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Date: 13th October 2017
Your ref: 16/01040/AOP

Development Control
Aylesbury Vale District Council

DX4130 Aylesbury

FAO Neil Button

Dear Neil

HIGHWAY AUTHORITY COMMENTS
TOWN AND COUNTRY PLANNING ACT 1990

Application Number: 16/01040/AOP

Proposal: Outline application with means of access (in part) to be considered for up to 102,800 sq. m employment (B1/B2/B8), up to 1,100 dwellings (C3), 60 residential extra care units (C2), mixed-use local centre of up to 4,000 sq. m (A1/A2/A5/D1), up to 5,700 sq. m hotel and Conference Centre (C1), up to 3,500 sq. m Leisure facilities (A1/A3/A4), up to 16 ha for sports village and pitches, Athletes Accommodation (10 x 8 apartments), and up to 2 ha for a primary school (D1), with a strategic link road connecting with the ELR (N) and the A41 Aston Clinton Road, transport infrastructure, landscape, open space, flood mitigation and drainage

Location: Aylesbury Woodlands College Road North Aston Clinton Buckinghamshire

I refer to the Council's previous comments regarding this application which were dated 30th May and 7th June 2017. You will be aware from those previous comments that there were a number of highways matters that required further consideration, particularly in relation to the cumulative impacts of this development alongside the Hampden Fields Development. You will also be aware of our recent additional comments in relation to both the Hampden Fields and Woodlands developments that provide a direct response to the critique of the use of the Aylesbury Transport Model by the Hampden Fields Action Group. This criticism seems to form the main basis for the Action Groups transport based objections to the applications and I trust that you have found that our response of the 4th October 2017 and the accompanying report by Jacobs deals with their comments fully and comprehensively.

Strategic Modelling

As set out in the Council's consultation response dated the 4th October 2017 a review of the validity of the Strategic Model for the assessment of this planning application has been carried out. The Jacobs review has been undertaken by strategic modelling experts from their London office. The purpose of this was to ensure that the review was unbiased as the reviewers were not personnel that operate the strategic model in Buckinghamshire and are detached from the work undertaken for the planning applications currently being assessed.

Trip Generation

One of the main criticisms of the Action Group relates to the traffic generation inputs to the strategic model and alleged discrepancies between the agreed trip generation and the network matrix totals. Section 5.2 of the Jacobs "Forecast Methodology Review – Technical Note" dated 4th October 2017 sets out the trip generation for the Woodlands development as follows. It should be noted that the figures set out below do not include any allowances for the internalisation of some trips. The Technical Note states;

"The agreed trip generation estimates as supplied by the developers, and agreed by Buckinghamshire County Council, result in 2034 AM peak hour Woodlands trip generation of:

- **Origin:** 1,144
- **Destination:** 1,621
- **Total two-way:** 2,765"

The above figures relate directly to the Peter Brett Associates (PBA) LLP Technical Note dated 11th November 2015 ("32113 – Aylesbury Woodlands Development Transport Modelling Scoping – Revised Do Something Test – Issue 3") which included at Appendix I the raw data used as the basis for calculating the trip generation for the individual land uses proposed on the Woodlands site. Table 9.2 of the Woodlands Transport Assessment Rev A dated March 2016 (TA) also repeats the unadjusted trip generation potential of the individual land uses that make up the Woodlands development as follows;

Table 9.2 – Gross Vehicular Trip Generation by Zone – Aylesbury Woodlands

Zone No.	Land-use	AM Peak (0800 – 0900)			PM Peak (1700 - 1800)		
		Arr	Dep	Total	Arr	Dep	Total
Zone 1	530 Dwellings	129	260	389	245	157	402
Zone 2	570 Dwellings	138	280	418	264	169	433
	Care Home (60 Bed – assume 90 residents)	9	7	16	10	8	18
	Zone 2 Total	**147**	**287**	**434**	**274**	**177**	**451**

Zone No.	Land-use	AM Peak (0800 – 0900)			PM Peak (1700 - 1800)		
		Arr	Dep	Total	Arr	Dep	Total
Zone 3	Primary School (420 pupils)	178	111	289	39	24	63
Zone 4	Shops and Convenience store	237	220	457	301	325	626
	Drive through Restaurant	39	35	74	57	52	109
	Zone 4 Total	**276**	**255**	**531**	**358**	**377**	**735**
Zone 5	27,600m² B1(a) Employment	489	74	563	141	369	510
Zone 6	2,500m² Restaurant / Bar	0	0	0	81	81	162
	Hotel (150 beds)	48	30	78	38	23	60
	Athletes Self-Catering Accommodation	1	0	1	0	1	1
	Conference Facility	8	1	9	1	11	12
	Zone 6 Total	**57**	**31**	**87**	**120**	**116**	**235**
Zone 7	46,800m² B2	317	104	421	23	296	319
Zone 8	27,200m² B8	23	20	43	13	29	42
Zone 9	Sports Pitch	5	2	7	27	11	38
Zone 10	2,500m² Restaurant / Bar	0	0	0	81	81	162
	Total	**1,621**	**1,144**	**2,765**	**1,321**	**1,637**	**2,958**

It can be seen from the above table that the total arrivals (destinations) and departures (origins) for the AM peak hour are consistent with the data that was supplied to Jacobs for the purposes of Strategic modelling. However, as has been said above, these are unadjusted individual traffic generation totals for the site which assume that ALL trips will be external to the site, heading for destinations or originating from sites across Aylesbury and beyond.

In reality with strategic size mixed use development sites, some trips associated with the development will not leave the strategic site on to the wider highway network during the network peak hours. Examples of this are as follows:

- some onsite employment trips that originate from the dwellings on the site;
- local retail facilities which are provided to meet the day to day needs of residents and employees of the site; and
- schools which are provided to meet the additional educational demands associated with the residential development on the site.

PBA on behalf of the applicants proposed the following assumptions regarding internalisation as set out in the TA;

- ***Residential to employment and Employment to residential*** *– based on analysis of 2011 Census data for the MSOAs around Aylesbury, 4.8% of residential Car Driver trips to employment occur to destinations within the same MSOA. Similarly, 10.4% of employment Car Driver trips in the MSOAs originate from residences within the same MSOA (this imbalance reflects the situation where there is general migration from the zone to work). These data are used as a proxy for internalisation in Aylesbury Woodlands.*

- *As the residential / employment balance in Aylesbury Woodlands is different from the town of Aylesbury, some adjustment will be necessary. It is proposed that Jacobs provide the details of the number of residential and employment trips these respective percentages equate to for Aylesbury Woodlands. A figure between these two numbers will be adopted and used to reduce the origins and destinations within the residential and employment parcels. Based on the percentages above, it is likely that this would be similar to those agreed elsewhere - for example, Berryfields with 7.8% internalisation overall.*

- ***Primary school** – assume 75% of car driver trips generated by the Primary School are internal to Aylesbury Woodlands*

- ***Shops and Convenience Stores** – this retail provision is local centre / convenience provided to meet on-site retail needs, it is assumed it will not attract any primary trips from off-site. On this basis it is assumed that trips associated with these land-uses will be entirely internal to the development. Any internal assignment of these trips will be addressed manually.*

- ***Remaining community leisure and retail land-uses** – whilst these will serve the local need within Aylesbury Woodlands, it is proposed to assume no internalisation of trips associated with these land-uses as a worst case in terms of trip generation.*

This approach led to an external vehicular trip generation potential as summarised in Table 9.4 of the TA which is repeated below for ease of reference;

Table 9.4 – Vehicular trip demand matrices – Aylesbury Woodlands – AM and PM peak periods

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	In	Out	Total	In	Out	Total
External Residential Vehicular Trips	173	374	547	470	299	769
External Employment Vehicular Trips	814	198	1,012	177	682	859
External vehicular trips - other land-uses	110	65	175	267	232	499
Total External Vehicular Trips	1,097 (11)	637 (6)	1,733 (17)	914 (2)	1,213 (5)	2,127 (7)

Whilst the Council accepts that a mixed-use development of this type and scale will have some potential for trip internalisation associated with some of the land uses, its approach would have been slightly different to that set out above. Consistent with other major development areas, the Council has previously accepted that schools built for the demands associated with the development along with local retail and service facilities needed to serve the development are unlikely to generate external primary trips during the network peak hours and any external trips that would take place would be offset by the potential for some employment trips to originate within the site. This approach would have led to the following external traffic generation potential for the Woodlands development:

Woodlands	AM			PM		
	Arr	Dep	Two-Way	Arr	Dep	Two-Way
530 dwellings	129	260	389	245	157	402
570 dwellings	138	280	418	264	169	433
Care Home	9	7	16	10	8	18
Primary School	0	0	0	0	0	0
Shops	0	0	0	0	0	0
Drive through	0	0	0	0	0	0
Employment Z5	489	74	563	141	369	510
Bar /Restaurant	0	0	0	0	0	0
Hotel	48	30	78	38	23	60
Athletes Accommodation	1	0	1	0	1	1
Conference	8	1	9	1	11	12
46800 sq.m B2 z7	317	104	421	23	296	319
27200 sq.m B8 z8	23	20	43	13	29	42
Sports Pitch	5	2	7	27	11	38
Restaurant/Bar z10	0	0	0	0	0	0
Total External Vehicle Trips	1167	778	1945	762	1074	1835

Table 1 - BCC's approach to internalisation – sensitivity test.

With reference to Jacobs "Forecast Methodology Review – Technical Note", Tables 4 and 5 summarise the trip generation allowed for at Woodlands for the AM peak hour after taking in to consideration the internalisation of trips as follows;

- **Origin:** 907
- **Destination:** 1384
- **Total two-way:** 2291

It can be seen that the traffic generation allowed for within the strategic model exceeds what would be acceptable with the Council's internalisation assumptions and PBA's suggested internalisation approach. It is therefore considered that the traffic generation allowed for in the strategic model from this site is a reasonable and robust basis for assessment.

Matrix Total differences

Jacobs explain in detail in section 5.3 and 5.4 of their Technical Note the reasons why the matrix totals do not increase directly in line with the additional traffic associated with the development proposal. A summary of Section 5.4 of Jacobs Technical Note is set out below by means of a simplified explanation.

"With regards to apparent discrepancies in overall demand matrix totals, our review has noted that a proportion of some types of trip (including shopping and leisure) will be diverted from other similar destinations elsewhere. Whilst these trips will be included in the trip generation for the sites in question, they will not increase the overall size of the matrix. Furthermore, where the number of production and attraction trip ends differ, there needs to be some form of mathematical balancing which can also lead to apparent decreases (or increases) in the overall number of trips. The methodology used to do this is recommended by WebTAG, the industry-standard guideline for appraising schemes.

As outlined in Section 5.3 and 5.4, the perceived shortfall in trips within the Do Something scenario demand matrices is therefore due to the agreed trip-making assumptions outlined in Section 5.3 and not through any error in the production of the matrices as suggested by TPP.

It is therefore our conclusion that the methodology used to create the development matrices is in line with WebTAG advice for this type of model. We have subsequently concluded that the model forecasts are considered suitable for assessment of the development impacts and for proposing mitigation measures at key junctions."

For the reasons given above, Buckinghamshire County Council (BCC) concludes that;

- That the traffic generation associated with Woodlands is consistent with that agreed with the Council;
- That the development zone loadings as modelled are consistent with the agreed traffic generation levels;
- The Council's appropriately qualified strategic model advisors are satisfied that modelling is consistent with best practices and that the model is fit for the purposes of assessing the strategic traffic implications of the planning application.

Planning Policy Context

LTP4 (2016-2036)

Buckinghamshire's 4th Local Transport Plan was adopted in April 2016 and sets out the Council's policies and strategies to address transport related issues and challenges over the plan period. A total of 19 policies have been proposed in LTP4 to address these transport challenges. Relevant for this application are policies 2 and 7.

Policy 2 relates to improvement in connectivity:

"We will work to improve the connectivity and reliability of Buckinghamshire's transport network, stimulate economic growth and promote safer more sustainable travel".

Policy 7 discusses the importance of reliable road travel.

"We will work with partners to find ways to improve the reliability and connectivity of Buckinghamshire roads. We will work to give Buckinghamshire's people and businesses the certainty of journey times they need."

"To provide a reliable road network we will:

- *Develop robust business cases for reducing congestion in areas and corridors that are most severely affected by delays.*
- *Work with developers and district councils to ensure that new developments are integrated with the existing road network and that potential congestion caused by the site is properly managed and mitigated (including through Section 278 and Section 106 agreements). "*

Aylesbury Transport Strategy (ATS) The Aylesbury Transport Strategy was commissioned in 2016 by BCC to set out the improvements needed to support the planned growth of the town between 2016-2033. The ATS was adopted by BCC on the 13th March 2017. This strategy is a key policy document for both the County Council and Aylesbury Vale District Council in order to address the current and future issues affecting the transport network of Aylesbury town centre and all its immediate urban areas.

The six objectives of the ATS are as follows:

- Improve transport connectivity and accessibility within Aylesbury town
- Improve accessibility to other urban centres and net growth areas outside Aylesbury town
- Contribute to air quality by minimising the growth in traffic levels and congestion
- Improve journey time reliability
- Reduce the risk of death or injury on the transport network
- Make it easier and more attractive to travel by active and public transport modes

The Transport Strategy clarifies the main transport issue affecting Aylesbury in paragraphs 4.2.1 to 4.2.3:

"Aylesbury is a focal point of BCC's road network. The town is connected to the wider highway network via the A41, A418 and A413 and only the A4157 currently provides an internal semi-circular road around the north of the town. Due to this radial highway network structure, high volumes of through traffic are an issue through the town centre.

Arterial routes to/from Aylesbury are congested during the morning and evening peak hours, particularly along the A41 and the southern links, based on results from the Countywide model. This will continue to worsen if the significant amount of growth expected in new developments around the town goes ahead without any mitigation measures to the transport network."

Paragraph 4.2.4 therefore acknowledges the need for the new infrastructure in order to support this growth and states that:

"Associated with this growth are already a number of new link roads proposed outside the town centre which would together form part of an external circular ring road and redirect through-traffic to peripheral routes rather than through the town centre, also providing the opportunity for a more pedestrian and cycle friendly town centre and space for additional bus priority and shared paths closer to the town centre."

Emerging Vale of Aylesbury Local Plan

The draft plan for consultation was issued in 2016. The plan includes a Spatial Vision:

"By 2033 Aylesbury Vale will have seen an appropriate amount and distribution of sustainable growth, which will contribute to creating a thriving, diverse, safe, vibrant place to live, work and visit, and where all residents enjoy a high quality of life."

Relevant for this application is Paragraph 1.18 of the emerging draft local plan:

"An essential part of the new infrastructure will be the provision of new transport infrastructure. The main focus for road improvements will be in relation to Aylesbury, to improve the circulation of traffic around the town. There will also need to be a focus on improving north / south connectivity to enable the district to function better in relation to national highway networks.

Section 4 of the Draft Plan discusses the strategic delivery action plan required for the town to meet its objectives of growth and development. Paragraph 4.8 includes a vision for an Aylesbury Garden Town by 2033 and states that:

"Road improvements linking new developments to the town, will create a series of link roads around the town. "

Paragraph 4.20 refers to the Aylesbury Transport Strategy and states:

"The Transport Strategy will build on previous and currently planned improvements to transport infrastructure. The initial work has identified a list of potential transport interventions for Aylesbury which will enable growth and meet the strategic objectives identified above. These will be based on:

- *completing a series of outer link roads that will take traffic away from the town centre and allow public transport priority improvements to take place on the main radial roads closer to the town centre, improving public transport journey time reliability.*
- *implement an overarching strategy to connect new developments, with each other, to key destinations and to the town centre by active travel and public transport;*

Policy D1 relates to delivering Aylesbury Garden Town and states that:

"All development in Aylesbury should contribute to meeting the Aylesbury Transport Strategy."

The proposals currently being considered therefore provide an essential part of the necessary infrastructure identified in the ATS to allow current traffic conditions in the Town to be managed, whilst meeting the emerging needs for housing growth identified in the draft VALP.

Link Road Design

The proposed Eastern Link Road South ELR(S) will be provided as a single two-way carriageway with land for dual carriageway provision safeguarded to allow the road to be widened at a later date should the need arise. It should be noted that the assessments supporting the Woodlands development have not identified a need for the road to be constructed as a dual carriageway at the outset. Whilst we are aware of public comments about building roads to dual carriageway standard, the Council must be mindful of the planning tests that we have to work to as set out in the NPPF. We cannot force a developer to build infrastructure that is not directly related to, and necessary, to accommodate the development being proposed.

