

Hampden Fields, Aylesbury

High-level review of South East Aylesbury Link Road (SEALR) Transport Assessment (Spring 2020)

Introduction

1. Transport Planning Practice (TPP) were commissioned by Hampden Fields Action Group (HFAG) to provide advice in relation to the Transport Assessment (TA) for the Hampden Fields development proposals near Aylesbury.

Background

2. The South East Aylesbury Link Road (SEALR) is a transport scheme being promoted by the recently formed unitary authority Buckinghamshire Council (BC). SEALR was formerly promoted by Buckinghamshire County Council (BCC).
3. A planning application for SEALR (Ref: CC/0015/20) was submitted in March 2020 together with a Transport Assessment. The planning application covers a new dual carriageway link road including: a roundabout junction with B4443 Lower Road, a roundabout junction at A413 Wendover Road, a railway bridge, footway/cycleways, a noise attenuation barrier, street lighting, earthworks and landscaping between the B4443 Lower Road and A413. The site is located on land between the A413 Wendover Road and the B4443 Lower Road in the Parishes of Stoke Mandeville, Weston Turville And Aylesbury.

Documentation

4. Three relevant transport-related documents have been considered in this review. These are as follows:
 - SEALR Local Model Validation Report (LMVR), prepared by Jacobs on behalf of the highway authority.
 - SEALR Transport Assessment Scoping Study, July 2017, prepared by AECOM on behalf of the highway authority.
 - SEALR Transport Assessment, March 2020, prepared by AECOM on behalf of the highway authority.

In addition, some reference was made to the Environmental Statement (ES) prepared by AECOM, the Planning Statement and the Aylesbury Garden Town Masterplan.

5. The Transport Assessment (TA) is a very lengthy document. With the time and budget available it was not feasible to carry out a comprehensive review. Therefore, particular focus was placed on three appendices as follows:
 - Appendix F: SEALR Model Forecasting Report (TN01|2), August, 2019, prepared by Jacobs on behalf of the highway authority;
 - Appendix G – Highway Impact Diagrams; and

- Appendix H – Percentage Impact Table.

Purpose of this note

6. The purpose of this note is to review the transport aspects of the planning application in respect of the main concerns of HFAG.

Context

7. Aylesbury was awarded Garden Town status by the government on 2 January 2017. Aylesbury Garden Town (AGT) Draft Masterplan was published in 2019.
8. The Town and Country Planning Association (TCPA) emphasises the importance of accessibility, walkability and sustainable movement within their nine Garden City Principles, which include:
 - A wide range of local jobs in the Garden City within easy commuting distance of homes
 - Strong cultural, recreational and shopping facilities in walkable, vibrant, sociable neighbourhoods
 - Integrated and accessible transport systems, with walking, cycling and public transport designed to be the most attractive forms of local transport
9. TCPA guidance on Garden City design and master planning emphasises the need for ease of movement and connectivity, and for the creation of walkable neighbourhoods. Amongst the recommendations are the following points:
 - A Garden City's design must enable at least 50% of trips originating in the Garden City to be made by non-car means, with a goal to increase this over time to at least 60%.
 - Public transport nodes and neighbourhood facilities should be a short walk (no more than 10 minutes) away from every home. Homes should be within 800 metres of schools for children under the age of 11.
 - New Garden Cities should provide a sustainable urban structure of walkable neighbourhoods based around a network of mixed-use town and local centres in which residents can meet most of their day-to-day needs.
10. The TCPA nine Garden City Principles are widely accepted, and the government commitment to these is set out in the revised National Planning Policy Framework (NPPF).
11. The stated transport ambition of the AGT Masterplan is that:

"In 2033 people choose to walk, cycle, or use public transport for everyday journeys within Aylesbury, because it is easy to navigate and has an integrated and inclusive transport system. Residents benefit from active lifestyles and streets are people-friendly places. By 2050 at least 50% of trips originating in the Garden Town will be made by sustainable modes".
12. To put this ambition in context, the 2011 census showed that only 26% of Aylesbury residents travel to work by non-car means. Hence, the local authority faces a major challenge in achieving a target of 50% of travel being made by "sustainable modes".

13. It is widely accepted that encouraging changes in travel behaviour requires a mixture of “carrot and stick” policies. Currently road building to facilitate development appears to be the priority in Aylesbury. This is totally at odds with the TCPA Principles.

Scheme need

14. According to AECOM and BC, the need for SEALR has arisen through the development of High Speed Two (HS2). The alignment of HS2 passes Aylesbury to the south west. This will sever the A4010 Risborough Road south of Stoke Mandeville. As part of the proposals for HS2, a new link road will be developed to divert the A4010 around the west of Stoke Mandeville, connecting with the B4443 Lower Road further north, via a new roundabout. This scheme is referred to as the Stoke Mandeville Bypass (SMBp). Traffic modelling has indicated that SMBp will increase traffic on the B4443 resulting in a worsening of air quality issues at the Walton Street gyratory. The junction is already designated as an Air Quality Management Area (AQMA) because of high traffic levels and emissions related to idling vehicle engines and queueing. BC’s approach to addressing these concerns is to build the SEALR. This will provide a new link to connect the B4443 Lower Road with the A413 Wendover Road and permit a rebalancing of traffic on the radial routes. The scheme programme anticipates SEALR opening at the same time as the SMBp.
15. SEALR is also intended to support the wider growth of Aylesbury which is proposed to have approximately 16,000 new homes up to 2033 (as per the emerging Vale of Aylesbury Local Plan (VALP)). SEALR contributes to BC’s long-term vision to deliver an orbital route around Aylesbury. The intention is to deliver a series of proposed link roads through large housing projects, which are allocated in the Draft VALP. Full details of the longer-term vision, which includes other aspirational highway schemes in Aylesbury, are set out in the Aylesbury Transport Strategy (ATS).

Scheme objectives

16. In the SEALR ES the scheme objectives are set out. These are as follows:
 - To enable satisfactory levels of network performance at the Stoke Road gyratory and on the A413, A4010 and B4443 arterial roads after the A4010 realignment is completed.
 - To support the overall quantum of growth within Aylesbury and the surrounding area.
 - To increase the effectiveness of the realigned A4010 as a key north/south corridor.
 - To secure good local connectivity for all road users for movements to, from, within and around Aylesbury.

TPP and HFAG are not aware that the A4010 is designated as a “key north/south corridor” in any published BC policy documents. The M1 and M40 are the key north/south road corridors in this region.

17. AECOM state that the Proposed Scheme will also help in the following ways:
 - by relieving pressure on a key blue light route (access to Stoke Mandeville Hospital); and
 - by increasing provision for walking and cycling in the town to encourage active travel and, in turn, reduce car use and congestion.

18. Regarding the last two points, although the scheme does make provision for pedestrians and cyclists, it is highly unlikely that this orbital dual carriageway road will encourage local people to reduce car use, as envisaged in the AGT Masterplan. Regarding Stoke Mandeville Hospital, the scheme does not benefit the main access junction from the B4443 Lower Road, as will be explained.

TA Scoping Study

19. Consultants AECOM were commissioned by BC to develop a full business case, preliminary highway design and a planning application for the SEALR. The purpose of the Scoping Note was to agree with BCC's Highways Development Management (DM) Team the content, level of detail and proposed assessment to be included in the TA.

The proposal

SEALR will connect with the other road schemes that are planned for this part of Aylesbury, namely the Southern Link Road (SLR) and SMBp. AECOM state the following at the beginning of the Scoping Note:

"The link road will ... follow a south-westerly to north-easterly alignment and will consist of a two-lane dual carriageway and be subject to a 40mph speed limit along its extents. A shared 3m wide footway/cycleway will run along the northern side of the carriageway and a 2m footway will be provided along the southern side. A new bridge structure is proposed across the London to Aylesbury rail line which bisects the SEALR approximately mid-way along its length. A maintenance access will be provided to the west of the bridge. This will also permit the future aspiration for a cycle link to Stoke Mandeville Hospital. The SEALR will terminate at a roundabout junction in the east. This four-arm roundabout will connect Wendover Road (A413), the Southern Link Road and the SEALR. The link road will only be lit at the junctions at either end of the scheme. The preliminary design of the SEALR is currently being developed."

20. It is proposed to construct four arm roundabouts at either end of the SEALR providing the necessary connections.

Transport modelling

21. The appropriate traffic model to be used to assess the impacts of the scheme was judged to be the Aylesbury Transport Model (ATM). This has previously been used to assess impacts from the Hampden Fields development. It was originally proposed that the new ATM model (described in the review of the LMVR recently carried out by TPP) would be in a suitable state of readiness by Summer 2018. The planning application for the SEALR was due to be submitted in March 2018. Therefore, the model would not have been ready for this date. Hence, it was proposed that a provisional model be developed that could be utilised within the planning application. This provisional model would include the additional model coverage requested by the Department for Transport (DfT) as well as an updated calibration and validation exercise utilising traffic data collected in 2017. The model would be developed for a weekday AM and PM peak hour only.
22. Following discussions between BCC, AECOM and Jacobs, it was proposed that 2020, 2021 and 2035 scenarios with and without SEALR would be created, using the provisional model, for the purposes of the planning application. However, these scenarios and forecast years were subsequently revised as described below.

