Homes & Communities Agency

Land to the East of Hardingstone, Northampton

Witness Proof (Transport & Access)

Expert Witness – Jon Tricker

PINS Appeal Ref: APP/V2825/A/14/2228866

Northampton Borough Council Reference: 2013/0338

Date of Inquiry: June/July 2015

May 2015

Project Code: 1407B
Version Control and Approval

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Main Contributors</th>
<th>Issued by</th>
<th>Approved by</th>
</tr>
</thead>
<tbody>
<tr>
<td>D FINAL FOR PINS</td>
<td>19 May 2015</td>
<td>Jon Tricker / Hannah Shrimpton (WSP-PB)</td>
<td>Jon Tricker</td>
<td>Jon Tricker</td>
</tr>
</tbody>
</table>

Prepared for

Homes & Communities Agency / Parsons Brinckerhoff (Lead Consultant)
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Introduction</td>
<td>2</td>
</tr>
<tr>
<td>1.1 Professional Details</td>
<td>2</td>
</tr>
<tr>
<td>1.2 Appointments</td>
<td>2</td>
</tr>
<tr>
<td>1.3 Experience</td>
<td>2</td>
</tr>
<tr>
<td>1.4 The Practice</td>
<td>2</td>
</tr>
<tr>
<td>1.5 Role in the proposal to date</td>
<td>2</td>
</tr>
<tr>
<td><strong>2</strong> SCOPE OF MY EVIDENCE</td>
<td>3</td>
</tr>
<tr>
<td><strong>3</strong> PLANNING POLICY</td>
<td>4</td>
</tr>
<tr>
<td>3.2 National Planning Policy Framework</td>
<td>4</td>
</tr>
<tr>
<td>3.3 National Planning Policy Guidance</td>
<td>5</td>
</tr>
<tr>
<td>3.4 Circular 02/13: The Strategic Road Network and the Delivery of Sustainable Development</td>
<td>7</td>
</tr>
<tr>
<td>3.5 Northamptonshire Local Transport Plan (3)</td>
<td>7</td>
</tr>
<tr>
<td>3.6 Northamptonshire Place and Movement Guide: November 2008</td>
<td>8</td>
</tr>
<tr>
<td>3.7 West Northamptonshire Joint Core Strategy Local Plan (part 1) – Adopted December 2014</td>
<td>8</td>
</tr>
<tr>
<td><strong>4</strong> DEVELOPMENT AND AGREEMENT OF THE TRANSPORT ASSESSMENT</td>
<td>10</td>
</tr>
<tr>
<td>4.2 Background to TA</td>
<td>10</td>
</tr>
<tr>
<td>4.3 Statement of Common Ground with NCC</td>
<td>13</td>
</tr>
<tr>
<td>4.4 Position of Highways England</td>
<td>14</td>
</tr>
<tr>
<td><strong>5</strong> RESPONSE TO COUNCIL'S CASE</td>
<td>22</td>
</tr>
<tr>
<td>5.1 Reason for Refusal</td>
<td>22</td>
</tr>
<tr>
<td>5.2 Traffic Survey Assumptions</td>
<td>23</td>
</tr>
<tr>
<td>5.3 Zone of Impact</td>
<td>25</td>
</tr>
<tr>
<td>5.4 Committed Development Assumptions</td>
<td>30</td>
</tr>
<tr>
<td>5.5 Census Data Assumptions</td>
<td>32</td>
</tr>
<tr>
<td>5.6 Assignment of Development Traffic</td>
<td>33</td>
</tr>
<tr>
<td>5.7 LinSig Models for Queen Eleanor and Brackmills Interchanges</td>
<td>34</td>
</tr>
<tr>
<td>5.8 Traffic Engineering Design Work</td>
<td>40</td>
</tr>
<tr>
<td>5.9 Impact on Brackmills Industrial Estate and Future Growth</td>
<td>50</td>
</tr>
<tr>
<td><strong>6</strong> Third Party Representations</td>
<td>53</td>
</tr>
<tr>
<td>6.2 Review of Parish Council Objections</td>
<td>53</td>
</tr>
<tr>
<td>6.3 Review of Hardingstone Village Action Group Comments</td>
<td>58</td>
</tr>
</tbody>
</table>
Appendices

Appendix A – ATC Surveys
Appendix B – Assignment Data / Traffic Flow Diagrams
Appendix C – Census Data
Appendix D – TEMPro / Committed Development Data
Appendix E – Appellant / Council (Glanville) Correspondence
Appendix F – Real time driver information
Appendix G – LinSig (Sensitivity analysis)
Appendix H – Supporting Traffic Engineering Design Information
Appendix I – LinSig (Incremental analysis)
Appendix J – 3rd Party Representations
Introduction

1.1 Professional Details

1.1.1 My name is Jon Tricker, I am a Director at Phil Jones Associates, a design based transport planning consultancy based in Birmingham, Bristol, Reading and London. I am a member of the Chartered Institution of Highways and Transportation, Member of the Urban Design Group and hold a BEng (Hons) Degree in Civil Engineering and Transportation from Kingston University graduating in 1996.

1.2 Appointments

1.2.1 I am a member of the Design Review Panel, operating over South West England and regularly review large development projects. I have also acted in a training and design review capacity for Urban Design London and Transport for London.

1.3 Experience

1.3.1 I am a transport planner and engineer with 20 years commercial experience of transport planning, civil engineering and urban design, focusing on development and urban planning. I regularly act as a project director, and am used to managing, leading and working with large multi-disciplinary teams on challenging projects. My core work involves transportation input to masterplans, development planning, urban realm and street design projects.

1.4 The Practice

1.4.1 Phil Jones Associates is a design focused transport planning consultancy and one of the UK’s leading independent transport planning specialists. The firm has acted as transport planner or street designed on over 1000 projects and been involved in 80 public inquiries and hearings.

1.4.2 Phil Jones Associates have been involved in the preparation of national-level design guidance, including Manual for Streets 1 and 2, Designing Streets for the Scottish Government and residential parking research for DCLG.

1.5 Role in the proposal to date

1.5.1 I have led the transport planning and highways work from the outset of the project in 2011, whilst working for Parsons Brinckerhoff until a job move to Phil Jones Associates in February 2015. I have overseen the production of the Transport Assessment and Travel Plan accompanying the planning applications. I attended the Public Consultation over several days and attended and presented at the Planning Committee. Having led the transport proposals, I am thoroughly acquainted with the design evolution and rationale.
2 **SCOPE OF MY EVIDENCE**

2.1.1 The primary focus of my evidence is to provide an understanding of why the proposals are acceptable and policy compliant in transport terms. This is corroborated through the full agreements between the Appellant and the Local Highway Authority, Northamptonshire County Council (NCC) on traffic matters as reflected in an agreed Statement of Common Ground (SoCG) and Highways England in their capacity as Strategy Highway Authority.

2.1.2 Chapter 3 deals with relevant transport policy at national and local level.

2.1.3 In Chapter 4, I describe the Transport Assessment (TA), Travel Planning and on site transport design process. I also outline the Statement of Common Ground (SoCG), but do not intend to deal in detail with material provided in the SoCG, which includes the full agreement on the acceptability of the proposals with the Highway Authority, made on the TA and traffic impact, the overall package of highway and transport improvements and the agreement of draft Planning Conditions and Obligations. Within chapter 4, I also deal with the agreement established with Highways England (HE), formerly the Highways Agency (HA), who manage the A45 near the site.

2.1.4 In Chapter 5, I cover the Northampton Borough Council (the Council) position on transport, as set out in their Officers Report (OR) as presented to Planning Committee on 6th May 14, and deal with the Council’s Reasons for Refusal and more recent Statement of Case (SoC), and correspondence from the Council’s transport consultants, Glanville Consultants Ltd.

2.1.5 Within Chapter 6, I discuss some of the transport issues raised by third parties through representation to the Planning Application.

2.1.6 Finally, in Chapter 7, I provide a Summary and Conclusion.
3 PLANNING POLICY

3.1.1 I have reviewed national and local policy relevant to the issues raised in this evidence.

3.2 National Planning Policy Framework

3.2.1 The Government’s National Planning Policy Framework (NPPF) was published in March 2012 [Core Document (CD) 22], and outlines the Government’s planning policies and how they are expected to be applied. The document replaces all existing Planning Policy Guidance notes and Planning Policy Statements.

3.2.2 The NPPF states that ‘the purpose of the planning system is to contribute to the achievement of sustainable development’. According to paragraph 9:

‘Pursuing sustainable development involves seeking positive improvements in the quality of the built, natural and historic environment, as well as in people’s quality of life, including (but not limited to):

- making it easier for jobs to be created in cities, towns and villages;
- moving from a net loss of bio-diversity to achieving net gains for nature;
- replacing poor design with better design;
- improving the conditions in which people live, work, travel and take leisure; and
- Widening the choice of high quality homes.’

3.2.3 Regarding transport and travel, sustainable transport modes for the movement of goods and people are widely encouraged. Plans and decisions will take account of whether safe and suitable access to sites can be achieved for all people, whilst ensuring developments are designed to accommodate the efficient delivery of goods and supplies, give priority to pedestrian movements, and create safe and secure layouts which minimise conflicts between traffic and pedestrians.

3.2.4 In Para 32, the NPPF states;

...All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

- The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;
- safe and suitable access to the site can be achieved for all people; and
- Improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be
prevent or refused on transport grounds where the residual cumulative impacts of development are severe.

3.3  National Planning Policy Guidance

3.3.1 This latest guidance [CD 23] explains how to use and assess Transport Assessments in the context of NPPF. Specifically it explains some overarching principles, describes the function of Transport Assessments, describes their importance in the planning system and discusses their scope.

’Severity’ Test

3.3.2 The exact definition of what should be considered ‘severe’ is not provided in NPPF. More recently, the Planning Practice Guidance (PPG) reinforces the approach set out in NPPF regarding the assessment of transport impacts. “Transport Assessments and Statements can be used to establish whether the residual transport impacts of a proposed development are likely to be ‘severe’, which may be a reason for refusal, in accordance with the NPPF.”

3.3.3 The lack of a specific threshold for the definition of ‘severe’ suggests that severity should be considered in terms of the relative context of an application and should be considered on an individual basis. The key point being the ‘residual cumulative impacts’ of the development.

3.3.4 Referring back to the Guidance on Transport Assessment (2007), which was the relevant policy when the original Transport Assessment was scoped with the highways authority, it states that “the percentage traffic impact that is considered significant or detrimental to the network… should have been determined in discussions with the relevant highway authorities.”

3.3.5 As demonstrated within this Proof and in the submitted Statement of Agreed Position, the TA was fully scoped and agreed and the demonstration of ‘nil detriment’ was agreed as an approach, as this pre-dated the NPPF (see further below).

3.3.6 Another source of guidance on severity impacts is reference to the Guidelines for the Environmental Assessment of Road Traffic (IEA, 1993) which suggests two broad rules to identify an assessment area:

- Rule 1 – include road links where traffic flows would increase by more than 30% (or the number of HGVs would increase by more than 30%); and
- Rule 2 – include any other specifically sensitive areas where traffic flows would increase by 10% or more.

3.3.7 Considering the impact criteria, increases in traffic of less than 30% are considered ‘negligible’.
3.3.8 Referred to below are two relevant recent appeal decisions where ‘severity’ in transport impacts terms has been a material consideration in the Planning Inspector’s and Secretary of State’s conclusions.

3.3.9 **Marnel Park, Popley, Basingstoke (APP/H1705/A/12/2188125 & APP/H1705/A/12/2188137) September 2013 – application for 450 + 200 dwellings with associated access and ancillary land uses. [CD 105]**

3.3.10 The Secretary of State agreed with the Inspector’s decision to grant permission, finding that the proposals would “fall far short of the ‘severe’ test set by the Framework”, implying a high threshold for severity. This was despite an increase in traffic of up to 600 vehicles per hour on some links – a level not reached in Hardingstone.

3.3.11 **Grange Farm and School Land, Hartford, Cheshire (APP/A0665/A/12/2179410 & APP/A0665/A/12/2179374) November 2014 – application for 650 dwellings with associated amenity areas and access. [CD 107]**

3.3.12 The Secretary of State and Inspector granted permission, finding there would not be a ‘severe’ impact on the transportation network.

3.3.13 The additional movements were found to only add an average of over 1 minute to a typical 6 minute delay at signals, which was not classed to be severe. The inspector also found that increased queue lengths on other roads could not be deemed severe, based on comparing the number of additional vehicles and queue lengthening with the existing situation.

3.3.14 In considering delays arising, the Inspector noted: “Any additional delay...carries less weight as it is not the aim of policy to protect the convenience of commuting car drivers.”

3.3.15 **Whittingham Road, Longridge, Preston (APP/N2345/A/12/2169598) August 2012 - Application for a residential-led, mixed-use development of approximately 250 units, plus a care home**

3.3.16 Inspector Stuart Nixon outlined the approach to be followed. The crux is to evaluate the residual cumulative degree of travel impact and assess whether this would be severe:

1. start with the baseline or ‘as is’ situation;
2. add expected growth, the levels of travel expected from committed development, and the travel demand from the appeal development itself;
3. then look at improvements that will materialise from any highways / Council works, permissions for committed development, and the scheme; and
4. Finally look to the design year and assess the expected travel conditions to see if the residual outcome would be severely adverse.
3.3.17 In summary, the Inspector stated: “It is not, as suggested by some, to look merely at the magnitude of the increased traffic generated by the development proposal compared to the existing levels, and to see if the improvements proposed as part of a scheme deliver a nil detriment outcome. It is to assess the final residual implications for the highway and transport network and establish if these would be severely adverse”.

3.3.18 I appreciate these decisions are case specific and each proposal must be considered on its own merits but my review of appeal decisions on ‘severity’ is helpful in providing context.

3.3.19 The ‘nil detriment’ approach agreed between the Appellant and NCC is a very much more onerous task than the NPPF test of mitigating against ‘severe residual cumulative impacts’. I appreciate that it is the NPPF test that is relevant for the determination of this appeal. As demonstrated within the application, Transport Assessment and this Proof of Evidence, the residual impacts of the Hardingstone development, once mitigation measures are in place, aims for better than ‘nil detriment’ at key local junctions when compared with the future baseline situation.

3.4 Circular 02/13: The Strategic Road Network and the Delivery of Sustainable Development

3.4.1 As per the DfT website, “This circular explains how the Highways Agency (the Agency), on behalf of the Secretary of State for Transport, will participate in all stages of the planning process with Government Offices, regional and local planning authorities, local highway/transport authorities, public transport providers and developers to ensure national and regional aims and objectives can be aligned and met”.

3.5 Northamptonshire Local Transport Plan (3)

3.5.1 The Northamptonshire Local Transport Plan 3 [CD 77], adopted in March 2012, sets outs the County’s strategy for transport over the five-year period from 2012 to 2017. This follows on from the Interim Local Transport Plan adopted in 2011

3.5.2 The LTP sets out how the County intends to achieve its long term vision for transport. The overall aim of the LTP is ‘Fit for Purpose’. The core objectives of the County’s LTP are:

- Fit for...the future – creating a transport system to encourage growth;
- Fit for...the Community – maintain and create safe, successful, strong, cohesive and sustainable communities;
- Fit to ...Choose – ensuring local people have the information and options available for the best transport choices;
Fit for...Economic growth – creating a transport system that supports economic growth, regeneration and a thriving local economy;

Fit for...the Environment – a transport system that minimises environmental impacts;

Fit for...best value – prioritising investment to achieve value for money.

3.6 Northamptonshire Place and Movement Guide: November 2008

3.6.1 This document [CD 74] provides a guide for developers to design sustainable communities. This draws upon Manual for Streets (DfT, 2007) to provide a design code for developments in the County. The guide includes advice on parking provision, with a flexible approach to residential parking provision depending on forecast demand by different tenure and size of units.


3.6.3 The first of these approaches is to provide mainly unallocated parking. Parking levels are calculated by the overall need of the residential units.

3.6.4 The second approach proposes one allocated space per unit, with further non-allocated parking for larger units. These non-allocated parking levels are based on census data to determine levels of likely car ownership for a range of housing types and tenures.

