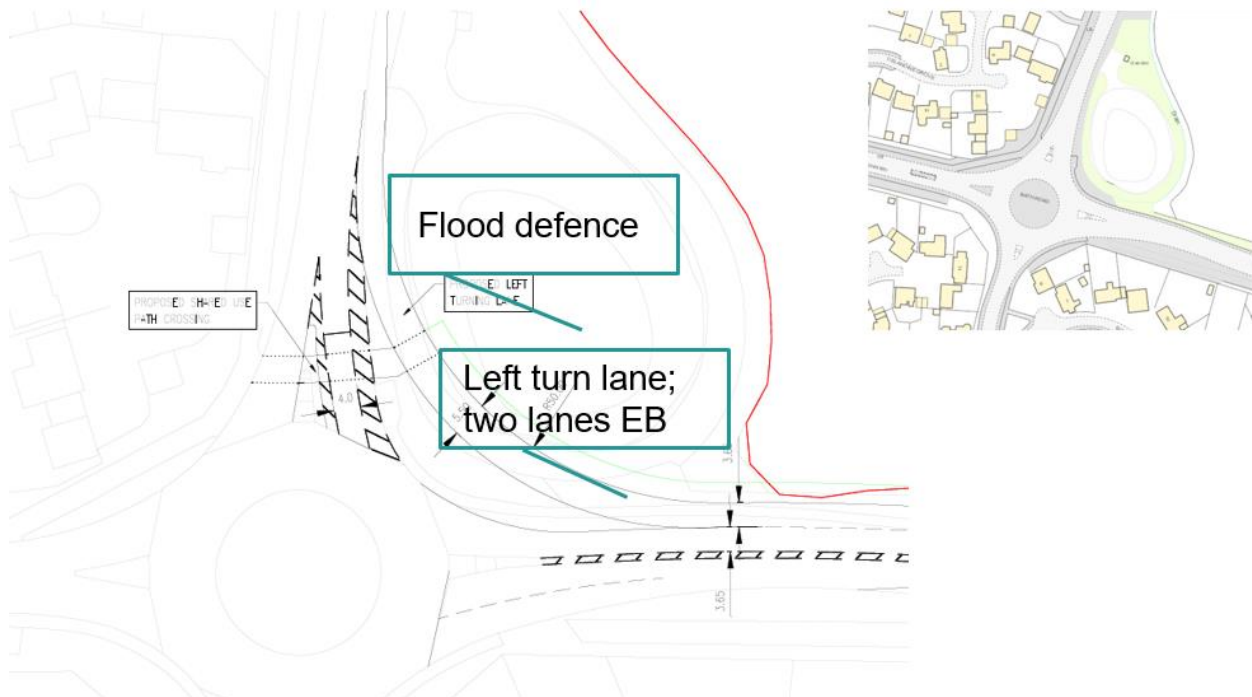
- 8.6 Solutions outlined in the package of non-highway mitigation measures for both the NET and as part of the wider Local Plan, will also need to take into account the development of new transport technologies, as well as the Future Mobility agenda.