First phase of development to 2022

The Addendum Transport Assessment submitted on 6th April 2017 confirmed a change in the approach to the development of the Woodlands site. Whilst the original submissions for the application considered the full implementation of the development by a future year of 2034, the Addendum Transport Assessment considered the implications of only a first phase of development in a design year of 2022 with the remainder to be restricted by Section 106 Agreement. The development proposals up to 2022 now include;

- Delivery of the Eastern Link Road South (ELR(S)) which is a key part of the Aylesbury Transport Strategy (ATS);
- Provision of high quality employment-led development within Aylesbury which is focused on meeting the needs identified in Buckinghamshire Thames Valley Local Enterprise Partnership's (BTVLEP's) evidence base for employment space provision and growth.

The remainder of the development including the residential element will now only proceed as part of a joint strategy with the delivery of the additional link road through the Hampden Fields site in order to mitigate the effects of traffic on the network. The Addendum TA states;

1.2.2 Further development beyond phase 1 at Aylesbury Woodlands will be progressed as part of the joint strategy with Hampden Fields. Therefore, the cumulative traffic impact of the full Aylesbury Woodlands development proposals and Hampden Fields development proposals have been considered jointly with WSP/PB on behalf of Taylor Wimpey. A separate report has been prepared with regards to the joint Do Cumulative impact of both the Woodlands and Hampden Fields development proposals, and this should be read in conjunction with this report.

1.2.3 It is proposed that a Joint Infrastructure Delivery Plan (JIDP) is produced prior to commencement of either development that will provide a fully coordinated approach to the delivery of joint infrastructure and off-site mitigation on a phased basis and identify proportionate financial contributions to wider improvements where appropriate.

1.2.4 For Aylesbury Woodlands "standalone" therefore, informal agreement has been reached with the highway authority on the standalone assessment – i.e. that relating solely to Woodlands without Hampden Fields – based on a restricted first phase of development but including 'upfront' delivery of ELR(s) and A41 / Woodlands signalised roundabout.

It can be seen from the above that no residential development will proceed until the link road through the adjoining Hampden Fields site is built. This approach limits the standalone impacts of Woodlands and allows the benefits of the early delivery of the ELR(S) which in turn will connect with the ELR(N) through the adjoining Kingsbrook site. The result will be a new link road between the A418 north of Bierton and the A41 at Woodlands roundabout. The completion of the ELR is an infrastructure priority that the Council wish to see delivered at the earliest opportunity and accords with the Aylesbury Transport Strategy.

The applicants have produced some key statistics which show that for this initial phase of development most of the traffic using the link road will be as a result of existing traffic movements reassigning from other parts of the network as highlighted in the insert from their report below.

5.4.6 Furthermore, the completion of the ELR (S) provides significant betterment to the overall highway network since the vast majority of trips assigning on the ELR (S) are not Aylesbury Woodlands development traffic. For example, this is outlined below in terms of the ELR (S) link between to the ELR (S) northern roundabout and ELR (S) southern roundabout:

- AM peak – 73 two-way trips Aylesbury Woodlands development

  1,224 two-way trips total on the link

  6% of the link flow is Aylesbury Woodlands

- PM peak – 41 two-way trips Aylesbury Woodlands development

  992 two-way trips total on the link

  4% of the link flow is Aylesbury Woodlands

Source: PBA Transport Assessment Addendum March 2017

Figure 5.8 – Difference in Flows – 2022 Do Minimum and 2022 Do Something – AM Peak

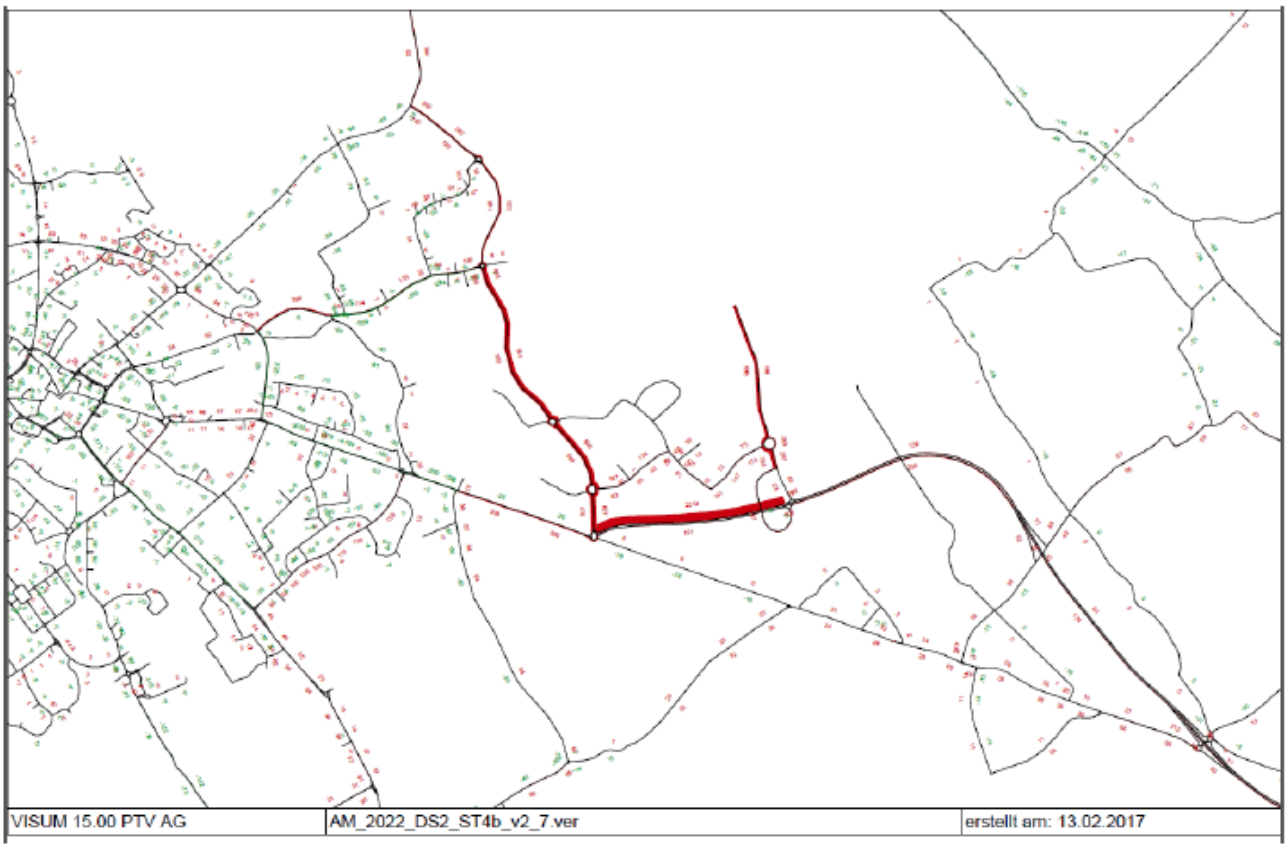
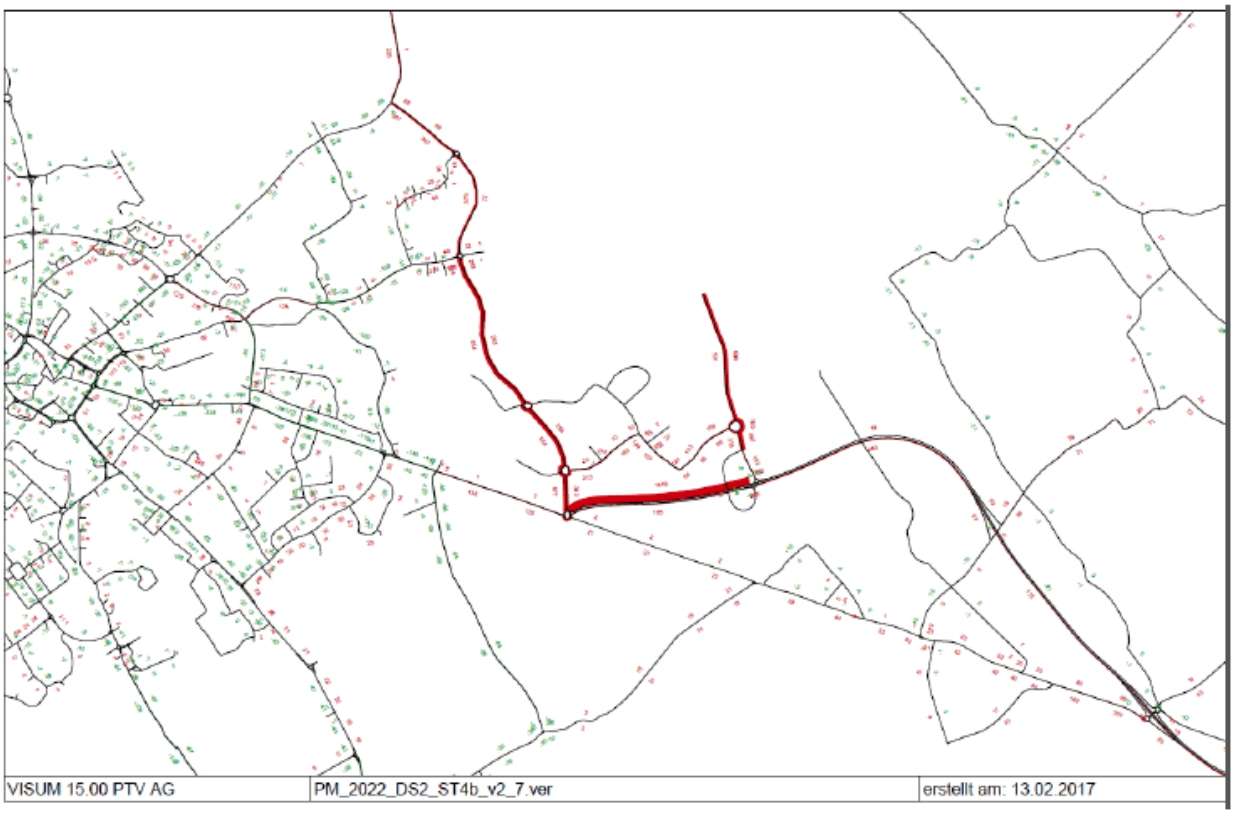


Figure 5.9 – Difference in Flows – 2022 Do Minimum and 2022 Do Something – PM Peak



Additional Submissions 2022 Standalone Assessment

With reference to the Council's previous comments PBA on behalf of the applicants submitted a Technical Note (TN2 dated 22nd June 2017) in response to the queries raised regarding the standalone assessment. Further submissions have been made in connection with the Woodlands standalone and cumulative assessments on 6th July 2017 and 25th September 2017.

Gyratory Impact

It is noted that many of the objections to recent strategic planning applications have identified the impact of the developments on the operation of the Walton Street Gyratory as a significant area of concern, particularly in light of the previous Planning Inspectors comments in relation to the Hampden Fields application (12/00605/AOP).

The Council is clearly fully aware of the Inspectors findings and the reasons for that application being unsuccessful. In the case of the Woodlands standalone assessment the impact on the Gyratory has been fully considered. The Addendum Transport Assessment produced by the applicants, which uses outputs from the Council's Strategic Transport Model for Aylesbury, shows the following traffic changes at the Gyratory as a direct result of the phase 1 Woodlands development and associated infrastructure proposals.

Table 5.1 – Comparison of 2022 Do Minimum and 2022 Do Something Transport Model Flows (PCU Actual Flows) – pre-mitigation

Key Link	Flow Differences between 2022 Do Minimum and 2022 Do Something (2-way)	
	AM Peak	PM Peak
Walton Gyratory (5 entry arms combined)	-195	-162

It can be seen from the above, that the first phase of development up to 2022 results in a reduction in traffic flows at the Gyratory. The applicants have however undertaken a capacity assessment with and without the first phase of development for a future year of 2022, reflecting a future year by which the employment element of development and the full provision of the ELR(S) will be complete. The results are summarised in section 6.22 of the Transport Assessment addendum as follows. We have highlighted green those links that show an improvement or are neutral in terms of development impact and orange those that show an increase in queuing or degree of saturation but remain within acceptable thresholds;

Table 6.22.1– Summary of LinSig Results – Walton Gyratory – 2022 Do Minimum and 2022 Do Something Scenarios

Link	Arm / Stream	2022 Do Minimum				2022 Do Something			
		AM Peak		PM Peak		AM Peak		PM Peak	
		DOS	Max Average Queue (PCU)	DOS	Max Average Queue (PCU)	DOS	Max Average Queue (PCU)	DOS	Max Average Queue (PCU)
1/2+1/1	Walton Street entry	122%	77	91%	18	119%	66	96%	17
2/1+2/2	Walton Street internal	55%	2	99%	9	62%	6	96%	10
3/1+3/2	Walton Road entry	64%	5	61%	4	42%	5	52%	4
4/1+4/2+4/3	Walton Road internal	61%	2	76%	9	60%	3	75%	9
5/1+5/2	Wendover Road entry	67%	9	66%	10	77%	15	67%	9
6/1+6/2	Wendover Road internal	80%	7	85%	7	65%	9	76%	8
7/1+7/2	Stoke Road entry	110%	110	101%	49	107%	96	96%	25
8/2+8/3	Stoke Road internal	124%	55	102%	11	112%	36	93%	6
13/1	Walton Green	30%	0	28%	0	30%	1	26%	0
Total delay over all lanes (PCUhr-hr)		326		69		255		51	

It can be seen from the above, that overall the development impact on the Gyratory is positive, with notable improvements to the Stoke Road entry, which was of particular concern to the Inspector at the previous Hampden Fields Inquiry. This is because there is forecast to be 195 and 162 fewer trips through the Gyratory in the AM and PM peak hours respectively following phase 1 of the Woodlands development and the delivery of the ELR(S).

It should be noted that the National Planning Policy Framework, against which developments are considered states the following

Paragraph 32 requires;

32 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 prevented or refused on transport grounds where the residual cumulative impacts of development are severe*.

The third bullet point above is an important consideration when determining whether mitigation measures are required. The highlighted text suggests that improvements are appropriate to limit the significant impacts of development. As such if there is no evidenced significant impact associated with a development proposal at a given junction then it would not be reasonable to require mitigation measures as it would immediately fail to meet this test.

With reference to the traffic flow changes set out above at the Gyratory and comparisons of the Do Something (with development) vs Do Minimum (without development) modelling runs, it can be seen that the proposal does not have a significant impact on the Gyratory. This is also in the context of the previous Inspectors judgement as summarised in Paragraph 9.504 of his decision;

9.504 Although the increased percentage total flow within the junction would be less than 5% in the morning peak and less than 1% in the afternoon peak, the significance of such seemingly minor increases would be heightened by the sensitivity of the junction in its already congested operation and its enhanced susceptibility to breakdown. This would have consequences for both private and public transport and it could result in some vehicles seeking out alternative, less desirable, routes. [4.153]

The Inspectors decision was based on an increase in traffic through the Gyratory and what he considered to lead therefore to an unacceptable impact. In the case of the phase 1 Woodlands development and associated infrastructure proposals, there is not indicated to be an increase in traffic through the Gyratory. It is for this reason that the Council concludes that the development will not have a significant impact on the operation of the Gyratory and does not therefore run contrary to the Inspectors previous findings.

Other junctions in Aylesbury

The following section provides information of each of the individual junctions that have been assessed in the Phase 1 Woodlands standalone assessment and identifies where additional mitigation measures are required, explains what the mitigation works are and how they assist in offsetting the material impacts of the first phase of the Woodlands development.

Junction 2 - College Road North/A42 Westbound Overbridge

No works are proposed to this junction as its operation is acceptable both with and without development.

Junction 3 - College Road North/A41 Left In Left Out Junctions

No works are proposed to this junction as its operation is acceptable both with and without development.

Junction 4 – London Road/Weston Road/Aylesbury Road Roundabout, Aston Clinton

No works are proposed to this junction as its operation is acceptable both with and without development.

Junction 5a – A41 Westbound Slips/B4009/Overbridge Roundabout (Southern Dumbbell)

Do minimum queues on the Tring Hill approach at the existing junction are 40 in the morning peak hour (1.03 RFC) and 50 in the evening peak hour (1.05 RFC). The other approaches to the junction are within capacity.