3.7 West Northamptonshire Joint Core Strategy Local Plan (part 1) – Adopted December 2014

3.7.1 The West Northamptonshire JCS [CD 28] was adopted December 2014 and sets out the long-term vision and objectives for the whole of the West Northamptonshire area for the plan period up to 2029.

3.7.2 The JCS identifies eight Sustainable Urban Extensions (SUEs) around Northampton as "the most sustainable and sequentially preferable locations" for new development. Policy N6 on Page 157 recognises Northampton South of Brackmills SUE as a preferable location for development in the region of 1,300 dwellings with a primary school, a new local centre and integrated transport network.

3.7.3 Policy N12 (Page 172) identifies the necessary transport network improvements to be delivered to facilitate the proposed growth endorsed within the Local Plan. This includes an endorsement of the Strategic Highway Measures identified in the Northampton M1/A45 Growth Management Scheme (NGMS) and the proposed phased developer contribution approach as agreed within the Memorandum of Understanding (MoU) between core stakeholders [CD xx]. The MoU regulates the agreed M1 / A45 mitigation strategy known as the NGMS and set out the delivery position.
and agreement of partners. Further details of the NGMS are discussed in Chapter 4 of this Witness Proof.

3.7.4 The JCS also covers development infrastructure and its delivery. Policy INF1 (Page 136) – Approach to Infrastructure Delivery, outlines how new development should be supported by existing or new infrastructure.

3.7.5 Policy INF2 – Contributions to Infrastructure Requirement’s, confirms that new development will only be permitted if the necessary infrastructure that is required to support it, is in place or will be delivered by a reliable mechanism. The policy also outlines how the pooling of infrastructure contributions is permissible and use of Planning Condition and Obligations.

3.7.6 The JCS also outlines the agreed Infrastructure Delivery Plan. Most relevant to this Inquiry is the Northampton Growth Management Scheme which is included as an IDP item, as noted in the table in Page 141.
4 DEVELOPMENT AND AGREEMENT OF THE TRANSPORT ASSESSMENT

4.1.1 Within this section, I describe the production and agreement of the Transport Assessment, which was undertaken to support the development proposals at planning stage.

4.1.2 Plan 1 shows the application site in the context of the surrounding area and transport network.

Plan 1 Location Plan

4.2 Background to TA

4.2.1 At an early stage in the project both the Appellant and NCC agreed the scope of the Transport Assessment through a Scoping Study in 2012 [see annex to CD 86]. The Scoping Study defined the survey periods, trip forecasting assumptions and modelling method. As the proposals are located near to the Strategic Route Network, the Highways Agency (now Highways England) were also consulted on the content of the Scoping Study. The Scoping Study was prepared using Department for Transport Guidance on Transport Assessment (2007), which was the relevant guidance at the time planning submission. However, the document is now replaced with NPPG, which although providing some guidance on Transport Assessment, much of this advice is generic and undetailed, therefore the former document still provides a useful reference.

4.2.2 Comprehensive traffic surveys were undertaken across the study area via junction counts at peak times during 2012 and 2013. These surveys were undertaken to establish the volume, composition and pattern of local traffic flows.
4.2.3 To determine the level of new travel demands, a series of assumptions were agreed including a ceiling number of residential units (1000 units) and associated uses. The methodology used to determine the future level of transport demand in expected year of completion (2026), the four-stage forecast of mode share, trip generation, trip distribution and trip assignment.

4.2.4 Once the travel forecasts were developed, these were combined with traffic survey data to allow computer modelling of the various junctions around the local area. The junction modelling forecasts were undertaken to determine the precise level of impact and thus directly inform the type of mitigation measure required.

4.2.5 The resulting mitigation schemes have been fully agreed with the Highway Authority (NCC) within the SoCG and a supplementary SoCG, which I describe in the next chapter.

4.2.6 The TA also informed the on site design including, points of access for pedestrians, cyclists and vehicle movements; the parking strategy; the form and management of parking spaces and the potential land to be adopted as Highways Land (s.38). The layout achieves the principles given in both iterations of Manual for Streets (Department for Transport) and the Northamptonshire Places & Movement Guide.

4.2.7 The on-street layout has been designed in conjunction with the principles set out in the draft Travel Plan, which aim to maximise access, by sustainable travel modes. The draft Travel Plan, which formed part of the agreed TA is fully supported by NCC. As is normal practice, this will be subject to further work following the granting of outline planning permission.

4.2.8 The development site has been designed to maximise access by sustainable modes of travel. The site can be accessed by public transport from 'the Warren' and 'Newport Pagnell Road' and new bus stops on Landimore Road, providing access to the new high frequency bus route. The site has good walking access to surrounding areas. Catchments maps are provided in TA at Figure 5 (2km & 5km) [CD8]. Further information on public transport is also provided in Chapter 6 of this Witness Proof.

4.2.9 Upon formal submission of the TA, NCC requested that some additional junctions were tested including the Queen Eleanor and Brackmills Interchanges and two roundabouts within Brackmills – Caswell / Gowerton Road and Caswell / Rhosili Road. This resulted in additional traffic surveys being undertaken and the resubmission of an updated TA (Rev A) in December 2013. It was also agreed that instead of the 1200 unit ceiling, the development test be reduced to 1000 units, the same as the submitted application. For the avoidance of doubt, this updated TA should be used in conjunction with the Inquiry process and is based on 1000 units.

4.2.10 This investigation was aimed at assessing the capacity of the roundabouts, which form part of the local highway network managed by NCC. NCC have an interest in ensuring that capacity is
maintained to ensure efficient operation of the junctions for local traffic. This would include for example, a journey from the development site to the town centre, via Queen Eleanor junction.

4.2.11 HE also have an interest in these roundabouts, as they provide direct access to the A45 network via slip lanes, which is the start of the HE network. In practice this means both authorities have an interest in the A45 junctions, but the NCC focus is about the safety and efficient operation of the surface roundabouts, whilst the HE focus is about managing traffic onto and off the A45 via the slip lanes which is partly influenced by roundabout operation.

4.2.12 Within their consultation response [CD 87 – 88], NCC confirmed they found the revised TA ‘fit for purpose’ and agreed ‘in principle’ the mitigation measures, subject to a series of draft Planning Conditions and Obligations, which are set out in the next section. Given this position, NCC, as highway authority, were clearly satisfied to a high degree of certainty that the mitigation solutions could be developed into suitable detailed design proposals and that further technical approvals could be satisfied. This level of approval of preliminary design work is commonplace within Outline Planning Applications, with detailed design being subject to future Reserved Matters and / or Planning Conditions and Obligations. The position of NCC was formally reported to NBC, in their response to the Statutory Consultation dated 6th Jan 2014 (CD 77).

4.2.13 The positive position of NCC was subsequently reported within the OR at Planning Committee (CD 57). In addition to other transport stakeholders, the council also confirmed they were satisfied with transport matters.

4.2.14 Paragraph 7.48 in the OR states; Officers consider that the submitted TA is it for purpose and subject to the mitigation measures proposed to be secured by condition or S106 obligations the development would have a “nil” detriment to existing highway conditions. Members are advised that the NPPF is quite clear with regard to consideration of highway impacts advising that development should only be prevented on transport grounds where the residual impacts of development are severe.

4.2.15 Furthermore in their closing conclusions the OR states;

The impact of the development on the existing highway network is an area of significant local concern, however both the Highway Authority and the Highways Agency are satisfied that the Transport Assessment and proposed mitigation measures sufficiently address highway issues such that the proposal would lead to a subsequent “nil detriment” on existing highway conditions. Whilst the development may lead to initial impacts on existing highway conditions, officer opinion is that the impacts would not be of such severity that development should be prevented and as such the proposal is considered in accordance with the requirements of the NPPF.

On balance, it is considered that the associated highway, environmental and flood impacts and infrastructure requirements can be suitably mitigated through the imposition of the conditions
proposed and through the obligations of the S106 and as such should not in themselves represent a constraint to development.

The proposal supports the sustainable growth of Northampton and would make a significant and vital contribution towards the Council’s housing requirements and contribute towards the Government’s aims of improving economic development and the creation of employment and training opportunities in accordance with the National Planning Policy Framework, the Northampton Local Plan and the submitted Joint Core Strategy and subject to the conditions below and planning obligations contained within the associated S106 agreement, the proposed development is considered acceptable and is therefore recommended for approval.

4.3 Statement of Common Ground with NCC

4.3.1 Following the Refusal of Planning, the Appellant has continued to liaise with NCC and have agreed a SoCG for the appeal site [CD 16].

4.3.2 The SoCG confirms that all transport matters between the Appellant and NCC remain agreed and ‘fit for purpose’. Specifically;

- Para 3.2 confirms the Transport Assessment Scoping Study is agreed by NCC.
- Para 3.3 confirms the traffic surveys undertaken to establish traffic volume, composition and traffic pattern are agreed for the purpose of the Transport Assessment.
- Para 3.4 confirms the assumptions made which underpin the travel forecasting and modelling work.
- Para 3.5 confirms the outcome of the modelling and the agreed course of action in relation to mitigation of traffic impact.
- Para 3.6 confirms the design of the relevant development streets and parking areas being determined in full through the Planning Application and accept to adopt via Section 38 of the Highways Act once built.
- Para 3.7 confirms the agreement of site access points and the associated highway design.
- Para 3.8 outlines the agreed mitigation measures, and outlines the Section 106 contribution on transport related matters.
- Para 3.9 confirms that the site is considered to be of suitable accessibility for the intended purpose.
- Para 3.10 confirms agreement of the draft Travel Plan.
- Finally, para 3.11 confirms it is agreed that the travel impacts of the development can be accommodated on the transport network.

4.3.3 Section 4 confirms there are no areas of disagreement.
4.3.4 Section 5 and 6 of the SoCG confirm that NCC is in agreement over the draft Planning Conditions and Obligations, which are listed in the SoCG.

4.3.5 On receipt of the Councils Statement of Case and discussion with Glanville, I felt it necessary to undertake additional technical studies and engineering work to further demonstrate the deliverability of the agreed Section 278 works. This additional work is outlined in Chapter 5 of this Witness Proof. This work was submitted to NCC in the form of Technical Note 2 [CD 86]. NCC have reviewed the work and drawn firm conclusions about the contents. These are agreed in a Supplementary SoCG [CD 18] made between the Appellant and NCC.

4.3.6 Specifically, the supplementary SoCG states;

‘The Appellant to support the agreed Transport Assessment has prepared further technical work on the highway mitigation schemes at Queen Eleanor and Brackmills interchanges. This work comprises a full description of design rationale, road safety analysis, Auto TRACK swept paths, Stage 1 Road Safety Audits and topographic surveys. This work was issued to NCC in a Technical Note, entitled ‘Design Review for Improvements to Brackmills and Queen Eleanor Interchanges and dated 5th May 2015. The purpose of this new work was to further demonstrate the deliverability of the mitigation schemes.
This technical note was submitted to NCC to allow a technical review. NCC have reviewed the technical note and confirm there is nothing to suggest that the Section 278 design proposal cannot be agreed, but this will be subject to a full detail design package and Section 278 approval process, which is in accordance with normal practice will happen after the granting of Outline Planning Permission and be the subject of a Planning Condition.
Further to this additional review, NCC’s overall conclusions as set out in paragraph 3.11.1 of the Highways SoCG remain.’

4.4 Position of Highways England

4.4.1 Highways England (‘HE’) are the highway authority for the strategic road network in England, having taken over from the Highways Agency (‘HA’) in April 2015. Locally to the site, they manage the A45 which connects the M1 to Northampton and beyond to Peterborough. Throughout the application process and beyond, the Appellant engaged with the HA. Accordingly, both HA and HE are referred as HE in this proof.

Background to Northampton Growth Management Scheme

4.4.2 As a result of considerable housing and employment growth outlined in the West Northamptonshire Joint Core Strategy (WNJCS), HE undertook a comprehensive study for the A45 and M1 around Northampton which identified the cumulative impact of developments proposed
in the WNJCS on the A45 through Northampton. Consequently, the study included the appeal site's traffic generation and impacts. The study has demonstrated that there is no feasible or environmentally acceptable solution to accommodating potential peak period traffic demand through large scale capacity improvements to the A45 itself and its numerous junctions. The study concluded that, in order to manage traffic demand from forecast development on the SRN a growth management strategy will need to be implemented.

4.4.3 As an outcome of the study, HE has developed the A45/M1 Northampton Growth Management Scheme (NGMS). This has taken into account traffic forecasts from the Northampton Multi Modal Model (NMMM) and the overall level of congestion on the local highway network in the Northampton area. The NMMM was developed by NCC to assess development growth and related transport infrastructure to inform the JCS.

4.4.4 The NGMS has been designed to ensure that vehicular access and egress onto the SRN is managed effectively and that the safety and free flow of traffic on the A45 and M1 is maintained over the plan period of the WNJCS.

4.4.5 The West Northamptonshire Submission Joint Core Strategy (now adopted) provides the policy endorsement to the NGMS as essential infrastructure to enable the delivery of the plan and for the NGMS to be delivered through developer contributions [CD 28].

4.4.6 The Inspectors Report (October 2014) [CD 27] of the JCS included specific reference to the NGMS and states that the policies are ‘sound’ and accords with the NPPF and Northamptonshire Transport Plan (March 2012).

4.4.7 The Inspectors report goes on to comment on the Hardin stone SUE and concerns of local residents regarding a number of issues including traffic generation. The report states that all concerns ‘can be satisfactorily addressed through appropriate technical analysis and on site measures...This should include through a full Transport Assessment looking at all traffic movements likely to occur on the local road network in the context of the agreed NGMS for the A45 route. Consequently, none are sufficient, individually or collectively, to indicate that the site is unsuitable in principle for a SUE.’

4.4.8 NCC in its capacity as local highway authority for the Northampton area support the need for the NGMS and is working with the HE to secure the implementation and effective operation of the NGMS. The Local Planning Authorities, including the Council (NBC) in West Northamptonshire also support the delivery of the NGMS and are using their planning powers where appropriate to secure developer contributions towards its delivery.

4.4.9 This partnership approach to the delivery of the NGMS is set out in the M1/A45 NGMS Memorandum of Understanding (MoU) [CD 76-81]. The MoU is intended to provide an agreed basis for supporting the funding and delivery of the NGMS, including through negotiated
contributions secured by Section 106 planning obligations and now through CIL via the Infrastructure Delivery Plan.

4.4.10 Full details of the NGMS were set out to the Appellant in HE’s letters, dated 3/3/13 and 8/5/13 [CD 78] which confirms why and how the NGMS is relevant to the Application site. This correspondence included a Delivery Process pack [CD 78], which outlines the key principles contained within the NGMS Memo of Understanding. The principles set out in the NGMS are important to the Appellant’s case. Specially, the letter states; ... *The NGMS has been developed with the intention of facilitating development in the Northampton area, providing a robust mitigation strategy which ensures a cohesive approach to mitigation. This approach limits the requirement for individual developments to identify separate mitigation proposals for the SRN...*

4.4.11 The Process Delivery Note [CD 78] presents a detailed account of the technical evidence base, planning and legal considerations which the Agency (now HE) and its partners have considered in the production of the NGMS. The following key notes should be noted;

4.4.12 Page 1 Para 1 ... *This Document sets out the Highway Agency’s approach for the delivery of the ‘A45/M1 Northampton Growth Management Scheme’ (NGMS). This scheme is part of an overall strategy for the M1 and A45 in the Northampton area which is intended to enable developments in and around Northampton to be accommodated on the Strategic Road Network (SRN) with requisite highways mitigation being provided in a timely and equitable manner. This approach has developed following detailed technical analysis and active engagement with key delivery partners to ensure that the approach provides a fair and robust framework for future infrastructure delivery on the SRN to support growth in the Northampton area...*

4.4.13 Page 1 Para 3 ... *This study has concluded that, in order for forecast development to 2026 to be satisfactorily accommodated on the SRN, the NGMS will need to be implemented...*

4.4.14 Page 2 Para 1-8 ... *The full scheme involves the improvement of all junctions along the A45 from M1 J15 through to Great Billing Interchange. The full details of the scheme improvements are provided in Annex 1 to the NGMS MoU entitled ‘A45/M1 J15 – Improvement Projects – The NGMS’. Key elements of the NGMS are:-*

1. Upgrading all the existing traffic signals to MOVA at the scheme junctions,
2. Implementing traffic signals at selected junctions using MOVA control
3. Ramp Metering on all on-slips to the A45.
4. Improvements to the existing merging arrangements on to the A45 to improve capacity and reduce merging and weaving issues.
5. Capacity improvements at M1 J15,
These improvements will be delivered by the Highways Agency, in consultation with Northamptonshire County Council, which may undertake some of the works in agreement with the Highways Agency.

