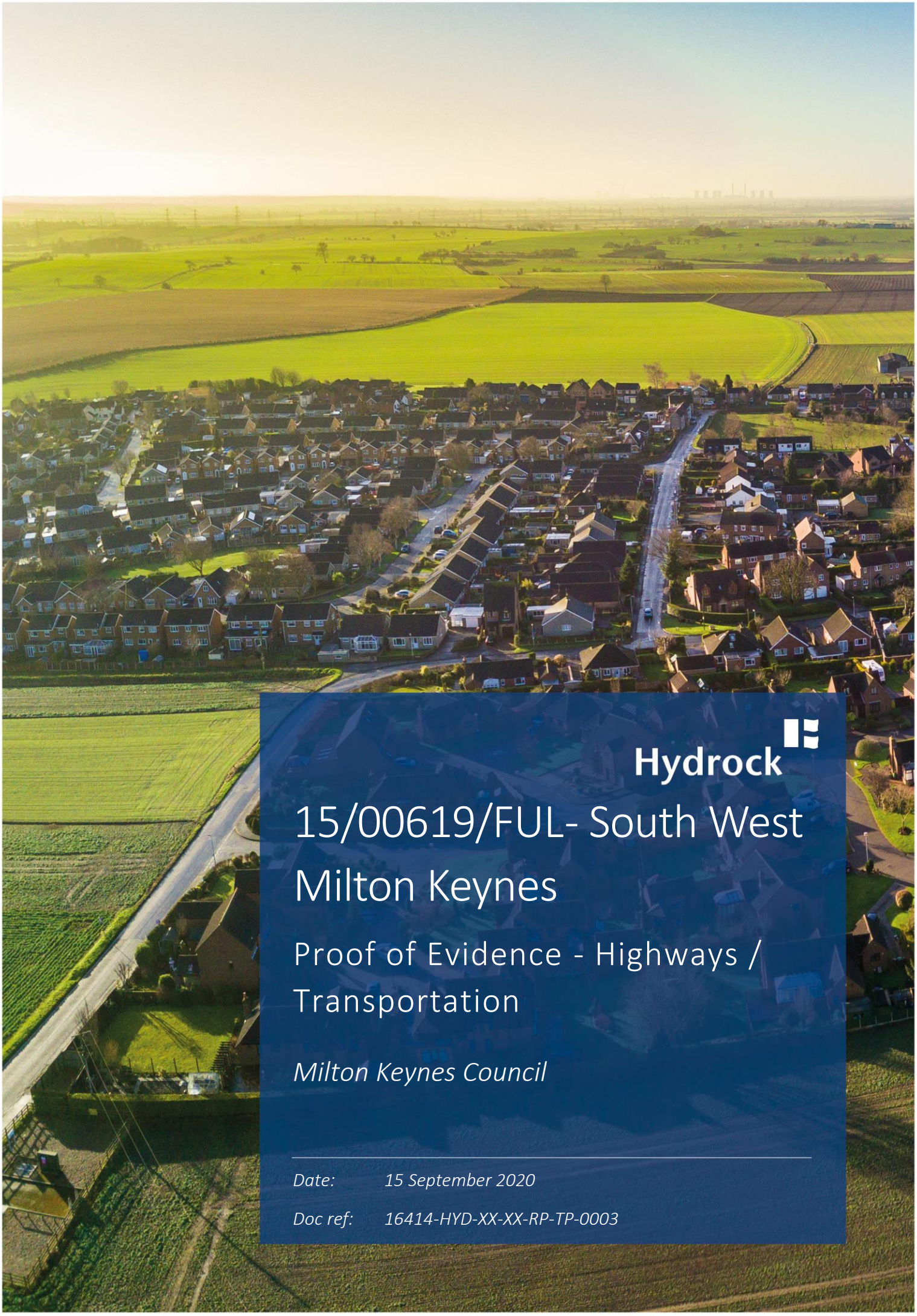

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15/00619/FUL- South West Milton Keynes

Proof of Evidence - Highways / Transportation

Milton Keynes Council

Date: *15 September 2020*

Doc ref: *16414-HYD-XX-XX-RP-TP-0003*

DOCUMENT CONTROL SHEET

Issued by	Hydrock Consultants Limited Over Court Barns Over Lane Almondsbury Bristol BS32 4DF	Tel: 01454 619533 Fax: 01454 614125 www.hydrock.com
Client	Milton Keynes Council	
Project name	15/00619/FUL - South West Milton Keynes	
Title	Proof of Evidence - Highways / Transportation	
Project no.	16414-TBCA	
Status	FINAL	
Date	15/09/2020	

Document Production Record		
Issue Number	P02	Name
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Document Revision Record			
Issue Number	Status	Date	Revision Details
P01	Preliminary DRAFT	04-09-20	For comment
P02	FINAL	15-09-20	For submission to the Planning Inspectorate

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CONTENTS

Tables

Appendices

1. INTRODUCTION

1.1 Qualifications and Experience

1.1.1 My name is James McKechnie. I am a Chartered Member of the Chartered Institute of Logistics and Transportation (CILT) and a Fellow of the Chartered Institution of Highways and Transportation (CIHT), which is the highest grade of membership of that institution. I have a BA (Hons) degree in Geography and a Post Graduate Diploma in Transport Planning and Highway Engineering.

1.1.2 I have twenty-three years' experience in planning related disciplines, of which the most recent nineteen years has been in the highways and transportation consultancy field. This has provided me with extensive experience of transportation / development planning and development management matters, having provided advice in both private and public sector roles during this time, and as a member of the Design Review Panel.

1.1.3 I am the national Transportation Divisional Director with Hydrock Consultants Ltd, prior to which I was an Associate and then Technical Director with the company. I have been employed by Hydrock since 2010, before which I was the Associate Director leading AECOM's Transportation Development Planning teams in the south west of England, also managing the Highways Agency's Area 1 Spatial Planning Framework (development management) contract during this time.

1.1.4 Before joining AECOM, I was Senior Transport Planner at Torbay Council, with responsibility for Highways development control matters, accessibility, sustainability, cycling, Local Plan and Local Transport Plan policy formulation. Prior to this I worked for the engineering consultant Parsons Brinckerhoff (now WSP) as transport advisor to Devon County Council, Torbay Council and the Highways Agency.

1.1.5 During the last nineteen years, I have advised private and public sector organisations in relation to the highway impacts of a significant number and range of development proposals throughout England and Wales. These include a large number of planning applications for new homes, mixed-use, educational, energy, commercial and logistics schemes. I acted as Project Director on the Hinckley National Rail freight Interchange scheme in Leicestershire, and I am the retained Highways consultant for the Local Planning Authority responsible for delivering the Hinkley Point C nuclear new build in Somerset - both of these are Nationally Significant Infrastructure Projects (NSIPs). I am a committee member of the CIHT, as well as sitting on Highways England's Sustainable Development Steering Group, which is the national liaison panel between Highways England and the development sector.

1.1.6 My experience includes successfully representing clients at Public Inquiries including Land North of Marnel Park, Basingstoke; Isle of Portland Aldridge Academy; Route 39 Academy; and CPO Inquiries relating to the Midlands Metro and the extension of Manchester Piccadilly railway station. Alongside the above, my experience includes a range of other Inquiries, Hearings and Written Representations appeals.

1.1.7 Additionally, I have represented clients at numerous Local Plan, and previously Structure Plan, Examinations; and on a variety of Strategic Housing Land Availability Assessment (SHLAA) panels.

1.1.8 I provide this evidence on behalf of Milton Keynes Council, with regard to transportation / highways matters. This evidence has been prepared, and is given in accordance with, the guidance of the Royal Town Planning Institute. I confirm that this evidence sets out my professional and honest assessment and I believe it to be true.

1.2 Preface

1.2.1 My Proof of Evidence has been prepared on behalf of Milton Keynes Council (MKC) in relation to a planning appeal against MKC's refusal to grant planning permission for application 15/00169/FUL - an outline planning application for physical improvements to the Bottledump roundabout and a new access onto the A421 (priority left in only) to accommodate the development of land in Aylesbury Vale District.

1.2.2 MKC is the Local Planning Authority (LPA) and Local Highway Authority (LHA). This being a cross-boundary matter, Buckinghamshire Council (BC) is the adjacent LPA and LHA.

1.3 The Council's Decision Notice and Scope of Evidence

1.3.1 MKC's Decision Notice dated 15th November 2019 sets out a single Reason for Refusal (RfR):

'That in the opinion of the Local Planning Authority there is insufficient evidence to mitigate the harm of this development in terms of increased traffic flow and impact on the highway and Grid Road network, with specific reference to Standing Way and Buckingham Road, thus this will be in contravention of Policies CT1 and CT2 (A1) of Plan:MK.'

1.3.2 It has been agreed by the Inspector that a new Transport Assessment (TA) (CD10/H/A) provided subsequent to determination should form the evidential basis for the Public Inquiry. It is important to note that this TA constitutes a completely new analysis based on new data and a wholly-different approach, that document is the main focus of my evidence.