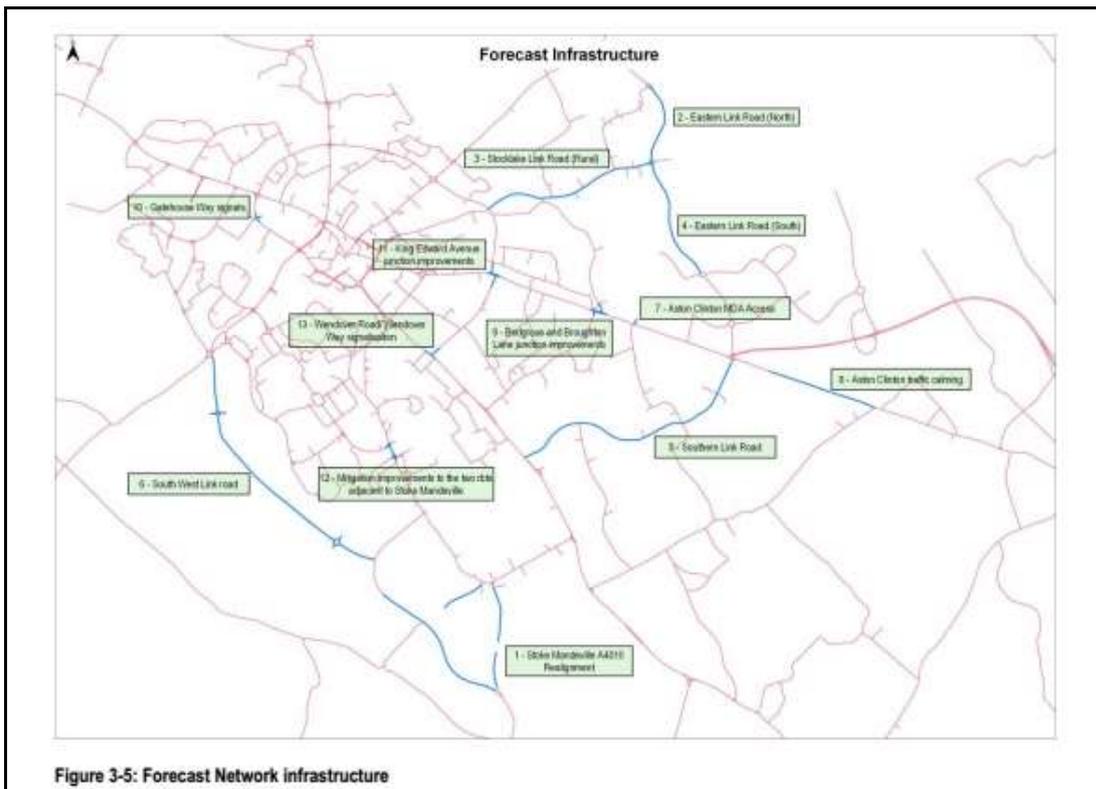
Junction assessments

23. It was intended that the output from the ATM model be used to provide link and turning flows for the AM and PM weekday peak hours only. Further analysis was to be carried out at junction level to better understand the impacts of the scheme. The BCC Highways DM team indicated that the TA should include assessment of the junctions at either end of the scheme as well as wider impacts in particular on Lower Road and at the Walton Street gyratory.
24. For the Scoping Study, flow difference plots, presumably from the old ATM model, were used to identify locations where an increase in traffic flow might be expected due to SEALR. BCC confirmed that junction capacity assessments would probably be required at the following locations:
- Proposed A413 Wendover Road Roundabout
 - Proposed B4443 Lower Road Roundabout
 - A41/Park Street (Tesco Roundabout)
 - A41/A4157 Oakfield Road/King Edward Avenue Traffic Signal Junction
 - A41/Bedgrove/Broughton Lane Junction
 - A41/New Road Priority Junction
 - A41/Aston Clinton Road Roundabout
 - A413 Wendover Road/Walton Road/B4443 Stoke Road Gyratory
 - A413 Wendover Road/Camborne Avenue Roundabout
 - A413 Wendover Road/Silver Birch Way Roundabout
 - B4443 Lower Road/Winterton Drive Roundabout
 - B4443/Churchill Avenue Roundabout
 - Woodlands (Eastern Link Road (South)) and Hampden Fields (Southern Link Road) Site Access / A41 (from 2021)
 - A418 Oxford Road/Ellen Road Roundabout (from 2021)
 - A418 Oxford Road/Coldharbour Way Roundabout (from 2021)
 - A413/A418 Link Road junction with A418 Oxford Road (if a suitable junction design was available at time of assessment (from 2034).
25. The defined scope of the junction assessment in the Scoping Report appears reasonable.

Transport Assessment - Scenarios considered

26. In preparing the TA, and supporting traffic modelling, the methodology from the Scoping Report was slightly modified. For the traffic modelling undertaken by Jacobs, the initial forecast year was set as 2021, the anticipated opening year for SEALR. For 2021 two development scenarios were modelled:
- Scenario 1 with the Southern Link Road and Eastern Link Road and partial completion of the associated development (Hampden Fields and Woodlands; and

- Scenario 2 excluding Southern Link Road and Eastern Link Road and associated development.
27. **In TPP’s opinion the 2021 Scenario 2 forecasts are the most useful because it is now highly unlikely that the Woodlands and Hampden Fields developments will obtain full planning permission and that the transport infrastructure will be in place in this timescale. Also, planning permission for SEALR should be judged on the merits of the road link as a “stand-alone” scheme.**
 28. A second forecast year of 2036, 15 years after the scheme opening, was also developed.
 29. For each forecast year and demand scenario a “with scheme” (also known as ‘do something’ (DS)) and “without scheme” (also known as ‘do nothing’ (DN)) model were built. SEALR is the “scheme” referred to here. This approach enables the impacts of the scheme to be isolated.
 30. It is important to understand that in the 2036 scenarios (DN and DS) a new link road between the A4010 and A418 west – known as the South West Aylesbury Link Road (SWALR) is assumed to be open to traffic. A planning application has been submitted for the associated South West Aylesbury development. It is assumed that the developer will deliver the SWALR.
 31. The location of the various proposed road links included for 2036 is summarised in the diagram below.



Inset 1: Proposed road schemes from Transport Assessment Appendix F

32. The land-use assumptions and network assumptions used for the two forecast years and six scenarios are summarised in the table below. It should be noted that, in the TA, AECOM have used Jacobs 2021 Scenario 1 as their Scenario B, and Scenario 2 as their Scenario A, which is somewhat confusing.

Table 1: Forecast scenarios

	2021		2036
	Jacobs Scenario 2	Jacobs Scenario 1	
	AECOM Scenario A	AECOM Scenario B	
Land-use development assumptions	Berryfields Aylesbury East	Berryfields (+125 units) Aylesbury East (+175 units) Woodlands (74% employment) Hampden Fields (60 households)	Berryfields (full) Aylesbury East (full) Woodlands (full) Hampden Fields (full) Broughton (full) Aylesbury SW (full) S of Aylesbury (full) RAF Halton (full)
Do-Nothing highway assumptions	Stocklake Link Road Stoke Mandeville Bypass Eastern Link Road (N)	Stocklake Link Road Stoke Mandeville Bypass Eastern Link Road (N) Eastern Link Road (S) Southern Link Road	Stocklake Link Road Stoke Mandeville Bypass Eastern Link Road (N) Eastern Link Road (S) Southern Link Road South West Link Road
Do-Something highway assumptions	As Do-Minimum plus SEALR	As Do-Nothing plus SEALR	As Do-Nothing plus SEALR

33. **It is HFAG and TPP’s understanding that the 2021 Jacobs Scenario 1 (AECOM Scenario B) cannot occur. This is because the funding of SEALR is dependent on the Section 106 (S106) Agreement with the developer of Hampden Fields.** The S106 funding will not become available until the 1200th house on the Hampden Fields site is occupied. The contribution commitment required from Hampden Fields is phased as follows (April 2019 draft S106 Heads of Terms for BCC (BCC Schedule 2, para 12):

Contribution of £8,821,000 to SEALR, phased as follows

- £2.9m after each of 1200th, 2000th and 2,700th occupation OR one month after the letting of the SEALR contract if that is later.
- Lower Road Improvements contributions similar phasing, each for £268k.

Contributions from the Woodlands development are written into the appropriate S106 Agreement.

34. Both SEALR and the Lower Road improvements from Hampden Fields depend on ELR(S) being started or the contract let, before the 2,600th occupation. The Station Road/Risborough Road junction S106 contribution has similar phasing, each for £317k or when the contract for SEALR is let.

35. It is concluded that the earliest year that the developer funding for SEALR can be obtained from the Hampden Fields developer is 2025.