## **Appendix A**

### **Concept Scheme Designs for Highway Mitigation Measures for the North East Thatcham Site (July 2021)**



**Appendix A1**  
**Concept design for A4 / Floral Way roundabout**  
**June 2021**



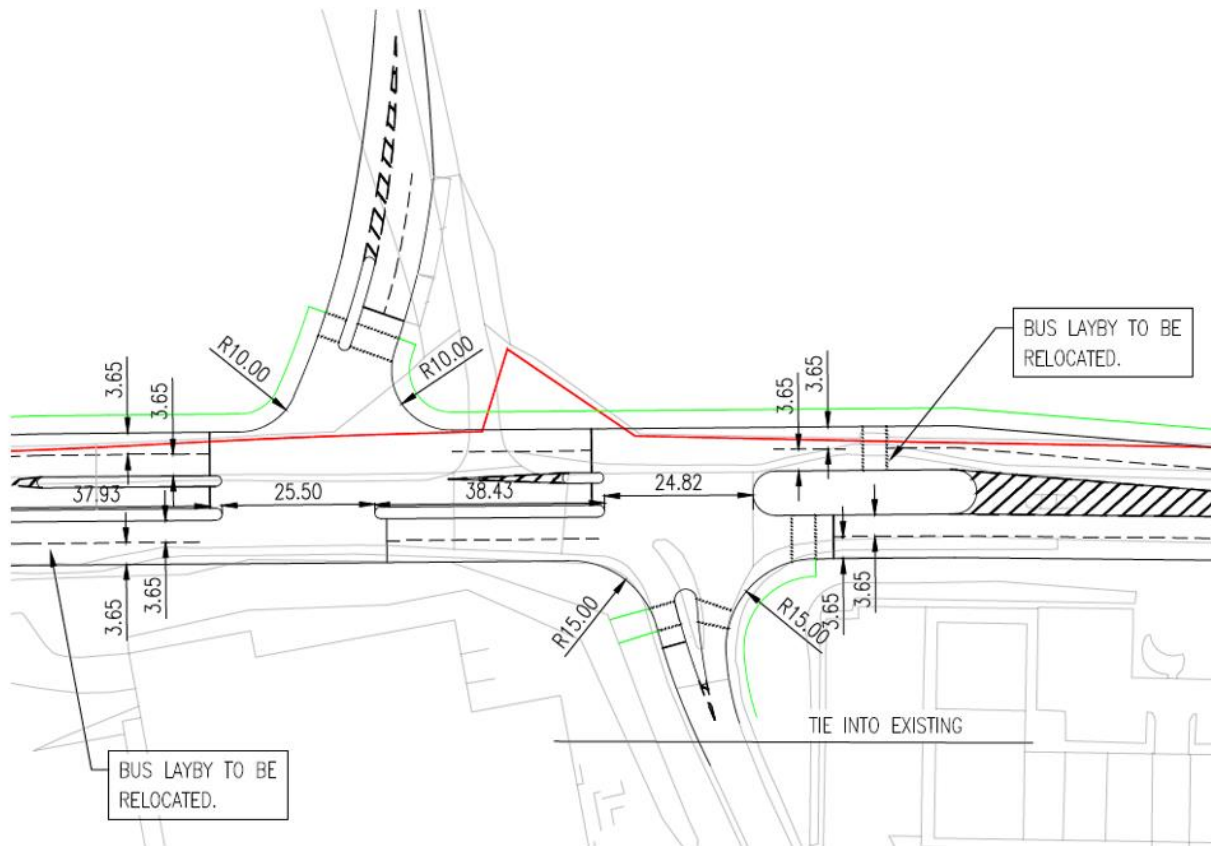
**Notes:**

- Capacity improvements, particularly on the Floral Way arm (to address forecasted queue lengths)
- Merges into 2 lanes on the A4 Eastbound
- Uncontrolled left slip may need to be revised to take into account pedestrian and cycle movements
- Design takes into account adjacent flood defence infrastructure

*Please note that this is a draft concept design provided for illustrative purposes only. It is not a final design, but is work in progress and will be subject to further revision as the highways mitigation package evolves.*



**Appendix A3**  
**Concept design – A4 / Colthrop Lane junction**  
**June 2021**



**Notes:**

- Option for new junction here with access point into North East Thatcham site
- Modelling forecasts indicate that a staggered junction will offer the best performance on the network
- Pedestrian and cycle facilities and bus stop infrastructure included