1.3.3 The Main Issue identified in the Case Management telephone conference on 3rd September 2020 is 'the effect of the traffic that would be generated by the proposed development on the flow of traffic and congestion on the highway and Grid Road network, and in particular Standing Way and Buckingham Road'. My proof of evidence addresses that Main Issue.

1.3.4 For completeness, I deal (at section 3) with the insufficiency of the previous TA (CD2/E), upon which Members were reliant in reaching their decision to refuse planning consent.

1.3.5 It is also important to note that the proposals on appeal are for highway works that seek to facilitate access to the overall development which is not within Milton Keynes, being the subject of a separate planning application - Ref 15/00314/AOP - currently being assessed by BC. My evidence focusses only on matters within the administrative area of MKC.

1.3.6 I understand that the appellant now proposes amendments to 15/00314/AOP, MKC's formal consultation response to which is yet to be made, and BC's committee date remains to be confirmed. The amended application relies on the same TA evidence as used in this appeal. Highways England (HE) has consequently issued a 3-month Holding Recommendation[1] to enable its consideration of the new TA, and BC has issued a response[2] to the new TA which identifies 21-pages of technical matters requiring resolution. Whilst it is not the topic of this appeal, I deal with the general implications of these amendments to the development in section 6.

1.3.7 At the Case Management Conference, the main issue identified by the Inspector in his pre-conference note was agreed between the parties as relating to the effect of the traffic that would be generated by

[1] Dated 4th August 2020, running until 4th November 2020, following which renewal of the Holding Recommendation would be required.
[2] 29th July 2020.

the proposed development on the flow of traffic and congestion on the highway and grid road network - in particular Standing Way and Buckingham Road. As explained in MKC's Statement of Case, despite the production of a new TA, the Council considers that there remains a lack of relevant information to demonstrate that the proposal can be successfully mitigated. My evidence will address such matters.

1.4 Liaison with the Appellant

1.4.1 I was instructed by MKC in July 2020 and my instructions are to provide MKC with expert advice in relation to the TA submissions, informing the Council's approach to the appeal, and to consider whether the approach it took to the earlier evidence and proposals, which were before it when the application was determined, remain sound.

1.4.2 On that basis, MKC has sought to be proactive and engage with the appellant and will continue to do so, as to narrow issues where possible.

1.4.3 Mindful of best practice, in the interests of ensuring a timely Inquiry process, I have sought to work with the appellant where possible to narrow the issues between the two parties. In that vein, a draft Statement of Common Ground (SoCG) is being worked-on by the appellant team and MKC. I provided comments on that document to WSP on 18th August 2020 but did not receive a revised draft until 8th September 2020. That draft was subsequently discussed at a meeting on 14th September 2020 and an amended version has been presented to the Inspector in draft alongside proofs of evidence. It is hoped that further progress will be made in terms of closing-out issues between the parties in advance of the public inquiry.

1.4.4 To-date, discussions have been held with WSP, on behalf of the appellant, including virtual (Teams) meetings on 29th July 2020, 18th August 2020 and 14th September 2020.

1.4.5 It would be usual practice for the parties to an appeal to share relevant information - e.g. electronic copies of data, technical drawings, model files, etc - in order to avoid duplication, potential for confusion, and to minimise time / cost.

1.4.6 A summary of information which I have requested from the appellant follows. This is information which I consider to be essential to the preparation of the TA and which should have been available for sharing and review:

- Raw traffic data – requested 22/7/20 & provided 27/7/20
- Traffic distribution and assignment spreadsheets – requested 22/7, 12/8 & 14/8/20 and provided 28/8/20
- Traffic model files (with supporting queue data if available) – requested 22/7, 12/8 & 14/8/20 and provided 28/8/20
- Assessment of traffic diversion away from congested junctions / the impact of those diversions – requested 22/7, 12/8 & 14/8/20 – WSP declined to provide at meeting on 18/8/20
- Road Safety Audits – requested 21/8/20 and outstanding
- Confirmation of assessment of exit-blocking in Buckingham Road access model – requested 21/8/20 and outstanding

1.4.7 At the meeting on 18th August 2020, WSP confirmed that it had sought client instructions in relation to the release of the requested information, but that the appellant was unwilling to release this to MKC.

1.4.8 It was further agreed that WSP would provide a note to evidence the representativeness of the February 2020 traffic data used in the TA. To-date, this note remains outstanding.

1.4.9 I have explained to WSP that withholding such information is, in my experience, unusual and unhelpful to the timely and cost-effective production of evidence - e.g. I have had to prepare new assessments, whereas these already exist on the appellants' IT system - and delays our efforts to narrow down the points of difference between the parties. In my experience, I have always shared such information with relevant parties to planning appeals, in line with best practice and PINS guidance.

2. POLICY

2.1 Development Plan Policy

2.1.1 Plan:MK

2.1.2 The proposed development is contrary to policies CT1 and CT2 (A1) of Plan:MK, adopted in March 2019 (CD/5). The Council has confirmed that Plan:MK is up to date and the policies contained within it carry full weight.

2.1.3 Policy CT1 'Sustainable Transport Network' requires the promotion of sustainable patterns of development. In relation to the RfR, policy CT1 requires:

1. The promotion of a safe, efficient and convenient transport system.
2. Promotion of transport choice, including coherent and direct cycling and walking networks to provide a genuine alternative to the car.
3. Improved access to key locations and services by all modes of transport.
4. The management of congestion and provision for consistent journey times.
5. Promotion and improvement of safety, security and healthy lifestyles.
6. Stakeholder engagement in relation to sustainable transport and economic growth.
7. Engagement with the National Infrastructure Commission in relation to strategic connections, including rail improvements.
8. Promotion of shared transport schemes.

2.1.4 The appeal site is not supported by robust evidence in relation to items 1 - 5 above. In that regard the granting permission for the proposal would not accord with CT1. Indeed, as I develop and explain below, the new TA indicates that the proposed development would result in severe operational impacts (queuing and delay) and unacceptable safety implications.

2.1.5 Policy CT2 (A1) 'Movement and Access' states:

'A. Development proposals will be required to minimise the need to travel, promote opportunities for sustainable transport modes, improve accessibility to services and support the transition to a low carbon future. Development proposals will be permitted that:

1. Integrate into our existing sustainable transport networks and do not have an inappropriate impact on the operation, safety or accessibility to the local or strategic highway networks.'

2.1.6 The RfR specifically cites CT2 (A1) and the Council's case is that there is presently insufficient evidence to demonstrate that the proposals would minimise the need to travel, promote sustainable modes, improve accessibility or assist in reducing carbon.

2.1.7 In particular, my subsequent evidence explains how aspects of the TA regarding integration of the site with existing transport networks are not robust, and there would likely be inappropriate operational, safety and accessibility impacts as a consequence.

2.1.8 Many of the RfR matters related to policy CT1 are reinforced by the wider text of policy CT2, which goes on to require the mitigation of development impacts on the highway network; the avoidance of prejudice in terms of the ability of other developments to come forward; provision of safe, suitable and convenient access; suitable onsite layouts; the avoidance of inappropriate traffic generation or

compromised highway safety; maximum flexibility in the choice of travel modes; protection/enhancement of Public Rights of Way (PRoW); provision of strong public transport links; and, where possible, the promotion of shared and low-carbon transport modes.

2.1.9 The lack of suitably-robust evidence means that there is no certainty that mitigation is appropriate as-proposed; nor that the development would avoid prejudice to other schemes; that resultant highway conditions would be safe; that access would be suitable and convenient; that the traffic generation would be appropriate; or that the use of sustainable travel modes would be suitably-attractive as a consequence. As noted, the new TA itself indicates that the traffic conditions and safety implications arising from the development would actually be severe and unacceptable.

2.1.10 Policy SD15, 'Place Making Principles for Sustainable Urban Extensions in Adjacent Local Authorities', of Plan:MK acknowledges that proposals on the edge of Milton Keynes are likely to have an impact upon the infrastructure and services of Milton Keynes. Amongst other things, it sets out that the need for joint working between neighbouring authorities to achieve a coordinated and well-designed development, and secure developer contributions towards improvement and provision of infrastructure to support the development. As a development where the other larger element is being considered by BC, this policy is relevant to the appeal scheme and I note, for example, that MKC is not presently party to the S106 agreement despite the TA suggesting[3] that monies could be taken by MKC in lieu of certain highway works.

2.1.11 Policy CT3 'Walking and Cycling' states that the 'Council will support developments which enable people to access employment, essential services and community facilities by walking and cycling.' The appeal scheme is for highways access works and improvements to facilitate the wider development in the BC area. My evidence identifies issues in relation to walking, cycling and safety more generally, which have the potential to increase levels of car use related to the site.

2.1.12 Policy CT5 'Public Transport' states that development proposals must be designed to meet the needs of public transport operators and users. In terms of its relevance to this appeal, it largely extends the emphasis of Policy CT1 and CT2 of Plan:MK, in terms of ensuring road layouts must include direct, convenient and safe public transport routes. Given that the new TA itself indicates severe operational issues, the associated problems would also affect the movement of public transport vehicles through the surrounding highway network.

2.1.13 Policy CT8 'Grid Road Network' has less relevance to this appeal scheme as it predominantly deals with road pattern of new developments which are a 'unique' characteristic of Milton Keynes, whereas the proposed development in this appeal deals predominantly with changes to established routes.