36. So, the 2021 Jacobs Scenario 1/AECOM Scenario B, which includes a completed SEALR but with only 60 households at Hampden Fields, is impossible, unless BC are saying that the £2.9m can be obtained from elsewhere.

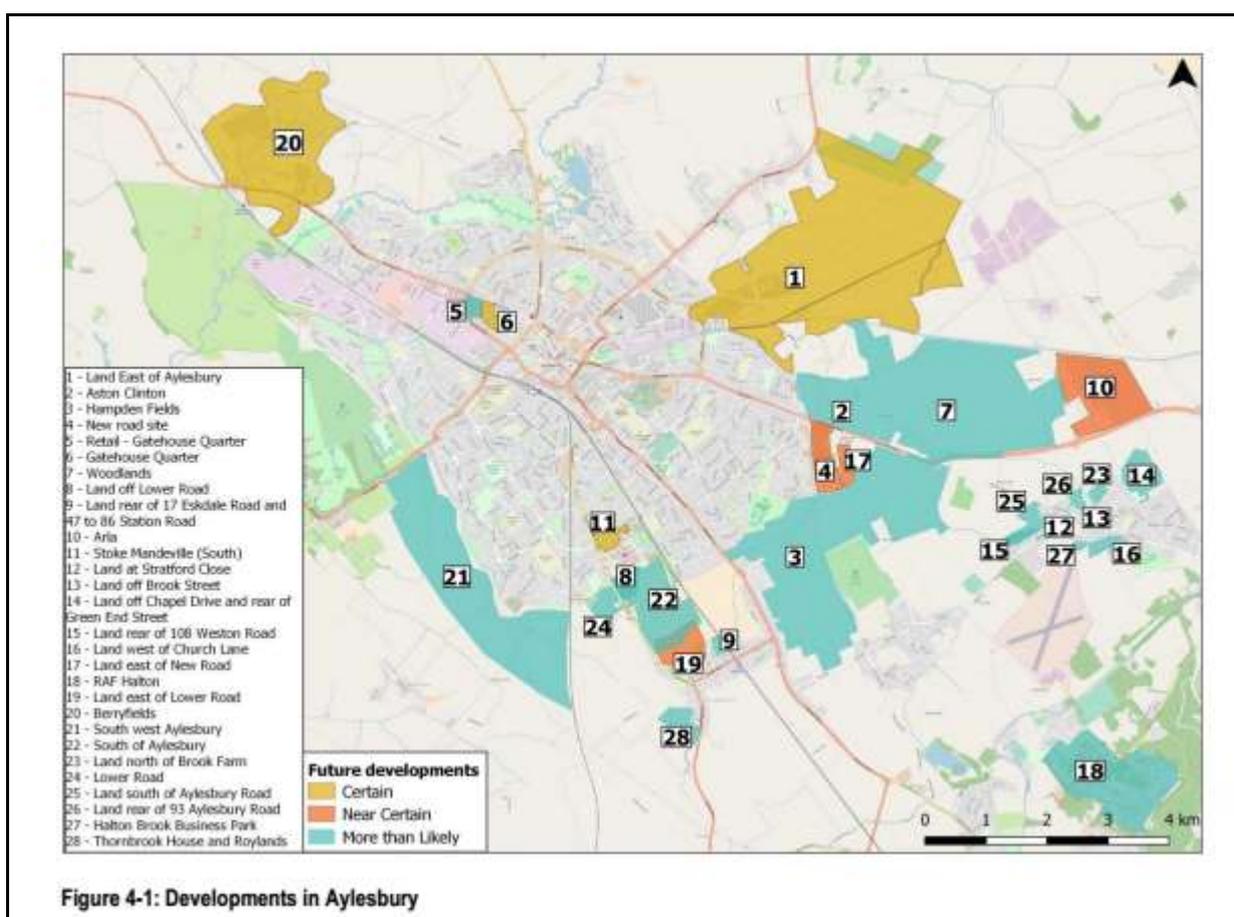
Transport Assessment Appendix F – SEALR Forecasting Report

Modelling tool and Base Year

37. The SEALR TA is dated August 2019. Hence, it is assumed that the TA was delayed for some reason. It should be noted that Jacobs were undertaking the strategic modelling necessary to support a full business case for the SEALR and to provide an appropriate evidence base for a planning application. It appears that the SEALR modelling has used the latest version of the ATM as discussed in the Local Model Validation Report (LMVR). The LMVR is reviewed in a separate document prepared by TPP. This model has a Base Year of 2017.

Forecasting approach

38. According to Jacobs, the SEALR forecasts were developed based on a methodology which will be followed for all future development management purposes. Consistent with the expectations of BCC's Highways DM team, the forecast demand was fixed rather than variable. In other words, there is no allowance in the forecasts for new road trips to be induced by increased road capacity, or suppressed by lack of capacity. However, it should be noted that there may be issue in the use of "demand" and "actual" forecasts flows from the model which is discussed later in this report.
39. The forecasting approach used for the full business case was set out in the Model Specification Report (MSR), Jacobs claim that this the methodology is consistent with WebTAG Unit M4 guidance. For the purposes of the planning application it was agreed with BCC's Highways DM team that full WebTAG compliance was not required. A Variable Demand Model (VDM) approach was not used and total housing and employment growth was not capped to NTEM levels. TPP have no particular concerns about these assumptions at this stage.
40. Forecast land use growth was derived from the Department for Transport (DfT) National Trip End Model (NTEM) v7.2 and planning data supplied by Aylesbury Vale District Council (AVDC). This data identified the locations of potential new development, the size and type of development proposed and the likelihood of each development being realised. This data was processed into an uncertainty log. Consideration was given towards the amount of development that should be included in the modelled forecast years, as well as the proposed future transport schemes and the level of certainty of those schemes coming forward.
41. The major development sites included in the year 2036 modelling are shown on the diagram below which is taken from the Jacobs report. The developments were modelled using estimates of traffic generation based on those defined within a Transport Assessment (TA) for each particular development, if available, or otherwise based on trip rates from a TA for a similar development.



Inset 2: 2036 Land-use developments in Aylesbury from Transport Assessment Appendix F

42. The trip distribution for developments was based on the trip pattern for existing land use parcels, as included in the Base Year model. These are known as 'donor zones'. All development planning data for specific residential developments was discounted from NTEM/TEMPro trip end growth. In agreement with BCC Highways DM team none of the planning data for jobs was discounted.
43. The resulting background growth forecasts were applied to the 2017 Base Year trip ends to create forecast target trip ends for background growth for car users. The DfT's Road Traffic Forecasts 2015 (RTF15) were used to determine forecast background growth and trip ends for LGVs and HGVs. The base year matrices were then furnished to match the forecast target trip ends and these were assigned to the network.
44. The general matrix forecasting methodology follows standard practice and appears sound, although TPP have some concerns about the application of the methodology.
45. There are some anomalies in the Jacobs forecasts which emerge in Appendix C of the Jacobs note. For example:
 - the 2021 Scenario 1 AM peak LGV matrices seem to show reductions in flow when compared with the 2017 Base Year.

- the 2036 AM and PM peak LGV matrices also show many reductions in sector-to-sector movements when compared with the 2017 Base Year.

46. The changes shown in the Jacobs report imply an error in the matrix building or in the preparation of the report.

Traffic growth forecasts

47. The percentage growth in traffic demand estimated by Jacobs is summarised below. It can be seen that the total growth in car trips between 2017 and 2036 is forecast to be above 40% in almost all categories. Despite the comments above, growth in commercial vehicle trips is forecast to be significantly higher. It should be noted that the growth in car trips allows for developments such as Hampden Fields and Woodlands being fully built out by 2036.

Table 2: Matrix growth forecasts used for SEALR Transport Assessment

Time Period	Trip purpose/ vehicle type	% Growth by year and scenario from 2017		
		2021 Scenario 1	2021 Scenario 2	2036
AM	Car – Commute	12%	10%	38%
	Car – Other	15%	12%	41%
	Car - Business	15%	14%	51%
	LGV	35%	33%	93%
	HGV	48%	43%	83%
PM	Car – Commute	14%	12%	41%
	Car – Other	17%	15%	45%
	Car - Business	18%	16%	55%
	LGV	35%	32%	95%
	HGV	27%	27%	61%

Impact of SEALR

48. The impact of the SEALR, in terms of traffic re-routeing, was checked by TPP. The method used was to quantify the flows on four existing points where the road system crosses the London Marylebone-Aylesbury railway line (a useful screenline running on a perpendicular axis to the road scheme), plus the SEALR itself. This analysis is shown below. It should be noted that any flow changes occurring on Griffin Lane or Raban Lane cannot be ascertained from the Jacobs reports.