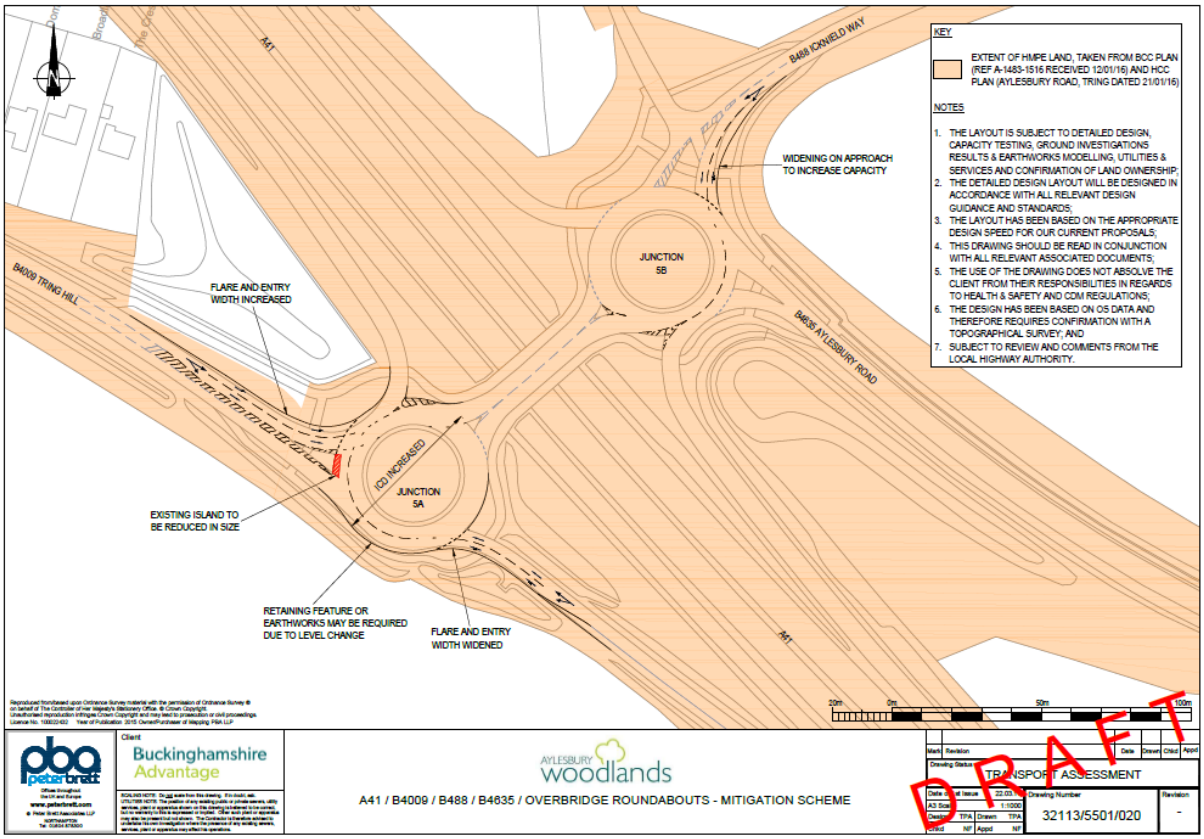
The mitigation scheme involves minor widening on the Tring Hill and A41 westbound off slip approaches to two formal flare lanes, and increasing the flares on the approach as shown in drawing **PBA 32113/5501/020,** below.

The mitigation measures reduce the queue with the development from 65 to 49 pcus in the morning peak, and from 131 to 46 pcus in the evening peak (with development without mitigation vs with development with mitigation). The junction is therefore less efficient in the morning peak with the development and the mitigation measure than in the existing situation. However, Table 1 compares the queues and delay at the junction in the do minimum situation with the do something situation with the mitigation measure. It shows that whilst there may be an increase in queueing in the morning peak hour, total delay at the junction reduces.

	2022 Do Minimum				2022 Do Something with Mitigation			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Max RFC	Max Av Queue (veh)	Max RFC	Max Av Queue (veh)	Delay (s)	Queue (veh)	Delay (s)	Queue (veh)
Overbridge (NE)	0.55	1	0.64	2	6.15	2	7.48	2
A41 WB Offslip	0.36	1	0.92	10	7.97	1	15.01	3
B4009 Tring Hill	1.03	40	1.05	50	169.61	49	182.91	46
A41 WB On Slip	EXIT ONLY				EXIT ONLY			
Junction Delay	80.51		96.94		76.17		65.02	

Table 2 Junction 5A Southern Dumbbell ARCADY Results

It should be noted that the inside lane from Tring Hill has been modelled as a left turn only, although no vehicles undertake this manoeuvre. The model would operate more efficiently if it were coded as an ahead/left lane. This is a matter that can be progressed through detailed design as overall the junction delay is shown to be reduced and the change to the lane allocations can only have a further positive affect.



Junction 5b - A41 Eastbound Slips/B488/B4635 Roundabout (Northern Dumbbell)

Do minimum queues on the B488 Icknield Way approach at the existing junction are 197 in the morning peak hour and 33 in the evening peak hour. The other approaches to the junction are within capacity. In the do something situation the queuing increases to 226 pcu in the morning peak hour and 66 pcu in the evening peak hour.

The proposed mitigation measure includes increasing the road width on the B488 approach to produce two formal lanes as shown in drawing **PBA 32113/5501/020** above. The mitigation measures reduce the queueing on the B488 to 22 pcu in the morning peak hour and 19 pcu in the evening peak hour. Table 2 summarises the operation of the junction in the 2022 do minimum situation and in 2022 with the development and mitigation measure. The table shows that the operation of the junction improves with the mitigation measure. The impact of the development on the operation of the junction with the mitigation measure is therefore acceptable.

	2022 Do Minimum				2022 Do Something with Mitigation			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Max RFC	Max Av Queue (veh)	Max RFC	Max Av Queue (veh)	Delay (s)	Queue (veh)	Delay (s)	Queue (veh)

B488 Icknield Way	1.02	197	1.02	33	80.55	22	76.74	19
B4635 Aylesbury Road	0.25	0	0.36	1	15.86	1	13.39	1
A41 Eastbound on-slip	EXIT ONLY				EXIT ONLY			
Overbridge (SW)	0.66	2	0.75	3	8.53	3	12.80	4
A41 Eastbound Off-slip	0.59	1	0.57	1	12.20	1	15.43	2
Junction Delay (s)	345.58		56.59		37.22		34.77	

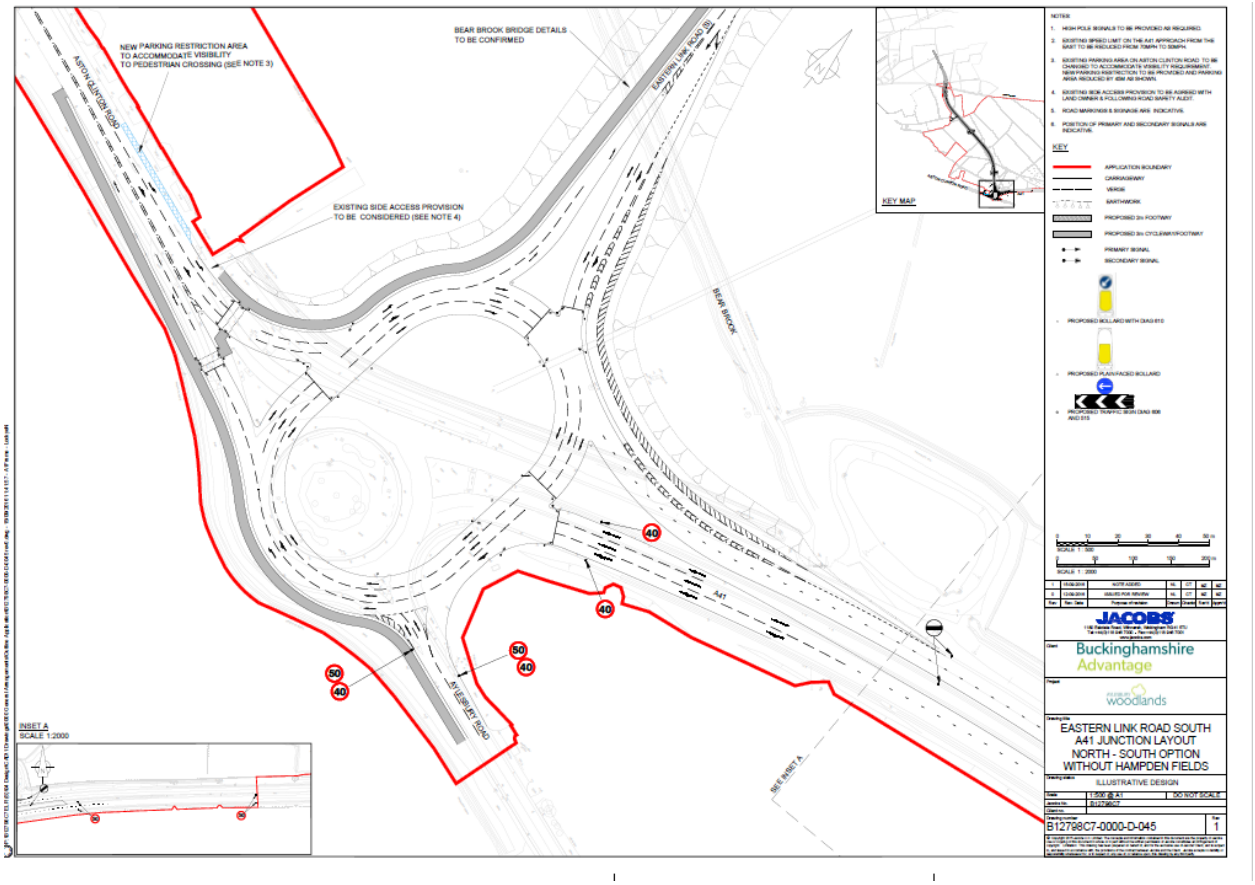
Table 3 Junction 5B Southern Dumbbell ARCADY Results

Junction 6 – A41/Aston Clinton Road/Woodlands Roundabout

A junction improvement scheme is proposed, included in drawing **B12798C7-000-D-0045 rev 1**. It comprises a four arm signalised roundabout junction with a new northern arm to accommodate the Eastern Link Road (ELR). All of the approaches are signalised apart from the Aylesbury Road eastern approach. A signalised pedestrian crossing is provided on the western side of the junction.

It should be noted that the footprint of the junction is consistent with that of the cumulative scheme which includes through lanes through the central island. This approach will ensure that abortive works in implementing the cumulative scheme are minimised, as is disruption to the public, should the cumulative scheme need to be implemented following completion of the Woodlands standalone scheme.

The model shows that the operation of the junction with the development is acceptable.



Junction 7/8 – A41/Aston Clinton Road MDA/New Signalised Crossroads and A41/Bedgrove/Broughton Lane

No works are proposed to this junction as its operation is acceptable both with and without development, as shown in Tables 3 and 4 below by the degree of saturation (%SAT) and Mean Maximum Queue (MMQ). The assessment of this junction includes the revised access arrangements and traffic loadings associated with the Aston Clinton Road MDA consent.

Approach	2022 Do Minimum		2022 Do Something	
	% Sat	MMQ	% Sat	MMQ
A41 W/B Entry Left/Ahead	65.4	16	74.6	20
A41 W/B Entry Right/Ahead	67.1	17	77.5	23
New Road	78.3	13	74.9	10
A41 E/B Ahead Left	80.1	12	74.5	17
A41 E/B Ahead Right	83.9	28	83.1	28
MDA Site Access	41.1	3	51.1	3

Table 4 A41 Bedgrove/Broughton Lane LINSIG Results, AM Peak

Approach	2022 Do Minimum		2022 Do Something	
	% Sat	MMQ	% Sat	MMQ
A41 W/B Entry Left/Ahead	80.5	21	90.6	28
A41 W/B Entry	85.3	26	91.9	31

Right/Ahead				
New Road	89.9	27	87.4	13
A41 E/B Ahead Left	74.1	17	76.8	12
A41 E/B Ahead Right	84.6	30	84.2	32
MDA Site Access	41.4	3	45.2	3

Table 5 A41 Bedgrove/Broughton Lane LINSIG Results, PM Peak

Junction 9 – A41/King Edward Avenue/Oakfield Road Junction

No works are proposed to this junction. Whilst the junction is currently over capacity conditions are not shown to deteriorate with the implementation of the first phase of the Woodlands development and associated infrastructure.

Junction 10 – A41/Park Street/High Street/Walton Road Roundabout

No works are proposed to this junction as its operation is acceptable both with and without development .

Junction 11 – A418/A4157 Roundabout

No works are proposed to this junction, as the impact of the first phase of the Woodlands development and associated infrastructure is not shown to have a material impact on this junction.

Junction 12 – A41/Vale Park Drive/Exchange Street Roundabout

No works are proposed to this junction, although there is peak hour congestion, the level of queuing reduces with the first phase of the Woodlands development and its associated infrastructure

Junction 13 – A41/A413/Exchange Street **Roundabout**

No works are proposed to this junction as its operation is acceptable both with and without development.

Junction 14 – A4157 Douglas Road/A4157 Oakfield Road/Stocklake Junction

No works are proposed to this junction as its operation is acceptable both with and without development.

Junction 15 – A413/Camborne Avenue Roundabout

No works are proposed to this junction as its operation is acceptable both with and without development.

Junction 16 – A418/Burcott Lane/Brick Kiln Lane Junction

No works are proposed to this junction as its operation is acceptable both with and without development. .

Junction 17 – Tringford Rd/Bulbourne Road/Wingrave Road/Icknield Way Roundabout

This junction is within Hertfordshire and not within the remit of BCC.

Junction 18 - College Road North/Site Access/Arla Access Roundabout

No works are proposed to this junction as the assessment shows that the junction operates well with development.

Junction 19 – Eastern Link Road (N)/ Village 4 Roundabout

No works are proposed to this junction as the assessment shows that the junction operates well both with and without development.

Junction 20 – Eastern Link Road (N)/Stocklake (Rural) Roundabout

No works are proposed to this junction as the assessment shows that the junction operates well both with and without development.

Junction 21 – Proposed Eastern Link Road (N)/A418 Junction

The junction can operate within capacity and the impact of the scheme is therefore acceptable.

Junction 24 – Walton Gyratory

This is discussed in detail earlier in this response.

Junction 25 – A418 Bierton Road/Park Street/Cambridge Street mini roundabout

No works are proposed to this junction as its operation is acceptable both with and without development.

Junction 26 – A418 Sapphire Way/Stocklake/Park Street/Vale Park Drive Roundabout

No works are proposed to this junction as its operation is acceptable both with and without development.

Junction 27 – Cambridge Street/Upper Hundreds Way/New Street Roundabout

No works are proposed to this junction. Whilst the junction operates over capacity both with and without development, there is no significant change in the operation of the junction with the first phase of the Woodlands development and associated infrastructure.

Junction 28 – A413 Wendover Road/A4010 Station Road Roundabout Stoke Mandeville

No works are proposed to this junction as its operation is acceptable both with and without development.

Junction 34 – New Road/Brook End/Main Street mini roundabout

No works are proposed to this junction as its operation is acceptable both with and without development.

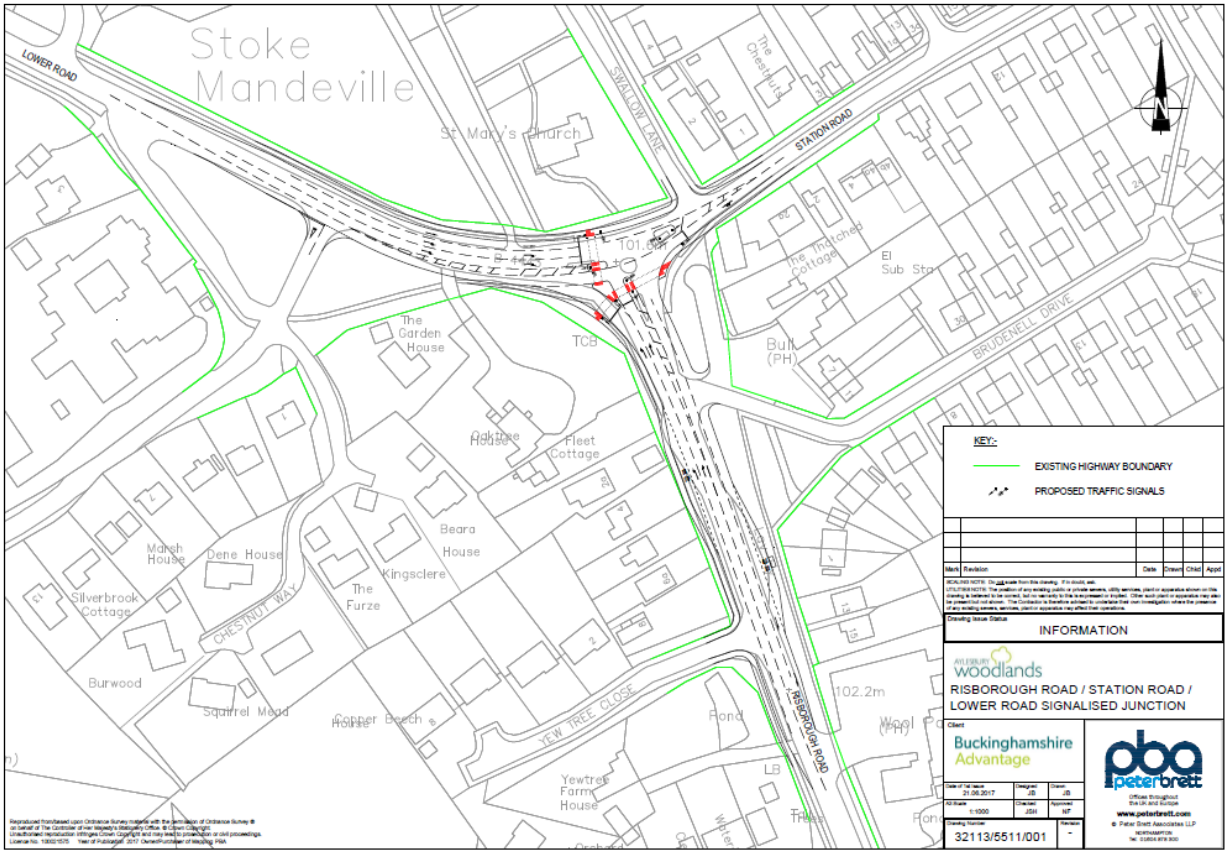
Junction 35 – A413 Wendover Road/Marroway Roundabout

No works are proposed to this junction as its operation is acceptable both with and without development.

