

Aylesbury Transport Strategy

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Quality information

Document name	Ref	Prepared for	Prepared by	Date	Reviewed by	Approved by
Aylesbury Transport Strategy	60489995	Buckinghamshire County Council	MM RT CW AT	January 2017	SK	IB

Revision history

Revision	Date	Prepared by	Reviewed by
1: Internal Review	29/09/2016	MM, RT, CW, AT	SK
2: Draft Final for Client comment	07/10/2016	MM, RT, CW, AT	IB
3: Final Draft for Community Consultation	14/11/2016	RT, CW, AT	SK
4. Final	11/01/2017	RT, CW, AT	SK

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Introduction

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1. Introduction

1.1 Background and Purpose

- 1.1.1 In early 2016 Buckinghamshire County Council (BCC) commissioned a transport strategy for Aylesbury in order to support and accommodate future planned growth and the upcoming release of the Vale of Aylesbury Local Plan (VALP). This is known as the Aylesbury Transport Strategy (ATS), which will be a plan for transport in Aylesbury, setting out the improvements needed to support the planned growth of the town between 2016 - 2033. The VALP identifies Aylesbury as playing a substantial and critical role in delivering growth for the district and the rest of Buckinghamshire. The town has also been recently awarded Government backing as a Garden Town and will be a focus for:
- some 15,000 new market and affordable housing;
 - new investment in economic activity and regeneration;
 - new retail and employment development;
 - developing the ATS and prioritising investment in multi-modal transport infrastructure; and
 - other new infrastructure, including health, education and community infrastructure, open space and recreation, and emergency and public services.
- 1.1.2 The strategy is also intended to address current issues on the transport network and therefore represents the opportunity for a single coordinated approach to planning improvements and upgrades to the transport network and will form a key transport policy document for both BCC and Aylesbury Vale District Council (AVDC).
- 1.1.3 AECOM were commissioned to develop the ATS and have since reviewed the existing evidence available and upcoming growth, undertaken an analysis of the existing and future issues on the transport network, developed a number of transport improvements to be included in the strategy and held two major workshops with stakeholders to discuss their views and gain their input to this work. As a result, this document forms a summary of this work and the subsequent transport strategy.
- 1.1.4 The focus of the strategy is Aylesbury town centre and its immediate urban area, however the growth and travel patterns were considered in a much wider context, including most of the Aylesbury Vale area. The study area boundary is shown in **Figure 1.1** and follows the boundaries of relevant census output areas in order to help with collecting baseline evidence from within these areas.

Figure 1.1 – Study Area of Aylesbury Transport Strategy



- 1.1.5 At the beginning of the strategy, a Steering Group was formed to guide its development, which included representatives from both BCC and AVDC.
- 1.1.6 The strategy was undertaken in stages and a number of interim summary notes were provided by AECOM at key stages, which were reviewed and approved by the Steering Group. These included:
- Strategy Context;
 - Existing and Future Conditions;
 - Issues and Opportunities; and
 - Long List of Options.
- 1.1.7 This report forms the next stage of the strategy, the draft strategy, which is being published for community consultation. Whilst the previous stages are referred to throughout this report, the content of this report supersedes all previous work.

1.2 Report Structure

- 1.2.1 Following this introduction, the report is structured as follows:
- **Chapter 2** provides a high level summary of the current policy context to the strategy and describes the transport strategy objectives.
 - **Chapter 3** provides a summary of existing evidence about the existing and future conditions of land use and transport in the study area.
 - **Chapter 4** describes the SWOT analysis undertaken on the key elements of the transport network in order to summarise the issues and opportunities for transport in Aylesbury, particularly in the context of the strategy objectives.
 - **Chapter 5** describes what is currently known about potential development coming forward within the strategy's timeframe and its indicative timing.
 - **Chapter 6** describes the full set of transport improvements to be considered in the strategy, how they were developed and a phasing plan for their implementation.
 - **Chapter 7** considers the set of transport improvements and identifies ways to monitor the outcomes of these and therefore the success of the strategy in the form of a monitoring plan and then identifies the potential risks of these in a risk register.
 - **Chapter 8** summarises the key points of the strategy and provides an indication of the possible next steps in its implementation.

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Strategy Context

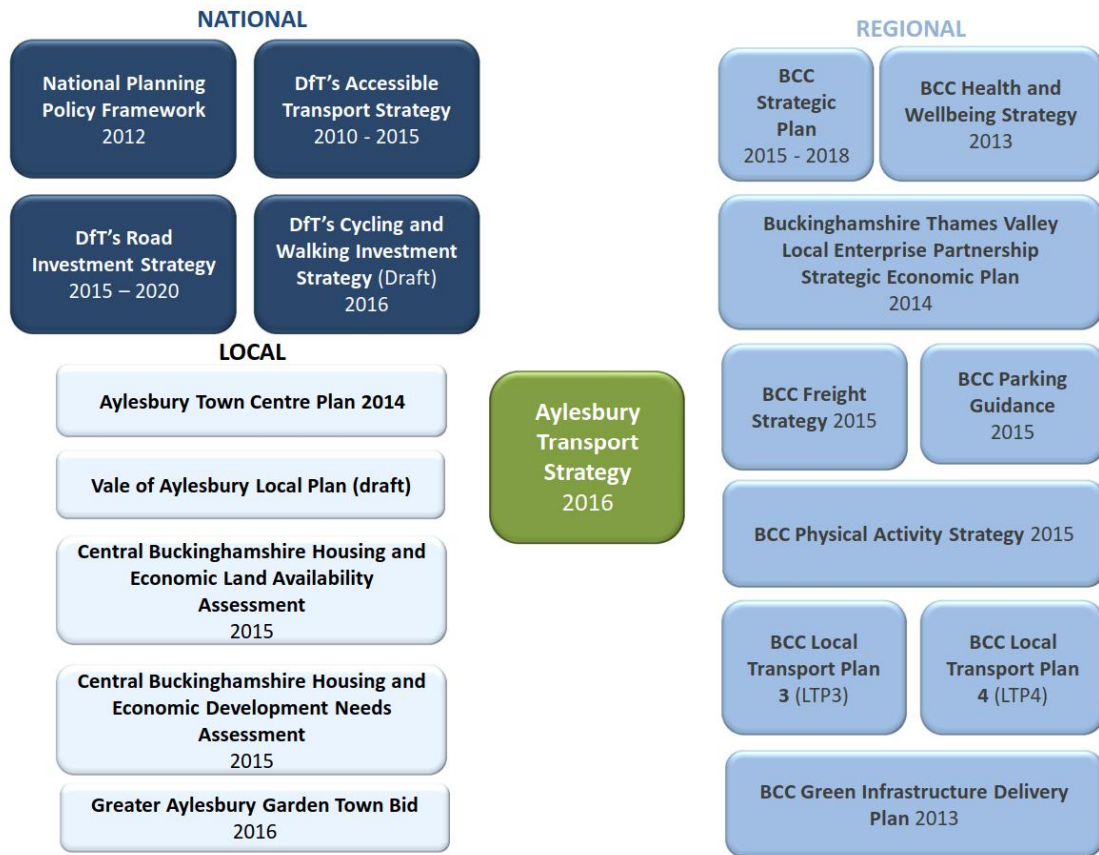
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2. Strategy Context

2.1 Wider Policy Context

- 2.1.1 A number of policies have informed the ATS, including at a local and national level. The diagram in **Figure 2.1** shows those policies considered relevant to the ATS. A full description of these and their links to the ATS is included in the summary note for Stage 1 of the ATS, Stage One – Introduction/Context, which can be found at <http://www.aylesburyvaledc.gov.uk/supporting-evidence>.
- 2.1.2 It is important that the ATS links with the aspirations of two key planning documents from AVDC, The Vale of Aylesbury Local Plan (VALP) and the Greater Aylesbury Garden Town aspirations. The VALP is currently being developed by AVDC and a draft of the plan was available for public consultation earlier this year. It is informed by the Housing and Economic Development Needs Assessment (HEDNA, 2015), which defines what level of housing should be considered in the Aylesbury Vale district; and the draft Housing Economic Land Availability Assessment (HELAA), which defines the areas that are potentially suitable for this development. The VALP draws upon the conclusions from these two key documents to set out a number of options for how and where the growth identified for the district can occur. A number of factors will inform the final selection of a growth option for the VALP, including the amount of housing required, land availability, policy aspirations, environment and landscape considerations, infrastructure and the potential impact on the communities affected. With this in mind, the needs of the transport network to be identified in the ATS will be a key input to the assessment of growth options in the VALP in terms of informing where growth is best located to make the most of the transport network. The VALP is currently being finalised and due for Pre-Submission consultation in early 2017.
- 2.1.3 Also influencing the growth and transport in Aylesbury is the Greater Aylesbury Garden Town growth strategy. Recently Government support was announced for Aylesbury to become part of the Garden Town programme. The vision for the town is set around the principles of being a flourishing garden town that offers the best of town and country living, with a focus on creating the first hub of custom build housing in the UK around the Woodlands Enterprise Zone, where growth in housing and jobs are intrinsically linked. Aspirations also include further enhancing Aylesbury's designation as a cycling demonstration town through the Garden Towns programme, and creating opportunities for the small and medium size builders and custom build developers to create an offering that meets the needs of the growing community. The objectives of the ATS also reflect the aspirations of the Aylesbury Garden Town.
- 2.1.4 Finally, the strategy needs to ensure that accessibility for all is considered a priority and included in the strategy objectives, particularly as Stoke Mandeville is the birthplace of the Paralympics and within Aylesbury there exists one of the largest hospitals in Buckinghamshire, Stoke Mandeville Hospital, which is well known both nationally and internationally for a number of specialist services. Ensuring access for all levels of mobility to this site and indeed all key destinations in Aylesbury should be a priority for the strategy.

Figure 2.1 – Context of Aylesbury Transport Strategy



2.2 Strategy Objectives

- 2.2.1 A set of objectives for the strategy were formed based on an extensive review of the overarching policy summarised above along with the existing transport issues in Aylesbury and input from the Steering Group and stakeholders attending the strategy workshops.
- 2.2.2 The intention of the objectives is to guide the development of the strategy, including the assessment of the suitability of potential transport schemes in Aylesbury up to 2033.
- 2.2.3 The final set of strategy objectives are listed and described in **Table 2.1**.

Table 2.1 – Aylesbury Transport Strategy Objectives

Objectives	Description	Supported Policies
<p>Improve transport connectivity and accessibility within Aylesbury town</p>	<p>This is focused on making it easier to access and move around Aylesbury, in order to make it more attractive to visit for work or leisure and spend time in. It supports the VALP in regenerating the town centre and accommodating future growth and also supports the need to ensure access for all levels of mobility within the town.</p> <p>Lack of permeability for active modes, particularly across the ring road, outdated waiting facilities at the bus station, and high car use in the town centre have all been identified as barriers to movement and access within the town. Also ensuring new growth areas in Aylesbury are well connected by all transport modes will be part of this objective.</p>	<ul style="list-style-type: none"> • Aylesbury Town Centre Plan • Local Transport Plan 4 Policies 1, 2, 3, 7, 11, 12, 13 and 16 • BCC Physical Activity Strategy • BTV and SEM LEP Strategic Economic Plans • Buckinghamshire Green Infrastructure Delivery Plan
<p>Improve accessibility to other urban centres and new growth areas outside Aylesbury town</p>	<p>This is focused on improving existing transport links and providing more mode options to connect to surrounding urban centres and also ensuring this is provided to new areas of growth outside Aylesbury. This would improve access to jobs for the local population both within Aylesbury and to other urban centres and enable growth. Barriers identified include a lack of express bus services to other towns and poor north-south and east-west connections. This will support growth in Aylesbury and access to a wider area of jobs. A park and ride service would also help to provide alternative transport access to the town centre.</p>	<ul style="list-style-type: none"> • Local Transport Plan 4 Policies 1, 2, 3, 6, 7, 11, 13 and 16 • Vale of Aylesbury Local Plan • BTV and SEM LEP Strategic Economic Plans • BCC Health and Wellbeing Strategy • Buckinghamshire Freight Strategy
<p>Contribute to improved air quality by minimising the growth in traffic levels and congestion</p>	<p>Congestion levels on roads entering Aylesbury and in peak periods in some parts of the town centre have been raised as an issue with current levels of demand. There are also three existing air quality management areas within Aylesbury. Therefore an important consideration of the ATS will be to ensure that the future growth of Aylesbury does not make this issue noticeably worse and that transport infrastructure for new development is designed to encourage public transport and walking/cycling travel over private vehicle trips. Transport improvements may include initiatives that promote low carbon vehicles, improve efficiency of freight movements, reduce the need to travel and park and ride opportunities.</p>	<ul style="list-style-type: none"> • Vale of Aylesbury Local Plan • Local Transport Plan 4 Policies 1, 2, 3, 9, 10, 12, 13, 14, 15, 16 and 19 • Aylesbury Town Centre Plan • BTV and SEM LEP Strategic Economic Plans • Buckinghamshire Parking Guidance • Buckinghamshire Freight Strategy • BCC Health and Wellbeing Strategy • BCC Physical Activity Strategy

Improve journey time reliability

In order to achieve generally consistent journey times and therefore reliability on the local road and transport network, the strategy should consider ways to manage demand and improve the network capacity to meet the demands of growth. Providing a reliable journey time on the network will attract more investment in the town and therefore support economic growth. All users should be considered in this objective and transport improvements should reflect a holistic strategy that considers priority for different users on the various road corridors, such as providing more priority for buses on existing inner roads, when new outer road links have been built for private car and freight traffic.

- Local Transport Plan 4 Policies 1, 2, 3, 7, 9, 12, 13 and 16
- BTV and SEM LEP Strategic Economic Plans
- Buckinghamshire Freight Strategy

Reduce the risk of death or injury on the transport network

Address current safety issues on the road and transport network identified through evidence of speeding or collision history and ensure that any transport improvement considered for the strategy does not increase risk to safety. Also taking into account the aging demographic in the area and in new growth areas.

- Local Transport Plan 4 Policies 8 and 17
- BTV and SEM LEP Strategic Economic Plans
- BCC Health and Wellbeing Strategy
- BCC Physical Activity Strategy

Make it easier and more attractive to travel by active and public transport modes

Supporting and working with the other objectives of the strategy, this is focussed on reducing car use and encouraging the uptake of active and public transport modes for more trips. This will include improvements to infrastructure to provide a well-connected, easy to use and safe public transport and walking/cycling network that is also equally accessible to those of limited mobility, improvements to public transport coverage and service levels, access to up to date online information through initiatives such as the One Transport project and programmes to encourage non-car use for short to medium distance trips.

- Local Transport Plan 4 Policies 1, 2, 3, 4, 5, 10, 11, 12, 13 and 16
- BCC Health and Wellbeing Strategy
- BCC Physical Activity Strategy
- Buckinghamshire Green Infrastructure Delivery Plan

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Existing and Future Conditions on the Transport Network

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3. Existing and Future Conditions on the Transport Network

3.1 Local Context

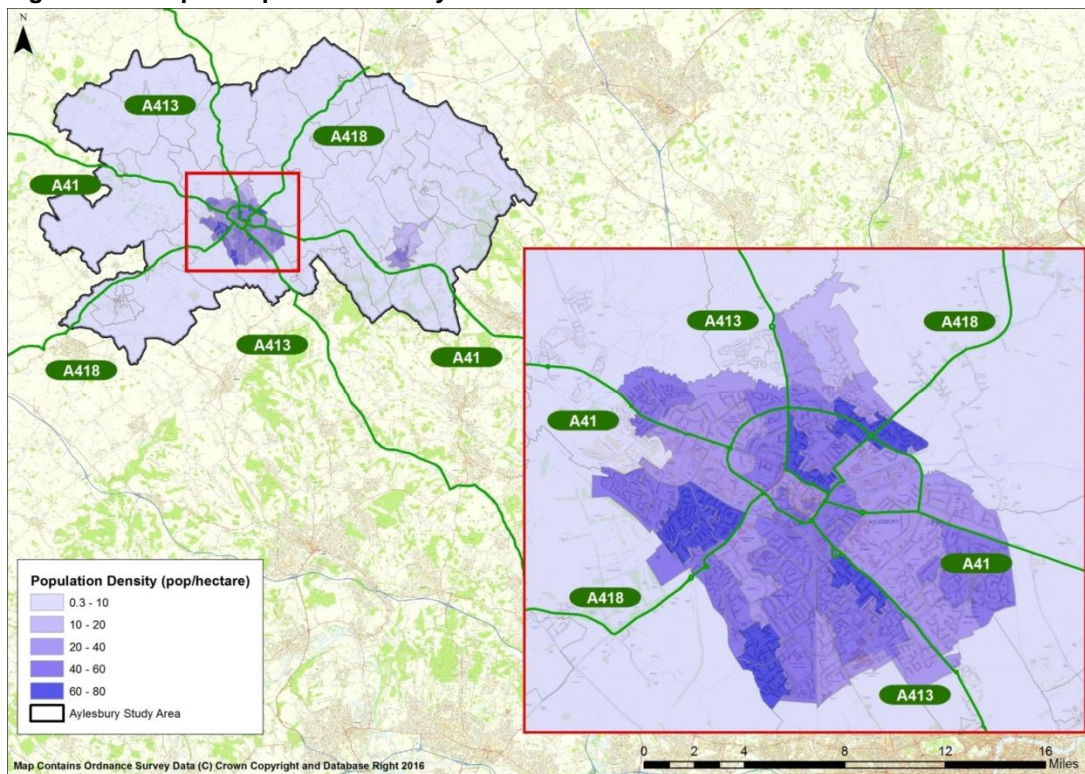
3.1.1 In order to understand key local characteristics in Aylesbury impacting transport and travel behaviour, a review of current statistics on population distribution, employment, journey to work trip patterns, car ownership and indices of multiple deprivation was undertaken for the study area shown in **Figure 1.1**. This included a comparison to the neighbouring district areas of Buckinghamshire to understand how the area compares to the surrounding region.

Population and Age Distribution

3.1.2 Within the study area there is a population of approximately 128,900 inhabitants in 2011 (typical resident population), which has grown 6% since 2001, based on Census information.

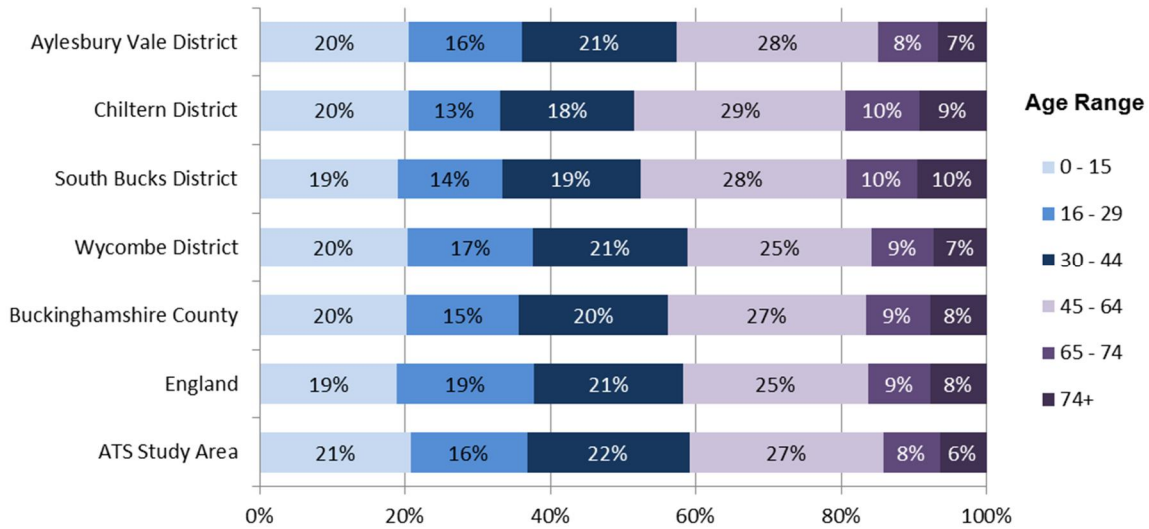
3.1.3 Although much lower than the national average, the study area's population growth and density is similar to the total growth in Buckinghamshire County area. Compared to the wider Aylesbury Vale District both the growth and density are higher for the study area, which may be because the study area comprises the most densified areas of the district. See **Figure 3.1** for a map of the population density in the study area. Additionally, based on information supplied from AVDC, housing delivery across the district over the last five years has been higher than most other areas outside the major metropolitan areas. The local plan promotes a much higher level of growth for the period to 2033.

Figure 3.1 – Map of Population Density



3.1.4 People aged 65 and over represent 14% of the total population in the study area, a slightly lower proportion than other Buckinghamshire District Areas (15% to 19%) or even in England. In general, children and young people (aged less than 15 years old) are approximately 21% of the total population in the study area which is slightly higher than in other areas. In fact, the whole population of the study area tend to comprise younger people when compared to the other district areas. See **Figure 3.2** for the population distribution by age across the study area compared to the entire county and the country.

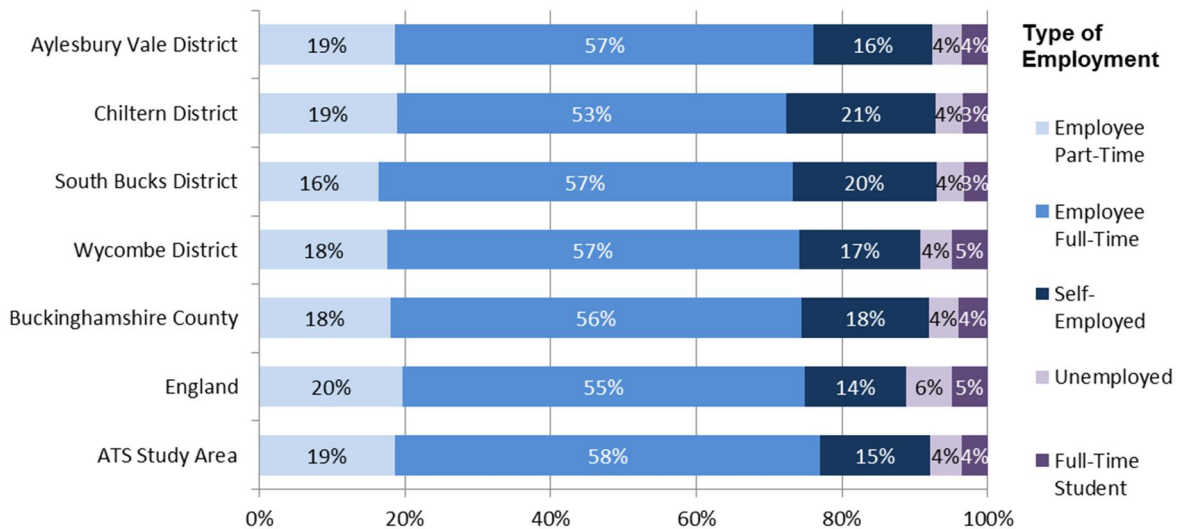
Figure 3.2 – Population Distribution by Age Range¹



Levels and Spread of Employment

3.1.5 According to the Census data for the study area, over half of the economically active population are employed full-time (58%), which is a higher proportion than in other districts of Buckinghamshire or England. On the other hand, self-employed people are relatively less than in other districts (15%). Part-time employed, unemployed and full-time students are similar to Aylesbury Vale District and the whole Buckinghamshire County. **Figure 3.3** shows this employment distribution for the study area compared to the remainder of the County and also England.

Figure 3.3 – Employment Type Distribution²

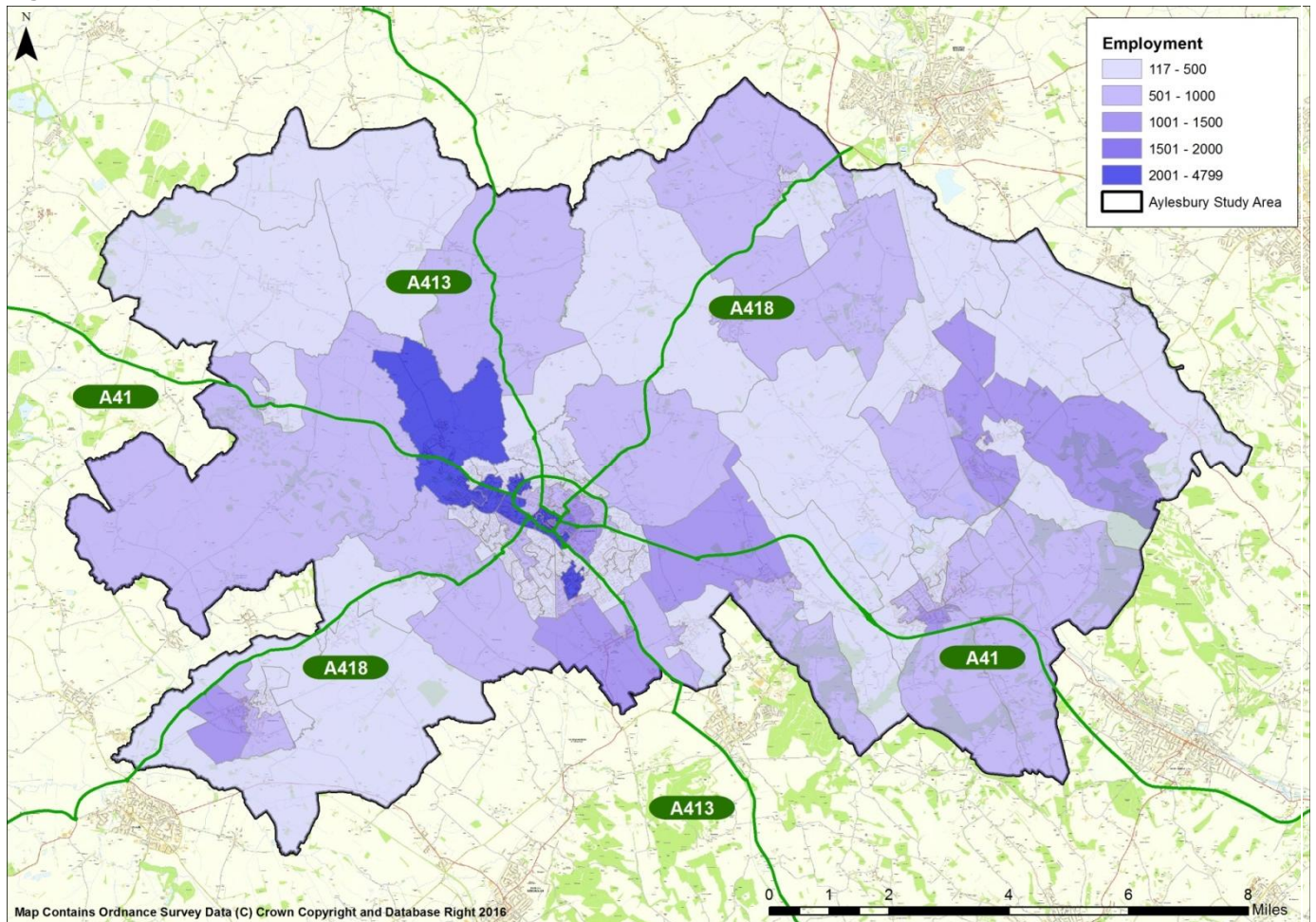


¹ Census 2011 (Table KS 102EW)

² Census 2011 (Table KS 601EW)

- 3.1.6 According to the NOMIS data, in 2013 there were approximately 62,000 jobs in the ATS study area, which means that there is 0.80 jobs to each resident aged 16 to 64. This job density is in line with the whole Aylesbury Vale district but relatively lower than for the whole Buckinghamshire County and national average, showing that the area is slightly more residentially focused.
- 3.1.7 Moreover, there is a tendency for employment to be concentrated in the town centre and along the A41 to the north western areas. AVDC have advised that some of this may be attributed to construction jobs associated with Berryfields, which will reduce over the time as the development is completed. Also, the large concentration of jobs to the south of Aylesbury is most likely associated with Stoke Mandeville Hospital or construction jobs associated with new housing. There is also a key employment centre at the Arla dairy near the A41 in eastern Aylesbury. This distribution is expected to change as the new development around the town comes forward, which includes new areas of employment. The current distribution is shown in **Figure 3.4**.

Figure 3.4 – Spatial Distribution of Jobs³



Car Ownership

- 3.1.8 On average, there are 1.5 vehicles (cars or vans) in each household of the study area according to Census data. This does not vary significantly when compared to the neighbouring district areas but is significantly higher than the national average of 1.2 vehicles per household. See **Table 3.1** for the car ownership across the study area when compared to Buckinghamshire and the country. The spatial distribution of car ownership across the study area shows that households with no alternative forms of transport, often outside urban areas, have higher car ownership levels, whereas households in the centre of Aylesbury have much lower car ownership levels.

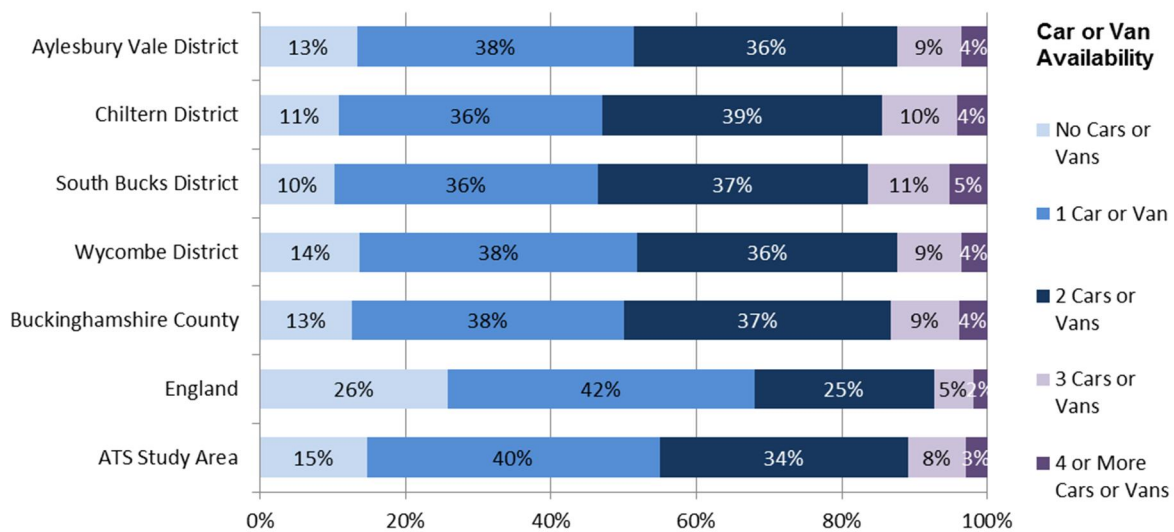
³ Nomis (Jobs 2013)

Table 3.1 – Car Ownership⁴

Area	Households					Households	Average Number of Cars or Vans by Household
	No Cars or Vans	1 Car or Van	2 Cars or Vans	3 Cars or Vans	4 or More Cars or Vans		
Aylesbury Vale District	9,244	26,465	25,100	6,139	2,458	69,406	1.5
Chiltern District	4,018	13,357	14,226	3,804	1,541	36,946	1.6
South Bucks District	2,711	9,591	9,845	2,966	1,401	26,514	1.7
Wycombe District	9,288	25,887	24,248	5,973	2,465	67,861	1.5
Buckinghamshire County	25,261	75,300	73,419	18,882	7,865	200,727	1.6
England	5,691,251	9,301,776	5,441,593	1,203,865	424,883	22,063,368	1.2
ATS Study Area	7,638	20,871	17,754	4,088	1,566	51,917	1.5

3.1.9 Within the study area, 15% of the households do not have any car or van available and 40% have a single car available, proportions that are higher than in other district areas as shown in **Figure 3.5**. On the other hand, the proportion of households that have two or more cars or vans available is lower in comparison.

Figure 3.5 – Car or Van Availability⁵



3.1.10 One possible cause for this lower proportion of vehicles per household to other neighbouring district areas may be related to the study area comprising the town centre of Aylesbury which is well served by the public transport network when compare to some other areas of the county.

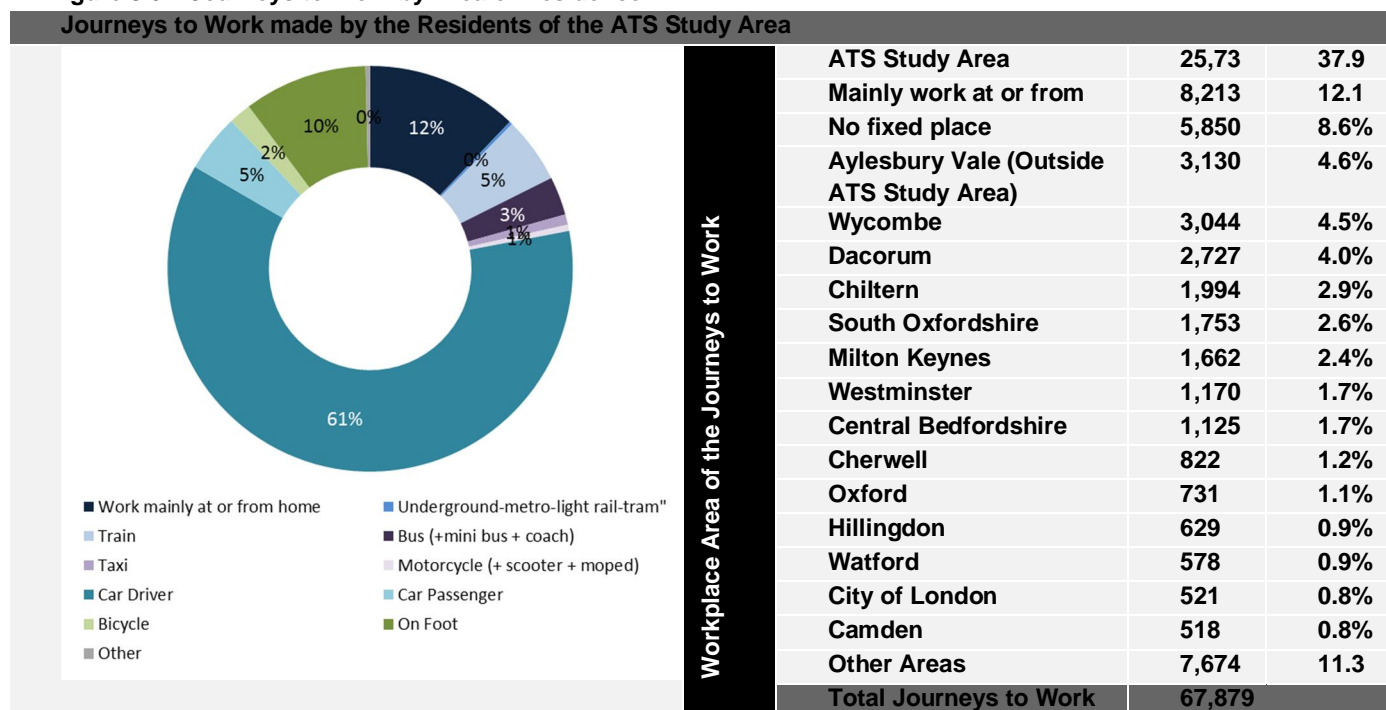
⁴ Census 2011 (Table KS404 EW)

⁵ Census 2011

Journey to Work Trip Patterns

- 3.1.11 According to the Census data, approximately 67,900 daily journeys are made to work by the residents in the study area, and 42,700 daily journeys are made to the study area for work purposes; 25,700 of these journeys are made within the study area (residents in the study area whose place of work is in the study area).
- 3.1.12 Residents in the study area mostly travel by car (61% as a driver and 5% as a car passenger) but journeys on foot (10%) and by train (5%) are relatively high as well, as shown in **Figure 3.6**.