The NGMS comprises projects that will improve the management of traffic entering and leaving the A45 in order to ensure the safe and efficient operation of the A45 and M1. This ensures that development can come forward in a sustainable way and minimises the detrimental effect that increased traffic flows could have on the operation of the SRN.

The findings of the study, and its implications, have been shared with key stakeholders including West Northamptonshire Development Corporation (WNDC), Northamptonshire County Council (NCC), Northampton Borough Council (NBC), Daventry District Council (DDC) and South Northamptonshire Council (SNC) and their Joint Planning Unit (JPU). The NGMS and the mechanism for its delivery have also been discussed at the West Northamptonshire Transport Steering Group...

There is general consensus by all these parties that the proposed NGMS is required to support growth in the area and is founded on sound technical evidence and conforms to current planning and transport policies of encouraging environmental sustainability and managing the existing road network...

Given this position, the Highways Agency’s aim, when considering planning applications for development in the Northampton area which are likely to impact on the A45/M1 corridor, will be to work with developers and the local planning authorities to ensure the delivery of the NGMS, thereby facilitating development. This approach will also include support for the parallel promotion of measures to enable smarter travel choices...

In carrying out its role, the Highways Agency is mindful of the relevant policies and guidance in relation to its development control powers, notably Circular 02/2007 Control of Development Affecting Trunk Roads, the DfT Guidance on Transport Assessment (2007) and Circular 05/05 as amended by Regulations 122 and 123 of the Community Infrastructure Levy (CIL) Regulations 2010 and updated 2011, dealing with Planning Conditions and Planning Obligations...

These documents give clear direction that the transport implications of proposed development need to be properly considered as part of any assessment process and that, where appropriate, suitable measures will need to be identified to achieve a sustainable and environmentally sound outcome. Planning conditions are cited as being effective mechanisms for defining any mitigation which must be in place to enable development proposals to proceed or, where this is not possible, planning obligations may be appropriate...

The guidance is clear that any planning conditions (or obligations) should only be imposed where the requirements are necessary and reasonable, as well as relevant to the development to be permitted. The guidance also provides that, where any necessary
requirements relate to land which lies out of the applicants control, there should be ‘at least reasonable prospects’ of the action in question being performed within any time-limit imposed by the permission. This has been qualified/superseded by the outcome of the High Court case Merritt v SSETR and Mendip District Council where the test is replaced by one which allows such conditions unless “there are no prospects at all” of it being fulfilled...

...Taking all the above into account, the Highways Agency’s approach to securing the delivery of the NGMS is founded on robust evidence relating to the performance of the M1/A45 corridor and the potential impacts of future development, as well as a clear understanding of the mechanisms identified in planning policy for enabling development impacts to be appropriately mitigated. A flexible framework has also been put in place to secure appropriate developer contributions towards the implementation of the NGMS through the application of suitable planning obligations requiring a contribution towards the delivery of the NGMS, and the use of Grampian style conditions as a fallback...

...This document is intended to provide a clear, transparent reference for use by public sector partners and developers, which will enable greater certainty and consistency in relation to development control outcomes. The process which the Highways Agency will follow in this regard is explained in the following section which is broken down into two parts as follows:

Part 1: Northampton Growth Management Scheme – Securing Developer Funding

i) Development Location

ii) Trip Generation, Distribution and Assignment

iii) Threshold for Contributions towards the NGMS

iv) Approach to planning obligations

v) Use of Grampian Conditions

vi) Assessment of Core Strategy Allocations

Part 2: Northampton Growth Management Scheme – Securing Delivery

i) Scheme Costs

ii) Partnership Working

iii) Consideration of CIL Regulations...

...Through Part 1, the Highways Agency sifts sites in relation to their location, their likely trip generation and their potential impact on the SRN. The outcome of this sifting determines whether the impact of a development site requires a contribution towards the implementation of the NGMS and the appropriate level of contribution. In Part 2 the mechanisms for ensuring the timely delivery and promotion of the defined mitigation is considered...
4.4.16 In summary, HE have fully assessed the implications of growth in Northampton and developed a robust mitigation strategy to deal with the growth. This strategy has been agreed with partners, whom include NBC. To ensure effective delivery, HE have considered planning obligations to be the best means of delivery and have assessed the legal and planning implications of this approach. The resulting NGMS therefore provides a clear rationale for agreeing the obligations with developers, and this approach is endorsed by the JCS Inspector, and indeed signed up to by NBC itself.

4.4.17 HE has developed the NGMS to create a clear delivery route for infrastructure. The following points should be noted;

Page 6 Para 3-4 ... In the Northampton area, successive development proposals will have individual and cumulative impacts on the A45 such that a requirement for mitigation is justified. However, in some instances, the individual mitigation identified may seem excessive or its effectiveness may be affected by other mitigation schemes (arising from unrelated development proposals) coming forward in the area.

...In these circumstances, the Agency recognises that it may not be in the best interest of users of the SRN to seek individual mitigation packages where these may result in piecemeal delivery of measures on the A45, or measures that have to be modified as further developments emerge...

The Agency is thus keen to avoid piecemeal change to the A45, for example individual works undertaken by Section 278 Agreement.

4.4.18 Page 6 Para 6 ...The Highways Agency takes the view that, rather than imposing a planning condition requiring the completion of specific works through normal S278 processes (as an integral part of development proceeding which impacts on the A45), it is more appropriate to secure a financial contribution from applicants towards the cost of the NGMS, commensurate with the level of impact of their development in relation to the overall impact arising from development proposed in the Northampton area.

4.4.19 During planning determination and in accordance with NGMS, the Appellant agreed with HE, a contribution of £1,233,471 towards the NGMS, payable via a Section 106 Agreement or CIL. This agreement was formally communicated to the Council and was contained within the OR, and confirmed that the Agency had no objection to the proposals, subject to the contribution. This is still the agreed position, as confirmed in their email dated 8th May 15 to PINS.

**NGMS Benefits to QE & Brackmill Interchanges**

4.4.20 The NGMS MoU [Annex to CD 76] is accompanied by a Technical Note prepared by HE’s consultant, AECOM dated 27/2/12.
4.4.21 In paragraph 1, it states;

“*This note summarises the content of the proposed improvement schemes at each of the junctions. A brief outline of the linking between Ramp Metering and adjacent signals (as modelled in VISSIM) has been added to TN1 to create this note*”

4.4.22 The details for QE are set out on drawing 60153917/6517/QUEL/TN1/RevA. The works comprise a combination of access management and capacity improvements and include:

- All traffic signals are proposed to be upgraded to MOVA (microprocessor optimised vehicle actuation);
- Widening of B526 Newport Pagnell Road;
- Signalisation of the London Road approach, including signalisation of the circulatory carriageway;
- Ramp metering at the southbound on-slip
- Ramp metering at the northbound on-slip. The short merge will be removed and traffic will access the A45 mainline only through the lane gain facility.
- **A45NB RM output sends a signal to a MOVA priority link demanding a stage with the A45NB exit slip road and next two downstream circulatory signals green. This stage is only demanded by queue detectors on the circulatory and exit slip road plus the RM output to prevent circulatory blocking, clear slip road queues and also reduces the green time available to the entries feeding traffic onto the A45NBentry slip road / RM.**

4.4.23 The details for Brackmills are set out on drawing 60153917/6517/BRA/TN1. The works comprise a combination of access management and capacity improvements and include:

- All traffic signals are proposed to be upgraded to MOVA;
- Traffic signals are proposed at the exit from Pavilion Drive to the A45 southbound on slip. These traffic signals will also act as access management to the A45 southbound.
- Traffic signals are proposed to be introduced at Caswell Road approach. These traffic signals will control the traffic volume going to the A45 mainline. Additionally this controller will monitor the northbound A45 on slip and if there is congestion there, it will hold the traffic at Caswell Road to prevent the queue from reaching the roundabout circulatory.

4.4.24 The combination of these measures at each A45 junction will be effective in managing access onto and off the A45. In particular, MOVA control is recognised to deliver capacity benefit of over 10% compared to traditional signal controllers.

4.4.25 Ramp metering delivered along the whole A45 corridor will assist in ensuring steadier flow conditions on the A45, by regulating the entry flow. This strategy will require some additional
lane storage at roundabouts and their approaches and the NGMS thus includes some widening on entry arms to act as storage and managing current exit blocking issues.

**Current Position of Highways England**

4.4.26 Following refusal of planning, the Appellant has continued to work with the HE. At a meeting with Martin Seldon, Asset Manager Highways Agency in October 2014, it was agreed that HE would prepare a Delivery Plan to give a clear picture of priorities and timeline for delivery. It was agreed this document would be publically circulated and help demonstrate the HE plans for delivering works to the A45.

4.4.27 A Delivery Plan was issued by the HE on 30th January 2015, which was jointly agreed with NCC. The plan outlines the committed funding and confirmed that Queen Eleanor and Brackmills interchanges would be improved in summer 2015. This version of the Delivery Plan is enclosed in [CD 80].

4.4.28 However, more recently in March 2015, HE updated their Delivery Plan. The updated plan which is contained within [CD 81], confirms that whilst Queen Eleanor and Brackmills interchanges remain the highest priority for HE, the HE position is as follow;

‘In progressing this design work, consideration has been given to the possible outcome of the Planning Inquiry to be held relating to a planning application for the Northampton South of Brackmills Sustainable Urban Extension (SUE), otherwise known as the Hardingstone site (hereafter referred to as the Hardingstone site). The Planning Inquiry is scheduled to take place in June 2015.

Should the Secretary of State grant approval to this development, it is anticipated that it would be conditional upon the development delivering improvements to Queen Eleanor Interchange and Brackmills Interchange in line with the recommended condition 15 in the Northampton Borough Council Planning Committee Report 6th. May 2014 ref. N/2013/0338. In this event, the prior implementation of NGMS measures at these junctions could be largely abortive.

The HA and NCC have therefore concluded that there is a potential risk that early implementation of NGMS measures at the Queen Eleanor and Brackmills junctions in advance of the outcome of the Hardingstone site inquiry could represent an inefficient use of resources. Whilst remaining committed to the delivery of the NGMS measures at the earliest possible time, the two authorities are now not planning to deliver any NGMS measures in summer 2015, but intend to await the outcome of the Hardingstone site inquiry and then to take forward appropriate improvements to the Queen Eleanor and Brackmills Interchanges at the earliest practicable date thereafter taking into account the outcome of the appeal.’
5 RESPONSE TO COUNCIL’S CASE

5.1 Reason for Refusal

5.1.1 The Council issued a planning refusal notice on 15 May 2015. Refusal 1 related to transport and stated;

5.1.2 …The highway mitigation measures proposed fail to demonstrate that this major development would not have a residual cumulative impact on the A45 trunk road and associated junctions such that the cumulative impacts of the development would not be severe. These adverse highway impacts in turn lead to a detrimental impact on the highway adversely affecting all users including occupiers of business premises located in Brackmills Industrial Estate thus acting as an impediment to the operation of the business park and its future sustainable economic growth. The development would therefore be contrary to the overarching intentions of the National Planning Policy Framework…

5.1.3 There are a number of observations to make about the refusal. Firstly, the refusal is clearly at odds with the view of NCC, who as local highway authority, have undertaken technical reviews of the TA and found it ‘fit for purpose’, as confirmed in the SoCG [CD 21]. This is the phrase used in their formal response to the council [CD 79] and reflects the large package of Section 278 works and associated Planning Obligations, estimated at costing £5-6m.

5.1.4 Secondly, this view is contrary to that of HE, who have developed the NGMS to deal with the cumulative impact of major development on the A45 and its associated junctions. This strategy is agreed with NBC who are indeed a signatory to the agreement. Furthermore the NGMS was fully endorsed by the JCS Inspector.

5.1.5 Thirdly, this refusal is at odds with the views of Senior Council Officers within their OR presented to committee on 6th May 2014.

5.1.6 Fourthly, on 28 January 2015, the Council Planning Committee received a report, prompted by Leading Counsel, for the Planning Committee to ratify the reasons for refusal on the grounds that the formal reasons not had been passed by the full Planning Committee [CD 60]. I note that whilst the 28 January 2015 report states that the reasons for refusal cannot be amended given the impending Appeal, the first reason of refusal has the word “sufficiently” inserted into the first sentence, and now reads…… The highway mitigation measures proposed fail to sufficiently demonstrate…. (my underlining).

5.1.7 Finally, the NPPF states that development should not be refused on transport grounds unless ‘cumulative residual impacts’ are ‘severe’. There is no absolute or specific definition within the NPPF as to the measure of what ‘severe’ implies, however it suggests that transport objections
should not be allowed to obstruct the delivery of housing or economic growth unless the residual impacts are of a significant magnitude.

5.1.8 The TA has specifically demonstrated that the residual impacts of the SUE development will be no worse (more likely better) than if the development, and related highway infrastructure improvements, did not come forward. Therefore there is no sustainable argument that the residual impacts of the development are severe.

The Council’s Statement of Case

5.1.9 The Council’s Statement of Case [CD 21] dated February 2015 provided for the first time since planning refusal, any details of the Council’s transport related concerns. Moreover, it should be noted that this application for planning permission was submitted in 2012. None of the transport points raised in the Statement of Case were ever cited before by the Council during the determination period.

5.1.10 I have reviewed the Council’s Statement of Case and comment as follows.

5.2 Traffic Survey Assumptions

5.2.1 In the Council’s SoC paragraph 3.5 B1, they question the validity of traffic survey data.

5.2.2 I can confirm the traffic survey data was collected in line with standard practice for Transport Assessment, through a series of Manual Classified Traffic Counts obtained through surveys commissioned by the Appellant and direct from the Highway Authority (NCC). Full details of the surveys undertaken are as follows:

- **Wednesday 29th February 2012** – Classified Vehicle Turning Counts (Full 7-category Classification)
  - Newport Pagnell Road/Landimore Road/Wooldale Road
  - Landimore Road/Gowerton Road
  - Newport Pagnell Road/The Warren/Wootton Hope Drive
  - Peak hour Counts – 07:00-10:00, 16:00-19:00 with 15-minute period analysis.

- **Tuesday 6th November 2012** – Classified Vehicle Turning Counts (Full 7-category Classification)
  - Nene Valley Way/London Road/Mereway (Queen Eleanor Interchange)
  - Peak hour Counts – 07:00-10:00, 16:00-19:00 with 15-minute period analysis.

- **Thursday 26th September 2013** – Classified Vehicle Turning Counts (Full 7-category Classification)
  - Caswell Road/Rhosili Road/Pavilion Drive
  - Caswell Road/Gowerton Road/Houghton Hill
- Peak hour Counts – 07:00-10:00, 16:00-19:00 with 15-minute period analysis.
- Wednesday 9th October 2013 – Classified Vehicle Turning Counts (Full 7-category Classification)
  - Nene Valley Way/Caswell Road/Eagle Drive (Brackmills Interchange)
  - Peak hour Counts – 07:00-10:00, 16:00-19:00 with 15-minute period analysis.

5.2.3 It is normal practice to ensure that traffic surveys for the purpose of development Transport Assessment are undertaken out of schools holidays and weekdays, typically Tuesday – Thursday for residential led development. These periods generally reflect normal traffic conditions for the purpose of residential development. In addition, visual observations of traffic were undertaken on a number of occasions prior to submission to help understand the pattern of local traffic. Based on these observations, the Appellant considered the traffic surveys to be representative of the local traffic conditions. This was also the view of NCC and this is confirmed within the SoCG.

5.2.4 On receipt of the Council’s Statement of Case, the Appellant has obtained further survey data to corroborate the original data within the submitted TA. Automatic Traffic Counts (ATC) have been obtained from the Highway Authority, for Newport Pagnell Road between Landimore Road and Wooldale Road. This location was chosen, as it is primary development frontage where a higher proportion of development trips are forecast to occur.