Table 3: Forecast impact of SEALR on traffic flows at railway crossing screenline points

Road link	DS-DN two-way flow change (vehicles per hour)					
	AM Peak hour			PM Peak hour		
	2021 Jacobs Sc1	2021 Jacobs Sc2	2036	2021 Jacobs Sc1	2021 Jacobs Sc2	2036
Griffin Lane/Raban Lane	Numbers illegible in Jacobs Reports					
A418 Oxford Road	-250	-150	-200	-400	-150	-400
B4443 Stoke Road	-400	-350	-300	-550	-400	-550
SEALR	1750	1450	1800	1900	1500	1900
A4010 Station Rd	-550	-400	-700	-500	-450	-850
B4009 Nash Lee Rd	-550	-400	-550	-600	-350	-550
Total	0	+150	+50	-150	+150	-450
Note: flow changes should sum to zero unless there are flow changes outside the area presented in the Jacobs reports						

49. As would be expected, the forecasts indicate that SEALR will remove traffic from the A4010 Station Road and the B4443 Stoke Road railway crossings. However, it is also shown to remove traffic from the A418 Oxford Road and B4009 Nash Lee Road. However, in the 2021 Scenario 1 AM peak forecasts there is an increase in traffic of over 100 vehicles per hour (vph) through the village of Bishopstone, which would be undesirable. This traffic is removed from the A418 Oxford Road. Therefore, it would alternatively pass through the Walton Street gyratory.
50. In general, the screenline results appear reasonably plausible in terms of the amount of traffic transferring to SEALR from the competing routes crossing the railway. However, there are anomalies for example:
- in the 2021 PM forecasts there are net reductions of 150 vph across the screenline due to SEALR. These appear to be due to reductions in flow on Griffin Lane when SEALR opens (see Appendix B to this report). These changes are not explained or justified in the Jacobs report.
 - the 2036 PM forecasts shows a net increase of 450 vph across the screenline which requires explanation from AECOM/Jacobs.
 - it is noticeable that in the 2036 assignments there is a big increase in traffic to the south of the study area on Chalkshire Road (+300 vph) in AM and PM peaks when SEALR is opened which requires some explanation from AECOM/Jacobs.

Transport Assessment Appendix G and H – Highway Impact Diagrams and Percentage Impact Table

51. For ease of reference, TPP have generally sourced forecast flows from the TA and the Environmental Statement. No information on forecast daily traffic flows could be sourced,

other than the diagrams shown in Appendix B to this report. These were taken from the Air Quality report in the ES.

Transport Assessment - Main document

Report structure and scheme context

52. The TA is structured as follows:
- Section Two provides an overview of relevant national, regional and local transport policy;
 - Section Three outlines the existing conditions in terms of pedestrian, cycle, public transport and vehicular access and provides a review of the most recently available personal accident injury (PIA) data in the vicinity of the site;
 - Section Four describes the proposed development in terms of design, landscaping and access;
 - Section Five sets out the initial transport network assessment undertaken;
 - Section Six sets out the results of the detailed transport network assessment undertaken; and
 - Section Seven provides a summary and conclusion for the report.
53. This review has focused on the last three sections of the TA. However, in Section 3, at page 31, AECOM make some useful observations on the existing road conditions in south Aylesbury.

"The regional significance and central location of Aylesbury combined with above national average levels of car ownership results in high demand on key arterial routes into the town centre. The absence of orbital routes around the town further contributes to congestion on key arterial routes in the town as through trips merge with trips travelling to and from the town centre. Traffic flow data (all vehicles) extracted from the Buckinghamshire Countywide VISUM Transport Model (2013 baseline year) illustrate the significance of both the A413 and B4443 as primary corridors from the south. The B4443 (Stoke Road) has traffic flows among the highest in Aylesbury with around 2,200 vehicles in the AM peak and 2,000 vehicles in the PM peak..."

The majority of these arterial routes are single carriageway and as such lack resilience during peak periods or at time of incidents. This consequently leads to poor journey times and reduced journey time reliability. If link stress exceeds 85%, the link is nearing capacity with delays and queues expected. It is evident that both the B4443 and A413 are operating at or over capacity during peak periods especially at the Stoke Road gyratory. The B4443 also experiences stress on links around Stoke Mandeville hospital."

54. The reference to "through traffic" above is made without support from any empirical evidence. The available evidence from ATM suggests that there is very little true through traffic on Aylesbury roads in the peak periods. The congestion is overwhelmingly caused by local traffic, making short trips (e.g. commuting, school trips and shopping), with one or both trip ends being located within Aylesbury or the neighbouring villages. In fact, since the A413 Wendover Road and the B4443 are both congested at peak times, transferring traffic between these two radial routes is unlikely to solve the local problems of congestion and poor air quality.

Detailed transport network assessment

55. The starting point for the junction capacity assessments carried out by AECOM is mainly old traffic surveys (e.g. from 2014) factored to 2018 levels. Apparently, these were supplied by BCC. AECOM do not comment on the provenance of the surveys. At the Walton Street gyratory the source of the base flows is not clear, which is a major concern. It is highly surprising that a consistent set of junction surveys was not undertaken for the ATM calibration/validation or the TA. This appears to have been the intention when the Scoping Report was written. Furthermore, AECOM claim to have “validated” 2018 conditions at those junctions where traffic survey data were available, but TPP can find no evidence of any such checks for the Walton Street gyratory.
56. The method by which AECOM factored-up the 2018 flows to represent conditions in 2021 and 2036 is not adequately explained. It is assumed that the ATM model forecasts were used to provide suitable growth factors for each junction approach. We note that AECOM have modelled an AM peak period of 08:00-09:00, rather than the period which is taken as the peak in ATM (07:00-08:00). This is a major discrepancy.
57. AECOM have carried out detailed junction assessments at the locations where Jacobs forecast that traffic flows on a particular junction approach will change by more than ±5% as a result of the introduction of SEALR. In general, the impact of SEALR, as shown by the traffic modelling, is to reduce flows at the majority of junctions. Therefore, no particular comment on the junction capacity assessments is made at this stage. A summary of the percentage changes in flow by junction is given in Appendix C to this note.
58. The traffic modelling carried out by Jacobs suggest that the Do-Nothing flows at the Walton Street gyratory can be reduced to some extent by constructing the SEALR, as shown in the table below. In the 2021 Jacobs scenario 2 without Hampden Fields and Woodlands (plus ELR(S) and SLR) – AECOM Scenario A - the reductions are quite modest at around 5% to 6%. Similarly, in the 2036 forecasting the impact of SEALR is shown to be much fairly marginal at 2% to 4%.

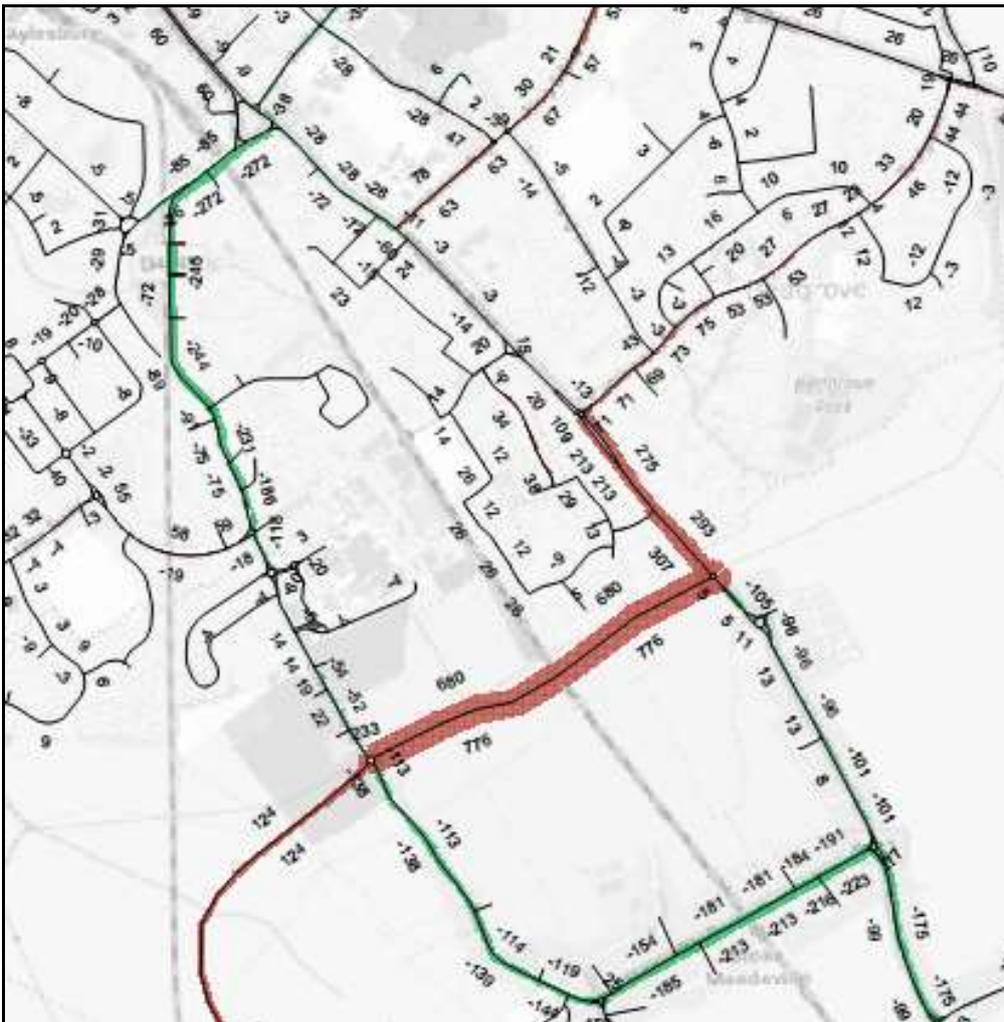
Table 4 Walton Street gyratory – forecast junction flows

