



Wycombe District Local Plan (Regulation 19) Publication version

Topic Paper 4: Transport

**By Wycombe District Council and
Buckinghamshire County Council**

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1.0 Introduction

- 1.1 This topic paper is one in a series produced to accompany the Wycombe District Publication Draft Local Plan. It examines how we have approached transport matters within the Plan. Each topic paper looks at the relevant national and local guidance that informs the Publication Draft Local Plan. This paper explains how the approach to transport interventions has developed; the information, evidence and feedback that has informed the choices made in formulating the policies; it also sets out what we see as the key issues and how these have been resolved. It draws on the Infrastructure Delivery Plan to comment on their delivery. Transport matters regarding Princes Risborough are covered in a separate topic paper.
- 1.2 Transport matters can be said to fall into two main categories – the strategic and the local – so this topic paper sets these out separately, while noting any significant links between the two.
- 1.3 The paper should be read in conjunction with the Local Plan. Supporting evidence reports and other relevant documents are listed in Appendix A.
- 1.4 This paper has been jointly prepared by officers from Wycombe District Council and Buckinghamshire County Council (referred to here as ‘the Councils’).

2.0 How the transport approach was developed

- 2.1 The approach has evolved through an iterative process of gathering evidence, engaging with the community and stakeholders, and informing options through Sustainability Appraisal. The key evidence reports are summarised in Table 1.

2014 Options consultation

- 2.2 The options consultation set out proposals for a number of sites across the District. For larger sites, the consultation document set out proposed

key development principles for comment, including transport interventions, and invited consultees to add their own principles and schemes.

2.3 A key option at this time was to release green belt land for employment in association with a new junction of the M40 – ‘junction 3a’.

2.4 Early transport study work¹ tested site options and proposed three alternative approaches to transport intervention:

- ‘managed’: focusing on closer traffic management through signalisation;
- ‘integrated’: focusing on sustainable interventions with some signalisation;
- ‘expanded’: focusing on increased highway capacity and junction upgrades.

2.5 The work concluded that the ‘expanded’ approach achieved better results in terms of overall traffic performance, followed closely by the ‘managed’ approach.

2.6 The Options consultation also set out a range of 8 spatial responses to the requirement for development. Option 7 proposed Major Expansion at other key locations on the Transport Network: Kimble, Saunderton and Stokenchurch. This option was not pursued as it was assessed as not reasonable / not sustainable.

Later 2014 – release of the Reserve sites

2.7 During the Options consultation it became clear that Wycombe District Council would need to release land to contribute to the five year supply of housing. Consequently the five ‘Reserve Sites’² were released in November 2014 and an intensive programme of local engagement was

¹ Wycombe District Local Plan High Wycombe Area Transport Study (Jacobs 2014)

² Abbey Barn North and South; Gomm Valley and Ashwells; Terriers Farm (all in High Wycombe); and Slate Meadow (Bourne End)

undertaken. Community liaison groups were established for each of the sites, together with an umbrella infrastructure round table which looked at comprehensive provision of infrastructure including transport interventions, across all of the sites.

- 2.8 Each liaison group and the roundtable includes ward members, local residents and community representatives.
- 2.9 The work undertaken by the Infrastructure roundtable since 2015 to assess the reserve sites' associated and cumulative infrastructure requirements has informed a Reserve Sites Infrastructure Delivery Plan (June 2016) the draft IDP for the draft Local Plan, and the Publication (reg 19 version) Local Plan IDP. Transport proposals for these have been informed by the High Wycombe Reserve Sites Transport Framework (HWTF) (Jacobs 2016). The HWTF identified a package of measures to enable the growth associated with the Reserve Sites to be accommodated in the High Wycombe transport network. Buckinghamshire County Council and Wycombe District Council jointly commissioned Jacobs to carry out this work. The main infrastructure requirements of the sites are included in this topic paper, and in the Publication (reg 19 version Local Plan IDP).
- 2.10 Since these reports further assessment work has been ongoing particularly in the context of the production of Development Briefs for the sites.

Draft Plan consultation

- 2.11 In June 2016 the Council consulted on the draft version of the plan. Joint working with Highways England was showing that a comprehensive approach to the road network around High Wycombe would be needed to address the capacity of the M40 and associated junctions. This approach would also reflect that the strategic road network and local road network are inter-related particularly in relation to congestion, capacity and traffic management. With this in mind,

together with funding uncertainty and Highways England criteria for new junctions, junction 3a proposals were not taken forward.

- 2.12 Transport requirements for the Reserve Sites were informed by the early focused work on the Reserve sites and fed into the sites policies.
- 2.13 Further sites had been added to the Plan including as a result of the Green Belt review and assessment of suitable sites in the AONB.

Table 1 Summary of transport evidence

Buckinghamshire Countywide modelling:
<ul style="list-style-type: none"> • Phase 1 (growth proposals only) - July 2016 • Phase 2 (growth proposals and mitigation) – March 2017 • Phase 3 (revised growth proposals and mitigation) – August 2017
High Wycombe / Bourne End studies and modelling:
<ul style="list-style-type: none"> • Southern Quadrant Transport Study – 2012 • High Wycombe Area Transport Study – Jan 2014 • High Wycombe Reserve Sites Transport Framework - 2016 • Wycombe Local Plan sites traffic modelling - June 2017

Preparation of the publication version

- 2.14 During 2016 and 2017 Buckinghamshire County Council and the four District Planning Authorities jointly commissioned transport forecasting work to assess the cumulative transport impacts of the emerging local plan growth scenarios across Buckinghamshire and test strategic transport mitigation proposals.
- 2.15 Planning Practice Guidance Reference ID: 54-010-20141010 (How is the WebTAG approach useful in the transport assessment of the Local Plan?) sets out the broad approach to transport forecasting, advising that any proposed land allocation impact is considered in the context of two alternative scenarios – ‘with development’ and ‘without development’ – and will enable a comparative analysis of the transport

effects of the proposed allocation. In fact four scenarios for Local Plan testing have been developed:

1. The baseline, which in this case is 2013;
2. The 'Do Minimum' (or DM) scenario, which forecasts conditions on the network at the end of the plan period (2033). This includes committed development but not Local Plan growth;
3. The 'Do Something' scenario, which adds Local Plan growth to the forecast; and
4. The 'Do Something mitigated' scenario, which tests transport interventions to mitigate the effects of the growth scenario.

2.16 This allows the impacts of development to be distinguished from other growth factors that lead to increasing traffic volume across the network over time. Comparing scenarios 2 and 4 allows us to see if the mitigations have been effective in returning conditions to the non-developed scenario forecast. In advance of the Countywide modelling tests, a 2013-2031 Do Minimum scenario was developed³ which indicated that background growth factors would lead to increases in traffic volumes of 20-30% across Buckinghamshire over this time period. Against this backdrop, Local Plans can only justifiably attempt to tackle the effects of planned growth but not the effects of background growth.

2.17 Following this, 3 phases of the Countywide modelling were undertaken:

- Phase 1 (July 2016)⁴ assessed the transport impacts of the proposed local plan developments at that time, identifying areas across the county in which the model impacts were considered to be significant, in terms of increased travel time and congestion.
- Phase 2 (March 2017)⁵ identified improvements to the transport network which may be required in order to mitigate the impacts identified in phase 1, and assessed the extent to which those

³ Countywide Strategic Transport Model Traffic Forecasting Report (Jacobs 2014)

⁴ Countywide Local Plan Modelling Phase 1 Forecast Modelling Report (Jacobs 2016)

⁵ Countywide Local Plan Modelling Phase 2 Forecast Modelling Report (Jacobs 2017)

improvements can mitigate the impacts. For Wycombe district, the areas assessed in this work were Princes Risborough, High Wycombe, Hazlemere, Bourne End and Marlow / A404. These were the areas which received a red or amber rating in the Phase 1 work.