5.2.5 ATCs data over a number of years and months at this location has been analysed. The survey periods analysed were: 10th - 29th September 2012; 9th - 28th September 2013 and 6th - 27th October 2014. This data was compared to the data derived from the Appellants’ manual counts on Newport Pagnell Road conducted on Wednesday 29th February 2012, and contained in the TA.

5.2.6 The data is summarised in the chart below (Chart 1) and base data contained in Appendix A. The chart compares the 2012 manual count data used in the TA, with the 5-day weekday average for both peak hours. The data shows that the manual counts are slightly higher than the average 2012 ATC data, thus demonstrating the robustness of the manual data. ATC data for 2013 and 2014 indicate that traffic volumes are similar, thus giving further assurances that the manual survey data represents typical conditions.
5.2.7 In conclusion, I consider that the ATC data studied over a number of time periods, has confirmed that the manual counts represent typical traffic conditions and are therefore appropriate for use in the TA.

5.3 Zone of Impact

5.3.1 In the Council’s SoC paragraph 3.5 B2, the Council question the scope and extent of the study area and cite three additional junctions which they consider should have been formally tested. For clarity, Plan 2 on the next page shows the junctions which formed part of the study area contained in the revised Transport Assessment and the three junctions which the council question.

5.3.2 The scope of the TA was agreed with NCC at an early stage of the application process. Subsequent consultation with NCC Highways and the HA through submission of a draft Transport Assessment extended the study area to include impacts on the A45 junctions of Queen Eleanor and Brackmills [CD 88]. At this stage, the Appellant had agreed a contribution towards the NGMS [CD 78] to enable HE to undertake the strategic mitigation of the strategic road network, comprising the NGMS. However, the TA scope was extended as NCC considered the development impact on QE and Brackmills in their role and function as County junctions to warrant formal...
testing, as opposed to the percentage impact tests which has been undertaken in the original TA. This testing was undertaken to develop mitigation schemes on the County network (i.e. the roundabouts and not the A45 nor the slip lanes) and not the trunk road network.

5.3.3 Other potential impact on the A45 corridor have been considered by the NGMS. Work by HE shows the Application site to create some form of impact at Queen Eleanor, Brackmills, Barnes Meadow and Lumbertubs interchanges, as the development is shown to create an impact of greater than 30 vehicles per hour on these junctions, as indicated in the calculations from HE [CD 78 See rear annex]. However, in accordance with the agreed NGMS process, a planning obligation has been agreed towards their mitigation, and Appellant was encouraged not to undertaken formal testing in accordance with the agreed principled set out in the MoU, as agreed with the Council.

5.3.4 Following receipt of the Council’s Statement of Case, additional traffic flow analysis has been undertaken to consider the traffic impact on traffic flows at the boundary of the study area covered in the revised TA. Traffic flow diagrams for the whole area are enclosed in Appendix B, drawing on data within the submitted TA [CD 8].
5.3.5 Traffic flow data at the edge of the network has been extracted from the flow diagrams and is summarised in Table 1. This shows the peak weekday link flows into and out of each junction arm for the Baseline 2026 and Resultant 2026, the agreed assessment year. The 2026 baseline comprises the survey data growth to 2026 using TEMPro data, whilst the Resultant 2026 adds development traffic forecast on top. The increase in development traffic is also shown so that conclusions can be drawn about the magnitude of development traffic impact on the edge of the agreed network.

Table 1 – Boundary Impact

**Barnes Meadow Interchange**

5.3.6 The parts of the table shaded orange indicate the arms which are on the edge of the extended network. Most relevant to Barnes Meadow is the traffic at Brackmills on the A45 north facing slip lanes. The analysis indicates that 176 development trips (AM) and 204 development trips (PM) with the peak hours are forecast to head north on the A45 from Brackmills.

5.3.7 Table 2 below illustrates the level of traffic impact on the A45 between Brackmills and Barnes Meadow. As shown the impacts on A45 are between 1.2 – 4%, which highlights that traffic has dispersed and no further formal testing by the Appellant is appropriate.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastbound</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2026 AM DN</td>
<td>3234</td>
<td>846</td>
<td>4221</td>
<td>2246</td>
<td>502</td>
<td>2477</td>
<td></td>
</tr>
<tr>
<td>2026 AM DS</td>
<td>3283</td>
<td>852</td>
<td>4264</td>
<td>2323</td>
<td>602</td>
<td>2577</td>
<td>4.0%</td>
</tr>
<tr>
<td>2026 PM DN</td>
<td>1940</td>
<td>854</td>
<td>6262</td>
<td>957</td>
<td>1880</td>
<td>7185</td>
<td></td>
</tr>
<tr>
<td>2026 PM DS</td>
<td>1971</td>
<td>862</td>
<td>6285</td>
<td>1066</td>
<td>2086</td>
<td>7391</td>
<td>2.9%</td>
</tr>
<tr>
<td>Westbound</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2026 AM DN</td>
<td>583</td>
<td>2395</td>
<td>6720</td>
<td>1680</td>
<td>1810</td>
<td>6590</td>
<td></td>
</tr>
<tr>
<td>2026 AM DS</td>
<td>599</td>
<td>2446</td>
<td>6801</td>
<td>1756</td>
<td>1891</td>
<td>6666</td>
<td>1.2%</td>
</tr>
<tr>
<td>2026 PM DN</td>
<td>678</td>
<td>2723</td>
<td>6761</td>
<td>708</td>
<td>1093</td>
<td>6376</td>
<td></td>
</tr>
<tr>
<td>2026 PM DS</td>
<td>688</td>
<td>2794</td>
<td>6811</td>
<td>782</td>
<td>1143</td>
<td>6450</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

5.3.8 Additionally, Barnes Meadow was the subject of a major improvement in recent years with lane widening on the roundabout approaches and enhancements to slip lanes. For this reason, NCC did not feel it appropriate for the Appellant to formally test this junction.

5.3.9 Furthermore, the NGMS as outlined in Chapter 4 has already developed a strategy for dealing with growth at this location, which will be part funded by the Appellant.

5.3.10 I also refer to an email between Glanvilles and NCC on this point [CD 90]. NCC confirm that the junction has undergone a major improvement designed to accommodate growth from development like Hardingstone.

**A428 / Lilliput Road Junction**

5.3.11 The Council also refer to the junction with A428 / Lilliput Road. The A428 provides the northern access to Brackmills and the town of Bedford towards the south. The A428 does not provide a link to many other places, except a few very small rural villages. I have examined the census data used to distribute traffic around the network which is enclosed in Appendix C. This indicates the proportion of traffic to/from the Bedford area that would use the A428, is only 1.7% inbound and 1% outbound.

5.3.12 The trip making characteristics of the proposed development are contained on page 22 of the TA [CD 8]. These are reproved in the table 3 below and an impact assessment on the A428 based on the Census data.

5.3.13
<table>
<thead>
<tr>
<th></th>
<th>AM Peak</th>
<th></th>
<th>PM Peak</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>In 159</td>
<td>Out 414</td>
<td>In 401</td>
<td>Out 242</td>
</tr>
<tr>
<td>Other uses</td>
<td>In 107</td>
<td>Out 98</td>
<td>In 125</td>
<td>Out 130</td>
</tr>
<tr>
<td>Total</td>
<td>In 266</td>
<td>Out 512</td>
<td>In 526</td>
<td>Out 372</td>
</tr>
<tr>
<td>Impact on A428</td>
<td>In 5</td>
<td>Out 5</td>
<td>In 9</td>
<td>Out 4</td>
</tr>
</tbody>
</table>

Table 3

5.3.14 This analysis indicates that development traffic heading towards Bedford on the A428 is very low, with only 10 vehicles (5+5) in the AM peak and 13 vehicles (9+4) in the PM peak. Based on this impact, I must conclude that the development impact upon the A428 and the junction with Lilliput Road to be very low indeed.

5.3.15 This conclusion is made irrespective of which route traffic may choose to use, based on the very low traffic volumes forecast to use this route. In the most part, traffic will use the Brackmills Interchange, A45 and Barnes Meadow to access the A428 and this is evidenced through drive time surveys I have undertaken to corroborate our traffic assignment assumptions within the submitted TA. This shows that a journey off-peak from Landimore Road to A428 Bedford Road would take 6mins (2.5miles) via A45 and 8mins (convoluted 2.7miles) through Brackmills.

5.3.16 I also refer to an email between Glanvilles and NCC on this point [CD 90]. NCC confirm that they consider the A45 would be a more appropriate route than that through the convoluted industrial estate.

Pavilion Drive

5.3.17 The Council has also questioned why the junction of Pavilion Drive was not tested. I have considered the assignment of development trips further and cannot see why any traffic from the application site would wish to use Pavilion Drive. In my view, any traffic wishing to access the A45 southbound, from the application site would use the QE interchange. The only traffic generated by the development that would use Pavilion Drive would be from those who worked on Northampton Business Park.

5.3.18 I have undertaken off-peak journey surveys to corroborate our TA assumptions, which indicates that a journey from Landimore Road to Mere Way would take 4mins (1.7miles) via QE and 5mins (2.4miles) via Pavilion Drive. Given the additional journey length and the convoluted network within Brackmills, there can be little case for any development traffic wishing to use Pavilion Drive.

5.3.19 A further consideration is that Pavilion Drive intersects the A45 on the southbound on-slip. The junction therefore forms part of the Strategic Road Network and is thus covered by the NGMS. It
is noted that NGMS will signalise this junction to help manage traffic flow [CD 76]. This improvement is part funded by the Applicant.

5.3.20 I must therefore conclude that the development will create no impact upon Pavilion Drive and any wider impacts created by other growth are being mitigated by the NGMS and the signalisation of this junction.

5.4 Committed Development Assumptions

5.4.1 In the Council’s SoC para 3.5 B3, the council question the assumptions about Committed Development.

5.4.2 As detailed above, the scope of the TA was agreed with NCC. At the time of undertaking this scoping exercise, there were no significant committed developments identified to be included specifically within the traffic analysis. For the avoidance of doubt this means there were no nearby development sites with planning consent.

5.4.3 However, in accordance with normal practice, DfT TEMPro (Trip End Model Presentation Programme) growth factors were applied to the traffic data collected to forecast the background growth in the traffic on the local network. This growth incorporated assumed growth through planned developments in line with local plan policy, derived from spatial strategies.

5.4.4 TEMPRO Version 6.2 with planning dataset 62 and NTM dataset AF09 were applied to provide the growth assumptions between 2012 or 2013 and 2026. The area used within the assessment was 34UF2 Wootton/Hardingham (Main) as this was considered the location of ‘best fit’. Table 4 below provides the growth factors applied. Full details are enclosed in Appendix D.

<table>
<thead>
<tr>
<th></th>
<th>2012-2026</th>
<th>2013-2026</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AM</td>
<td>PM</td>
</tr>
<tr>
<td>Weekday Average</td>
<td>1.2524</td>
<td>1.2557</td>
</tr>
</tbody>
</table>

Table 4

5.4.2 The TEMPRO (Trip End Model Presentation Programme) growth factors are based on a series of assumptions around increases in housing and employment in a given area. Forecasts are calculated based upon existing population, employment, car ownership and trip ends data based on data from the National Transport Model (NTM). The underlying planning data used to forecast the growth is based upon local authority planning guidance as available along with broader national demographic forecasts. Table 5 below provides details of the housing and jobs assumptions included within these growth factors:
### Table 5

<table>
<thead>
<tr>
<th></th>
<th>Base Households</th>
<th>Base Jobs</th>
<th>Future Households</th>
<th>Future Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wootton/Hardingstone</td>
<td>3357</td>
<td>15114</td>
<td>4153</td>
<td>16310</td>
</tr>
</tbody>
</table>

#### 5.4.3
As such, the growth factors quoted above will include the Hardingstone SUE additional households. For robustness, these factors have not been adjusted to reflect the ‘double counting’ of the Hardingstone traffic on the local highway network as part of our modelling.

#### 5.4.4
As can be seen from the factors, up to 25% growth was applied to traffic in both peak hours. I consider this to create a robust growth assumption for a 14-year period, particularly for peak hour growth, where unrestrained growth can be inhibited by existing congestion.

#### 5.4.5
Following the Council’s SoC, the Council made available to the Appellent a list of committed developments. Since agreement of the TA scope and collection of traffic data in 2012, three development schemes have received planning consent in the vicinity of Hardingstone. These sites are:

- Hardingstone Allotments – 58 residential units;
- Waitrose – 1,992 sqm supermarket
- Wootton Fields – Up to 200 residential units.

#### 5.4.6
Analysis has been undertaken to demonstrate that the proportion of traffic growth applied using the TEMPro growth factors more than accounts for the additional traffic generated by these sites. As all of these sites lie on Newport Pagnell Road, the analysis has considered the forecast flows along this route, to the west of the junction with The Warren, generated by these developments in combination with Hardingstone SUE.

#### 5.4.7
The total new trips forecast to be generated by the above developments have been extracted from the relevant Transport Assessment documents that accompanied the planning applications. These have then been compared to the relative growth in traffic on Newport Pagnell Road as applied through the use of TEMPRO.
5.4.8 Table 6 demonstrates that the forecast growth as used within the Hardingstone SUE modelling, accounts for all cumulative development growth more than twice over compared with the forecast site development trips detailed above. Even with a proportion of general background growth in traffic across Northampton, the basis upon which the traffic modelling has been undertaken can be considered to be a robust worst case of the future conditions.

5.4.9 I therefore conclude that the TEMPro growth added to the test network has more than taken account of recent consented development and confirms the robustness of the TA.

5.5 Census Data Assumptions

5.5.1 In the Council’s SoC para 3.5 B4, the council question the trip distribution and assignment assumptions due to more recent Census data now being available.

5.5.2 I can confirm the submitted TA used 2001 Census Journey to Work information, as 2011 was not available at time of submission. The data was used to establish the trip distribution for the development. Trip distribution is the origin and destination of trips generated by the development. This was an approach agreed with the NCC in the TA Scoping Study.

5.5.3 The method involves Journey to Work origin and destination data being used to distribute the traffic to and from the development site onto the surrounding highway network. The original Transport Assessment made use of 2001 Census data for the Nene Valley Ward to model the traffic distribution for residents of the site, and potential employees. Since submission of the original assessment, data from the 2011 Census has been released. This is available at Output Area Level and has been consolidated based on their likely route from the site to their destination (and vice versa). Full analysis of Census data is enclosed in Appendix C.
Table 7 - Comparison of Census Data

<table>
<thead>
<tr>
<th></th>
<th>AM Outbound/PM Inbound</th>
<th>AM Inbound/PM Outbound</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TA Assumption 2011 Census</td>
<td>TA Assumption 2011 Census</td>
</tr>
<tr>
<td>Gowerton Road (via Brackmills)</td>
<td>36.8% 34.5%</td>
<td>45.7% 48.7%</td>
</tr>
<tr>
<td>Wooldale Road (South towards A45 S &amp; M1)</td>
<td>25.2% 30.35%</td>
<td>16.5% 12.7%</td>
</tr>
<tr>
<td>Newport Pagnell Road West</td>
<td>36.8% 33.2%</td>
<td>37.1% 36.8%</td>
</tr>
<tr>
<td>Newport Pagnell Road East</td>
<td>1.2% 2.0%</td>
<td>1.2% 1.7%</td>
</tr>
</tbody>
</table>

5.5.4 Table 7 indicates that there is very little difference between the submitted 2001 data and the more recent data from 2011.

5.5.5 In conclusion, the analysis confirms the assumptions used in the TA are reasonable and no change to distribution patterns are warranted.

5.6 Assignment of Development Traffic

5.6.1 In the Council’s SoC para 3.5 B5, the council question the assumptions relating to traffic assignment, in particular the assignment through Brackmills.

5.6.2 The overall assignment of development traffic was agreed with NCC, as confirmed in the SoCG. Additionally, the Council in their OR (para 7.48) have previously found the data fit for purpose.

5.6.3 I have visualised the assignment routing to give a clear picture of the assumptions, which are shown on Appendix B. The assignment onto the immediate network was originally provided in the TA Appendix 5 [CD 8], however I acknowledge that the assignment patterns for the additional junctions (QE, Brackmills, Rhosilli and Caswell) were not easily visible within the TA.

5.6.4 As noted above, I can confirm traffic distribution from the site was calculated based on 2001 census journey to work data. This was based on data for the Nene Valley Ward, as this was considered to be a suitable comparable location to the Hardingstone development.