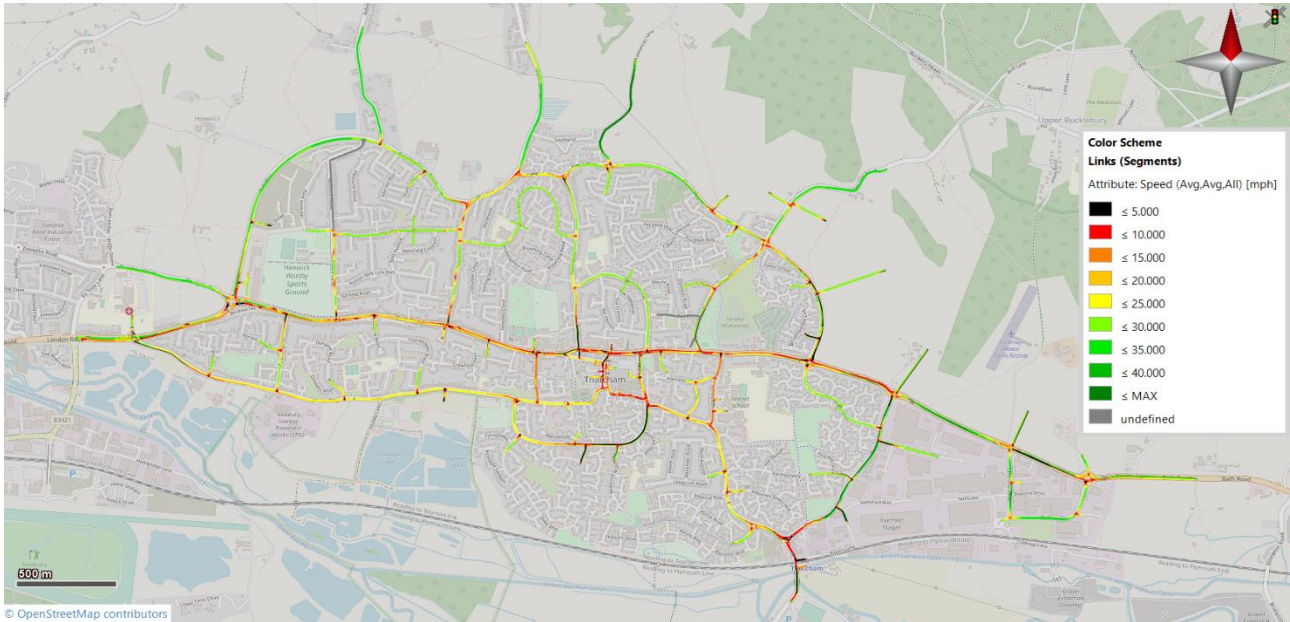
*Please note that this is a draft concept design provided for illustrative purposes only. It is not a final design, but is work in progress and will be subject to further revision as the highways mitigation package evolves.*