Junction 36 – A4010 Station Road/A4010 Risborough Road/B4443 Lower Road mini roundabout Stoke Mandeville

The do minimum modelling of the junction shows significant queuing on Station Road (174 pcu) and Risborough Road (130 pcu) in the morning peak and on Risborough Road in the afternoon peak (250 pcu).

A signalisation scheme has been proposed, shown on drawing **PBA 32113/5511/001** below.



The junction continues to operate over capacity with the mitigation measure, however queuing on Station Road reduces from 174 pcu in the morning peak hour without development to 73 with the development and the mitigation scheme. Furthermore, PM peak queuing on Risborough Road reduces from 250 to 20 pcu respectively. The operation of the junction with the development and mitigation measure is therefore acceptable.

	2022 Do Minimum			
	AM Peak		PM Peak	
	Max RFC	Max Av Queue (veh)	Max RFC	Max Av Queue (veh)
B4443 Lower Rd	0.93	12	0.84	5
A4010 Station Rd	1.34	174	0.97	17
A4010 Risborough Rd	1.13	130	1.28	250
Junction Delay (s)	417.51		380.36	

Table 6 Junction 36, A4010 Station Road/A4010 Risborough Road/B4443 Lower Road 2022 Do Minimum ARCADY Results

	2022 Do Minimum			
	AM Peak		PM Peak	
	DoS (%)	Max Max Queue (pcu)	DoS (%)	Max Queue (pcu)
Lower Rd Ahead	20	2	21	2
Lower Rd Right Turn	86	13	80	11
Station Road	113	73	85	16
Risborough Road Right Turn	100	37	86	20
Risborough Road Left Turn	100		88	
Cycle Time	84		84	
Total Delay (pcu/hr)	95.94		26.11	

Table 7 Junction 36, A4010 Station Road/A4010 Risborough Road/B4443 Lower Road 2022 Do Something with Mitigation LINSIG Results

Junction 37 – A413 Wendover Road/Silver Birch Way Roundabout

No works are proposed to this junction as its operation is acceptable both with and without development.

Junction 38 – A418 Wendover Road/Wendover Way Mini Roundabout

No works are proposed to this junction as its operation is acceptable both with and without development.

Summary Standalone;

The traffic impacts associated with the first phase of the Woodlands development have been adequately assessed and shown to be acceptable subject to mitigation measures where appropriate. Many of the junctions tested do not experience a significant impact as a result of the first phase of the Woodlands development. Where material impacts have been identified the mitigation measures proposed are considered sufficient to offset the significant adverse impacts of the development in accordance with the requirements of the NPPF. Furthermore the first phase of development brings with it the significant benefit of the delivery of the Eastern Link Road (S) a long standing aspiration of the Council and an integral part of the Aylesbury Transport Strategy. It is the Council's intention to place an obligation on the developer to deliver the link road by 2021, in line with the required completion date of the ELR(N). It is concluded that the standalone traffic impacts of the first phase of the Woodlands Development are acceptable subject to;

- The early delivery of the Eastern Road South to provide a connection between the ELR(N) at the Kingsbrook Development and the A41 at Woodlands Roundabout. The design of the ELR(S) is to be a single two-way carriageway road with sufficient land safeguarded throughout its length to allow it to be converted to a dual carriageway without land constraints. This will need to be a S106 obligation in the event that planning consent is to be granted.
- The enlargement and signalisation of the A41 Woodlands Roundabout as shown in principal on drawing **B12798C7-000-D-0045 rev 1**
- Mitigation works to the B4009/A41 Overbridge as shown in principal on drawing **PBA 32113/5501/020**;
- The signalisation of the A4010 Station Road/A4010 Risborough Road/B4443 Lower Road junction in Stoke Mandeville as shown in principal on drawing **PBA 32113/5511/001.**

Cycling and Walking

The pedestrian and cycle strategy in the TA proposes on-site and off-site provision that will be provided to ensure the proposed development has good pedestrian and cycle connections to Aylesbury town centre and Aston Clinton.

On-site provision includes:

- the provision of 3m wide combined footway / cycleways on the primary residential street network.
- the provision of a combined 3m wide footway / cycleway on the western side of the ELR(S) for its entire length, providing a continuous pedestrian and cycle connection between the A41 and the Land at East Aylesbury (Kingsbrook) development. Controlled crossing points will be considered on-site where required a part of detail design.
- the provision of a 2m wide footway on the eastern side of the ELR(S) between the Southern Woodlands Access Roundabout and the Land East of Aylesbury (Kingsbrook) Development.
- the provision of a controlled crossing across the A41 (W) arm of the A41 / Aston Clinton Road Roundabout.
- a connection to College Road North via the College Road North / Site Access / Arla Dairy Roundabout;
- Four pedestrian / cycle connections to the canal towpath.
- two footpaths offering the opportunity to integrate with the Aston Clinton MDA.

Off-site provision includes:

- A proposed 3m wide shared footway / cycleway that extends from the College Road North site access to the A41 overbridge on the western side. Due to the existing overbridge, there will be localised narrowing across the bridge for a short section.
- South of the A41 overbridge, a new shared footway / cycleway is proposed on the inside of the bend (north side of the road). Uncontrolled crossing points will be provided across the slip road. This provides a connection to the public right of way to College Road South in to Aston Clinton.
- The provision of dropped kerbs and tactile paving at the crossing points at the College Road North / Site Access roundabout to provide connectivity to the Arla Dairy development to the east.
- A financial contribution to re-paint the existing cycle lane markings on Aylesbury Road within Aston Clinton.
- Financial contributions towards the delivery of towpath improvements between Bridge 15 and Bridge 13.
- Financial contributions towards the surfacing of existing footpath AC/46/1 which currently connects College Road South with the overbridge over the A41.

- A proposed shared footway / cycleway on the southern side of the A41 from the enhanced A41 / Aston Clinton Road / Woodlands signalised roundabout. This provision will tie in to and connect with the approved Aston Clinton MDA site access design.

A good network of routes is to be provided within the development, with off and on road provision, and adequate links to the surrounding pedestrian and cycle network. As this is an outline application with all matters reserved except access, details of the cycle and pedestrian infrastructure within the site will need to form and be considered as part of any future reserved matters application. The following matters will however need to be progressed at detailed design stage and subject to conditions as appropriate:

- The shared footway / cycleway on the southern side of the A41 from the enhanced A41 / Aston Clinton Road / Woodlands signalised roundabout should continue and repeat the provision provided along and beyond the Aston Clinton MDA frontage. The footway / cycleway provision will need to be provided, even if the Aston Clinton MDA does not proceed.

- It is proposed for cyclists to use on road lanes within the development. These routes need to be designed to be attractive to cyclists by ensuring that traffic speeds are 85% below 20 mph and volumes are less than 1000 per day. If higher than this, off road provision or dedicated cycle lanes should be considered.

- Cyclist priority at junctions and crossings. Routes that cross side roads should be designed with raised crossings, and formal crossings with priority for cyclists.

- Towards the east, the footway /cycleway links to a footway on College Road North. There is therefore no continued cycle link from the proposed development to the Arla Dairy site. It is requested the existing footway on the eastern side of College Road North between the site access and the Arla Dairy site is upgraded to a footway/cycleway to provide a continues cycle link.

Public Transport Provision

The Public Transport Strategy in the TA proposes a new bus service to serve the proposed Woodlands development. It is envisaged that the bus service will be introduced in phases over the life of the development, as summarised below:

Early phases:

A new hourly bus service is proposed for the employment land-uses. The service would run along the A41 and would access and egress the development via College Road North, and complete a loop on-site. This service would be supported financially for a period of seven years.

Full Development:

Once the ELR(S) is complete and a through link is provided from the ELR(S) to the College Road North access, it is proposed that the service frequency is increased to 30 minutes.

The service would travel via the A41 / Aston Clinton Road roundabout, along the ELR(S), enter the Aylesbury Woodlands Development via the Northern Woodlands Access Roundabout and continue through the site towards College Road North where it would undertake a U-turn at the College Road North / Site Access Roundabout. It would travel back along the same route. Financial support would be provided for the services for a further two years. After this period it is anticipated that the service will be self-financing and no longer reliant on subsidy support.

It is proposed that four early services and four evening services would continue from the bus station to serve Stoke Mandeville Railway Station to provide for commuters wishing to travel in and out of London.

A total sum of £987,000 would be provided to the Council to provide the above services. The phasing of these payments will need to be agreed with the Council and set out in a Section 106 Agreement.

In addition the following infrastructure and contributions are proposed by the applicant;

- Eight bus shelters will be provided with Real Time Information
- The provision of on-site signage to these bus shelters will be provided.
- A financial contribution will be made towards the implementation of the measures proposed in the Aylesbury Transport Hub

The Public Transport Strategy is acceptable in principle taking in to account the comments below;

- It would be preferable to have flexibility in the service provision with regards to how it is delivered in terms of detailed route and timetables. The service will need to be flexible to respond to customer demand during the different phases of the development.

- It would be preferred to focus on Aylesbury Railway Station rather than Stoke Mandeville Railway Station as this would keep the timetable simpler.

- The proposed sum for the new bus service to the development would require indexing, using the CPT industry cost index (overall national result).

- Whilst we would expect ALL dwellings to be within 400m of a bus stop, we would expect a significant majority to be within 250m if the service is to be attractive enough to take significant modal share.

- We would expect all bus stops and shelters across the development to be equipped with appropriate Real Time Passenger Information screens. BCC would arrange installation of the bus shelters and RPTI equipment would need to be provided by BCC's supplier.

- Locations for bus shelters should be designed into the development. Experience shows that bus stops / shelters need to be installed early, or at least be clearly demarcated, to avoid complaints from nearby residents.

- Internal roads need to be suitable to take full sized buses and designed to avoid parking causing obstruction on bus route.

- A suitable point should be designated within the development for buses to "wait time" between journeys.

The Council is satisfied that these matters can be concluded through S106 obligations and more detailed work on service development in the event that planning permission is granted. If planning permission is granted for both the Woodlands and Hampden Fields developments, then the Public Transport Strategy will need to be reviewed accordingly to ensure that the most effective bus service is provided.

Internal Road Layout:

As this is an outline application with all matters reserved except access, details of the internal road structure and design will be considered at a later stage. It is recommended that a suitably worded condition or obligation be included to require the submission and approval of details in the event that planning consent is granted.

College Road North site access junction.

It is noted that the planning application seeks the detailed approval of the site access roundabout junction with College Road North and the Arla Diary. The details of this junction arrangement are shown in principal on PBA drawing 32113/2015/001 Rev C and have been supplemented by swept path analysis of large goods vehicles. The junction is formed with a 55m ICD roundabout with 7.3m wide DMRB width carriageways leading in to it on all arms. Capacity analysis of the junction has shown it to operate acceptably and the detailed design of the junction will need to be separate design approval process with the County Council prior to construction.

As such the Council is satisfied with the details shown in the drawing for the purposes of the planning application subject to appropriate Conditions.

Traffic Calming Proposals for Aston Clinton and Weston Turville.

As part of the strategic modelling iterations undertaken for the Woodlands development, interventions to the link speeds within Zone 1 in Aston Clinton (Aylesbury Road between Weston Road and A41) (as identified in the Parish Council commissioned report Bancroft Consulting; Traffic Mitigation Opportunities, August 2016) were included to reflect traffic calming in the area. A similar exercise was carried out for Main Street through Weston Turville to reflect the traffic calming aspirations of Weston Turville Parish Council.

The purpose of this strategic model intervention was to reduce the attractiveness of these routes in the Strategic Model. In order to ensure that this reduced link speed assumptions occur, the Woodlands development team set out their commitment to the implementation of a traffic calming scheme in these areas in the Addendum Transport Assessment dated March 2017.

The Addendum Transport Assessment states at section 5.2.12 that;

Weston Turville

WSP/PB as part of the Hampden Fields proposals has already consulted with Weston Turville Parish Council and BCC regarding a traffic calming scheme on Main Street through Weston Turville (the same link length considered in the strategic modelling above). The Hampden Fields Consortium has committed to these traffic calming measures.

Therefore, it was agreed that to support the Aylesbury Woodlands application, PBA develop a similar design of traffic calming measures given consultation has already been made with the Parish on the form of traffic calming measures.

As a result, PBA drawing 32113/2033/001 contained in Appendix 5B outlines the proposed traffic calming scheme within Weston Turville. This outline preliminary design is similar to WSP/PB's drawing 2826-SK-135 Revision B.

Aston Clinton

In meetings with BCC it was brought to PBA's attention that BCC were being consulted on proposed traffic calming measures prepared by Bancroft Consulting (August 2016) on behalf of Aston Clinton Parish Council.

A series of drawings were prepared by Bancroft Consulting (Traffic Mitigation Opportunities, August 2016) which have been subject to consultation by the Parish Council. These drawings set out the type and location of traffic calming features that the Parish would like to see to reduce the attractiveness of routing through the village. This has also been confirmed by BCC.

Since a comprehensive review of possible measures for the Parish has already been undertaken, it was not necessary for PBA to review and prepare a separate traffic calming scheme for the link in question (Aylesbury Road – Zone 1) when one has already been considered and consulted upon.

As a result, PBA drawing 32113/2033/002 contained in Appendix 5C outlines the proposed traffic calming scheme on Aylesbury Road on the approach to Aston Clinton. This outline preliminary design is similar to Bancroft Consulting's drawing F16036/02 Zone 1 Creative Approach.

The traffic calming scheme for Weston Turville and Aston Clinton Aylesbury Road (Zone 1) will need to be secured by means of a Section 106 obligation in the event that planning consent is to be granted.

In relation to the proposals within Aston Clinton we are aware that the Parish Council would like to see the developer's commitment to traffic calming in the village extended beyond Zone 1. Whilst the direct need for additional traffic calming commitments as a result of the development traffic impact is not significantly evidenced, a letter from the applicant's highways consultant to AVDC dated 22nd September 2017 has given a further commitment to funding further traffic calming measures as follows;

Aylesbury Woodlands remain committed to providing traffic calming features within Aston Clinton, and it is recommended that further discussions are held with BCC in consultation with the Parish Council to agree the type and location of traffic calming features nearer the time at the detailed design stage.

Having discussed the matter further with the applicants they have again confirmed their commitment to consider further additional traffic calming within Aston Clinton. This is a matter that will need to be subject to a S106 obligation in the event that planning consent is to be granted.

Cumulative Assessment

As part of the submissions both Hampden Fields and Woodlands developers have commissioned and undertaken a comprehensive assessment of the cumulative impacts of the development proposals on the operation of the highway network. The design year for the cumulative assessment is 2034 and includes background traffic growth and other committed developments in the town. The assessment was undertaken on a sifting basis using the outputs from the Strategic Traffic model for Aylesbury to identify likely areas where the proposals would jointly have a material impact. On the basis of this information more detailed assessments of the operation on a total of 38 junctions across the town have taken place. It should be noted that the cumulative assessments include both the HS2 proposal for a Stoke Mandeville bypass given that HS2 received Royal Assent in 23rd February 2017.