- Phase 3 (August 2017)⁶ was required to assess the updated local development scenarios and to develop an additional mitigation scenario. For Wycombe District, the schemes in both scenarios are the same – aspirational schemes which presently have no reasonable prospect of delivery were removed⁷. The growth scenario was updated to reflect the final local plan allocations.

2.18 The Wycombe elements of the future scenarios used in each phase of work are set out in Table 2 below. Whilst there is an increase in housing in Wycombe District in Phase 3 when compared to Phase 2, across the county overall there is a reduction of 783 houses.

Table 2 Countywide modelling future scenarios

Future scenario (2033)	Phase 1	Phase 2	Phase 3
DM	2,180 houses and 6,011 jobs	Unchanged from phase 1	Unchanged from phase 1
DS	DM commitment plus 11,168 houses and 1,613 jobs	DM commitment plus 8,464 houses and 2,490 jobs	DM commitment plus 9,824 houses and 3,560 jobs ⁸
DS + mitigation	N/A	DS phase 2 + mitigation schemes identified below	DS phase 3 + mitigation schemes identified below

⁶ Countywide Local Plan Modelling Phase 3 Technical Note (Jacobs 2017)

⁷ New links to the south of High Wycombe along Winchbottom Lane, and linking the Air Park to Handy Cross south of the M40.

⁸ Although the number of jobs increased by just over 1000 between Phases 2 and 3, this is unlikely to be of significance in the wider context of overall housing growth.

- 2.19 All phases of the Countywide modelling focus on the cumulative impact of growth proposals in Buckinghamshire rather than testing specific sites. Drawing primarily on Phase 3, section 4 of this report summarises the key issues raised in this work, the mitigation measures tested and how this has shaped policy requirements.
- 2.20 Alongside the countywide modelling, Wycombe District Council commissioned Jacobs to use the High Wycombe Highway Assignment Model to assess some of the largest development sites in more detail, in order to inform a package of mitigation schemes. The sites tested are summarised in Table 3 below.

Table 3 Developments tested in local modelling

Location	Policy number / Site Name	Scale
Hazlemere	HW8 Land off Amersham Road including Tralee Farm ⁹	360 homes
High Wycombe – Cressex	HW16 Air Park	10,000sqm employment (526 jobs), and 20,000sqm light industrial/ warehousing (556 jobs)
High Wycombe – Cressex	HW17 High Heavens Open Storage	50 jobs at B8 land use
High Wycombe – Cressex	HS10 Horns Lane	64 homes
High Wycombe – Cressex	Cressex Island	13,635sqm retail
Bourne End	BE 2 Hollands Farm	510 homes

2.21 The first part of this work assessed the traffic impacts of the above sites, before testing potential transport packages associated with each development. The Cressex sites were considered together due to their proximity.

2.22 The results are summarised in section 4.

⁹ This site borders a site proposal within Chiltern District. These sites were tested together in the Countywide modelling exercises.

3.0 The Plan: Strategic transport matters

3.1 Policy CP7, Delivering the Infrastructure to Support Growth, sets out a number of strategic transport priorities under the heading of Wider Connectivity:

- Access to High Wycombe from the M40;
- Improvements to the A404 corridor south of High Wycombe including at Marlow;
- Improved North/South connectivity across Buckinghamshire without causing harm to the Chilterns AONB;
- The potential of the disused High Wycombe – Bourne End railway line, initially as a cycling and walking route, but also investigating the potential for a ‘London rail bypass’ heavy rail route that links East West Rail and Cross Rail via High Wycombe and Bourne End.

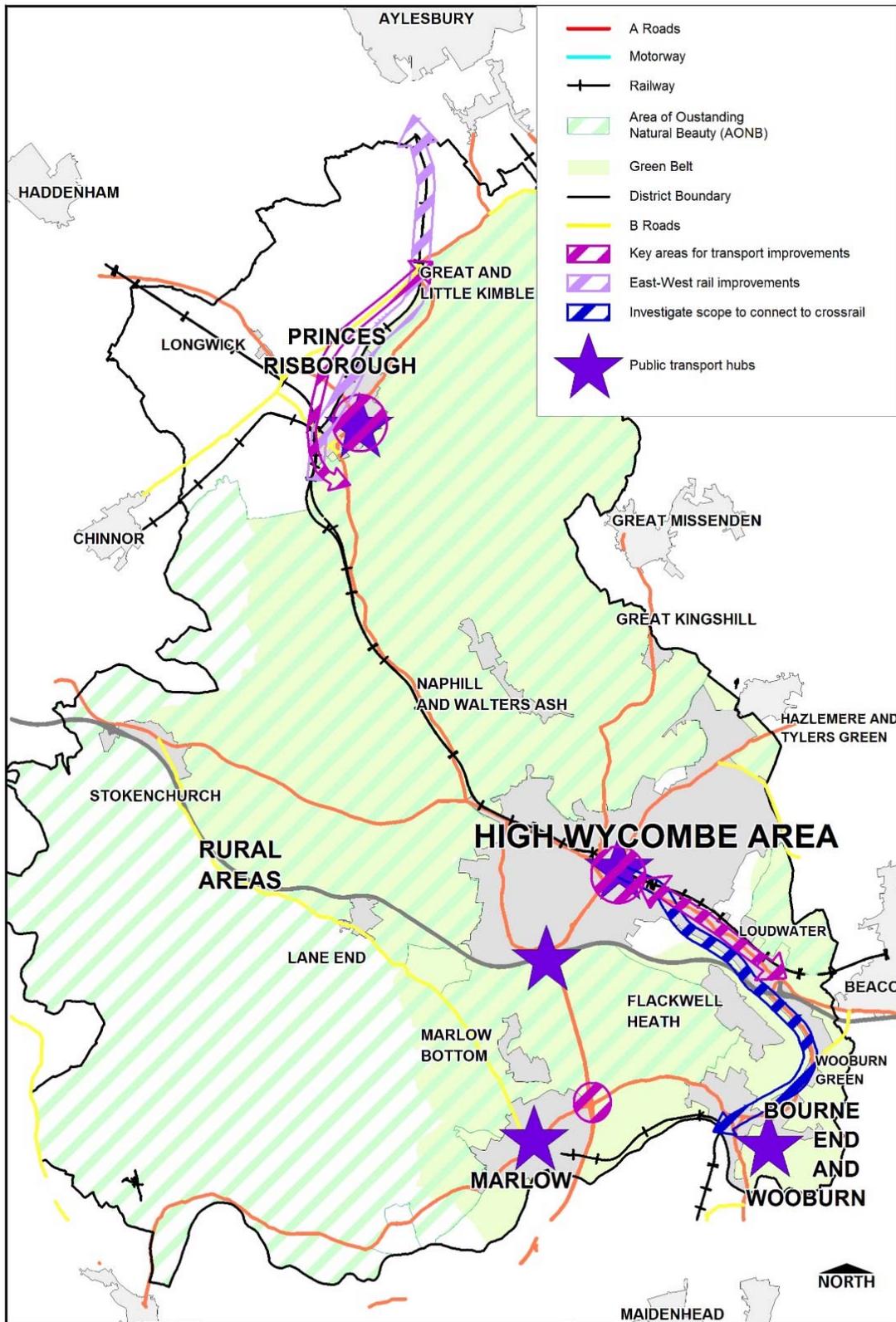


Figure 1 Transport infrastructure

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Improved access into High Wycombe from the M40, and A404 improvements

3.2 In 2014-15, Highways England (then the Highways Agency), began the Route Investment Strategy process (RIS) by producing Route Strategy Evidence reports. The latest London to Scotland West report (March 2017)¹⁰ identifies congestion and capacity limitations at junction 4 (Handy Cross) of the M40 in an area of high economic growth. The level of congestion, particularly at junctions 4, 8, 9 and 10, is anticipated to continue to increase. The report notes that:

- Areas of potential economic growth, such as High Wycombe, may be constrained.
- Junction congestion may lead to an increase in incidents.
- Congestion on the SRN may lead to increased use of local roads which could cause more localised congestion and environmental issues.