## **Appendix B**

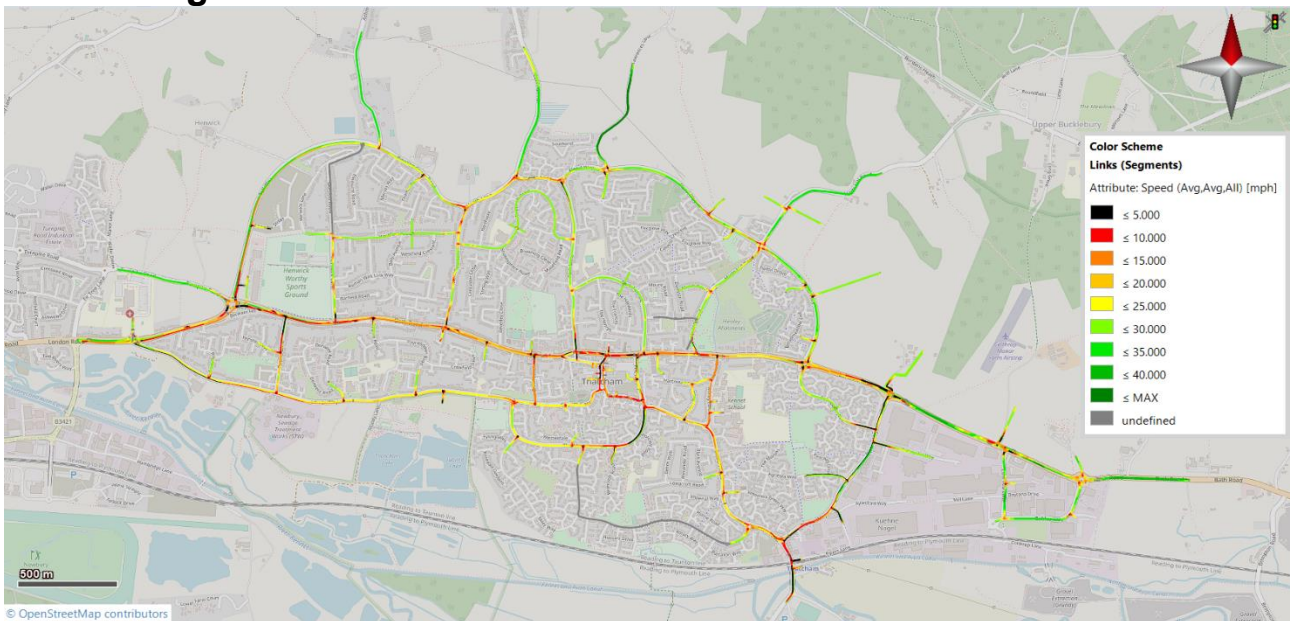
### **Heat Maps for Thatcham local VISSIM model (2037 S1R & S1R + Mitigation)**