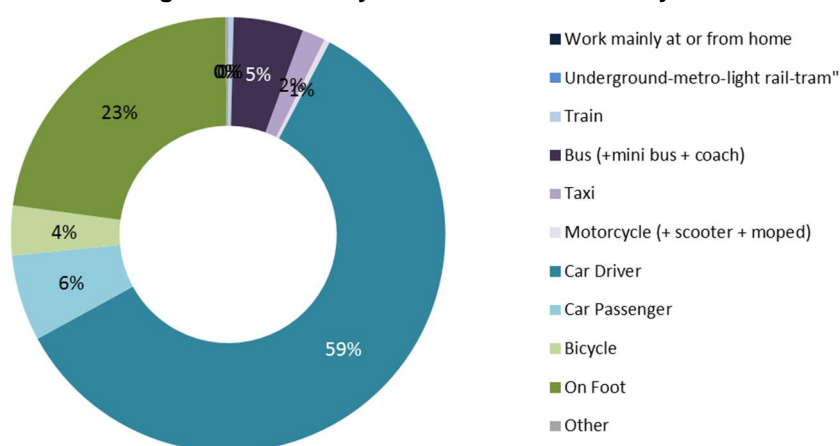
Figure 3.6 – Journeys to Work by Area of Residence⁶



- 3.1.13 Approximately 38% of the residents in the study area work in the area but there is a significant proportion of residents that mainly work from home (12%, compared to 10% in England) or do not have a fixed place of work (9%). Other main areas that are destinations for work are within the neighbouring districts, such as other destinations within the Aylesbury Vale District area, other districts of Buckinghamshire, South Oxfordshire and Milton Keynes. Journeys to central London (Westminster, City of London, Camden, Islington, Brent, and Tower Hamlets) represent 4% of the journeys.
- 3.1.14 Considering people who work in the study area, most of them travel by car (70% as a driver and 6% as a car passenger). However, a considerable proportion of the journeys are made by foot (15%) and by bus (4%) as people who work in the area tend to live nearby.
- 3.1.15 For journeys to work within the study area shown in **Figure 3.7**, although distances are significantly shorter, the main mode of journeys continues to be by car (59% as a driver and 6% as a car passenger). Nevertheless, approximately 23% of the journeys to work are made on foot, 5% are made by bus and 4% are made by bicycle.

⁶ Census 2011

Figure 3.7 – Journeys to Work within the Study Area⁷



3.1.16 Approximately 25% of the journeys end in Aylesbury town centre, 12% to the north west of the town centre and 9% to the hospital.

Index of Multiple Deprivation (IMD)

3.1.17 The Index of Multiple Deprivation (IMD) is the official index measure of relative deprivation across small areas or neighbourhoods in England, available from the UK Government. The latest results used for this study are from 2015, shown in **Table 3.2**. Buckinghamshire districts' rank scores for IMD are high, showing that this is a relatively wealthy area when compared to other districts in England. However, compared to the other districts of Buckinghamshire, Aylesbury Vale presents the lowest IMD rank.

Table 3.2 – Indices of Multiple Deprivation⁸

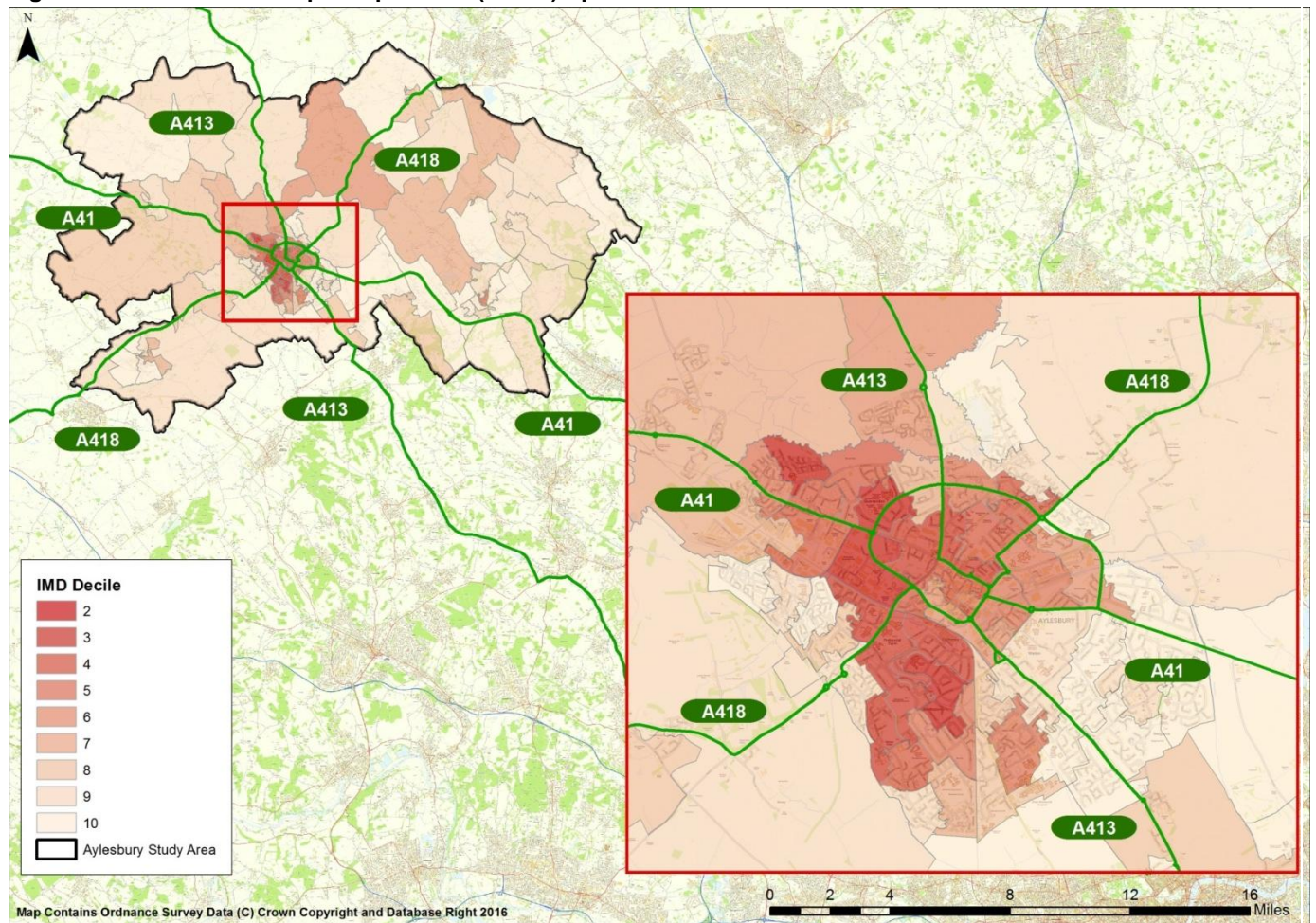
	IMD score (LA District)	IMD rank (LA District)
Aylesbury Vale District	11.175	277
Chiltern District	6.719	324
South Bucks District	9.328	303
Wycombe District	10.106	293
Buckinghamshire County	9.642	-
ATS Study Area	11.175	-

3.1.18 In Aylesbury, lower deciles are concentrated in the town centre closer to its eastern area; while Aylesbury's western area and those areas more central have, in general, deciles higher than 5, i.e. within the top 50% least deprived areas of England. It seems there is no trend between low IMD deciles and average population density. However, in terms of employment, the lower IMD deciles are generally near to where most jobs are located. **Figure 3.8** shows the spatial distribution of these across the study area.

⁷ Census 2011

⁸ Department for Communities and Local Government (English Indices of Deprivation)

Figure 3.8 – Indices of Multiple Deprivation (Decile) Spatial Distribution⁹



Air Quality

- 3.1.19 Three Air Quality Management Areas (AQMA) were identified within the ATS study area in zones where traffic flows are high or heavily used by HGV's and the main pollutant concern is Nitrogen Dioxide (NO₂). **Figure 3.9** shows the location of these.

⁹ Nomis (Jobs 2013)

Figure 3.9 – Map showing location of AQMAs in Aylesbury



3.1.20 Five priority measures have been developed in the *Aylesbury Air Quality Plan 2010* in order to control the air quality in these areas. These priorities are generic and are applied to the whole town area:

- awareness, promotion and behavioural change;
- land use planning and sustainable travel;
- transport planning to improve traffic flow;
- provision of sustainable transport infrastructure; and
- understanding the impact of future town growth and the potential effectiveness of mitigation measures.

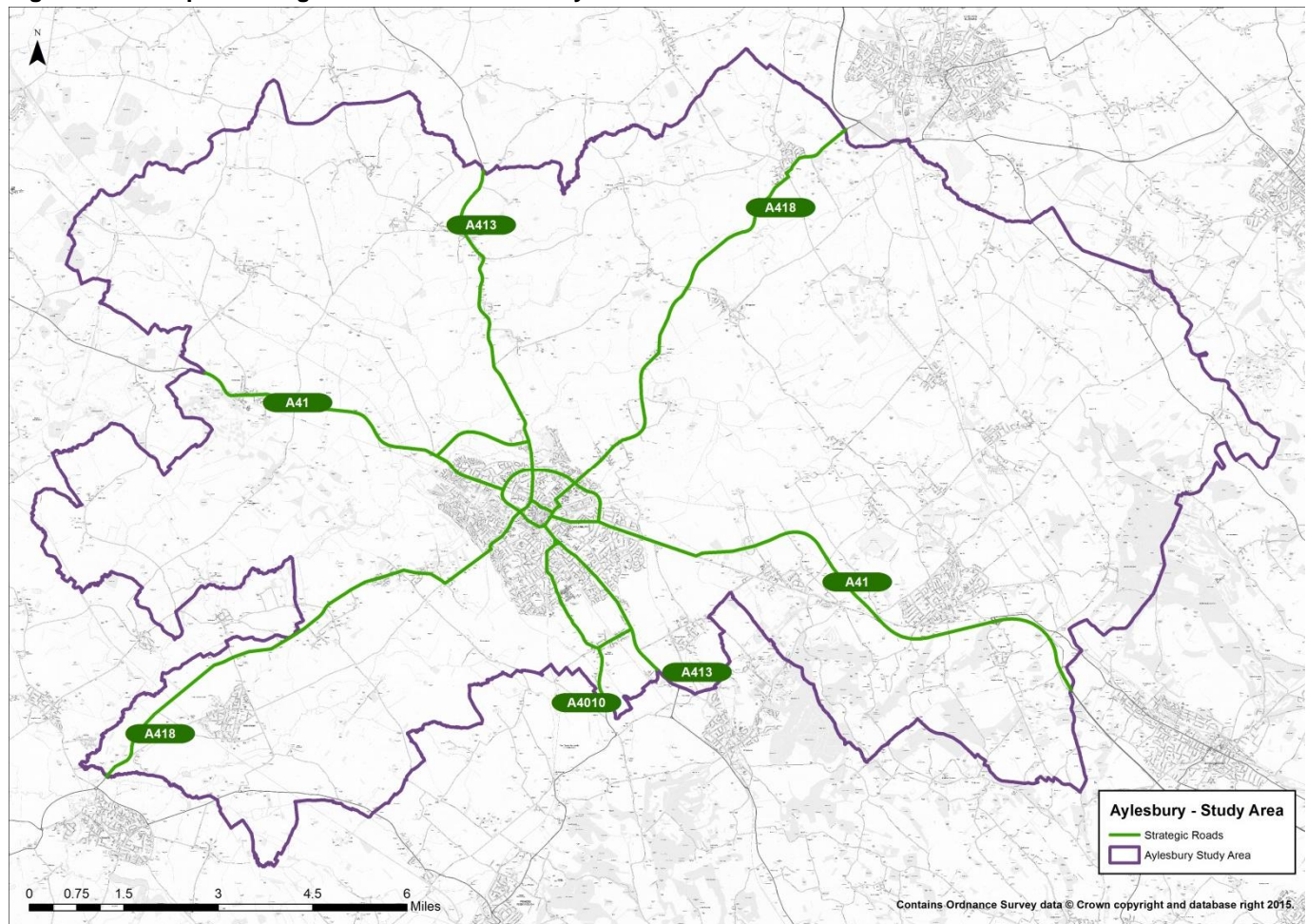
3.1.21 The priorities above have a good fit with the ATS objectives, and indeed there is a specific strategy objective focused on improving air quality 'Contribute to improved air quality by minimising the growth in traffic levels and congestion'.

3.2 Highway Network

Existing Highway Network

3.2.1 The key strategic A roads connecting Aylesbury to smaller towns in the area and other larger urban centres beyond are shown in **Figure 3.10**.

Figure 3.10 – Map of strategic roads in the ATS Study Area



3.2.2 The land use maps suggest that Aylesbury is fairly isolated from other large urban centres and surrounded mainly by rural areas and small villages. As a result, most major roads running into Aylesbury are wide and free flowing with not many junctions, most of which operate as Give-Way junctions, rather than dedicated signalised junctions. Vehicle speed limits on these roads tend to be quite high since typically they are wide with good visibility which is likely to induce higher speeds particularly in off-peak periods.

Traffic Volumes

- 3.2.3 Traffic flows for all vehicles during the morning and evening peak hours were extracted from the Buckinghamshire Countywide VISUM transport model, 2013 baseline year.
- 3.2.4 High flows are seen on the A418, A41 and the A413 as these roads enter the urban area, the A41 has highest flows of all in both the AM and PM Peaks. As expected, the greatest flows are found in the town centre where the strategic roads meet.
- 3.2.5 In Aylesbury, the highest total flows are found on Walton Street and Stoke Road, which reach AM peak traffic flows of approximately 2200 vehicles and PM Flows of 2000 vehicles. On the A418 north of the town centre similarly high flows of approximately 1400 and 1800 vehicles are experienced in the AM and PM peaks respectively.

Figure 3.11 – Map showing AM Peak Traffic flows in Aylesbury

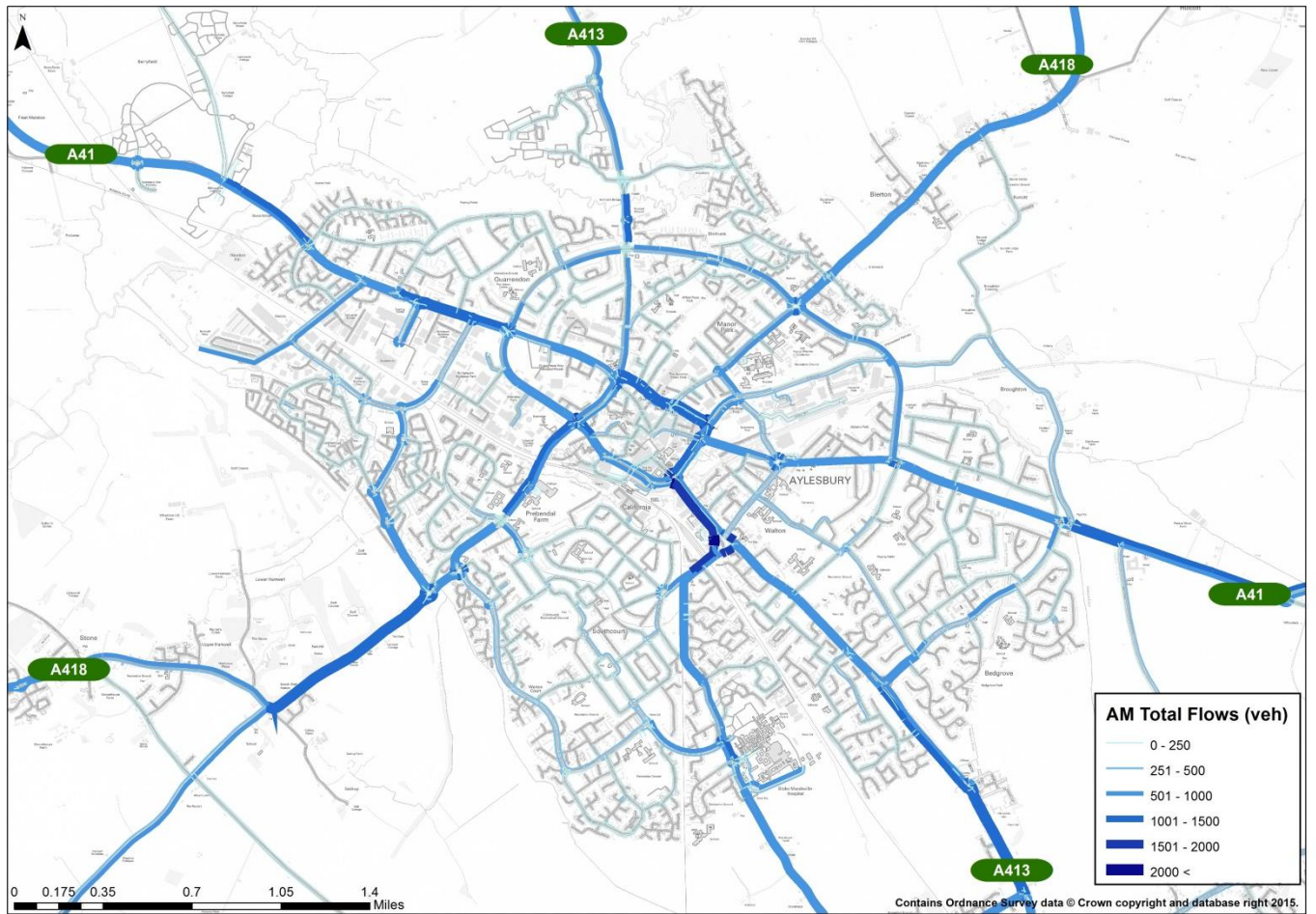
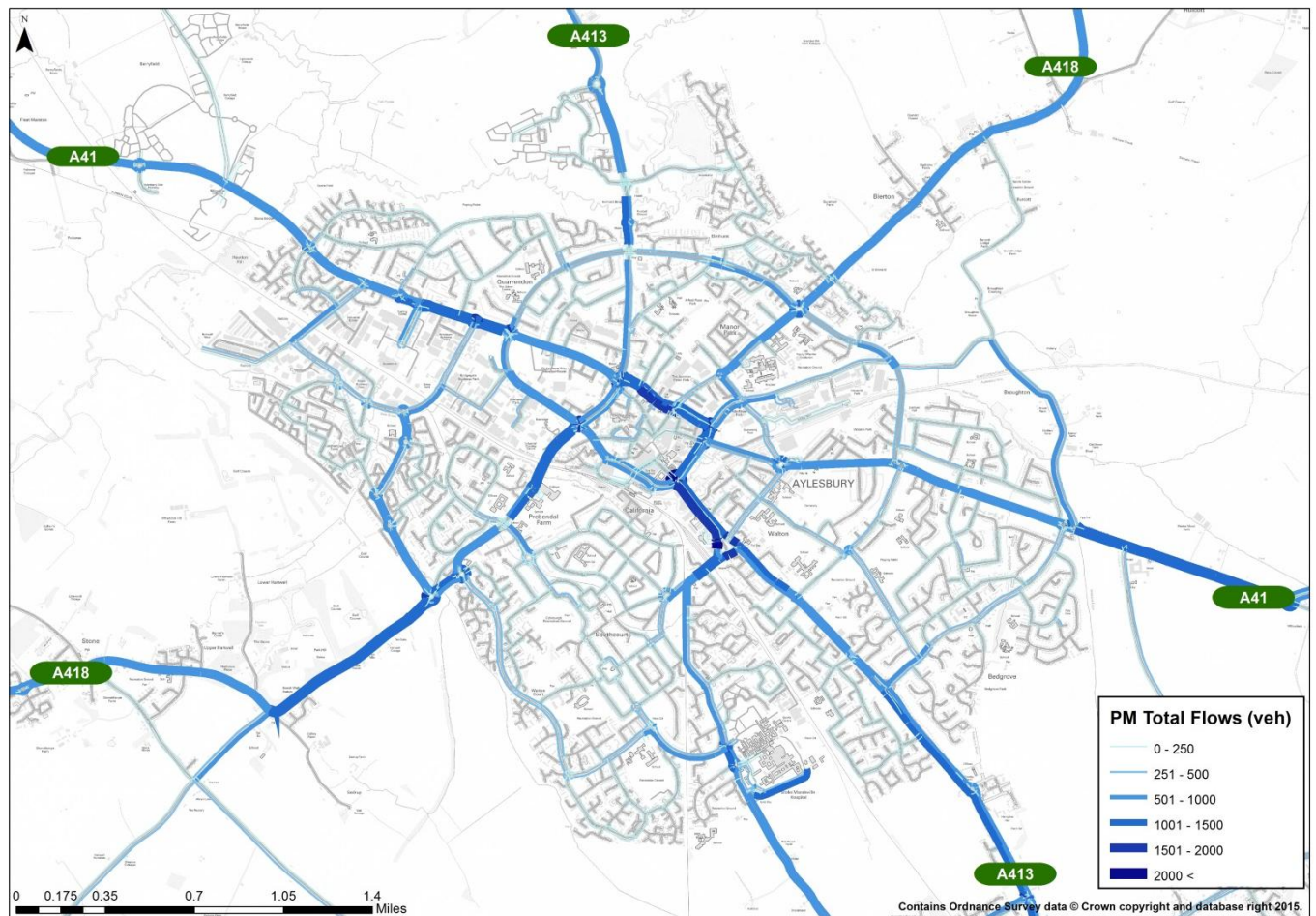


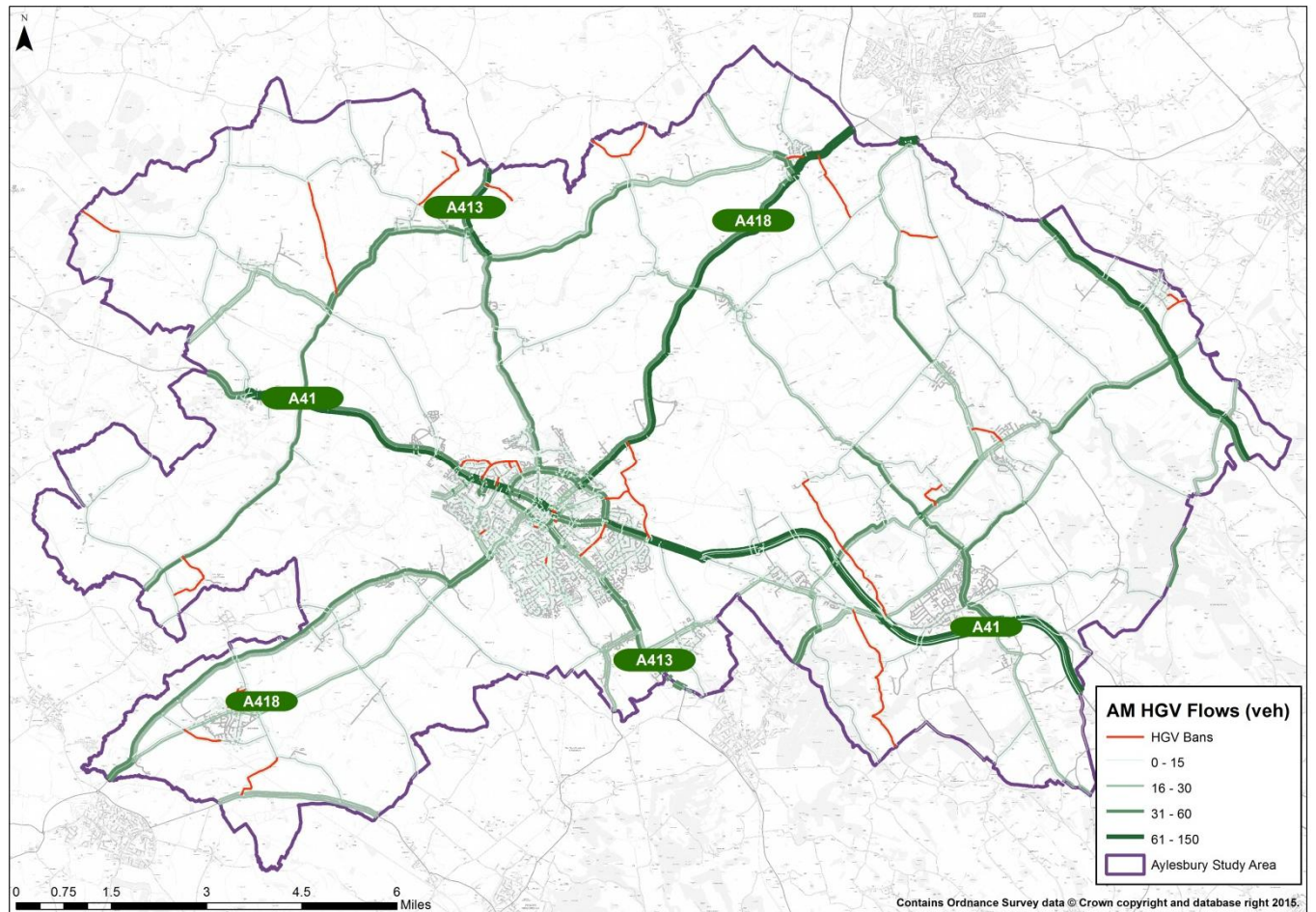
Figure 3.12 – Map showing PM Traffic flows in Aylesbury



HGV Volumes

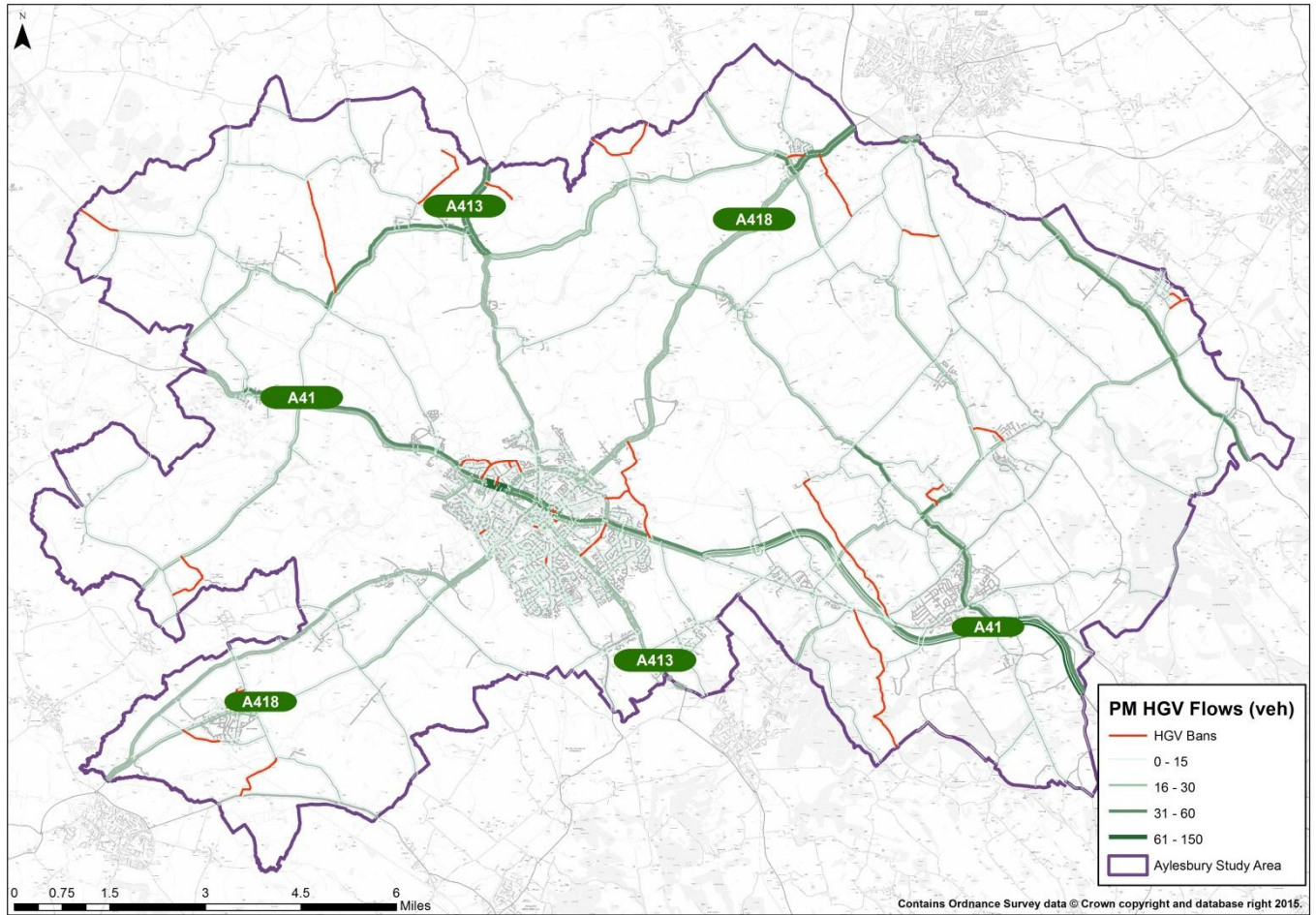
- 3.2.6 HGV movements were analysed more specifically within the ATS study area. HGV movements are restricted by width, weight and outright bans on some roads on the Aylesbury network and mainly routed onto the strategic roads.
- 3.2.7 During the AM peak HGV volumes are highest along the A41 in both directions and northern part of the A418 in both directions. Areas outside Aylesbury with high HGV flows include the A4146 in the north eastern part of the study area, the A418 in and out of Leighton Buzzard, and the A413 through Whitchurch.

Figure 3.13 – Map showing AM Peak HGV flows



- 3.2.8 In town, there are some significant flows on the A41, Bicester Road, most likely the result of morning deliveries to the industrial and retail parks in the town.
- 3.2.9 The HGV flows in the PM peak are much lower, with usage dispersed more evenly across the road network. Once again most HGVs are concentrated on the A41.

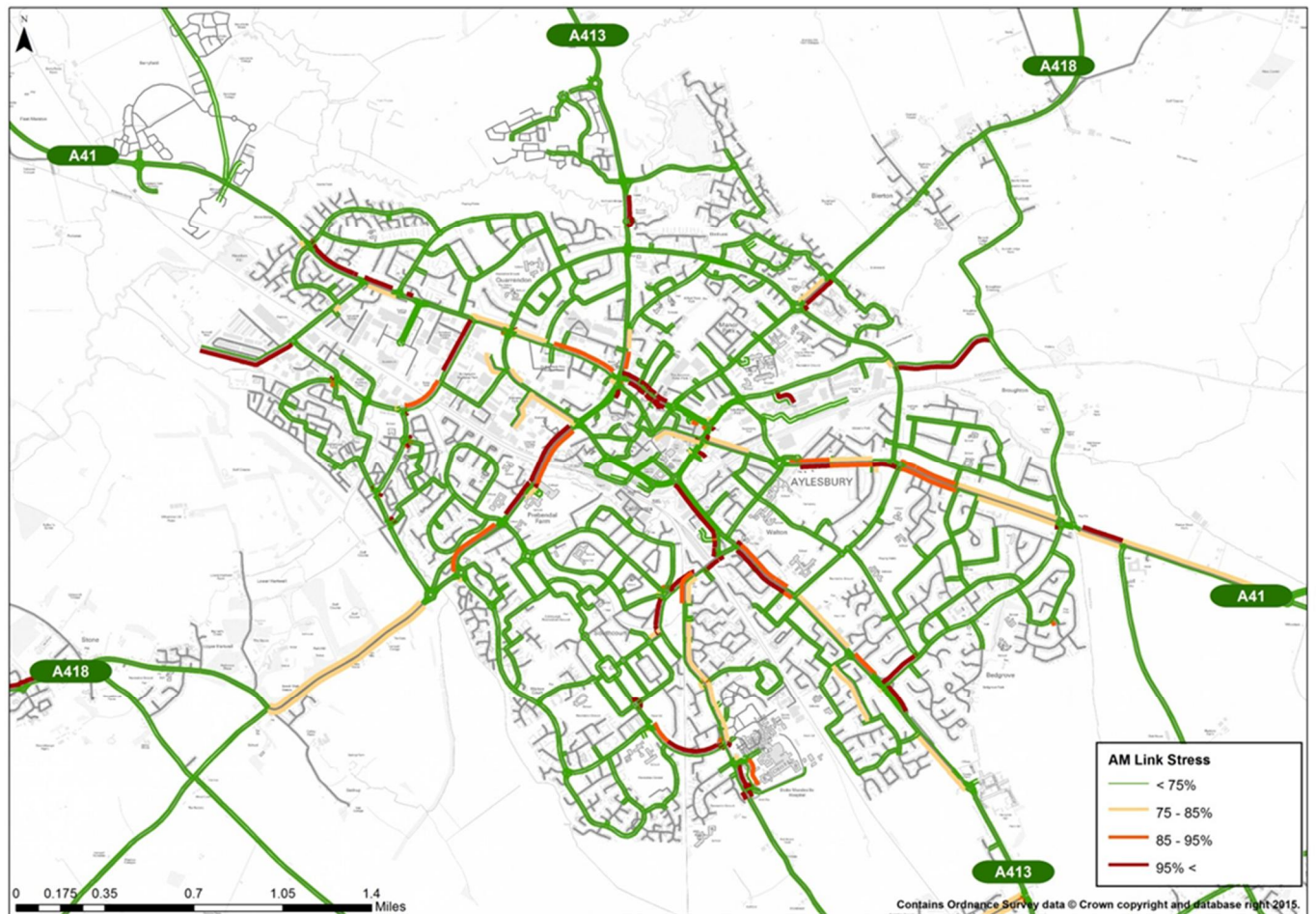
Figure 3.14 – Map showing PM Peak HGV Flows



Network Performance

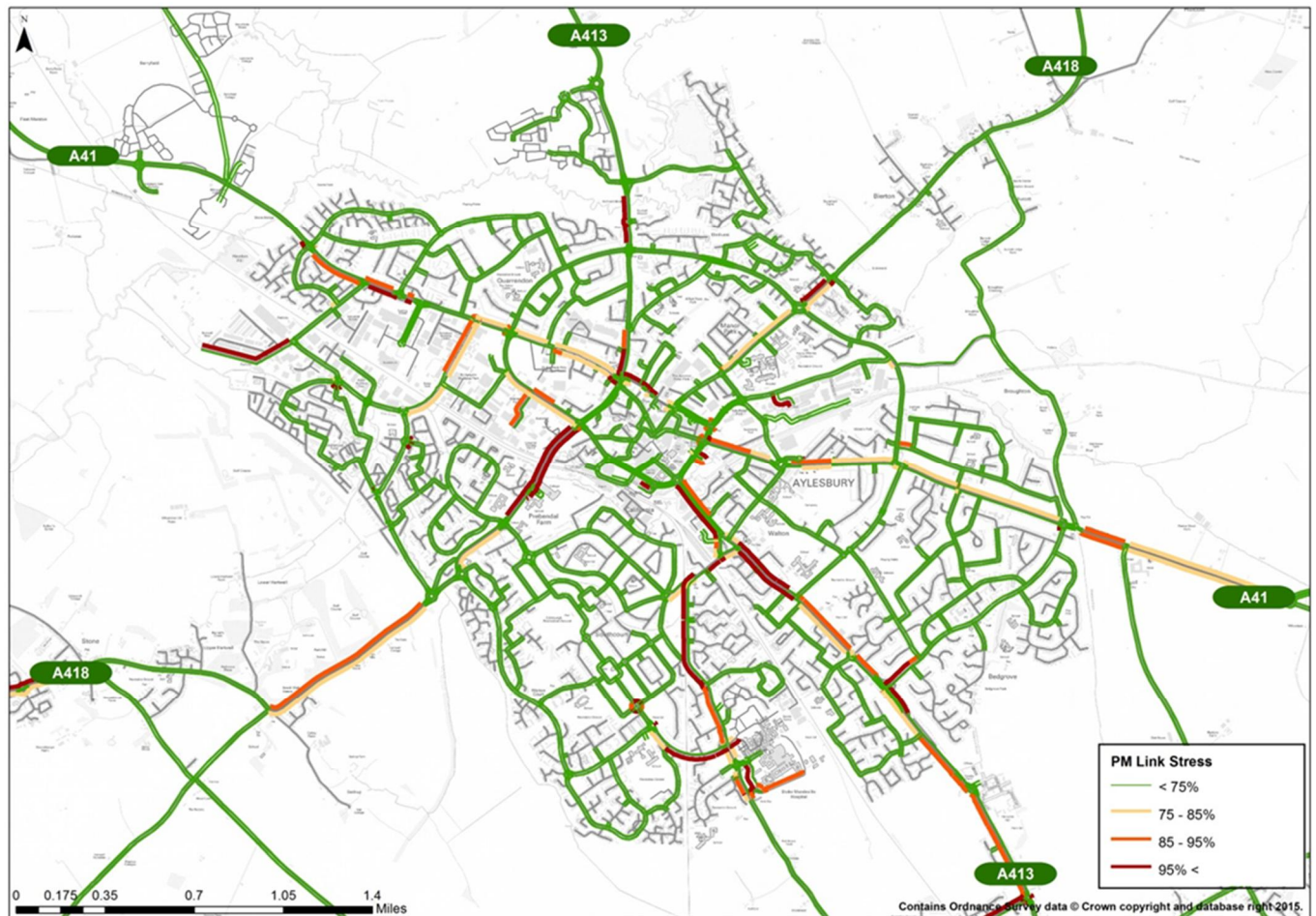
- 3.2.10 Link stress (volume over capacity ratio) across the network were analysed using the Buckinghamshire Countywide VISUM transport model and depicted in a green to red colour scale. In general, links depicted in green are operating within capacity whereas links depicted in red are operating at / overcapacity and potential delays and queuing are expected on the link.