Also included as an integral part of the Cumulative assessment is BCC's proposed South East Aylesbury Link Road (SEALR) (also known as the Stoke Mandeville Bypass extension) which will connect the B4443 at Lower Road, Aylesbury to the A413 at the Hampden Fields junction. This scheme also forms part of the adopted Aylesbury Transport Strategy and will provide a further section of strategic link road. The SEALR has been included as the Council have committed to its delivery following a Cabinet Member for Transportation Decision on 24th July 2017 which approved;

APPROVED progression of the South East Aylesbury Link Road project as a high priority, including further business case work, preliminary design and preparation of a planning application following successful award of £13.5m of Local Growth Funding from Buckinghamshire Thames Valley Local Enterprise Partnership

The accompanying Cabinet Member Report is appended to this consultation response for further information. However, in summary the report explained;

"The present requirement for the scheme has arisen through the HS2 realignment of the A4010 (Stoke Mandeville bypass). Extensive transport modelling has shown that the A4010 realignment causes significant congestion at the Aylesbury Gyratory caused by traffic reassignment at this junction that is already operating over capacity. This scheme is therefore required to relieve congestion and improve connectivity around Aylesbury.

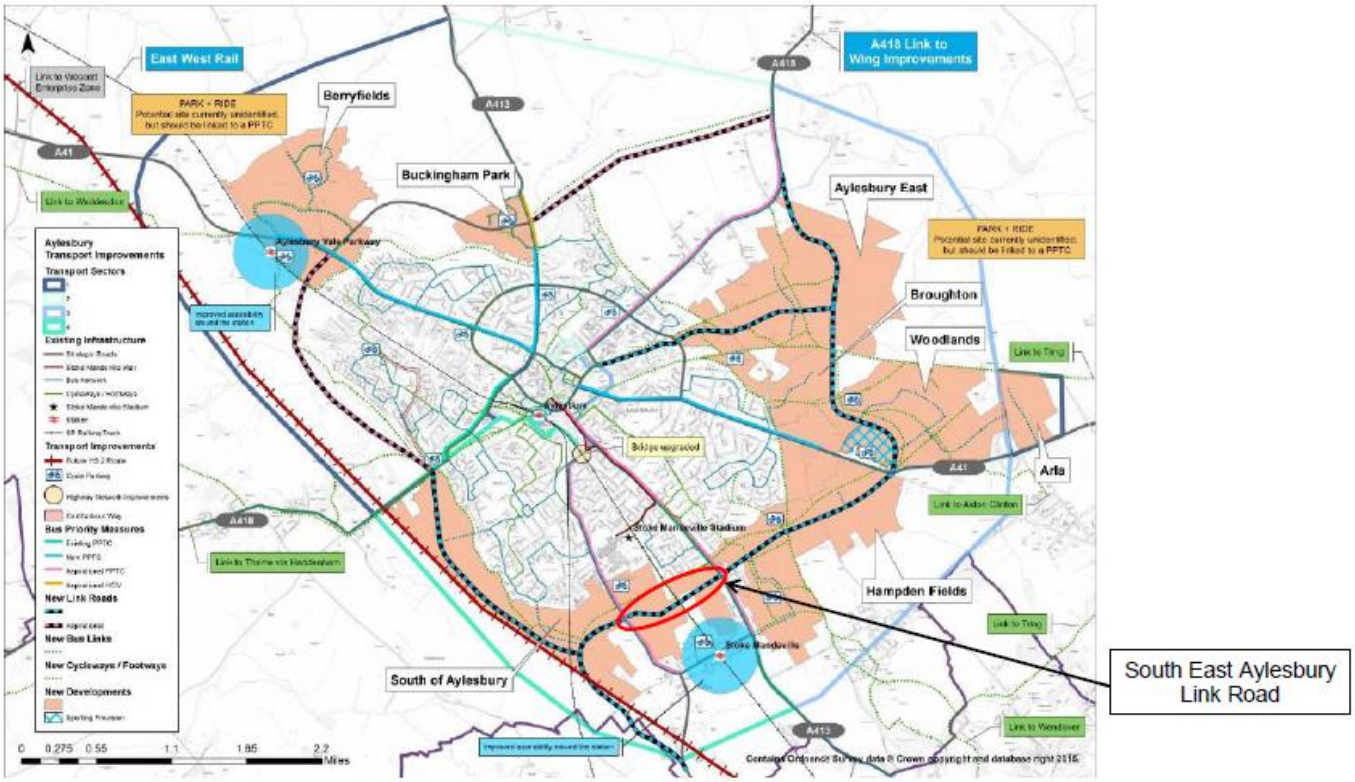
The link also contributes to the strategic ambition for a series of link roads providing a bypass for Aylesbury town centre, as featured in the adopted Aylesbury Transport Strategy (Report T05.17, see Appendix 1), and will help accommodate the planned housing and business growth across the town.

This report sets out the Council's commitment to deliver the scheme and seeks Cabinet Member approval to progress the scheme."

It goes on to explain that the project is subject to a tight delivery deadline "due to the need to align with construction of the A4010 Realignment by HS2. As such, some early works on the South East Aylesbury Link Road have already progressed". Given that the HS2 works to construct the Stoke Mandeville Bypass are currently programmed for 2020, it is the Council's intention to ensure that the construction of the SEALR is undertaken to a timetable to ensure that it is open at the same time. It is notable that this is in advance of the future years assessed by Hampden Fields and Woodlands planning applications and as such should ensure that it is in place to help mitigate their impacts. Both Woodlands and Hampden Fields have agreed to make significant financial contributions towards the SEALR scheme to assist in its delivery and given that it assists with mitigating the impacts of their developments. This will need to be secured by means of a Section 106 obligation in the event that planning consent is granted.

The following extract shows the Hampden Fields link road (SLR), the Woodlands link road (ELR(S)) and the SEALR proposed by BCC in the context of the link road strategy outlined in the Aylesbury Transport Strategy. It can be seen that all of these roads are essential components of the completed strategy for Aylesbury.

Appendix 1: Aylesbury Link Roads Programme (from adopted Aylesbury Transport Strategy)



The joint cumulative assessment reports submitted for both applications also helpfully summarise the strategic significance of the two development proposals and their infrastructure in meeting the housing and infrastructure needs for the town as follows;

The ELR(S) is a key piece of local infrastructure required to complete an orbital connection around the east of Aylesbury, and the draft ATS is supportive of the provision of the ELR(S) as part of overall transport improvements in Aylesbury. Therefore, the Woodlands development is a key facilitator in terms of this overall strategy. The completed ELR will link the A418 Bierton Road to the north with the A41 Aston Clinton Road to the south. More widely the provision of the ELR(S) also forms a key part of BTVLEP's wider economic objective to improve north-south connectivity between major settlements in the County, and particularly to improve connectivity between the M40 to the south and the M1 to the north.

As part of the Hampden Fields development, this will also directly facilitate the delivery of the Southern Link Road (SLR), which is a new dual carriageway proposed to link the A413 Wendover Road with the A41 Aston Clinton Road. The SLR will be serving as both the site access and as a cross-radial strategic link around the south of Aylesbury, again helping to fulfil BCC's vision re-stated in the ATS for orbital road connections around the town.

Whilst objectors are uncertain of the benefits of the link road strategy being developed by the County and District Council's to support the Aylesbury's growth, it is identified in the policy section of this response that they are an integral part of the Aylesbury Transport Strategy. Select link analysis of the ELR(S) and SLR from the strategic cumulative modelling undertaken indicates that the link roads will carry in excess of 1000 vehicles per hour during the peaks. This demonstrates the importance of the proposed infrastructure to the town which is consistent with the adopted Aylesbury Transport Strategy.

Junction Analysis of the Cumulative Assessment

The following section discusses each of the junctions assessed in the cumulative assessment and identifies where additional mitigation measures are required and explains what the mitigation works are and how they assist in offsetting the material impacts of the combined development proposals. All mitigation measures are expected to be fully funded by the developments and subject to a S106 requirement for a Joint Delivery Strategy which will set out which developer will implement the scheme and when it will be implemented. The results of the assessments are based on the comparison of the 2034 with cumulative development scenario against a 2034 without development scenario

Junction 2 - College Road North/A41 Westbound Overbridge

No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 3 - College Road North/A41 Left In Left Out Junctions

No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 4 – London Road/Weston Road/Aylesbury Road Roundabout, Aston Clinton

No works to this junction are proposed as the operation is acceptable with cumulative development.

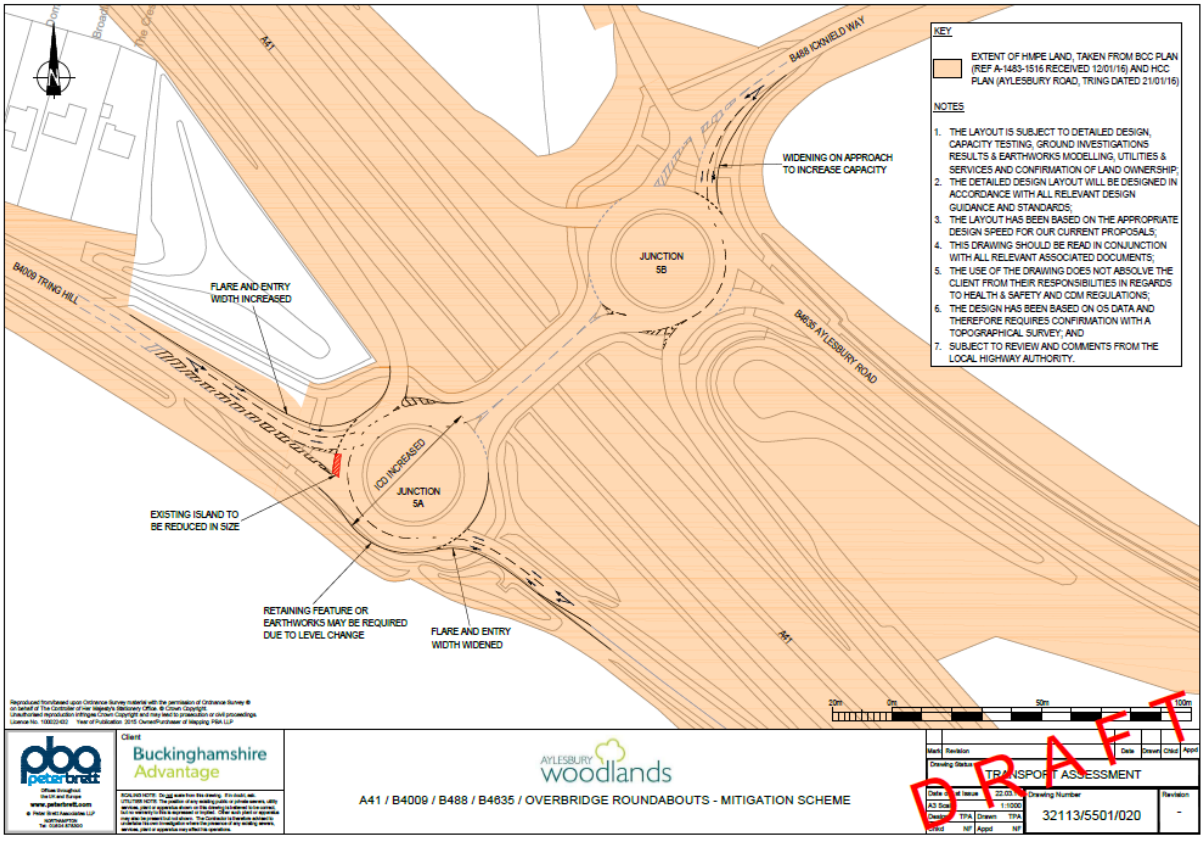
Junction 5a – A41 Westbound Slips/B4009/Overbridge Roundabout (Southern Dumbbell)

A mitigation measure is proposed at this junction to reduce the significant impacts of development. The scheme involves increasing the size of the junction, (ICD) to 52m, and providing two-lane approaches with increased flares on the A41 westbound off slip and the Tring Hill approaches, as shown on PBA Drawing 32113/5501/020, an extract of which is set out below. The scheme is the same as proposed in the Woodlands development standalone scenario.

Whilst the junction will continue to operate over capacity, the operation of the junction improves with the cumulative development, with queuing on Tring Hill reduced by 45 vehicles and by 129 vehicles on the A41 westbound off slip in the PM peak The operation of the junction with the mitigation measures is therefore considered to be acceptable and mitigates the impacts of the cumulative development proposals.

	2034 Reference Case				2034 Do Cumulative with Mitigation			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Max RFC	End Queue(veh)	Max RFC	End Queue(veh)	Delay (s)	Queue (veh)	Delay (s)	Queue (veh)
Overbridge (NE)	0.6	2	0.72	3	9	3	12	4
A41 WB Offslip	0.44	1	1.2	135	8	1	26	6
B4009 Tring Hill	1.11	97	1.21	145	325	87	429	100
A41 WB On Slip	EXIT ONLY				EXIT ONLY			
Junction Delay (s)	175		413					

Table 8 Junction 5A Northern Dumbbell ARCADY Results



Junction 5b - A41 Eastbound Slips/B488/B4635 Roundabout (Northern Dumbbell)

A mitigation measure is proposed at this junction to reduce the significant impacts of development. The proposed mitigation measure includes increasing the road width on the B488 approach to produce two formal lanes, as shown on **PBA 32113/5501/020** above. The mitigation measure is the same as that proposed for the Aylesbury Woodlands standalone development.

The analysis suggests that whilst there will still be considerable queuing on the Icknield Way approach to the junction, the level of queuing and delay will be less than in the reference case (2034 without development) situation. In the AM peak queuing on the Icknield Way approach is found to reduce from 354 vehicles to 175 vehicles and overall junction delay reduces from 672 seconds to 214 seconds. Therefore the impact of the cumulative proposals on this junction, with the mitigation measure, is acceptable.

	2034 Reference Case				2022 Do Cumulative with Mitigation			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Max RFC	End Queue (veh)	Max RFC	End Queue (veh)	Delay (s)	Queue (veh)	Delay (s)	Queue (veh)
B488 Icknield Way	1.51	354	1.19	153	483	175	398	130
B4635 Aylesbury Road	0.28	0	0.41	1	24	1	18	1
A41 Eastbound on-slip	EXIT ONLY				EXIT ONLY			
Overbridge (SW)	0.71	2	0.88	7	8	2	17	6
A41 Eastbound Off-slip	0.55	1	0.66	2	13	1	30	4
Junction Delay (s)	672		225		214		153	

Table 9 Junction 5B Southern Dumbbell ARCADY Results

Junction 6 – A41/Aston Clinton Road/Woodlands Roundabout

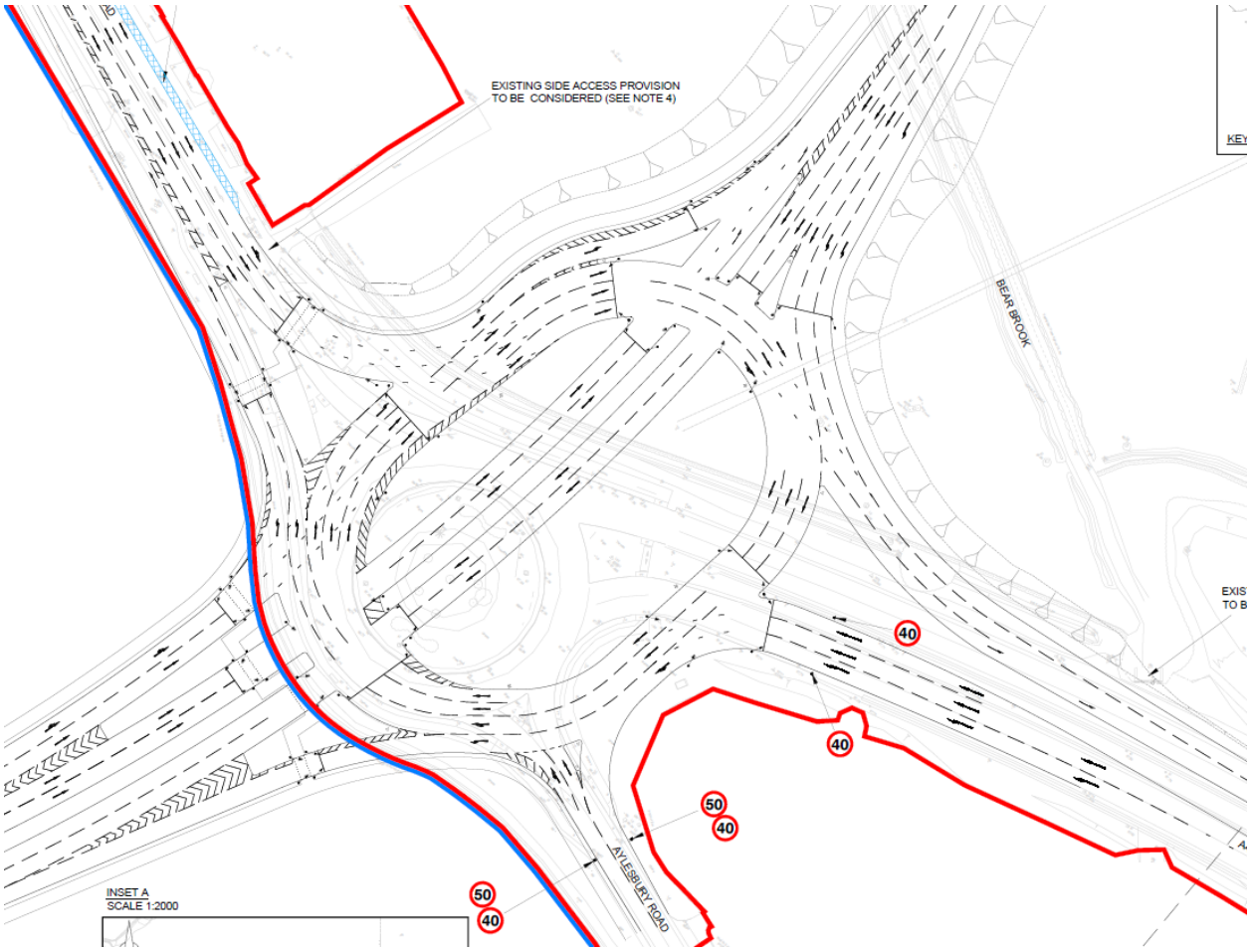
A junction design has been developed by Jacobs and is shown on drawing **B12798C7-0000-D-048 Rev 1**, an extract of which is included below. The proposal is for a signalised hamburger with five approaches, one to serve the Hampden Fields development and one to serve the Eastern Link Road and Aylesbury Woodlands development. The design incorporates pedestrian crossings on the A41 western approach and the Southern Link Road approach. Earlier concerns expressed by the Council have been addressed through the provision of an increased flare northbound on the ELR and an increased two lane exit on A41 westbound towards Aylesbury.