3.3 The London to Wales evidence report¹¹ (March 2017) identifies the following issues for the A404 between the M40 and M4:

- There are challenges of improved access for employment areas, longer-term housing growth, providing relief for M40 junction 4 (Handy Cross) and safe and efficient operation of the SRN between M40 junctions 2 and 4.
- Growth in Buckinghamshire and Northamptonshire and along the M40 Corridor may also affect travel demand on this link, as will mixed employment clusters such as at the M4/A239.
- Traffic congestion on the A404 is likely to increase as a result of all these growth pressures.

¹⁰ London to Scotland West Route Strategy (Highways England 2017)

¹¹ London to Wales Route Strategy (Highways England 2017)

- 3.4 Those parts of the strategic road network which run through the District close to High Wycombe are recognised by Highways England as having issues of delay and capacity. These strategic issues have knock-on effects on the local road network where it connects in, at the Handy Cross Junction, the Westhorpe junction, and the Bisham junction (just outside the southern District boundary). Handy Cross in particular is a key pinch point on the network which has widespread impact on both the A404 corridor and High Wycombe.
- 3.5 Wycombe District Council is working in partnership with Buckinghamshire County Council, Buckinghamshire Thames Valley Local Enterprise Partnership and Highways England to look at resolving how High Wycombe can be better accessed from the M40. Similarly, improvements to the A404 are also being explored as part of Highways England's M25 South West Quadrant Study. These are long term issues, which may require a revision to the plan.
- 3.6 Whilst it is understood that Highways England are progressing proposals for improvements to the Handy Cross junction through the Road Investment Strategy 2 process, there is still uncertainty associated with this, and if investment was secured this would likely not be till later in the plan period.
- 3.7 The Westhorpe junction is a key junction on the A404, providing access to the Globe Business Park, to the north east of Marlow. Bisham (within the Royal Borough of Windsor and Maidenhead and just outside the district and Buckinghamshire boundary) is on the south side of the Thames and provides another key link on to the A404, at the Bisham Roundabout. The roundabout is operating at or above capacity and commuters face congestion delays on a daily basis. As part of the Government's pinch point programme, in June 2015, Highways England consulted on three options to improve the capacity of the junction. The three options were a fully or partial signalisation of the junction or stopping right turns from local roads.

- 3.8 None of the options put forward were overly favoured during the consultation with the overall feedback that Highways England should consider longer term solutions looking at the A404/A404(M) corridor as a whole. Highways England therefore decided that none of the three options should be taken forward and they are now working with the local highway authorities and other stakeholders on developing longer term schemes through the Road Investment Strategy 2 process.
- 3.9 Wycombe District Council and Buckinghamshire County Council have jointly participated in work developed by Highways England to address issues around A404/A4155 Westhorpe junction. Improvements to the junction (capacity enhancements for northbound vehicles leaving the A404) were tested in the modelling for the Local Plan. These improvements do achieve a decrease in congestion on the northbound A404. However, a side effect of this is to increase travel time at Bisham Roundabout, which is not addressed.
- 3.10 A funding package is being developed for the A404/A4155 Westhorpe junction Improvement scheme. After the results of consultation and funding have been confirmed, works could get underway as early as 2018.

Improved north –south connectivity between Aylesbury and High Wycombe

- 3.11 The Local Transport Plan¹² (LTP4) maintains an aspiration to improve north-south connectivity in the county, including the issue of connectivity between High Wycombe and Aylesbury. Wycombe District Council is clear that improving the A4010, with its inherent constraints, and its location in the Area of Outstanding Natural Beauty, is not the automatic option for consideration for this strategic route, but wishes to work strategically with Buckinghamshire County Council and other partners in resolving this issue swiftly. Whilst there are currently no solutions developed, the Councils are working with other partners such as

¹² Local Transport Plan 4 (Buckinghamshire County Council 2016)

England's Economic Heartland to understand how a southern east west expressway alignment (discussed below) could also improve north south connectivity.

Improved regional east – west connectivity

3.12 Connectivity more broadly in the wider Thames Valley – South East Midlands corridor is receiving increased attention on the regional and national scale. This includes work which is underway by the National Infrastructure Commission looking at the economic potential of the Oxford to Cambridge corridor. Its final report is expected in autumn 2017. Highways England have also published a Strategic Study looking at possible interventions on the corridor, including a proposed Oxford to Cambridge Expressway. Highways England has commissioned work to select a route for the expressway but this is not expected to conclude until summer 2019. Work to date has highlighted three possible expressway corridors, the most southern of which would be via Aylesbury, further highlighting the importance of High Wycombe – Aylesbury connectivity. Delivery of an expressway would however be outside the period of the plan.

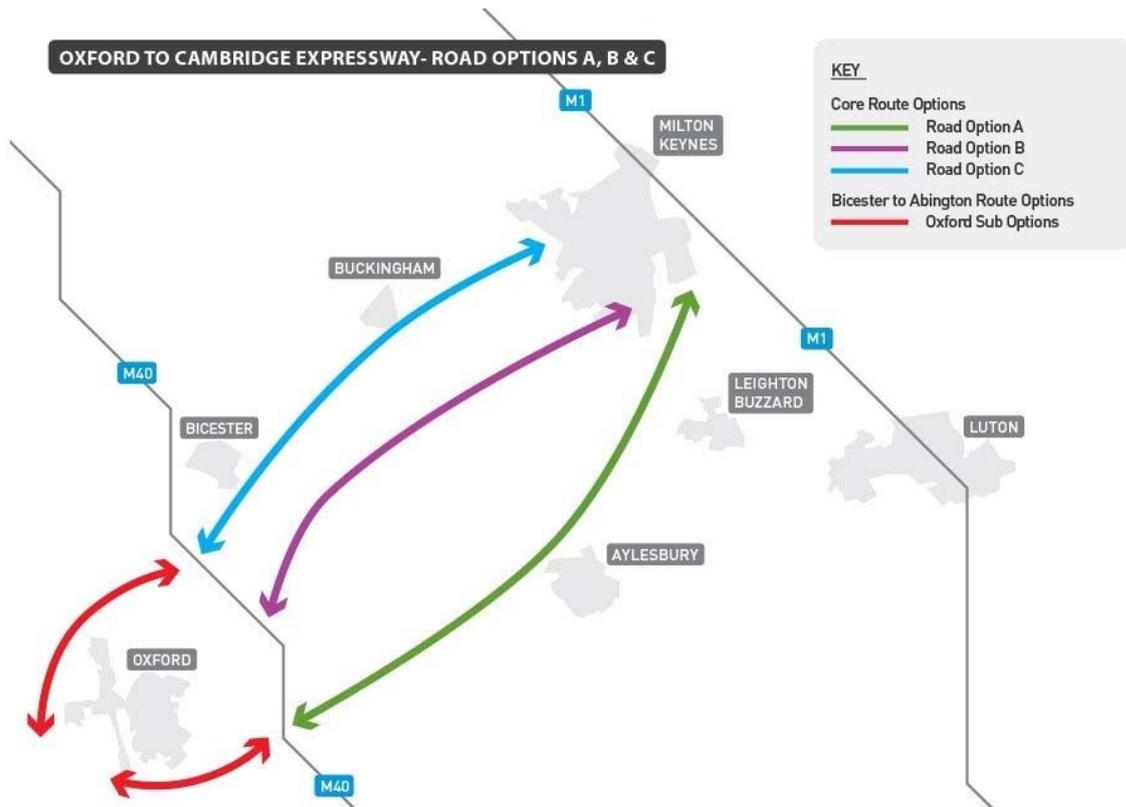


Figure 2 Oxford to Cambridge Expressway options

- 3.13 The East West Rail project will improve rail connectivity between Aylesbury, Princes Risborough and High Wycombe. The Western Section (reintroducing passenger and freight services between Bedford and Oxford, Milton Keynes and Aylesbury) has been agreed in principle and has been included in the Network Rail road programme. Final timescales and funding to be announced. . A new hourly service between Milton Keynes and London via Princes Risborough and High Wycombe is proposed by 2020/21.
- 3.14 In addition, Crossrail is due to be operational by 2019. Both Bourne End and Marlow are proposed to have direct access to the service.
- 3.15 In line with Policy CP7, Wycombe District Council are commissioning a detailed study investigating the potential strategic and economic benefits of re-establishing a rail link between High Wycombe and Bourne End that would link East West Rail and Crossrail.
- 3.16 Wycombe District Council and Buckinghamshire County Council will work closely together alongside their partners, including Highways

England, to improve the transport connectivity between the Thames Valley and South East Midlands through Buckinghamshire. Buckinghamshire County Council are members of the England's Economic Heartland which is developing a transport strategy, but which is not due until 2019.