Year/ Scenario	AM				PM			
	vehs per hour				vehs per hour			
	DN	DS	Diff	%Diff	DN	DS	Diff	%Diff
2021 AECOM Scenario A	4103	3899	-204	-5.0%	4244	3978	-266	-6.3%
2021 AECOM Scenario B	3780	3437	-343	-9.1%	3871	3538	-333	-8.6%
2036	4057	3980	-77	-1.9%	4093	3935	-158	-3.9%

Note:
 Jacobs 2021 Scenario 1 = AECOM 2021 Scenario B
 Jacobs 2021 Scenario 2 = AECOM 2021 Scenario A

59. In reviewing the 2021 Jacobs Scenario 1 (AECOM 2021 Scenario B) AM peak results, there is an increase in traffic of over 100 vph through the village of Bishopstone, when SEALR is opened. This would be undesirable and, if traffic management measures were taken to prevent such routeing, traffic would alternatively pass through the Walton Street gyratory negating the benefit of SEALR.

60. In reviewing the 2021 Scenario 2 (AECOM 2021 Scenario A) forecasts, which are more of a "Stand-Alone" test of the impact of SEALR, TPP note that the modelling shows significant volumes of traffic diverting onto Camborne Avenue/Bedgrove and Wendover Way. In total about 200 vehicle per hour (vph) will be diverted. This is shown in Appendix D of Appendix F of the Transport Assessment (summarised in the inset below).
61. A traffic increase of this nature is unlikely to be acceptable to local residents. Mitigation measures would be required. Measures to prevent traffic increases on these roads, will tend to push traffic back towards the Walton Street gyratory. This would negate the supposed benefits of SEALR.
62. In the 2021 Scenario 2 (AECOM 2021 Scenario A), there will also be a considerable increase in traffic on the A413 Wendover Road between SEALR and Camborne Avenue. The plot below shows an increase of 600 vph in the AM peak and over 700 vph in the PM peak. This would be undesirable for local residents and increase congestion on this section of the radial route.
63. A similar but, less marked increase in flow on the A413 north of the SEALR junction occurs in the 2021 Jacobs Scenario 1 forecasts. In the PM peak this amounts to 500 vph and in the AM peak about 200 vph.



Inset 3: From Appendix D of Appendix F of the SEALR Transport Assessment (2021 Scenario 2 AM peak)

64. In the 2036 analysis the supposed benefits of SEALR at the gyratory are shown to be very minor in the traffic forecasts, with reductions of 2% and 4% in AM and PM peak periods respectively. It should be noted that these forecasts include the South West Aylesbury Link Road (SWALR) in Do-Nothing and Do-Something.
65. The 2021 traffic forecasts are summarised more fully in the two diagrams taken from the AECOM Environmental Statement and shown in Appendix B to this note. These include indications of forecast changes in Annual Average Daily Traffic (AADT).
66. For comparison with previous studies in this area, the table below shows the traffic forecasts for the Walton Street gyratory from the 2016 Hampden Fields TA.

Table 5: Walton Street gyratory – forecast junction flows (2016 Hampden Fields TA)

Scenario/Year	Traffic Flows		% Change from Do-Nothing (AM)	% Change from Do-Nothing (PM)	Notes
	AM Peak Hour	PM Peak Hour			
2013 (Thursday 28 February)	3658	3827			Observed flows
2034 S1 Do-Nothing	5335	5405			Note: Do-Nothing excludes ELR and SLR
2034 S2 Do-Minimum	5042	5242			note: Do-Minimum includes ELR
2034 S3 with Hampden Fields Dev	5143	5306	-3.6%	-1.8%	note: Do-Something includes ELR and SLR

67. It is notable that the 2034 forecast flows shown above, are 20-30% higher than the 2036 forecasts in the new ATM modelling. Given that background traffic growth in Aylesbury will be of the order 25-30% between 2021 and 2036, according to the Jacobs modelling, it is very strange that the gyratory flows do not increase from 2021 levels in the new forecasts. This appears implausible. Also, comparing the junction flows in the 2021 Jacobs Scenario 2 (AECOM Scenario A) forecasts with the 2036 forecasts there is actually a reduction in demand in most scenarios which seems entirely implausible.
68. It is possible that the inclusion of the SWALR is responsible for some of the reduction in traffic in the latest 2036 forecasts. However, **a detailed explanation for the large discrepancies between the forecasts for Walton Street gyratory is urgently requested from BC and their consultants.**
69. Regarding the junction capacity assessments undertaken by AECOM, amongst the key junctions are the Walton Street gyratory; the A413 Wendover Road/Camborne Avenue roundabout; the main access to the hospital from the B4443 and junctions on the A418 Oxford Road.

Walton Street Gyratory

70. At Walton Street gyratory the modelling shows substantial overcapacity in all scenarios (a desirable Maximum Degree of Saturation is below 85%). In general, the impact of SEALR is marginally positive in reducing congestion as expressed by the Maximum Degree of Saturation. However, in the 2021 Scenario B PM peak SEALR is actually shown to increase congestion as shown below. In 2036, it is also noticeable that the maximum queue length is increased in the Do-Something scenarios for both AM and PM peak when compared with the Do-Nothing. None of these results show a clear beneficial impact on the gyratory.

Table 20 – Junction 6: A413 Walton Street / A413 Wendover Road / Stoke Road

Scenario	AM Peak		PM Peak	
	Max DoS	Max Q	Max DoS	Max Q
2018 Base	Not Assessed		Not Assessed	
2021(a) Do Nothing	135.4%	167.6	125.8%	125.7
2021(a) Do Something	124.4%	119.3	116.9%	98.5
2021(b) Do Nothing	128.5%	142.1	126.7%	131.7
2021(b) Do Something	107.3%	49.0	128.3%	136.3
2036 Do Nothing	122.7%	75.8	117.8%	69.8
2036 Do Something	114.8%	80.4	112.1%	86.9

Inset 4: Table 20 from SEALR Transport Assessment – Walton Street gyratory

71. It is noted that, in June 2020, the Highway Authority reviewed the SEALR TA and recommended that some additional work was required. In particular, the capacity assessment of certain junctions will need further consideration. At the Walton Street gyratory apparently 'U' turns from Walton Street dual carriageway had been excluded by AECOM. TPP await the revised junction capacity assessment results with interest and expect that the level of congestion shown by the modelling will be increased.

A413 Wendover Road/Camborne Avenue Junction

72. At the A413/Camborne Avenue junction the 2021 AECOM Scenario A test with SEALR shows higher levels of queuing and congestion than the Do-Nothing, particularly in the PM peak, as summarised below.

Table 21 – Junction 7: A413 Wendover Road / Camborne Avenue

Scenario	AM Peak		PM Peak	
	Max RFC	Max Q	Max RFC	Max Q
2018 Base	0.56	1.3	0.71	2.4
2021(a) Do Nothing	0.84	5.1	0.85	5.6
2021(a) Do Something	0.92	10.7	1.02	63.5
2021(b) Do Nothing	0.68	2.1	0.67	2.0
2021(b) Do Something	0.62	1.6	0.72	2.6
2036 Do Nothing	Not Assessed		Not Assessed	
2036 Do Something	Not Assessed		Not Assessed	

Inset 5: Table 21 from SEALR Transport Assessment – A413 Wendover Road/Camborne Avenue

73. On page 68 AECOM comment on the A413/Camborne Avenue junction as follows:

"If the improvements proposed at this junction by Hampden Fields and Aylesbury Woodlands do not come forward as part of the developments mentioned, a review will

need to be undertaken to determine whether the SEALR scheme is required to provide mitigation in this location.”

B4443/Stoke Mandeville Hospital Access Junction

74. Regarding the Stoke Mandeville Hospital access roundabout, no analysis was carried out for 2021 Scenario A. The junction is operating at very close to, or over, capacity in the 2021 Scenario B Do-Nothing. SEALR increases delays and queuing in both AM and PM peaks. A queue length of 106 vehicles is shown in the PM peak Do-Something test. This is increased from 31 vehicles in the Do-Nothing. In 2036 the impact of SEALR is negligible, but there is no beneficial impact.
75. AECOM merely comment that, because the junction will operate with spare capacity in 2036 no mitigation is justified in the short term. However, it is a major concern, and inconsistent with the scheme objectives, that the only available 2021 test shows that SEALR will significantly increase the queueing at this critical junction.