5.6.5 The distribution of traffic has assumed no internalisation of trips. For a site this size, it would be expected that a certain proportion of trips would be internal, where some vehicle trips from the edge may travel to another part of the development, like the Local Centre without impacting upon the external network. Accordingly, our approach is considered robust and a worst case.

5.6.6 The majority of traffic is forecast to travel through the A45 interchanges at Queen Eleanor and Brackmills. Due to the relatively broad census distribution, the existing traffic distribution at these two junctions was applied to reflect existing traffic patterns. This is rather than assuming all traffic at Brackmills travels north and all traffic at Queen Eleanor travels south or west. In
particular, there are a number of different routes available for those wishing to travel to and from Northampton town centre, and from the site to the south and so it was considered that traffic should be split across the junction arms, loading onto all possible movements, rather than loading all traffic onto one movement, which would be considered unlikely.

5.6.7 A manual adjustment has also been made to allow for a proportion of traffic to travel to and from the Brackmills Industrial Estate itself to reflect that some residents are likely to be employed at Brackmills. This is considered a conservative estimate, in the longer term it can be assumed that a significant proportion of residents of the Hardingstone development are likely to be employed at Brackmills Industrial Estate.

5.6.8 In conclusion, I consider that all reasonable assumptions have been made to assign the development traffic to the network. Those assumptions are based on the following:

A. Using Census Data as a basis for trip distribution;

B. Assigning most trips by A45 for trips north, but using engineering judgement to assign some via Brackmills.

5.6.9 These assumptions were agreed with NCC and were acceptable to the Council as noted in their OR. I consider the resultant traffic flows arising from these assignment patterns to be appropriate for use in the subsequent junction testing and boundary percentage impact testing.

5.7 **LinSig Models for Queen Eleanor and Brackmills Interchanges**

5.7.1 In the Council’s SoC para 3.5 B6, the Council question the LinSig models which were undertaken at Queen Eleanor and Brackmills interchanges.

5.7.2 The Council’s appointed transport consultants, Glanville issued a letter covering a number of detailed LinSig modelling questions dated 11 February 2015 [CD 83]. This letter asked a series of technical questions about the LinSig models undertaken at QE and Brackmill interchanges. This communication and subsequent correspondence between the Appellant and Glanville is enclosed in Appendix E.

5.7.3 On receipt of the letter, I called Glanville to discuss the points and Glanvilles requested the computer model files and these were issued to Glanville and a further list of technical questions was raised by Glanvilles in a letter dated 10 April 2015, Appendix E [CD 84]. In addition to the technical quires raised, this correspondence also asked if the Appellant would respond to any of the pointed raised in the Council’s Statement of Case.

5.7.4 The Appellant prepared a technical response to these questions and was issued to the Council and Glanville on 17 April 2015 [CD 85].
5.7.5 In response, Glanville prepared a further note on model issues dated 8th May 2015 [CD 89]. During the process the Appellant maintained regular telephone communication with Glanville and both parties have sought to agree common ground. As some of the technical queries were confirmed by Technical Note 1, the focus of Glanville further note was to highlight 7 detailed model issues. The points can be summarized into the following 7 topics;

- Assumptions about the type of signal controller,
- Saturation Flows
- Give-way criteria
- Cruise Time and speeds
- Lane designation and Flare Model
- Exit blocking and Queuing
- Wider Network Capacity Issues / Manual count data.

5.7.6 On receipt of this further note, a series of telephone conversations were carried out between the Appellant and Glanville. This resulted in Glanville preparing some further clarification on their points raised, and this was set out in an email dated 13th May 2015 [CD 92]. All of the correspondence is enclosed in Appendix E.

5.7.7 Before responding to the technical points raised by Glanville, I wish to set out the context of the modelling, as this is a significant point which seems to have been misunderstood by the Council and their consultants, Glanville. The LinSig modelling at QE and Brackmills was requested by NCC in order to assess the impact of the Appeal Scheme on the County network only. For both junctions, the County network comprises the roundabouts and their approach lanes, but not the A45 slip lanes nor the A45 itself. The A45 slip lanes and the A45 itself are under the control of HE and will be the subject of improvements delivered through the NGMS. As discussed in Chapter 4, the Appellant has agreed a contribution towards the NGMS and this will help fund the planned improvements to the A45 corridor.

5.7.8 As indicated in Chapter 4, HE have already undertaken microsimulation modelling (VISSIM) to test the benefits of the NGMS strategy and those benefits have been shown to be deliverable. I have already confirmed that QE and Brackmills are considered to be the highest priority for HE and funding is in place for their improvement.

5.7.9 It is in this context that the submitted LinSig modelling was produced. As the trunk road benefits of the NGMS had already been modelled by HE, it was agreed between NCC and the Appellant that LinSig should be used to explore County related impact only. The submitted LinSig modelling was never submitted in order to fully test the trunk road and County impacts together. However, some assumptions were included in the LinSig model to ensure that NGMS benefits were taken into account.
5.7.10 The remainder of this section responds to Glanvilles points in turn.

Controller Specifications

5.7.11 Glanvilles in their email dated 13 May 2015, attached a series of controller specifications for the current junctions. I consider these to be irrelevant, as the junction will be upgraded to MOVA control as part of NGMS, as outlined in Chapter 4. MOVA will dynamically alter the cycle time and other signal settings to best manage the competing traffic demands. This means the cycle time will change, as often as every cycle.

5.7.12 I acknowledge within the submitted modelling, a 60-second cycle time was modelled which does not match the 75-second cycle as detailed within the fixed-time plans for Queen Eleanor Interchange, presented by Glanvilles. Longer cycle times often favour the circulatory carriageways and can create larger queues on approaching arms and in practice the cycle time will be adjusted to respond to fluctuations in traffic based on the MOVA control and thus not be fixed.

5.7.13 However, the Appellant has maintained a constant cycle time over the base and resultant scenarios. This was done so that the ‘nil detriment’ test can measure the performance of physical changes to the junction only, and not be influenced by other changes to other assumptions.

5.7.14 However, to explore the effects of a longer cycle time, a sensitivity test has been carried out at Queen Eleanor to understand the impact of operating a 75-second cycle rather than 60-seconds as originally modelled. In practice MOVA will improve the overall capacity position, but LinSig is unable to model such control. The sensitivity analysis is presented below in para 5.7.32 onwards and shows that operating a 75 second cycle would make no significant difference to the model outputs and confirms the conclusion of ‘nil detriment’.

Saturation Flows

5.7.15 It has been noted by Glanvilles that user-specified saturation flows have been used in the base models of the magnitude of 2,100 PCU/Hr at both A45 interchange junctions. PCU / Hr are Passenger Car Units / Hr

5.7.16 When models are first prepared in LinSig, generalised saturation flows of 1800-2000 PCUs are applied, in accordance with normal practice. These values are widely accepted as the nominal value for signalised roundabouts. However, when run, the model for Queen Eleanor consistently reports greater than 100% Degree of Saturation. Observed traffic flows from actual survey counts have been used to validate the models, demonstrating that a higher level of saturation flow is actually occurring due to a certain known level of traffic travelling through junction stop lines in any given cycle. Therefore higher levels of saturation flows have been applied to reflect a realistic base model, based on surveyed traffic flows.
5.7.17 However, to give the Council comfort, sensitivity tests have been undertaken at Brackmills adjusting saturation flows on signalised lanes to 2000 pcu/he/lane. Results of these sensitivity tests are outlined below and shows no significant difference in model outputs and confirms the conclusion of ‘nil detriment’.

*Give-Way Model*

5.7.18 Glanville in their note dated 13th May 2015 requested some further details on the calculation of saturation flow. These further details of the give-way models are provided as Appendix G of this Proof, as requested by Glanville’s.

*Cruise Time and Speed*

5.7.19 As stated in their note dated 13 May, it has been noted by Glanvilles that cruise times are not provided on all arms of the models. These have now been included in the sensitivity testing as detailed below, and I can confirm that their inclusion does not make any significant difference to the model outputs and confirms the conclusion of ‘nil detriment’.

*Lane Destinations and Flare Model*

5.7.20 The 13th May 15 note from Glanville identifies the variable saturation flows applied at Brackmills, were calculated using the RR67 methodology. Glanvilles query this due to the change in saturation flows according to lane designations altering the relative capacity of the junction models. A series of tables are provided within the Glanvilles note relating to lane lengths. It should be noted that the modelled values are in PCUs rather than in lane length.

5.7.21 To give the Council further comfort on the robustness of the models, the base model sensitivity tests detailed below now include alterations to saturation flows at Brackmills in order to address the concern on variable saturation flows.

*Exit Blocking and Queuing*

5.7.22 The Glanvilles note identifies issues of exit blocking and excessive queuing at both A45 interchange junctions during some peak periods. In particular at Queen Eleanor Interchange exit blocking is identified on the northern circulatory section of the roundabout; and at Brackmills exit blocking is identified at Pavilion Drive and the southbound on-slip from the roundabout.

5.7.23 I acknowledge that exit blocking does sometimes occur at both interchanges, however this is generally for short periods within the peak hour and related to staff shift patterns. It is also acknowledged that there is congestion in the area and this creates delay on some roundabout approaches.
5.7.24 To fully understand the current level of congestion, I have undertaken a series of peak hour observations and these are corroborated with ‘real-time’ congestion data obtained from www.roadworks.org. This draws on actual driver conditions monitored by the World Traffic Service. This is the organisation who provide data to all major Sat Nav companies. This data is contained in Appendix F.

5.7.25 The peak hour observation data has been collated for a week of morning peak periods for both the Queen Eleanor and Brackmills Interchanges. As can be seen from the images detailed in Appendix F, some queuing and congestion is observed on a number of the arms and circulatory carriageways of the two junctions. It should be noted that the majority of the links are still running, if slowly, with only those coloured red/black classified as ‘stop-go’ traffic as detailed in the legend. It should also be noted that, towards the end of the peak hour traffic flows reduced rapidly with congestion significantly reduced by 0915 on all days observed.

5.7.26 The agreed LinSig models do not represent exit blocking. However, as set out above, the analysis must be viewed in the context of the NGMS. The primary purpose of the NGMS is to manage the congestion situation on the A45 and its slip lanes and associated junctions. This will be done by managing queuing on the roundabouts through MOVA control / further signalisation and regulating access onto the A45 by ramp metering. This ‘gating’ strategy is designed to ensure that junctions do not lock up and queuing is managed into less sensitive locations.

5.7.27 The Appellant’s LinSig models which have been prepared to assess a ‘nil detriment’ mitigation scheme, must be viewed in the context of the NGMS and should not be considered in isolation. The resulting physical improvements proposed by the Appellant are complementary to those proposed by NGMS, which will deliver further improvements to QE and Brackmills.

5.7.28 The issue of exit blocking does not in my view need to be considered in the sensitivity model, given the presence of the NGMS. If the Appellant were to model exit blocking and seek to mitigate the consequences, it would require works to the A45 and its slip roads and this would not be in accordance with the principles of NGMS. NGMS was developed as a ‘strategic solution to a strategic problem’ and the strategy is designed to explicitly avoid piecemeal changes to the trunk road network by individual developers.

5.7.29 It is acknowledged that the proximity of Pavilion Drive to the Brackmills Interchange is such that queuing on Pavilion Drive could interact with the operation of the Brackmills junction due to queuing traffic along the A45 southbound on-slip. The internal traffic management on Northampton Business Park is such that queuing on internal roads has been anecdotaly observed during peak periods, particularly during the morning. It is considered that alterations to how traffic enters and exits the business park, in particular access to on-site car parks could significantly reduce this peak time queuing issue, particularly when considered alongside the proposals to signalise the left-in and left-out junction of Pavilion Drive and the A45 on-slip.
Sensitivity Tests

5.7.30 A sensitivity test at Queen Eleanor has been carried out with the following alterations to parameters, which are based on the views from Glanvilles in their 13th May note:

- Input cruise times to all lane connectors;
- Input physical lane lengths to all circulatory lanes;
- Revise cycle time to 75s (as per Controller Specification)
- Produce evidence to support give way parameters
- Review Green Split and offset for Base Year AM and PM scenarios.

5.7.31 It should be noted that intergreen values suggested by Glanville as specified within the Controller Specification have not been applied as they are considered unsafe in road safety terms, and has been reverted to six seconds in all cases. I confirm this is a reasonable compromise. This is unlikely to affect the operation of the junction models as, in some case the Controller Specifications state a 5 second intergreen time, and in other cases a 7-second delay. Taken together, a 6-second intergreen time across the board is considered appropriate.

5.7.32 This sensitivity test has been undertaken on the Base 2012 model. The results of this are set out below and models outputs contained in Appendix G:

<table>
<thead>
<tr>
<th></th>
<th>Base AM Peak Hour</th>
<th>Base PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PRC</td>
<td>Delay</td>
</tr>
<tr>
<td>Original Assessment</td>
<td>-2.4%</td>
<td>107.12</td>
</tr>
<tr>
<td>Sensitivity Test</td>
<td>-4.9%</td>
<td>110.65</td>
</tr>
</tbody>
</table>

Table 8

5.7.33 As can be seen from the results in Table 8, there is very little difference between the results for the different cycle times. The sensitivity test is marginally worse than the original assessment during the AM peak period, however performs marginally better during the PM peak for PRC, but overall delay increases very slightly.

5.7.34 A sensitivity test has been undertaken on the baseline model of Brackmills with the following alterations to parameters, based on the views of Glanvilles in their 13 May 2015 note:

- Adjustment of lane saturation flow to 2,000 pcu/he/lane for signalised lanes;
- Input cruise times to all lane connectors;
- Input physical lane lengths to all circulatory lanes;
- Produce evidence to support give way parameters;
- Review Green Split and Offset for Base Year AM and PM scenarios.
This test has been undertaken on the Base model for the junction. The results of this are set out below in Table 9:

<table>
<thead>
<tr>
<th></th>
<th>Base AM Peak Hour</th>
<th>Base PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PRC</td>
<td>Delay</td>
</tr>
<tr>
<td>Original Assessment</td>
<td>-0.3%</td>
<td>37.82</td>
</tr>
<tr>
<td>Sensitivity Test</td>
<td>-1.7%</td>
<td>40.92</td>
</tr>
</tbody>
</table>

The results suggest that there is little variation between the original base model and the sensitivity test version with both showing the junction operating at or close to capacity, as noted within the original TA. As noted the capacity reduces a little in the AM peak, but improves in the PM peak.

In overall conclusion, as the sensitivity analysis makes little difference to the agreed model outputs, I therefore conclude that the original assessment provides a representative baseline model for the purpose of ‘nil detriment’ future year testing of the County network, if viewed in the context of NGMS.

Critically, exit blocking and the interaction of the A45 on junction operation have been considered, in so much as they will be managed through the NGMS. I consider that exit blocking is not relevant as the Appellant’s mitigation schemes must be seen in the context of the NGMS.

Furthermore, the views of Council are clearly at odds with that of NCC, which have undertaken technical audits of the modelling work and concluded it is ‘fit for purpose’, culminating with the full revised TA being approved by Rob Sim-Jones on 19th December 2013.

5.8 **Traffic Engineering Design Work**

In the Council’s SoC [CD 21] para 3.6, the Council make a number of points about the level of traffic engineering work undertaken to support the Section 278 Mitigation Schemes. Specifically, in para 3.6 B1, the council question the OS mapping base used for design work.

Furthermore, in para 3.6 B2, the council say there is no evidence of vehicle tracking being undertaken. This is correct as it was never requested by NCC. This would normally be undertaken at Section 278 Stage, during detailed design. This position was confirmed to Glanville in response to their email on these issues [CD90].

In para 3.6 B3, the council say there is no evidence of Road Safety Audits being undertaken. I accept that Stage 1 Road Safety Audits are sometimes required to support traffic engineering layouts with TAs, but practices differ between Highway Authorities. In this instance they were not requested by NCC.
5.8.4 In para 3.6 B4, the council question the level of technical approval and compliance with design standards. The overriding point here is that NCC in their formal response to NBC approved the TA work. By definition this must include all the elements within the TA, including this design work. In para 3.6 B5, the council question if any departures from standards are required.