The results of the capacity assessment are set out below:

Table 3-3 2034 Do Cumulative A41 Bypass/Aylesbury Rd/A41 Aston Clinton Rd – TRANSYT 15 Summary

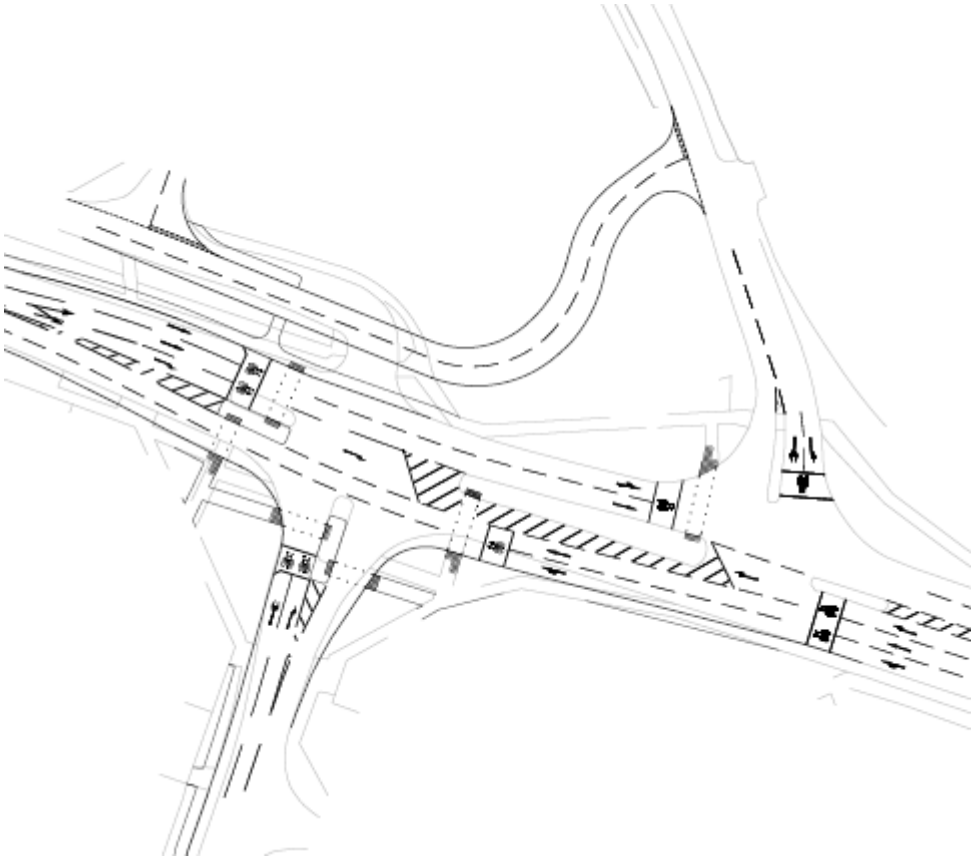
	AM Peak		PM Peak	
Road name	DoS (%)	MMQ (PCU)	DoS (%)	MMQ (PCU)
ELR (N)	84	8.73	76	6.68
A41 (E)	49	6.15	63	10.84
Aylesbury Road (SE)	13	0.01	7	0
SLR (S)	60	5.89	78	9.08
A41 (W)	81	13.54	60	9.77
North bound cut-through	37	2.58	84	5.42
South bound cut-through	75	1.16	60	1.54
Circulatory @ ELR (N)	61	4.36	49	4.25
Circulatory @ A41 (E)	29	2.64	23	1.68
Circulatory @SLR (S)	56	7.23	62	6.88
Circulatory @ A41 (W)	35	5.49	40	5.85
Exit crossing (A41W)	44	1.24	51	3
Exit crossing (SLR(S))	50	3.08	51	0.57
Total Network Delay (PCU hr.)		57.54		64.68
Cycle time (seconds)		74		84

The assessment shows that the proposed junction can accommodate the cumulative development and is therefore acceptable. The proposed layout is below;



Junction 7/8 – A41/Aston Clinton Road MDA/New Signalised Crossroads and A41/Bedgrove/Broughton Lane

The Bedgrove/Broughton Lane junction is a problematic junction on the network and this is in part due to the number of side roads competing for green time at the existing signals. A mitigation measure has been proposed making use of Council land, which forms part of the public highway, to the north of the junction. It is of interest to note that whilst researching the status of the land it was found that it was acquired in 1936 for a similar scheme to that now proposed by the developers. The scheme involves removing the northern arm of the Bedgrove junction (Tring Road local), linking it instead with Broughton Lane to the east by way of a priority junction as shown on WSP drawing **1969/SK/150 Rev F**.



The results of the LINSIG analyses are summarised below, obtained from WSP|PB Technical Note dated 28 September 2017.

Table 1-1 2034 Reference Case (Scenario 10) A41 Aston Clinton Rd/New Rd/Bedgrove/MDA Access (Vectos Method of Control) – LinSig 3 Summary

Arm/ Lane	Road name	AM Peak		PM Peak	
		DoS (%)	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
J1: A41 Tring Road/Bedgrove Road					
1/1	A41 WB (Internal) Left Ahead	74.5	7.4	128.7	228.7
1/2+1/3	A41 WB (Internal) Ahead Right	83.5	11.1	153.8	19.7
2/2+2/1	Bedgrove Left Ahead Right	177.1	228.2	137.1	59.6
3/1	A41 EB Entry Left Ahead	59.3	14.7	55.6	12.5
3/2+3/3	A41 EB Entry Right Ahead	61.5	16.4	56.8	13.9
4/1	Tring Road Ahead Right Left	83.5	5.9	105.8	12.2
8/1	A41 WB Ahead	39.8	2.5	84.6	36.3
8/2+8/3	A41 WB Ahead Right	61.8	7.2	52.7	2.1
9/1	A41 EB (Internal) Left Ahead	74.1	12.7	67.3	7.7
9/2	A41 EB (Internal) Ahead	67.9	10.8	68.4	9.0
10/2 +10/1	Broughton Lane Right Left	180.0	135.4	311.7	244.8
J2: Aston Clinton Road/New Road/MDA Access					
1/1	A41 WB Entry Left Ahead	77.0	19.9	66.0	17.4
1/2+1/3	A41 WB Entry Right Ahead	79.1	22.3	69.9	20.3
2/1+2/2	New Road Right Ahead Left	85.4	16.3	214.0	199.3
3/1	A41 EB Ahead Left	81.6	18.6	95.6	29.8
3/2+3/3	A41 EB Ahead Right	89.4	38.5	169.9	87.4
4/2+4/1	MDA Site Access Left Ahead Right	45.0	2.9	40.8	2.6
Overall PRC (%)		–100.0		–246.3	
Cycle time (seconds)		120		120	

Table 1-2 2034 Do Cumulative (Scenario 13c-V4) A41 Aston Clinton Rd/New Rd/Bedgrove/MDA Access, Priority junction at Broughton Lane (WSP Drawing 1769/SK/150 rev F) – LinSig 3 Summary

Arm/ Lane	Road name	AM Peak		PM Peak	
		DoS (%)	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
J1: A41 Tring Road/Bedgrove Road					
1/1	A41 WB (Internal) Left Ahead	74.2	12.4	69.7	9.0
1/2	A41 WB (Internal) Ahead	65.5	8.3	66.2	9.6
2/2+2/1	Bedgrove Left Ahead Right	135.4	127.4	134.5	55.0
3/1	A41 EB Entry Left Ahead	44.4	9.5	40.5	6.9
3/2+3/3	A41 EB Entry Right Ahead	56.8	14.2	44.1	8.1
8/1	A41 WB Ahead	38.8	3.7	45.4	3.2
8/2+8/3	A41 WB Ahead Right	84.6	30.5	77.7	37.2
9/1	A41 EB (Internal) Left Ahead	72.0	13.8	59.8	10.3
9/2	A41 EB (Internal) Ahead	73.4	13.5	58.9	10.9
10/2 +10/1	Broughton Lane Right Left	155.0	141.4	171.7	158.1
6/1	Broughton Lane Southbound	29.7	0.2	29.0	0.2
7/1	Link Road Eastbound	22.1	0.1	24.0	0.2
J2: Aston Clinton Road/New Road/MDA Access					
1/1	A41 WB Entry Left Ahead	64.4	15.2	84.5	23.9
1/2+1/3	A41 WB Entry Right Ahead	67.5	16.8	87.0	26.8
2/1+2/2	New Road Right Ahead Left	81.3	14.7	92.4	20.0
3/1	A41 EB Ahead Left	78.3	13.6	65.0	8.2
3/2+3/3	A41 EB Ahead Right	82.5	9.9	67.4	33.9
4/2+4/1	MDA Site Access Left Ahead Right	50.8	3.3	59.6	4.1
Overall PRC (%)		–72.2		–90.8	
Cycle time (seconds)		120		120	

Although there are some minor increases in queue length in the morning peak hour, particularly on the A41 Westbound ahead movements and on Broughton Lane, overall the results of the analysis show an improvement in the operation of the junction. Overall junction capacity is significantly improved in the PM peak hour and the reconfigured junction will allow for a more efficient operation. The junction is therefore acceptable with the development and the mitigation measure.

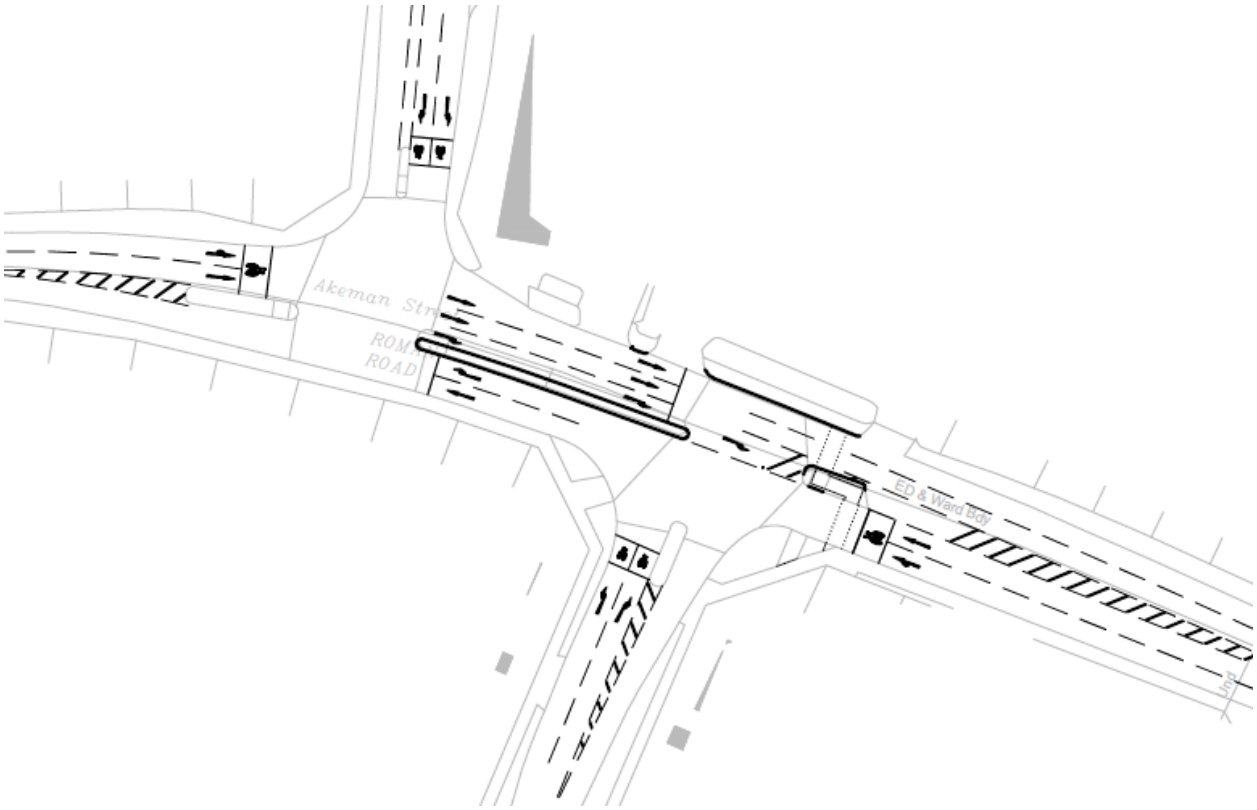
The County Council is aware of public concern about the rat running along Broughton Lane. Broughton Lane has been recently been severed by the Stocklake Rural, constructed as part of the Kingsbrook development. The junction with Stocklake Rural has been specifically designed to make the turning movements into and out of Broughton Lane difficult to avoid its use. Furthermore signals are to be constructed on Broughton Lane over the canal bridge, which will add further delay and discouragement to through traffic.

The Councilis of the view the implementation of the link road system will be of benefit to Broughton Lane providing an alternative route for traffic travelling between the north and west and the A41/A418. As such we are committed to reviewing the continued use of Broughton Lane once the ELR and SLR are open to traffic with a view to considering additional measures to deter the use of the road by strategic traffic. However, we cannot consider further restrictions to the Lane until such time that link roads are fully open. The review of the use of Broughton Lane will be subject to the Joint Delivery Strategy, secured as a S106 obligation in the event that planning consent for both developments is granted.

Junction 9 – A41/King Edward Avenue/Oakfield Road Junction

A mitigation proposal involves the introduction of three full lanes eastbound between Oakfield Road and King Edward Avenue, with the outside lane for the right turn movement only. This is considered to be a significant benefit to the Council given the current imbalance between the use of A41 eastbound lanes 1 and 2 on the town side of the junction associated with the blocking of Lane 2 of the junction by vehicles waiting to turn right in to King Edward Avenue. The creation of a third dedicated and extended right turn lane in to King Edward Avenue is likely to have a real benefit on the ground given the blocking we regularly witness on site and through the Signal Control Centre CCTV system.

The pedestrian crossing between Oakfield Road and King Edward Avenue is also relocated to the east of King Edward Avenue and comprises a reverse stagger. The removal of this crossing from the centre of the junction will simplify the operation of the junctions and allow it to be staged more efficiently. The proposals are shown on WSP Drawing **70011769-SK-047**, an extract of which is provided below.



There have also been changes to the evening peak hour signal phasing, with the right turn from King Edward Avenue running every other cycle and the addition of an extra stage to allow the right turn from the A41 into Oakfield Road to run earlier .

The results of the analyses are summarised below, taken from WSP|PB Technical Note dated 22 September 2017.