Figure 3.15 – Map showing Link Stress in the AM Peak in Aylesbury



3.2.11 **Figure 3.15** shows that most of the roads in Aylesbury that are approaching capacity in the AM peak are A roads. These include the A418 entering the town centre from the south, and Wendover Road and Walton Street approaching junctions into town. Areas to the north of the town centre approaching the triple roundabout that makes up the A418/ Bicester Road/ A413 junctions are approaching capacity. Numerous sections on the A41 are almost at capacity in the AM peak.

Figure 3.16 – Map showing Link Stress in the PM Peak in Aylesbury

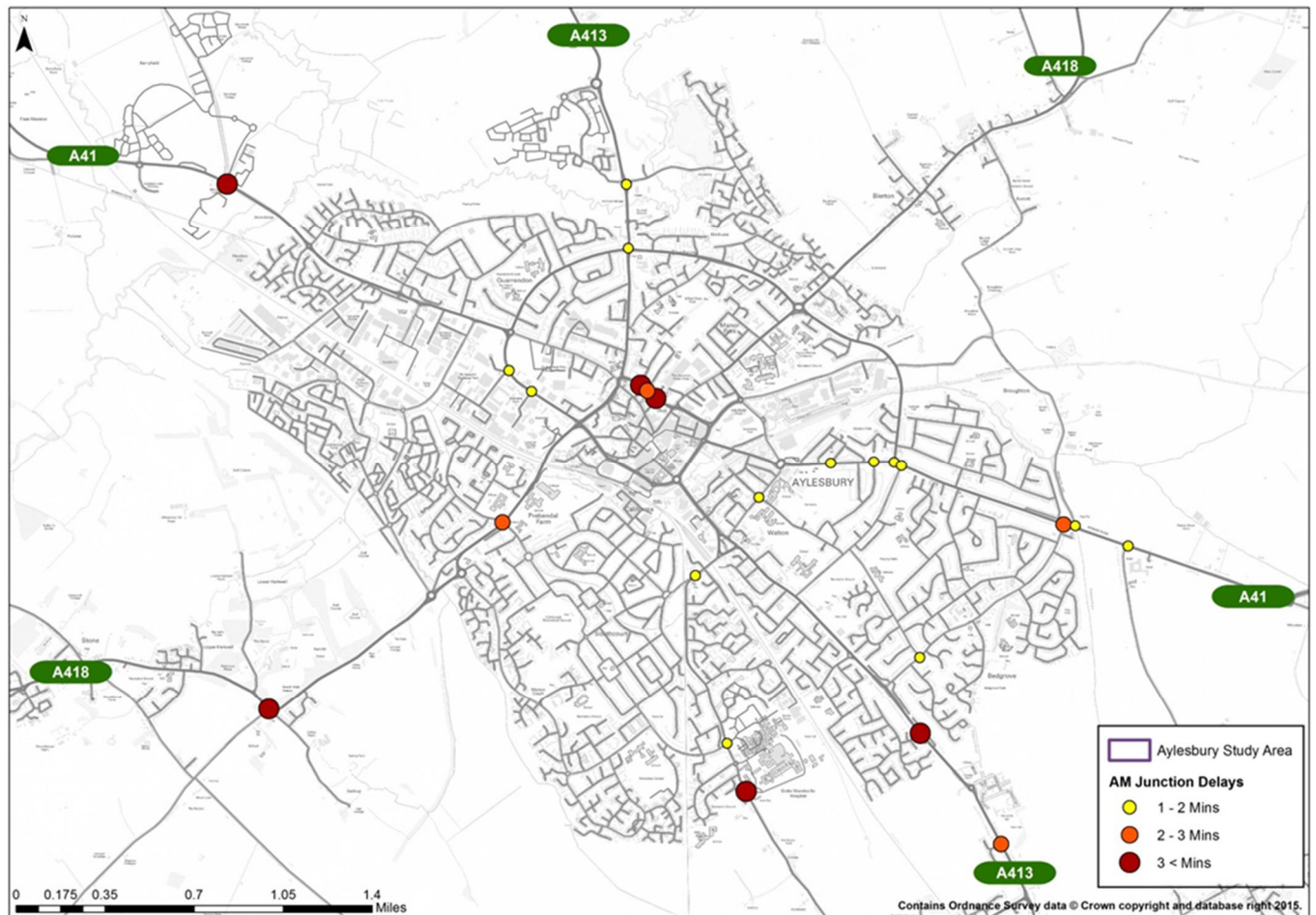


- 3.2.12 Similarly, in the PM peak most congestion is on the A roads. The A418 to the south west of the town centre is approaching capacity in both directions. Similarly the A413 approaches capacity in the PM peak in both directions. Once again all links to the north of the town centre approaching the triple roundabout (Royal Bucks Hospital roundabout) that makes up the A418/ Bicester Road/ A413 junctions are approaching capacity.
- 3.2.13 In both peaks, the A418, Bicester road and A413 are approaching capacity in the town centre. The complexity and lack of capacity within the triple roundabout junction where they meet, combined with the pedestrian crossing between two of the roundabouts is likely to contribute to this.

Junction Performance

- 3.2.14 Again, based on the base year (2013) of the Buckinghamshire Countywide VISUM transport model, the junction delays were considered. The AM peak junction delays are shown in **Figure 3.17**. Only the locations of the junctions where delays are occurring are highlighted.
- 3.2.15 Delays of over three minutes are experienced outside Stoke Mandeville Hospital in the AM peak period. This is most likely due to the through traffic at this intersection, and could possibly be compounded by staff accessing the hospital, especially if the AM peak coincides with shift change times, or opening times for outpatient services. Slightly less delays are seen at the Fowler Road/ A418 junction, and are again most likely due to through traffic and also possibly caused by staff accessing Aylesbury College, whilst the road also serves as an exit from the Prebendal Farm residential area.
- 3.2.16 Within the town, the greatest delays are on the A418 to the north of the town centre, most likely caused by through traffic and commuters accessing carparks in the city centre, along Cambridge Place for Sainsbury's and the Telephone Exchange car park and also associated with the delays mentioned earlier at the triple roundabout.

Figure 3.17 – AM Peak Junction Delays in Aylesbury



- 3.2.17 In the PM Peak, **Figure 3.18** shows that there are two junctions along the A418 in Aylesbury town centre that have delays over three minutes, most likely due to vehicle movements in and out of the nearby car parks and again associated with the triple roundabout.
- 3.2.18 In addition, the junction of Portway Road/ A418 Oxford Road also experiences high delays. This is a give way junction where Portway Road gives way to the A418. Given the strategic nature of the A418, flows along this route are heavy resulting in few opportunities for traffic to turn right out of Portway Road towards Aylesbury.
- 3.2.19 There are also a number of smaller delays of one to two minutes at some junctions along strategic routes; specifically the A41 west of the town centre, Walton Street and Wendover Road, and the A413. Similar to the AM Peak, delays along the A418 within the north of the town centre are likely to be caused by commuters exiting car parks along the route and the triple roundabout.
- 3.2.20 Delays also appeared at junctions providing access to residential areas such as Berryfields in the north-west along the A41 and Stoke Grange to the south on the A413.

Figure 3.18 – PM Peak Junction Delays in Aylesbury



3.2.21 In summary, the map in **Figure 3.19** draws together the key links and junctions that are currently experiencing congestion in the base year Countywide VISUM model.

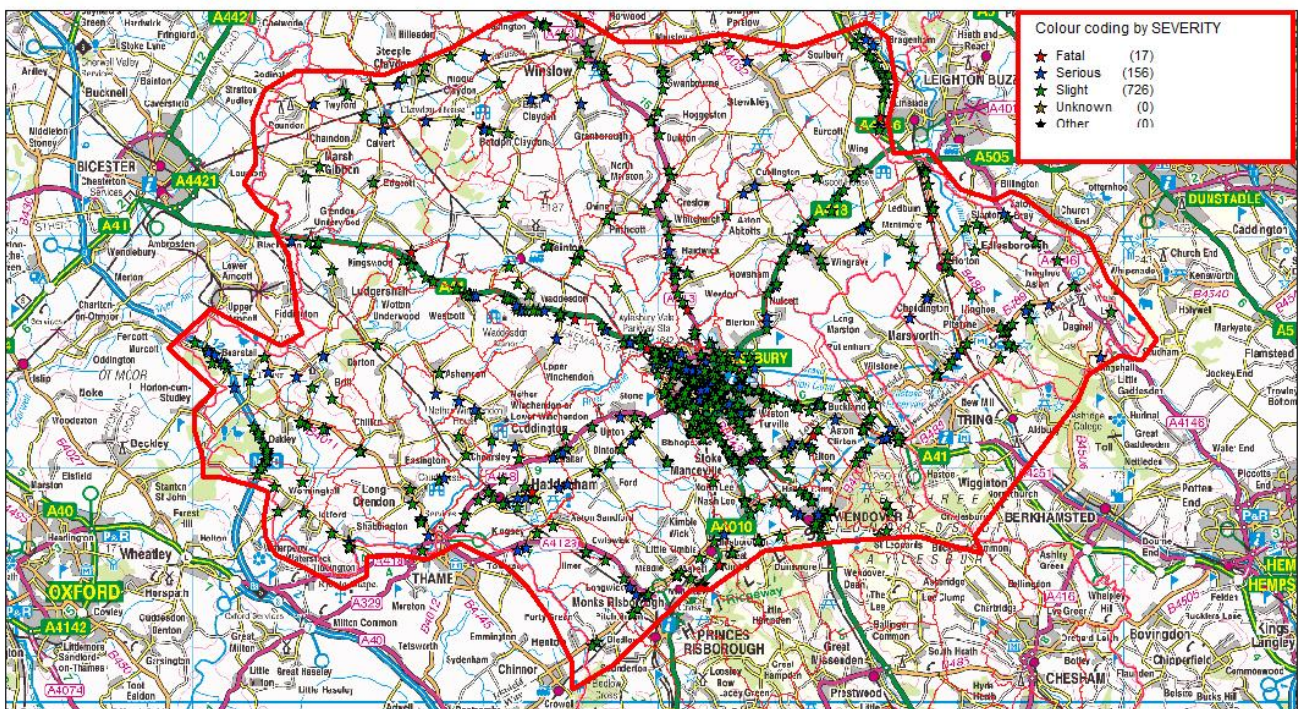
Table 3.3 – Summary of Collision History Types from 2013-2015¹⁰


	Fatal	Serious	Slight	Total	% Weather Conditions
Dry	12	110	464	586	65%
Flood	0	2	2	4	1%
Frost/Ice	1	2	35	38	4%
Snow	0	1	14	15	2%
Wet/Damp	4	41	211	256	28%
Total	17	156	726	899	
%	2%	17%	81%		

3.2.25 The most severe collisions, those that are fatal or serious, are seen on the A roads. Collisions categorised as slight are clustered around urban areas, specifically Aylesbury but also near Leighton Buzzard on the A4146. **Figure 3.20** shows the spatial distribution of these.

3.2.26 The junction type is not available for all collision records, but for those where it has been provided (394 cases) they are mostly found at un-signalised junctions with 52% of accidents at staggered or T junctions, followed by 27% on roundabouts, 12% at crossroads and 7% at small roundabouts.

Figure 3.20 – Road Collision Data in the Study Area

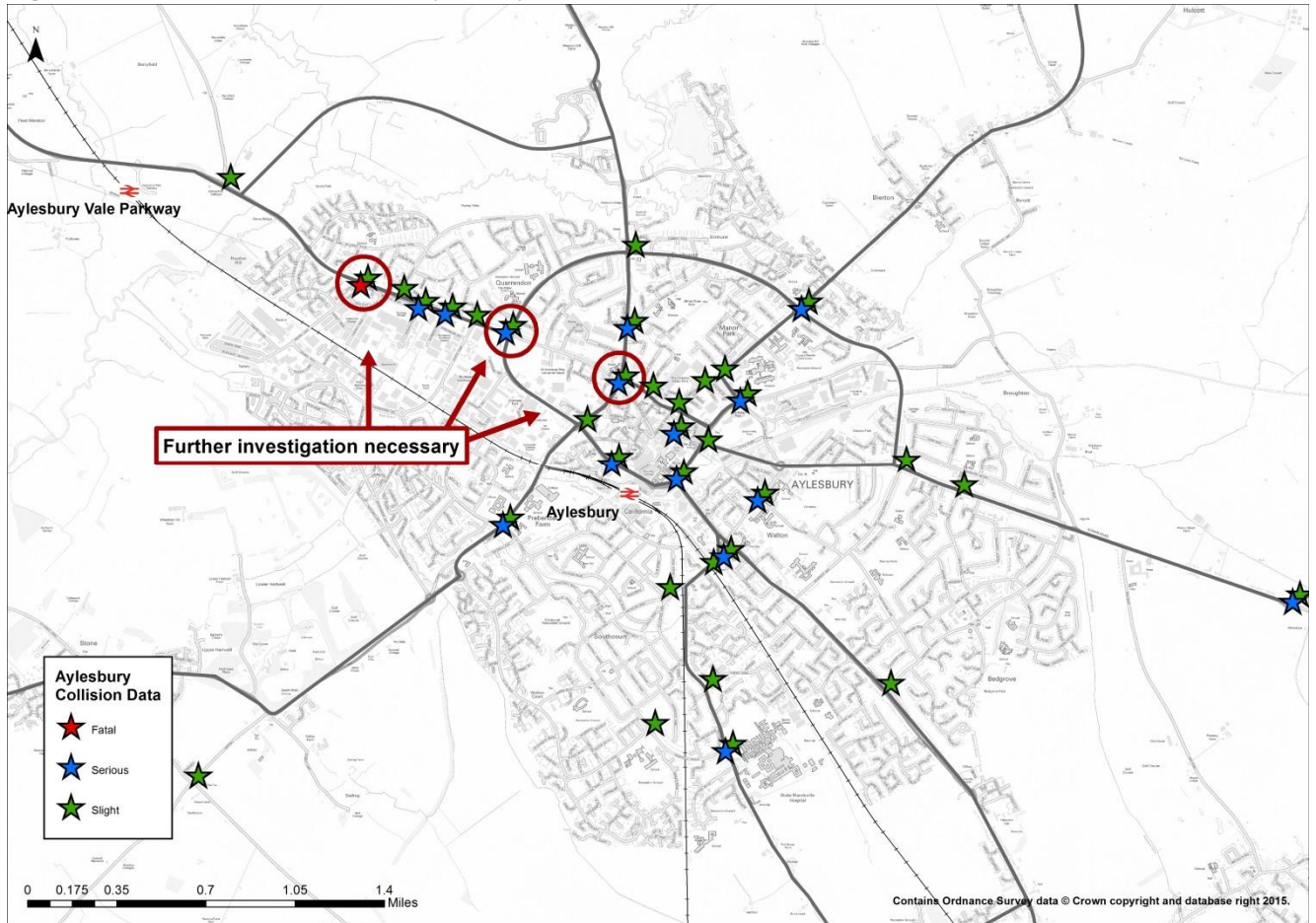


 <p>© Crown copyright Buckinghamshire County Council Licence No. 100021529 2016</p> <p>Aylesbury Transport Strategy</p> <p>Selected Range of Accidents between dates 01/01/2013 and 31/12/2015 Selected using Manual Selection</p>	SCALE	1 : 198180
	DATE	15/04/2016
	DRAWING No.	
	DRAWN BY	

¹⁰ Summary provided by BCC

3.2.27 A map of the collision data above has been created showing only those sites in Aylesbury town and is shown in **Figure 3.21**. Three sites have been identified by BCC Road Safety officers of particular concern, including the A418/ Bicester Road/ A413 junctions that make up the triple roundabout (Royal Bucks Hospital roundabout), the A41/Bicester Road/A4157 junction and the Bicester Road/Rabans Lane junction.

Figure 3.21 – Road Collision Data in Aylesbury



3.3 Public Transport Network

Train Network

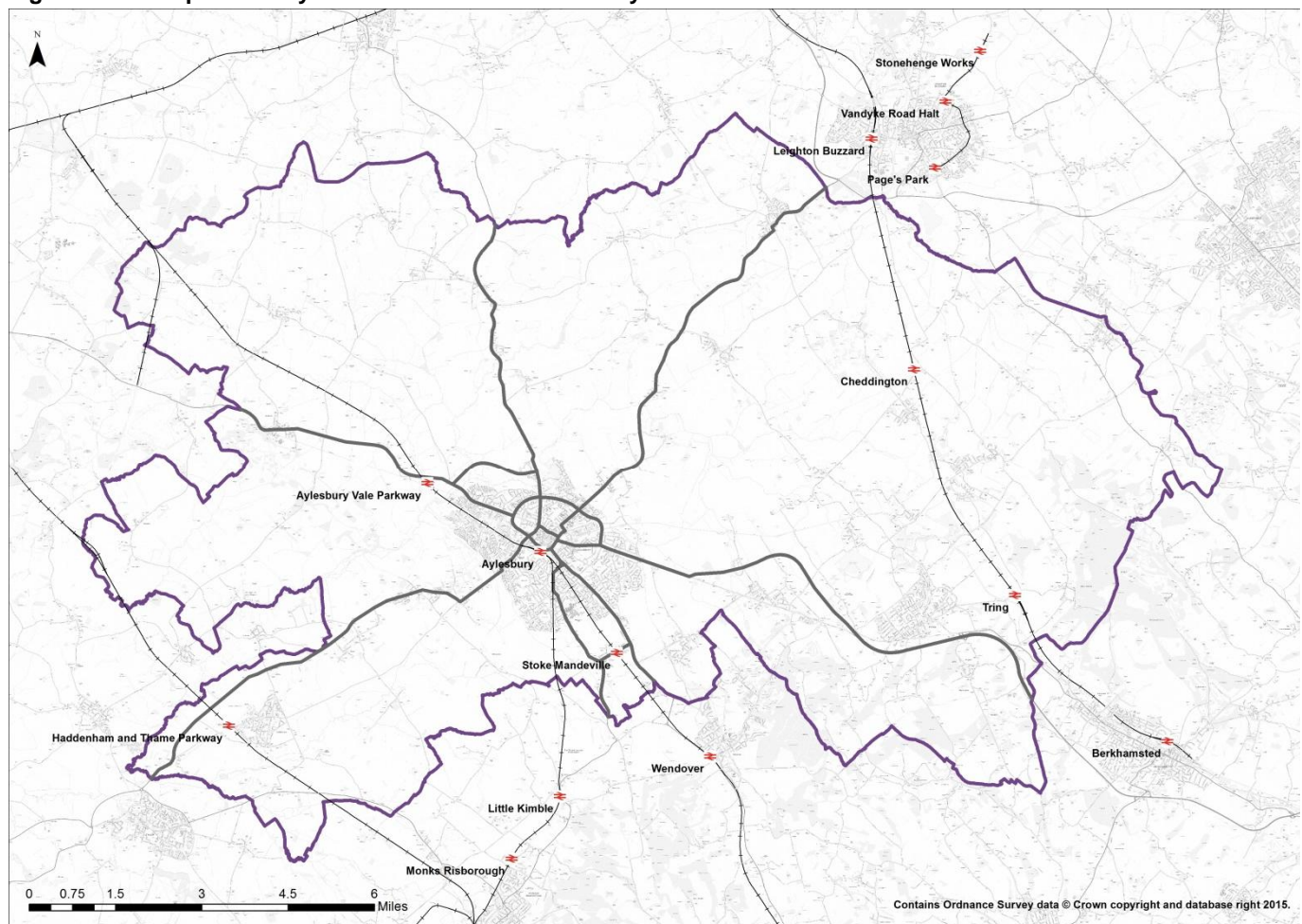
3.3.1 An overview of the existing railway lines and stations across the study area is provided in **Figure 3.22**. Haddenham and Thame Parkway station is on the Chiltern main line and has good services to London during peak hours. Passengers can also access Oxford and the north via Birmingham. Tring and Cheddington are served by the West Coast main line with a good service to London and Milton Keynes.

3.3.2 Overall, there are three railway stations closer to Aylesbury town itself; Aylesbury Vale Parkway, the smallest station, in terms of demand situated to the north, Aylesbury, the largest and busiest station in Aylesbury, nearest to the town centre and accessible from much of the inner urban area, and Stoke Mandeville to the south¹¹.

¹¹ The Aylesbury Transport Strategy - Stage 2 Final Report contains more detail around station usage, service frequency and train fares.

http://www.aylesburyvaledc.gov.uk/sites/default/files/page_downloads/Stage%20%20Report%20Final.pdf

Figure 3.22 – Map of railway lines and stations in the study area



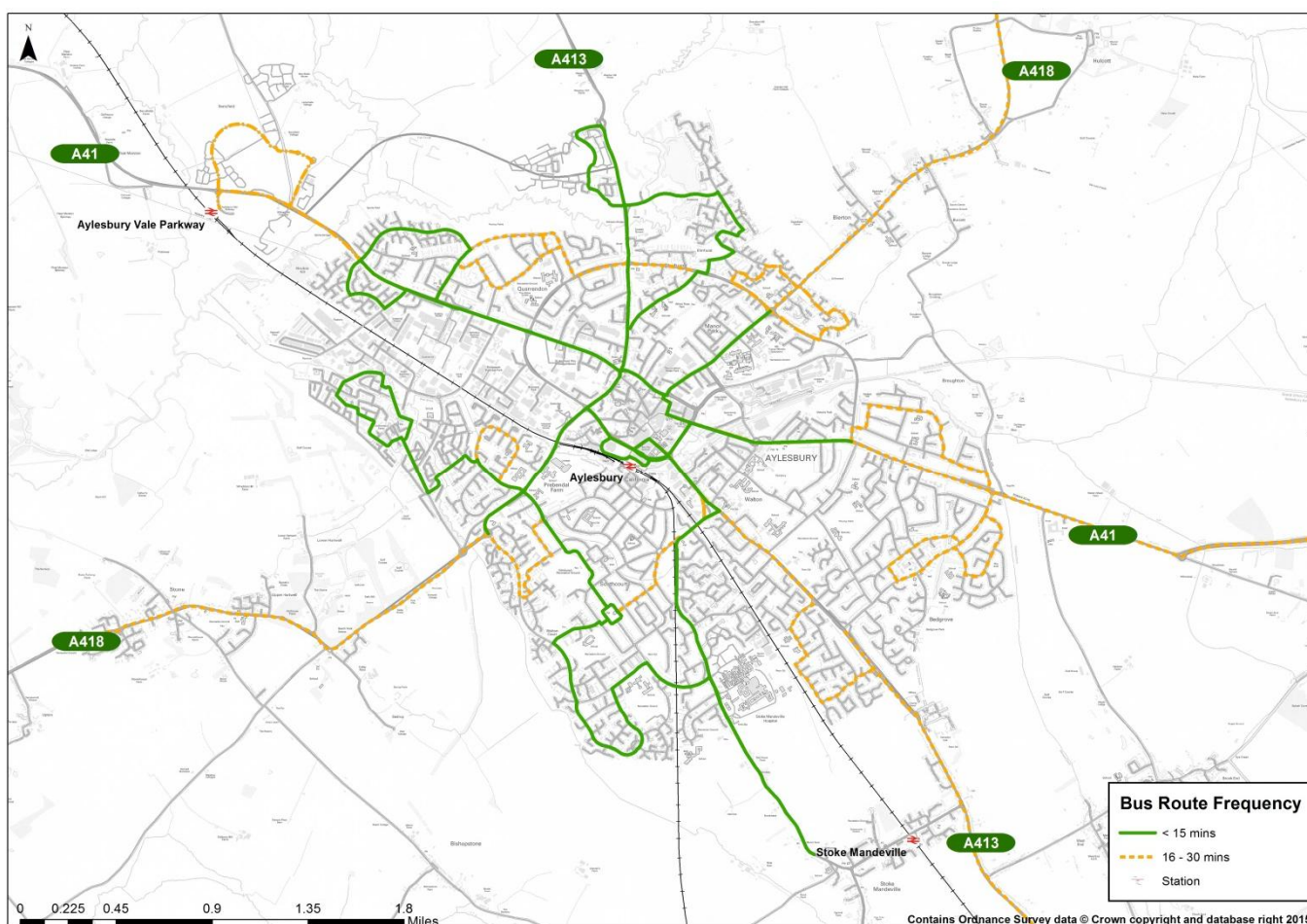
3.3.3 Chiltern Railways provides services to these stations along two separate lines running between Aylesbury and London Marylebone; one route via Stoke Mandeville with peak time train frequencies of three per hour, whilst hourly trains via High Wycombe serve Aylesbury on the main line. Aylesbury Vale is served by the Stoke Mandeville line. The new East West rail link is due to be completed by 2019 and will connect Aylesbury Vale to Oxford, Milton Keynes and Bedford. Residents in the east of Aylesbury are likely to also use Tring station for connections to London Euston station and access to the north, similarly residents in the west of Aylesbury may also travel to Haddenham and Thame Parkway station for access to London and north to Birmingham on the lines mentioned above.

Bus Network

- 3.3.4 Aylesbury is served by a number of different bus networks operated by the Rainbow Route Quality Bus Partnership; a collaboration between a number of operators including Arriva, Red Line and Red Route, the services can be classified as follows:
- Regional buses: Long distance bus routes connecting Aylesbury town centre to surrounding urban centres, such as Milton Keynes, Watford, Oxford, High Wycombe, and Hemel Hempstead, although no direct services to Luton.
 - Local buses: Serve major destinations within Aylesbury such as Stoke Mandeville, the town centre (served by frequent bus routes along most corridors), the railway stations, and residential areas.
 - Community buses: Bus routes that effectively act as community buses running infrequently and timetabled. The frequency of these services varies by route, with school routes operating as single trips to and from schools, to those serving nearby villages on particular days.
- 3.3.5 A map of the local bus network and its peak hour frequencies in Aylesbury is shown in **Figure 3.23**, this shows that there is already good coverage across the existing urban area and these services cover major destinations within Aylesbury such as Stoke Mandeville, the town centre, the railway stations, and residential areas.

- 3.3.6 However, many of the frequent routes use the existing strategic radial roads discussed earlier and as a result, bus journey time reliability is impacted by congestion along these routes in the peak periods.
- 3.3.7 Bus priority exists in some locations, mostly in the town centre where in the form of junction priority, slipways and bus lanes, some bus shelters have cover and live journey time information, however this needs to be expanded to the wider network to encourage and facilitate bus travel.
- 3.3.8 The town centre is served by frequent bus routes along most corridors, most of these services access the town centre at the main bus station, located on the southern border of the town centre within Friars Square Shopping Centre, which is well connected for walking and cycling access to the Aylesbury rail station (approximately a five minute walk). However the central bus station has been identified as already being at capacity and in need of improvements to capacity to allow for potential increased services in future.
- 3.3.9 There is no central website providing timetabling or fare information on bus routes at any level; regional, local or community buses, other than the journey planner provided by BCC. This is likely to prove a barrier to uptake of bus services in Aylesbury.

Figure 3.23 – Map of local bus network and its peak hour frequencies in Aylesbury



3.4 Walking and Cycling

- 3.4.1 Based on the Journey to Work information from the Census data, movements by cycling or on foot are not particularly significant. Based on all journeys to work that have the study area as their residence or workplace, only 2% of the journeys are made by bicycle and 8% on foot, from a total of approximately 84,900 commuting journeys.
- 3.4.2 These proportions are higher when only the journeys within the study area are considered, which involve shorter distances. In this case, journeys on bicycle and on foot represent 4% and 23% of the journeys to work respectively. These are mainly to the town centre of Aylesbury.

- 3.4.3 Whilst there is already a well-established network of cycling paths known as the Gemstone Cycleway Network, according to the *Aylesbury Parking and Access Study 2011*, cyclist movements in and around the town centre are relatively low, suggesting that existing cycling routes are not being used for the daily routine but more occasionally perhaps only for leisure purposes.
- 3.4.4 The same study adds that pedestrian movements are mainly concentrated in the retail core (south eastern part of the town centre), particularly at the western end of the High Street, where the main shopping attractions are located. Although the introduction of new crossings on Exchange Street and Friarage Road has improved pedestrian access, the Inner Ring Road is still identified as a barrier, severing both pedestrian and cycling movements.

Pedestrian Network

- 3.4.5 Many public footpaths are located in the study area, primarily outside the town centre. These provide a wide pedestrian (and occasionally cycle) network across the area, which links to improved pedestrian conditions in urban areas. An example of this is the canal basin footpath from Aylesbury to Tring which also enjoys cycling access. In recent years, there have been a number of improvements to the pedestrian network, most of which have been concentrated in the town centre as part of its regeneration.
- 3.4.6 The 'Round Aylesbury Walk' promoted route, which uses public footpaths, footways and permissive paths lacks investment in some places and needs improving to promote pedestrian connectivity between housing estates and for recreational use to boost exercise to tackle obesity.

Cycling Network

- 3.4.7 Major investment for the cycle network in Aylesbury as part of the Cycle Demonstration Towns in the past has led to the creation of the Gemstone Cycleways Network, which is a well-established cycle network that connects Aylesbury town centre with its residential surroundings. A map of the network is shown in **Figure 3.24**.

Figure 3.24 – Map of the Gemstone Cycleway Network



- 3.4.8 Most cycle routes are on road and shared with traffic and whilst the majority of these are on quiet roads, those routes which are on busier roads may deter some potential users who are concerned about safety or do not feel confident enough to use the on road segments of the network.
- 3.4.9 BCC is planning to enlarge the cycle network in the study area with a small number of extensions, which are currently in the planning stage. In addition to the existing network, new roads have been built with cycle infrastructure in place. An example of this is the new road between the Berryfields and Buckingham Park development, which has a new shared use path running alongside the main road. Many public rights of way are shared use which enables having segregated cycle routes to outer areas of Aylesbury. Also, all future strategic roads that are built will be expected to provide an associated shared path along a similar alignment.
- 3.4.10 These include cycling routes alongside all the new proposed roads (i.e. Stocklake Link and Eastern Link Road), the Grand Union Triangle, the Aylesbury to Haddenham cycle route and the Aylesbury Vale Parkway station link to Waddesdon.
- 3.4.11 Other improvements needed include the route between the A418 (Holmans Bridge) and A41 (Stone Bridge) between Watermead and Haydon Hill, which provides cycling and walking access south of the River Thames on AVDC owned land and is expected to be a busy commuting route to Aylesbury Vale Parkway train station. Better connectivity is also needed into the Quarrendon housing area.
- 3.4.12 The Grand Union Triangle is a cycle route along the towpath of the Aylesbury and Wendover Arms of the Grand Union Canal, linking Aylesbury, Wendover and Tring. This cycle route connects the study area to the existing cycling routes in Wendover where there are plans to extend the network. This would link to the proposed National Cycleway (London to Birmingham; more locally Wendover to Waddesdon) and the suggested corridor through Aylesbury.
- 3.4.13 The Aylesbury to Haddenham cycle route may be implemented along Aylesbury Road and Oxford Road, this route will improve connectivity to existing and future improvements in Haddenham. Haddenham and Thame Parkway Station Travel Plan suggests enlarging the Haddenham cycle network with different extensions to the station: to Woodways via Thame Road, to the Business Park via Chilworth Gate, to Townsend via Thame Road, to Churchway, to Willis Road via Wykeham Way and to Church End via Sheerstock.

Cycle Parking and Training

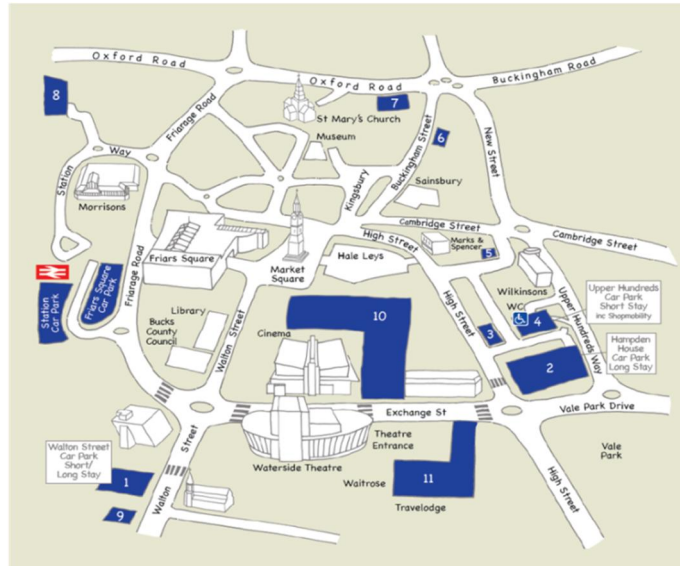
- 3.4.14 Aylesbury is well equipped with cycle parking, with over 250 free bike parking spaces and some lockers in and around the town centre. However stakeholders have identified that more sheltered parking and change/shower facilities are needed around the town.
- 3.4.15 A training programme is available to schools in Aylesbury, known as Bikeability Cycle Training, which schools are invited to bid for to BCC. There is an opportunity to promote more widely the benefits of cycling and increase the population's confidence in cycling by potentially offering cycle training and/or cycle maintenance sessions to local businesses and residents, depending on available funding in future.

3.5 Car Parking

- 3.5.1 Aylesbury town centre is served by five types of car parking as identified in the *Aylesbury Parking and Access Study (2011)*:
- Public off-street car parks (surface level and multi-storey);
 - Public on-street (Pay and Display);
 - Private car parks operated by retailers/retail park owners;
 - Blue badge spaces; and
 - Controlled Parking Zones.