# Thatcham VISSIM model Heat Map – AM Peak

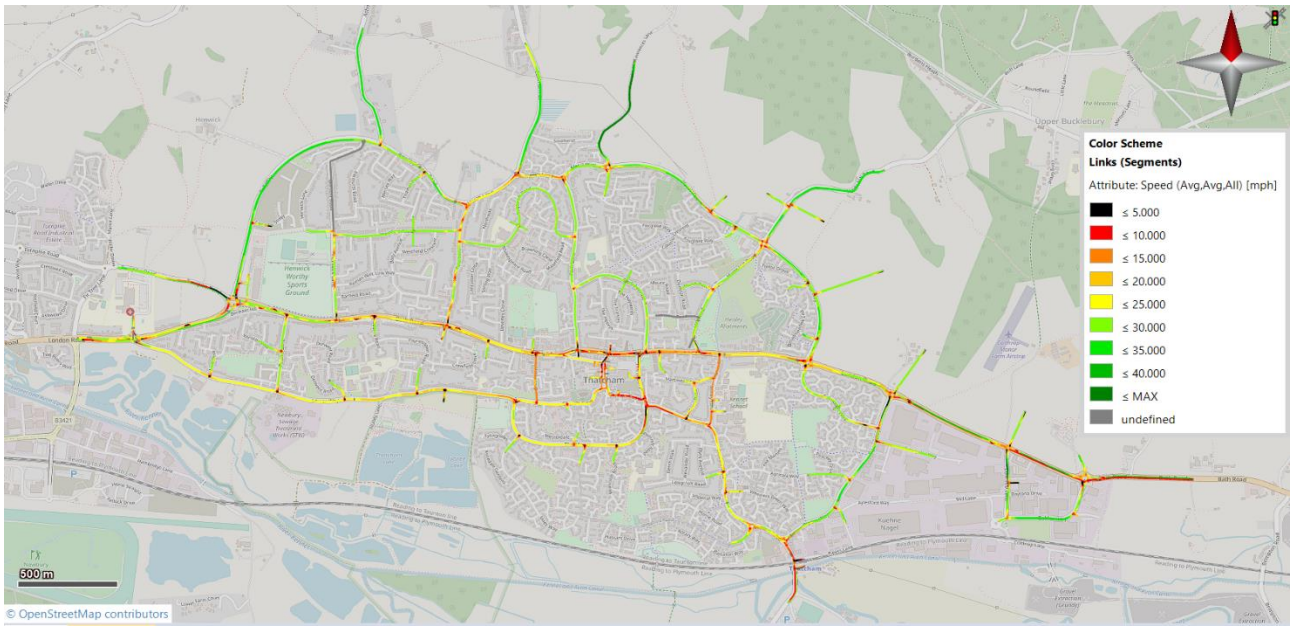
## S1R



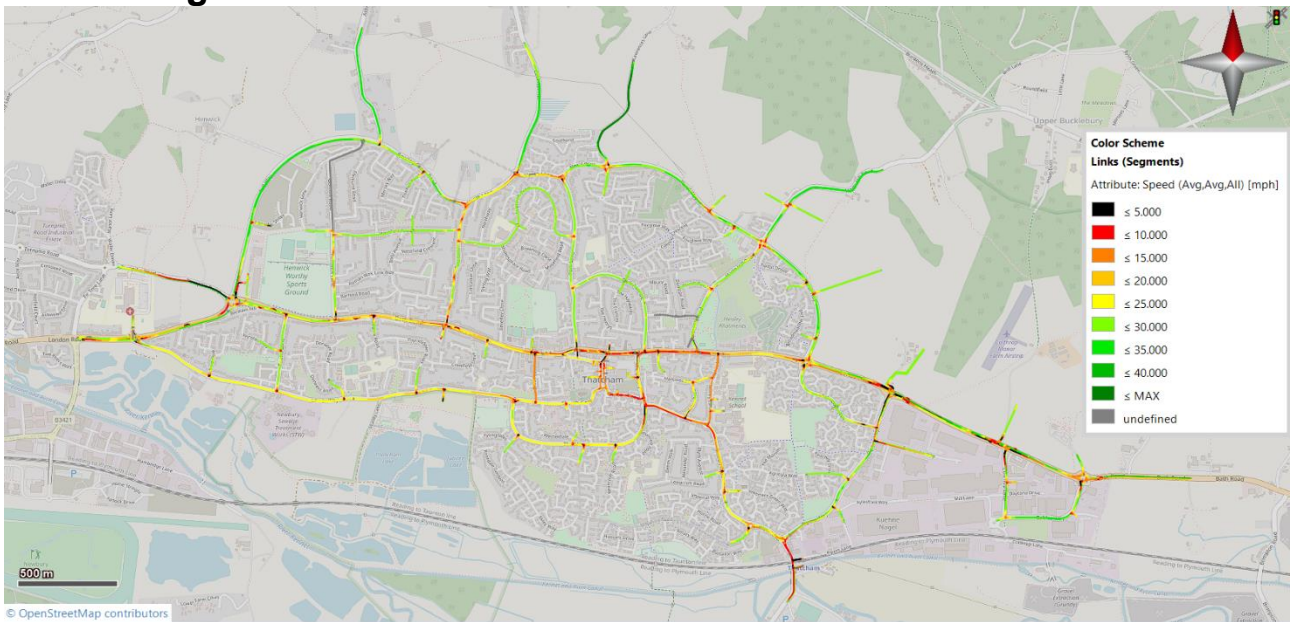
## S1R + mitigation



# Thatcham VISSIM model Heat Map - PM Peak S1R

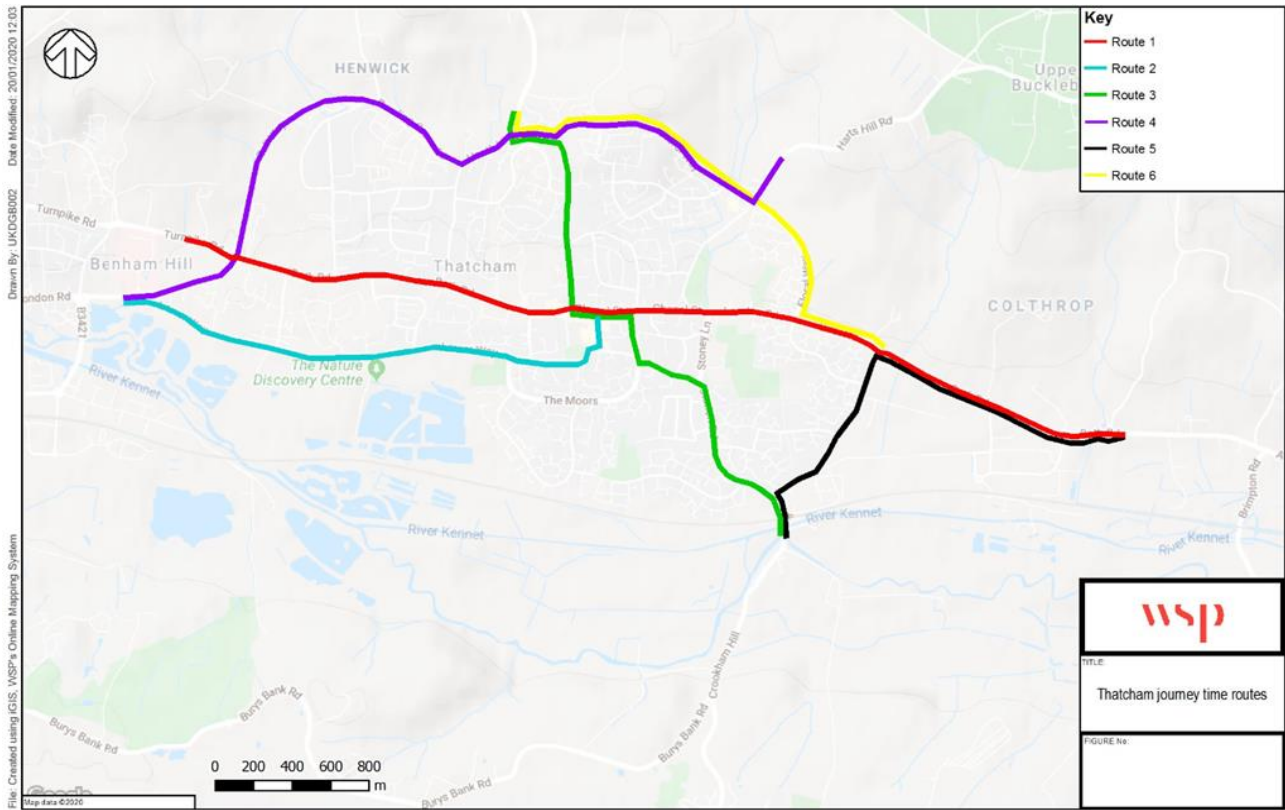