Wycombe District in the context of national infrastructure projects

- 3.17 There are a number of national infrastructure projects in progress in the region. The government is proposing expansion of Heathrow which would have significant influence on the strategic geography of the region. Considerations of accessibility to the airport gain larger significance in this context. As part of proposals to expand the airport the Government is expecting Heathrow Airport to put forward a strategy that outlines how it will achieve a public transport mode share of at least 50% by 2030 and 55% by 2040. Known as 'Western Rail Link to Heathrow', Network Rail are developing plans to build a new rail tunnel to link the Great Western Mainline to Heathrow terminal 5 which will likely change travel patterns in the region. For example in Wycombe District, passengers could travel to stations on the Great Western Mainline to access the link as opposed to driving via the M40, or traveling by train into London.
- 3.18 The government is progressing work on High Speed 2 (HS2). HS2 will cut through the very northern tip of the district, but will have wider impact on the district during the construction period with possible construction routes through Princes Risborough and High Wycombe. Wycombe District Council continues to work with Buckinghamshire County Council to influence HS2 and ensure impacts on communities and the environment are minimised.

4.0 The Plan: Local transport matters

4.1 The Plan sets eight district-wide strategic objectives, many of which are relevant to transport issues:

- Cherish the Chilterns: to conserve and enhance the natural beauty of the landscape. This means careful consideration of transport options that could have an adverse impact here;
- Strengthen the sense of place: by securing high quality, bespoke responses in the design of new development – including transport infrastructure;
- Improve strategic connectivity: we are cooperating with key partners (Highways England, Buckinghamshire County Council, BTVLEP and Network Rail) in the development of appropriate links and capacity improvements to strategic road and rail. This also supports the plan objective to ‘Foster economic growth’ and the strength of the M40/A404 location;
- Facilitate local infrastructure: by focused investment and securing appropriate benefits from new development to deliver transport schemes;
- Champion town centres: enhancing their environmental quality to strengthen their economic attractiveness, in part through introducing innovative highway design;
- Mitigate climate change: by reducing the need for travel by private car through the appropriate distribution of growth, also enhancing public transport viability, and delivering high quality walking and cycling provision.

4.2 Policy CP7 also sets out local priorities for transport which development will be required to contribute to:

- High Wycombe transport improvements including measures to improve conditions on the London Road A40;
- High Wycombe Town Centre Master Plan (HWTCMP)¹³ transport changes;
- Improved access / egress to Globe Park from the A404 at Marlow;
- Improved access / egress to Cressex Business Park;
- New road infrastructure to support growth at Bourne End;
- Achieving better sustainable travel and improved walking and cycling provision.

4.3 Individual site policies set out requirements for local transport interventions, which are summarised in Appendix C.

High Wycombe

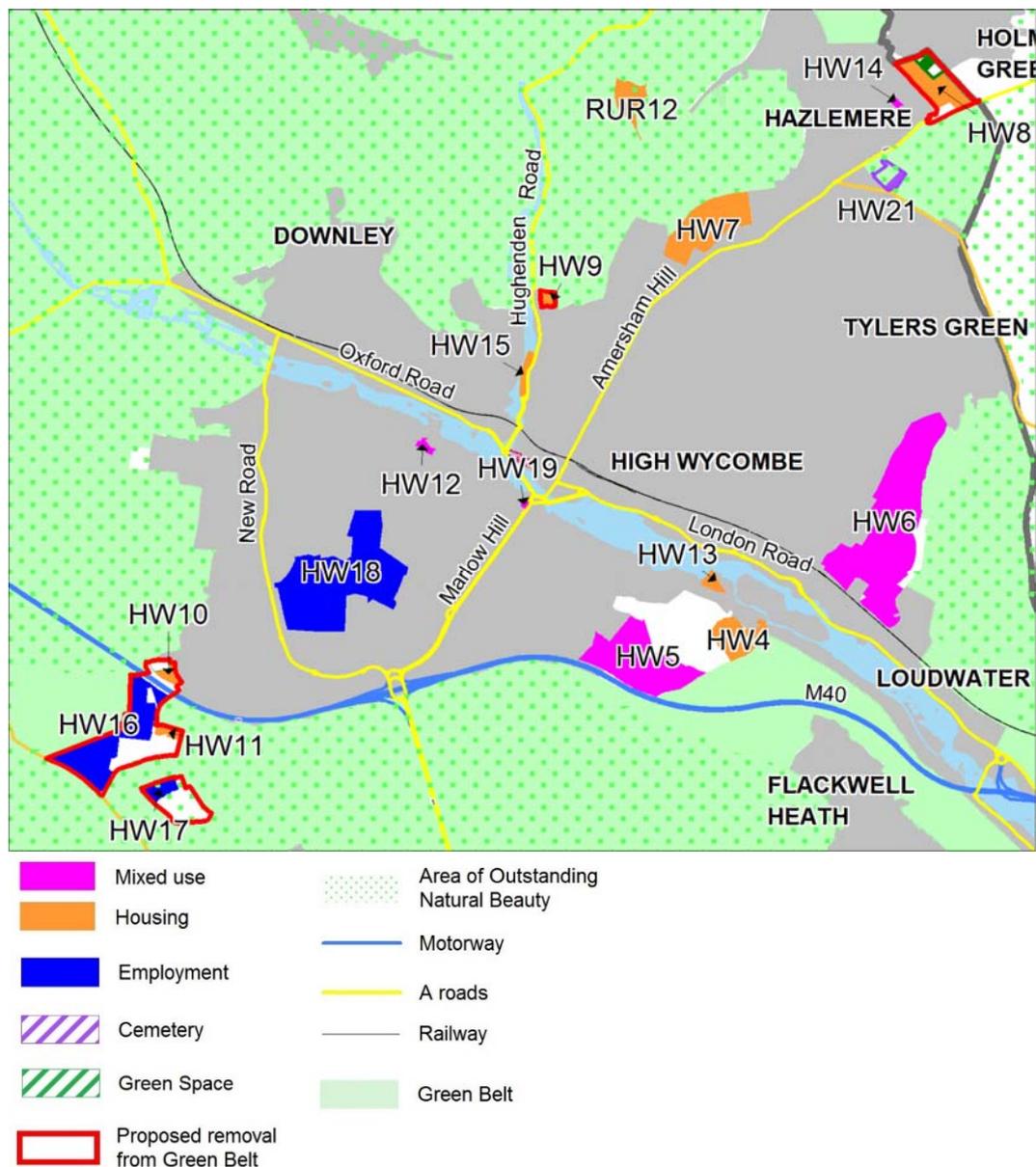
4.4 Whilst High Wycombe is seen as the most sustainable location for growth in the district, the ability for the town to accommodate more development is constrained from a transport and traffic perspective in a number of ways. The town has grown to the boundaries of the Green Belt and Chilterns AONB which therefore severely limits options for major new road capacity. The town suffers from significant traffic congestion, caused in large part by the topography of the town and the limited opportunities for avoiding traffic following the valley bottom, particularly along the A40 London Road corridor. The transport modelling which was carried out to test the plan proposals confirms this. The built-up nature of the town also limits opportunities for new highways infrastructure.