2.2 National Planning Policy Framework (NPPF)

2.2.1 Paragraph 102 of the NPPF states that:

'Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

a) the potential impacts of development on transport networks can be addressed;

[3] E.g. at 8.1.4.

b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;

c) opportunities to promote walking, cycling and public transport use are identified and pursued;

d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and,

e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.

2.2.2 In this case, the appellant has changed the evidence base in advance of the appeal, via the submission of a new TA which it says supersedes the previous iterations. The new TA no longer refers to strategic modelling prepared by MKC. The Inspector will appreciate that the submission of a new TA is highly unusual in the context of an appeal - that would be more likely in relation to a new planning application submission, for example, whereas an appeal would usually be supported by a Proof of Evidence; and the new TA is certainly out of step with the requirement for such evidence to be provided at the 'earliest stages'. Even now, key elements of evidence are missing, which are needed to demonstrate relevant issues relating to highway safety and operation.

2.2.3 The NPPF goes on to state (paragraph 108):

'In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b) safe and suitable access to the site can be achieved for all users; and

c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

2.2.4 For the reasons already mentioned, the proposed development is not compliant with the requirements of NPPF paragraph 108.

2.2.5 The tests of acceptability in transport terms are set out at NPPF paragraph 109:

'Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.'

2.2.6 The new TA demonstrates that sustainable transport modes (buses in particular) would be impacted by the scheme, which would not provide safe and suitable access for all users. Even at face-value, the new TA indicates that the proposed mitigation would leave a severe residual cumulative impact on the road network, and an unacceptable (unmitigated) impact on highway safety.

2.2.7 NPPF paragraph 110 requires that, inter alia, development proposals prioritise pedestrian and cycle movements; facilitate access to high quality public transport; create safe, secure and attractive places; and allow for efficient access by service and emergency vehicles. As noted above, the new TA provides evidence to the contrary, meaning that the scheme is non-compliant with the NPPF.

2.2.8 Paragraph 111 of the NPPF requires that developments which will generate significant amounts of movement should provide a Travel Plan and Transport Statement / Transport Assessment as appropriate 'so that the likely impacts of the proposal can be assessed'.

2.2.9 In this case, the transport impacts of the development have not been fully considered from the earliest stages - as evidenced by the various iterations of TA documents, the latest of which follows a fundamentally different methodology from its precursors.

2.2.10 This has left gaps in the evidence base including in respect of safety, impacts and mitigation requirements. Even at face value, the TA indicates severe and unacceptable impacts, and the gaps in the evidence base suggest that the TA predictions are likely to be underestimations of the effects of the proposals. Fundamentally, a 'severe' or 'unacceptable' impact is likely to result, contrary to NPPF paragraph 109.

2.3 National Planning Practice Guidance (NPPG)

2.3.1 The NPPG provides guidance on Travel Plans, Transport Assessments and Statements.

2.3.2 The developer has provided a Transport Assessment (TA) and a Travel Plan (TP), both of which would be the appropriate forms of assessment for a development of this scale and nature. However, the NPPG goes on to describe the requirements for TAs and TPs, which include:

a. The identification of mitigation measures to avoid unacceptable or "severe" development impacts[4].
b. Their establishment at the earliest practicable possible stage of a development proposal[5].
c. Provision of data about current traffic flows on links and at junctions (including by different modes of transport and the volume and type of vehicles) within the study area and identification of critical links and junctions on the highways network[6].
d. Measures to improve the accessibility of the location (such as provision/enhancement of nearby footpath and cycle path linkages) where these are necessary to make the development acceptable in planning terms[7].
e. Measures to mitigate the residual impacts of development (such as improvements to the public transport network, introducing walking and cycling facilities, physical improvements to existing roads[8].
f. Assessments based on normal traffic flow and usage conditions (e.g. non-school holiday periods, typical weather conditions)[9].

2.3.3 The NPPG also provides advice on Transport Evidence Bases in Plan Making and Decision Taking, the latter being relevant to the determination of planning applications. That section of the Guidance states that 'recommended periods for data collection are spring and autumn, which include the neutral months of April, May, June, September and October'.

[4] Paragraph: 005 Reference ID: 42-005-20140306.
[5] Paragraph: 007 Reference ID: 42-007-20140306.
[6] Paragraph: 015 Reference ID: 42-015-20140306.
[7] Paragraph: 015 Reference ID: 42-015-20140306.
[8] Paragraph: 015 Reference ID: 42-015-20140306.
[9] Paragraph: 015 Reference ID: 42-015-20140306.

2.3.4 The NPPG definition of neutral months for traffic data collection is similar to that of the Department for Transport's (DfT) WebTAG guidance (Appendix A), which describes neutral months as April, May, June, September, October and November with exclusions around Easter, School Holidays and Bank Holidays[10].

2.3.5 Traffic data used in the 2020 TA was collected in February, which is not a neutral month, contrary to the requirements of the NPPG.

2.3.6 Following from my comments in relation to the requirements of the NPPF, it will be appreciated that the new TA fails to address the requirements of the NPPG as set out above.

[10] WebTAG Unit M1.2.

3. PREVIOUS TRANSPORT ASSESSMENT

3.1 Background

3.1.1 The appellant has presented two relevant Transport Assessments (TAs), one in support of the planning application and another as part of its appeal submissions[11]. The Council's case refers firstly to the earlier TA (2016) as that is the document upon which Members based their decision to refuse to grant planning consent.

3.1.2 In the interests of moving the appeal forward and focussing on the latest evidence, the Council has addressed the new (2020) document as the relevant evidence in relation to the appeal, as set out in its Statement of Case. The wording of the reason for refusal has now been considered in the context of the new TA and the Council considers that it remains an appropriate evidential basis upon which to defend the appeal. However, I consider it helpful to briefly consider the earlier TA and the veracity of Members' decision-making in the context of that document.

3.2 Modelling

3.2.1 The development was assessed with reference to strategic traffic modelling by the Local Highway Authority and, most recently (in the 2020 TA), without the use of those models.

3.2.2 The Milton Keynes Multi Modal Model (MKMMM) assesses the impact of Plan:MK development but does not include the proposed transport mitigation measures associated with the appeal site. Consequently, it presents an 'unmitigated' scenario, as is commonly the case for strategic models designed to assess the overall effect of development plan growth, and to inform (rather than include) the related mitigation. It is for the developers of individual sites to identify mitigation and to work with the authorities to agree its acceptability.

3.2.3 As part of their work prior to the new TA, a high-level comparison of the model referenced in the 2016 TA (MKTM), the subsequent MKMMM and the adjacent (and overlapping) Buckinghamshire County Council (BCC) Countywide Model was made by the appellant's consultants[12] who reached the conclusion that these models 'correlate reasonably well'. However, that conclusion was erroneously reached on the assumption that a junction which is 'approaching capacity' in one model is actually operating much the same as in another model which shows it to be 'over capacity' and vice versa.

3.2.4 These are strategic models which cover a wide area across identifying the overall likely consequences of planned development. It is commonly understood that the use of such models can be more problematic at a localised scale, meaning that they cannot necessarily be taken at face value in assessing individual development impacts. Furthermore, the exact means by which development traffic is 'loaded' onto or exits from the network is generally necessarily a crude representation and not reflective of actual access proposals.

3.2.5 There is no detailed technical evidence which would demonstrate that the appellant's assertions about the purported comparability of the models being accurate and there is a gap in the assessment process (especially given that the MKMMM does not include proposed mitigation, meaning that the effects of those measures are untested in the model).

[11] There was an earlier TA by Pell Frischmann, but that was not relied upon for determination purposes.
[12] WSP SWMK Technical Note 18: Review of Transport Modelling.

3.3 2016 Transport Assessment

3.3.1 The Appellant's Statement of Case asserts that there was no policy basis or empirical evidence to support the refusal in 2019. As is evidenced in the subsequent text, the Council's decision to refuse the application subject of this appeal was properly based on a lack of sufficient evidence provided by the appellant at that stage.

3.3.2 Mouchel's[13] TA (August 2016) takes a hybrid approach to the assessment of junction impacts arising from the development, using the Milton Keynes Traffic Model (MKTM) to determine locations for assessment, with local traffic models (using MKTM flows) utilised to assess junction performance.

3.3.3 The MKTM has a base year of 2009, now 11 years ago and prior to the 2011 Census (data from which would now commonly be used to inform traffic distribution assumptions for example). A future (forecast) year model was produced, representing traffic conditions in 2026 inclusive of planned development growth locally.

3.3.4 Neither the MKTM baseline nor forecast year models quite meet Department for Transport (DfT) WebTAG requirements for stability, although they are close to meeting those requirements. The TA reports that a few links in the vicinity of the appeal site were outside of DfT stability requirements.

3.3.5 Strategic models can usually only provide cues for detailed analysis of potential congestion hotspots. They are not generally of a fine enough grain to deal with the detailed impacts of individual developments, meaning that the TA should contain cross-checks against observed flows. This does not appear to have happened at planning application stage, nor in the subsequent model comparison Technical Note 18, other than for junctions in Buckinghamshire where the Council raised concerns regarding model traffic forecasting[14] and in Bletchley.