Table 1-1 2034 Reference Case (Scenario 10) A41 Tring Rd/King Edward Ave/A4157 Oakfield Rd – LinSig 3 Summary

Arm/ Lane	Road name	AM Peak		PM Peak	
		DoS (%)	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
1/1	A41 Tring Road (EB) Ahead Left	375.6	387.7	105.1	77.7
1/2	A41 Tring Road (EB) Ahead	124.6	46.7	32.4	6.8
2/2+ 2/1	Oakfield Road Left Right	363.7	395.9	82.6	13.2
3/1	A41 Tring Road Internal (WB) Ahead	65.7	0.1	75.7	2.0
3/2	A41 Tring Road Internal (WB) Right	39.3	5.5	61.0	4.7
4/1	A41 Tring Road Internal (EB) Ped Ahead	20.2	0.0	71.6	4.0
4/2	A41 Tring Road Internal (EB) Ped Ahead	19.3	0.0	31.2	1.0
5/1	A41 Tring Road Internal (EB) Ahead	20.0	0.0	71.0	0.6
5/2	A41 Tring Road Internal (EB) Ahead Right	88.5	0.0	71.9	0.3
6/1	A41 Tring Road (WB) Ahead Left	86.2	31.3	91.5	36.8
6/2	A41 Tring Road (WB) Ahead	28.3	5.6	0.0	0.0
7/1+ 7/2	King Edwards Avenue Left Right	52.4	6.0	86.1	14.1
Overall PRC (%)		–317.4		–16.8	
Cycle time (seconds)		120		120	

Table 1-2 2034 Do Cumulative (Scenario 13c-V4) A41 Tring Rd/King Edward Ave/A4157 Oakfield Rd (BCC Preferred Mitigation) – LinSig 3 Summary

Arm/ Lane	Road name	AM Peak		PM Peak	
		DoS (%)	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
1/1	A41 Tring Road (EB) Ahead Left	115.3	49.6	77.3	20.5
1/2	A41 Tring Road (EB) Ahead	115.4	55.0	79.3	24.4
2/2+ 2/1	Oakfield Road Left Right	66.7	7.3	71.1	7.1
3/1	A41 Tring Road Internal (WB) Ahead	55.7	0.1	78.0	1.7
3/2	A41 Tring Road Internal (WB) Right	85.3	3.6	34.6	5.1
4/1	A41 Tring Road Internal (EB) Ahead	39.7	0.1	26.2	0.0
4/2	A41 Tring Road Internal (EB) Ahead	69.2	2.1	54.4	0.6
4/3	A41 Tring Road Internal (EB) Right	46.2	1.8	70.9	4.7
5/1	A41 Tring Road (WB) Ahead Left	197.7	293.6	86.6	34.7
5/2	A41 Tring Road (WB) Ahead	35.8	3.0	0.2	0.0
7/1+ 7/2	King Edwards Avenue Left Right	29.5	2.4	85.9	10.2
Overall PRC (%)		–119.7		3.9	
Cycle time (seconds)		64		240	

The junction operation shows an overall significant improvement in comparison with the reference case situation, with the practical reserve capacity at the junction increasing, however the queue on the A41 Tring Road westbound, increases from 32 (link 6/1 in reference case) to 294 pcu (link 5/1) in the evening peak hour. The advice of the Council's signals team is that this queue will actually be reduced given that the adjacent lane is running with significant reserve capacity and minimal queuing (3 pcu) and is also available for ahead traffic. On this basis the Council considers that the overall benefits to the junction are sufficient to offset the cumulative impact of the developments.

Junction 10 – A41/Park Street/High Street/Walton Road Roundabout

No works to this junction are proposed. Whilst the junction will operate over capacity with the cumulative developments, the level of queuing and delay is **reduced** in comparison with the reference case situation. The impact of the cumulative development on the junction is therefore acceptable.

Junction 11 – A418 Bierton Road/A4157 Douglas Road/A4157 Elmhurst Road Roundabout

No works to this junction are proposed. There is a discrepancy in the input data for the PM peak but the impact of the development at this junction is not considered sufficient to require further analysis.

Junction 12 – A41/Vale Park Drive/High St/Exchange Street Roundabout

No works to this junction are proposed. Whilst the junction will operate over capacity with the cumulative developments, the level of queuing and delay is **reduced** in comparison with the reference case situation. The impact of the schemes on the junction is therefore acceptable.

Junction 13 – A41/A418/Exchange Street Roundabout

Model not included in cumulative assessment due to reduced impacts.

Junction 14 – A4157 Douglas Road/A4157 Oakfield Road/Stocklake Junction

No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 15 – A413/Camborne Avenue Roundabout

No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 16 – A418/Burcott Lane. Brick Kiln Lane Junction

No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 17 – Tringford Rd/Bulbourne Road/Wingrave Road/Icknield Way Roundabout

This junction is within Hertfordshire and is not within the remit of Buckinghamshire County Council.

Junction 18 - College Road North/Site Access/Arla Access Roundabout

The College Road North/Site Access/Arla Access roundabout has been assessed for the do something situation using ARCADY in Junctions 9 and indicates that it will operate within capacity.

Junction 19 – Eastern Link Road (N)/ Village 4 Roundabout

No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 20 – Eastern Link Road (N)/Stocklake (Rural) Roundabout

No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 21 – Proposed Eastern Link Road (N)/A418 Junction

This junction operates within capacity and the impact of the cumulative development is therefore acceptable.

Junction 24 – Walton Gyratory

No works to junction are proposed. The junction operates over capacity in do minimum and do something situations, but there is an improvement with the cumulative development and therefore, the impact is acceptable. The following table sets out the comparative capacity assessment results and shows a material improvement in the cumulative situation. We have highlighted green those links that show an improvement or are neutral and orange those that show an increase in queuing or degree of saturation but remain within acceptable thresholds

Table 3-35 2034 Do Cumulative Walton St Gyratory – LinSig 3 Summary

Arm/ Lane	Road name	AM Peak DoS (%)	AM Peak MMQ (PCU)	PM Peak DoS (%)	PM Peak MMQ (PCU)
1/2+1/1	Walton Street Ahead	75.3	10.4	107.9	56.2
1/3	Walton Street Ahead	75.2	10.5	107.9	56.4
2/1+2/2	Internal - Walton Street Stopline Right	62.9	3.5	71.8	8.2
3/1+3/2	Walton Road Ahead Left	65.9	4.9	65.4	4.8
4/1	Internal - Walton Road Stopline Left	30.4	5.0	38.8	4.9
4/2	Internal - Walton Road Stopline Ahead	60.9	4.3	70.7	3.2
4/3	Internal - Walton Road Stopline Right Ahead	62.3	4.7	72.7	4.3
5/1	Wendover Road Ahead	81.9	11.9	84.3	12.3
5/2	Wendover Road Ahead	81.9	11.9	84.2	12.3
6/1	Internal - Wendover Road Stopline Right	50.6	3.0	55.4	5.2
6/2	Internal - Wendover Road Stopline Right	61.5	3.9	63.8	6.5
7/1+7/2	Stoke Road Left	124.6	186.7	91.1	16.4
8/2	Internal - Stoke Road Stopline Right	87.2	7.5	88.7	8.8
8/3	Internal - Stoke Road Stopline Right	87.4	6.5	89.1	8.8
13/1	Walton Green Left Left	34.1	0.4	27.4	0.3
Overall PRC (%)		–38.4		–19.9	
Cycle time (seconds)		64		64	

Table 3-36 Walton St Gyratory – Summary of 2034 Total Junction Demand Flow Delays

Scenario	AM Peak Delay (PCU hr.)	AM Peak Flows (PCU/hr)	AM Peak Ave. Delay (s/PCU)	PM Peak Delay (PCU hr.)	PM Peak Flows (PCU/hr)	PM Peak Ave. Delay (s/PCU)
Reference Case	337.6	5,568	218	413.9	5,733	260
Do Cumulative	208.4	4,795	156	135.2	4,968	98
Delay difference (s/PCU)			–62			–162

Junction 25 – A418 Bierton Road/Park Street/Cambridge Street mini roundabout

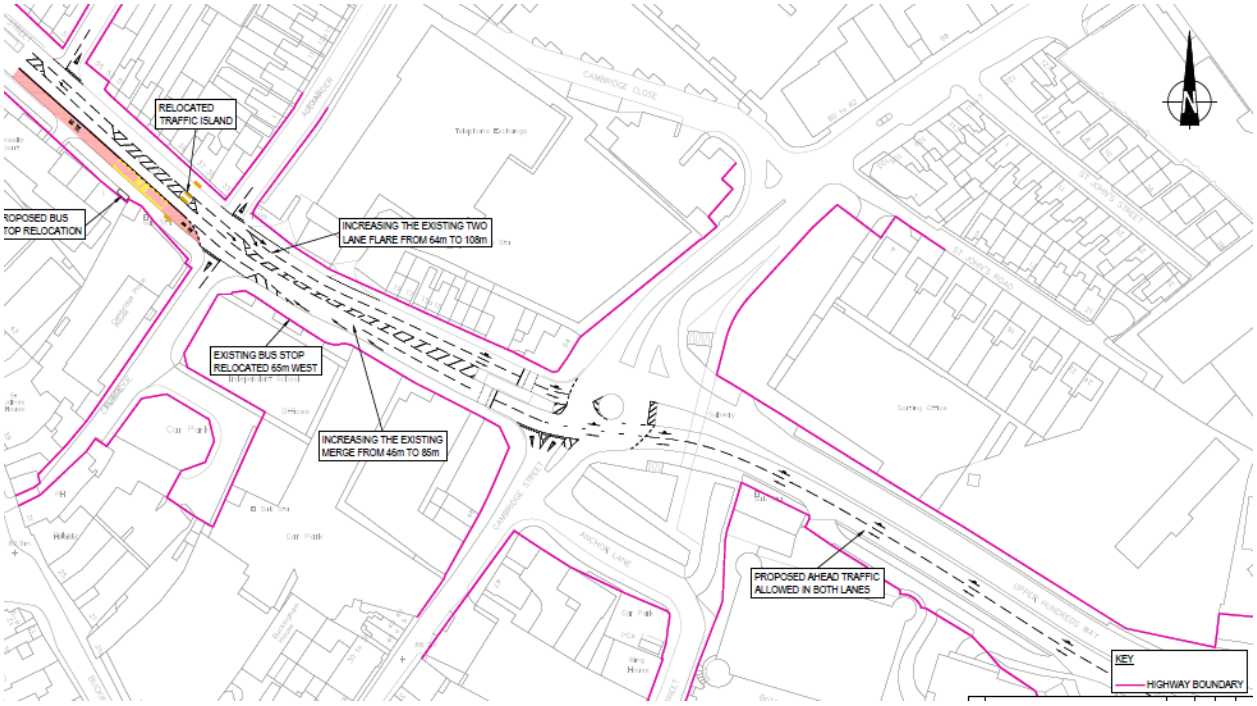
No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 26 – A418 Sapphire Way/Stocklake/Park Street/Vale Park Drive Roundabout

No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 27 – Cambridge Street/Upper Hundreds Way/New Street Roundabout

Mitigation works are proposed to this junction as a result of the cumulative impact. The mitigation proposals shown on PBA Drawing **32113/5501/022 Revision E** involves changing the lane allocation on Upper Hundreds Way to allow ahead movements in both lanes, increasing the merge length on the A418 north exit, increasing the flare length on the A418 north approach and relocating bus stops on the A418 north. An extract of the drawing is given below.



The model has been run using standard ARCADY methods and also using the lane simulation option, to assess the impact of uneven lane usage. The results are summarised below, as taken from WSP|PB Technical Note dated 6 July 2017. They show that there is an improvement in the operation of the junction with the mitigation measure, in comparison with the reference case situation. The impact of the cumulative development on this junction is considered to be acceptable subject to the implementation of the improvement scheme.

Table 4-1 2034 Reference Case (Scenario 10) Cambridge Street/Upper Hundreds Way/New Street – Junctions 9 Summary (Standard ARCADY Assessment)

Arm	Road name	AM Peak		PM Peak	
		RFC	**End Queue (vehicles)**	**RFC**	**End Queue (vehicles)**
A	Cambridge St (N)	0.77	3	0.50	1
B	Upper Hundreds Way	0.70	2	0.76	3
C	Cambridge St (S)	0.26	0	0.58	1
D	New St	1.26	328	1.55	661

Table 4-2 2034 Reference Case (Scenario 10) Cambridge Street/Upper Hundreds Way/New Street – Junctions 9 Summary (Lane Simulation Sensitivity)

Arm	Road name	AM Peak		PM Peak	
		End Queue (vehicles)	**Delay (seconds)**	**End Queue (vehicles)**	**Delay (seconds)**
A	Cambridge St (N)	5	44	1	15
B	Upper Hundreds Way	475	1,281	558	1,319
C	Cambridge St (S)	1	11	2	15
D	New St	412	838	763	1,374
Junction delay (seconds)		861		1,137	

Table 4-5 2034 Do Cumulative (Scenario 13c-V4) Cambridge Street/Upper Hundreds Way/New Street (Proposed Mitigation) – Junctions 9 Summary (Standard ARCADY Assessment)

Arm	Road name	AM Peak		PM Peak	
		RFC	**End Queue (vehicles)**	**RFC**	**End Queue (vehicles)**
A	Cambridge St (N)	0.76	3	0.49	1
B	Upper Hundreds Way	0.72	3	0.79	4
C	Cambridge St (S)	0.20	0	0.55	1
D	New St	1.25	328	1.45	561

Table 4-6 2034 Do Cumulative (Scenario 13c-V4) Cambridge Street/Upper Hundreds Way/New Street (Proposed Mitigation) – Junctions 9 Summary (Lane Simulation Sensitivity)

Arm	Road name	AM Peak		PM Peak	
		End Queue (vehicles)	**Delay (seconds)**	**End Queue (vehicles)**	**Delay (seconds)**
A	Cambridge St (N)	9	82	2	18
B	Upper Hundreds Way	18	45	62	133
C	Cambridge St (S)	1	19	7	69
D	New St	405	802	668	1,199
Junction delay (seconds)		413		623	

Junction 28 – A413 Wendover Road/A4010 Station Road Roundabout Stoke Mandeville

No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 34 – New Road/Brook End/Main Street mini roundabout

No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 35 – A413 Wendover Road/Marroway Roundabout

No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 36 – A4010 Station Road/A4010 Risborough Road/B4443 Lower Road mini roundabout Stoke Mandeville

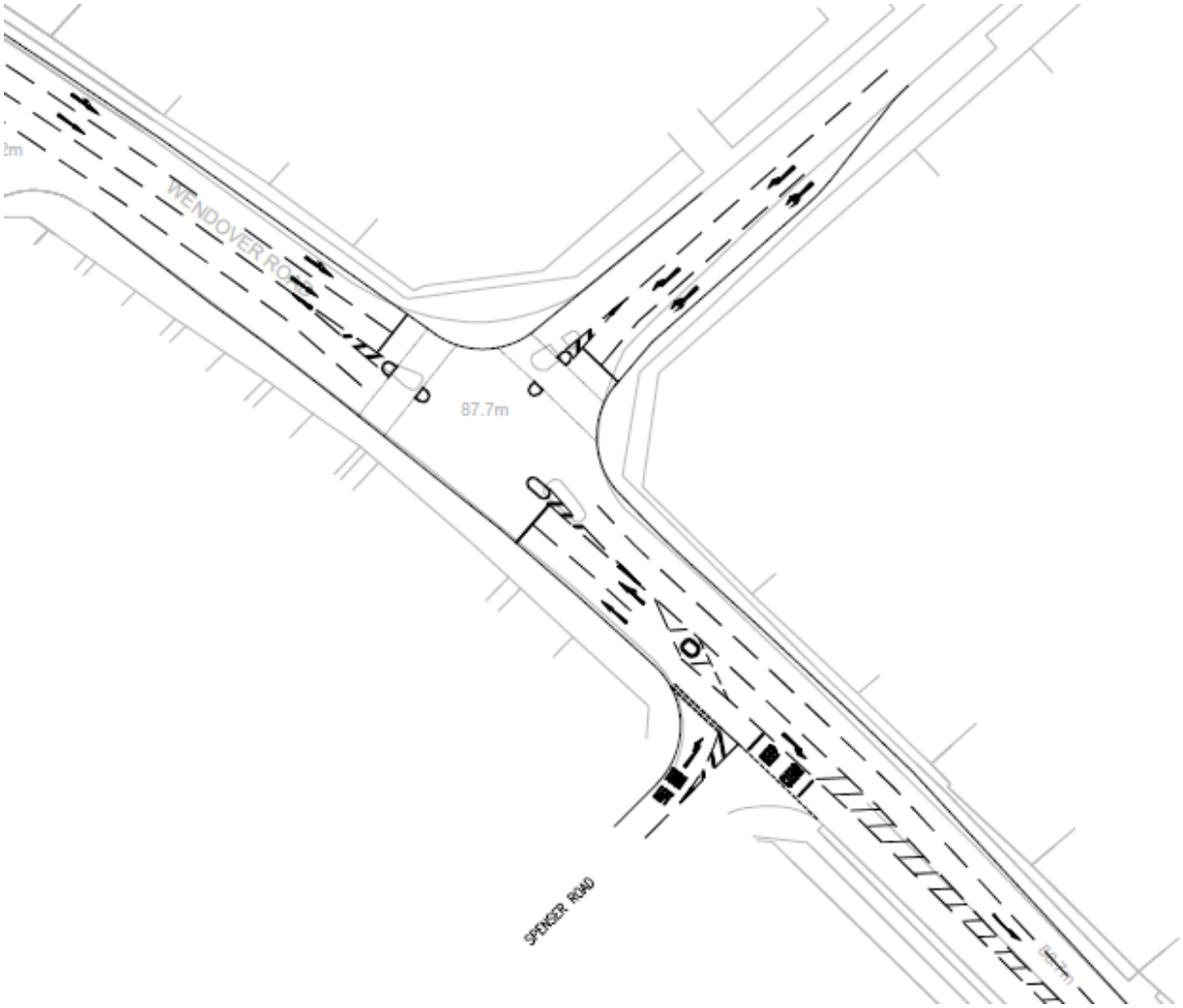
No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 37 – A413 Wendover Road/Silver Birch Way Roundabout

No works to this junction are proposed as the operation is acceptable with cumulative development.