5.8.5 In response to these points made by the Council, I have undertaken further technical design work on the mitigation schemes at Queen Eleanor and Brackmills interchanges, which considers the proposed junction improvements on the A45 from the perspective of design, compliance of standards and safety. In all, I have undertaken:

- a more in depth description of the design rationale for the schemes
- Swept path envelopes on a chosen number of turning movements around both junctions.
- Stage 1 Road Safety Audits to assess the proposed junction works. A summary of the audit findings and designers response are provided within this note with full audits and Designers Responses appended. The RSA were undertaken using the latest guidance in HD 19/15.
- Topographic survey checks at the junctions to determine the accuracy of the OS mapping.
- Further design compliance checks using the Design Manual for Road and Bridges (DMRB).

5.8.6 As indicated in Chapter 4, this additional technical work was issued to NCC for their review and their views are agreed in a Supplementary SoCG.

5.8.7 Technical Note 2 enclosed in Appendix H [CD 86] was also issued to Glanville on 11 May 2015, with a view to seeking common ground. However, at the time of proof submission, no feedback has been received.

**Brackmills - Design Rationale**

5.8.8 The proposed improvements at Brackmills Interchange from the original Transport Assessment are enclosed in CD 08 Appendix A. To guide the reader, an annotated diagram is also included below Figure 2. The improvement comprises of widening approach and circulatory carriageway as well as partial signalisation. The improvement includes 3 traffic lanes on the existing northern bridge (point 1, see diagram). This will require some minor modification to convert the existing hardstanding area into running carriageway.
5.8.9 The existing Brackmills Interchange is already operating as a partial signalised junction, with both the off-slip roads from A45 as signal controlled (point 2). The proposed layout maintains the same arrangement. As a result, the stopping distance, intervisibility and other characteristics of a roundabout are unchanged.

5.8.10 The design has been developed to address the existing turning demand, which has an unusually high volume of u-turning traffic from A45 South. The u-turn movement is associated with Northampton Business Park that provides an access along the southbound on-slip road, in the form of a “left-in/left-out” (point 3) to Pavilion Drive. Although this arrangement is unusual in this context, examples can be found at roadside service facilities.

5.8.11 In order to accommodate the existing right and u-turn demand from A45 northbound off-slip, the approach is widened to 3 traffic lanes (point 4). The widening will take place on the nearside, so that earthwork strengthening works will not affect the A45 mainline. The widening work will tie in to the existing highway layout without affecting the existing pedestrian subway (point 5).
5.8.12 The access to the west (Eagle Drive) has a very modest traffic demand, only connected to a hotel and a golf club. As a result, no improvement is proposed on this approach (point 6).

5.8.13 The circulatory carriageway at the north-west quadrant is improved, with an extra traffic lane added (point 7). This new arrangement will improve lane discipline. The A45 northbound off-slip traffic is likely to use lanes 2-4, whereas the traffic from the circulatory (south bridge) requires lanes 1 & 2 to join the A45 northbound on-slip. The signal-controlled junction will minimise the chance of having 4 vehicles travelling abreast on the circulatory at any one time, thus improving safety.

5.8.14 Due to the A45 northbound off-slip requiring effectively 3 traffic lanes to right turn (and u-turn), the lane continuation will provide 3 lanes onto the north bridge (point 1). Lanes 1 & 2 are then marked for Caswell Road and the offside lane exclusively used for the A45 southbound on-slip (u-turns).

5.8.15 The existing north bridge, currently marked for 2 wide traffic lanes, is slightly too narrow to remark into 3 traffic lanes. The current preferred option is to make use of part of the hardstanding area on the nearside to slightly increase the width of carriageway in order to achieve 3 traffic lanes. These will be 3.0m wide lanes (again point 1).

5.8.16 The Caswell Road approach will be improved to a part-time signal controlled junction (point 8). The approach will operate as a traditional roundabout approach in the AM but signal controlled in the PM to accommodate the higher traffic demand from Brackmills. The approach will be widened to 3 traffic lanes to provide additional capacity. It is important to note that the widening is achieved by realigning the central reserve as well as the nearside channel, in order to avoid works extending into the adjacent office development. In terms of entry deflection, the existing and proposed layouts are similar; neither of them achieves the desirable entry deflection outlined in the current TD16. However, it is not considered the proposed layout is worsening the situation.

5.8.17 In terms of safety, the part-time signal is important for safe signal operation. In the AM peak, there is the large demand in u-turn traffic into Pavilion Drive, via a single lane on the circulatory carriageway. It is important to ensure the circulatory traffic is unimpeded, reducing the likelihood of exit blocking occurring. Widening the circulatory to 2 lanes was considered, and rejected by the Appellant. This is due to a 2-lane arrangement having the potential to result in undesirable weaving, and that is not helped with the proximity to the “Left-in/Left-out” access at Pavilion Drive.

**Brackmills - Swept Path Envelopes**

5.8.18 A selected number of movements have been tested using the Autotrack software to understand the interaction of vehicles around the proposed upgraded junctions. These are attached in Appendix H.
5.8.19 The assessment is to demonstrate the situation when an articulated vehicle and a large car (in this case a long wheel based 4x4) are travelling side-by-side heading for the same exit. During the AM and PM peaks, the proportion of heavy vehicles, particularly articulated vehicles, is low at approximately 7% of total flow. This is confirmed by the traffic survey data within the TA CD 8. Therefore, this side-by-side event is relatively infrequent. Outside the traditional commuting peak periods, overall traffic flow is lower but there are increased heavy vehicle activities. In practice, large vehicles often involuntarily disregard the lane marking when negotiating the circulatory carriageway unless it is absolutely necessary. Also, a car travelling alongside often feels vulnerable and exercises some courtesy to avoid the blind spot of a large vehicle. As a result, the “side-by-side” event is merely demonstrating the realistic worst case scenario.

- Sketch 10a (Appendix H) - This demonstrates 3 vehicles can travel abreast from the A45 northbound off-slip towards Caswell Road and u-turn. It will be a challenge for a large vehicle (on the nearside) to fully keep the trailer within the lane markings.
- Sketch 10b (Appendix H) - This demonstrates the A45 southbound off-slip can accommodate the left-turning movement.
- Sketch 10c (Appendix H) - Traffic travelling on Caswell Road, particularly in the PM peak, may encounter this situation. It is shown that the 2 large vehicles can travel abreast, with a car in the off-side lane.

Safety – Personal Injury Accidents

5.8.20 Accident records between 2008 and 2013 show that only 2 slight accidents were recorded at Brackmills Interchange and are enclosed in CD 87 Appendix C. Both accidents shared the same “Rear shunt” characteristics with a causation of “Fail to stop”. One accident occurred at the “Left-in/Left-out” junction and the other at the A45 northbound off-slip road.

5.8.21 The proposed modifications on A45 northbound off-slip will reduce the scale of queuing, and will therefore improve safety.

Safety - Stage One Road Safety Audit

5.8.22 Independent Stage One Road Safety Audits have been undertaken on the Brackmills Interchange mitigation proposals by TMS Consultancy. A summary of the audit is provided within this Technical Note, along with the proposed Designers Response. Full copies of the audits and responses are appended to this note in Appendix H.

5.8.23 In summary, it is considered that all items raised within the audits can be addressed through the detailed design process and are minor in significance. There are no fundamental problems identified that require a significant redesign of the proposed mitigation measures.
5.8.24 In summary, the audit identified the following items:

- A45 Northeast bound off slip road – potential hazard to occupants of errant vehicles. The widening of the off slip requires some localised embankment re-shaping and adjustments to Vehicle Restraint System. There is also a potential hazard caused by existing vegetation limiting forward visibility.
- Circulatory carriageway north-western quadrant – potential for land changing, sideswipe and shunt type collisions due to insufficient lane marking and guidance.
- Eagle Drive – splitter island street furniture potential for collisions with widening of circulatory carriageway.
- Eagle Drive – potential pull-out collisions across 4-lane circulatory carriageway;
- A45 Northeast bound on-slip – splitter island street furniture potential for collisions with widening of circulatory carriageway
- Circulatory carriageway – potential vehicle collisions at single lane section at part-time traffic signal.
- Caswell Road – current location of the Advanced Direction Sign could result in collisions. The vegetation on the approach is also identified as a potential hazard.
- Traffic signal heads – potential obscuring of traffic signals by three-lane circulation.
- Markings and Signage – clear signage and markings to avoid lane changing and sideswipe type collisions.

5.8.25 As detailed above, it is considered that all items listed above can be addressed through the detailed design process with an itemised Designers Response provided in Appendix H.

5.8.26 Furthermore, NCC agree with these conclusions, as set out in the SoCG 15th May 2015 [CD 19].

*Queen Eleanor – Design Rationale*

5.8.27 The proposed improvements at Queen Eleanor Interchange include widening approaches and circulatory carriageway and the design proposals reproduced from the original Transport Assessment are enclosed in Appendix H. An annotated diagram is also shown below to guide the reader. The existing junction is already partially signalised and the control method is unchanged in the proposed scheme.
5.8.28 The design proposal shown in Figure 3 seeks to manage traffic demand and make best use of the approaches by providing additional stacking capacity. This in turn will manage the level of queuing and improve safety. The physical constraints, road bridges and pedestrian underpasses, are complex and have influenced the proposed works.

5.8.29 The A5076 Mere Way approach already has 3 traffic lanes at the stopline. The proposed improvement is to lengthen the 3 lane section, so that traffic can maximise the stopline capacity (point 1). The widening will take place on the wide central reserve.

5.8.30 The A508 London Road approach also has 3 traffic lanes, but operates as give way with the roundabout (point 2). The proposed improvement is to lengthen the 3 lanes section, offering more stacking space.

5.8.31 The circulatory carriageway with the A508 is widened to accommodate 4 traffic lanes (point 3). This allows lanes 1 & 2 to be used for the A45 northbound on-slip and leaving the 2 offside lanes...
for circulating traffic. Although the circulatory has 4 traffic lanes, it is unlikely to have 4 vehicles abreast at any one time, given the composition and magnitude of peak hour traffic.

5.8.32 The northern bridge over the A45 is to be re-marked into 3 traffic lanes (point 4). Visual inspection suggests the structure has the same cross-section as the southern bridge, which is already marked with 3 traffic lanes. The proposed lane widths are 3.0m.

5.8.33 Hardingstone Lane approach is slightly modified to fit into the works of the circulatory carriageway widening (point 5). The geometric parameters create a slightly enlarged give way junction.

5.8.34 An important aspect of the design is the improvement on the circulatory carriageway section with Hardingstone Lane. The Newport Pagnell Road exit will be enhanced, by providing 2 traffic lanes exiting the circulatory carriageway (point 6). At the same time, it is equally important to provide 2 traffic lanes exiting for the A45 southbound on-slip and 3 lanes continuing onto the southern bridge. As a result, a 5th traffic lane is added at the circulatory carriageway with Newport Pagnell Road (point 7). The widening will take place on the off-side, which will require some minor strengthening works on the embankment. An overhead gantry may be needed to improve lane legibility.

5.8.35 Newport Pagnell Road approach is widened to accommodate 3 traffic lanes (point 8). Widening will take place on the nearside and that will affect the footway access of Premier Inn Northampton South (Wootton). This is in line with proposals included within the NGMS scheme for the Queen Eleanor junction.

5.8.36 In terms of entry deflection, the proposed layout is not modifying the give way approaches heavily. Therefore, the existing geometric characteristics are largely retained. For signal intersections, stopping distance, intervisibility and other characteristics are largely unchanged.

**Swept Path Envelopes**

5.8.37 As discussed above, selective swept path analysis has been undertaken at the Queen Eleanor Interchange to demonstrate the potential interaction of vehicles on the circulatory carriageways. Details are enclosed in Appendix H.

5.8.38 Like Brackmills, the assessment is to demonstrate the situation when an articulated vehicle and a large car (in this case a long wheel based 4x4) are travelling side-by-side heading for the same exit. During the AM and PM peaks, the proportion of heavy vehicles, particularly articulated vehicle is low (less than 5%) and, like Brackmills, driver behaviour generally means this situation does not arise.
• **Sketch 11a** - This demonstrates 3 vehicles can travel abreast from the A45 northbound off-slip. It will be challenging for a large vehicle right turning towards Newport Pagnell Road to fully keep the trailer within the lane marking. However, a car is able to travel alongside with ease and this is considered safe and considers further at Section 278 design stage.

• **Sketch 11b** - This shows 3 vehicles abreast on the A5076 approach. A car is in the middle lane travelling alongside a large vehicle towards A45 northbound on-slip. Again, the large vehicle right turning towards A45 southbound on-slip will have difficulties in fully keeping the trailer within the lane marking across the north bridge section of circulatory carriageway and consider further at Section 278 design stage.

• **Sketch 11c** - The A45 southbound off-slip can accommodate 3 vehicles abreast (car in the middle lane). The 3 vehicles can keep clear of each other within their own lane.

• **Sketch 11d** - Large vehicles using Hardingstone Lane is a highly unlikely scenario. However, it demonstrates the realigned channel is suitable for large vehicle to negotiate.

• **Sketch 11e** - This scenario could happen if large vehicles from Brackmills Industrial Estate choose to use Landimore Road for egress. In practice, the large vehicle on the offside lane will utilise the “hatched” area near the stopline on Newport Pagnell Road.

**Safety – Personal Injury Accidents**

5.8.40 The accident records enclosed in Appendix H, between 2008 and 2013 indicate 29 accidents in total, of which 3 were serious. The most common causations are: “Fail to observe”, “Unable to judge speed”, and “Rear shunt into stationary vehicle”. The A5076 section has the most number of accidents. This follows by both A45 Off-slip roads and Newport Pagnell Road section. Only 2 accidents were related to fail to obey traffic signal.

5.8.41 There are 11 accidents occurred in AM or PM peak, 15 accidents during the day (outside peaks) and 3 at night. The 3 serious accidents include a motorcycle, a pedestrian (not expected on roundabout) and a single vehicle incident.

5.8.42 The proposed widening at A5076 and Newport Pagnell Road is designed to enhance capacity, but may not actively manage approach traffic speed. The improvement may require appropriate warning signs and these will be considered further at Section 278 design stage.

5.8.43 The improved lane discipline through road markings will reduce side swipe accidents. However, this relies on vehicle speeds are managed properly, as indicated above.

**Safety – Stage One Road Safety Audit**

5.8.44 Independent Stage One Road Safety Audits have been undertaken on the Queen Eleanor Interchange mitigation proposals by TMS Consultancy. A summary of the audit is provided below,
along with the proposed Designers Response. Full copies of the audits and responses are appended in Appendix H.

5.8.45 In summary, it is considered that all items raised within the audits can be addressed through the detailed design process and are relatively minor in significance. There are no fundamental problems identified that require a significant redesign of the proposed mitigation measures.

5.8.46 The audit identified the following items:

- London Road approach – relocation of advance lane destination sign could reduce visibility due to vegetation;
- Circulatory carriageway northern quadrant - widening of circulatory carriageway will require the relocation of a manhole cover and may require additional VRS.
- Radius between Hardingstone Lane and Newport Pagnell Road may require a lighting column to be relocated;
- Newport Pagnell Road approach – potential for shunting collisions due to vegetation affecting visibility;
- Newport Pagnell Road – informal pedestrian crossing is sub-standard. Potential for relocation of existing bus stop;
- A5076 approach – location of trees in central reserve may affect visibility and potential for pedestrian collisions at informal crossings;
- Traffic signal heads – potential obscuring of traffic signals by three-lane circulation.
- Markings and Signage – clear signage and markings to avoid lane changing and sideswipe type collisions.

5.8.47 Again, it is considered that all items listed above can be addressed through the detailed design process with an itemised Designers Response provided as an appendix to this note. Furthermore, NCC agree with these conclusions, as set out in the SoCG 15th May 2015 CD 19.

Topographic Survey

5.8.48 The original designs as submitted and agreed with Northamptonshire Highways were based upon Ordnance Survey digital mapping. The possible inaccuracy of OS data has been highlighted by the NBC within their Statement of Case as a potential issue.

5.8.49 In response to these comments, sample topographical information has been collected at both A45 interchanges to understand the extent to which the OS data is accurate.