3.3.6 The trip generation of the development was derived by Halcrow and was inputted to the MKTM. The model assesses 1,855 new homes and, taking these as an example, the resultant vehicle trip rates are 0.67 (trips per dwelling) in the AM peak hour and 0.54 in the PM peak hour. The TA does not provide comparator evidence (from the industry-standard TRICS database for example) to allow verification of these trip rates.

3.3.7 The MKTM was used to distribute and assign trips to the network, albeit the reassignment of trips due to additional demand / queuing / delay was not represented in the TA analyses. The TA states that this represents a 'worst case'[15] but that is not necessarily so, as there may actually be diversion of existing trips to other locations which become impacted but have not been fully assessed.

3.3.8 Where local junction models have been produced, the TA states that these have been validated by reference to Google Traffic screenshots. That is not a commonly accepted methodology. The models should have been calibrated in line with the manufacturer's instructions, including the accurate reflection of geometric parameters and the interaction of opposing vehicles.

3.3.9 Paragraph 8.7 of the TA states that no capacity assessment of the proposed A421 left-in-only access was undertaken as it is suggested that there would be no constraint on the main road as a consequence of the access arrangement. For a development of this scale and location it would be common practice to provide supporting evidence including, for example, a geometric review of the proposed diverge

[13] Mouchel is now part of WSP.
[14] 2016 TA paragraph 7.28.
[15] 2016 TA paragraph 7.36.

arrangement (against standards), and a modelled and/or first-principles assessment of the geometric delay (deceleration, cornering speeds and potential queuing) associated with the diverge lane and the bend into the site.

3.3.10 The TA provides additional analyses of traffic flows in Bletchley, including a comparison of observed (surveyed) and modelled (MKTM) flows. Per-direction, there are flow differences of up to 27%, with the observed flows being higher than those in the model. This is stated to be within the daily variation in traffic, which is incorrect as the maximum observed daily variation on the link/flow in question is 14%.

3.3.11 In summary, the evidence before the Council at determination stage failed to adequately demonstrate the impact of the development and Members of MKC were correct to refuse to grant planning consent.

4. NEW TRANSPORT ASSESSMENT

4.1.1 The latest TA post-dates WSP's Technical Note 18 (CD3/B) which presented a high-level comparison of the available strategic traffic models and concludes that 'no further assessments are required to enable MKC to determine the current planning application'[16].

4.1.2 The new TA adopts a different methodology from the previous iterations, stepping away from direct use of the Council's strategic traffic models and using a TRICS-based trip generation / spreadsheet distribution instead. On that basis alone, the appellant evidently no longer supports the earlier TA or the models upon which it was based, adding further weight to Members' decision to refuse planning consent. However, there are alternative assessment methodologies which would commonly be applied to a development of this scale - e.g. the preparation by the developer of a VISSIM or other microsimulation model of the local area, enabling the analysis of matters including traffic re-routing due to congestion and the interaction of traffic queuing between junctions.

4.1.3 The TA identifies locations where the new modelling predicts significant queuing and delay. However, WSP argues that some drivers would re-route to avoid those locations. Whilst that may be the case to some degree, there is no further detailed assessment of what percentage of traffic might re-route, where that re-routing would occur, or what its impacts might be. During the initial meeting with WSP[17], acting for the appellant, it was agreed that WSP would draft a methodology for the assessment of such re-routing; regrettably, at the meeting on 18th August 2020, WSP confirmed that it had no such instructions from its clients and would not be presenting this information. Furthermore, it was suggested that MKC ought to undertake its own assessments using its strategic traffic models - something which is clearly not the responsibility of the LPA/LHA at appeal and, in any case, would be a methodology which the appellant has now stepped away from.

4.1.4 New traffic data has been collected by WSP during 2020. However, the February data is not a neutral month for data collection according to NPPG, and the TA provides no evidence to indicate whether February data is comparable to that from the usual neutral months. Regrettably, WSP's suggested note addressing this point remains awaited, meaning that concerns regarding data validity persist.

The methodology used to calibrate the junction models, involving calibration against queue data, is not entirely in accordance with the software manufacturer's guidance. In any case, my subsequent evidence demonstrates other issues with the models which show that they are inaccurate, under-predicting queuing and delay.

4.2 Accident Records

4.2.1 The National Planning Practice Guidance (NPPG)[18] states[19] that Transport Statements and Assessments should consider personal injury accident data for the most recent 3-year period, or 5-year period if the proposed site has been identified as within a high accident area.

4.2.2 Based on a COBALT assessment, section 7.6 of the TA reports a negative impact on highway safety, resulting in 132 additional collisions with 190 casualties across the assessment period. This includes an

[16] The application was refused planning consent by MKC on 15th November 2019.
[17] 29th July 2020.
[18] CD8.8.
[19] Paragraph: 015 Reference ID: 42-015-20140306.

additional 20 serious casualties and 3 fatal casualties. These are reported to occur primarily along the A421 Standing Way, B4034 Buckingham Road and V1 Snelshall Street.

4.2.3 Whilst the TA states that the above assessment does not account for mitigation associated with the development, the mitigation described in section 8.5 of the TA does not directly address the highway safety issues highlighted in section 7.6, with the traffic calming proposed in locations outside of the area of significant concern.

4.2.4 As noted, the NPPF states that 'an unacceptable impact on highway safety' is grounds for preventing/refusing an application. It is surprising that the new TA does not directly address the findings of the COBALT assessment by identifying mitigation which would address these issues.

4.2.5 Road Safety Audits (RSAs) provide independent reviews of the road safety implications of highway engineering schemes for all road users. They identify any aspects of those schemes which could give rise to road safety problems, and they suggest modifications that could improve road safety. Audits are undertaken by staff with experience of collision data analysis, road safety engineering and highway design[20]. RSAs are undertaken specifically in order to inform decision-making.

4.2.6 However, in this case, RSAs have not been undertaken for the latest iterations of the access proposals, nor for the proposed offsite mitigation. it would be commonplace for the earlier RSAs to be revisited, with confirmation sought from the Audit Team as to the acceptability or not of the current designs. It would also be usual for offsite mitigation works to be subject to RSA before planning approval, in order to test and evidence their acceptability in safety terms. In the absence of that information, there is no evidence that the proposed access arrangements and offsite mitigation would operate safely.

4.3 Pedestrian and Cycle Movements

4.3.1 The walking isochrone at Fig 3.4 is misplaced in relation to the site, as is the cycle isochrone at Fig 3.6. This creates a misperception that the walk and cycle catchments are more extensive than is actually the case. It would be normal for the isochrones to be centred on the middle of the site.

4.3.2 I do not raise this in relation to accessibility per se, but rather as a further example of how the TA fails to adequately assess accessibility, leading to questions regarding modal share and, hence, the level of vehicle trips that the scheme would generate. In short, the site is less accessible by walking and cycling than is suggested in the TA, the result of which would be additional car trips.

4.4 Access Proposals

4.4.1 Three vehicular accesses are proposed, a left-in (only) junction on A421 Standing Way, a four-arm roundabout on Buckingham Road and a priority-junction on Whaddon Road.

A421 Standing Way Access

4.4.2 No capacity assessment has been undertaken by WSP in relation to the proposed left-in access on the A421. Whilst the TA states[21] that 'there would not be a constraint imposed on A421 Standing Way as a result of this proposed access', the appellant has provided no geometric details to evidence this statement.

[20] DMRB GG119 p.5.
[21] 7.2.6.

4.4.3 I note that this junction was originally designed as a left-in-left-out arrangement, but that the exit was removed from the proposals due to Road Safety Auditors' concerns regarding increased vehicle weaving between lanes on this section of the A421. Whilst the exit is no longer proposed, the TA provides no assessment of the suitability of the residual weaving length between Tattenhoe roundabout and the proposed access.

4.4.4 The junction arrangement shown at Figure 4.2 / Appendix O of the TA appears to have been designed on Ordnance Survey (OS) base mapping, rather than on topographical survey, and provides no indication of carriageway widths - these would generally be provided at planning stage.

4.4.5 The junction is stated to have been designed in line with DMRB standards, namely '*CD 123 - Geometric design of at-grade priority and signal-controlled junctions'*. There are some concerns over whether this is the correct guidance for the standard of the A241 Standing Way as it passes the site. As per the use of CD109 - Appendix A, the standard of road has been identified as 'Dual 2 lane All-purpose roads (D 2AP) sub category 'b'' This is due to the character of the A241 as a strategic link into Milton Keynes.

4.4.6 Large development accesses (large than a single field / dwelling) are generally are not recommended on this standard of road, and where they do exist guidance recommends the use of *'CD122 - Geometric design of grade separated junctions'* for the identified standard of carriageway.

4.4.7 Consequently, I am of the view that this access arrangement lacks detail in its design; is out of step with the relevant design guidance; would increase the weaving of vehicles between Tattenhoe Roundabout and the access; and would likely lead to deceleration on the A421 mainline by vehicles entering the site, as a consequence of its geometry.