3.5.2 There are many options for public off-street car parks in Aylesbury and indeed, the study above concludes that there current supply exceeds the demand in Aylesbury town centre, a view that was reflected by Stakeholders in the first workshop. In total, those listed on the AVDC website (see image in **Figure 3.25**) show that there is a capacity of over 2,500 car parking spaces. However, 50% of the Friars Square car park is reserved during weekdays for Council employees, with priority given to those who are regarded as essential car users. Most car parks are for short stay; some of them have a maximum stay limit of one or two hours inclusive (Hale Street and Waterside car parks). See **Table 3.4** for off-street car parking capacities provided on AVDC's website. Other car parks, for long stay, are located on the outskirts of the town; with the exception of Hampden House. Additionally, there are public car parks at Aylesbury Vale Parkway and Stoke Mandeville Rail Stations.

Figure 3.25 – Public Off-Street Car Parking Locations¹²



¹² www.aylesburyvaledc.gov.uk

Table 3.4 – Public Off-Street Car Parking Capacities¹³

Location	Type		Public Spaces	Blue Badge Spaces	Payment Method	Season Tickets	
1	Walton Street	Long Stay	Multi-storey	525	28	Pay on Foot	Yes
2	Hampden House	Long Stay Inner	Multi-storey	364	4	Pay & Display and Paybyphone	Yes
3	Hale Street	Short Stay (Max. 1 hour)	Open Air	16	0	Pay & Display and Paybyphone	Yes
4	Upper Hundreds	Short Stay	Multi-storey	305	10	Pay on Foot	Yes
5	Anchor Lane	Blue Badge only	Open Air	0	7	Pay & Display and Paybyphone	Yes
6	Coopers Yard	Short Stay	Open Air	59	0	Pay & Display and Paybyphone	Yes
7	Whitehall Street	Long Stay Inner	Open Air	38	0	Pay & Display and Paybyphone	Yes
8	Friarscroft	Long Stay Outer	Multi-storey	588	5	Pay & Display and Paybyphone	Yes
9	Walton Green	Long Stay Outer	Open Air	14	0	Pay & Display and Paybyphone	Yes
10	Exchange Street	Short Stay	-	377	38	Pay & Display and Paybyphone	Yes
11	Waterside	Short Stay (Max. 2 hours stay in part of it)	-	275	16	Pay & Display and Paybyphone	Yes

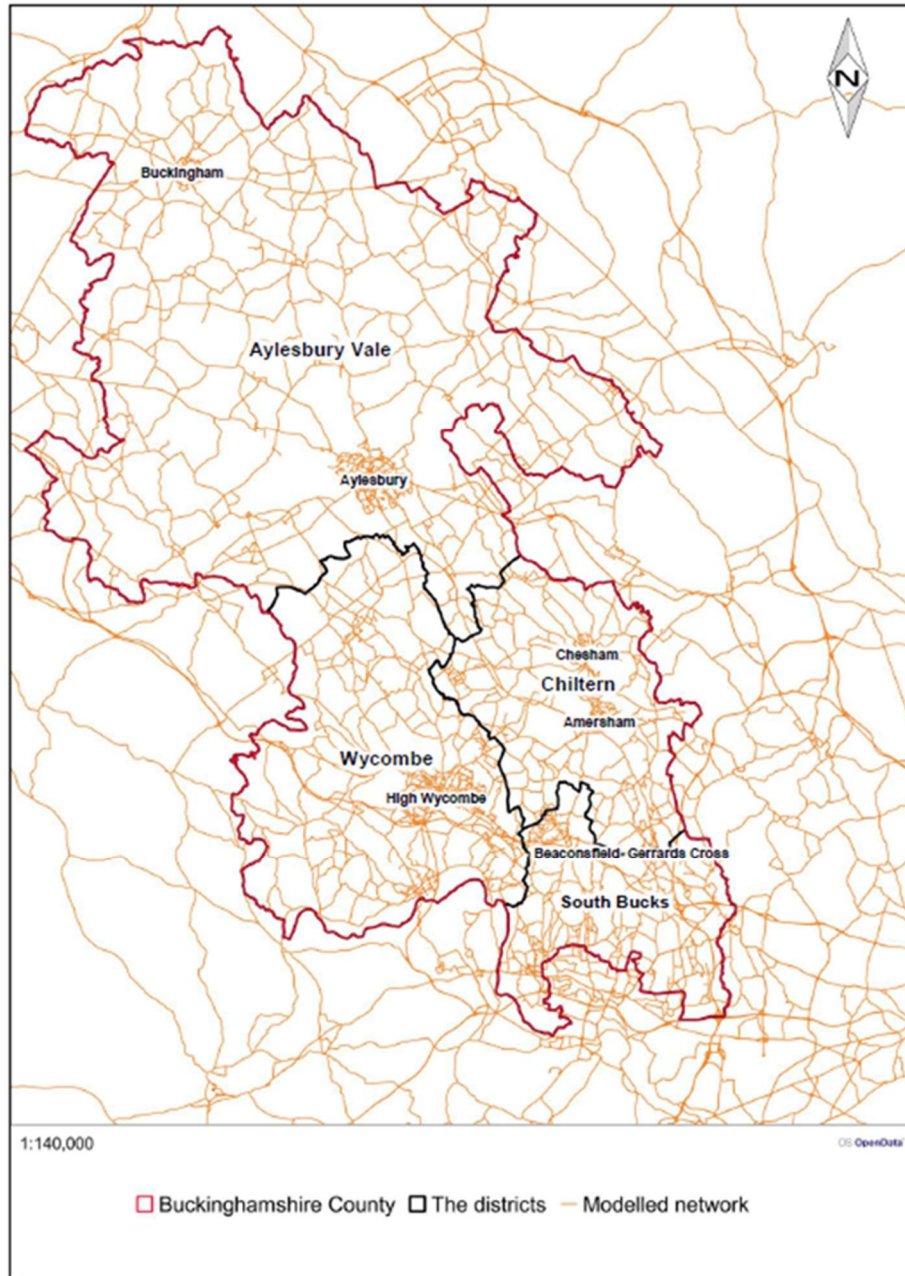
- 3.5.3 Out of the town centre, car parking is free, on street or off-street. In September 2015, BCC published the *Buckinghamshire Parking Guidance*, a document that sets out the county's approach to parking provision on new developments.
- 3.5.4 In terms of residential parking, the study area is classified in three different zones: Aylesbury town centre is considered Zone A, south of it Zone B and the northern areas are Zone C. There is also a controlled/permit zone surrounding the town centre and extending into the residential areas which is BCC controlled. The zoning system is based on the assumption that urban areas are better provided with walking, cycle and public transport facilities and therefore it is not necessary to provide as many car parking spaces for residential developments, particularly given the limited availability of land in these areas.
- 3.5.5 For non-residential car parking, a two-zone approach has been adopted, with Zone 1 generally being more accessible and Zone 2 being less accessible, by public transport and other modes. Areas within Zone 1 are those which fall within the boundaries of urban areas, which includes Aylesbury town centre; other parts of the study area are considered Zone 2.
- 3.5.6 Standards for Non-residential car parking are settled for different types of retail, business and many other land use classes, mostly according to its area or capacity. These are optimum standards and can justify deviating from them if specific local circumstances apply.
- 3.5.7 The guidance mentions as well the importance of considering electric vehicle charging infrastructure in new developments along with consideration for any emerging technology linked to this. Also it considers the provision of spaces for motorcycle/scooters and blue badge parking.

¹³ Adapted from www.aylesburyvaldc.gov.uk

3.6 Future Scenario

- 3.6.1 Separate to this strategy, BCC have commissioned modelling tests in the Countywide Model¹⁴ to understand the impacts of future growth on the highway network across Buckinghamshire. Emerging results from this modelling have been provided throughout the progression of this strategy to help inform the impact of the highway schemes.
- 3.6.2 The coverage of the entire Countywide Model is shown in **Figure 3.26**.

Figure 3.26 – Map of Countywide Model Coverage¹⁵



¹⁴ Documents reviewed were the Countywide Strategic Transport Model – Local Model Validation Report (24/10/2014) (Jacobs) and Countywide Local Plan Modelling – Forecasting Modelling Report (08/06/2016) (Jacobs)

¹⁵ Countywide Strategic Transport Model – Local Model Validation Report (24/10/2014) (Jacobs)

- 3.6.3 Initially a number of scenarios were run in this model, including the base year scenario (2013) (the results of which are used in the discussion above in the existing highway network conditions), and a number of future growth scenarios to test the impact of minimum growth and then higher local plan growth being considered currently. These scenarios are described in **Table 3.5**.
- 3.6.4 The purpose of this section is to describe how the network would perform in the future with the local plan growth taken into account and with only committed highway schemes in place. Therefore, a description of the highway network performance results for Aylesbury from the future year scenario (2033) modelling results is given here, which comes from the 'Do Something 1' (DS1) growth scenario. The details of this growth and its staging is described in more detail in **Chapter 5**, but for the purpose of understanding the future conditions on the network with local plan growth, the results of the DS1 are discussed here¹⁶.

Table 3.5 – Summary of Modelling Scenarios tested in the Countywide Model¹⁷

Base Year	Summary Details for the County
2013	A 2013 updated Countywide model which includes network refinements and revalidation
Future scenario (2033)	Summary Details for the County
Do Minimum (DM) "No development"	Based on an additional 14,171 dwellings and 31,895 jobs across the county. Outside of the county, growth is capped to National Trip End Model (NTEM) levels
Do Something 1 (DS1)	In addition to the DM developments, the DS1 scenario contains an addition of 45,284 dwellings and 7,407 jobs. Outside of the county growth is capped to NTEM levels. Includes a new 4500 settlement at Haddenham.
Do Something 2 (DS2)	The DS2 scenario includes all DS1 new development. However, the 4500 settlement has been assigned to Winslow instead of Haddenham in this scenario. Outside of the county growth is capped to NTEM levels.

- 3.6.5 The parameters of the DS1 scenario are detailed further in Section 6.3 and **Appendix D**.
- 3.6.6 Overall, DS1 and DS2 model the impact of 40% more households and 29% more jobs across Aylesbury Vale District by 2033 compared to the 2013 Base Model.
- 3.6.7 Congestion plots of the highway performance were provided from the DS1 modelling, an explanation of the criteria shown in the plots is shown in **Table 3.6**. Congestion Ratio is defined as the ratio of the travel time in the model to free flow travel time. The higher the travel time along the road compared to free flow travel time (i.e. travelling at the speed limit), the higher the Congestion Ratio.

¹⁶ It is worth noting that the land use scenario originally tested in the DM, DS1 and DS2 scenarios is higher than the current draft Local Plans (October 2016) as it reflects the countywide growth scenario that was considered at the time the original modelling work was commissioned (April 2016).

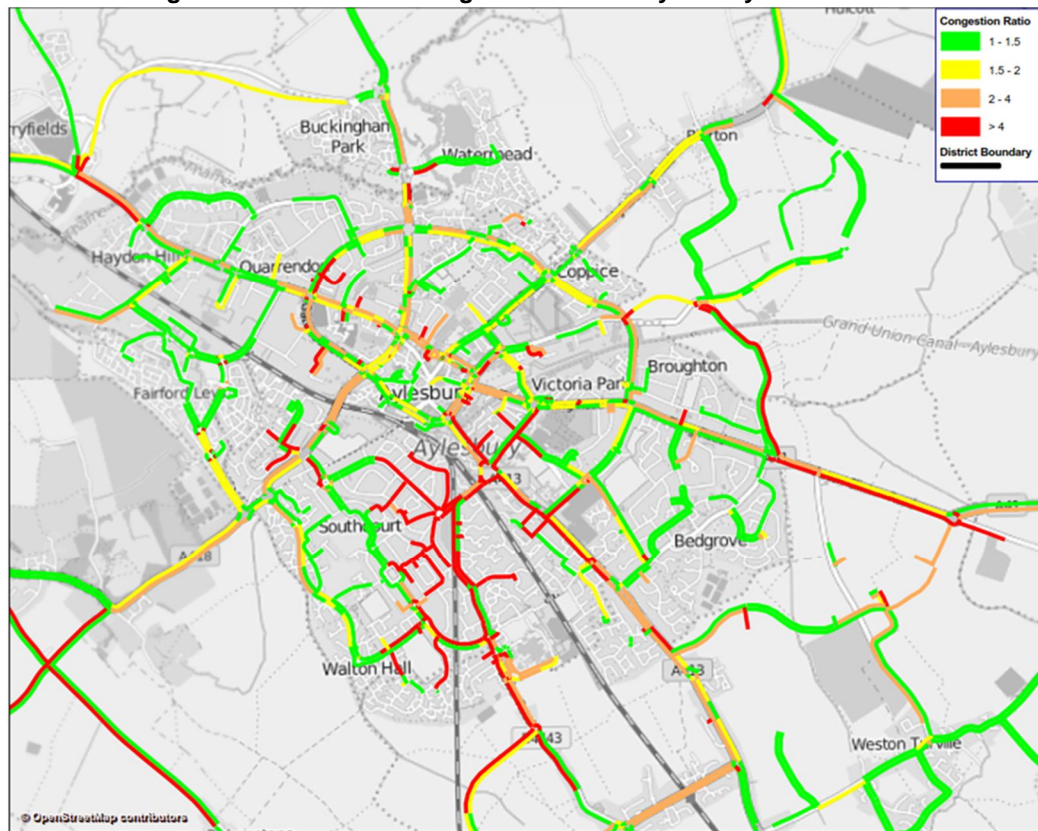
¹⁷ Countywide Local Plan Modelling – Forecasting Modelling Report (08/06/2016) (Jacobs)

Table 3.6 – Explanation of Criteria used in Countywide Model Congestion Plots¹⁷

Colour of the band	Congestion Ratio	Interpretation
Transparent	1	Link experiences free flow conditions
Green	1 – 1.5	Travel times up to 50% greater than in the uncongested situation
Yellow	1.5 - 2	Travel times are between 50% and 100% (i.e. two times) higher than in the uncongested situation
Orange	2 - 4	Travel times are two to four times higher than in the uncongested situation
Red	>4	Travel times are more than four times higher than in the uncongested situation

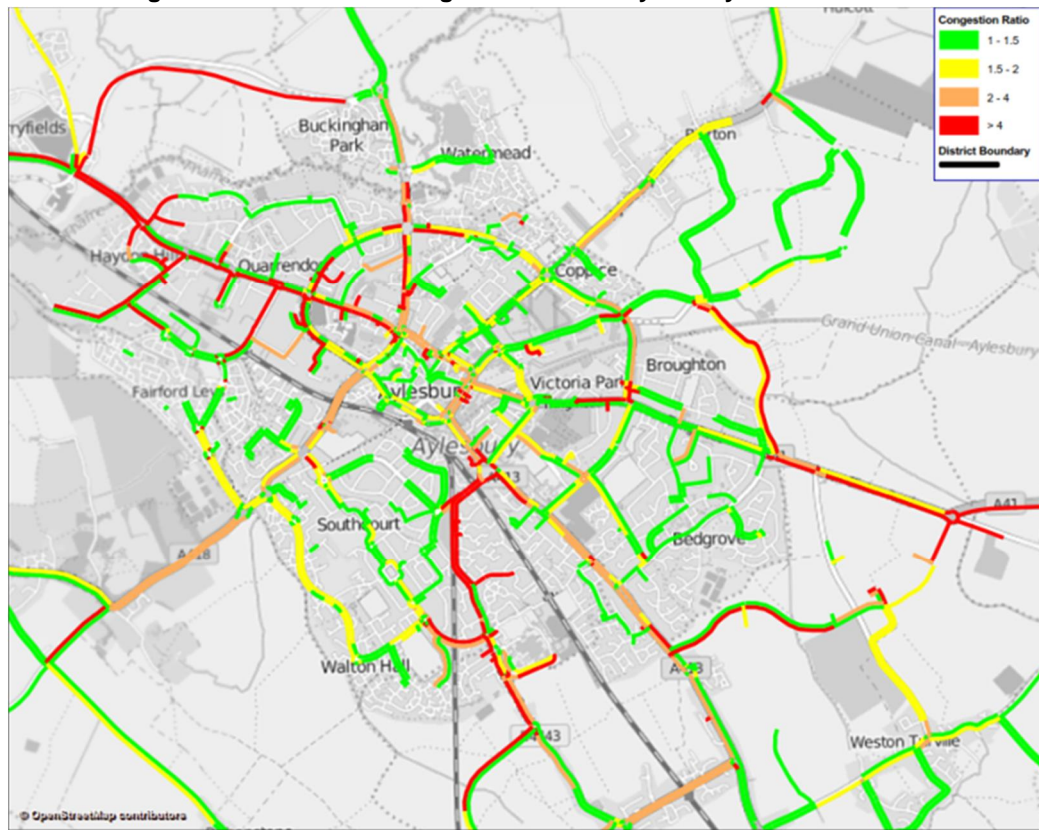
3.6.8 The plots of the Congestion Ratio results in the 2033 AM and PM peaks for the DS1 are shown below in **Figure 3.27** and **Figure 3.28**.

Figure 3.27 – 2033 DS1 Congestion Plot for Aylesbury in AM Peak¹⁸



¹⁸ Countywide Local Plan Modelling – Forecasting Modelling Report (08/06/2016) (Jacobs)

Figure 3.28 – 2033 DS1 Congestion Plot for Aylesbury in the PM Peak¹⁸



3.6.9 The results of the congestion plots show congestion in the following areas in the 2033 DS1 scenario:

- A41 east and west of Aylesbury
- Martin Dalby Way
- A418 approaching A4157
- Mandeville Road
- A418 approaching A41
- Portway Road
- Aylesbury Gyratory
- Walton Street
- A418 in southern edge of Aylesbury town
- Station Road (Stoke Mandeville)
- Wendover Road
- Griffin Lane
- Rabans Lane

3.6.10 The Congestion Ratio plots highlight that congestion is predicted around the A41, A413 and B4443. These routes are known congestion locations and suffer from delays in the current peak periods. The modelling indicates delays and congestion on these links will only increase in the 2033 DS1 scenario. Congestion along these links could be linked to the development proposed in south and eastern Aylesbury, and the ongoing development at Berryfields and Buckingham Park near the A41 in north west Aylesbury. Congestion on the link roads through and between the new developments is also an issue as the link roads through Berryfields and Hampden Fields show some delays. This could be as these only form access roads without a wider link road network in place.

3.6.11 These initial modelling results highlight that focused and prioritised Transport Improvements are required to help mitigate the impacts of anticipated growth and development.

- 3.6.12 Further to this modelling, more recently mitigation tests have begun in the Countywide Model, to test the impact of additional highway improvements, including a number of those identified in this strategy. The initial results of these are described further in **Chapter 6** (6.3) and further iterations of this modelling to test additional highway improvements is currently taking place at the time of writing this strategy.

3.7 Summary

- 3.7.1 Within the study area there is a population of approximately 128,900 inhabitants which has been rising over the last decade. There are approximately 62,000 jobs in the area primarily concentrated in the town centre and along the A41 to the West. 70% of the study area workforce journey to work by car, but when only considering the journeys within Aylesbury, it lowers to 59%, with 23% of the journeys made on foot, 5% made by bus and only 4% on bicycle.
- 3.7.2 Modelling outputs from traffic modelling for Buckinghamshire shows there are high total traffic and HGV flows on all strategic routes into and through Aylesbury town in both AM and PM peaks. Most congestion issues occur in Aylesbury town centre, and strategic routes in and out of the town. Junction delays are clustered in and around Aylesbury, most often at priority junctions with large flows on main roads. There are currently three AQMAs within the study area, in zones where traffic flows are high or heavily used by HGVs.
- 3.7.3 Within Aylesbury town, three sites have been identified by BCC Road Safety officers of particular concern because of their road collision history, including the A418/ Bicester Road/ A413 junctions that make up the triple roundabout (Royal Bucks Hospital roundabout), the A41/Bicester Road/A4157 junction and the Bicester Road/Rabans Lane junction.
- 3.7.4 In terms of public transport, there are a number of rail stations within the study area, the most central being Aylesbury station near the town centre which is linked to the main bus station. Aylesbury station operates up to four trains an hour to London. Aylesbury Vale Parkway and Stoke Mandeville Station are also located in the study area but do not offer as many regular services to London. In the wider study area, there are also two stations most likely to be used by Aylesbury residents to reach London and the north; those residents living in the east of Aylesbury may also use Tring station for this and similarly those resident in the west of Aylesbury may choose to use the Haddenham and Thame Parkway station.
- 3.7.5 Bus services in the area around Aylesbury and can be split into 3 distinct categories; regional buses, local buses, and community services. Generally bus services accessing Aylesbury town are a high frequency, but can have unreliable journey times because of the congestion on some of the key roads in the peaks. Bus priority exists in some locations, but mostly in the town centre in the form of junction priority, slipways and bus lanes. A number of the key strategic radial routes have been designated for future bus priority lanes, known as Primary Public Transport Corridors (PPTC). Regional buses serve the surrounding urban centres, with services being most frequent to High Wycombe. Aylesbury bus station has been identified by stakeholders as being at capacity and in need of improvement to accommodate the larger vehicles operators now use. Some bus stops have shelters and live journey time information, however this needs to be expanded to the wider network to encourage and facilitate bus travel.
- 3.7.6 Cycling and walking mode share are not particularly high at present; Aylesbury residents' journeys to work represent 8% and 2% of journeys to or from Aylesbury respectively for these modes. However, these proportions increase to 4% and 23% respectively if only considering the movements within the study area. Whilst there is already a well-established network of cycling paths known as the Gemstone Cycleway Network, cyclist movements in and around the town centre are relatively low, suggesting that existing cycling routes are not being used for the daily routine but more occasionally perhaps only for leisure purposes. Pedestrian movements are mainly concentrated in the retail core (south eastern part of the town centre), particularly at the western end of the High Street, where the main shopping attractions are located. Although the introduction of new crossings on Exchange Street and Friarage Road has improved pedestrian access, the Inner Ring Road (A41/A418) is still identified as a barrier, severing both pedestrian and cycling movements.
- 3.7.7 Aylesbury town centre is served by various car parks and there is currently little disincentive for people driving to the town centre. There is a large supply of parking within the town centre and public car parks offer a capacity of over 2,500 car spaces through eleven parking sites, with an additional 2,000 car spaces provided by retailers (whilst intended for customers only but also used for accessing the town centre). It has been identified in the *Aylesbury Parking and Access Study Final Report (2011)*, that supply currently exceeds demand in Aylesbury town centre.

3.7.8 The future highway scenario from the traffic modelling shows that with already committed transport schemes in place congestion is still predicted around the A41, A413 and B4443. Whilst congestion has already been identified in these locations in the baseline scenario, the increase is most likely linked to development already going ahead and proposed in the future. This highlights the need for focused, prioritised and holistic transport improvements to mitigate the impact. These should incorporate improvements to public transport and walking and cycling access, to ensure alternative modes to the private vehicle are an easy choice in Aylesbury, therefore discouraging the growth in private vehicle trips on the network.

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Issues and Opportunities

4

4. Issues and Opportunities

4.1 Introduction

- 4.1.1 This chapter identifies from the existing transport conditions what the transport issues are today and the potential issues will be in the future based on the predicted growth.
- 4.1.2 Based on existing conditions discussed in **Chapter 3** and discussed in more detail within the *Aylesbury Transport Strategy - Stage Two Report*¹⁹ input collected from stakeholders in the first ATS Stakeholder Workshop held on 27 April 2016 and initial modelling results from the Countywide VISUM transport model, a summary of the issues and opportunities for transport in Aylesbury have been collated into the three categories:
- Highway Network and Car Parking;
 - Public Transport; and
 - Walking and Cycling.
- 4.1.3 The issues and opportunities for each category above were grouped into a set of strengths and weaknesses for the existing situation and opportunities and threats for the future, known as a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis. A general description of what each category refers to in terms of transport is provided in **Table 4.1**.

Table 4.1 – SWOT Analysis Definitions

STRENGTHS Elements of the transport network situation or particular conditions/factors that support or give an initial advantage to achieve the overall transport strategy	WEAKNESSES Elements of the transport network that are likely to detract/hinder it from achieving the transport strategy objectives
OPPORTUNITIES Positive elements of the general transport network that could be further exploited or indirectly contribute towards a better delivery of the transport strategy objectives	THREATS Negative external factors or particular local situations of the general transport network that might hinder the transport objectives in the future

- 4.1.4 The information used from the transport model includes outputs from the base year (2013) and the results from the ‘Do Something’ (DS) scenario in 2033 which includes the local plan growth and already committed transport schemes, as discussed previously in **Chapter 3**.
- 4.1.5 Also, modelling work corresponding with the future year scenarios and recommended highway mitigations as part of this strategy will be further discussed in **Chapter 6** of this document.
- 4.1.6 **Appendix B** shows the detailed SWOT analysis undertaken for each of the three transport categories listed above and a summary is provided below. The SWOT analysis was brought together along with feedback from stakeholders to inform a long list of potential transport improvements to be considered for the strategy. Determining the transport improvements is described in further detail in **Chapter 6**, however prior to this, the potential development coming forward around Aylesbury over the life of the strategy is described in the following chapter as this is important to consider in developing the list of transport interventions for the strategy.

¹⁹ Aylesbury Transport Strategy – Stage 2 Final Report - <https://www.aylesburyvaldc.gov.uk/supporting-evidence>

4.2 Summary

- 4.2.1 Aylesbury is a focal point of BCC's road network. The town is connected to the wider highway network via the A41, A418 and A413 and only the A4157 currently provides an internal semi-circular road around the north of the town.
- 4.2.2 Due to the radial highway network structure, high volumes of through traffic are an issue through the town centre. Private vehicles are the primary mode of transport within the study area and car ownership is high amongst residents. High supply of car parking in the town centre may also be one of the causes for the high number of car journeys to Aylesbury.
- 4.2.3 Arterial routes to/from Aylesbury are congested during the morning and evening peak hours, particularly along the A41 and the southern links, based on results from the Countywide model. This will continue to worsen if the significant amount of growth expected in new developments around the town goes ahead without any mitigation measures to the transport network.
- 4.2.4 Associated with this growth are already a number of new link roads proposed outside the town centre which would together form part of an external circular ring road and redirect through-traffic to peripheral routes rather than through the town centre. The link roads are not by-passes, but intended to divert traffic away from the town centre (whether through-traffic or cross-town traffic). A key role of the link roads is also to link/connect new developments and create new links to existing built up areas. They will need to be desirable in terms of being more convenient than using the town centre routes (to encourage use), however will also need to allow for access and crossing (where necessary). All of this will be considered through the relevant design stages. Their implementation also provides an opportunity for a more pedestrian and cycle friendly town centre and space for bus priority and shared paths closer to the town centre.
- 4.2.5 Nevertheless, there remains a risk that traffic volumes will increase with new highway capacity, therefore further parking restrictions in the town centre should be considered to control the number of private vehicle trips.
- 4.2.6 A large amount of construction traffic is expected to over the life of the strategy as the new HS2 route is implemented, therefore the timing of any transport improvements needs to be carefully considered and staged with this in mind.
- 4.2.7 Public transport does not have a high mode share for commuting purposes, with less than 10% of journeys to work made by bus or train as the main mode. However the public transport network in Aylesbury represents a significant opportunity to capture many more trips amongst both existing residents and employees and upcoming growth if more bus priority and improved bus and cycling/walking access to the rail stations is planned.
- 4.2.8 A great deal of opportunity exists within the existing infrastructure, there is already a direct rail service to London, which has a journey time favourable when compared to the private vehicle and also provides access to High Wycombe, the largest town in Buckinghamshire. The upcoming Western Section of the East West Rail project will improve access to nearby urban centres, such as Oxford, Bicester, Milton Keynes, High Wycombe and Princes Risborough, through improved rail journey time and capacity. Aylesbury has good bus network coverage; however it is limited by a central bus station in the town centre that is no longer fit for purpose and unreliable bus journey times on the current highway network.
- 4.2.9 The new link roads proposed offer a significant opportunity to implement bus priority on key existing radial routes once the new links roads are in place, leading to more reliable journey times and the potential for a park and ride bus system to provide access to the town centre from new development areas.
- 4.2.10 Access to the rail and bus stations should be a key consideration in the future, to also encourage a higher uptake of bus and rail travel, particularly amongst the ageing population expected in the future.
- 4.2.11 Improving bus connectivity to Tring, Aylesbury Vale Parkway and Stoke Mandeville stations will support public transport growth. However, as part of this integrated ticketing between rail/bus services would need to be considered along with a parking strategy to control private vehicle access to the stations and bus priority measures.

- 4.2.12 Flat topography and an already well established network of shared paths and cycle paths exist in Aylesbury, creating the opportunity for a far greater mode share of walking and cycling trips; add to this that many employment sites are within or close to the town centre, which provides relatively short distances to travel to services and main residential areas. However, current cycle routes are not continuous in places; particularly the links between radial routes and the quality of infrastructure varies along existing routes. If new shared path infrastructure is introduced, adequate planning for their maintenance should be included in the costs.
- 4.2.13 There also exists a barrier and safety issue at more complex junctions, such as the triple roundabout in the town centre, where evidence of collision history exists. Additionally, the ring road around the town centre is already heavily used by traffic and creates a barrier to pedestrians and cyclists. Again, introducing the new outer link roads will provide an opportunity to reduce this traffic flow and the chance to create more shared space and crossings for pedestrians and cyclists in the town centre.
- 4.2.14 The new growth areas in Aylesbury and proposed link roads represent an opportunity to provide high quality shared path infrastructure that will encourage a significant uptake of cycling and walking trips amongst new residents and employees right from the beginning, if implemented early on within each development area. Indeed, there are already a significant number of new shared paths proposed, including along the link roads and new cycle routes to Waddesdon, Wendover and Grand Union Triangle.
- 4.2.15 Improved cycling and walking access to bus and rail stations and an increase the quality and supply of cycle parking have also been opportunities identified to increase an uptake in these modes.
- 4.2.16 If suitable programmes are put in place to support this infrastructure investment such as a cycle hire scheme, travel planning with new residents and employees and additional supporting resources to run these programmes within the council, then there is a significant opportunity to shift trips from private vehicle to more healthy, active travel modes.

4.2.17

Local Plan Growth

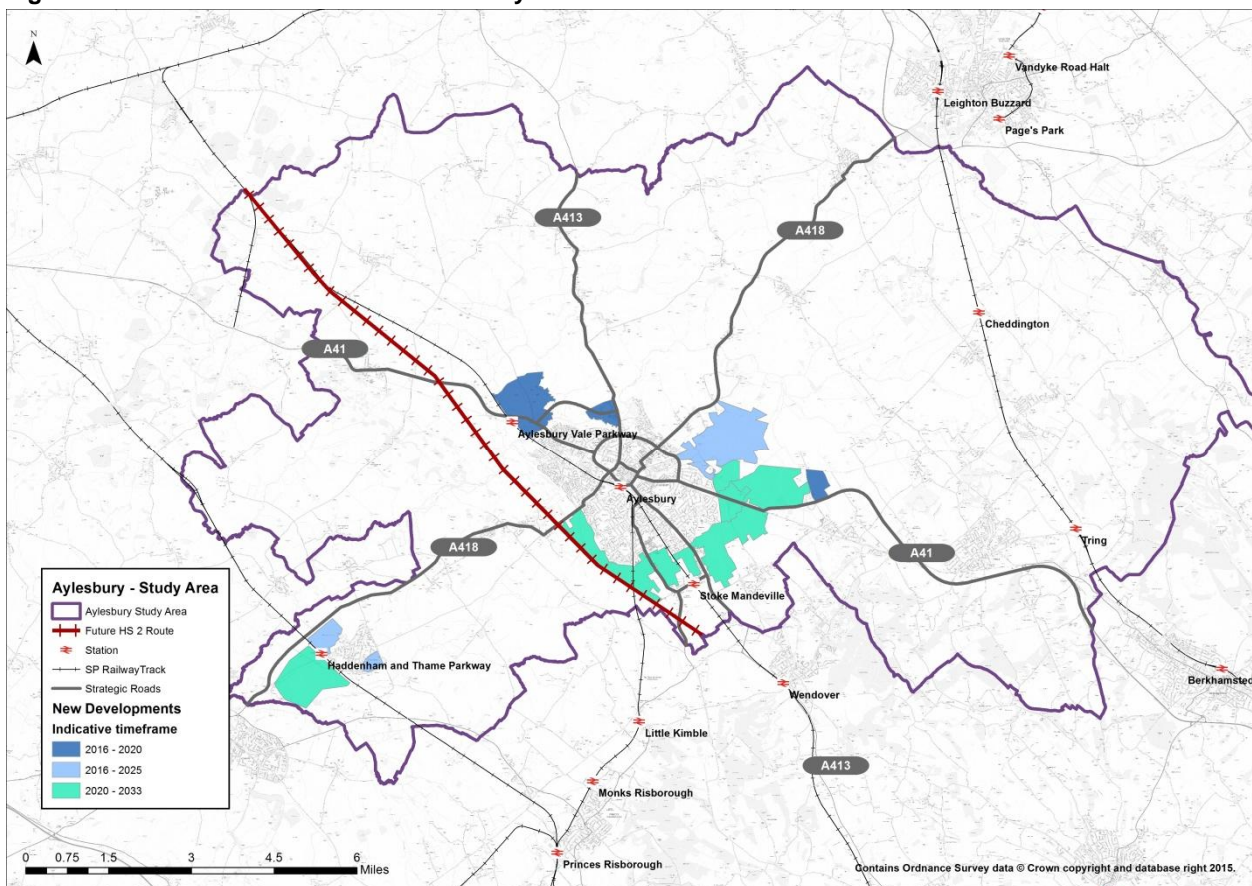
5

5. Local Plan Growth

5.1 Potential Development

- 5.1.1 This chapter describes the potential development currently expected to come forward over the life of the strategy within the study area, including both residential and employment growth. Information supplied by AVDC sets out expected growth up to 2033 and the quantum shown on the maps is current at the time of writing this report. As the strategy is intended to define a set of transport improvements over the next 20 years, these cover the period up to 2033 and are intended to address the growth shown here up to 2033. Any growth beyond 2033 will likely be considered in future versions of the transport strategy.
- 5.1.2 The map of the study area in **Figure 5.1** represents an overview of the possible spatial spread of the development that is currently expected. Sites have been depicted in a colour code reflecting their indicative timescale for implementation, as advised by AVDC.

Figure 5.1 – Potential Growth within the study area



- 5.1.3 Note, the future alignment of the HS2 route has been shown on the map to indicate its location in relation to the spatial growth. It is unlikely any further growth will occur beyond its boundary to the south west of the town, at least for the duration of this strategy.

5.1.4 There is also retail growth expected in the town centre as part of town centre regeneration in the magnitude of 170,000 – 250,000 sq ft with residential space on top of this, whilst not mapped above, this is a consideration for the town centre improvements identified in the strategy, discussed in **Chapter 6**.