5.8.50 Appended to this proof in Appendix H, SK10 and SK11, provide a comparison of the OS base with the sample topographic survey results taken on relevant kerblines. As can be seen from these drawings, the variation from the OS base is very minimal across the area of interest with an
extremely high level of accuracy compared to ‘on the ground’ measurements. There are very slight variations on the A45 over-bridges with the topo surveys showing a slightly narrower carriageway. However, such a variation is not considered significant.

5.8.51 As such, I do not consider that any alterations to the proposed junction designs are required based on these results.

5.9 Impact on Brackmills Industrial Estate and Future Growth

5.9.1 In Para 3.7 – 3.11, the council claim that evidence has not been provided to demonstrate there will not be a detrimental impact on the occupiers of the Brackmills Industrial Estate. I believe this claim to be unfounded. I do however fully accept there is existing heavy traffic congestion on and near the A45 during peak periods and can see that this affects the Brackmills Industrial Estate. It is important to make clear that new development has no role in managing or removing these existing problems. Instead, it was agreed with NCC that the development should achieve ‘nil detriment’ i.e. to leave the highway network in no worse condition following development. In practice, this means designing mitigation schemes which demonstrate through traffic modelling that a junction and its arms are not affected by increased delay or queuing.

5.9.2 Since this initial agreement was made in late 2011, NPPF has changed the expectations of development and its traffic impact. The latest advice contained on NPPF Para 32, now allows development to create some impact, but not severe impact. This means our approach to ‘nil detriment’ has created a robust assessment, in light of NPPF which allows a degree of impact to be accepted without mitigation.

5.9.3 To highlight our case on traffic impact, I have structured my evidence around four aspects,

- Agreement with NCC on traffic impact analysis,
- Agreement with NCC on Section 278 Works for 3 relevant junctions,
- Agreement of the HA on Section 106 Contribution for NGMS, and
- Principle of ‘interim benefit’ upon first development occupation.

5.9.4 Firstly, I refer to the extensive traffic surveys and technical analysis, which were undertaken to allow the development impact to be quantified. This is an important aspect of TA production, as it subsequently allows mitigation schemes to be developed. As indicated in Chapter 4, all relevant traffic assumptions are agreed with NCC via the SoCG.

5.9.5 Secondly, a series of Section 278 Works have been agreed with NCC at 3 junctions near the A45 and Brackmills Industrial site. These mitigation schemes in themselves are sufficient to deal with development traffic and create ‘nil detriment’ for junction delay. Importantly, the analysis contained within the TA, does not include the beneficial effects of the NGMS, which will allow the
future network to perform better. The benefits are described in chapter 4. Our analysis was undertaken solely to determine a ‘nil detriment position’ and corresponding mitigation scheme. Each improvement is discussed in turn;

- Caswell Road / Rhosili Road Roundabout – the mitigation improvements are outlined in para 8.3.2 of the TA. Para 8.3.4 – 8.3.6, outline the benefits of mitigation. In this instance, I am defining ‘nil detriment’ as the traffic condition on the roundabout approach arm in 2026, for the test year agreed with NCC. The analysis compares the RFC (Reference Flow to Capacity) and Queue (Mean Max) for both 2026 Base and 2026 resultant and mitigation. The analysis shows that the mitigation scheme has been successful in returning RFC and Q (queuing) to 2026 base levels on any arms exhibiting congestion.

- Queen Eleanor Interchange – the mitigation improvements are outlined in TA para 8.4.2 and shown graphically in TA Appendix 12, and as further detailed in my proof above. In this instance, the Degree of Saturation (%) and Queue has been used as a proxy for junction performance, as LinSig uses this term, not RFC. It is typically accepted that a junction arm starts to exhibit congestion when DoS reaches 90%. In addition, LinSig also reports on Total Delay (per hour). The summary outputs are contained in the TA Table 8-5 and 8-6 and indicate that the mitigation has reduced total junction delay to below 2026 Base levels.

- Brackmills Interchange – the mitigation improvements are outlined in TA para 8.5.3, and further detailed in my proof above. The summary of the outputs are in TA Table 8-7 and 8-8 and indicate that performance improves between the Base 2026 and 2026 with development and mitigation in place, thus demonstrating that nil detriment is better than achieved.

5.9.6 Thirdly, a Section 106 contribution of £1.2m has been agreed with the Highways Agency for delivery of works to A45. Importantly, these works are independent of the Section 278 works and will help mitigate and manage wider growth in traffic, over and above the analysis described above.

5.9.7 Finally, I would like to introduce the principle of ‘interim benefit’. I use this term to represent the capacity benefit which the initial Section 278 works deliver on the network. The benefit arises as the junction mitigation has been designed to create ‘nil detriment’ at 1,000 units (the test scenario). However, as the full mitigation is to be delivered upon first occupation (i.e. zero units), there is a surplus capacity created on development occupation, to each of the junctions being mitigated. I can therefore conclude there will be some significant capacity benefits in the early years of development. Importantly, although there is a NGMS Delivery Plan for improving the A45 and associated junctions, the local Section 278 works will act as a robust safety net, giving a bonus to the network in the early year of the development.

5.9.8 To demonstrate the principle of this approach at Queen Eleanor Interchange, a series of interim junction scenarios have been tested using the agreed LinSig model for this junction, but with
some intermediate scenarios – 2018 Base and 2022 Base with 500 units, as this relates to a midway development scenario. This draws on data from the submitted TA and new testing which is contained in Appendix I. The core outputs are visualised in Figure 4, shows actual junction delay data for the Queen Eleanor interchange in the AM Peak for various development scenarios.

Figure 4

5.9.9 The Figure 4 shows how the junction will perform with different scenarios over time. For base traffic (shown orange), the junction delay is shown to increase from 2012 (point a) to 2026 (point c). When the development is first occupied in 2018 (point b), if the development (shown red) is left unmitigated the delay will increase to point d in 2026. The traffic impact and quantum to be mitigated is the difference between point d and c. If the agreed local improvement (shown green) is implemented at QE during first occupation (point b), the junction performance will improve to point e. The difference between point b and e is termed the ‘interim benefit’.

5.9.10 As development traffic grows over time (dark green), in line with the build out rate, the junction performance will reduce to point g. During this period, the ‘interim benefit’ will also reduce. In 2026 the final assessment year, as point g is less than point c, we can conclude that ‘nil detriment’ has been achieved and in this case bettered.

5.9.11 Importantly, these capacity benefits are independent of the NGMS and are delivered directly by Section 278 work controlled by the Appellant and are conditioned to be in place, prior to first occupation and regulated by Planning Condition.
6 Third Party Representations

6.1.1 In the course of determination of the Planning Application, a number of representations were made by third parties. This chapter deals with the principle points made.

6.2 Review of Parish Council Objections

6.2.1 The Parish Council confirmed their views in a letter dated 15th April 2014 to the Council prior to determination [Appendix J]. Their response was also accompanied by a report prepared by Abingdon Consulting Engineers.

Sustainable Transport

6.2.2 During the course of the application, discussions were conducted with Northamptonshire County Council Passenger Transport Team as to the most appropriate public transport strategy to be applied to the Hardingstone SUE development.

6.2.3 It was recognised that the development provided the opportunity, along with nearby consented schemes, to achieve significant improvements to the bus network in the vicinity of the site. Such improvements are considered necessary to achieve mode shift amongst existing residents as well as those moving into the SUE development.

6.2.4 Following these discussions, a detailed strategy for the minimum level of service was set out, as reproduced in the committee report. This essentially provided for improvements to the existing routes through the area, as well as the creation of a new route (or diversion) to run along Landimore Road through the site. The ultimate level of service was required to be a service of at least 20-minute frequency along Landimore Road, linking the existing residential areas to the south of the B526 with Brackmills and on towards the town centre. This would provide a direct link to Brackmills which is not currently provided. Alongside this, an improvement to services along The Warren and on through Hardingstone Village at a minimum of 30-minute frequency was also required.

6.2.5 Due to European Union public sector procurement restrictions, funding for specific routes cannot be directly agreed with the local authority. The level of service will therefore be regulated through a Service Level Agreement and a form of agreement will be achieved with the local operator, in this case Stagecoach, to demonstrate the developer will procure such services, or service improvements directly.

6.2.6 Following refusal of planning permission, the Appellant has developed this strategy further through exploring the achievement of such an agreement with Stagecoach, the principle operator within the area. Discussions have been held with the Stagecoach development management team. These discussions have sought to build upon the planning conditions as set out by the
Public Transport Officer within the original draft planning conditions. A summary of these discussions are set out below;

6.2.7 It is recognised that the majority of bus routes in the vicinity are commercially operated. Only Route 33 is partially subsidised as a partnership between Milton Keynes Council and NBC. It is expected that this support will be reduced in the near future.

6.2.8 Current services in the area are considered to be poor in terms of frequency to appeal to commuters. Most services only operate at an hourly frequency at best, which does not offer a convenient solution for commuters. Stagecoach has aspirations to improve this, focusing on providing high quality links between residential areas and the main areas of employment in this area of Northampton – Brackmills, the Northampton General Hospital and Northampton town centre. Routes in the area are also not particularly convenient in terms of routing, many being circuitous due to them being adaptations of historical routes. This explains why there is currently no route along Landimore Road connecting the residential areas of Wootton with the employment areas of Brackmills. Most services continue to run radially into the town centre which isn’t necessarily the most popular employment destination in current conditions.

6.2.9 Stagecoach are keen to improve the network, and have identified the Hardingstone SUE as the best opportunity for network development out of all of the SUEs.

6.2.10 Currently, the Wootton Fields site to the east along Newport Pagnell Road are to contribute to improving the frequency of Route 14, offering a half-hourly service in the future. Stagecoach are keen to continue the momentum of this improvement.

6.2.11 Key proposals discussed with Stagecoach would involve the introduction of a new service along Landimore Road, potentially splitting routes 14 and 7, to provide links to Brackmills, the General Hospital and the town centre from Hardingstone SUE and Wootton fields and potentially connecting further south through Wootton. In summary, there is a commitment from the HCA through draft Planning Conditions to enable:

- An initial contribution of one Peak Vehicle Requirement (PVR) to provide for an additional hourly service 7am to 7pm Mon-Saturday. This would allow a half hourly service to be established along Landimore Road connecting Brackmills with Wootton.
- Route 7 would then be re-routed to provide a more direct route into the town centre.
- A second PVR would be introduced upon a certain level of residential occupation, enabling the route improvements to increase to a 15-20-minute frequency.
- This would essentially establish a high quality shuttle service between the residential areas of Wootton and the Brackmills Industrial Estate and beyond – the level of service likely to generate a significant mode shift from car to public transport.
6.2.12 The above would be secured through a Service Level Agreement between the HCA and the operator.

6.2.13 To illustrate the spatial benefits of these proposal, I have mapped the before and after situation using ArcGIS. This shows the 400m walk to the existing route 14 (orange) and route 7 (yellow) in Figure 5. This shows that parts of the Application site do not have full access to a bus route within 400m, as would be expected given the site is currently farm lands. Figure 6 shows the proposed new route in black with associated 400m buffer in blue. This analysis clearly illustrates that Hardingstone SUE will be better served by bus and provide good links to Brackmills and an alternative route to town centre.

Figure 5 – Existing Route 7 & 14 Walk Buffers
6.2.14 The letter claims that the link flow assessment included within the TA is ‘select’ and does not include the link between Newport Pagnell Road and the Queen Eleanor Interchange, therefore claiming the approach is ‘flawed’ as there has been no assessment of the traffic impact on the centre of Hardingstone Village.

6.2.15 The link flow assessment included within the Transport Assessment covered all the main routes to and from the Hardingstone SUE site including The Warren, linking Newport Pagnell Road with Hardingstone Village. A specific link assessment is included at Tables 7.11 and 7.12 examining changes in flows at the Queen Eleanor Interchange. This includes a forecast of the future flows on the Hardingstone Lane arm of the roundabout. There is no evidence to suggest there is a significant increase in flows on either of these links to Hardingstone Village as it is not considered likely that traffic will be diverted through the village as a ‘short cut’ to or from the Queen Eleanor Interchange, based on our assessment of the journey time or delay on the respective approach to Queen Eleanor interchange.

6.2.16 The Hardingstone Lane is forecast to experience an increase in flows of up to 1.9% compared with the future 2026 baseline. The Warren is also examined with no forecast change in flow along this north-south link. The link is forecast to be operating at 23.6% capacity in the future baseline, suggesting there is considerable spare capacity on this particular link.
6.2.17 The circuitous route involved for traffic travelling through Hardingstone Village to travel between the site and the A45 is considered such that very little traffic would be diverted along this route. This is an issue that has been discussed and discounted by the Local Highway Authority.

6.2.18 The letter correctly states that the submitted TA did not assess link flows on the A45 beyond the Queen Eleanor interchange. It is common practice within TAs to assess up to the edge of the main agreed study area and thus our assessment finished at Queen Eleanor. However, we understand that the A45 is already at capacity and the focus of the NGMS is about managing flow onto the A45 through junction control and potential ramp metering. In practice, if traffic flow continues to rise, it will create ‘peak hour spreading’, where people choose to travel earlier or later to avoid the absolute peak time.

**Proposed Highway Improvement Schemes**

6.2.19 The letter said the NGMS does not deal with the congestion issues nor is it fully deliverable. I have considered the technical evidence base and believe it clearly demonstrates that the NGMS has been correctly assessed and will provide an appropriate mitigation strategy given current transport policy and the aims of NPPF.

**Development Traffic Trip Assumptions**

6.2.20 The letter identifies that the traffic has been assigned using 2001 census data to understand the likely distribution of traffic on the local network. Although this approach is not perfect forecast, it is a standard approach to traffic forecasting where no actual data is available. Where a new residential development is to be located adjacent to an existing residential area, it is common practice to assume that the travel characteristics of this new development will be similar to those existing residents. This concern is identical to that raised by the council and I would refer to my evidence in Chapter 5 relating to the census data.

**Development Traffic Impact – Junctions**

6.2.21 The letter focuses on the LinSig analysis of the Queen Eleanor Interchange junction and the reliability of results. It is considered that the models included in the TA are a ‘worst case’ as no assumptions have been included regarding the re-routing of traffic and the background growth of traffic has not been adjusted to reflect this or the new development. It should also be noted that no account has been taken for the impacts of the NGMS proposals on flows at the junctions – it is likely that once these additional measures are in place the capacity of the junctions will be further improved.

6.2.22 The base models for the two A45 junctions have been based on survey data collected recently, with queue lengths calibrated. Variation can always be expected on particular days, however the change in queue on the Hardingstone Lane identified in the letter is not considered significant,
particularly considering that this arm is shown to be operating well within capacity under current conditions.

6.2.23 The reduction in degree of saturation identified on the Hardingstone Lane arm under future conditions is a result of other arms becoming congested, therefore slowing up circulatory traffic. The increase in traffic coming off the A45 southbound is such that releases capacity on the next arm around – Hardingstone Lane.

NGMS Deliverability

6.2.24 The letter states that NGMS may not be in place unless the majority of development is complete, resulting in interim impacts. I consider that the NGMS has a clear position on trigger points requiring initial financial at the point of first impact (30 trips on SRN) and the full obligation levied by 80% of trip making. HE have now prioritised A45 junctions in their Position Statement [CD 81-82] and this confirmed that QE and Brackmills remain the highest priority. HE considers this approach to give far greater benefits than numerous piecemeal improvements. [Appendix J]

6.3 Review of Hardingstone Village Action Group Comments

6.3.1 Evidence has been submitted to PINS by Hardingstone Village Action Group (HVAG) focused upon the traffic assessment and modelling as supplied within the planning application.

Mode Share

6.3.2 The evidence states that the mode share for the site is not considered accurate by using an average of surrounding wards, rather than the mode share for the Nene Valley Ward alone.

6.3.3 As with all elements of the TA, the mode share was considered appropriate by NH. The use of the 2001 Census as a source of data is a standard approach, and as the development lies on the boundary of a number of wards, it was considered appropriate to use an average of these wards to define the modal share. It should also be noted that this mode share has only been used to describe the likely use of modes other than the private car by the development residents – the total car trips has been calculated using trip rates, as detailed in Section 6.3 of the TA.

Traffic Generation

6.3.4 As stated within the evidence submitted, NH requested at the scoping stage to use the ‘Houses Privately Owned’ category within TRICS to obtain trip rates for forecasting the traffic generated by the Hardingstone SUE development. This is generally due to this category of housing having slightly higher trip rates, therefore representing a more robust worst case.