Scenario	AM Peak		PM Peak	
	Max RFC	Max Q	Max RFC	Max Q
2018 Base	Not Assessed		Not Assessed	
2021(a) Do Nothing	Not Assessed		Not Assessed	
2021(a) Do Something	Not Assessed		Not Assessed	
Changes to junction layout				
2021(b) Do Nothing	0.83	4.9	0.99	30.6
2021(b) Do Something	0.90	8.4	1.07	105.7
2036 Do Nothing	0.77	3.3	0.72	2.6
2036 Do Something	0.80	3.9	0.73	2.6

Inset 6: Table 18 from SEALR Transport Assessment – B4443/Stoke Mandeville Hospital roundabout

A418 Oxford Road/Coldharbour Way Junction

76. The functioning of the A418 Oxford Road in the 2036 scenarios was considered through modelling of the Coldharbour Way and Ellen Road junctions. The Jacobs modelling does not show any significant increase in traffic at these locations due to the opening of SEALR. However, it is to be assumed that the additional development in place by 2036 will put pressure on this road corridor. The SWALR will connect with the A418 at the Coldharbour Way roundabout. Jacobs and AECOM have assumed that roundabout improvements will be funded by the developer of the South West Aylesbury site.
77. The 2036 analysis shows, summarised below, that the A418/Coldharbour Way junction will have a Maximum Ratio of Flow to Capacity (RFC) of over 0.9 in both peak hours in the Do-Nothing. According to the AECOM analysis, opening SEALR is shown to increase the RFC and the queuing at this junction slightly. However, AECOM comment as follow:
"the proposed scheme (SEALR) will result in nil detriment in this location.” (Transport Assessment p75).

Table 21 – Junction 14: A418 Oxford Road / Coldharbour Way

Scenario	AM Peak		PM Peak	
	Max RFC	Max Q	Max RFC	Max Q
2018 Base	Not Assessed		Not Assessed	
2021(a) Do Nothing	Not Assessed		Not Assessed	
2021(a) Do Something	Not Assessed		Not Assessed	
2021(b) Do Nothing	Not Assessed		Not Assessed	
2021(b) Do Something	Not Assessed		Not Assessed	
Changes to junction layout				
2036 Do Nothing	0.93	12.2	0.98	25.4
2036 Do Something	0.95	16.3	0.94	14.0

Inset 7: Table 21 from SEALR Transport Assessment – A418/Coldharbour Way

78. It is not clear from the TA how the level of development anticipated in this part of Aylesbury will increase flows on the A418 between 2017 and 2036. This remains a concern since the A418 corridor already has bus priority lanes in place. These will be critical to delivering the AGT objectives.

Summary of transport network assessment

79. This analysis highlights that the problems of delays and queuing at the Walton Street gyratory will not be resolved even in the 2036 scenario with half of the proposed Aylesbury Orbital Road strategy in place. The 2021 Scenario B PM peak results show a worsening of congestion at the gyratory when SEALR is opened when compared with the Do-Nothing. This is despite the inclusion of the ELR (S) and SLR.
80. In 2021 Scenario A the operation of the A413/Camborne Avenue junction will be adversely impacted by the SEALR proposals. In 2021 Scenario B there will be problems at the main hospital access junction which appear to be exacerbated by SEALR.

Request for further information

81. In order to enable people to better understand the SEALR impacts, TPP request that Annual Average Daily Traffic (AADT) flow forecasts are provided to HFAG for the six main scenarios considered in the TA. Base Year flows for 2017 will also be needed for comparison.
82. TPP recommend that BC's consultants provide some details of the forecast "demand" and "actual" junction flows, particularly at the Walton Street gyratory. The reasons for this request are explained in Appendix A. Without this information, the interpretation of the ATM model results can be difficult. This is particularly the case for the 2036 model runs, where a substantial increase in traffic (over 40%) is being modelled.
83. The method by which AECOM factored-up the 2018 junction turning flows to represent conditions in 2021 and 2036 for the junction capacity assessment is not adequately explained in the Transport Assessment. It would be helpful if BC could provide further explanation.

Summary and conclusions

84. Based on this high-level review of the Transport Assessment undertaken by AECOM, **the need for the SEALR as a stand-alone scheme appears relatively tenuous**. The stated objective is to mitigate negative traffic and environmental impacts on the Walton Street gyratory as a result of the construction of the Stoke Mandeville Bypass. However, although the scheme will remove traffic from the A4010 Station Road, the main outcome from the construction of a >£20m dual carriageway road link will be merely to allow drivers to re-route between two key radial routes into central Aylesbury (A413 and B4443). The forecast reduction in flows at the gyratory is relatively minor.
85. The table below summarises the reasons why the planning application should not be granted on the basis of the transport evidence presented.

Table 6: Summary of Key Concerns

Ref	Issue	Conclusion
1	<p>Scheme objectives:</p> <p>To enable satisfactory levels of network performance at the Stoke Road gyratory and on the A413, A4010 and B4443 arterial roads after the A4010 realignment is completed.</p> <p>To support the overall quantum of growth within Aylesbury and the surrounding area.</p> <p>To increase the effectiveness of the realigned A4010 as a key north/south corridor.</p> <p>To secure good local connectivity for all road users for movements to, from, within and around Aylesbury.</p>	<p>The Transport Assessment has failed to demonstrate that the scheme objectives can be achieved for a number of reasons. The scheme impact on the Walton Street gyratory, A413 and B4443 can be considered from the 2021 Stand Alone (Jacobs Scenario 2/AECOM Scenario A) results.</p> <p>The traffic flow and congestion impacts in Jacobs Scenario 2 are mixed at best with significant negative impacts through increasing traffic on Camborne Avenue, sections of the Wendover Road and Wendover Way. These impacts are likely to be unacceptable to local residents. If mitigation measures were included in the traffic modelling to stop traffic volumes from increasing on these roads, the impact on the Walton Street gyratory is likely to be neutral at best and possibly negative.</p> <p>In the 2036 forecasts, the impact of SEALR in reducing flows at the Walton Street gyratory is modest at 2% in the AM peak and 4% in the PM peak.</p> <p>Furthermore, TPP and HFAG are not aware that the A4010 is designated as a “key north/south corridor” in any published BC policy documents. The M1 and M40 are the key north/south road corridors in this region.</p>
2	<p>Supplementary objectives:</p> <p>Relieve pressure on a key blue light route (access to Stoke Mandeville Hospital); and</p> <p>Increase provision for walking and cycling in the town to encourage active travel and, in turn, reduce car use and congestion.</p>	<p>AECOM’s junction capacity assessment for 2021 shows that the impact of the scheme on the performance of the Stoke Mandeville Hospital road access junction is to significantly increase queueing. In 2036 there is no positive or negative impact shown on the junction performance.</p> <p>Whilst the SEALR scheme design makes some provision for pedestrians and cyclists, the scheme will encourage car use by local residents and not contribute towards meeting the modal split objectives in the Green Town Masterplan.</p>
3	Assessment Tools (ATM Model)	The new ATM 2017 Base Year traffic model has been reviewed by TPP in a separate document. It represents an improvement on the previous version of ATM which was originally used for the Hampden Fields Transport Assessment. However, TPP have some reservations about the new ATM model and the way that it has been applied.
4	Model Time Periods	The weekday AM peak period modelled (07:00-08:00) in ATM is inappropriate. The hour modelled should reflect the period when children will be arriving at the three schools located near to the Walton Street gyratory. The period selected by Jacobs is inconsistent with the peak period used for the AECOM junction capacity assessment. This is a serious flaw in the analysis presented. The level of casual parking and