Buckingham Road Access

4.4.8 The TA[22] indicates that the Buckingham Road (B4034) access would comprise of a 44m ICD (Inscribed Circular Diameter) roundabout with single-lane approaches and exits. Whilst it is appreciated that the roundabout itself sits within the body of the site and is within the BC area, I have assessed it on the basis that it ties-in to Buckingham Road which is part of the MKC network, and is just 20m from the current alignment of Buckingham Road - it has a direct effect on the performance of the highway within the MKC area.

4.4.9 The proposed roundabout would be located 250m from Tattenhoe Roundabout and 270m from the junction of Buckingham Road / Weasel Lane, the latter being a Public Bridleway and part of the National Cycle Network.

4.4.10 A new Toucan crossing is proposed to the west of the roundabout, connecting with existing pedestrian/cycle facilities to the north. However, the arrangement appears somewhat unresolved in relation to its impact on the existing access to the lane south of Buckingham Road, part of which is proposed to be converted to foot/cycleway. In order to protect the operation of that existing access, it would seem more appropriate for the crossing to be moved slightly to the east.

4.4.11 The roundabout design has an impact on visibility from and onto vehicles emerging from New Leys, which is an existing property to the east of the proposed roundabout. No assessment appears to have been made in respect of this matter and the design indicates no protection of areas required for visibility in general.

[22] Figure 7.1.

4.4.12 Whilst a Stage 1 Road Safety Audit (RSA1) has been undertaken, that appears to refer to an earlier and significantly-different iteration of the design. I have not seen an updated RSA1 in respect of the current roundabout proposal.

4.4.13 As with the A421 access, the design appears to have been prepared on OS base mapping and without any indication of intended carriageway widths, which would usually be required at planning stage.

Whaddon Road Access

4.4.14 The Whaddon Road access would be a three-arm priority ('give way') junction incorporating a ghost-island right-turn lane for vehicles turning right into the site from Whaddon Road. The site exit arm would have a two-lane approach to the give-way line.

4.4.15 The access lies within the BC administrative area, consequently I do not consider it further within this proof of evidence. Whilst I am mindful that the lack of capacity at the proposed Buckingham Road access would inevitably lead to increased traffic demand at the Whaddon Road access, matters relating to this access point will be addressed by BC and other parties to the inquiry, noting the extensive technical response by BC in relation to the revised planning application which is presently under consideration.

4.5 Vehicle Trip Generation

4.5.1 The TA assesses trip generation based on TRICS multi-modal trip rates for the proposed land uses. These are then disaggregated based on journey purpose (including internalisation) and mode of transport, based on Census data.

4.5.2 These analyses result in a total (all land uses) external AM weekday peak hour vehicle trip generation of 1,222 trips and an equivalent PM peak generation of 1,331 trips. With the reassignment of rail-based trips, requested previously by MKC Highways, this equates to 1,272 trips (AM) and 1,399 (PM).

4.5.3 This vehicular trip generation is part of the 1,888 (AM) and 1,765 (PM) total person trips predicted by WSP.

4.5.4 A sensitivity test with a 12%-point reduction in car driver trips as a result of the Travel Plan (TP) has also been presented. Whilst I have no issue with the principle of such a reduction, I have given this limited consideration on the basis that many of the TRICS survey sites utilised in the TA already implement a TP, meaning that there would be some degree of double-counting of the resultant benefits. I set out my comments on the TP at section 5 of this proof of evidence - there are other issues which further compromise the extent to which the TP can be considered effective.

4.6 Vehicle Trip Distribution

4.6.1 Unlike previous TAs for the development, which utilised strategic traffic modelling across the wider local area, the current TA uses a manual distribution and assignment process. The TA[23] correctly identifies that this approach has the potential to lead to localised over-prediction of traffic demand at congested locations, as it does not account for re-routing of traffic across the wider network.

4.6.2 The TA[24] argues firstly that this represents a robust methodology, going on to reference the strategic modelling which informed the Local Plan. However, no direct correlation is presented which would

[23] 6.2.3.
[24] 6.2.3 & 6.2.4.

enable an assessment of whether trips would indeed divert away from congested junctions and, if they did so, where they would go / what their impact would be. Indeed, at 6.2.5, the TA states that the modelled impacts 'it identifies are unlikely to occur'. That statement in itself indicates that WSP believes that the TA overstates impacts in certain locations, but does not assess the effect of traffic diverting elsewhere.

4.6.3 The empirical assessment of development impacts is a key element of any acceptable TA and the lack of such assessment renders the new TA insufficient in its evidence base. It would have been possible and indeed commonplace for a development of this scale for the TA to have included full assessment of the potential re-routing of traffic across the network as a consequence of queuing and delay at junctions - one widely-used methodology would be the production of a VISSIM or other microsimulation traffic model for the relevant study area.

4.6.4 The distribution and assignment of trips has been undertaken on the basis of 2011 Census data. Scenarios tested within the TA address relevant future years and include assessments of committed development growth locally, and a sensitivity test in relation to the Shenley Park development.

4.6.5 There are locations within the traffic distribution diagrams provided by WSP where trips exit the network in significant proportions. For example, in relation to residential trips, this is notable at:

- V1 Snelshall Street (north)– 16% of trips removed
- V6 Grafton Street (north) – 18% of trips removed
- A421 Standing Way (east) – 18% of trips removed
- V6 Grafton Street (south, towards the SRN) – 6% of trips removed

4.6.6 For the 1081 PM peak residential trips in TA Table 5.10 – Residential Land Use Trip Generation (External Trips), 18% equates to 195 trips.

4.6.7 It may be that some of the above are reasonable assumptions, but the TA is lacking in any information which would empirically quantify them and, on that basis, the overall distribution is in question. This, in turn, leaves the assessment of link (road) and junction impacts in doubt. It would be normal for a TA to provide an evidenced commentary on these matters.

4.7 Impact Assessment and Mitigation

4.7.1 The TA assesses the impact of development traffic at 18 off-site junctions across the MKC and BC administrative areas. Given the scope of my evidence, I have focussed on the following, which are within Milton Keynes (junction numbers match those used in the TA):

- Junction 1 Sherwood Drive/Water Eaton Road/B4034 Buckingham Road
- Junction 2 Shenley Road/Newton Road/B4034 Buckingham Road
- Junction 5 Tattenhoe Roundabout
- Junction 6 Bottle Dump Roundabout
- Junction 12 Kingsmead Roundabout
- Junction 13 Westcroft Roundabout
- Junction 14 Furzton Roundabout
- Junction 15 Bleak Hall Roundabout
- Junction 16 Elfield Park Roundabout

- Junction 17 Emerson Roundabout
- Junction 18 Windmill Hill Roundabout

4.7.2 The new TA proposes a significantly greater list of mitigation schemes than the earlier TA suggested was required. By contrast, the previously sought physical improvements to the Bottledump roundabout (which form part of the described permissions sought on appeal) are no longer sought by the appellant, although they are offered as optional 'if required'.

4.7.3 A comparison between the mitigation proposed in the previous TA, and that set out in the new TA, is shown in Table 4.1:

Table 4.1: Comparison of mitigation proposed in previous and new TA

Junction	Old TA	New TA
1. Broughton Rd / Sherwood Drive R'bt	None	Convert roundabout to signalised crossroads
2. Buckingham Road / Shenley Road	None	None
5. A421 Tattenhoe R'bt	None	Signalised roundabout (part-time, peak hours)
6. A421 Bottledump R'bt	Localised geometric improvements & Pegasus crossing	Localised geometric improvements & Pegasus crossing (if deemed necessary)
15. A421 Bleak Hall R'bt	Localised geometric improvements	Local roundabout geometry improvements
16. A421 Elfield Park R'bt	Local geometric improvements	Local roundabout geometry improvements
17. A421 Emerson Rd R'bt	Local geometric improvements	Local roundabout geometry improvements
18. Windmill Hill R'bt	None	Local roundabout geometry improvements

4.7.4 In discussions on 18th August 2020, WSP confirmed that the geometric measurements set out in the TA are based on a combination of OS and on-site measurements. It is widely understood that OS maps, by their nature, can show widths that are several metres different from actual carriageway dimensions.

4.7.5 For example, WSP measures the entry widths (the effective width at the give-way line, measured from a point perpendicular to the nearside kerb) at Junction 2 - Shenley Road/Newton Road/B4034 as follows (Hydrock site measurements are in brackets for comparison):

- Western roundabout:
  - Buckingham Road East – 7.6m (7.0m)
  - Newton Rd – 6.2m (5.3m)
  - Buckingham Road West – 4.8m (5.3m)
- Eastern rbt:
  - Shenley Rd – 4.6m (5.7m)
  - Buckingham Road East – 6.5m (6.3m)
  - Buckingham Road West – 5.3m (5.4m)

4.7.6 These differences suggest that the assessment of this junction in particular was based on OS data, rather than on-site measurements. Given the nature of much of the affected highway network - e.g. busy dual carriageways - it was not safe or reasonable for me to undertake on-site measurements at many of the other junctions, but it would have been possible for WSP to do so with a two-person team, out of peak hours and with suitable safety measures in-place.