Junction Capacity Analysis – Queen Eleanor Interchange
6.3.5 The Action Group evidence includes reference to additional traffic surveys they have undertaken monitoring traffic in 2013 and 2014. Detail is not provided on the 2013 survey other than they were carried out in July which is not generally an accepted period for undertaking traffic surveys.

6.3.6 Looking in more detail at the traffic survey data provided within the Action Group evidence, it would appear that the data collected is directly comparable to that obtained from NCC, contrary to the commentary in the HVAG evidence.

<table>
<thead>
<tr>
<th>AM Peak</th>
<th>Southbound Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Northbound (Entering Roundabout)</td>
</tr>
<tr>
<td>2012 (as used within TA)</td>
<td>1091</td>
</tr>
<tr>
<td>2013 HVAG Data</td>
<td>974</td>
</tr>
<tr>
<td>2014 HVAG Data</td>
<td>1004</td>
</tr>
</tbody>
</table>

Table 10 – Comparison of Traffic Surveys – Newport Pagnell Road/Queen Eleanor Interchange (PCUs)

6.3.7 As detailed earlier in my proof, the data for Queen Eleanor Interchange was supplied by NCC and was considered robust for use within our modelling. A comparison of ATC data, as shown in Chart 10, has shown some variation in the flows along Newport Pagnell Road, however those used within our modelling are considered robust.

6.3.8 Reference is made to Tables 7.13 and 7.14 of the TA where the degree of saturation on the Hardingstone Lane arm of the Queen Eleanor Interchange is shown to decrease in the 2026 ‘do something’ scenario, perhaps counter-intuitively. This result is due to other arms on the interchange becoming congested in the future scenario such that circulatory traffic flows are slowed. Signalling the A45 off-slip provides additional capacity for the Hardingstone Lane arm traffic, allowing them to exit more easily.

Newport Pagnell Road/Wootton Hope Drive Roundabout

6.3.9 The labelling of arms within the text of the Transport Assessment is queried within regards to Newport Pagnell Road ‘eastern arm’ and ‘western arm’. The tables refer to Newport Pagnell Road (EB) and (WB) referring to the direction of travel approaching the roundabout, not as is suggested in the HVAG evidence the eastern and western arm of the roundabout. Therefore the conclusions drawn within the text are correct.

Traffic Assessment and NGMS

6.3.10 The evidence discusses the NGMS and suggests the strategy is aimed at maintaining flow on the A45 “at the expense of traffic on the contributing junctions and feeder roads”. This is challenged
as there is no evidence to suggest the NGMS will have a detrimental impact upon the operation of the wider network. The purpose of the modelling of the two A45 interchanges within the Transport Assessment was to demonstrate that ‘nil detriment’ could be achieved with or without the NGMS in place, as detailed earlier in this proof at Paragraphs 5.3.2 and 5.3.3. This provided the comfort to NH as the local highways authority that the County Highway Network would be sufficiently mitigated as well as the Strategic Road Network through the NGMS.

6.3.11 I would disagree that the carriageway widening at Newport Pagnell Road makes little or no difference to the lane length—the three-lane entry is extended to a full 100 metres of the interchange approach. This reduces the maximum queue on this arm by approximately 80 vehicles during the morning peak, and in the evening peak brings the operation of the Newport Pagnell arm back within 100% Degree of Saturation.

6.3.12 The full junction modelling results are shown to achieve ‘nil detriment’, or better than, in both peak periods modelled.

6.3.13 The NGMS should be considered as a complementary project to the mitigation outlined within the TA and agreed with NH. The HA (now HE) has produced a Joint Position Statement [CD-81] outlining the preferred approach at Queen Eleanor and Brackmills in light of the Hardingstone SUE Inquiry. Details of this position are provided earlier in the proof at para 4.3.23.

6.3.14 All works at Queen Eleanor Interchange and Brackmills will be brought forward with the full agreement of HE and NH and with full consideration of the NGMS scheme interactions.

**Link Capacities**

6.3.15 Link capacity information was provided within the TA at Table 7.17 and 7.18. It should be noted that the link capacities are meant as guides for flow capacity on particular types of road. The definition of each road type are subjective. Newport Pagnell Road to the east of Landimore Road has been classified as UAP 2 with a capacity of 900 based on the relative width of the carriageway. It is debatable whether this capacity can be increased based on a higher average width of up to 7m. Likewise, the capacity along Newport Pagnell Road has been identified as up to 1,300 two-way flow to the west of The Warren based on the type of road it is. It can be argued that an increased capacity is acceptable along Newport Pagnell Road as it is a relatively wide urban route, particularly at the western Queen Eleanor Interchange approach.

**Consented Developments**

6.3.16 Attention is drawn in the evidence to a series of consented schemes that have come forward since the original scoping of the Hardingstone SUE TA. At the time of scoping, no consented schemes were identified by NH as necessary to include specifically within the TA analysis, as detailed earlier in para 5.4.6 and following paragraphs. Further analysis has been undertaken to
demonstrate that the background growth of more than 25% on the surrounding network accounts for significantly more growth than the forecast additional trips generated by the Wootton Fields Site (referred to as St. George’s Fields), Hardingstone Allotments (Gardeners View) and Waitrose Supermarket combined. It is not considered that the smaller Brownlee Place and Pagnell Place will have any significant further impact on traffic flows.

Conclusion

6.3.17 The conclusion states that the TA relies heavily on traffic modelling ‘produced by NCC’. It should be noted that modelling has not been produced by NCC or the HA. The modelling was produced on behalf of the appellant and has been approved by NCC as Local Highways Authority as fit for purpose.

6.4 Review of Brackmills Industrial Estate Comments

6.4.1 The main focus for the consultation comments from Brackmills Industrial Estate at the time of planning submission (Appendix J) are around maintaining vehicular access to the estate at peak times from the Strategic Road Network and limiting impacts on Brackmills Industrial Estate occupiers.

6.4.2 As agreed at the outset with the local highways authority, the SUE development proposals are required to demonstrate the achievement of ‘nil detriment’ at key junctions. This means that the future ‘with development’ scenario cannot perform any worse than the future ‘do nothing’ scenario.

6.4.3 It is acknowledged that the A45 Brackmills junction, as well as the A45 Queen Eleanor junction, is operating above capacity during peak hours, with particular issues on arms providing access to and from the Brackmills Estate. However, the TA has demonstrated that the proposed junction improvements at the Brackmills Interchange will achieve better than ‘nil detriment’ on all arms, along with further improvements proposed at the Pavilion Drive roundabout. This Application can be expected to do no more. Earlier in this proof, we have identified some potential issues with traffic circulation within Northampton Business Park via Pavilion Drive. It is considered that these issues can potentially be addressed through traffic management measures within the Business Park & Industrial Estate network.

6.4.4 Further growth at the Brackmills Industrial Estate has not previously been identified in the draft Joint Core Strategy, and so cannot be taken into account as part of the background traffic increases at the junctions. Applications for further development of the industrial estate will need to demonstrate for themselves that additional traffic can be accommodated or at least mitigated against. It is noted that Brackmills made no representation towards the draft JCs, implying they had no objection to the Hardingstone SUE proposals.
6.4.5 I consider that the public transport proposals detailed above will also further benefit the Brackmills Industrial Estate by providing employees with a more realistic and attractive bus link between the town centre, the estate and local residential areas.
7 SUMMARY AND CONCLUSIONS

7.1.1 Mr Tricker will say,

Introduction

7.1.2 My name is Jon Tricker. I am a Director at Phil Jones Associates, a leading design based transport planning consultancy based in Birmingham. I am a member of the Chartered Institution of Highways and Transportation, Member of the Urban Design Group and hold a BEng (Hons) Degree in Civil Engineering and Transportation from Kingston University graduating in 1996.

7.1.3 I have led the transport planning and highways work from the outset of the project in 2011, whilst working for Parsons Brinckerhoff until a job move to Phil Jones Associates in February 2015. I have overseen the production of the Transport Assessment and Travel Plan accompanying the planning application. I attended the Public Consultation over several days and attended and presented at the Planning Committee. Having led the transport proposals, I am thoroughly acquainted with the design evolution and rationale.

Scope of Evidence

7.1.4 The primary focus of my evidence is to provide an understanding of why the proposals are acceptable and policy compliant in transport terms. This is corroborated through the full agreement between the Appellant and the Local Highway Authority, Northamptonshire County Council on traffic matters as reflected in two agreed Statements of Common Ground. Also, Highways England in their capacity as Strategic Highway Authority for the A45, are fully satisfied and have no objection to the appeal proposals.

Planning Policy

7.1.5 I have reviewed national and local policy relevant to the issues raised in this evidence. In particular, I have reviewed a number of recent appeal decisions and highlighted a number of Inspector interpretations of what constitutes ‘severe’ impact (i.e. the relevant 'test' pursuant to paragraph 32 of NPPF).

7.1.6 I have also reviewed Council policy, which confirms the appeal site is allocated for development in the recently adopted Joint Core Strategy (CD28), by way of Further, Policy N6. Policy INF1 and 2 (Table 7) confirms the Northampton Growth Management Scheme (NGMS) forms part of the Infrastructure Delivery Plan.

Background to Transport Assessment

7.1.7 Within Chapter 4, I have presented the background to the Transport Assessment process, describing the full agreement on transport made with the highway authority, Northamptonshire
County Council and Highways England who manage the A45 locally. I also note that Council Officers concluded the transport proposals were acceptable, in their Officers Report, presented to Planning Committee.

7.1.8 Since refusal of planning permission, I have continued to work with all parties and have established a Statement of Common Ground with Northamptonshire County Council, which confirms the full agreement on transport matters, based on the large package of transport improvements costed at £5 – 6m and confirms the HCA’s intent to develop the site responsibly. Additionally, Highways England have no objection to the proposals, subject to the agreed contribution of c£1.2m towards NGMS.

7.1.9 The NGMS has been developed to deal with development growth in Northampton and is the infrastructure priority for Northampton. The Scheme has been agreed by relevant local stakeholders, including the Council, who are a signatory to the Memorandum of Understanding, which defines and regulates the use of NGMS within the planning system. The NGMS will deliver capacity and traffic management benefits on the A45 including the Queen Eleanor and Brackmills interchanges, which Highway England will upgrade as a priority.

Response to Council’s Case

7.1.10 I have reviewed the Council’s Statement of Case and sought to work with their appointed transport consultant, Glanvilles. The Council say we have failed to demonstrate that the transport impact will not be severe. I will discuss each in turn;

7.1.11 The Council say our traffic survey data is not representative. I have confirmed the data sources and the agreement with NCC. I have also provided further automatic traffic count data over a number of time periods to corroborate our original data.

7.1.12 The Council say that impact analysis should be undertaken at three additional junctions. I have confirmed that the TA has already analysed a very extensive network and this was agreed with NCC. I have confirmed that Barnes Meadow was not tested as the junction recently underwent a major improvement and will be further improved by NGMS. Traffic from the development site has largely dispersed by this point and it does not warrant formal testing. In any event, the NGMS will deliver improvements and explicitly seeks to avoid piecemeal improvements by individual developers on the trunk road network.

7.1.13 I have looked at the development impact on the A428 corridor and junction with Lilliput Road and demonstrated through the use of Census data to determine traffic distribution that impacts on this corridor is very low indeed and there can be no case for further testing.
7.1.14 I have studied the likely impact on the Pavilion Drive junction and shown there is no case for any development impact on this junction. In any event, the NGMS will improve this trunk road junction through signalisation.

7.1.15 The Council say that the appellant has not considered committed development. I have confirmed that at the time of submission there were no committed developments highlighted by the Council or NCC. Instead, in accordance with normal practice, TEMPro growth was added to the network to ensure that traffic growth from other developments was taken into account. This created a 25% uplift to local traffic flows. I have compared this growth to the trips arising on Newport Pagnell Road from three recent committed developments and firmly conclude the TEMPro assumptions are robust.

7.1.16 The Council say that recent 2011 Census data should be taken into account. I have confirmed that at the time of submission, 2011 data was not available, so the TA used 2001 data, the best data available at the time. However, I have compared these datasets, which confirm there is little difference and I conclude our original data is reasonable and robust.

7.1.17 The Council say there is no explanation or justification, for traffic assignment patterns through Brackmills Industrial Estate. I have outlined our method, which is based on Census distribution and my knowledge of the study area.

7.1.18 The Council say there are deficiencies in the LinSig models undertaken for QE and Brackmills and a number of technical points have been put forward by Glanvilles and clarified by the Appellant through technical notes.

7.1.19 I can confirm, the LinSig modelling work was undertaken to assess local impacts on the county network only and must be understood in the context of the NGMS, which is part funded by the Appellant. It have highlighted that, HE have already undertaken microsimulation modelling (VISSIM) to test the benefits of the NGMS. Furthermore, the proposals and delivery route are fully agreed with local stakeholders, including the council. The LinSig analysis was prepared to help determine a local mitigation scheme at QE and Brackmills, but these improvements are designed to be complementary to NGMS and are likely to be delivered in parallel.

7.1.20 The Council have raised a number of technical issues with the model. I can confirm that these issues are open to some interpretation and the Appellant in an effort to give comfort to the Council has undertaken some sensitivity analysis. This analysis has confirmed that the alternative input assumptions do not make any significant change to the model outputs and have no significant effect on the model conclusions or require changes the agreed mitigation scheme.

7.1.21 The Appellant fully understands the implications of the queuing and exit blocking issues raised by the Council and accepts that these issues are observed on the ground and have provided some real-time data to give an indication of these issues, but these issues clearly reflect a pre-NGMS
scenario. I have highlighted the benefits of NGMS and confirmed the queueing and exit blocking issues will be managed by NGMS, so the Appellant has considered these issues as part of the agreed mitigation, but they do not form part of the LinSig modelling, as models were developed to assess county impacts and but must be seen in the context of NGMS, which will manage these issues.

7.1.22 The Council has questioned the level of traffic engineering design work undertaken as part of the TA. I have confirmed we provided NCC with all the information they requested and this was sufficient for their approval, but was subject to Planning Conditions requiring Section 278 detailed design, as is normal practice. I consider the information and conclusions comprehensive and robust.

7.1.23 However, to give the Council comfort, the Appellant has undertaken additional technical studies to further demonstrate the deliverability of the mitigation measures, including Road Safety Audits, vehicle swept path testing, design compliance work and topographic surveys. This work was submitted to NCC who confirmed it does not change their overall conclusions and this is confirmed in a Supplementary SoCG dated [28 April 15]. This work was also sent to the Council’s agent Glanvilles, to seek Common Ground, but no response has been received.

7.1.24 Finally, the Council says the TA has failed to demonstrate the impact in the Brackmills Industrial Estate will not be severe. I have shown that all of the TA assumptions are reasonable and described how the LinSig modelling needs to be viewed in the context of the NGMS, which is part funded by the Appellant. I have demonstrated that the Appellants large package of mitigation proposals will be successful, in mitigating transport impact to a ‘nil detriment’ scenario. In my opinion there is no sustainable case to demonstrate that the scheme’s highway and or transportation impacts are severe in the context of NPPF.

Response to 3rd Party Comments

7.1.25 I have reviewed a number of points made by 3rd parties. Specifically, I have reviewed points made by the Hardingstone Parish Council and a report undertaken by Abingdon Consultants. In response to their points, I have presented the large package of public transport improvements and answered a number of technical points on modelling and NGMS.

7.1.26 I have also responded to points submitted by Hardingstone Village Action Group, which relate to technical assumptions on the agreed TA. Finally, I have responded to points made by Brackmills Industrial Estate.
Conclusion

7.1.27 I am firmly of the opinion that the transport impacts of the development are not severe. They will be mitigated by the extensive package of transport improvements and that the TA is based on reasonable and robust assumptions and is thus fit for purpose. This conclusion is shared by NCC.

7.1.28 Consequently, there is no reason within the scope of my evidence why planning permission should be refused on transport grounds.

Statement of Truth

It is my professional duty to assist in this Appeal on matters within my expertise, and that duty overrides any obligations to the Appellant on whose behalf I have been retained. I confirm that I have discharged this duty, and that I believe that the facts I have stated in this Statement are true, and the opinions I have expressed are correct.

Signed

Dated

19th May 2015

END