5.2 Indicative Timing

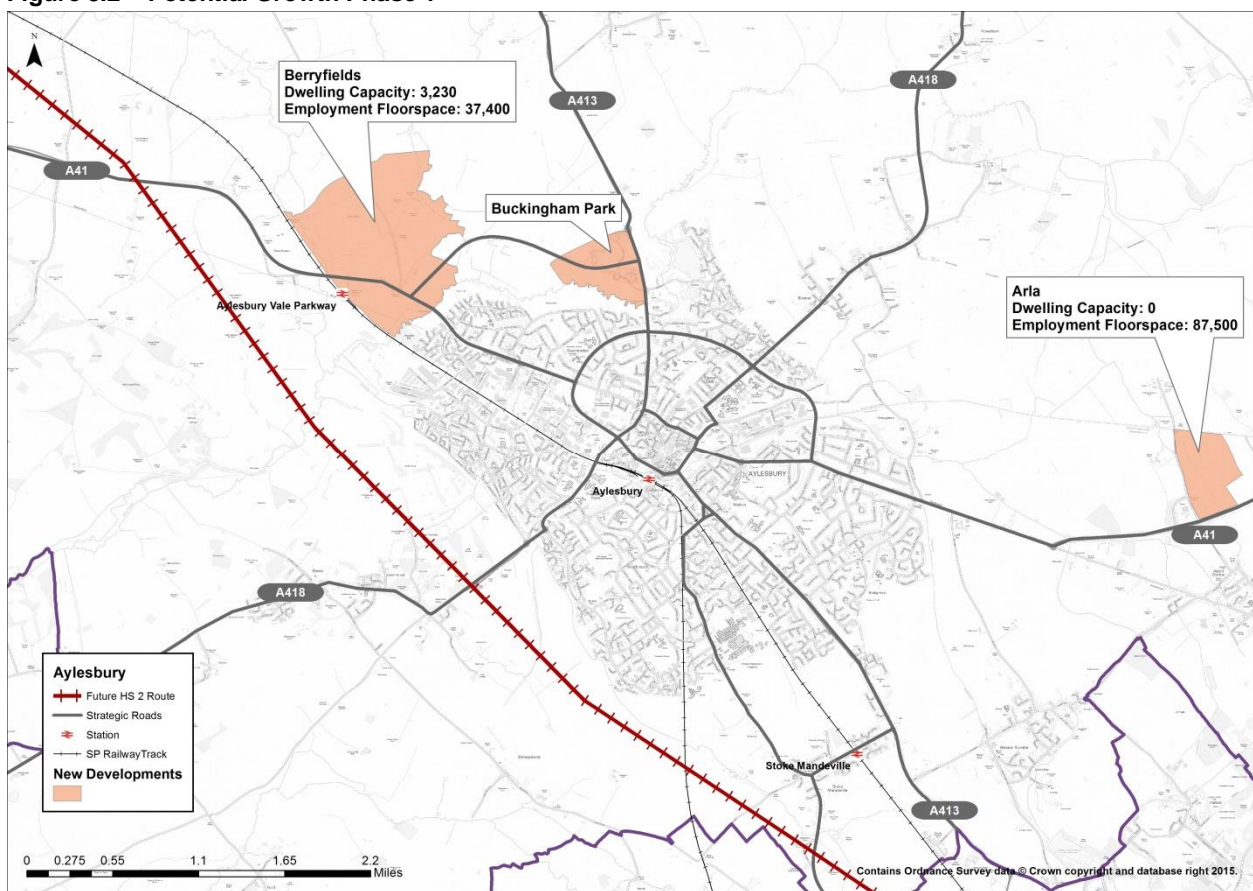
5.2.1 As indicated on the map of potential growth, the development areas have been divided in three indicative phases of implementation, including:

Phase 1: 2016 – 2020

5.2.2 The first phase is already underway and mostly complete. Most of the development has been concentrated around Berryfields and Buckingham Park, where a considerable²⁰ dwelling and employment growth is occurring. There is also a significant employment site being developed at Arla.

5.2.3 These specific sites are shown in **Figure 5.2**.

Figure 5.2 – Potential Growth Phase 1



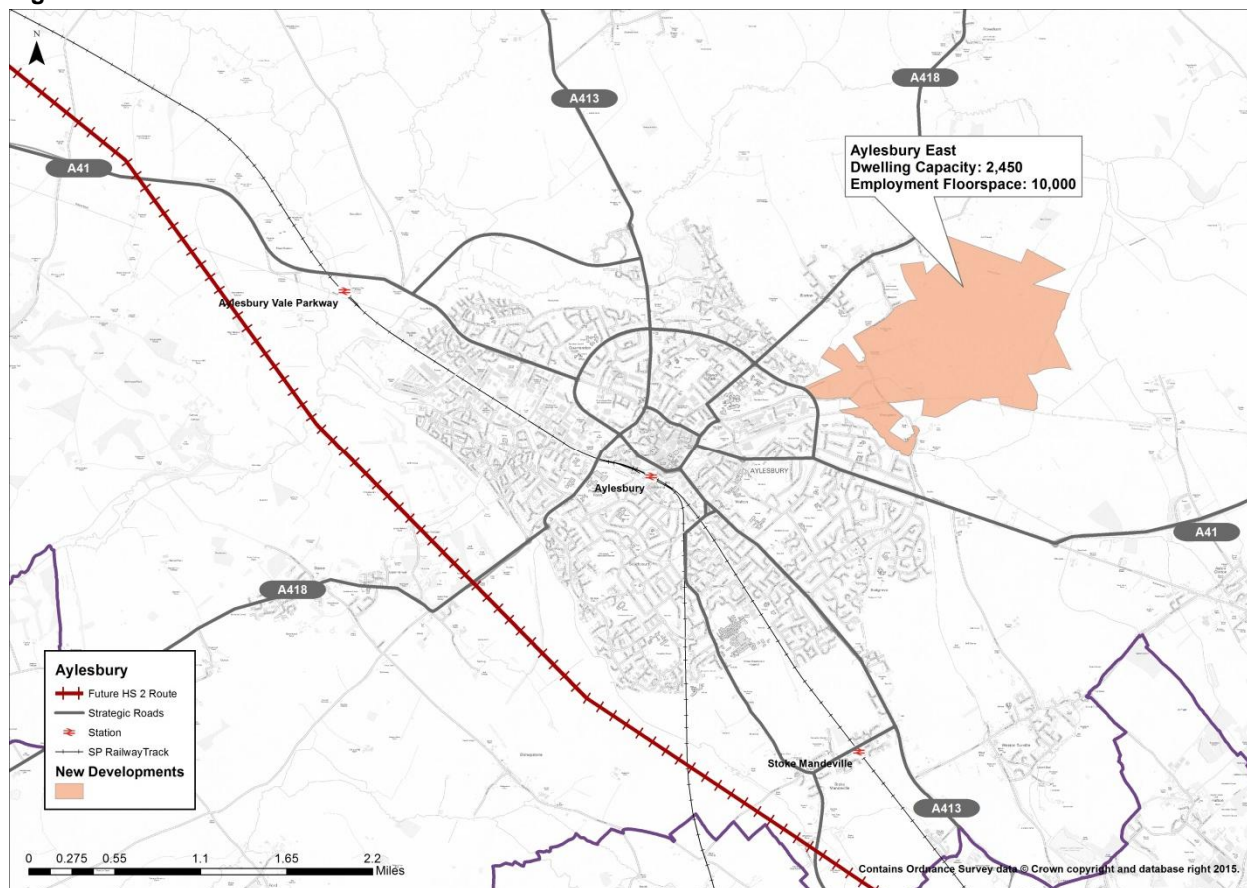
Phase 2: 2016 – 2025

5.2.4 During the second phase, the majority of development will be at the Aylesbury East site, situated east of the town between the A41 and A418. This growth is expected to be mainly residential, along with some employment allocations and retail development in the town centre.

5.2.5 The location and approximate extent of the development mentioned above is shown in **Figure 5.3**.

²⁰ Specific figures are still to be confirmed.

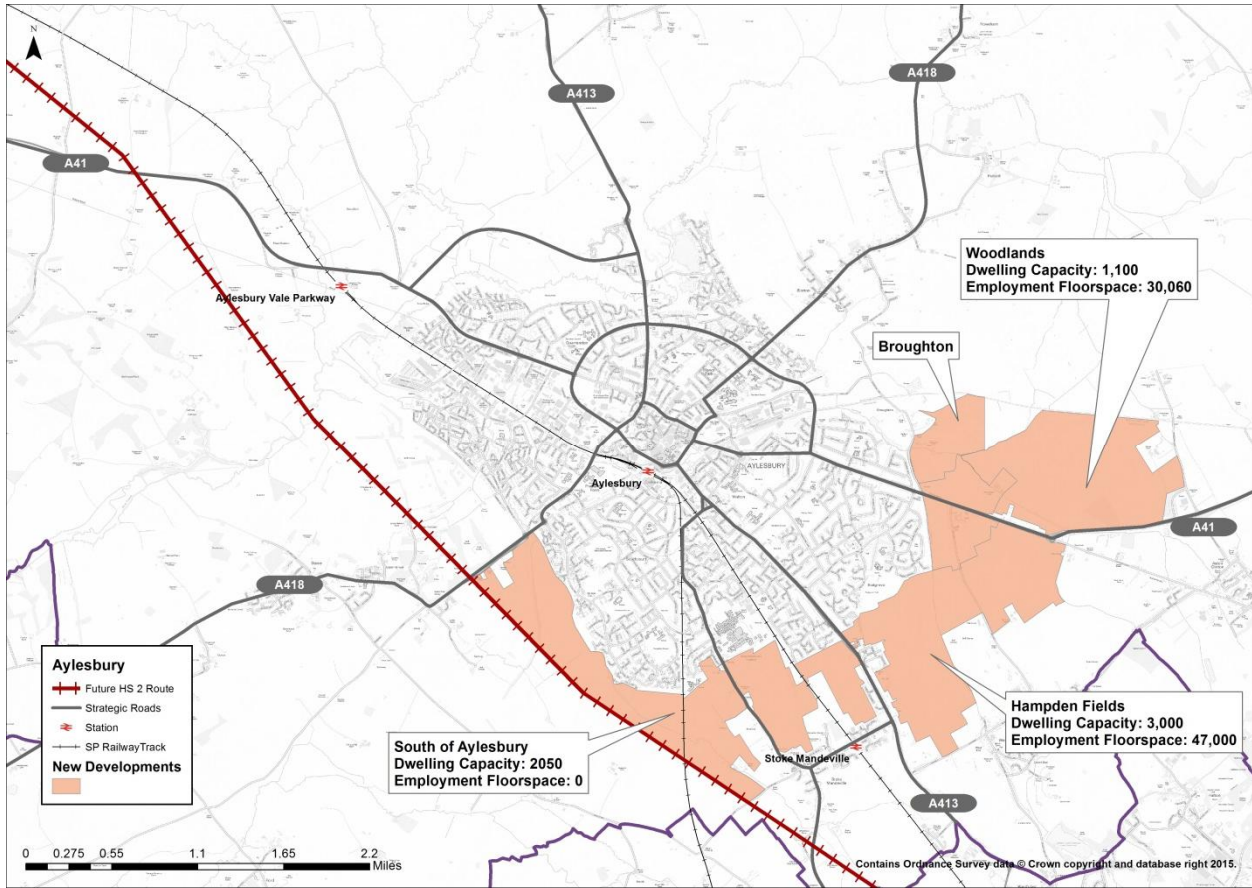
Figure 5.3 – Potential Growth Phase 2



Phase 3: 2020 – 2033

- 5.2.6 During the third and final phase of development within the life of the strategy, growth will be mainly focused on those areas from the south to the east of Aylesbury. **Figure 5.4** shows the spatial extent of these areas.
- 5.2.7 Three different zones within this can be distinguished, including Woodlands, situated north to the A41 where a medium level of growth in terms of residential and employment space is expected; followed by Hampden Fields, located between the A41 and A413, where major residential and employment growth is expected; and finally the residential development site at South of Aylesbury which covers all the southern area limited by the HS2 alignment.

Figure 5.4 – Potential Growth Phase 3



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Transport Improvements

6

6. Transport Improvements

6.1 Transport Improvement Options

- 6.1.1 This chapter describes how the full set of transport improvements for the strategy was developed. Initially a set of ideas were put forward in response to a discussion of the transport issues and growth in the first Stakeholder Workshop. This list was developed further after consideration of detailed SWOT analysis undertaken in response to the baseline evidence and stakeholder feedback. Finally any additional improvements needed to link into the forthcoming development described in the previous chapter were also identified.
- 6.1.2 The following sections of this chapter describe this process in more detail, followed by an assessment of these options for their fit with the strategy objectives.

Transport Improvements Identified by Stakeholders

- 6.1.3 Initially, ideas were put forward by stakeholders in response to the strategy objectives, existing transport issues and future growth discussed in the first workshop held on 27 April 2016. A full description of this workshop can be found in **Appendix A**. The lists below are the key ideas that stakeholders developed in discussing the transport issues and growth in the 1st workshop:
- 6.1.4 Highway network and Car Parking:
- Implement various link roads for traffic and reallocate road space to public transport on roads closer to the town centre.
 - Consider Park and Ride if it can be proven to provide competitive access to the town centre over private vehicles, i.e. dedicated bus lanes to accompany it would be required. Would most likely need to make use of an existing bus service to be viable.
- 6.1.5 Public Transport/Cycling/Walking:
- Improve capacity, ambience and access to the town centre for bus station, relocate if necessary.
 - Improve transport links to all three rail stations (i.e. Aylesbury town centre, Aylesbury Vale Parkway and Stoke Mandeville) in Aylesbury.
 - Link new developments and key destinations to the town centre by active travel and public transport.
 - Incorporate intelligent design into new developments to ensure that active travel and public transport are as attractive to use as the private vehicle, e.g. well connected pedestrian network.
 - Complete gaps in cycling/walking network, particularly connections between the radial cycle network.
 - Providing more travel information, e.g. walking times signposted and walking/cycling maps displayed at key locations.
 - Improving access to travel information, e.g. incorporating more technology such as travel mobile apps and a single central place to get travel information online.
 - Provide a central transport interchange that integrates bus, cycle and rail access and easily links to the town centre, possibly through an upgrade or relocation of the existing bus station.

- Run a travel awareness campaign, which may include a combination of hard and soft measures to support improvements to active travel and public transport infrastructure.
- Implement an overarching strategy to connect new developments, both with each other and the town centre by active travel and public transport modes.

Additional options identified from issues and opportunities

- 6.1.6 The ideas from the lists above were taken forward and developed into a longer list in response to the full set of issues and opportunities identified in a detailed SWOT analysis included in **Appendix B**.
- 6.1.7 The list is shown in **Table 6.1**, which incorporates those ideas put forward by stakeholders along with additional improvements identified in response to the SWOT analysis. The categories given in the column to the right were those used in the SWOT analysis and will also be used for the transport assessment described later in this chapter. A full description of each of these improvements is given in the pro-formas in **Appendix C** and described further below.

Table 6.1 – Long list of Transport Improvements

Transport Improvement (TI)	Category
1 Implement new outer road links	Highways and Car Parking
2 Improve safety on the highway network	Highways and Car Parking
3 Restrict through traffic within Aylesbury town centre	Highways and Car Parking
4 Implement a low emission zone for the centre of Aylesbury	Highways and Car Parking
5 Analyse parking provision and controls to determine changes to parking provision	Highways and Car Parking
6 Provide a Park & Ride system	Highways and Car Parking
7 Improve transport links to the railway stations	Public Transport
8 Upgrade the existing bus station in Aylesbury town	Public Transport
9 Implement bus priority measures	Public Transport
10 Improve the local bus network	Public Transport
11 Improve the regional bus network	Public Transport
12 Integrate public transport ticketing	Public Transport
13 Improve the cycle network	Walking and Cycling
14 Increase the supply of cycle parking	Walking and Cycling
15 Introduce a cycle hire facility	Walking and Cycling
16 Improve safety in the pedestrian network	Walking and Cycling
17 Improve the pedestrian network and public realm in the town centre area	Walking and Cycling
18 Ensure accessibility for all within the town and to key destinations	Walking and Cycling
19 Provide or upgrade active travel information	Walking and Cycling
20 Improving access to travel information	Public Transport
21 Promote cycling, walking and public transport travel through awareness campaigns	Public Transport, Walking and Cycling
22 Ensure accessibility within new developments	Walking and Cycling
23 Ensure connectivity to and between new developments	Walking and Cycling
24 Develop a more comprehensive tool to test improvements to transport network	Highways and Car Parking
25 Update transport infrastructure to accommodate future transport technology	Highways and Car Parking

Linked to developments

6.1.8 Finally, the list above was developed further based on identifying missing links to the new development areas described in **Chapter 5**, including highway, bus and shared path links. These links are considered a more detailed subset of those transport improvements already identified in **Table 6.1**, specifically transport improvements 1, 10 and 13 respectively.

6.1.9 These additional improvements along with the full set described above, will be mapped and described further in terms of their phasing and implementation later in this chapter (Section 6.3), however initially, the assessment that was undertaken of this long list of options will be described in the following section.

6.2 Transport Improvement Assessment

6.2.1 An assessment of the full set of transport options discussed in the previous section was undertaken to determine how well they support the strategy objectives. The steps are listed below.

- Setting out the improvements in a set of logic maps to identify how they lead to change in the transport network and ultimately support the strategy objectives;
- Creating a pro-forma for each transport improvement to set out its benefits and risks in more detail, including its transport benefits, fit with the strategy objectives, potential risks in its implementation and potential sources of funding; and
- Future scenario modelling in the Countywide VISUM model has been ongoing throughout the progression of this study (undertaken separately), the initial results of which were also used in the assessment of some of the highway schemes.

6.2.2 This is described in more detail below.

Logic Maps

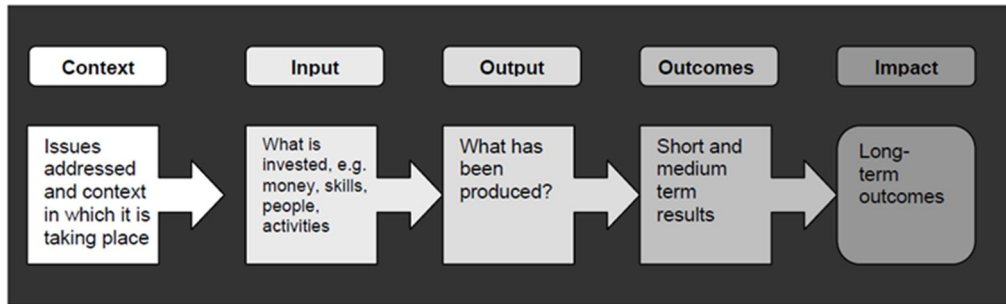
6.2.3 Logic maps are commonly used to link high level outputs to overarching policy. In other words, they help to identify how the transport improvements are expected to contribute towards changing the transport network and meet the strategy objectives.

6.2.4 They are best read from left to right in order to understand the impact of the proposed strategy outputs. A series of strategy outputs (the transport improvements from **Table 6.1** in this report) are given on the left that should address the strategy objectives (see **Table 2.1** of this report). The consequences of these outputs are assessed by working through their outcomes and interactions step by step in order to forecast the likely longer term impacts. Working through the potential consequences of the transport improvements at a high level also gives early warning of how unintended consequences may affect the success of the strategy. These unintended consequences have been recorded and discussed further in the risk register in **Chapter 7**.

6.2.5 The diagram in **Figure 6.1** explains what each of the stages in a logic map represent and below is a list of definitions for each of the categories typically used within logic maps:

- Context: In the case of Aylesbury, this is the strategy objectives;
- Inputs: Usually this would be the level of investment in a transport improvement, at this stage the costs and resources required for the improvements are unknown, therefore they are not shown in these logic maps. These are more relevant to the business case for a scheme and post-scheme evaluations;
- Outputs: These are the actual transport improvements, listed in **Table 6.1** of the report;
- Outcomes: These are the anticipated short and medium-term results of the outputs, such as increase in cycle mode share and change in traffic flows;
- Impacts: These are the anticipated long term results such as improved health and growth in the economy.

Figure 6.1 Definition of stages in a logic map²¹



Pro-formas

6.2.6 The pro-formas are intended to provide a consistent summary of each improvement and include a high level qualitative assessment of the transport benefits, fit with the strategy objectives, and potential feasibility and deliverability risks. The template used for the pro-formas is shown in **Figure 6.2** along with a description of what information or scoring categories should be used in each field of the template.

Figure 6.2 – Pro-forma template with descriptions

Scheme					
Reference	identifies the reference number of the scheme (1 to 26)			Type of Scheme	identifies the nature of the scheme (Highway, Car Parking, Public Transport, Cycle, Pedestrian, Travel Information, New Developments / Planning, Technology / Innovation)
Name	identifies the name of the scheme				
Description	description of what it consists				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
provides a qualitative assessment on how much the scheme contributes to each one of the set objectives (three is very significant and one is less significant)					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Scale of Impact	evaluates the overall impact the scheme may provide, based on the total score from the objectives' assessment, i.e.: • 15 to 18 = very high; • 12 – 14 = high; • 8 to 11 = moderate; • 5 to 7 = low; and • 1 to 4 = very low		Public Support	provides a qualitative assessment of the existing or expected public acceptability, particularly based on the information the stakeholder workshop provided (very high, high, moderate, low or very low)	
Transport Benefits					
Economic Growth	provides a qualitative assessment of how the scheme contributes to the economic development of Aylesbury (very high, high, moderate, low or very low impact)		Well Being / Accidents	provides a qualitative assessment of how the scheme contributes to the wellbeing (physical activity and safety) of the population who lives, works or visits Aylesbury (very high, high, moderate, low or very low impact)	
Socio-Distributional	provides a qualitative assessment of how the scheme contributes to society and distributional impacts in Aylesbury (very high, high, moderate, low or very low impact)		Local environment	provides a qualitative assessment of how the scheme contributes to the quality of the local environment (mainly air quality and noise) of Aylesbury (very high, high, moderate, low or very low impact)	
Implementation					
Status	identifies the stage of the scheme (conceptual or already proposed)		Timescale	provides an indicative timescale of when the scheme can be implemented (short term (less than 5 years), medium term (5 to 10 years) and long term (more than 10 years))	
Indicative Cost	provides an indicative estimation of the cost of implementing the scheme (low cost (<£10m), medium cost (£10-50m), high cost (£50-100) and very high cost (£100m+))		Likely Promoter / Funder	identifies who may be the promoter or funder of the scheme	
Indicative Delivery Risk Assessment					
Feasibility Risk	provides a likelihood of the risks of engineering difficulty, complexity of delivery, planning legacy required and public acceptability (high, moderate or low)		Deliverability Risk	provides a likelihood of the risks to business case eligibility and expected costs and funding (high, moderate or low)	
Assumptions					

6.2.7 The fields used in this template are based on those issues that should be considered at an early stage in a transport improvement assessment. The information used in these fields is qualitative at this stage, based on the information that is available. However, it is expected that following the adoption of the ATS and a defined set of transport improvements, that these will be developed in more detail with supporting quantitative evidence to form a full business case appropriate for funding applications.

²¹ Logic Mapping: Hints and Tips Guide (October 2010), The Tavistock Institute

- 6.2.8 The completed pro-formas for each of the transport improvements are shown in **Appendix C**. These will form a basis for future assessment.
- 6.2.9 **Table 6.2** presents the transport improvements ranked based on their scoring against the Aylesbury Transport Strategy Objectives. The following scoring system was used:
- 1 = Minor contribution to the objective
 - 2 = Moderate contribution to the objective
 - 3 = Significant contribution to the objective.

Table 6.2 – Transport improvements ranked by scores

No.	Transport Improvement	Improve transport connectivity and accessibility within Aylesbury town	Improve accessibility to other urban centres and new growth areas outside Aylesbury town	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport	Total
13	Improve the cycle network	3	3	3	3	3	3	18
1	Implement new outer road links	3	3	3	3	3	1	16
6	Provide a Park & Ride system	3	2	3	3	1	3	15
9	Implement bus priority measures	3	2	3	3	1	3	15
3	Restrict through traffic within Aylesbury town centre	3	1	3	1	3	3	14
7	Improve transport links to the railway stations	2	3	1	3	2	3	14
5	Analyse parking provision and controls to determine changes to parking provision	3	1	3	2	1	3	13
2	Improve safety on the highway network	2	2	2	2	3	2	13
8	Upgrade the existing bus station in Aylesbury town	3	3	1	2	1	3	13
10	Improve the local bus network	3	3	2	1	1	3	13
22	Ensure accessibility within new developments	3	1	2	2	2	3	13
4	Implement a low emission zone for the centre of Aylesbury	3	1	3	1	2	2	12
11	Improve the regional bus network	1	3	2	2	1	3	12
13	Integrate public transport ticketing	1	3	2	2	1	3	12

17	Improve the pedestrian network and public realm in the town centre area	3	1	2	1	2	3	12
18	Ensure accessibility for all within the town and to key destinations	3	1	1	1	3	3	12
19	Provide or upgrade active travel information	3	1	2	2	1	3	12
20	Improving access to travel information	2	3	1	2	1	3	12
23	Ensure connectivity to and between new developments	3	1	2	2	1	3	12
24	Develop a more comprehensive tool to test improvements to transport network	2	2	2	3	2	1	12
25	Update transport infrastructure to accommodate future transport technology	2	2	3	1	1	3	12
16	Improve safety in the pedestrian network	2	1	1	1	3	3	11
21	Promote cycling, walking and public transport travel through awareness campaigns	2	1	2	2	1	3	11
14	Increase the supply of cycle parking	2	2	2	1	1	2	10
15	Introduce a cycle hire facility	2	2	2	1	1	2	10

6.3 Countywide Mitigation Modelling

- 6.3.1 The study area is covered by the Countywide Strategic Transport Model as shown in **Figure 3.26**. This model has been used to assess many of the Transport Improvements listed in **Table 6.1** and its results have been used as a high-level guide in the development of the strategy. It is noted that as the transport improvements are progressed to a more detailed level, further model development will need to take place to be able to test schemes for feasibility and business cases in due course.
- 6.3.2 This section highlights the results from the future year model scenarios²². The figures presented in this section represent the final iteration of the mitigation scenario testing for the countywide modelling. This section should be updated if further iterations of modelling are undertaken.
- 6.3.3 The Countywide Strategic Transport Model is a multi-modal transport model including a highway model and a public transport (bus and rail) model. The model parameters are shown in **Appendix E**.
- 6.3.4 The base year of the model is 2013 and includes three time periods:
- Morning peak hour (0800 to 0900)
 - Evening peak hour (1700 to 1800)
 - Average inter peak hour (for an inter peak period of 1000 to 1600)
- 6.3.5 Base and Future Year scenarios modelled are shown in **Table 6.3**.

Table 6.3 – Scenarios Modelled using the Countywide Model²³

Base Year	Summary Details
2013	A 2013 updated Countywide model which includes network refinements and revalidation
Future scenario (2033)	Summary Details
Do Minimum (DM) “No development”	Based on an additional 14,171 dwellings and 31,895 jobs across the county. Outside of the county, growth is capped to National Trip End Model (NTEM) levels
Do Something 1 (DS1)	In addition to the DM developments, the DS1 scenario contains an addition of 38,985 dwellings and 12,931 jobs. Outside of the county growth is capped to NTEM levels.
Do Something 2 (DS2)	The DS2 scenario includes all DS1 new development. However, a 4,000 household development has been assigned to Winslow instead of Haddenham. Outside of the county growth is capped to NTEM levels.

- 6.3.6 The difference between DS1 and DS2 is the relocation of the 4,000 household development from Haddenham to Winslow. DS1 would generate additional trips to/from Aylesbury along the A418 corridor. DS2 would generate additional trips to/from Aylesbury along the A413 corridor.
- 6.3.7 The parameters of the DS1 scenario are detailed further in **Table 6.4**. This highlights that almost 60% of the additional dwellings are located in Aylesbury Vale District. Overall, DS1 and DS2 models the impact of 95% more households and 7% more jobs across Aylesbury Vale District by 2033 compared to the 2013 Base Model.

²² Documents reviewed were the Countywide Strategic Transport Model – Local Model Validation Report (24/10/2014) (Jacobs) and Countywide Local Plan Modelling – Forecasting Modelling Report (08/06/2016) (Jacobs)

²³ Countywide Local Plan Modelling – Forecasting Modelling Report (08/06/2016) (Jacobs) and Countywide Model Outputs Phase 2, December 2016 (Jacobs)

Table 6.4 – 2033 DS1 Scenario Growth²⁴

Location	Totals
Aylesbury Vale District	22,350 houses and 6,062 jobs
Chiltern District	3,847 houses
South Bucks District	4,324 houses and 4,379 jobs
Wycombe District	8,464 houses and 2,490 jobs
Outside of Buckinghamshire	Capped to NTEM growth levels

6.3.8 In addition to household and employment growth, the 2033 scenarios include forecast changes to the infrastructure network across Buckinghamshire. These changes are shown in **Appendix E**. The key infrastructure schemes included around Aylesbury as shown in **Table 6.5**. All scenarios assume that the M4 Smart Motorway upgrade and HS2 projects will be completed.

Table 6.5 – Aylesbury Network Changes included in the 2033 Scenarios (Jacobs)

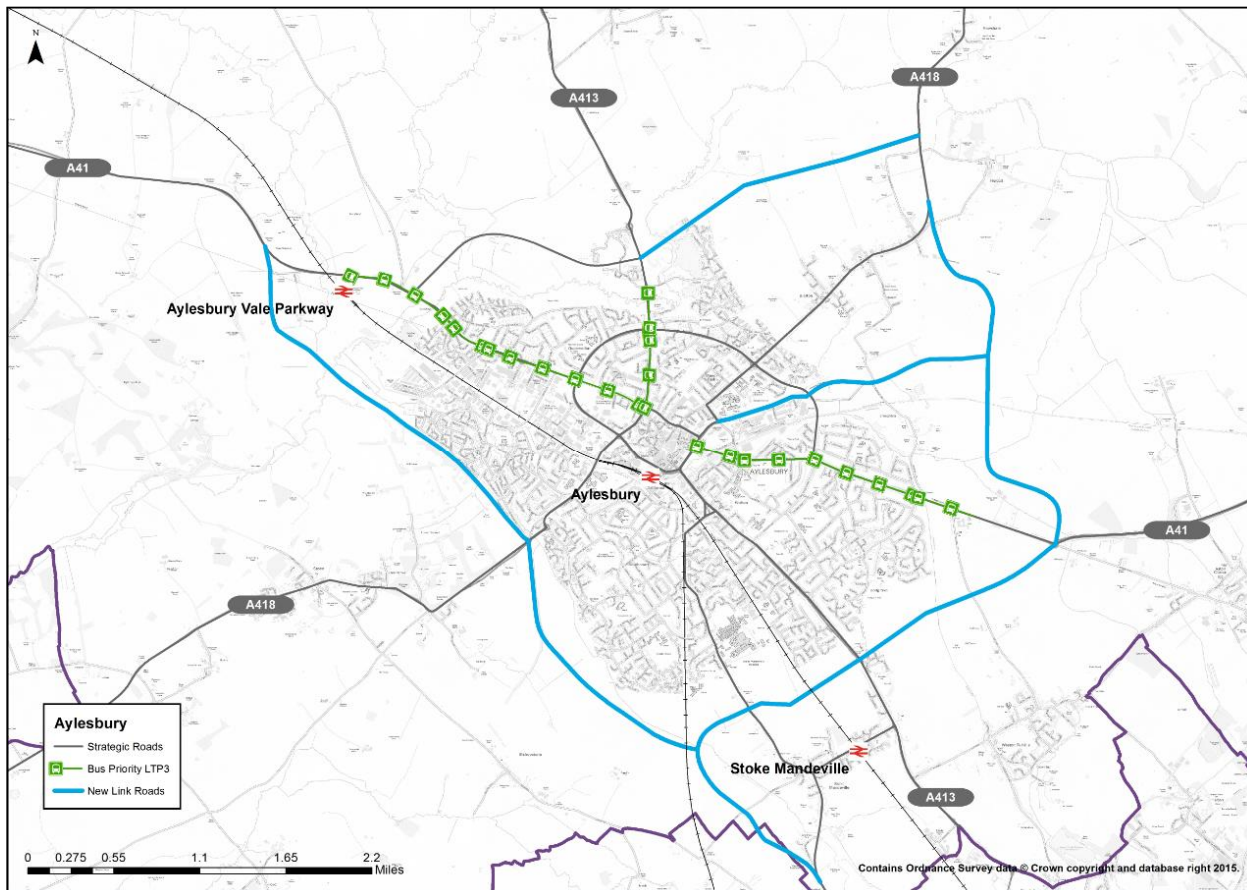
Scheme	District	Description	Scenario
Aylesbury SELR	Aylesbury	Link road through Hampden Fields development	DS
HS2: SM link road	Aylesbury	New link road off A4010	DM & DS
Stocklake Urban Link	Aylesbury	Upgrade to existing Stocklake Road	DM & DS
SLR & ELR (N)	Aylesbury	New link road connection Stocklake with A418	DM & DS
WLR	Aylesbury	New link road connecting the A418 and A41	DS
A413 Widening	Aylesbury	Widening the A413 to dual carriageway between Martin Dalby Way and the A4157 in northern Aylesbury	DS
Horse & Jockey Junction	Aylesbury	Congestion reduction measures at the Horse & Jockey junction	DS
Stoke Road Signalised Junction	Aylesbury	Traffic signals amended to optimise flows	DS
Traffic Calming	Aylesbury	Traffic calming to dissuade traffic from rat-running through Prendal Avenue to Stoke Road and in the town centre to encourage pedestrian movements	DS
Bus Priority Measures	Aylesbury	Bus Priority Measures on the A41 and A413	DS
A41 Berryfields Junction	Aylesbury	Capacity improvements at the junction	DS
HS2: Realignment of A41 Bicester Road	Aylesbury	New junction and realignment of existing A41	DM & DS
HS2: Realignment of Station Road	Aylesbury	Station Road and surrounding roads realigned	DM & DS
HS2: Realignment of Perry Hill	Aylesbury	Realignment of existing road	DM & DS

6.3.9 The final iteration of modelling was undertaken in December 2016²⁵ to assess the impacts of the Transport Improvements highlighted in this section. These model scenarios are referred to as the 2033 DS1/2 Mitigation scenarios. **Figure 6.3** highlights the schemes included in the 2033 DS1/2 Mitigation scenarios.

²⁴ Countywide Model Outputs Phase 2, December 2016 (Jacobs)

²⁵ Countywide Model Outputs Phase 2, December 2016 (Jacobs)

Figure 6.3 – 2033 DS1/2 Mitigation scenario schemes



6.3.10 In order to reflect journeys which may transfer to cycle, bus or rail from car with the Transport Improvements in place, the trip matrices were adjusted in the DS1/2 Mitigation scenarios. Data from previous mode shift studies was used to inform these reallocations.