4.5 The countywide modelling¹⁴ showed that, without mitigation, the local plan developments lead to significant increases in travel time in both the

¹³ The HWTCMP policies are set out in WDC's Delivery and Site Allocations (DSA) DPD.

¹⁴ Countywide Modelling Phase 3 (Jacobs 2017)

peak and interpeak periods in High Wycombe. Lack of capacity at the Handy Cross motorway junction is a strategic issue (see above) which creates congestion and issues for local traffic. This, and congestion at the bottom of Marlow Hill, and on the A404, leads to greater congestion throughout the town. Other areas with significant travel time increases include the Dovecot Gyratory in the town centre, Pedestal Roundabout (the A40/A4010 junction at the western edge of the town) and the A40 London Road corridor.



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Figure 3 Main proposals in the High Wycombe Area

- 4.6 The hilly topography of High Wycombe also creates challenges for active travel modes such as cycling and walking.

Holmer Green and Hazlemere area, including Terriers Farm Reserve Site (HW7) and Land off Amersham Road (HW8)

- 4.7 To the north of High Wycombe, the Holmer Green and Hazlemere area is on the border of Wycombe District and Chiltern District. It is on the A404 route in and out of High Wycombe. The Amersham Road site is located on the edge of Hazlemere and Holmer Green, and is proposed to be 350 homes. Adjoining it is a proposed Chiltern development site of approximately 300 homes. A cumulative assessment of the sites together was made in the Countywide modelling exercises. Terriers Farm Reserve site is located on the south of Hazlemere and is proposed to be 500 homes.
- 4.8 Central to the area's transport network are the Hazlemere Crossroads. The crossroads are comprised of a double roundabout, and are recognised as a complex and congested junction locally. The modelling confirms that notable delays and congestion already exist at the junction.
- 4.9 The main mitigation scheme proposed in the **Hazlemere area** is the Queensway Link – a new road connection from Queensway on the A404 northern arm, to Penn Road. With the link in place there is a moderate reduction in travel time on the southbound A404 approaching the Crossroads, and on the westbound B474. This is because the link provides an alternative route to access the B474. There are also travel time reductions on the westbound B474 due to vehicles reassigning to the Queensway Link to access the northbound A404. Also included in the modelling are junction upgrades at each end of Eastern Dene Road and the diversion of a bus service to serve the land off Amersham Road.

- 4.10 Further work on the development brief has indicated that a key issue for the Terriers Farm site has been the number and location of the access points to the site. Through the Development Brief process and from public feedback the Councils will be requiring a second access point on the site directly onto the A404 to improve the site permeability and traffic flow distribution. Buckinghamshire County Council and Wycombe District Council have commissioned a study to establish the preferred form of junction. This study is also modelling the local highway network to establish what changes may be required to the existing double mini-roundabout on the A404/ Kingshill Road junction.
- 4.11 Other transport measures will include improved cycling and walking connections through the site and a potential upgrade of the Lady's Mile bridleway; a review and improvement of pedestrian crossing in the vicinity of the site; and improving the positions of key bus stops on the A404.

Cressex area, including Horns Lane (HW10), Clay Lane (HW11) and Cressex Business Park (HW18)

- 4.12 Due to the proposed growth in the area, the local modelling¹⁵ also analysed the **Cressex area** of High Wycombe. Located in the south-west of the town, the area contains a business park as well as residential areas. Cressex Road and the A4010 already experience delay and congestion in this area, partly due to traffic accessing the M40 at J4 (see strategic issues). Without mitigation, the developments proposed cumulatively result in an increase in delay at a number of junctions in the area.
- 4.13 In addition, there are ongoing traffic management issues in the area associated with the Business Park, which is highlighted for intervention by CP7.
- 4.14 The modelling tested a number of junction upgrades for the **Cressex area**. With the upgrades in place improved journey times are observed

¹⁵ Local plan sites modelling (Jacobs 2017)

on Cressex Road, Clay Lane, A4010 New Road and Holmers Farm Way. The junction upgrade at the Cressex Road / Horns Lane junction appears to facilitate a reassignment of traffic to Horns Lane, but this can be accommodated by Horns Lane based on the capacity of this road type.

Gomm Valley and Ashwells Reserve Site (HW6)

- 4.15 Transport issues associated with the Gomm Valley and Ashwells Reserve Site are linked to the topography of the site's hillside location and proximity to the A40 London Road. As discussed above the A40 London Road is an already congested corridor with limited options for intervention. On either side of the Gomm Valley site, Cock Lane and Hammersley Lane are both constrained with narrow single-lane sections.
- 4.16 The hillside location of the site also creates challenges for cycling and walking, however it is in good proximity to the substantial High Wycombe bus network.
- 4.17 It was concluded early on in transport assessments¹⁶ of the Gomm Valley site that if the site was to be developed it would require the complete widening of Cock Lane. However Cock Lane is a single track rural lane, with irregular passing places, limited visibility and has prohibitive factors preventing the necessary improvements including third party land and the topography. Therefore a spine road through the development is required rather than the wholesale widening of Cock Lane. There is a requirement to widen the northern section of Cock Lane from where the spine road will join it. To maintain the rural character of the road and limit its attractiveness for new traffic from further afield the widened section will be fitted with traffic calming, minimal road markings and signage and with no street lighting included. The Plan is clear that the purpose of this spine road is to distribute traffic from the development. It is not intended to act as an unofficial

¹⁶ High Wycombe Reserve Site Transport Framework (Jacobs 2016)

'bypass' as this would be detrimental to Penn and Tylers Green due to the increase in through traffic.

- 4.18 There are three potential bus service options to serve the sites with the preferred option depending on the final alignment of the spine road and further discussions with Buckinghamshire County Council and the bus operators. Policy HW6 and section 5.1.5 of the adopted Development Brief sets out a comprehensive network of footpaths/ cycleways and green infrastructure links that will be required.

Abbey Barn North and Abbey Barn South Reserve Sites (HW4 and HW5)

- 4.19 The Abbey Barn sites are located on the southern side of the A40 London Road, off Abbey Barn Lane. A key issue associated with the sites is that Abbey Barn Lane is a narrow carriageway with restricted visibility in places. There is also a one-way give-way controlled crossing of a weak bridge. Additionally there is constrained capacity on Abbey Barn Road resulting from a school, bus stops, HGV access and informal residential parking.
- 4.20 A key issue for the Abbey Barn sites has been impact on Abbey Barn Lane which is an unclassified road with no footways or cycle-ways. To the south, it joins Heath End Road in the form of a priority junction and to the north it becomes steeply sloping and constrained by a railway bridge which has single track working over a blind turn resulting in a dangerous junction. Modelling for the Reserve Sites indicates that in 2026, the predominant traffic flow at the Abbey Barn Lane/Abbey Barn Road/Kingsmead Road junction will be from Abbey Barn Lane/Abbey Barn Road. Currently Abbey Barn Lane has to give-way to Kingsmead Road. The High Wycombe Transport Framework recommended a change in junction priority to support the predicted changes in traffic flows.
- 4.21 A new roundabout junction is proposed for the Heath End Road/ Abbey Barn Lane junction. Buckinghamshire County Council and Wycombe

District Council have commissioned feasibility and design to establish the preferred solution to address the current substandard configuration at the north of Abbey Barn Lane which potentially may include a realignment of Abbey Barn Lane into the Abbey Barn North development site to a reconfigured junction. Wycombe District Council submitted a Housing Infrastructure Fund bid to Government in September 2017 to assist with the funding and delivery of this scheme which would be delivered in conjunction with the two Abbey Barn developments.

- 4.22 A key issue for the Abbey Barn South site is how it will link into the public transport network. There is a requirement that the main street through the site is designed to facilitate a fast, high quality bus service to the town centre. However the quality and success of the bus service in this area will likely depend on delivering the sustainable travel link to Handy Cross Hub as outlined in the Southern Quadrant Transport Strategy as this will allow integration with other services. A Liaison Group being led by Buckinghamshire County Council and Wycombe District Council has been convened to establish how the sustainable transport measures can be delivered.