Ref	Issue	Conclusion
		pedestrian activity around the Walton Street gyratory will peak at the school opening and closing times, further contributing to congestion. There are also three bus stops on the gyratory which will be particularly busy in these periods. These issues must be taken into account in the strategic and junction modelling for SEALR.
5	Data Collection	<p>The lack of specific detail on the performance of the ATM model in representing flows at the Walton Street gyratory is a serious omission from the LMVR. This junction is critically important. However, the gyratory observed flows are not validated in the ATM LMVR or the AECOM TA. Therefore, there cannot be any confidence in the assertion in the AECOM TA, that future year problems at the gyratory have been solved.</p> <p>The starting point for all of the junction capacity assessments was mainly old surveys factored to 2018 levels. The survey data were supplied by BCC. AECOM do not comment on the provenance of the surveys. It is highly surprising that a consistent and more up to date set of junction surveys was not undertaken for the ATM calibration/validation or the TA. This appears to have been the intention when the Scoping Report was written.</p>
6	2021 Jacobs Scenario 1/AECOM Scenario B Definition	The forecasting work carried out by Jacobs provides some useful information, but it is flawed in a number of respects. Firstly, the 2021 Jacobs Scenario 1 cannot occur (AECOM Scenario B). This is because the funding of SEALR is dependent on the Section 106 (S106) Agreement with the developer of Hampden Fields. Even partial S106 funding will not become available until the 1200th house on the Hampden Fields site is occupied. It is concluded that the earliest year that the money can be obtained from the Hampden Fields developer is 2025. So, the 2021 Jacobs Scenario 1/AECOM Scenario B (AECOM) which includes a completed SEALR, but with only 60 households at Hampden Fields, is not feasible, unless the necessary funding can be obtained from elsewhere.
7	2021 Jacobs Scenario 2/AECOM Scenario A - 2021 Stand Alone Assessment	The 2021 stand-alone assessment of SEALR (Jacobs Scenario 2/AECOM 2021 Scenario A), which excludes the ELR (South) and SLR, shows a reduction in flow at the Walton Street gyratory. However, this appears to be achieved at the cost of flows on Camborne Avenue, a section of Wendover Road and Wendover Way. These are likely to be unacceptable to local residents and will require mitigation. The reduction in flow at the gyratory will then be eroded if the mitigation measures are correctly modelled.
8	Trip Matrix Forecasting	TPP have concerns about the application of the matrix forecasting methodology. There are anomalies in the Jacobs forecasts which emerge in Appendix C of the Jacobs note. The 2021 Scenario 1 AM LGV matrices seem to show reductions in flow when compared with the 2017 Base Year. The 2036 AM and PM LGV matrices also show many reductions in sector-to-sector movements when compared with the 2017 Base Year. The matrix changes shown in the Jacobs report, which is an appendix to the AECOM TA, imply that there was an error in the matrix building or in the preparation of the report. This has not been identified by Jacobs, AECOM or BC officers, which causes concern about the accuracy of other information provided to support the planning application.
9	Traffic Growth at Walton Street Gyratory	The 2036 Do-Nothing forecasts show virtually no increase in traffic at the Walton Street gyratory between 2021 and 2036. This is inconsistent with recent analysis carried out for the Hampden Fields planning application and seems implausible. Background car traffic growth between 2017 and 2036 is forecast to be over 40%. Further explanation is required from BC or Jacobs (who prepared both sets of forecasts).

Ref	Issue	Conclusion
10	Impact on Walton Street Gyratory	<p>Following the Planning Appeal Inquiry relating to Hampden Fields, the Secretary of State's (SoS) 2015 decision demonstrated that even a minor increase in traffic on an already congested Walton Street gyratory, which is an Air Quality Management Area (AQMA), would be reason enough not to grant permission. To grant approval for the SEALR would go against the SoS decision. Appendix D shows the forecast Walton Street gyratory flows considered by the Inspector in 2015. In the latest 2036 forecasts, the reductions in flow at the gyratory are comparable with those considered at the Public Inquiry and marginal at best (-1.9% in the AM peak and -3.9% in the PM peak).</p> <p>In June 2020, the Highway Authority reviewed the SEALR TA and recommended that the capacity assessment of certain junctions will need further consideration. At the Walton Street gyratory apparently 'U' turns from Walton Street dual carriageway had been excluded by AECOM. TPP await the revised junction capacity assessment results with interest and expect that the level of congestion shown by the modelling will be increased.</p>

86. TPP conclude that the case for SEALR as a stand-alone transport improvement in the Transport Assessment is inconclusive. Based on the analysis presented in the TA, it is evident that the scheme objectives are not achieved. The scheme does not appear to contribute towards the Garden Town aims and objectives. It will encourage greater car use by residents. Consequently, it is concluded that the scheme should not be given planning permission on the basis of the transport analysis presented.

Appendix A: "Demand" and "Actual" Flows

Some congested assignment traffic modelling software - such as the software used for ATM which is called VISUM - incorporates procedures for estimating the effects of capacity restrictions on downstream traffic flows (sometimes referred to as flow metering). This is an important feature of many congested road networks. Failure to take it into account can lead to serious over-estimation of queues and delays at downstream junctions and poor estimation of overall network delays.

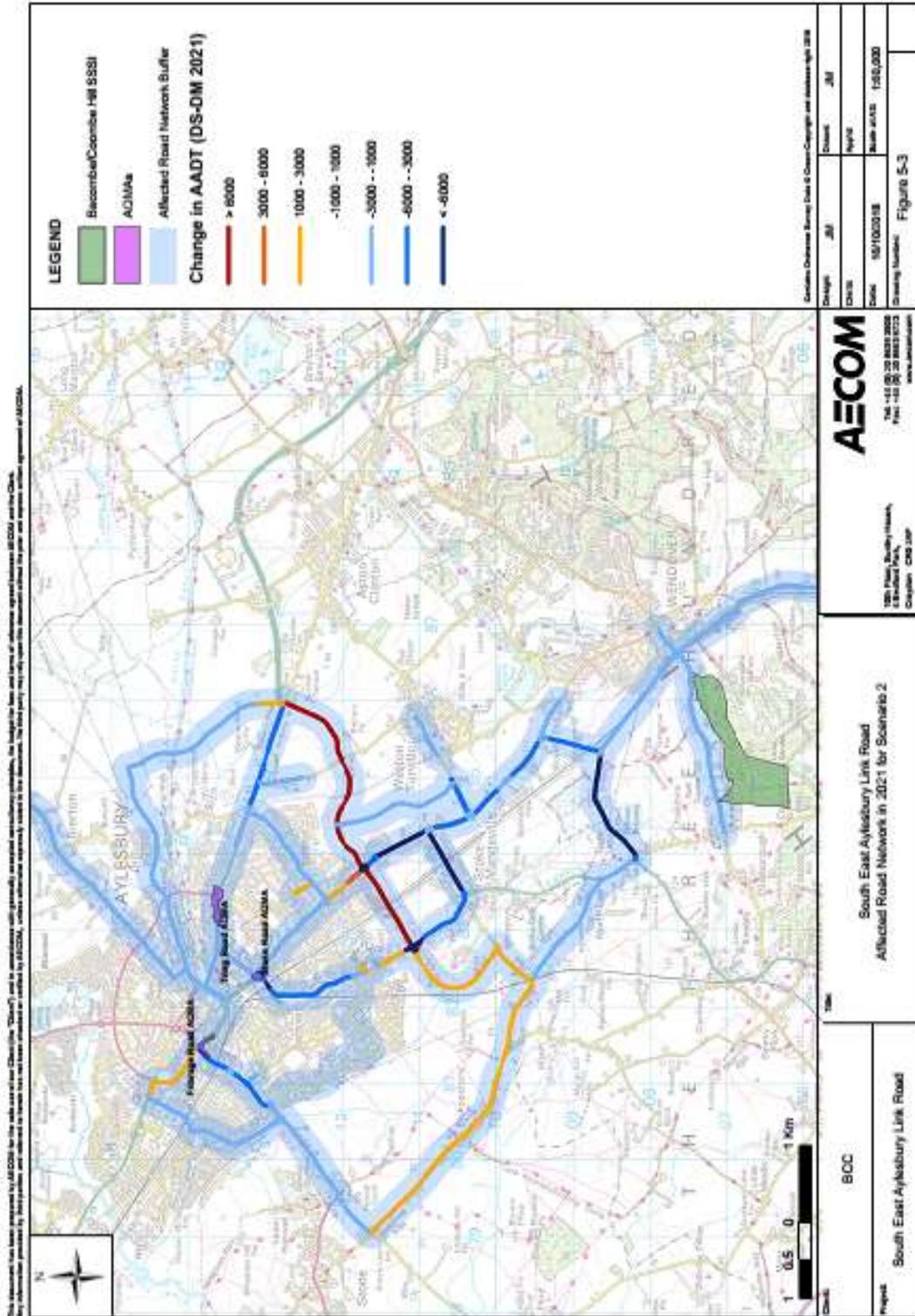
In applying the VISUM software it is possible to obtain two types of traffic volume output on links and at junctions. These can be defined as follows:

- "demand" flow – this is the traffic demand held in the trip matrix that is assigned to the network; (i.e. the flow that would exist if there was no upstream capacity restriction); and
- "actual" flow – this represents the traffic that can feasibly pass through the road network in the hour modelled.

Where the demand flow exceeds the road capacity (e.g. at a traffic signal approach) the actual flow downstream will be constrained to the capacity of the junction approach. This can lead to significant differences between demand and actual flows in some cases. One interpretation of a large difference between demand and actual flows is that, in reality, the peak period would spread (say from one hour to two hours).

TPP assume that the ATM SEALR forecasts are given as "actual" flows, although a clear statement on this issue was not found in the available reports.

TPP recommend that BC's consultants provide some details of the demand and actual flows, particularly at the Walton Street gyratory. Without this information, the interpretation of the ATM model results can be difficult. This is particularly the case for the 2036 model runs, where a substantial increase in traffic (over 40%) is being modelled.



Note the flow changes reported below are in “bands” (e.g. 1000-3000 AADT) and are taken directly from the SEALR Environmental Statement prepared by AECOM. It has not been possible for TPP to verify these numbers as the link by link AADT flows are not available in the documentation submitted with the planning application.