6.3.11 Two sets of modelling results for Aylesbury have been supplied which are commented upon:

- Congestion Ratio Plots
- Change in Travel Time Plots

6.3.12 An explanation of the criteria shown in the plots is shown in **Table 6.6** and **Table 6.7**.

Table 6.6 – Congestion Ratio Criteria Plot Guide²⁶

Colour of the band	Congestion Ratio	Interpretation
Transparent	1	Link experiences free flow conditions
Green	1 – 1.5	Travel times up to 50% greater than in the uncongested situation
Yellow	1.5 - 2	Travel times are between 50% and 100% (i.e. two times) higher than in the uncongested situation
Orange	2 - 4	Travel times are two to four times higher than in the uncongested situation
Red	>4	Travel times are more than four times higher than in the uncongested situation

Table 6.7 – Change in Travel Time Criteria Plot Guide²⁷

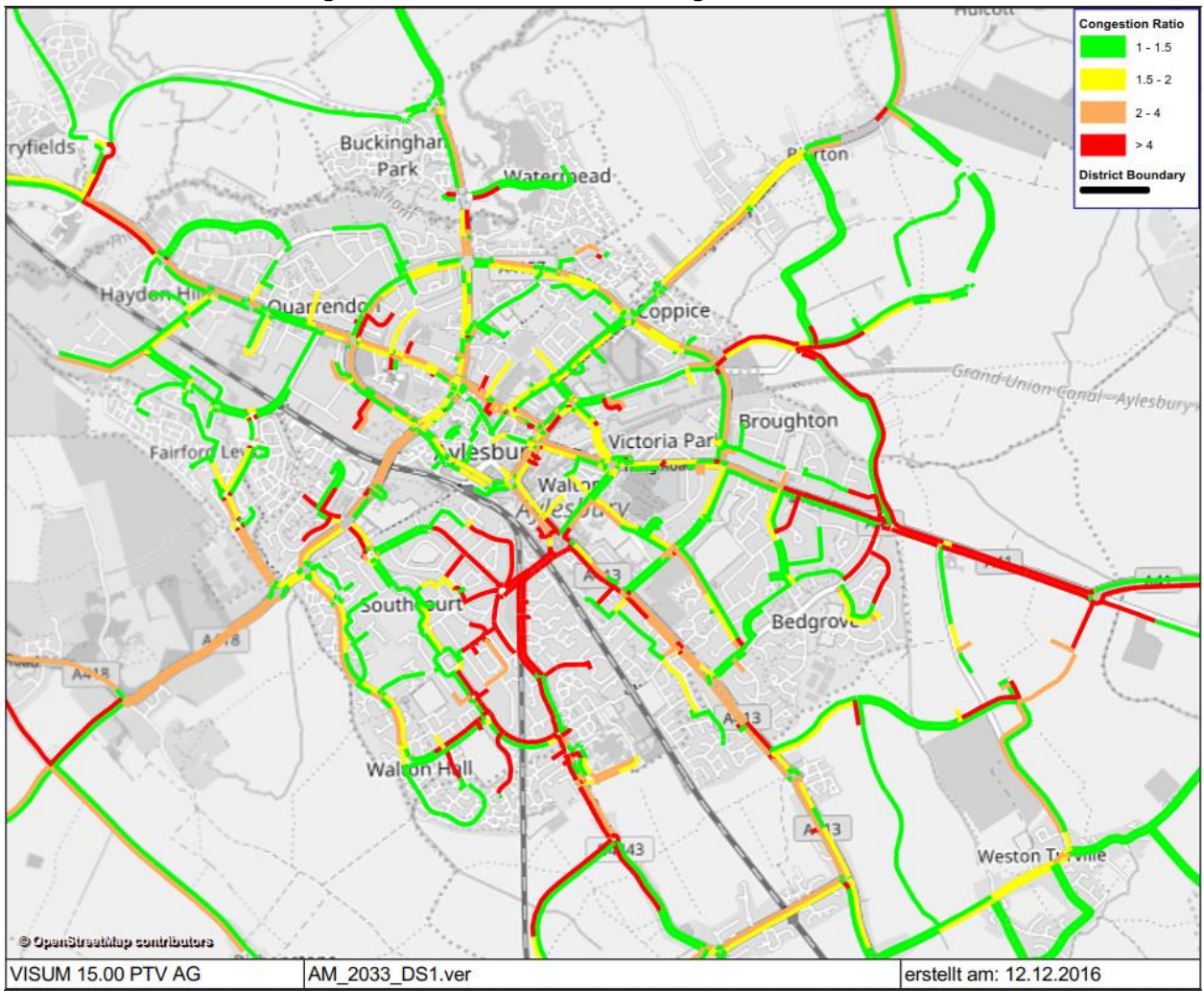
Colour of the band	Interpretation	Notes
Transparent	Either travel time on the link is the same in the do something and do minimum scenario, or the change in travel time does not lead to congested conditions (in which the travel time is at least twice the uncongested time)	n/a
Green	Travel time in the DS is less than the DM (often as a result of reassignment away from congested links)	The greater the decrease the thicker and darker the band
Red	Travel time in the DS is greater than the DM	The greater the increase the thicker and darker the band

- 6.3.13 **Figure 6.4** and **Figure 6.5** illustrate the Congestion Ratio in the 2033 DS1 and 2033 DS1 Mitigation AM peak scenarios for all vehicle types (cars, light goods vehicles and heavy goods vehicles). The additional outer link roads which form the DS1 Mitigation scenario are highlighted in purple in **Figure 6.5**.
- 6.3.14 **Figure 6.4** highlights that the key areas of congestion in the 2033 DS1 AM peak are around southern Aylesbury along routes leading to, and on, the B4443 Lower Road. There is also congestion on the A41 approaching Aylesbury from the east. and on the A418 western approach to the town .
- 6.3.15 The DS1 Mitigation scenario in **Figure 6.5** highlights that the additional link roads relieve some congestion on the B4443, however it is still the most congested part of the network in Aylesbury, especially approaching the Stoke Road gyratory. The A413, A41 and A4010 approaching Aylesbury all experience less congestion with the link roads in operation. The A418 experiences more congestion approaching Aylesbury from Haddenham. This may be linked to the new development however similar levels of congestion are seen in the DS2 scenario with the development located at Winslow. Overall, the new link roads operate within capacity, however there is still some congestion on the southern link roads.

²⁶ Countywide Local Plan Modelling – Forecasting Modelling Report (08/06/2016) (Jacobs)

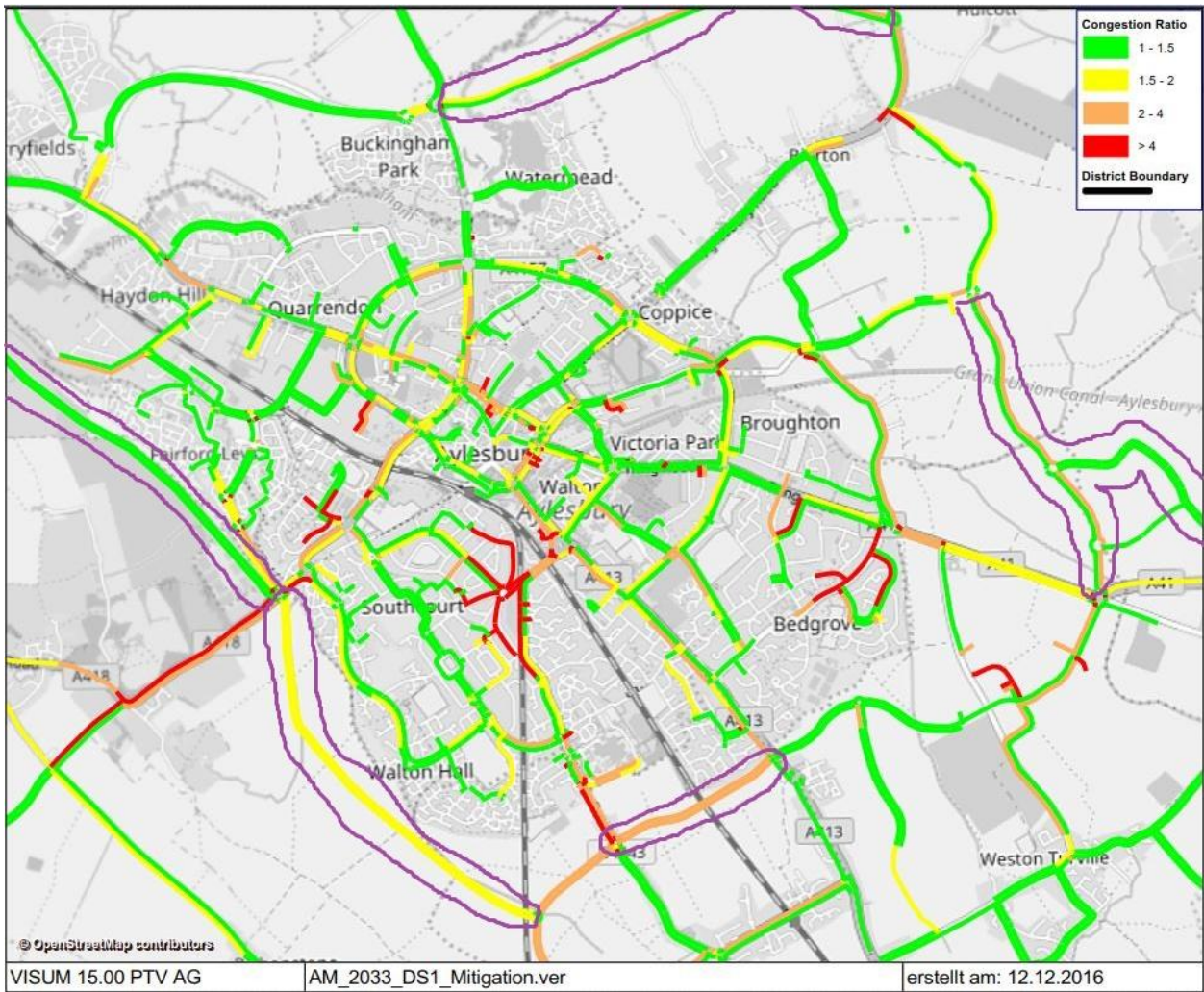
²⁷ Countywide Local Plan Modelling – Forecasting Modelling Report (08/06/2016) (Jacobs)

Figure 6.4 – 2033 AM Peak DS1 Congestion Ratio Plot²⁸



²⁸ Countywide Model Outputs Phase 2, December 2016 (Jacobs)

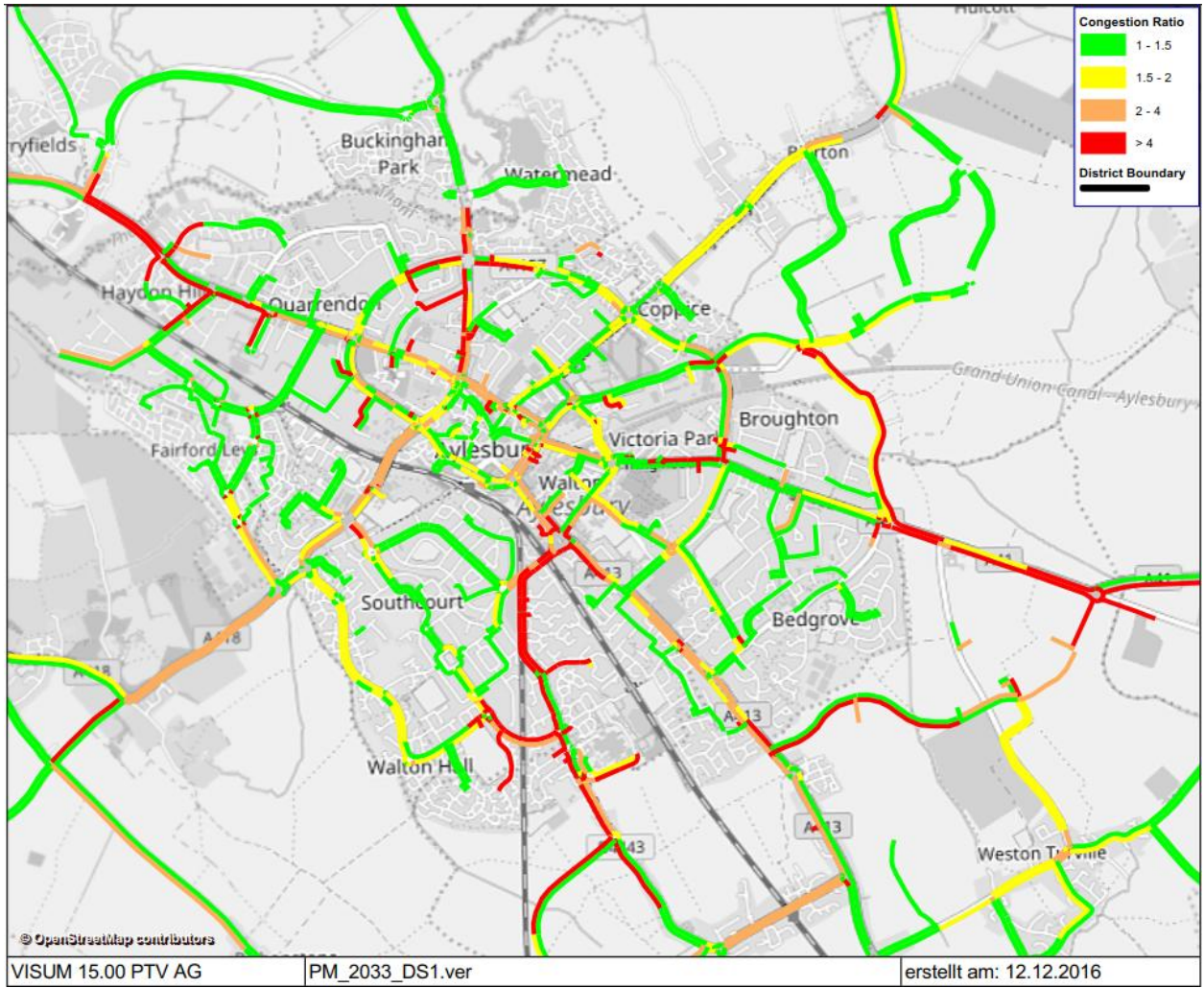
Figure 6.5 – 2033 AM Peak DS1 Mitigation Congestion Ratio Plot²⁹



- 6.3.16 **Figure 6.6** and **Figure 6.7** illustrate the Congestion Ratio in the 2033 DS1 and 2033 DS1 Mitigation PM peak scenarios for all vehicle types (cars, light goods vehicles and heavy goods vehicles).
- 6.3.17 **Figure 6.6** highlights that in the PM peak the B4443 and link roads around it experience significant congestion, similar to the AM peak. The A41 also experiences significant congestion either side of the town centre.. There is also some congestion on the A413 either side of the town centre.
- 6.3.18 **Figure 6.7** highlights that the additional link roads help relieve congestion on the A4010 and A41 approaching Aylesbury, however there are still small areas of congestion on the B4443. The new link road networks between the A418 and A413 north and south of the town centre also suffer from some congestion. The A418 approaching Aylesbury from the south west continues to be very congested. The A4157 inner ring road also shows a reduction in congestion in the DS1 Mitigation scenario.

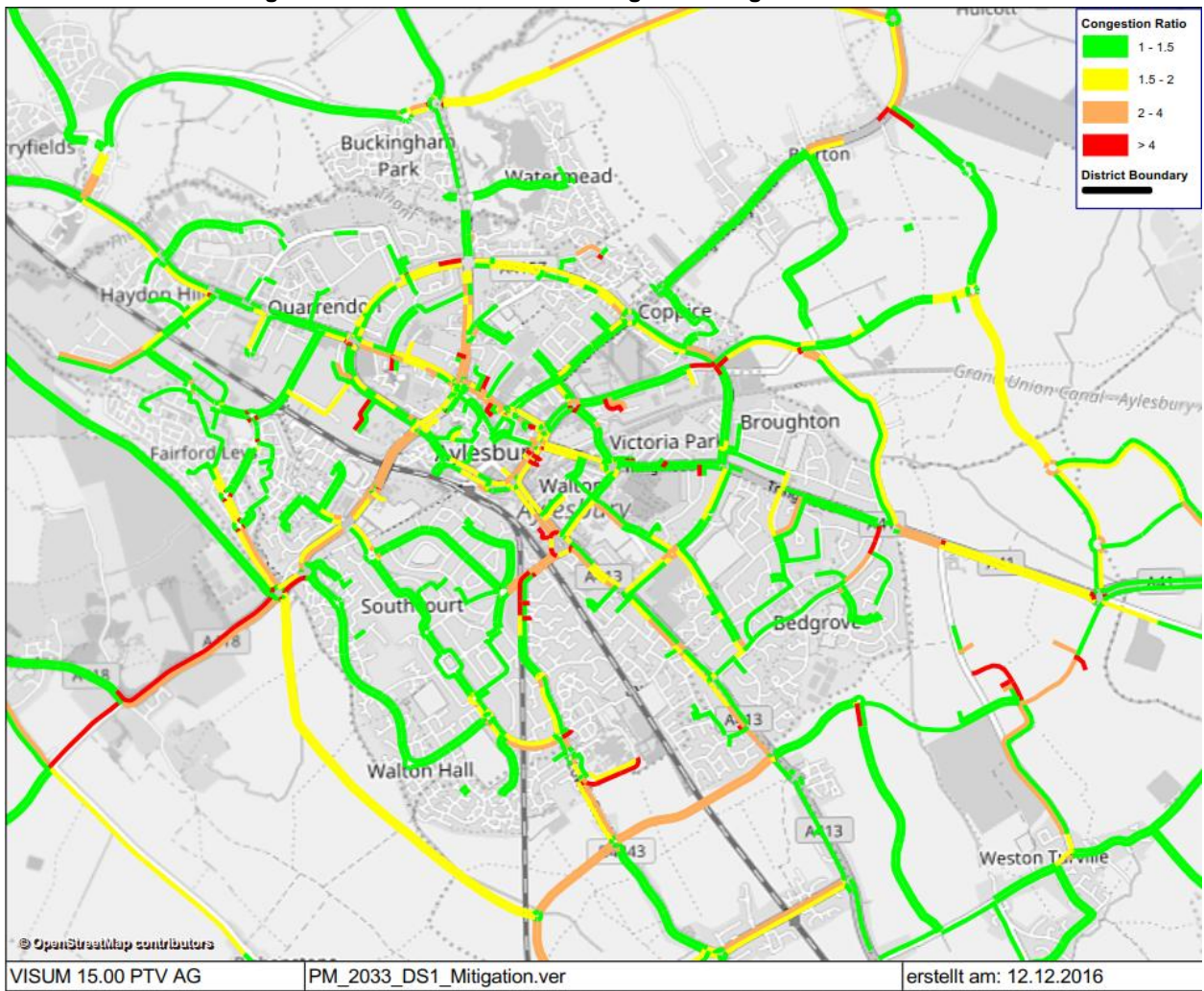
²⁹ Countywide Model Outputs Phase 2 produced December 2016 (Jacobs)

Figure 6.6 – 2033 PM Peak DS1 Congestion Ratio Plot³⁰



³⁰ Countywide Model Outputs Phase 2 produced December 2016 (Jacobs)

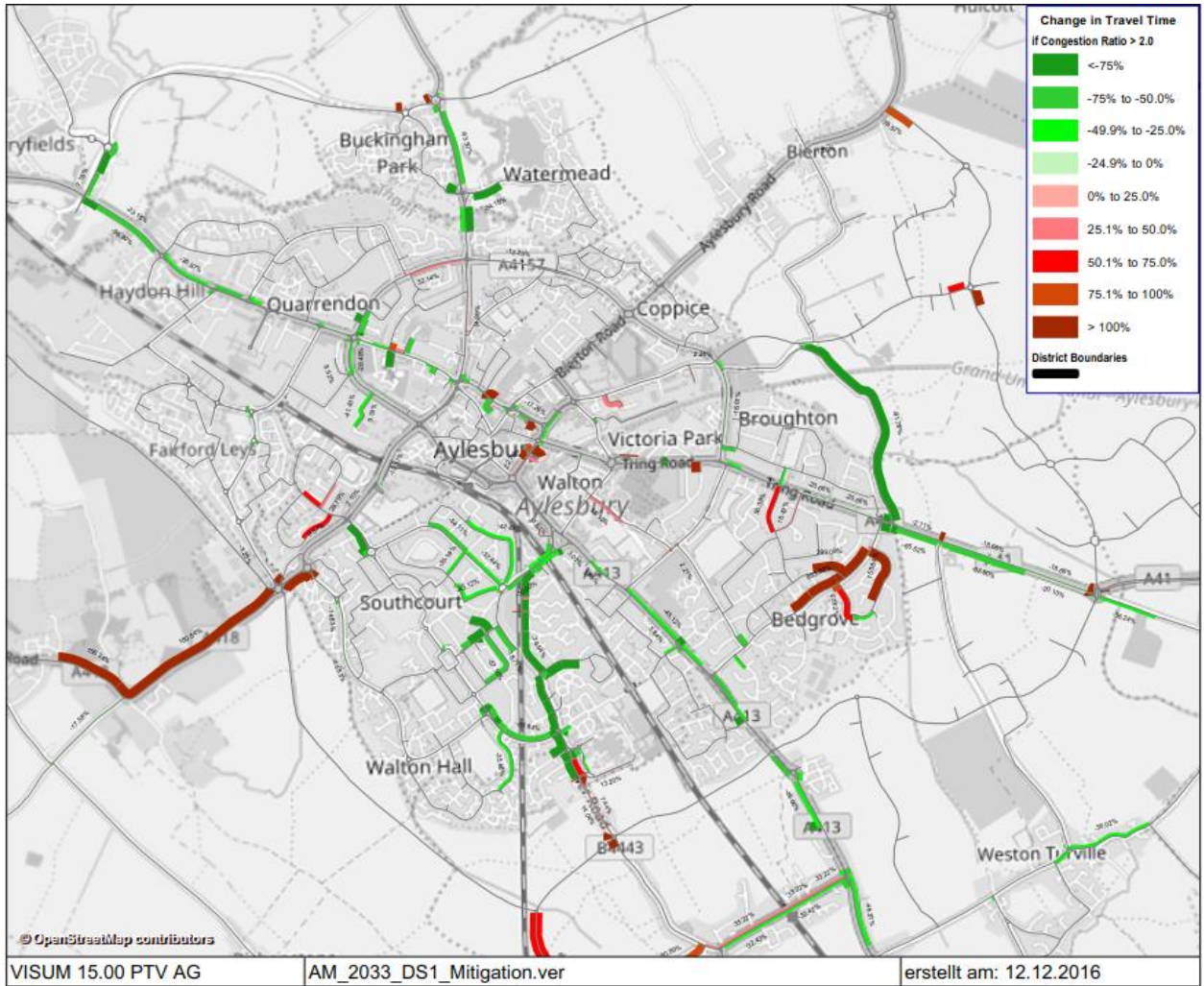
Figure 6.7 – 2033 PM Peak DS1 Mitigation Congestion Ratio Plot³¹



- 6.3.19 **Figure 6.8** and **Figure 6.9** detail changes in travel times between the 2033 DS1 Mitigation scenario and the 2033 DM and DS1 scenarios in the AM peak period for all vehicle types (cars, light goods vehicles and heavy goods vehicles). It is important to note these plots only highlight changes on roads where the congestion ratio is greater than 2 (i.e. travel times are more than 2 times higher than in the uncongested scenario). Roads with less congestion have been excluded.
- 6.3.20 **Figure 6.8** highlights that the 2033 DS1 Mitigation scenario helps reduce travel times on the B4443 corridor, the A41 and Broughton Lane when compared to the 2033 DM scenario. However, there are increases in travel times on the A418 approaching Aylesbury from the south west, the A4010 around Stoke Mandeville and on Bedgrove Road. Delays on the A418 from Haddenham are consistent between the DS1 and DS2 scenarios, indicating the development at Haddenham in DS1 is not the only generator of these.
- 6.3.21 **Figure 6.9** highlights that the 2033 DS1 Mitigation generates similar impacts on travel times when compared to the 2033 DS1 scenario. There are reductions in travel times on key corridors in southern Aylesbury with sections of the A413, B4443 and A41 all experiencing significant reductions. These are to be expected with the new link roads in operation. Increases seen in **Figure 6.8** are also seen in **Figure 6.9**, although the increases on the A418 are not as pronounced.

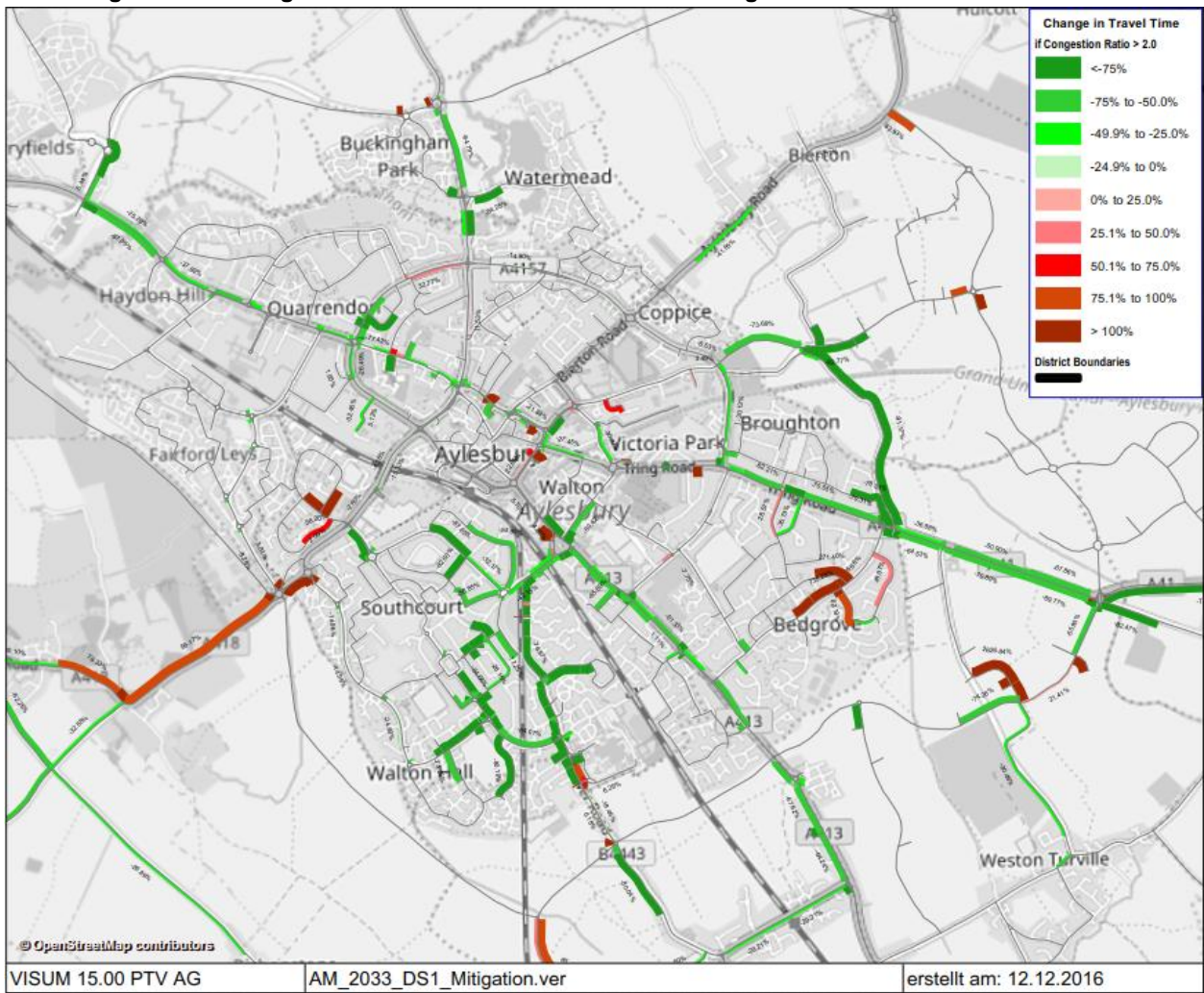
³¹ Countywide Model Outputs Phase 2 produced December 2016 (Jacobs)

Figure 6.8 – Change in AM Peak Travel Time – 2033 DS1 Mitigation minus 2033 DM Scenario³²



³² Countywide Model Outputs Phase 2 produced December 2016 (Jacobs)

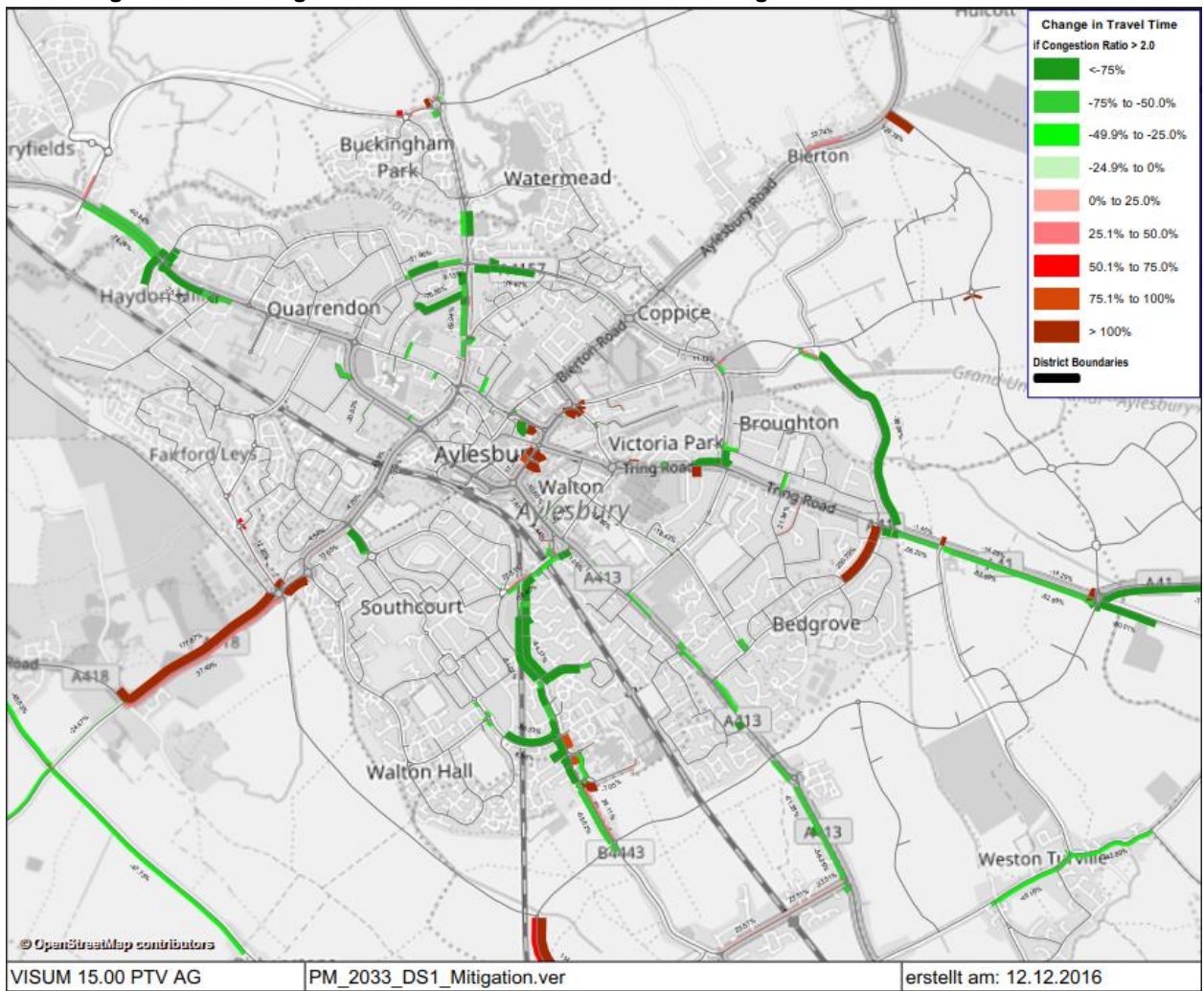
Figure 6.9 – Change in AM Peak Travel Time – 2033 DS1 Mitigation minus 2033 DS1 Scenario³³



- 6.3.22 **Figure 6.10** and **Figure 6.11** detail changes in travel times between the 2033 DS1 Mitigation scenario and the 2033 DM and DS1 scenarios in the PM peak period for all vehicles (cars, light goods vehicles and heavy goods vehicles). It is important to note these plots only highlight changes on roads where the congestion ratio is greater than 2 (i.e. travel times are more than 2 times higher than when traffic is free flowing). Roads with less congestion have been excluded.
- 6.3.23 **Figure 6.10** highlights that the 2033 DS1 Mitigation scenario helps reduce travel times on the B4443 corridor, southern sections of the A413, A41 and Broughton Lane when compared to the 2033 DM scenario. However, there are increases in travel times on the A418, Bedgrove and sections of the A4010 approaching Aylesbury.
- 6.3.24 **Figure 6.11** highlights that the 2033 DS1 Mitigation generates similar impacts on travel times when compared to the 2033 DS1 scenario. There are similar reductions in travel times on the B4443 corridor, southern sections of the A413, A41 and Broughton Lane, which are to be expected due to the new link roads.. Similar increases are seen on sections of the A418 and the A4010 approaching Aylesbury.

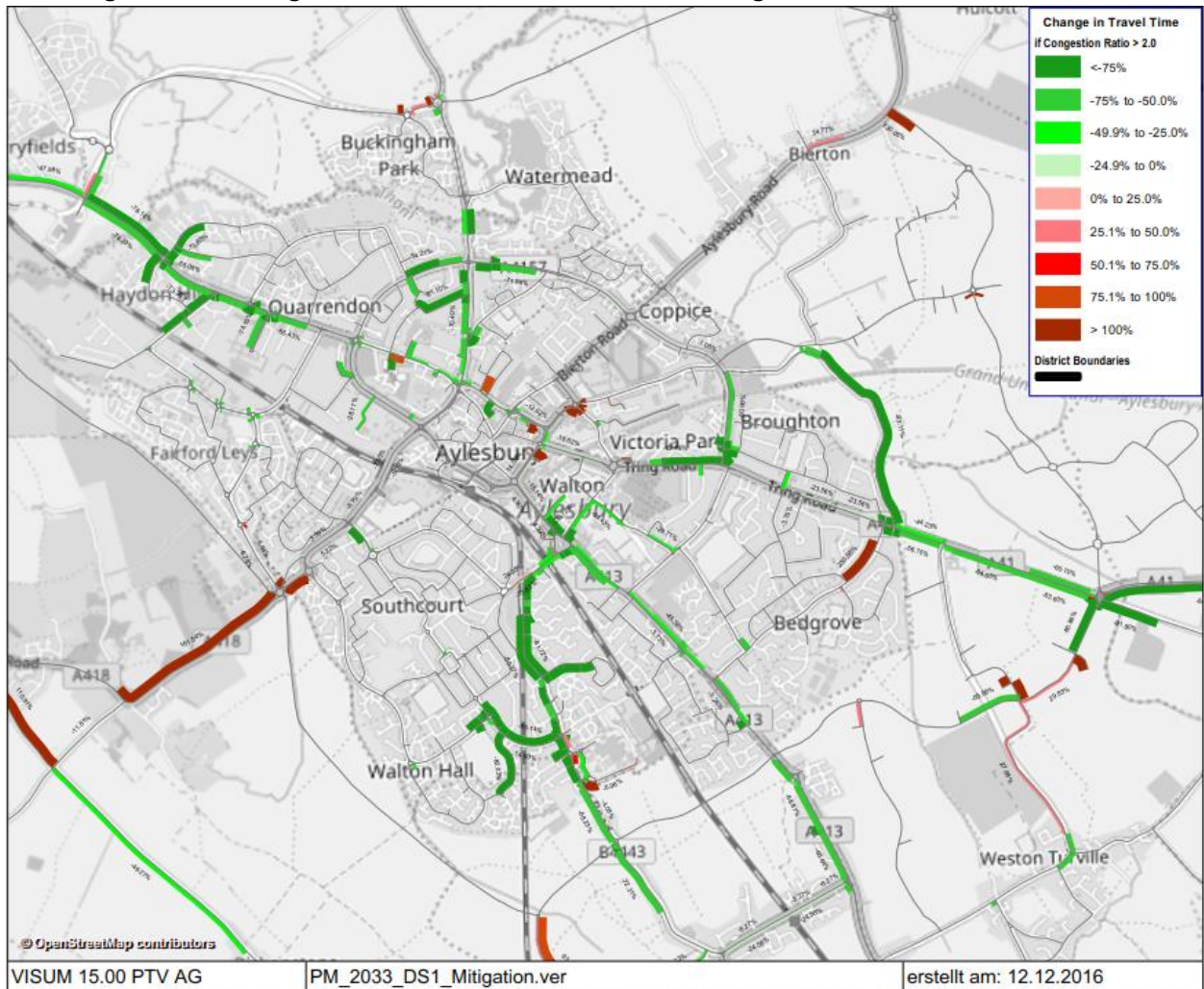
³³ Countywide Model Outputs Phase 2 produced December 2016 (Jacobs)

Figure 6.10 – Change in PM Peak Travel Time – 2033 DS1 Mitigation minus 2033 DM Scenario³⁴



³⁴ Countywide Model Outputs Phase 2 produced December 2016 (Jacobs)

Figure 6.11 – Change in PM Peak Travel Time – 2033 DS1 Mitigation minus 2033 DS1 Scenario³⁵



- 6.3.25 Using outputs from the Countywide Modelling³⁶, flow difference plots have been produced. These were undertaken to ascertain the impacts of the new link road network on traffic flows around the town.
- 6.3.26 The 2033 DS1 with Mitigation scenario was compared to the 2033 DS1 scenario for all vehicles (cars, light goods vehicles and heavy goods vehicles) in the AM and PM peak periods. A comparison between these scenarios was made as demand in both models is consistent and it is the new Transport Improvements which form the mitigation scenario. A comparison to the DM scenario is included in **Appendix E** for reference only.
- 6.3.27 **Figure 6.12** and **Figure 6.13** illustrate the flow differences between scenarios in the AM and PM peak scenarios. The plots illustrate that the new link road network is very well used, especially in southern Aylesbury. The additional link roads appear to remove the greatest traffic from the southern A413 and A41 approaches to Aylesbury..
- 6.3.28 The link road network between the A41, A413 and A418 in northern Aylesbury is not as heavily used, although it appears to reduce flows further south on the A418 as traffic diverts to the new link roads. The link road network does help to reduce flows on the key arterial routes into Aylesbury, although the greatest reductions appear to be on the outskirts of the town. There are varying impacts on the ring road around the town centre (formed by the A418 and A41) and negligible impacts on the B4443 corridor.