Overall effectiveness of mitigation for High Wycombe

- 4.23 The countywide transport modelling and local plan sites modelling has tested different mitigation packages. From this testing it could be seen that in general the provision of additional highway capacity was not possible to fully mitigate the impact of new developments. The reasons for this were:
- Limited physical opportunities to implement significant highway infrastructure capacity increases due to the nature of the built up area as well as topographical and environmental constraints
 - Due to existing levels of congestion, there is already significant latent demand for highway space, any new capacity is taken up

with latent demand and thus does not provide capacity for trips from new developments

- 4.24 On this basis, it is expected that the proposed developments, will lead to increasing congestion in High Wycombe despite proposed mitigation measures for developments. It can be expected that the levels of congestion will alter people's travel behaviour, in that they may not make trips or will make their trips at different times – leading to peak time spreading. The limited opportunities to improve highway capacity mean that proposals for managing traffic, such as through the use of Intelligent Traffic Systems and sustainable transport projects will need to take a higher priority in the future. Buckinghamshire County Council's Local Transport Plan 4 (LTP4)¹⁷ sets out an intention to develop a number of Area Strategies addressing in further detail the County Council's strategic transport approach to key growth areas in the county, such as High Wycombe.
- 4.25 The Countywide modelling phase 3 does shows that there are some slight to moderate improvements in travel time across High Wycombe with the mitigation schemes in place. For example in the AM peak the northern section of Cock Lane (which is adjacent to the Gomm Valley and Ashwells Reserve Site), the approach to the Hazlemere Crossroads from Penn Road and Amersham Road northbound all experience reduction in travel time. In the PM peak there are also reductions at the eastern end of the A40 Corridor (Loudwater / M40 J3 roundabout) as the improved signals at Rayners Avenue reduce the queuing westbound on the A40.
- 4.26 However, there are still significant travel time increases in all other areas of High Wycombe, particularly in the town centre, the M40 and on the main road corridors. There are significant increases in travel time on the A40 between Cock Lane and Gomm Road where the new spine road connects, as this draws additional traffic to the A40 resulting in delays. It has not been possible in modelling mitigations at the

¹⁷ Buckinghamshire's Local Transport Plan 4 (BCC 2016)

countywide level to resolve issues related to Handy Cross, Marlow Hill and A40 London Road, all of which are anticipated to experience significant congestion. (See section from 4.28 below for further commentary on A40 London Road)

- 4.27** Despite the unresolved issues noted above, both the countywide and local modelling show that overall the mitigation tested offers benefit to the network and can contribute to the facilitation of the development in this area. Further refinement of the schemes will confirm their effectiveness.

Effectiveness of mitigation and next steps for the A40 London Road

- 4.28 As discussed above, the A40 London Road was one of the main areas of High Wycombe where it has not been possible in the modelling at this stage to resolve all transport impacts. Like many areas of High Wycombe there are limited opportunities for intervention due to the built up nature of the corridor, the topography and the existing levels of congestion. The A40 London Road is also unique due to the proximity of the reserve sites, and work¹⁸ has shown that the traffic distribution from all 5 sites impacts the A40 (but in particular the Abbey Barns, Gomm Valley and Ashwells, and Terriers).
- 4.29 As previously noted in this paper, the strategic road network and local road network are inter-related in the High Wycombe area including for the M40 / Handy Cross and the A40 London Road. However, increases in travel time associated with the M40 and Handy Cross are partly linked with their strategic role, and the growth in trips associated with growth beyond the District and even beyond the Buckinghamshire housing market area.
- 4.30 The A40 London Road has both a strategic function as an east-west corridor and for access to the M40, and also a function to accommodate local traffic accessing the residential side roads. The countywide

¹⁸ High Wycombe Reserve Sites Transport Framework

modelling indicated that measures tested to increase capacity on the A40 London Road only seem to unlock suppressed demand – hence new capacity filling up with more traffic.

- 4.31 However it is important to note that due to the levels of congestion in the A40 London Road area the Countywide model is known to be sensitive to changes in traffic flow, and tends to show greater levels of congestion than may happen in practice. However the general trends and particular areas of significant impact are clear, and are in line with the Local Plan Wycombe Sites Modelling.
- 4.32 Steps are being taken to mitigate impacts in this area. In addition to the strategic approach being taken to Handy Cross with Highways England, Buckinghamshire County Council have submitted a funding bid to the National Productivity Investment Fund for improvement works for the London Road A40. A key focus of the bid was on measures which would not just unlock suppressed demand, an issue noted in the countywide modelling. Measures in the bid include:
- a review of the operation and configuration of key junctions including the Wycombe Marsh/Micklefield Road junction;
 - limited widening to allow a better flow of traffic;
 - technology improvements to allow better sequencing of signals including the pedestrian crossings along the corridor;
 - CCTV to allow monitoring at the Buckinghamshire County Council control centre;
 - improved vehicle messaging signage linked to the motorway network;
 - review of bus lane locations to ensure they are fit for purpose; and
 - a review of bus stop locations.

- 4.33 Environmental improvements such as additional tree planting and appropriate street furniture will be investigated to improve the place function of the locations along this corridor. The outcome of the funding bid is expected in the Autumn Statement 2017.
- 4.34 In addition, Local Transport Board funding exists to mitigate the impacts of the Reserve Sites.

Bourne End and Wooburn

- 4.35 Bourne End is located in the south east corner of the district, bounded on the south and east by the River Thames. The Hollands Farm site (BE2) is located to the east of Bourne End and is proposed to provide 467 homes in the Plan.
- 4.36 Also situated in the Bourne End area is the Slate Meadow Reserve Site (BE1). Situated on the A4094 between Bourne End and Wooburn, the site is proposed to provide 150 homes. There are narrow uncontrolled pinch-points on the A4094.

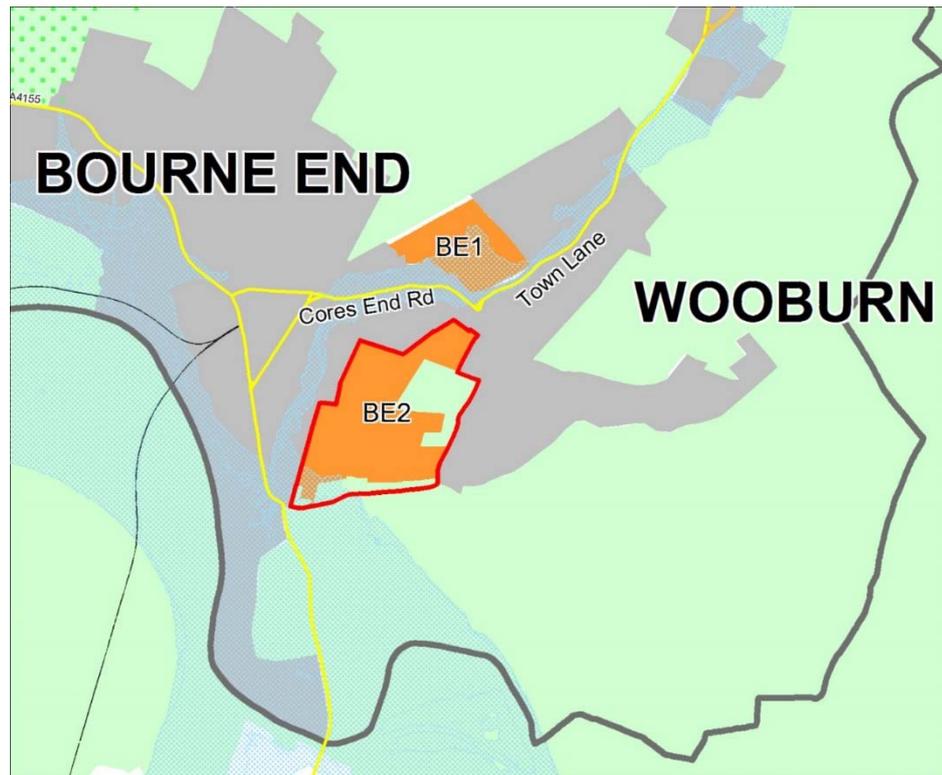


Figure 4 Main proposals in Bourne End and Wooburn

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4.37 As reported in the Local Plan sites modelling¹⁹, the development proposed in the plan creates moderate to significant increases in travel time in the AM peak, including on Furlong Road, Hedsor Road, Wessex Road and southbound on A4094. These travel time increases are the result of increased congestion south of Bourne End on the A4094 Ferry

¹⁹ Wycombe Local Plan Sites Traffic Modelling (Jacobs 2017)

Lane, from the River Thames crossing (Cookham Bridge). This crossing is already over capacity without the plan proposals in place. The extra traffic demand from the proposed development results in greater queueing back from the junction, which in turn leads to the travel time increases in Bourne End. In the PM peak, the congestion between the Do Minimum and Do Something remains similar.