For the 2021 AECOM Scenario A the following changes, as shown on Figure 5-2 above, are forecast according to the ES:

- increases of more than 6,000 AADT are expected on the adjacent section of A413 Wendover Road, north of SEALR, and on the southern section of the SMBp, south of Stoke Mandeville.
- increases of 3,000 to 6,000 AADT are predicted on the northern section of the SMBp and a small section of A413 Wendover Road.
- increases of 1,000 to 3,000 AADT are shown on King Edward Avenue, Camborne Avenue / Bedgrove, A41 Aston Clinton Road, and the A4010 Risborough Road, south of the SMBp.
- decreases in flow of 3,000 to 6,000 AADT are expected on Station Road, a small section of A413 Wendover Road, Lower Road, A413, B4009 Nash Lee Road, Station Road, Mandeville Road and Stoke Road.
- decreases of 1,000 to 3,000 AADT are expected on High Street/ Ellesborough Road/Wendover Road, Main Street / Brook End and Worlds End Lane in Weston Turville, A413 Wendover Road, Lower Road, A418 Oxford Road, and Aylesbury Road near Aston Clinton
- traffic flows are shown to decrease on Stoke Road, within the Stoke Road AQMA by between 3,000 and 6,000 AADT and on the A418 Oxford Road, within the Friarage Road AQMA by between 1,000 and 3,000 AADT.
- traffic flows on King Edward Avenue, near the Tring Road AQMA, are expected to increase by 1,000 to 3,000 AADT.

For 2021 Scenario B (i.e. including the SLR and ELR (S)) shown in Figure 5-3, during the opening year of the Proposed Scheme the following flow changes are forecast according to the ES:

- increases of 3,000 to 6,000 AADT are expected on a short section of the A413 Wendover Road adjacent to the Proposed Scheme
- increases of 1,000 to 3,000 AADT are expected on the A413 Wendover Road, B4443 Lower Road, a small section of the SLR north of the A41, A41 Gatehouse Road, and a long section including Bishopstone Road/North Lee Lane/Marsh Lane/HS2 bypass.
- decreases of more than 6,000 AADT are shown for B4009 Nash Lee Road, Station Road in Stoke Mandeville, and A413 Wendover Road north of Stoke Mandeville.
- decreases of 3,000 to 6,000 AADT are shown for sections of A418 Oxford Road, B4443 Mandeville Road /B4443 Lower Road north of Stoke Mandeville, A413 Wendover Road south of Stoke Mandeville, and A41 Aston Clinton Road.

- decreases of 1,000 to 3,000 AADT are found on Portway Road/A418 Oxford Road, Coldharbour Way, Exchange Street/A41/Walton Road, A418 Aylesbury Road, Stocklake/Bellingham Way/SLR, A413 Wendover Road, Camborne Avenue/Bedgrove, New Road, Main St Weston Turville, New Road, B4009, A413 Nash Lee Road / London Road, Wendover Road/Ellesborough Road/Tring Road, and North Lee Lane.
- in the Stoke Road AQMA, traffic flows are expected to decrease by between 1,000 and 6,000 AADT.
- for the Friarage Road AQMA, traffic flows on A418 Oxford Road are predicted to decrease by 3,000 to 6,000 AADT, but are predicted to increase on the adjacent A41 Gatehouse Road by 1,000 to 3,000 AADT.
- traffic flows on the A41 through the Tring Road AQMA are shown to decrease by 1,000 to 3,000 AADT.

Appendix C: SEALR – Forecast Impact on Junction Flows (from SEALR Transport Assessment)

Table 12 – Proposed Development Impact (Junction Level)

Ref	Junction	Year of Assessment	Do Nothing		Do Something		Numerical Change		% Change	
			AM	PM	AM	PM	AM	PM	AM	PM
1	A41 Aston Clinton Road / Aylesbury Road	2021(a)	2792	2869	2846	2874	+53	+4	2%	0%
		2021(b)	3958	3301	4140	4071	+182	+770	9%	23%
		2036	5550	5253	5686	5006	+116	-247	2%	-5%
2	A41 Aston Clinton Road / New Road	2021(a)	3045	3045	3166	3166	+121	+121	4%	4%
		2021(b)	2239	2351	2025	1961	-214	-391	-10%	-17%
		2036	3059	3417	2668	2604	-391	-813	-13%	-24%
3	A41 Aston Clinton Road / Richmond Road / Bedgrove (incorporating Broughton Lane)	2021(a)	3367	3440	3470	3527	+103	+87	3%	3%
		2021(b)	2512	2560	2375	2234	-137	-326	-5%	-13%
		2036	3275	3580	2962	2895	-312	-665	-10%	-19%
4	A41 Aston Clinton Road / A4157 / King Edward Avenue	2021(a)	3077	3099	3039	3047	-37	-51	-1%	-2%
		2021(b)	2866	3018	2913	2895	+47	-123	2%	-4%
		2036	3201	3334	3332	3245	+131	-89	4%	-3%
5	A41 Aston Clinton Road / Park Street / Tesco / Walton Road	2021(a)	2745	2554	2810	2447	+66	-108	2%	-4%
		2021(b)	2633	2586	2514	2374	-118	-213	-4%	-8%
		2036	2921	2787	2884	2563	-38	-225	-1%	-8%
6	A413 Walton Street / A413 Wendover Road / Stoke Road	2021(a)	4103	4244	3899	3978	-205	-266	-5%	-6%
		2021(b)	3780	3871	3437	3538	-343	-333	-9%	-9%
		2036	4057	4093	3980	3935	-77	-158	-2%	-4%
7	A413 Wendover Road / Camborne Avenue	2021(a)	3452	3319	3723	3752	+271	+433	8%	13%
		2021(b)	2769	2719	2415	2879	-354	+160	-13%	6%
		2036	3142	3032	2250	2678	-892	-354	-28%	-12%
8	A413 Wendover Road / Silver Birch Way	2021(a)	2775	2455	2683	2504	-92	+49	-3%	2%
		2021(b)	2488	2186	1715	1593	-773	-593	-31%	-27%
		2036	2718	2523	1636	1549	-1082	-974	-40%	-39%
9	A413 Wendover Road / A4010 Station Road	2021(a)	3549	3264	3159	2965	-390	-299	-11%	-9%
		2021(b)	2905	2760	2158	2085	-747	-695	-26%	-25%
		2036	3449	3449	2382	2044	-1067	-1405	-31%	-41%

Ref	Junction	Year of Assessment	Do Nothing		Do Something		Numerical Change		% Change	
			AM	PM	AM	PM	AM	PM	AM	PM
10	A4010 Station Road / B4443 Lower Road / A4010 Risborough Road	2021(a)	1060	1057	764	691	-296	-366	-28%	-35%
		2021(b)	1151	1111	748	673	-404	-438	-35%	-39%
		2036	1605	1641	1066	799	-539	-842	-34%	-54%
11	B4443 Lower Road / Winterton Drive / Stoke Mandeville Hospital	2021(a)	2952	2629	2849	2531	-103	-99	-3%	-4%
		2021(b)	2934	2694	2817	2654	-117	-40	-4%	-2%
		2036	2666	2279	2800	2312	+134	+33	3%	1%
12	B4443 Lower Road / B4443 Mandeville Road / Stadium Approach / Churchill Avenue	2021(a)	2899	2902	2735	2756	-164	-146	-6%	-5%
		2021(b)	2899	2971	2645	2861	-253	-110	-9%	-4%
		2036	2557	2535	2616	2473	+59	-62	2%	-2%
13	A148 Oxford Road / Ellen Road / Thame Road South	2021(a)	0	0	0	0	0	0	0%	0%
		2021(b)	2761	2867	2505	2881	-257	+14	-9%	0%
		2036	2090	2868	1964	2703	-126	-165	-6%	-6%
14	A418 Oxford Road / Coldharbour Way	2021(a)	0	0	0	0	0	0	0%	0%
		2021(b)	3697	3862	3389	3101	-307	-762	-8%	-20%
		2036	4206	4489	4200	4449	-6	-40	0%	-1%

Appendix D: Hampden Fields Transport Assessment 2012

Scenario/Year	Traffic Flows		% Change from Ref Case (AM)	% Change from Ref Case (PM)	Notes
	AM Peak Hour	PM Peak Hour			
2010 ⁽¹⁾	3831	3985			Observed flows
2031 Ref Case ⁽¹⁾	4314	4460			
2031 Scenario 3 with Hampden Fields Development ⁽²⁾	4159	4323	-3.6%	-3.1%	note: Scenario 3 includes ELR
2031 with Hampden Fields Development ⁽¹⁾	4519	4471	+4.8%	+0.2%	note: main forecast (as used in TA and considered at Public Inquiry) appears to exclude ELR (S)

Sources:

- 1) Hampden Fields Transport Assessment, WSP, November 2012, Appendix J: Aylesbury Transport Model – Traffic Forecasting and Assumptions
- 2) Hampden Fields Transport Assessment, WSP, November 2012, Appendix V: Aylesbury Strategic Modelling - Hampden Fields Results Summary