³⁵ Countywide Model Outputs Phase 2 produced December 2016 (Jacobs)

³⁶ "GIS Output Countywide Phase 2" produced December 2016 (Jacobs)

- 6.3.29 Overall, in eastern Aylesbury there appear to be reductions in flows on link roads between the arterial routes as traffic displaces to the new link roads. The impact in western Aylesbury is less pronounced, although the link roads around western and southern Aylesbury are heavily trafficked.
- 6.3.30 Comparing **Figure 6.12** and **Figure 6.13** to **Figure 6.5** and **Figure 6.6** confirms that the 2033 outer ring road network does help reduce flows and congestion on the A413 and A41 approaching Aylesbury from the south and east. There are still congested sections on the B4443 approaching Aylesbury despite the lower traffic volumes. The new link roads help reduce congestion on the A41 and A418 in northern Aylesbury, despite the minor changes in flows. There are negligible impacts on the A413 in northern Aylesbury.

Figure 6.12 – 2033 AM Peak Flow Difference – DS1 With Mitigation minus DS1

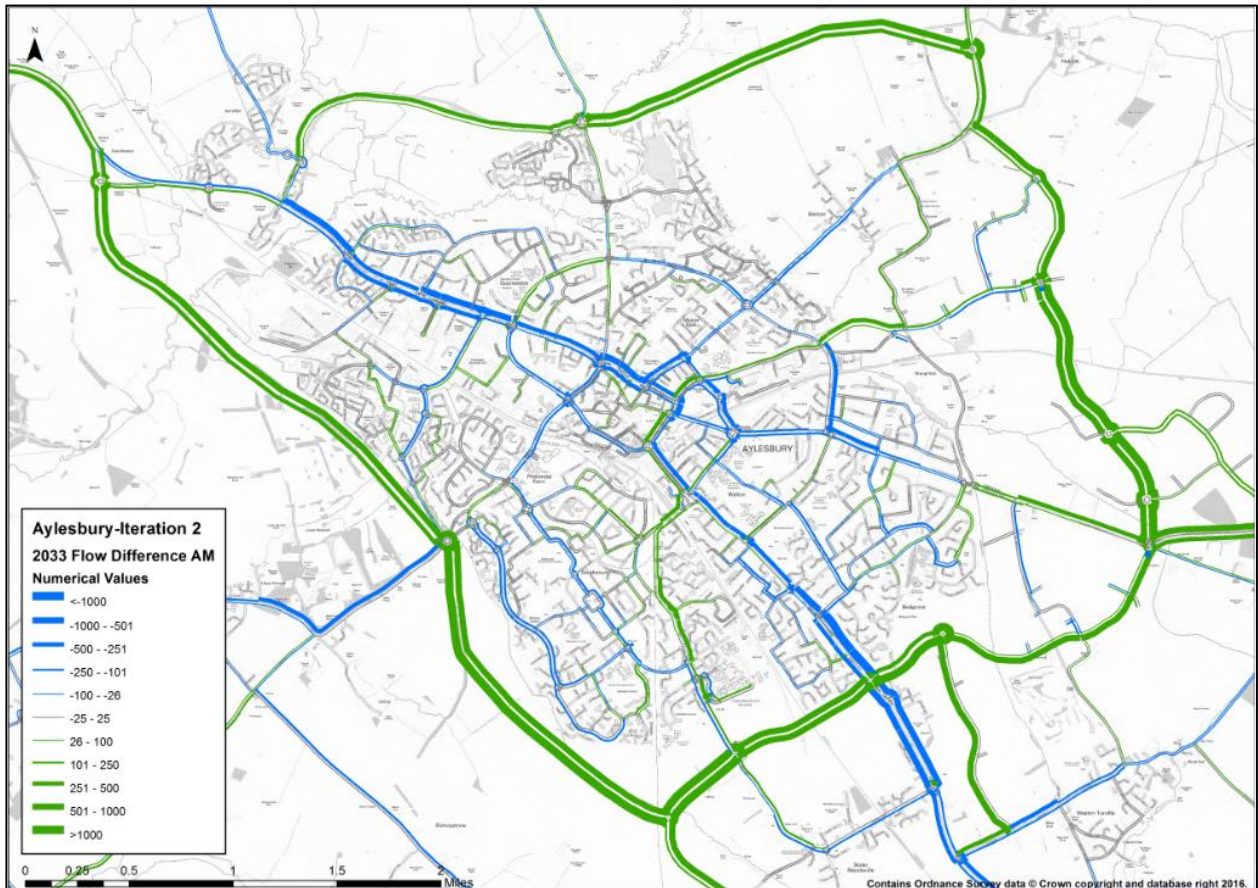
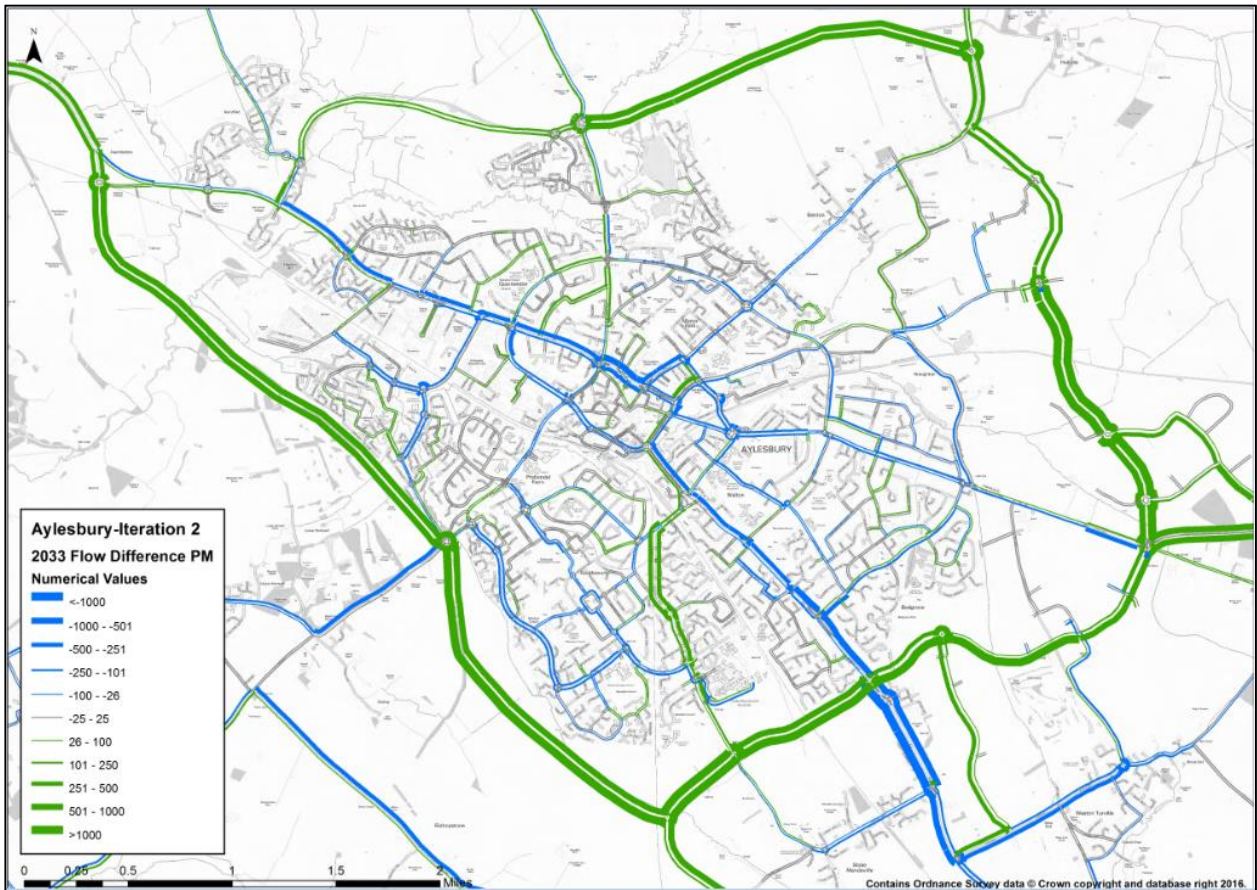


Figure 6.13 – 2033 PM Peak Flow Difference – DS1 With Mitigation minus DS1



- 6.3.31 From the modelling outputs, it is apparent that the DS1 Mitigation scenario impacts flows around Aylesbury and reduces levels of congestion and delay in some areas. The A41 and A413 in southern Aylesbury show the greatest reductions.. There are consistent reductions in flows on routes through the Town Centre with the outer link road network in operation, although impacts on the inner ring road are less pronounced. The results indicate that an outer link road network could greatly change traffic patterns in and around Aylesbury.
- 6.3.32 The modelling results presented in this section are referred to further in Section 6.4 detailing the Transport Sectors and Implementation plan.
- 6.3.33 The table below compares the Transport Improvements to the modelling results to highlight if they are supported by the results. Not all of the Transport Improvements can be linked to the modelling results.

Table 6.8 – Transport Improvements

Transport Improvement (TI)		Mitigation Scenario Modelling Results
1	Implement new outer road links	The outer link road network helps remove traffic and congestion from key arterial routes allowing other TIs to progress
2	Improve safety on the highway network	Traffic is reallocated to more strategic links with the mitigation measures in place
3	Restrict through traffic within Aylesbury town centre	Traffic is reduced around the town centre which may provide the opportunity for further restrictions
4	Implement a low emission zone for the centre of Aylesbury	Traffic is reduced around the town centre which would further encourage a low emission zone
5	Analyse parking provision and controls	The modelling results are not applicable
6	Provide a Park & Ride system	The results indicate capacity is reduced on key routes into the town centre improving the possibility of a park and ride system
7	Improve transport links to the railway stations	Reductions in vehicle flows around the rail stations would help reduce congestion and journey times
8	Upgrade the existing bus station in Aylesbury town	The modelling results are not applicable
9	Implement bus priority measures	The results indicate capacity is reduced on key routes into the town centre improving the possibility of bus lanes/priority measures
10	Improve the local bus network	Traffic reductions on local roads will reduce congestion and journey times for local services
11	Improve the regional bus network	The results indicate capacity is reduced on key routes into the town centre which would help regional services access Aylesbury. The outer link road network will provide more route choices for services passing through Aylesbury
12	Integrate public transport ticketing	The modelling results are not applicable
13	Improve the cycle network	Traffic reductions will reduce conflicts and offer opportunities for cycle lanes/priority features at junctions
14	Increase the supply of cycle parking	The modelling results are not applicable
15	Introduce a cycle hire facility	The modelling results are not applicable
16	Improve safety in the pedestrian network	The modelling results are not applicable
17	Improve the pedestrian network and public realm in the town centre area	The modelling results are not applicable
18	Ensure accessibility for all within the town and to key destinations	The modelling results are not applicable
19	Provide or upgrade active travel information	The modelling results are not applicable
20	Improving access to travel information	The modelling results are not applicable
21	Promote cycling, walking and public transport travel through awareness campaigns	The modelling results are not applicable
22	Ensure accessibility within new developments	The modelling results are not applicable
23	Ensure connectivity to and between new developments	The outer link roads help facilitate direct and convenient movements between developments

24	Develop a more comprehensive tool to test improvements to transport network	The Countywide Model results should help inform local modelling of the TIs proposed
25	Update transport infrastructure to accommodate future transport technology	The modelling results are not applicable

- 6.3.34 Overall, the results indicate how the proposed new link roads around Aylesbury can help to alleviate traffic on the existing inner roads, providing space for infrastructure to support alternative modes on these roads, such as new shared paths or bus lanes. This therefore highlights that the infrastructure improvements proposed in this strategy support the objectives and are likely to positively support the proposed growth. In conclusion, the modelling confirms that many of the Transport Improvements proposed should progress further into feasibility and further individual scheme assessment.
- 6.3.35 The conclusions from this section should be reviewed if further modelling iterations take place. As model results are indicative, it is recommended that all scheme proposals identified in this strategy are assessed using smaller scale, more detailed models. This will allow more accurate representation of their performance at an operational level to be understood. In addition, further assessment and appraisal will be required to determine and confirm other factors such as value for money assessment and deliverability.

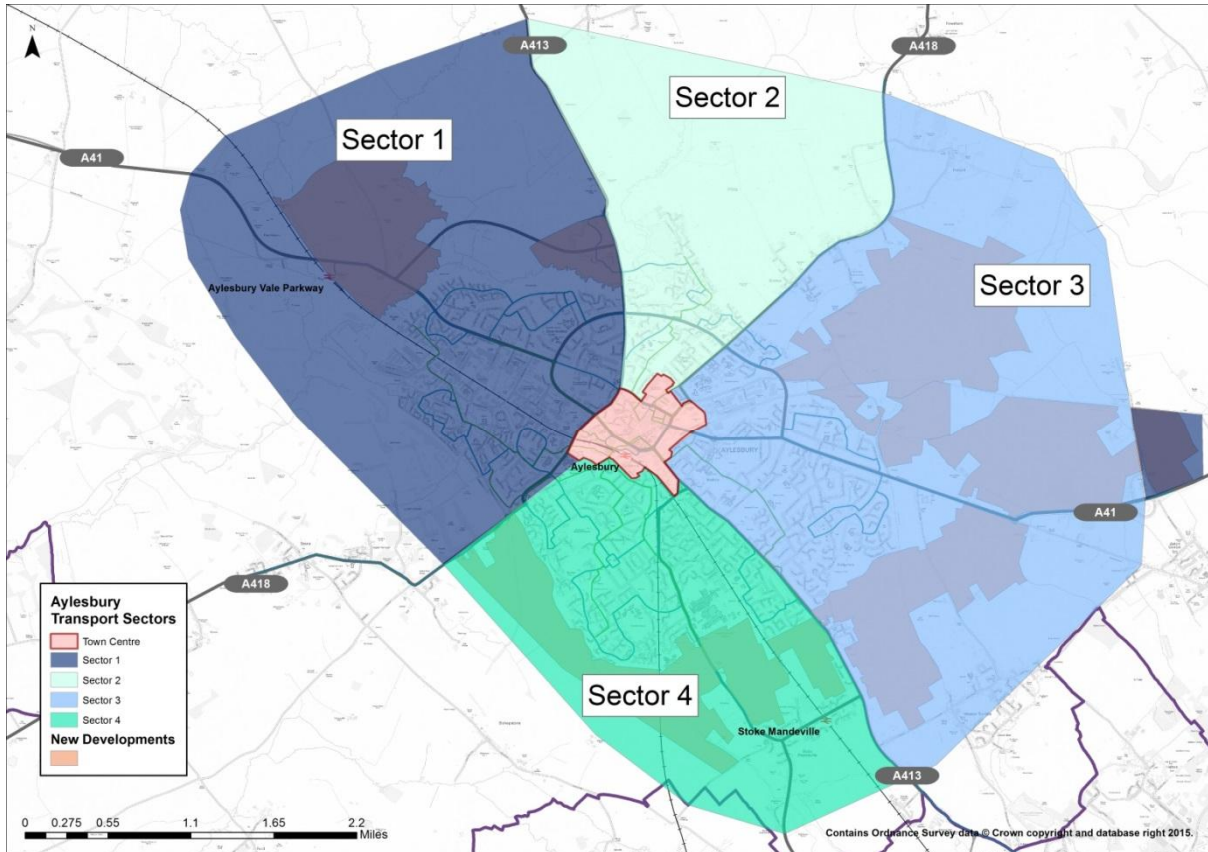
6.4 Transport Improvement Sectors & Implementation

Introduction

- 6.4.1 Following the identification of the Transport Improvements, Aylesbury was divided into Transport Sectors to focus and target the improvements to specific areas. Many of the TIs identified will be applied across Aylesbury, however it is important that they are targeted into specific Sectors as:
- Many of the new highway links are linked to potential new developments and are critical to the implementation of other TIs. For example, reducing capacity on key arterial routes into Aylesbury would only be considered once alternative routes (i.e. the outer link roads) have been provided;
 - Phasing of the sector implementation will help reduce the impact of construction over the next 20 years around Aylesbury;
 - Timeframes of external schemes such as HS2 and East West Rail will prioritise the implementation of TIs around Aylesbury; and
 - Dividing Aylesbury into Sectors will allow stakeholders to focus on certain areas of the town and maximise opportunities for partnership working as schemes progress.
- 6.4.2 It is acknowledged that some TIs cannot be allocated to specific sectors and would be implemented town-wide. Examples include “Develop a more comprehensive tool to test improvements to transport network” or “Update transport infrastructure to accommodate future transport technology”. In these instances further consideration and detail around the TIs need to be undertaken to derive schemes which can be implemented successfully.
- 6.4.3 The five Transport Sectors identified in collaboration with BCC/AVDC are shown in **Figure 6.14**. The Town Centre sector was identified as a separator sector by AVDC as there are many transport improvements that can help to support AVDC’s priority to regenerate and improve Aylesbury Town Centre. The Town Centre is the confluence of the existing highway and public transport networks and it is recognised this area could change greatly if many Transport Improvements are implemented.
- 6.4.4 The remaining Transport Sectors were identified as follows:
- Sector 1 in west Aylesbury. This contains the recent developments at Berryfields and Buckingham Park and the new link road between them and the A41 and A413. The A41 is the key corridor in the sector which also links to the key industrial estate in the town. Aylesbury Vale Parkway Station is located in this sector;
 - Sector 2 in north Aylesbury: This sector does not contain any proposed development but there are still desires for a link road between the A413 and A418. This sector could be impacted by possible infrastructure changes and plans for the A418 outside Aylesbury;

- Sector 3 in east Aylesbury: This sector contains the proposed developments at Aylesbury East, Broughton, Woodlands and Hampden Fields and their associated network of link roads. The key route in the area is the A41 which links to Tring and the M25; and
- Sector 4 in south Aylesbury: This sector contains the A413 and B4443, key routes into Aylesbury from the south. The South of Aylesbury development is planned in this sector. HS2 impacts will be felt in this area with the proposals for the A4010 and B4443/A413 link road. This sector contains Stoke Mandeville Station and Stadium, and the hospital which is a key destination and employment site in Aylesbury.

Figure 6.14 – Transport Sectors in Aylesbury



- 6.4.5 It is recognised that the Sectors are bounded by key roads in Aylesbury. Schemes which impact these roads can be attributed to either sector and would become clearer as schemes are developed during the feasibility and design stages.
- 6.4.6 The Transport Sectors were presented to stakeholders at the 2nd Stakeholder Workshop held on 19th September 2016. Comments and feedback received at this workshop are included in this section. Full details of the 2nd Stakeholder workshop can be seen in **Appendix A**.
- 6.4.7 As detailed in Section 6.3, many of the Transport Improvements proposed around Aylesbury were included in the 2033 DS1 Mitigation Scenario Countywide Model. The results from the 2033 DS1 with Mitigation scenario are referred to in this section to help provide an evidence base of what the impacts of Transport Improvements could be around Aylesbury. These results provide a high level indication only (which is appropriate for the purposes of this high level strategy), and it is recommended more detailed modelling is undertaken to assess the impacts of individual schemes.
- 6.4.8 The remainder of this section details the Transport Improvements in each sector and provides a draft implementation plan for them.

Town Centre

- 6.4.9 Aylesbury town centre is a key area for improvement as identified in the Aylesbury Town Centre Plan, developed collaboratively by public/private stakeholders and published in 2014. The Plan sets out a Vision for the town, strategic objectives and a set of guiding principles for future development. It also includes a series of short, medium and long term improvement actions, a number of which are transport related.

- The main concentration of retail premises
- Restaurants, bars and nightlife
- Aylesbury Waterside Theatre
- Waitrose and Travelodge
- The canal basin
- The University Campus Aylesbury Vale
- Buckinghamshire County Council offices
- Aylesbury Rail Station
- Aylesbury bus station
- Vale Park and Aqua Vale Leisure Centre
- An increasing residential sector.

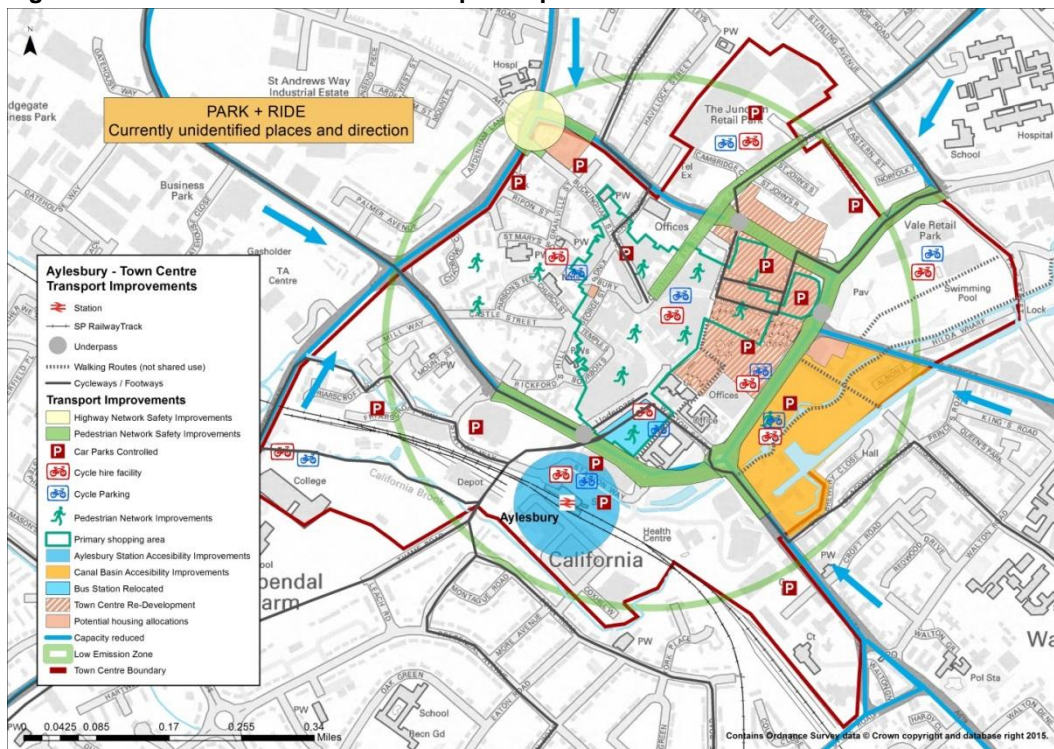
6.4.10 All of these attractors generate trips to the Town Centre. At present the Town Centre also represents the confluence of the road network, with the A41, A413 and A418 all converging and travelling through/around the Town Centre.

6.4.11 The strategic importance of the Town Centre was demonstrated at the 1st Stakeholder Workshop held in April 2016. Stakeholders ranked a bus/rail/cycle hub in the Town Centre as their most important Transport Improvement. It was acknowledged this may require the relocation of the existing bus station which is currently located beneath the shopping centre.

6.4.12 There was also a desire from all stakeholders to ensure that the future of the Town Centre is protected and Aylesbury continues to thrive and prosper. Transport Improvements in the Town Centre should ensure travel by all modes is catered for and modes are well connected.

6.4.13 **Figure 6.15** highlights the Town Centre Sector and the Transport Improvements identified for progression within the area.

Figure 6.15 – Town Centre Sector Transport Improvements



6.4.14 The Transport Improvements relating to the Town Centre Sector are detailed in **Table 6.9**.

Table 6.9 – Town Centre Transport Improvements

TI Description	Town Centre Sector Details
Improve safety on the highway network	Ensure conflicts between modes are minimised and a safety improvement scheme is implemented at the triple roundabout junction outside the Royal Buckinghamshire Hospital
Restrict through traffic within Aylesbury Town Centre	Traffic reduction measures on key routes into the Town Centre - only once all outer link roads are implemented. This should link to wider parking and public transport strategies to ensure any restrictions still permit other desired movements.
Implement a low emission zone for the centre of Aylesbury	Aim to discourage polluting vehicles from the Town Centre. This will link to the outer link roads providing alternative routes for traffic. A low emission zone could be proposed at certain times of the day initially to deter vehicle movements at peak times.
Analyse parking provision and controls	There are currently over 4,000 parking spaces in the Town. The level of demand should be assessed so possible reallocations or reductions in supply can be made. There is a need for a town-wide parking strategy and parking provision in the Town Centre Sector will play a key role in this. AVDC are developing a brief for consultation with BCC. The brief will cover public parking provided or planned by other providers (e.g. Friars Square Shopping Centre and Network Rail).
Provide a Park & Ride system	Should this progress as a longer term scheme, consideration should be given to a possible pick up/drop off site within the Town Centre. This should link to the parking strategy highlighted above.
Improve transport links to the Railway Station	Access to Aylesbury Station should be accounted for in all Town Centre TIs. The impact of East West Rail on passenger numbers should be carefully examined and monitored. Interchange with other transport modes should be examined and improved where possible in all TIs. Synergies with future parking and public transport strategies should be made.
Upgrade the existing bus station in Aylesbury town	It aims to increase the number of bus passengers by increasing the capacity, comfort and accessibility of Aylesbury bus station. The accessibility improvements would create a proper interchange with the railway station (Aylesbury), and improve links with the cycle and the pedestrian networks. There is a longer term ambition to expand or relocate the bus station, and alternative formats such as a series of mini bus hubs around the town centre could also be considered, providing that any new provision meets the current and future needs of passengers and bus operators. This should be a key driver of a future public transport strategy.
Implement bus priority measures	Implementation of bus priority measures on the main bus corridors converging on the Town Centre. This may depend on traffic reductions generated by the link road network, and link to the future public transport strategy.
Improve the local bus network	Ensuring all local bus services can link to, or serve, key destinations in the Town Centre and interchange opportunities are maximised. This should also form part of the public transport strategy.
Improve the regional bus network	Ensure regional bus services can access the bus station easily and conveniently. Liaise regularly with operators to ensure desired routes are provided. Ensure regional services form part of the wider public transport strategy
Integrate public transport ticketing	Development of a uniform and coherent, smart public transport ticketing system, particularly for use at the railway and bus station. This should form part of the public transport strategy
Improve the cycle network	Ensure all links to/from and around the Town Centre are provided and desired cycle movements are catered for where possible. Ensure cycling is addressed through a cycling strategy

Increase the supply of cycle parking	Ensure there is sufficient supply of cycle parking to meet current and future demand, particularly at key attractors and employment sites. Ensure cycling is addressed through a Cycling strategy
Introduce a cycle hire facility	Key attractors in the Town Centre should be included in any cycle hire scheme. Acknowledged this is a longer term ambition for Aylesbury and it should be addressed as part of a Cycling strategy.
Improve safety in the pedestrian network	Reduce the likelihood of pedestrian accidents at crossing points within Aylesbury Town Centre and accommodate pedestrian desire lines to/from destinations where possible
Improve the pedestrian network and public realm in the Town Centre area	Undertake a detailed review of pedestrian movements within the Town Centre area, which may involve creating shared spaces and removing traffic at particular sites where the pedestrian movements are predominant. This improvement aims to increase safety and improve the public realm. Links to the areas known as Waterside South which includes the canal basin should also be maximised as it is regenerated.
Ensure accessibility for all within the town and to key destinations	Ensuring/adapting the infrastructure around the Town Centre to ensure it is inclusive to people of all levels of mobility. An accessibility study/audit is a high priority action in the Aylesbury Town Centre Plan and discussions are due to take place with Bucks user Disability Service (BuDs) to develop the brief.
Provide or upgrade active travel information	Upgrading the existing pedestrian and cycling signage within/around Aylesbury Town Centre (e.g. walking times signposted and walking/cycling maps displayed at key locations with a consistent branding, similar to the Legible London example). This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Improving access to travel information	Improving access to travel information by providing a single central place to get travel information online and making it available through technology such as travel mobile apps. This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Promote cycling, walking and public transport travel through awareness campaigns	It aims to change behaviour to more sustainable travel through directed awareness campaigns. Key employment centres in the Town Centre should be targeted to encourage travel plans and promote alternative travel modes. This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Develop a more comprehensive tool to test improvements to the transport network	Developing a transport model that can capture many of the transport improvements identified in this strategy to be able to identify both the potential for mode shift and impact to traffic flows in the highway and public transport network. Currently the tool available, the Countywide Model, can only model the impact of the highway improvements. A public transport model could help identify journeys to/around the Town Centre given the bus and rail stations.
Update transport infrastructure to accommodate future transport technology	Identifying future trends in transport such as electric vehicles and driverless technology and identifying how existing transport infrastructure should be upgraded to accommodate this and how new infrastructure can be designed to incorporate upcoming advances in technology, e.g. an increase in the number of electric vehicle charging points at key destinations around the Town Centre

6.4.15 Feedback from the 2nd Stakeholder Workshop helped to develop a possible implementation plan for the Transport Improvements in the Town Centre. Stakeholders were asked to rank the improvements into short, medium and longer term objectives for the Town Centre.

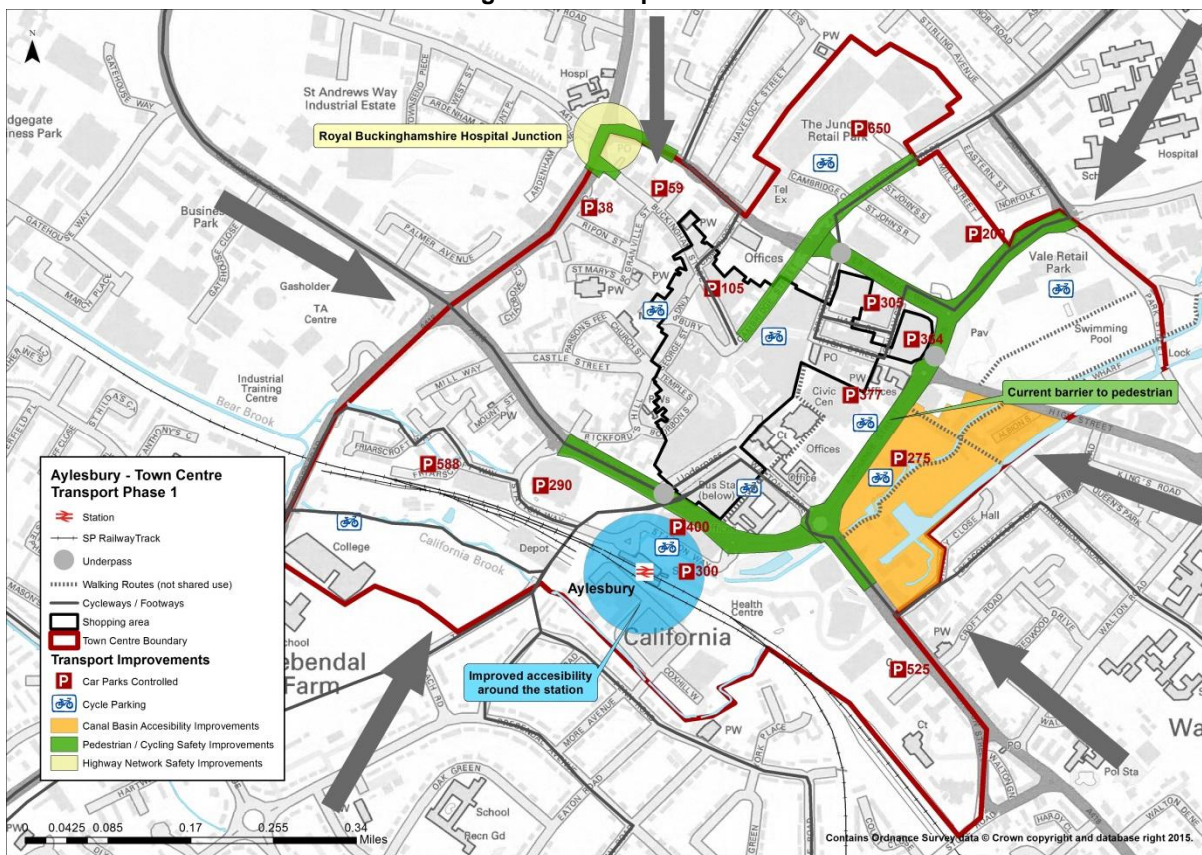
Table 6.10 – Town Centre Sector - Transport Improvement Stakeholder Feedback

Time Period	Transport Improvements
Short Term	<ul style="list-style-type: none"> – An alignment of policies is necessary to face the problems and achieve the improvements required; – Pedestrian network improvements. Pedestrian desire lines have to be improved, solving the current pedestrian barriers around the Town Centre; and – Sheltered bike facilities including new cycle parking areas should be created.
Short – Medium Term	<ul style="list-style-type: none"> – East West rail could have impacts on Aylesbury station and encourage more journeys. Stakeholders felt that this impact has not been quantified yet and it is a potential risk as changes in passenger numbers are largely unknown. Accessibility issues which could arise should be taken into account; and – The new link roads will start reducing traffic flows in the Town Centre which could encourage other TIs to come forward. – Tring Station. It could be promoted as an alternative station to Aylesbury, however the car park at Tring station is almost at capacity and therefore vehicle links to here are at risk
Medium Term	<ul style="list-style-type: none"> – Town Centre parking was discussed. Different groups agreed that the Town Centre parking is one of the most important issues in the medium term and needs to be addressed politically. – A possible solution could be to relocate some of the large car parks further away from the Town Centre and encourage people to walk/cycle/use a shuttle bus to reach the Town Centre. It was highlighted that Aylesbury installed digital schemes advising of parking capacity but in reality they're only needed at peak Christmas shopping times. At all other times there is no pressure on parking provision; – The only car parks which approach capacity are the two near the station. Suggested parking fees should start to target commuters – i.e. those who arrive before 9am are charged increased fees, whereas those who arrive to do shopping/in an evening are charged only a small fee. Parking is known to be free in estates around the Town Centre so commuters use this. It was highlighted that many BCC employees park in the AVDC car park and walk in as it's free; – Implementing a parking residents zone or similar around the Town Centre is difficult politically; they start off free, but then residents have to fund it which isn't popular. It has been tried in the past and never progressed; and – Rail operators traditionally approve car park expansion plans as they're very profitable. – Pedestrianise key shopping areas and key routes around the Town Centre. – A cycle hire facility could be provided, linked to filling the gaps in the cycle network and maintaining the current network. – The canal basin area; Encourage visitors to this area and improve accessibility through the Town Centre to reach it. A signage programme is starting in 2017.
Long Term	<ul style="list-style-type: none"> – Bus station relocation. All stakeholders expressed a desire for this in the long term. Options for relocating the bus station should be identified as it's not suitable for the size of vehicles using it and is also a bleak environment. Different possibilities and criteria were raised:

- Bus station should be close to the rail station with good connectivity between them;
 - Proper access for users should be provided;
 - There could be a financial benefit if it was relocated away from the shopping centre; and
 - Linked to the parking review, could it be relocated to a redundant car park in the future?
 - Park and ride: A park and ride scheme is a long term ambition for Aylesbury although it is acknowledged it may not be feasible due to the size of the town and insufficient demand.
-

- 6.4.16 Results from the 2033 DS1 with Mitigation scenario referred to in Section 6.3 indicate that the Town Centre Sector could benefit from reduced traffic flows with the outer link road network in operation. Initial results indicate reduced flows on the inner link road formed by the A418 and A41 of up to 200 vehicles in the peak hours. The A413 and A41 approaches to the Town Centre from the south and east show the greatest flow and congestion ratio reductions, suggesting that capacity could be reallocated to other transport modes and PPTCs on these corridors could progress further. Whilst reduction in flows are seen on the A41 approaching Aylesbury from the west, there is still a lot of congestion on this road, especially in the PM peak period. Minimal changes are seen on the A418, however congestion is observed on the south western approach to the Town Centre. As this corridor already contains a PPTC, its impacts should be carefully managed.
- 6.4.17 Combining all Transport Improvements and comments received from stakeholders, a draft schematic implementation plan for the Town Centre Sector is shown in **Figure 6.16 - Figure 6.18**.
- 6.4.18 **Figure 6.16** details the first implementation phase in the Town Centre Sector. Indicative timescales for this are 2016 – 2020. This focusses on improving pedestrian and cycling safety improvements, undertaking a study of the car parking provision/requirements and improving cycle parking around the Town Centre. These Transport Improvements should also link to wider strategies for cycling, parking and public transport provision.
- 6.4.19 The impacts of East West Rail at Aylesbury Rail Station should also be carefully monitored. Linkages to other station studies along the route should be made so a coherent approach to the impacts of East West Rail is made.
- 6.4.20 It is envisaged that other Transport Improvements such as integrating public transport ticketing, providing or upgrading active travel information, improving access to travel information, developing a more comprehensive tool to test improvements to the transport network and updating transport infrastructure to accommodate future transport technology could also progress during this stage. Best practice from other Local Authorities and lessons learnt from similar schemes should be applied and used to inform these schemes.