Junction 38 – A418 Wendover Road/Wendover Way Mini Roundabout

Mitigation works are proposed to this junction as a result of the cumulative impact. A signalisation scheme is proposed as shown on WSP Drawing **1769/26/101/Rev C**, an extract of which is provided below.



The Council's signals team have advised that this form of junction will allow for improved traffic management, particularly given the proximity to the Gyratory. The results of the analysis are summarised below, as obtained from WSP|PB Technical Note dated 22 August 2017. They show an improvement over the do nothing situation in 2034.

Table 2-1 A413 Wendover Rd/Wendover Way – Summary of Queues

	AM Peak			PM Peak		
	2034 DN Rbt *Standard* ARCADY End Queue (veh.)	2034 DN Rbt *ELA* ARCADY End Queue (veh.)	2034 DC Signals LinSig MMQ (PCUs)	2034 DN Rbt *Standard* ARCADY End Queue (veh.)	2034 DN Rbt *ELA* ARCADY End Queue (veh.)	2034 DC Signals LinSig MMQ (PCUs)
Road name						
A413 Wendover Road N	29	456	11	10	389	16
Wendover Way	6	5	6	11	20	10
A413 Wendover Road S	122	463	26	127	541	32

Table 2-2 A413 Wendover Rd/Wendover Way – Summary of Delays

	AM Peak			PM Peak		
	2034 DN Rbt *Standard* ARCADY Av. Delay (s/av. Veh)	2034 DN Rbt *ELA* ARCADY Av. Delay (s/av. Veh)	2034 DC Signals LinSig Delay (s/PCU)	2034 DN Rbt *Standard* ARCADY Av. Delay (s/av. Veh)	2034 DN Rbt *ELA* ARCADY Av. Delay (s/av. Veh)	2034 DC Signals LinSig Delay (s/PCU)
Road name						
A413 Wendover Road N	96	1,266	17	34	1,092	26
Wendover Way	64	47	81	107	145	74
A413 Wendover Road S	325	1,112	22	336	1,331	35

It is worth noting that the results of the 2034 without development scenario (2034 DN) are likely to fall between the standard ARCADY run and the Entry Lane Analysis (ELA) results, given that the standard ARCADY run will assume that traffic can use the full width of the entry. On this basis, the results show a significant improvement in junction operation as a result of the installation of the signals. The impact of the development on this junction is therefore considered acceptable subject to the implementation of the improvement scheme.

A41 High Street/Walton Street/A41 Friarage Road

No works to this junction are proposed as the operation is acceptable with cumulative development.

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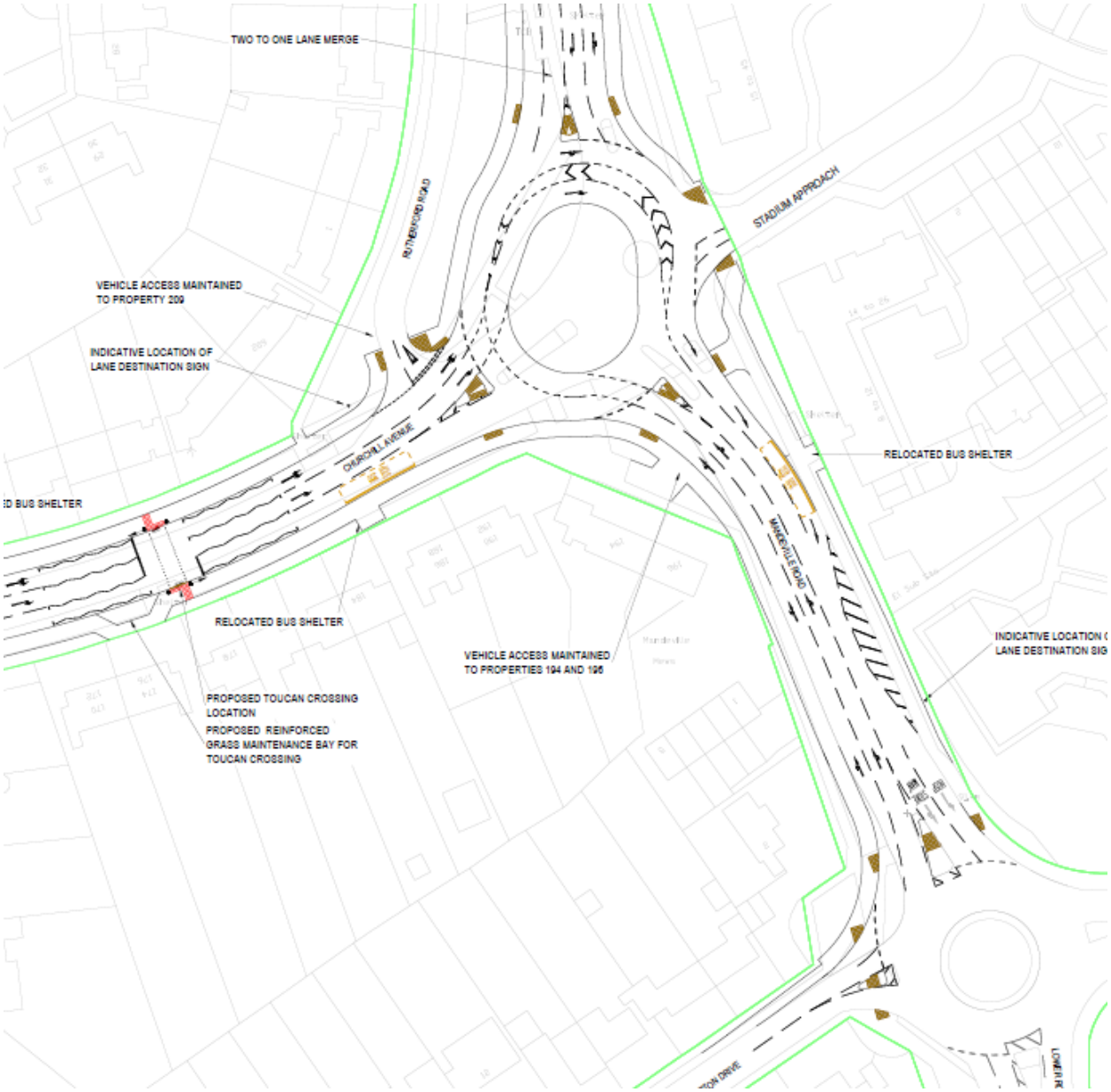
B4443 Mandeville Road/Stadium Approach/B4443 Lower Road/Churchill Avenue and B4443 Lower Road/Winterton Drive

A number of improvements are proposed at the two roundabout junctions as shown on PBA Drawing **32113/5511/004**. The impact of traffic on this corridor is not only a direct result of the cumulative impacts of Hampden Fields and Woodlands development proposals but a combination of the development proposals and the link roads, including the proposed SEALR. Pending the continuation of a link road system west towards the A418, traffic reaching the end of the SEALR and wanting to continue west needs to travel north then west via Churchill Avenue. The mitigation works include widening the B4443 Mandeville Road carriageway to two lanes northbound to allow two lane movements from the south to travel straight across both junctions, relocating the pedestrian crossing on Churchill Avenue, and relocating four bus shelters.



Within the model, the ICD for the new northern roundabout is given as 40 on all approaches. As the junction is not circular, the ICD varies from arm to arm. The results of the capacity analysis are taken from WSP|PB Technical Note dated 6 July 2017

Table 5-1 2034 Reference Case (Scenario 10a) B4443 Lower Road at Stoke Mandeville Hospital – Junctions 9 Summary (Standard ARCADY Assessment)

Junction	Road name	AM Peak		PM Peak	
		RFC	**End Queue (vehicles)**	**RFC**	**End Queue (vehicles)**
Northern	Mandeville Road (N)	1.24	247	0.79	4
Northern	Stadium Approach (E)	6.46	244	1.53	134
Northern	B4443 Lower Road	0.66	2	0.94	14
Northern	Churchill Avenue (W)	0.74	3	0.51	1
Northern	Junction Delay (seconds)	1,635		209	
Southern	Winterton Drive (E)	0.88	6	1.13	26
Southern	Lower Road (N)	1.00	36	0.63	2
Southern	Eastern Arm	0.19	0	0.15	0
Southern	Lower Road (S)	0.88	7	1.14	202
Southern	Junction Delay (seconds)	57		277	

Table 5-2 2034 Reference Case (Scenario 10a) B4443 Lower Road at Stoke Mandeville Hospital – Junctions 9 Summary (Lane Simulation Sensitivity)

Junction	Road name	AM Peak		PM Peak	
		End Queue (vehicles)	**Delay (seconds)**	**End Queue (vehicles)**	**Delay (seconds)**
Northern	Mandeville Road (N)	816	2,036	345	1,086
Northern	Stadium Approach (E)	8	97	47	364
Northern	B4443 Lower Road	3	12	3	12
Northern	Churchill Avenue (W)	375	1,302	6	34
Northern	Junction Delay (seconds)	1,121		436	
Southern	Winterton Drive (E)	2	26	1	14
Southern	Lower Road (N)	10	39	8	31
Southern	Eastern Arm	0	9	0	9
Southern	Lower Road (S)	291	755	819	1,763
Southern	Junction Delay (seconds)	389		970	

Source: Reproducing Table 3-65 from the April 2017 Common Descriptive Report (p.36)

Table 5-5 2034 Do Cumulative (Scenario 13d) B4443 Lower Road at Stoke Mandeville Hospital (Proposed Mitigation) – Junctions 9 Summary (Standard ARCADY Assessment)

Junction	Road name	AM Peak		PM Peak	
		RFC	End Queue (vehicles)	RFC	End Queue (vehicles)
Northern	Mandeville Road (N)	0.90	9	0.69	2
Northern	Stadium Approach (E)	1.38	76	0.89	7
Northern	B4443 Lower Road	0.59	1	0.80	4
Northern	Churchill Avenue (W)	0.81	4	0.64	2
Northern	Junction Delay (seconds)	114		16	
Southern	Winterton Drive (E)	0.51	1	0.47	1
Southern	Lower Road (N)	1.01	48	0.69	2
Southern	Eastern Arm	0.22	0	0.23	0
Southern	Lower Road (S)	1.06	102	1.16	218
Southern	Junction Delay (seconds)	150		245	

Table 5-6 2034 Do Cumulative (Scenario 13d) B4443 Lower Road at Stoke Mandeville Hospital (Proposed Mitigation) – Junctions 9 Summary (Lane Simulation Sensitivity)

Junction	Road name	AM Peak		PM Peak	
		End Queue (vehicles)	Delay (seconds)	End Queue (vehicles)	Delay (seconds)
Northern	Mandeville Road (N)	596	2,013	297	1,108
Northern	Stadium Approach (E)	50	505	99	799
Northern	B4443 Lower Road	3	8	7	17
Northern	Churchill Avenue (W)	385	1,141	32	123
Northern	Junction Delay (seconds)	952		386	
Southern	Winterton Drive (E)	4	66	3	65
Southern	Lower Road (N)	16	59	15	49
Southern	Eastern Arm	0	10	1	12
Southern	Lower Road (S)	140	300	256	540
Southern	Junction Delay (seconds)	189		302	

The results of the ARCADY mitigation model show an overall improvement in total queueing at the junction but show a queue of 48 on Lower Road north in the AM peak hour, an increase of 12 vehicles. It also shows increases on Lower Road (south) of 95 vehicles in the same hour. However using the Entry Lane Analysis option in the modelling (which reflects situations where there is unequal lane usage) ARCADY shows an overall reduction in queuing at the junction from 755 vehicles on Lower Road south to 300 vehicles in the AM peak.

The modelling for this network is complex and the two modelling scenarios confirm this. In reality the results are likely to be somewhere between the ELA and standard analysis assessments. Overall it is the view of the Council that there could be significant benefits to the currently most heavily congested arms which would offset the comparatively small level of increased queueing on other arms at the southern roundabout. Importantly the impact on the hospital arm of the junction in both the standard ARCADY run and the ELA option is neutral. The major impact is reported on Station Approach, but this is considered unrealistic given the relatively light flows on this arm of the junction.

It is concluded that the proposed improvements offset the impact of developments as well as the implications of strategic traffic resulting from the construction of the link roads. The impact on this part of the network are also considered to represent an interim situation pending the continuation of the link road system west to the A418 as advocated in the Aylesbury Transport Strategy. If this link road is brought forward before the completion of the ELR(S) and the SLR, then this mitigation may not be necessary (subject to further assessment).

B4544 Marroway/Proposed Marroway Link Road

No works to this junction are proposed as the operation is acceptable with cumulative development.

SLR/Marroway Link Road

No works to this junction are proposed as the operation is acceptable with cumulative development.

SLR/New Crossroads

The provision of the Southern Link Road involves the diversion of New Road to form a signalised crossroads to the east of its current alignment. The proposed new junction has been modelled using LINSIG. The model shows that the junction can operate within capacity in 2034 with the cumulative developments. The impact of the proposals on this junction is therefore accepted.

Summary of cumulative assessment

The traffic impacts associated with the cumulative impacts of traffic associated with both the Hampden Fields and Woodlands applications has been adequately assessed and shown to be acceptable. Where material impacts have been identified the mitigation measures proposed are considered sufficient to offset the significant adverse impacts of the developments in combination, in accordance with the requirements of the NPPF. Furthermore the both developments bring with them the significant benefits of the delivery of the Eastern Link Road (S) and the SLR as well as contributing financially to the high priority Council and BTVLEP South East Aylesbury Link Road scheme. All of the link roads combine to bring forward a significant package of highway infrastructure necessary to support the required growth of Aylesbury.

It is therefore concluded by the Council that the cumulative impacts of the Hampden Fields and Woodlands Developments are acceptable subject to the following;

- Financial contributions towards the delivery of the SEALR;
- The early provision of the SLR and ELR(S);
- Offsite works for the comprehensive improvement to the A41 Woodlands roundabout as shown in principal on drawing **B12798C7-0000-D-048 Rev 1;**
- Offsite works to improve the A41/B4009/Overbridge Roundabouts as shown in principal on drawing **PBA 32113/5501/020;**
- Offsite works to improve the A41/Oakfield Road/King Edward Avenue junction as shown in principal on drawing **70011769-SK-047;**
- Offsite works to improve the A41/Bedgrove/Broughton Lane/Richmond Road junction as shown in principal on drawing **1969/SK/150 Rev F.**
- Offsite works to signalise the Wendover Road/Wendover Way junction as shown in principal on drawing **1769/26/101/Rev C.**

- Offsite works to improve the Lower Road at Stoke Mandeville as shown in principal on drawing **32113/5511/004.**
- Offsite works to improve the Upper Hundreds Way/New Street/Cambridge Street junction and approaches as shown in principal on drawing **32113/5501/022 Revision E.**

Summary and conclusions.

It is concluded that full and detailed assessments of the application individually and cumulatively have demonstrated that the significant adverse effects of the proposals can be appropriately mitigated through planning condition and S106 obligations. The development proposals bring with them an important part of the highways infrastructure identified in the Aylesbury Transport Strategy as necessary to support the growth of the town and manage traffic conditions in the future. It is concluded that the developments positive benefits and appropriate mitigation mean that that the Council can confirm that it has no objections subject to Conditions and S106 Obligations to be advised.

Yours sincerely

Del Tester

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