# S1R + mitigation



# Appendix C

## Thatcham VISSIM model Journey Time Survey Routes



**Appendix D**

**Aerial plans showing modelled 2037 S1R & S1R + Mitigation**



## AM Peak

### 2037 S1R



### 2037 S1R + mitigation



*(Note red lines are for modelling purpose only to indicate where lanes merge)*

## PM Peak

### 2037 S1R



### 2037 S1R + mitigation



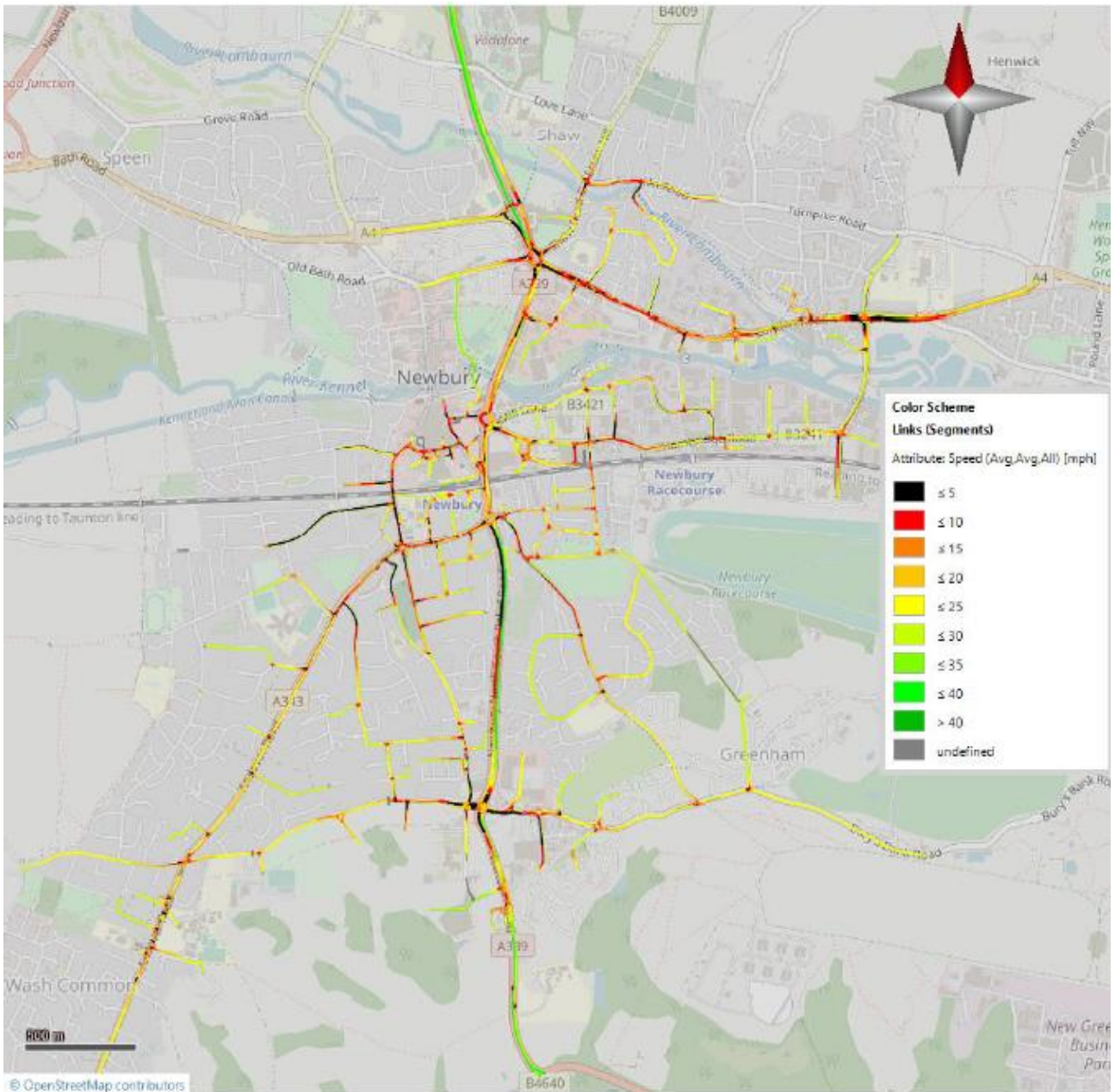
*(Note red lines are for modelling purpose only to indicate where lanes merge)*