4.7.7 In terms of the impact of development traffic on the operation of local junctions, I note paragraph 6.8.2 of the TA which states:

'The capacity of a junction is realised when the demand flow at the entry is great enough to cause a continuous queue of vehicles to wait on the approach. This is reached when the RFC attains a value of 1 or more. A junction with an RFC of 1 or above is still able to operate but would be more sensitive to changes in queueing and delay.'

4.7.8 As noted in TA paragraph 6.8.3, this should be treated with caution given that an RFC of 0.85 is commonly taken as an indication of whether a priority junction is operating near to capacity. Likewise, a Degree of Saturation (DoS) of 90% is used in the same way for signalised junctions[25]. Whilst a junction with an RFC of 1.0 (i.e. at or over capacity) or greater will still function, careful consideration needs to be given to its operation.

4.7.9 Section 6.10 of the TA explains that WSP compared surveyed and modelled queue lengths, with calibrations adjustments made to the models where there were significant variations. TA Table 6.5 shows the significant variations between modelled and observed queues, with variances such as 44 vehicles on Sherwood Drive, 71 vehicles on Buckingham Road, 35 vehicles on Snelshall Street and 67 vehicles on the A421. Ten of the modelled junctions were amended by WSP for calibration purposes.

4.7.10 Calibration changes were made with reference to Google Traffic, which is a non-standard methodology, particularly given the availability of queuing data. Changes to the models included intercept adjustments (manual adjustments to capacity) and geometric changes (alterations to road widths).

4.7.11 Reference to guidance from the software manufacturer (Appendix B) raises questions regarding the reliability of the traffic / queue data and with regard to the geometric measurements used in the model, as noted previously. The manufacturer suggests that calibration as undertaken by WSP should be the last resort, after traffic demand and geometric checks have been undertaken.

4.7.12 The calibration exercise results in queues which broadly match observations, with the exception of the V2 Tattenhoe Street arm at the Windmill Hill roundabout, where the modelled queue length of 16 vehicles is half of the observed (32 vehicles) AM peak queue. I agree with WSP that the modelled results require careful professional judgment[26], but am surprised that no further work has been undertaken in the TA to qualify that statement given the scale and nature of the development proposal.

4.7.13 Notwithstanding my concerns about the overall modelling methodology, taking the TA modelling results at face value, I would make the following observations:

a. Modelling of Tattenhoe roundabout demonstrates[27] the requirement for mitigation due to excess queuing and delay. Proposed mitigation comprises part signalisation of the junction; however, the mitigated scenario (Do Something 1) indicates substantial new queuing on the A421 Standing Way western arm, Snelshall Street (PM) and Buckingham Road. On the Buckingham Road arm, these queues would extend to approximately 100m in the AM peak and 420m in the PM peak, blocking the exit from the proposed site access roundabout with traffic extending back along Buckingham Road through the site access junction.

   Whilst I do not dispute the principle of the statement that 'In reality, motorists would not accept this level of queueing and delay and would instead re-route or re-time their journey to avoid this level of congestion'[28], there is no evidence provided as to the location, scale and

[25] 6.8.6.
[26] 6.10.7.
[27] Table 8.7.
[28] 8.3.33.

impact of such re-routing. On that basis, there is no certainty that either the signalisation of the roundabout or a contribution in lieu of those works would address the impact of the proposed development.

I have carefully examined WSP's junction model of Tattenhoe Roundabout and note that links within the roundabout gyratory are too short to accommodate predicted queues (i.e. the gyratory would block) and, fundamentally, there are areas within the model where the modelled turning movements could never be implemented in reality as they would lead to collisions (e.g. lanes 1 & 2 both shown as accommodating ahead- and right-turning traffic).

For the above reasons, the Tattenhoe Roundabout model is unsound and would be expected to significantly under-estimate queuing and delay.

b. Accordingly, the modelling of the Buckingham Road site access[29] is unreliable because it takes no account of the junction being blocked due to traffic queuing from Tattenhoe roundabout. This junction would inevitably operate over-capacity as a consequence.

c. WSP's assessment of Sherwood Drive/Water Eaton Road/B3024 Buckingham Road is also flawed. The TA makes the erroneous comparison[30] of an unmitigated 'with development' scenario with the mitigated signalisation scenario, whereas the proper comparison is the unmitigated 'without development' situation and the mitigated 'with development' scenario. With that proper comparison[31], the mitigated scenario remains significantly worse than the baseline 2033 assessment, meaning that the development impact is not addressed by the proposed mitigation.

d. At Elfield Park[32], Emerson[33] and Windmill Hill[34] roundabouts the proposed improvements leave some arms experiencing significant additional queuing in the mitigated scenario. Again, there is insufficient evidence to quantify the exact extent of queuing, delay and diversion onto alternative routes.

4.7.14 Table 4.2 provides an overview of the modelling results.

[29] Table 7.1.
[30] 8.3.25.
[31] 2033 Do Nothing (Pre-Mitigation) vs 2033 Do Something 1 (Post Mitigation).
[32] Table 8.10.
[33] Table 8.11.
[34] Table 8.12.

Table 4.2: Modelling Summary

Junction ref	Arm	AM 2033 Baseline		2033 Mitigated with development (DS1)		PM 2033 Baseline		2033 Mitigated with development (DS1)	
		Queues (PCU/Veh)	Delay (s)	Queues (PCU/Veh)	Delay (s)	Queues (PCU/Veh)	Delay (s)	Queues (PCU/Veh)	Delay (s)
1	A	24.8	106.24	75.4	248.8	6.9	29.47	113.7	462.2
	B	3	10.43	59.7	337.4	93.3	218.48	128.4	505.7
				61.36	338.8			130.7	503.7
	C	2	15.12	19.2	74	12.9	90.06	14	51
	D	109.3	320.54	140.4	322.6	4.1	15.57	137.9	537.3
2	A	1.4	11.87	1.6	13.85	2.6	24.33	5.2	50.74
	B	1.1	5.97	1.6	7.6	0.5	4.34	0.7	4.85
	C	2.2	10.18	3	12.68	4.4	15.8	10.5	34.22
	D	1.7	7.4	2.7	10.07	1.4	7.09	1.8	8.51
	E	2.2	13.83	3.2	20.28	0.8	6.87	0.9	7.72
	F	1.1	6.3	1.3	7.19	5.5	18.3	16.4	48.75
5	A	130.2	493.42	144.5	517.9	9.2	42.86	89.9	348.4
				147.9	536.1			77.5	325.7
	B	1.2	3.85	176.5	510.7	1.6	4.57	99.6	321.4
	C	1.3	8.89	2.1	8.6	2.2	13.36	4.2	12.2
				1.6	9.2			2.6	12.5
	D	5.1	10.2	16.1	31	2.9	6.3	69.9	180.9
6	A	10	25.43	13.6	34.47	52.9	99.69	68.8	129.28
	B	1	7.51	2.2	10.47	0.7	7.42	1.2	8.73
	C	12.9	24.86	20.7	38.69	4.9	10.76	6.6	14.19
12	A	9.7	39.92	26.4	90.72	1.2	6.57	1.8	8.46
	B	3.4	19.26	4.3	24.52	5.5	25.46	8.9	41.7
	C	1.5	8.26	2.4	11.28	4.7	20.62	9.8	39.54
	D	0.7	4.35	0.8	4.79	0.2	3.26	0.2	3.45
13	A	1	5.24	1	5.33	0.8	4.25	0.8	4.32
	B	1	4.96	1	5.01	4.2	13.51	4.4	13.91
	C	3.2	10.49	3.3	10.9	1.5	6.81	1.5	6.96
	D	12.8	41.68	13.7	44.38	1.3	5.86	1.3	5.92
14	A	1	5.98	1	6.01	6.9	22.33	7.1	23.06
	B	1.8	8.71	1.9	9	226.9	784.7	232.3	800.45
	C	8.3	25.91	8.9	27.38	1.4	7.34	1.4	7.46
	D	215.8	704.16	220.1	718.69	1.2	6.23	1.2	6.29
15	A	5.7	19.75	3.8	12.27	84.4	283.99	124.4	387.61
	B	104.6	214.52	101.4	186.72	49.6	115.05	100.6	205.34
	C	86.2	209.61	38.6	84.61	3.5	10.92	2.9	8.68
	D	128.2	346.09	279.1	635.03	78.2	137.41	96.6	146.08
16	A	3.8	26.1	40.1	242.95	119.9	499.27	151	649.29
	B	56	112.65	73	126.38	116.9	249.3	244.5	480.78
	C	111.4	286.79	207.7	596.28	78.8	235.9	192.8	717.57
	D	121.2	253.66	58.4	88.53	10.7	23.25	4.5	8.21
17	A	69.5	325.48	71.9	446.77	6.8	36.57	17.9	89.23
	B	1.6	4.06	2.6	5.76	7.2	13.12	95.5	120.19
	C	2.5	13.87	3.1	17.54	24.8	139.37	57.5	377.99
	D	53.2	79.92	236.4	352.74	2.5	5.94	4.7	9.27
18	A	133.7	641.38	3.5	16.81	7.1	35.23	1.1	5.11
	B	1.1	3.13	2	4.81	2.2	4.8	7.3	13.15
	C	5	32.18	2.9	17.6	6.1	51.69	4.7	39.19
	D	5.2	10.68	67.4	96.76	1.4	3.87	2.7	6.01