- 4.38 Mitigation measures being put forward for the development at Slate Meadow include a review of pinch points and delays on the A4094 which are caused by right turning traffic. Improved provision for right turning movements are required to ensure an appropriate balance between through movements and local access journeys.
- 4.39 A 'park and walk' facility for the adjacent St. Paul's CE Primary School was initially proposed to help alleviate conflicts and local congestion on Stratford Drive at school drop off and pick up times. This was discounted as it was considered that this would cause increased traffic movements rather than walking and cycling. However there will be unallocated parking spaces near the primary access to the site off Stratford Drive which will help resolve drop off congestion.
- 4.40 The site is adjacent to the disused High Wycombe to Bourne End railway line and which is safeguarded for a bridleway and walking/cycling route. There will be a requirement that the site is directly connected to this link and that contributions are secured for its upgrade.
- 4.41 In response to the impacts identified in the modelling, a spine road was tested through Hollands Farm (BE2) site, in addition to junction capacity improvements in the area. The modelling shows that the new link road allows traffic to avoid using roads in the centre of Bourne End, and improves travel time on the A4094 Cores End Road and A4094 Hedsor Road. However delays at the River Thames crossing (Cookham Bridge) remain a significant constraint in the area. Should improvements to the bridge be possible, they should not result in additional through traffic through the villages.

- 4.42 Overall the modelling suggests that providing a link road through the Hollands Farm development will benefit the existing roads in the Bourne End area. Whilst at concept stage, it is anticipated this would be delivered by developers via s278²⁰ when the site comes forward. Other measures along the A4094, linked to the Slate Meadow site, are required to ensure the route is resilient. Further design and feasibility work is required to establish the scope of these works.
- 4.43 As noted in the IDP, the bus service 37 to Bourne End is capable of diversion through the Hollands Farm site. This requirement is included in the site policy as well as the enhancement of footpath and cycle links to the village centre, to encourage the use of sustainable travel modes.

Marlow

- 4.44 Marlow, on the south border of the district, is bordered on the east by the A404 and on the south by the River Thames. Limited development is proposed at Marlow because of its location within the Green Belt, Chilterns AONB and adjacent to the Thames flood plain.
- 4.45 The modelling shows there are relatively slight increases in travel time in the Marlow and Bisham area caused by the proposed growth, with the notable exception of the Marlow Bridge area. Increases in travel time at this location are caused by increased queuing southbound on the High Street, and also increased northbound flows on the A404 at Bisham Roundabout. This area is already congested.
- 4.46 There are also significant increases in travel time on the A404 and Wycombe Road, particularly in the PM peak, which is related to the increased congestion at Handy Cross, an identified strategic issue.
- 4.47 Marlow is well suited to walking and cycling due to being a compact town with flat topography. The Local Plan's principles for Marlow include

²⁰ A s278 agreement is a legally binding document between the Local Highway Authority and the developer to ensure that the work to be carried out by the developer on the highway is completed to the standards and satisfaction of the Local Highway Authority.

a commitment to improving sustainable travel choices in the town to reduce the need to travel to the town centre by car.

Local interventions: policy requirements and delivery

4.48 The mitigation measures for development tested in the modelling have shaped the policy requirements for sites and include a range of other delivery mechanisms, set out in the IDP. Site policy requirements for transport are summarised in Appendix C.

4.49 Other local transport interventions are being delivered independently of sites in this Plan:

- High Wycombe Bus Station Upgrade: it is anticipated that improvements to the bus station (including dynamic bay allocation and additional bus stops) would be delivered by Buckinghamshire County Council and Wycombe District Council. Indicative cost is £1M, which could be funded via CIL and/or Local Growth Fund;
- Smart ticketing technology to encourage interchange and more coherent use of services managed by different bus operators. This is intended to be delivered jointly through CIL and the bus operating companies. Anticipated cost is less than £1M.
- Upgrade of the junction of Cressex Road and Cressex Link Road to allow additional turning movements. Indicative cost is £1M, which could be funded via Local Growth Fund 2.
- Introduction of a half hourly service on the Marlow Branch Line by additional track works at Bourne End. With an indicative cost of £2.5M, it is anticipated that this would be funded jointly through Great Western Railway, the BTVLEP and CIL.

4.50 The modelling exercises have shown that development sites can be partially mitigated but existing structural issues in the network remain and may be intensified. Transformative schemes for the more congested settlements of High Wycombe, Marlow or Bourne End would

be desirable but at this stage are out of reach and have not been tested. This includes not only schemes for new roads or rail, but also considering whether radical approaches to sustainable travel / active travel can be achieved.

5.0 Conclusion

- 4.51 The Councils have undertaken extensive work to test the transport effects of the Plan and develop appropriate mitigations where possible. Much of this work has been undertaken jointly, together with other Districts in the Housing Market Area, so that the cumulative effects of growth in the HMA have been adequately assessed.
- 4.52 Transport interventions not only include schemes for highway capacity improvement and traffic management, but also provide for sustainable travel and active travel measures.
- 4.53 Policy CP7 sets out ambitions for strategic transport interventions, and key local interventions that have a wider effect than a single site.
- 4.54 Specific sites policies set out more specific transport interventions for the site.
- 4.55 The Infrastructure Delivery Plan sets out more detail on the timing, funding and delivery mechanisms for transport infrastructure.
- 4.56 It is recognised that local interventions cannot address all the transport issues identified but the Plan sets out clear objectives and policies to work with our partners to deliver strategic improvements and improve the District's connectivity to deliver further improvements to the transport network.
- 4.57 The Councils have worked very closely with key partners on transport provision, notably Highways England and BTVLEP. A Memorandum of Understanding is being finalised between the Councils which confirms that:

- Based on work to date the scale of growth and broad distribution is feasible in light of the existing infrastructure, and as such BCC do not have any in principle objections to the scale of growth and broad distribution across the District;
- That the Infrastructure Delivery Plan provides a sound basis for taking the plan forward;
- WDC and BCC will work closely together alongside their partners on finding solutions to improve transport connectivity between the Thames Valley and the South East Midlands, through Buckinghamshire;
- WDC and BCC will continue to work closely together on infrastructure delivery to support the implementation of local plan policies and proposals.

4.58 In Wycombe District Council's communications with Highways England, they have confirmed that, based on the information exchanged up to August 2017 in the context of the Local Plan, no significant issues in relation to the Strategic Road Network have been identified. As there has been ongoing dialogue between Highways England, Wycombe District Council and Buckinghamshire County Council regarding aspects of the Local Plan, this would suggest there would be no duty to co-operate issues.