## **Appendix E**

### **Speed Heat Maps Newbury VISSIM model**

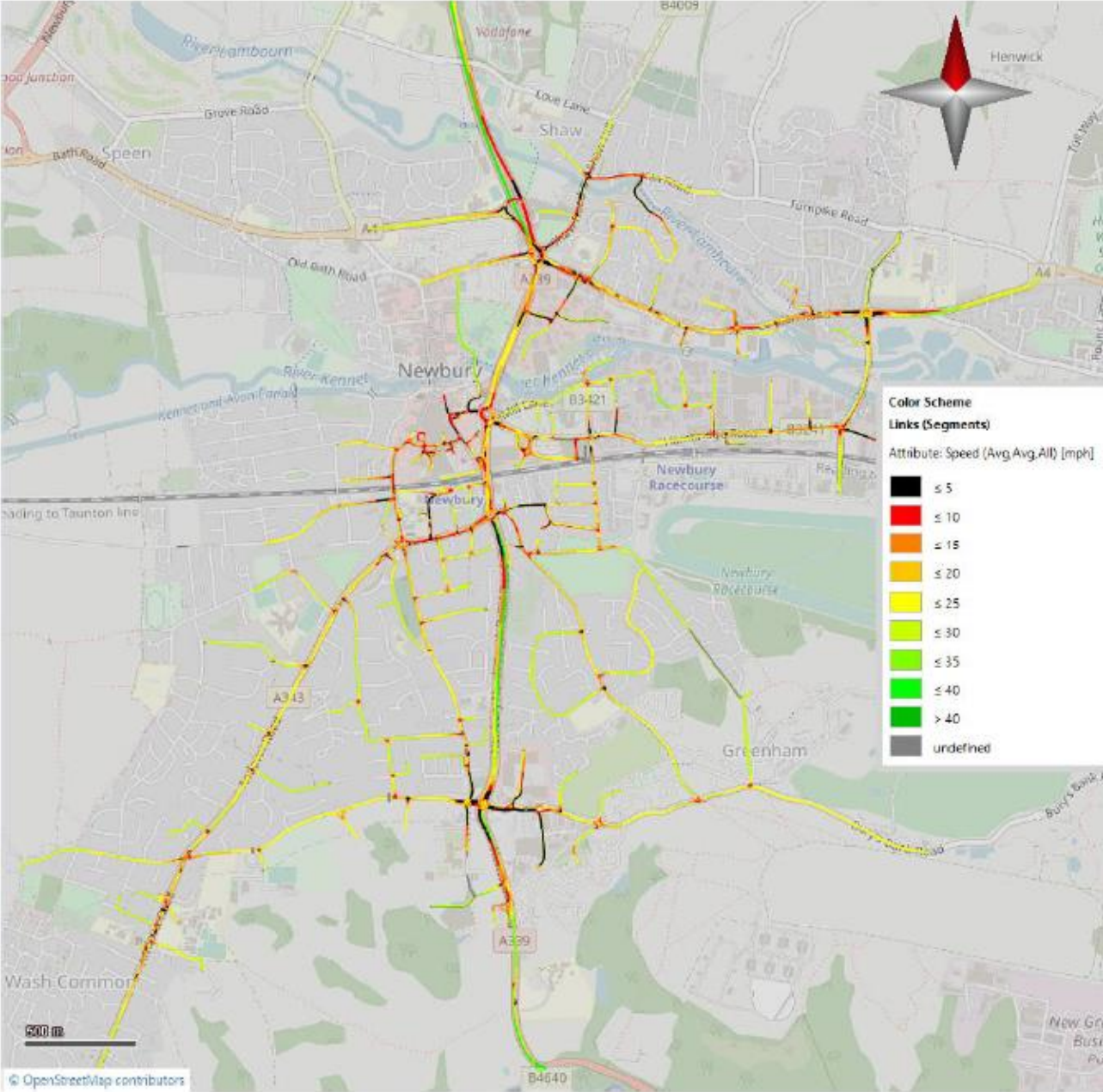
# 2037 S1a AM speed map

## AM Peak



# 2037 S1a Speed Map

## PM Peak



**Appendix E**

**WBSTM outputs for Motorway Junctions M4 J13 & J12 (AM Peak)**

# M4 Junction 13 (Chieveley)

## AM Peak

Relative queue length (%)



# M4 Junction 12 (Theale)

## AM Peak

Relative queue length (%)