4.7.15 Table 4.3 shows the resulting change predicted by the modelling results presented within the updated TA.

Table 4.3: Modelling Summary - Resulting Change

Junction ref	Arm	AM Change Queues (PCU/Veh)	Delay (s)	PM Change Queues (PCU/Veh)	Delay (s)
1	A	50.6	142.56	106.8	432.73
	B	56.7	326.97	35.1	287.22
		61.36	338.8	130.7	503.7
	C	17.2	58.88	1.1	-39.06
	D	31.1	2.06	133.8	521.73
2	A	0.2	1.98	2.6	26.41
	B	0.5	1.63	0.2	0.51
	C	0.8	2.5	6.1	18.42
	D	1	2.67	0.4	1.42
	E	1	6.45	0.1	0.85
	F	0.2	0.89	10.9	30.45
5	A	14.3	24.48	80.7	305.54
		147.9	536.1	77.5	325.7
	B	175.3	506.85	98	316.83
	C	0.8	-0.29	2	-1.16
		1.6	9.2	2.6	12.5
	D	11	20.8	67	174.6
6	A	3.6	9.04	15.9	29.59
	B	1.2	2.96	0.5	1.31
	C	7.8	13.83	1.7	3.43
12	A	16.7	50.8	0.6	1.89
	B	0.9	5.26	3.4	16.24
	C	0.9	3.02	5.1	18.92
	D	0.1	0.44	0	0.19
13	A	0	0.09	0	0.07
	B	0	0.05	0.2	0.4
	C	0.1	0.41	0	0.15
	D	0.9	2.7	0	0.06
14	A	0	0.03	0.2	0.73
	B	0.1	0.29	5.4	15.75
	C	0.6	1.47	0	0.12
	D	4.3	14.53	0	0.06
15	A	-1.9	-7.48	40	103.62
	B	-3.2	-27.8	51	90.29
	C	-47.6	-125	-0.6	-2.24
	D	150.9	288.94	18.4	8.67
16	A	36.3	216.85	31.1	150.02
	B	17	13.73	127.6	231.48
	C	96.3	309.49	114	481.67
	D	-62.8	-165.13	-6.2	-15.04
17	A	2.4	121.29	11.1	52.66
	B	1	1.7	88.3	107.07
	C	0.6	3.67	32.7	238.62
	D	183.2	272.82	2.2	3.33
18	A	-130.2	-624.57	-6	-30.12
	B	0.9	1.68	5.1	8.35
	C	-2.1	-14.58	-1.4	-12.5
	D	62.2	86.08	1.3	2.14

4.7.16 In broad terms it can be seen that the introduction of the development and the proposed mitigation package results in a general worsening of the local highway network.

4.7.17 It should be noted that while lane markings are present at most of the junctions, lane simulation has not been applied in every case.

4.7.18 Calibration has been assessed on a Red-Amber-Green (RAG) basis; the calibration column in Table 4.4 represents the results for each individual arm.

Table 4.4: Calibration Results

Junction ref	Calibration Results
1	AAGA
2	GGGG
5	AGGG
6	AGG
12	GGGG
13	GGGG
14	GAGA
15	AAAA
16	AAAA
17	GGGG
18	AGGG

4.7.19 Mitigation modelling for junctions 1 and 5 have been undertaken in LinSig. LinSig uses a flat traffic profile[35] which can produce better results than the one-hour profile typical in Arcady.

4.7.20 At my meeting with WSP on 14th September 2020, it was indicated that the appellant's evidence, due to be submitted the following day, would include proposals for the full (peak hour only) signalisation of Tattenhoe Roundabout. As mentioned elsewhere in this proof of evidence, the provision of significant changes to the proposals and related new technical evidence at such a late stage is out of step with the relevant appeal guidance and, in practical terms, too late to enable full and proper consideration in advance of the Public Inquiry.

4.8 Impact assessment on the Strategic Road Network

4.8.1 It is reported in 7.5.2 that fewer than one vehicle every three minutes will enter or leave the A5, and further assessment is therefore not required.

4.8.2 However, in the AM peak a total of 67 vehicles enter/leave the gyratory, and this figure is 75 in the PM peak. My experience is that Highways England (HE) would commonly require further assessment on that basis and this view is supported by the three-month holding response which HE has issued in relation to the revised planning application. Given that application relies upon the same technical evidence as the appeal, it is logical to assume that HE's requirement for additional time to assess the new TA would also apply here[36].

[35] i.e. LinSig assumes a uniform traffic demand across the peak hour, rather than a 'peak within the peak' which is often present.

[36] Planning Authorities wishing to approve an application either contrary to HE advice or where a HE holding response is in place must refer the matter to the Secretary of State (SoS). The SoS retains powers of direction which will be used in this scenario - i.e. the LPA may not positively determine the revised application unless and until either the HE holding response has been removed, or the SoS has granted the ability to do so using powers of direction.

5. NEW TRAVEL PLAN

1.1.1 The revised (2020) Framework Travel Plan is an update to the 2016 document.

1.1.2 Table 7.1, now reflecting 2011 Census data, indicates an opening year residential motor vehicle mode share of 75%, with a targeted reduction to 63% after five years - a 16% reduction on baseline figures, equating to the removal of 119 motor vehicle trips.

1.1.3 Table 7.4 indicates a 16% motor vehicle reduction for employment uses over the same period. The TP assumes that all education motor vehicle trips will be associated with other uses, with 24% of such trips being by car/van passengers. No modal shift targets are identified for education trips.

1.1.4 A Travel Plan Manager (TPM) would be appointed for a 12-month period, but there is no formal commitment as to how long the role would persist (a change from the earlier TP).

1.1.5 Initial funding would mirror the period of appointment of the TPM, with subsequent funding requirements passing to the Travel Plan Co-ordinators of elements of the appeal site (no specific funding identified at this stage).

1.1.6 I consider that the TP has some potential to create modal shift away from private motor vehicles, but am concerned that there are insufficient specific commitments in relation to its implementation. On that basis, I have not considered any potential benefits from the TP within my analysis.

6. AMENDED APPLICATION

6.1.1 I understand that the current (undetermined) amended proposals put to BC relating to matters in the BC administrative area and application 15/0034/AOP include:

- Changes in standards of climate change resilience requiring a modified drainage strategy that impacts on the current scheme parameters;
- The oil pipeline that crosses the site has been found to be located further to the west than the record plans which informed the current masterplan / parameter plans;
- Draft policy H6 of the VALP, as proposed to be modified, requires provision to be made for elderly person accommodation within schemes of the scale proposed here, so the application has been amended to include 60 elderly care units (within Use Class C3) within the total quantum of development.

6.1.2 These amendments are currently under review by BC and MKC under the cross-boundary consultation process. BC does not currently have a resolution on these changes from its planning committee. BC has indicated that it is likely to consider the amendments to the scheme at a committee which may possibly be held in October 2020.

6.1.3 The amended application is supported by the same new TA as submitted in respect of the appeal. It follows that the issues raised in this proof of evidence are equally relevant to the revised application. BC has provided the developer with an extensive technical response, and HE has issued a three-month holding response whilst it assesses the new TA.

7. SUMMARY AND CONCLUSIONS

7.1 Summary

7.1.1 In light of the assessment set out in this proof of evidence, I conclude that:

a. The TAs submitted prior to and after determination fail to adequately demonstrate the impact of the development, contrary to NPPF paragraphs 102, 108 and 111, and Plan:MK policies CT1 and CT2.

a. The TAs and TPs do not fully assess or promote walking and cycling, contrary to NPPF paragraphs 102, 108 and 110 and Plan:MK policy CT1.

b. The potential environmental impacts of the development's trip generation have not been fully quantified, contrary to NPPF paragraph 102 and Plan:MK policy CT2.

c. Due to the insufficient evidence, the development may have a 'severe' or 'unacceptable' transport impact, contrary to NPPF paragraph 109. Indeed, that is what the new TA suggests would occur at key locations on the MKC highway network.

d. Data utilised within the submitted TAs does not meet the requirements of the NPPG in relation to its currency, neutrality (representativeness) and reliability.

e. The TA upon which the Council relied to inform its decision to refuse the application used high-level (strategic) traffic modelling, and the comparison with the Council's latest modelling made by WSP lacks detail. There is no certainty that the earlier modelling remains representative for the purposes of assessing individual planning applications in detail.

f. There is no evidence within the determination-stage TA that the utilised trip generation rates are fully representative of the proposed development.

g. There is insufficient evidence regarding the re-routing of traffic across the local road network due to increased congestion. It is not possible to know where these vehicles are re-routing, nor has the appellant assessed the impact of that re-routing in sufficient detail.

h. Local junction models have not been calibrated/validated in line with the manufacturer's guidelines. There are significant issues with geometry, lane allocation and the interaction of queues between junctions, meaning that the often-severe impacts predicted in the TA are likely to be under-estimations.

i. There is insufficient consideration of the operation and design of the A421 access, which has the potential to lead to queuing and delay onto the A421.

j. Where comparisons have been made between model and observed traffic flows, for example in Bletchley, the comparison is not as strong as the appellant suggests.

k. The new (2020) TA presents a different picture from earlier iterations, casting further doubt on their conclusions. It utilises a wholly different methodology in assessing the level, distribution and impact of development traffic. It:

- Uses traffic data which was not collected in a representative period;
- Misrepresents reasonable walking and cycling distances from the site; and,
- Has not calibrated traffic models in the approved manner.