6.0 Appendices

Appendix A: List of evidence reports and other supporting documents

- Jacobs (2016) *High Wycombe Reserve Sites Transport Framework*
- Buckinghamshire County Council (2016) *Buckinghamshire Local Transport Plan 4*
- Jacobs (2016) *Countywide Local Plan Modelling Phase 1 Forecast Modelling Report*
- Jacobs (2017) *Countywide Local Plan Modelling Phase 2 Forecast Modelling Report*
- Jacobs (2017) *Countywide Local Plan Modelling Phase 3 Technical Note*
- Jacobs (2017) *Wycombe Local Plan Sites Traffic Modelling*
- Jacobs (2014) *High Wycombe Area Transport Study*
- Wycombe District Council (2017) *Local Plan Infrastructure Delivery Plan*
- Highways England (2017) *London to Scotland West Route Strategy*
- Highways England (2017) *London to Wales Route Strategy*
- Buckinghamshire County Council / Wycombe District Council (2012) *Southern Quadrant Transport Strategy*

And the following other documents which support the plan:

- Wycombe District Council (2017) *Statement of Consultation*
- Wycombe District Council (2017) *Sustainability Appraisal*
- Wycombe District Council and Buckinghamshire County Council (2017) *Duty to Co-operate Memorandum of Understanding*
- Wycombe District Council (2017) *Wycombe District Local Plan and the Duty to Cooperate draft report*

Appendix B Policy Compliance and Relevant Guidance

1. At the heart of national policy in the NPPF is a presumption in favour of sustainable development (14). For plan making this means:
 - local planning authorities should positively seek opportunities to meet the development needs of their area
 - Local Plans should meet objectively assessed needs, with sufficient flexibility to adapt to rapid change, unless:
 - any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole
 - specific policies in this Framework indicate development should be restricted (footnote 9).
2. As the District is significantly constrained by the Chilterns AONB and the Metropolitan Green Belt, opportunities to shape the spatial strategy around the transport network have necessarily been limited. However, the requirements of site policies recognise the need to maximise sustainable transport solutions (29, 32). The pattern of development proposed by the plan is focused around the larger and more sustainable settlements of the District (30). Appropriate improvements to the transport network are sought through the plan, though in some contexts it has not been possible to solve existing problems of congestion (32). The larger sites in the plan have capacity to provide for a balance and mix of land uses (37, 38) to minimise journey lengths and internalise trips.
3. The Councils have worked together to assess the transport needs of the plan, which sets out the provision of transport infrastructure required to support growth (156, 162). The Infrastructure Delivery Plan sets out how this infrastructure is funded and delivered, and on what timescale.
4. The Councils have worked proactively and on an ongoing basis to cooperate on transport matters (178) to coordinate and reflect strategic priorities (179, 180). A Memorandum of Understanding (MoU) has been agreed between the Councils (181).
5. The Councils and the Buckinghamshire Thames Valley LEP have also worked with Highways England to explore impacts on the Strategic Road Network, develop options to address issues of common interest, and where identified, develop and implement projects to improve the network.
6. The Planning Practice Guidance sets out further detail on the preparation of transport evidence for plan-making²¹. The Councils have commissioned transport modelling evidence reports to create a robust evidence base which
 - assesses baseline conditions, drawing on a range of relevant data including up-to-date traffic counts, crash records and public transport usage;
 - forecasts the impacts of growth at specific sites on the transport network over the plan period, including the cumulative impact of existing and proposed development;

²¹ Reference IDs 54-001-20141010 to 54-011-20141010

- identifies opportunities for shift to more sustainable modes;
 - Identifies appropriate transport interventions across all modes for delivery in the short, medium and long-term.
7. Transport testing has iterated over a number of phases, to identify issues, test a range of options, and confirm the effects of final growth and infrastructure scenarios.
 8. The reports highlight the infrastructure requirements which are incorporated into plan policy and the Infrastructure Delivery Plan. The evidence feeds into an overall plan approach to create sustainable development by enhancing accessibility, and improving health and well-being, among other things.
 9. Sections of the Planning Practice Guidance with particular relevance to transport assessment and interventions include, but are not limited to:
 - Climate Change: 003 (mitigating: reducing the need to travel and sustainable modes)
 - Health and Wellbeing: 002 (active travel), 005 (accessible by walking, cycling and public transport)
 - Transport evidence bases in plan making and decision taking: 001 – 012.
 10. WebTAG transport analysis guidance provides information on the role of transport modelling and appraisal which may be applied to Local Plan assessment and the development of transport interventions. The following guidance has been used:
 - TAG Overview (DfT, Jan 2014)
 - TAG: the Transport Appraisal Process: Technical Project Manager (DfT, Jan 2014)
 - TAG: Guidance for the Senior Responsible Officer (DfT. Jan 2014)
 11. More detailed technical guidance from WebTAG has been adhered to by the Council's consultants in the preparation of suitable transport models.

Appendix C – larger site policy transport requirements

Indicative plans for the larger sites are included in the main Plan document.

Capacity improvements	Traffic management interventions	Public transport	Walking and cycling
HW4 Abbey Barn North			
Main period of delivery: years 0-5			
Contributions to London Road A40 improvements			Provide footpath, cycle and bridleways through the site to connect to key points outside the site
Contributions to Abbey Barn Lane improvements			Widened footbridge over the Back Stream
			Improvements to walking, cycling and horse riding along the old railway line
HW5 Abbey Barn South and Wycombe Summit			
Main period of delivery: years 0-5			
Provide a spine road through the site, linking the Daws Hill development to Abbey barn Lane	Pedestrian/cycle crossing of Abbey Barn Lane		Provide footpath, cycle and bridleways through the site to connect to key points outside the site
Contribution to London Rd A40 improvements			Provide footway/cycle-way beside Heath End Road
Contribution to Abbey Barn Lane improvements			
Contribute to the realignment of Abbey Barn Lane and reconfiguration its junction with Abbey Barn Road and Kingsmead Road.			
HW6 Gomm Valley and Ashwells			
Main period of delivery: years 0-5			

Capacity improvements	Traffic management interventions	Public transport	Walking and cycling
Contribute to capacity improvements at the Gomm Road junction	Improved pedestrian crossing facilities	Provide for bus access through the site	Provide route for pedestrians / cyclists / horse-riders through King's Wood to connect Cock Lane with Amersham Road
Contribute towards a wider A40 package			Contribute to off-site footpath and cycle-way provision
HW7 Terriers Farm and Terriers House			
Main period of delivery: years 0-5			
Widen the carriageway of Kingshill Road	Implement traffic calming measures on roads through Widmer End to discourage rat running	Rationalise position of and improve key bus stops on Amersham Rd	Improve PRoW between the site and Amersham road
Provide improvements to junction of Amersham Road with Kingshill Road and Totteridge Lane			Provide a new footway on Kingsill Road and crossing point
			Upgrade the Lady's mile bridleway and PRoW to provide connections between Hazlemere and the town centre.
HW8 Land off Amersham Road including Tralee Farm			
Main period of delivery: years 6-10			
Provide or contribute to off-site highway improvements as required by the Highway Authority		Improve access to existing bus routes.	Provide walk/cycle access through Tralee Farm onto Wycombe Rd
HW16 Wycombe Air Park			
Main period of delivery: years 6-10			

Capacity improvements	Traffic management interventions	Public transport	Walking and cycling
Secure appropriate off-site highway works to the Clay Lane / Marlow Road junction.			
BE1 Slate Meadow			
Main period of delivery: years 0-5			
Contribute to measures along the A4094 to improve resilience	Limit vehicular access from Eastern Drive and Frank Lunnon Close		Provide cycling / walking links to the disused railway and existing estate roads round the site
	Upgrade pedestrian crossing east of Stratford Drive		Contribute to the improvement of footways leading to the site
			Provide park and walk facility on site in the context of St Paul's School
BE2 Hollands Farm			
Main period of delivery: years 6-10			
Provide a link road through the site		Provide a redirected bus service and enhanced provision through the site	Provide and enhance walking and cycling links to the village centre.
Contribute to off-site highway improvements as required by the Highway Authority			