7.1.2 Both the 2016 and 2020 Travel Plans are relatively generic. The latest document contains some additional details, but steps back from earlier commitments in terms of its management and

implementation. There are insufficient implementation, financial and mitigation commitments which would enable the TP to be relied up as a mitigator of traffic demand.

7.2 Conclusions

7.2.1 MKC was right to refuse planning permission for the appeal scheme. There was insufficient evidence before Members at determination, and the new TA identifies additional mitigation requirements whilst also predicting unacceptable safety effects and a severe residual operational impact.

7.2.2 The Inspector is respectfully requested to dismiss the appeal.

Appendix A Department for Transport's (DfT) WebTAG guidance: Survey Neutrality

3.2.8 SP refers to observations of hypothetical behaviour under controlled experimental conditions. A scheme that introduces a new mode, for example, would imply a need for SP analysis, since RP data is by definition unavailable for such a context. Developing a bespoke mode choice model, therefore, often requires new SP surveys and analysis.

3.2.9 RP data can be obtained from SP respondents, from postcard surveys (an under-used and relatively inexpensive approach), from home or phone interviews, travel diaries, as well as from the National Travel Survey and Census.

3.2.10 The collection of RP data is not without problems. There are often large biases in respondents' self reported data, underestimating the costs of their chosen mode and overestimating the costs of alternative modes. To overcome these problems it is sometimes necessary to use explanatory variables from network models and published timetable data. Even where respondents' reported data is modelled, there is often a considerable amount of missing data which needs to be collated.

3.2.11 For more information on SP and RP surveys see Supplementary Guidance - Bespoke Mode Choice Models.

3.3 Highway Surveys

3.3.1 This section covers the typical highway traffic surveys which are carried out. Highway traffic surveys are generally carried out for three purposes: matrix creation, model calibration and validation.

3.3.2 Calibration and validation data are of two kinds: traffic counts, and journey times while RSI surveys are commonly used in the matrix creation process.

3.3.3 **Traffic counts** are required for:

- expanding new roadside interviews
- re-expanding old roadside interviews
- calibrating trip matrices by means of matrix estimation
- validating the model

3.3.4 **Journey times** are required for:

- calibrating cruise speeds (speeds between junction queues)
- identifying where delays occur at junctions
- validating the model

3.3.5 Traffic counts may be obtained by automatic means (Automatic Traffic Counts, ATCs) or manually (Manual Classified Counts, MCCs). Journey times may be obtained by Moving Car Observer (MCO) surveys or from commercial sources of tracked vehicle data (such as Trafficmaster, INRIX, TomTom, HERE/NAVTEQ) or camera observations from Automatic Number-Plate Recognition systems (ANPR) or from such traffic databases listed in section 2 of this unit. In selecting the appropriate type of count and source of journey times, these factors need to be considered:

- the accuracy of the data
- the choice of survey locations
- the need for information by vehicle type
- a recognition of the costs of these data

3.3.6 Surveys should typically be carried out during a 'neutral', or representative, month avoiding main and local holiday periods, local school holidays and half terms, and other abnormal traffic periods. However, there can be instances where a particular period (e.g. weekends or school holidays) is of interest, for example in regions with relatively high levels of seasonal tourism. The period for the surveys should be selected with careful consideration of the purpose of the transport model.

3.3.7 Neutral periods are defined as Mondays to Thursdays from March through to November (excluding August), provided adequate lighting is available, and avoiding the weeks before/after Easter, the Thursday before and all of the week of a bank holiday, and the school holidays. Surveys may be carried out outside of these days/months, ensuring that the conditions being surveyed (e.g. traffic flow) are representative of the transport condition being analysed/modelled.

3.3.8 This requirement often dictates the timescale of the appraisal. Data processing may also add substantially to the study timescale.

3.3.9 In addition, if existing data is to be reused, ample time must be allowed for them to be identified, obtained from their current custodian, reprocessed as necessary, and checked for consistency and validity. Further delays may be incurred if these checks reveal that the data cannot be used.

Traffic Count Surveys

3.3.10 Manual classified counts (MCC) are required to break down traffic flows by vehicle type. This information is particularly important in an urban area, where the mixture of vehicle types may vary significantly by direction as well as at different times of day. Classified counts are required at every roadside interview site (where undertaken to understand demand patterns), and on minor parallel roads not included in the interview programme, to expand the interview sample to the total traffic flow in the corridor as a whole (see paragraph 3.3.27). Counts should be carried out in both directions on the survey day, even if interviewing is only in one direction, and should extend over all model periods. If automatic counts indicate that traffic flows at a roadside interview site were influenced by the presence of the interview survey, further manual classified counts should be made on a different day. If necessary, these alternative counts can then be used to expand the interview data to a more representative traffic flow. The vehicle classification used should correspond with that used in the interview survey itself, and this in turn should be compatible with the vehicle types represented in the traffic model.

3.3.11 Turning counts at road junctions are required for the validation of junctions in a congested assignment model. Turning counts should be carried out at all junctions within the model area that are likely to have a significant impact on journey times or delays and at junctions that are particularly significant in route choice (i.e. locations where alternative routes for critical movements may merge/diverge). In urban areas, there will often be a need to collect more turning count data than for an inter-urban model, because of the greater number of junctions that generally need to be validated.

3.3.12 Turning counts are carried out in the same manner as manual classified counts on links, except that more enumerators are generally required. They must cover the whole of each peak period, but need only cover representative parts of other time periods, depending on the time periods being modelled. Where an inter-peak model is representing an average inter-peak hour, a 12 hour period covering the two peaks and the inter-peak would be required. The vehicle classification used may be simpler than the one used for link surveys, provided that it is again compatible with the model classifications. For more complex or larger junctions, video or ANPR surveying methods may need to be employed to fully cover all turning movements at the junction.

3.3.13 Automatic traffic counts (ATC) and carrying them out is an operation requiring a substantial investment in instruments, ancillary equipment, transport, data handling systems and staff time. The volume of data that can be collected is considerable and can reveal longer term traffic volume trends, but the effort expended could prove fruitless if any one of the constituent processes involved in collecting and processing the data is deficient.

Appendix B TRL Software Article: Queues are longer (or shorter) than ARCADY predicts

Queues are longer (or shorter) than ARCADY predicts

If you find that ARCADY or PICADY predicts queues that are significantly different to what you have observed, there are several things to consider:

How reliable are the observed queue measurements?

If queues have been observed on one day only, they may be unreliable because queue lengths have a large daily variability even with the same levels of traffic demand. The queues shown in ARCADY/PICADY are what you would expect to see if you averaged observations from many days. So ideally you should measure queues on several days, and average the results. Otherwise, you need to be as sure as you can that the measured queues are a good representation of typical behaviour at the site. (If possible, visit the site to check that the level of queueing roughly corresponds with the queue survey data.)

Has demand been measured correctly?

ARCADY/PICADY need to know the volume of traffic that **wants** to use the junction – i.e. the demand. This should be measured upstream of any queueing. If, instead, you count vehicles crossing the give-way line, you have measured the throughput instead of the demand. If you enter this as the demand then the predicted queues will be very small, because you will just be telling ARCADY/PICADY that the amount of traffic wanting to

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use the junction is the same as the amount that you have observed flowing through it.

The most common demand profile type in ARCADY/PICADY is "ONE HOUR". This takes an origin-destination matrix and then assumes that the traffic rises and falls in a specific way over a 90-minute period, to represent a typical peak period. This often gives reasonable results, but relies on a number of assumptions that may not be true at your junction. Alternatively, you can directly enter the demand for each time segment.

Are geometries correct?

Check that the geometries have been measured and entered correctly. If there is unequal lane usage, for example if traffic on one or more arms consistently uses one lane more than another, then consider using Lane Simulation mode.

Check units and other options

Check that the correct units are being used (e.g. PCU/hr versus PCU/time segment) and that you don't have any scaling factors or other options accidentally switched on.

Consider applying calibration factors (intercept adjustments)

If all else fails then you can apply factors to calibrate the model. Usually this is via intercept adjustments applied to one or more arms. These adjust the capacity predicted by the model up or down by an amount you specify – e.g. -200 PCU/hr to reduce the predicated capacity by 200 PCU/hr. If you have measurements of the throughput on the arm, under saturated conditions (i.e. whilst there is queueing) then you can use these to directly calculate a correction, using the Calibration screen. Alternatively you can find intercept corrections by a process of trial and error. Corrections are intended to account for factors at the junction which make the junction different to the 'average' junction with the same geometries, such as poor visibility, gradient, driver hesitation, unusual layout, and so on. Usually these factors apply at all times of day and in current and future years. If you find that you need to apply very large adjustments to reproduce the observed queues, this suggests that there is something wrong with the model data and it's worth checking the points above again.

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