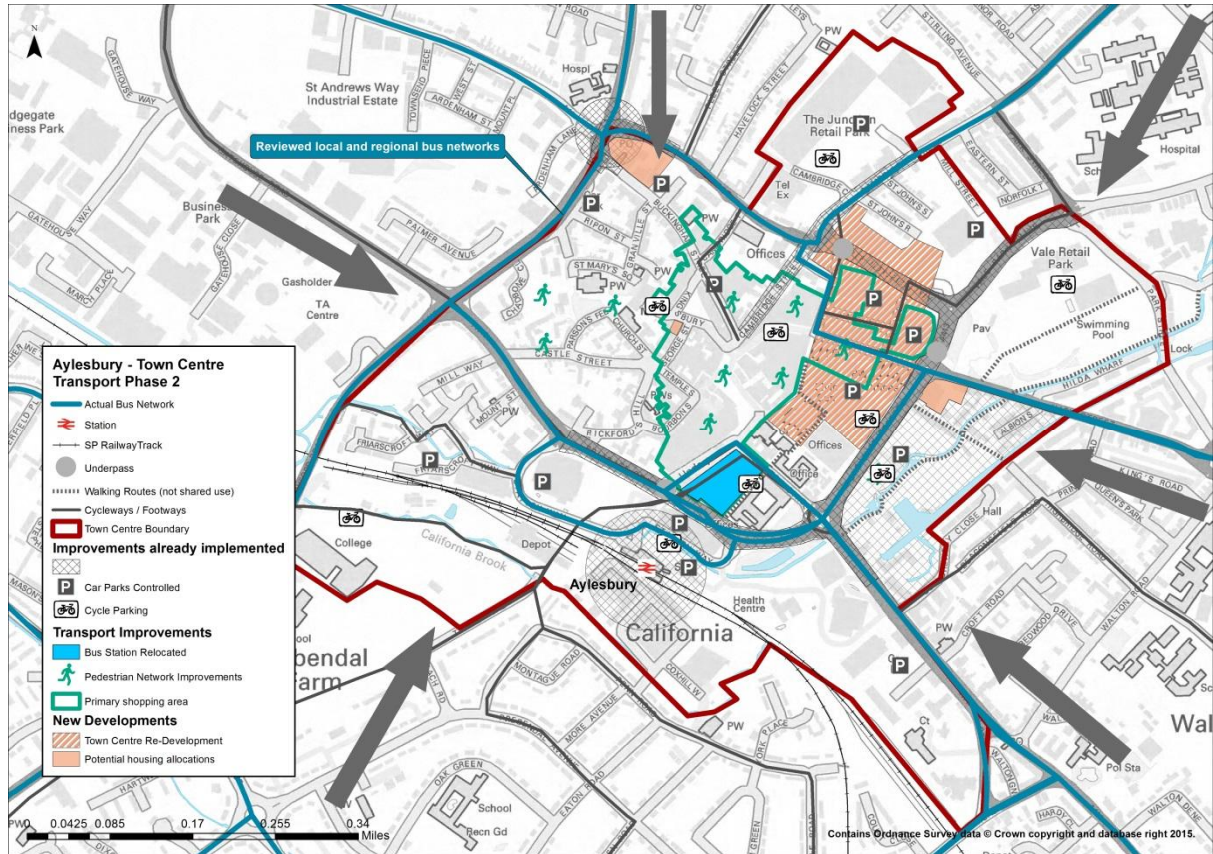
Figure 6.16 – Implementation Phase 1



6.4.21 **Figure 6.17** details the second implementation phase in the Town Centre Sector. Indicative time horizon for this phase is 2020 – 2025. This focusses on the residential and commercial developments in the Town Centre and improving/enhancing the public realm and walking routes around the Town Centre. Improvements to local and regional bus networks could also be reviewed to ensure that all new developments are being served by services and are able to access the Town Centre.

6.4.22 Possible sites to relocate the bus station or re-provide the facility but in a different format should be identified.. All of these Transport Improvements should also be progressed in line with future public transport/cycling/walking strategies for Aylesbury which can be commenced in 2016.

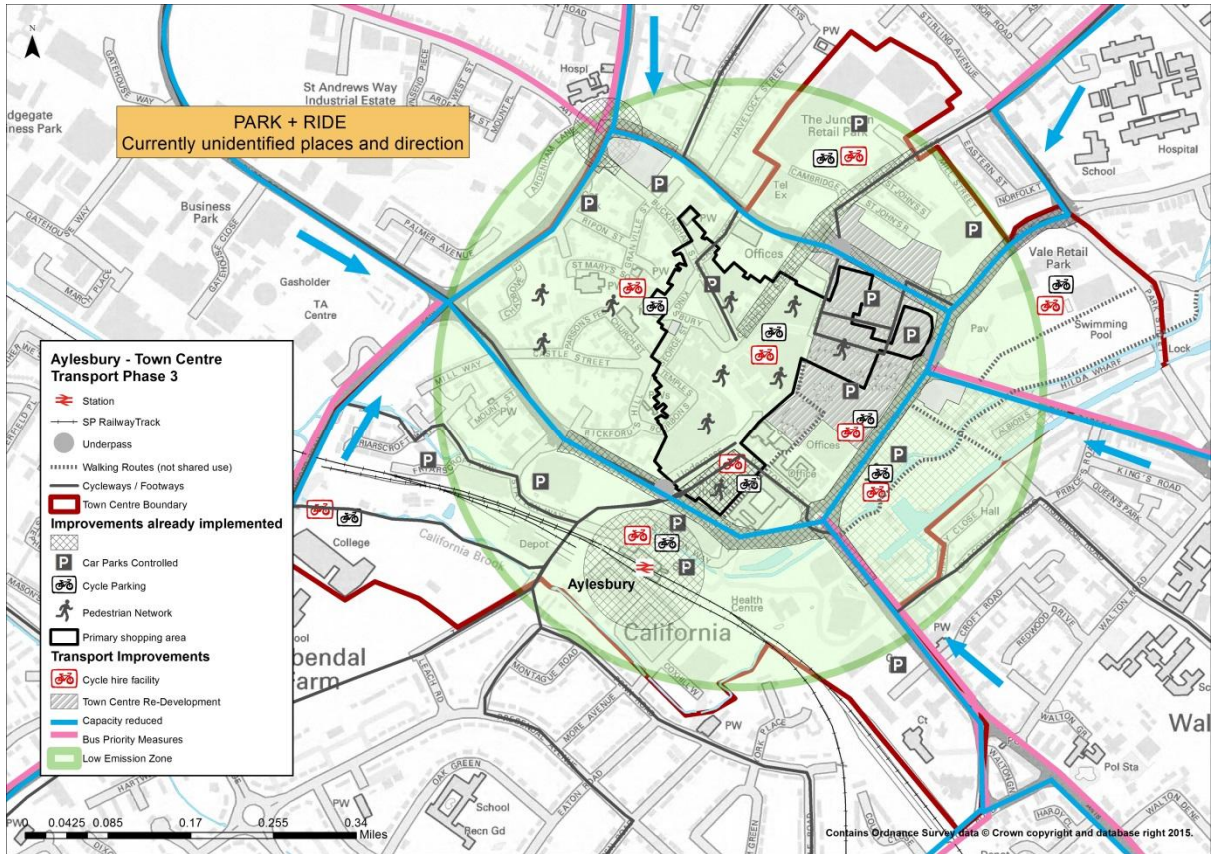
Figure 6.17 – Implementation Phase 2



6.4.23 **Figure 6.18** details the third implementation phase in the Town Centre Sector. Indicative time horizon for this phase is 2025 – 2033. This focusses on reducing capacity on many of the arterial routes leading to the Town Centre, linked to possible public transport scheme provision. These schemes are proposed later in the programme to allow the network of outer link roads to be implemented, which will hopefully remove traffic and congestion from the Town Centre, as supported by the Countywide DS1 Mitigation Modelling results. Linked to previous phases, a low emission zone could then be developed which would help improve air quality around the Town Centre.

6.4.24 Longer term Transport Improvements could include any park and ride locations around Aylesbury which could have implications for the Town Centre Sector and the introduction of a cycle hire facility. All of these improvements should also be progressed in line with future public transport/cycling/walking strategies for Aylesbury which can be commenced in 2016.

Figure 6.18 – Implementation Phase 3



6.4.25 A summary of all proposed Transport Improvements and schemes in the Town Centre Sector and their proposed implementation schedule is shown in **Table 6.11**. The dates are purely indicative at this stage and it is acknowledged that some improvements will lead onto other improvements or carry over into future implementation periods. **Table 6.11** provides an indication of when the Transport Improvements and schemes should be considered. This table should be updated as the Aylesbury Transport Strategy develops.

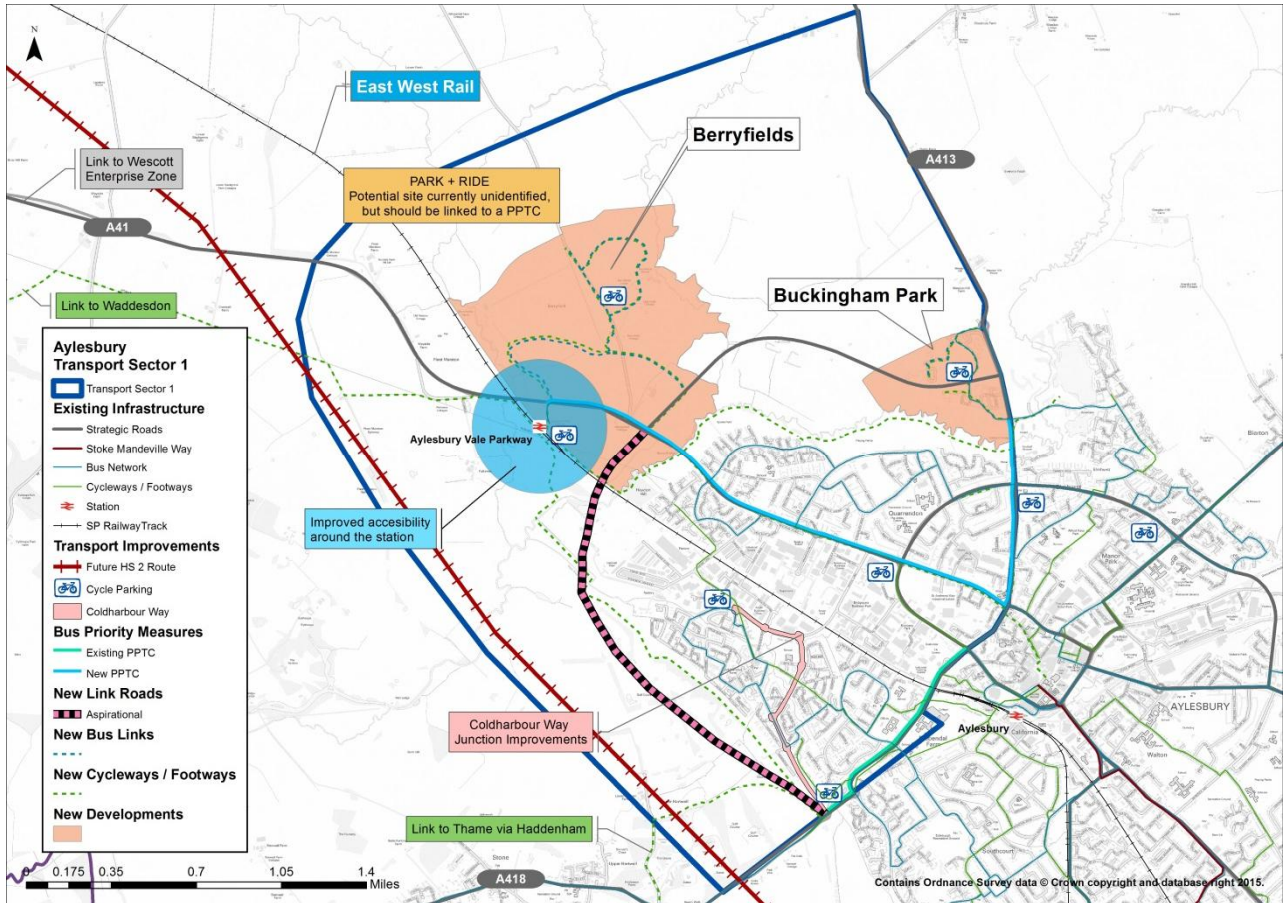
Table 6.11 – Town Centre Sector Transport Improvements and Implementation Plan

Implementation Timeframe	Transport Improvement/Scheme Descriptions
2016 - 2020	Provide a park and ride system if the parking strategy concludes this as an outcome and a business case can be made Improve safety on the highway network Analyse parking provision and controls Integrate public transport ticketing Improve transport links to the railway system Improve the cycle network Increase the supply of cycle parking Improve safety in the pedestrian network Ensure accessibility for all within the town and to key destinations including the canal basin Provide or upgrade active travel information Improving access to travel information Develop a more comprehensive tool to test improvements to the transport network Update transport infrastructure to accommodate future transport technology
2020 – 2025	Commercial/residential redevelopment Improve the pedestrian network and public realm in the Town Centre area Improve the local bus network Improve the regional bus network Upgrade the existing bus station in Aylesbury town Promote cycling, walking and public transport travel through awareness campaigns
2025-2033	Restrict through traffic within Aylesbury Town Centre Implement a low emission zone for the centre of Aylesbury Implement bus priority measures Introduce a cycle hire facility Provide a park and ride system if the parking strategy concludes this as an outcome and a business case can be made

Sector 1

- 6.4.27 Sector 1 is located in west Aylesbury. This Sector contains the recent developments at Berryfields and Buckingham Park and the new link road between them which also links the A41 and A413.
- 6.4.28 The A41, A413 and A418 are the key arterial routes in this Sector. The A41 links the M40, Bicester and Waddesdon to Aylesbury and also provides an important link to the Westcott Enterprise Zone, a key employment site. The A41 also passes Aylesbury Vale Parkway Railway Station and the main industrial estate in Aylesbury which houses many employers in the town. The A413 links Winslow and Buckingham to Aylesbury. The A418 links Haddenham, Thame and the M40 to Aylesbury.
- 6.4.29 **Figure 6.19** details the main Transport Improvements identified in Sector 1.

Figure 6.19 – Sector 1 Transport Improvements



- 6.4.30 Buckingham Park is almost complete and Berryfields is scheduled to generate approximately 3,200 new dwellings (half of which are now complete) and over 37,000 square meters of employment floorspace when complete. As shown in **Figure 6.19**, the new link road will enhance access between the developments and bus and cycle routes are proposed within the developments as shown.
- 6.4.31 Longer term, Sector 4 could also be affected by the proposed development at Haddenham Up to 4,000 new dwellings are planned which may be located at Haddenham or Winslow. Should the Haddenham proposals proceed, there would be increases in traffic approaching Aylesbury via the A418. The A418 may also form part of the wider Oxford to Cambridge expressway study which is still at feasibility stage. One of the proposed routes would use the A418 through central Aylesbury which could generate additional traffic and schemes along this route. This scheme is only provisional at present and will probably be implemented outside the timeframe of the Strategy, but its potential impacts should be recognised.
- 6.4.32 A key cycling scheme in this Sector is the rural link between Waddesdon and Aylesbury Vale Parkway station. This will provide an alternative route for cyclists to reach the station without using the busy A41. Another key cycling scheme is the proposed Haddenham to Aylesbury link which would connect to the existing Pebble Way route in the south of this Sector. This could be a key route if the planned development at Haddenham progresses.
- 6.4.33 Longer term, there are desires to include PPTCs (Primary Public Transport Corridors) on the A41 and A413 approaching Aylesbury. These would provide priority measures for buses, pedestrians and cyclists. Reallocating carriageway space to buses and/or cyclists and improving access to infrastructure for pedestrians should be key aspects of any PPTC. They aim to create a more attractive and reliable travel network, however it is acknowledged they would only be implemented if there was sufficient capacity on the road network to accommodate them. This hinges on the outer link road network which would help reduce flows on the A41 and A413.
- 6.4.34 It can be recognised that HS2 passes through the edge of this Sector which will generate considerable construction works in western Aylesbury.

- 6.4.35 The proposed link road between the A418 and A41 is shown as aspirational in **Figure 6.19** as it is acknowledged this is a very long term ambition for Aylesbury. Coldharbour Lane provides a link between the corridors at present and as there is no planned development in this area, it is recognised it could be difficult to gain funding for a new link road. There are also drainage issues in this area of Aylesbury which would make construction difficult. It is therefore a very long term ambition.
- 6.4.36 The Transport improvements relating to Sector 1 are shown in **Table 6.12**.

Table 6.12 – Sector 1 Transport Improvements

TI Description	Sector 1 Details
Implement new outer link roads	The proposed link road between the A418 and A41 is purely aspirational at present. There is a need to determine the feasibility of such a scheme
Improve safety on the highway network	Ensure conflicts between modes are minimised and ongoing monitoring helps identify any new collision sites in the Sector
Provide a Park & Ride system	Should these progress in the longer term, a site on the outskirts of Aylesbury in Sector 1 may be identified. This should link to wider parking and public transport strategies.
Improve transport links to the railway stations	Links to Aylesbury Vale Parkway Station should be maximised for all modes. Synergies with future parking and public transport strategies should be made.
Implement bus priority measures	A possible PPTC on the A41 approaching Aylesbury is a longer term ambition and should link to the public transport strategy.
Improve the local bus network	Bus services are planned to serve the new developments and usage/demand should be monitored to ensure all needs are met. Links to the Rail Station should be regularly reviewed to ensure coverage. This should also form part of the public transport strategy.
Integrate public transport ticketing	Development of a uniform and coherent, smart public transport ticketing system, particularly for use at the railway station. This should form part of the public transport strategy.
Improve the cycle network	Cycle links to/around the new developments and links to Waddesdon and Haddenham are planned. All routes should also link to the railway station and regular reviews undertaken. Ensure linkages are made through a cycling strategy.
Increase the supply of cycle parking	Ensure there is sufficient supply of cycle parking to meet current and future demand, particularly in new developments and at key attractors (railway station, employment sites). Ensure cycling is addressed through a cycling strategy.
Improve safety in the pedestrian network	Ensure all pedestrian desire lines are catered for safely around the Station and to/from key destinations in Sector 1
Ensure accessibility for all within the town and to key destinations	Ensuring/adapting the infrastructure around Sector 1 to ensure it is inclusive to people of all levels of mobility. An accessibility study/audit should be undertaken for all attractors/destinations in Sector 1
Provide or upgrade active travel information	Upgrading the existing pedestrian and cycling signage within/around Sector 1 (e.g. walking times signposted and walking/cycling maps displayed at key locations with a consistent branding, similar to the Legible London example). This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Improving access to travel information	Improving access to travel information by providing a single central place to get travel information online and making it available through technology such as travel mobile apps. Promote this to new residents in the developments in Sector 1. This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Promote cycling, walking and public transport travel through awareness campaigns	It aims to change behaviour to more sustainable travel through directed awareness campaigns. Key employment centres in Sector 1 should be targeted to encourage travel plans and promote alternative travel modes This should link to the

wider public transport/cycling/walking strategies in Aylesbury.

Ensure accessibility within new developments	Ensure all services provided within the developments are fully accessible as are links to the existing public transport services. This should also form part of the public transport strategy
Ensure connectivity to and between new developments	Links between developments should be provided by all modes, especially walking, cycling and public transport. This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Develop a more comprehensive tool to test improvements to the transport network	Developing a transport model that can capture many of the transport improvements identified in this strategy to be able to identify both the potential for mode shift and impact to traffic flows in the highway and public transport network. Currently the tool available, the Countywide Model, can only model the impact of the highway improvements. A public transport model could help identify journeys to/around Sector 1 given the rail station and bus network.
Update transport infrastructure to accommodate future transport technology	Identifying future trends in transport such as electric vehicles and driverless technology and identifying how existing transport infrastructure should be upgraded to accommodate this and how new infrastructure can be designed to incorporate upcoming advances in technology, e.g. an increase in the number of electric vehicle charging points at key destinations around Sector 1 (especially the industrial estate area and railway station)

- 6.4.37 Feedback gained at the 2nd Stakeholder Workshop relating to Sector 1 is summarised below:
- No additional accessibility schemes are currently required to improve access to Aylesbury Vale Parkway Station;
 - A PPTC on the A41 could include full time bus lanes to access the Town Centre if traffic flows reduce with the outer link road;
 - Coldharbour Way represents a link road through the current sector. There is a need to consider the junctions at each end of this road over the longer term if traffic levels increase; and
 - The lack of a link road between the A418 and A41 could become a priority in the future. There is a danger this could stop development if traffic patterns change. It may also become key if development in Haddenham progresses.
- 6.4.38 Results from the 2033 DS1 with Mitigation scenario referred to in **Section 6.3** indicate that Sector 1 is impacted with the link road network in operation. Whilst the A41 shows slight reductions in flows (averaging approximately 150 vehicles less), it is noticeable how there is still a lot of congestion on this corridor, particularly in the PM peak. This may question whether road space on the A41 could be reallocated to a PPTC or other measures. The link road network generates slightly additional flows on the link road between the A41 and A413, and it is quite congested in a westbound direction.
- 6.4.39 Flows and congestion on the A413 approaching Aylesbury do not vary greatly with the link road network in operation. Flows on the A418 from the south west decrease in the AM peak (by approximately 250), but increase in the PM peak by the same scale with the link road network in operation.
- 6.4.40 A summary of all proposed Transport Improvements and schemes in Sector 1 and their proposed implementation schedule is shown in **Table 6.13**. The dates are purely indicative at this stage and it is acknowledged that some improvements will lead onto other improvements or carry over into future implementation periods. **Table 6.13** provides an indication of when the TIs and schemes should be considered. This table can be updated as the Aylesbury Transport Strategy develops.

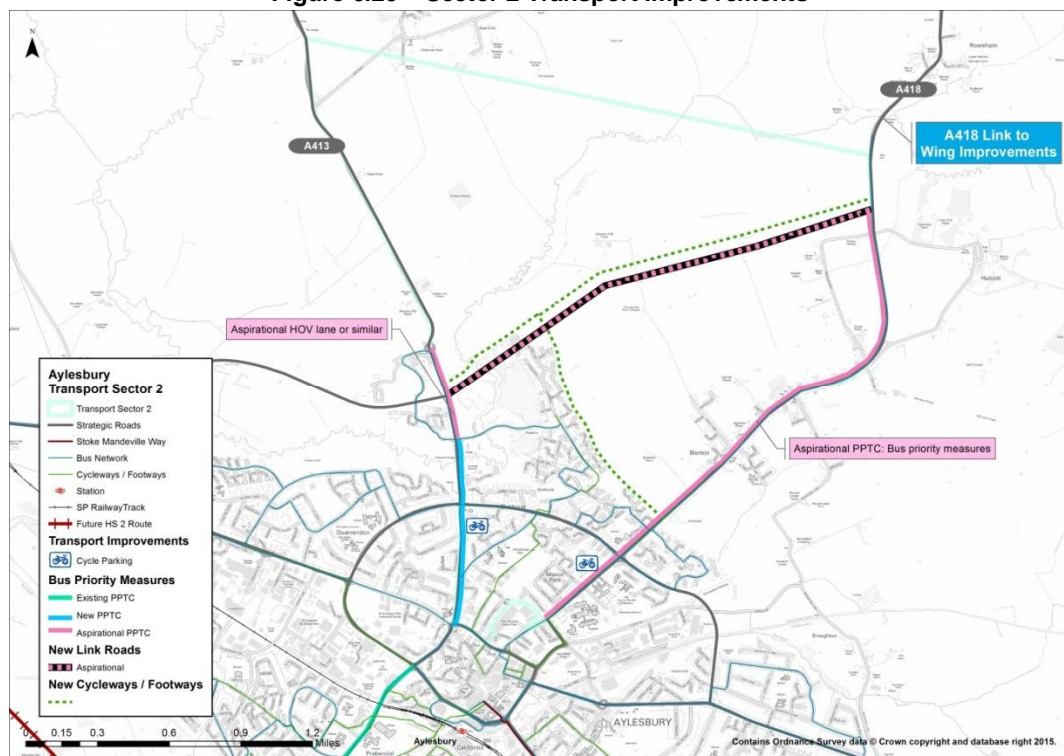
Table 6.13 – Sector 1 Transport Improvements and Implementation Plan

Implementation Timeframe	Transport Improvement/Scheme Descriptions
2016 - 2020	Improve safety on the highway network Improve the local bus network Integrate public transport ticketing Improve the cycle network Increase the supply of cycle parking Improve safety in the pedestrian network Ensure accessibility for all within the town and to key destinations Provide or upgrade active travel information Improving access to travel information Ensure accessibility within new developments Develop a more comprehensive tool to test improvements to the transport network Update transport infrastructure to accommodate future transport technology
2020 – 2025	Improve transport links to the railway station Promote cycling, walking and public transport travel through awareness campaigns Ensure connectivity to and between new developments Coldharbour Way Improvements
2025-2033	Implement new outer link roads Provide a Park & Ride system Implement bus priority measures

Sector 2

- 6.4.41 Sector 2 is located in north Aylesbury. This Sector contains the least planned development and infrastructure schemes in the town. The A413 and A418 are the key arterial routes in this Sector. The A413 links Winslow and Buckingham to Aylesbury. The A418 links Wing, Leighton Buzzard and Milton Keynes to Aylesbury.
- 6.4.42 A key infrastructure scheme which may impact this sector is the proposed Wing Bypass further north on the A418, which may form part of the wider Oxford-Cambridge Expressway
- 6.4.43 The Oxford-Cambridge Expressway is a project of regional and sub-regional significance being driven by Highways England and the Department for Transport³⁷. The strategic study report (Stage 1) for the expressway was published in August 2016 and “outlines the high level case for a strategic link to connect the cities of ‘the brain belt’ together”.
- 6.4.44 BCC’s preferred alignment of the expressway³⁸ is along the A329/A418, linking the urban centres of Oxford, Thame, Aylesbury, and Milton Keynes. The August 2016 strategic study report, however, indicates an alternative route via the A421 and Milton Keynes. It is too early in the process of the Oxford to Cambridge Expressway development to include detail within the ATS. Whilst there might be a positive benefit to Aylesbury in terms of a new road connecting the A418 west and east of the town (to the north), this is not guaranteed, therefore the ATS had to be developed without taking this potential scheme into consideration.
- 6.4.45 Regardless of the eventual expressway alignment, its likely completion date is beyond the timescale of this transport strategy, and as such is not a focus of this work. It is recognised, however, that the expressway has potentially significant implications for Sector 2 and the A418 corridor. If a link road is implemented, it may alter flows on the A418 generating additional flows and delays on the A418 approaching Aylesbury. The impacts on the southern A418 approaching Aylesbury should also be considered for Sectors 1 and 4 should the Expressway use the A418 in the future. As the route has yet to be decided, this scheme should be reviewed in light of this strategy.
- 6.4.46 **Figure 6.20** details the main Transport Improvements identified in Sector 2.

Figure 6.20 – Sector 2 Transport Improvements



³⁷ <https://www.gov.uk/government/publications/oxford-to-cambridge-expressway-strategic-study-interim-report>

³⁸ National Infrastructure Commission: Call for Evidence Cambridge – Milton Keynes – Oxford ‘growth corridor’

- 6.4.47 As the link road between the A413 and A418 is not linked to development proposals, it is shown as aspirational at this stage. Whilst this link road is widely desired and a priority for AVDC/BCC, the recent refusal of a planning application linked to its introduction means it could be very difficult to secure funding for its design and construction.
- 6.4.48 New cycle links are proposed parallel to the proposed link road and from the A418 to the new link road on the existing outskirts of Aylesbury. Bus network coverage is deemed sufficient in this area of Aylesbury as no further development is planned.
- 6.4.49 Longer term, there are desires to include a PPTCs (Primary Public Transport Corridor) on the A418 approaching central Aylesbury. This would provide priority measures for buses, pedestrians and cyclists. They aim to create a more attractive and reliable travel network, however it is acknowledged they would only be implemented if there was sufficient capacity on the road network to accommodate them. This hinges on the outer link road network which would help reduce flows on the A418
- 6.4.50 The Transport Improvements relating to Sector 2 are shown in **Table 6.14**.

Table 6.14 – Sector 2 Transport Improvements

TI Description	Sector 2 Details
Implement new outer link roads	The A413-A418 link road is still a priority although its future is currently unknown
Improve safety on the highway network	Ensure conflicts between modes are minimised and ongoing monitoring helps identify any new collision sites in the Sector
Implement bus priority measures	A possible PPTC on the A418 approaching Aylesbury is a longer term ambition and could only be implemented if link roads are implemented which reduce flows. This should link to the public transport strategy
Integrate public transport ticketing	Development of a uniform and coherent, smart public transport ticketing system. This should form part of the public transport strategy
Improve the cycle network	Cycle links between the A413 – A418 should be included if possible, even without the proposed link road. Ensure linkages are made through a cycling strategy.
Increase the supply of cycle parking	Ensure there is sufficient supply of cycle parking to meet current and future demand, particularly at key attractors. Ensure cycling is addressed through a cycling strategy
Ensure accessibility for all within the town and to key destinations	Ensuring/adapting the infrastructure around Sector 2 to ensure it is inclusive to people of all levels of mobility. An accessibility study/audit should be undertaken for all attractors/destinations in Sector 2
Provide or upgrade active travel information	Upgrading the existing pedestrian and cycling signage within/around Sector 2 (e.g. walking times signposted and walking/cycling maps displayed at key locations with a consistent branding, similar to the Legible London example). This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Improving access to travel information	Improving access to travel information by providing a single central place to get travel information online and making it available through technology such as travel mobile apps. This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Promote cycling, walking and public transport travel through awareness campaigns	It aims to change behaviour to more sustainable travel through directed awareness campaigns. Key employment centres in Sector 2 should be targeted to encourage travel plans and promote alternative travel modes This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Develop a more comprehensive tool to test improvements to the transport network	Developing a transport model that can capture many of the transport improvements identified in this strategy to be able to identify both the potential for mode shift and impact to traffic flows in the highway and public transport network. Currently the tool available, the Countywide Model, can only model the impact of the highway improvements. A public transport model could help identify journeys to/around Sector 2 given the bus network.
Update transport infrastructure to accommodate future transport technology	Identifying future trends in transport such as electric vehicles and driverless technology and identifying how existing transport infrastructure should be upgraded to accommodate this and how new infrastructure can be designed to incorporate upcoming advances in technology, e.g. an increase in the number of electric vehicle charging points at key destinations around Sector 2

- 6.4.51 Feedback gained at the 2nd Stakeholder Workshop relating to Sector 2 is summarised below:
- The planning application in this Sector was rejected due to its possible impacts on the landscape. Suggested any link road proposed may have similar problems progressing;
 - Uncertainty surrounding how a new link road would be funded if it is not linked to development. Suggested another scheme used its potential to increase leisure activity to leverage funding and this may be possible here as it would take traffic away from the Town Centre and encourage active modes;
 - Highlighted some traffic currently travels down the A413, across the A4157 and then up the A418 as there are no direct alternatives. Mentioned there are cut through between those roads further north, but they're not well used. If the link road doesn't proceed, a scheme could investigate signing another route between the 413 and A418 further north;
 - The Horse and Jockey junction (A413/A4157 signals) is a known bottleneck. There are no easy schemes to relieve congestion here;
 - There has been a desire for a southbound bus lane on the A413 from the Buckingham Park development into the Town Centre but it's difficult due to congestion. Suggested this may be linked to a park and ride scheme in the future, or become a High Occupancy Vehicle Lane if a bus lane isn't feasible.
- 6.4.52 Results from the 2033 DS1 with Mitigation scenario referred to in Section 6.3 indicate that Sector 2 is impacted with the link road network in operation. It should be noted that the modelling undertaken included an additional link road between Bierton on the A418 and the new link road. This is not proposed and therefore results in this Sector may change in future iterations.
- 6.4.53 Flows along the northern sections of the A418 and A413 increase marginally with the link road network in operation, especially on the approaches to the A4157 junctions. There is also congestion around the Horse and Jockey junction which should be carefully managed and highlights its importance in this Sector. These results indicate that a PPTC or similar on the A413 and A418 may not be possible given the increased flows predicted.
- 6.4.54 The link road between the A413 and A418 is a popular route (up to 500 vehicles), but is not as heavily used as the link roads in eastern Aylesbury.
- 6.4.55 A summary of all proposed Transport Improvements and schemes in Sector 2 and their proposed implementation schedule is shown in **Table 6.15**. The dates are purely indicative at this stage and it is acknowledged that some Transport Improvements will lead onto other improvements or carry over into future implementation periods. **Table 6.15** provides an indication of when the TIs and schemes should be considered. This table can be updated as the Aylesbury Transport Strategy develops.

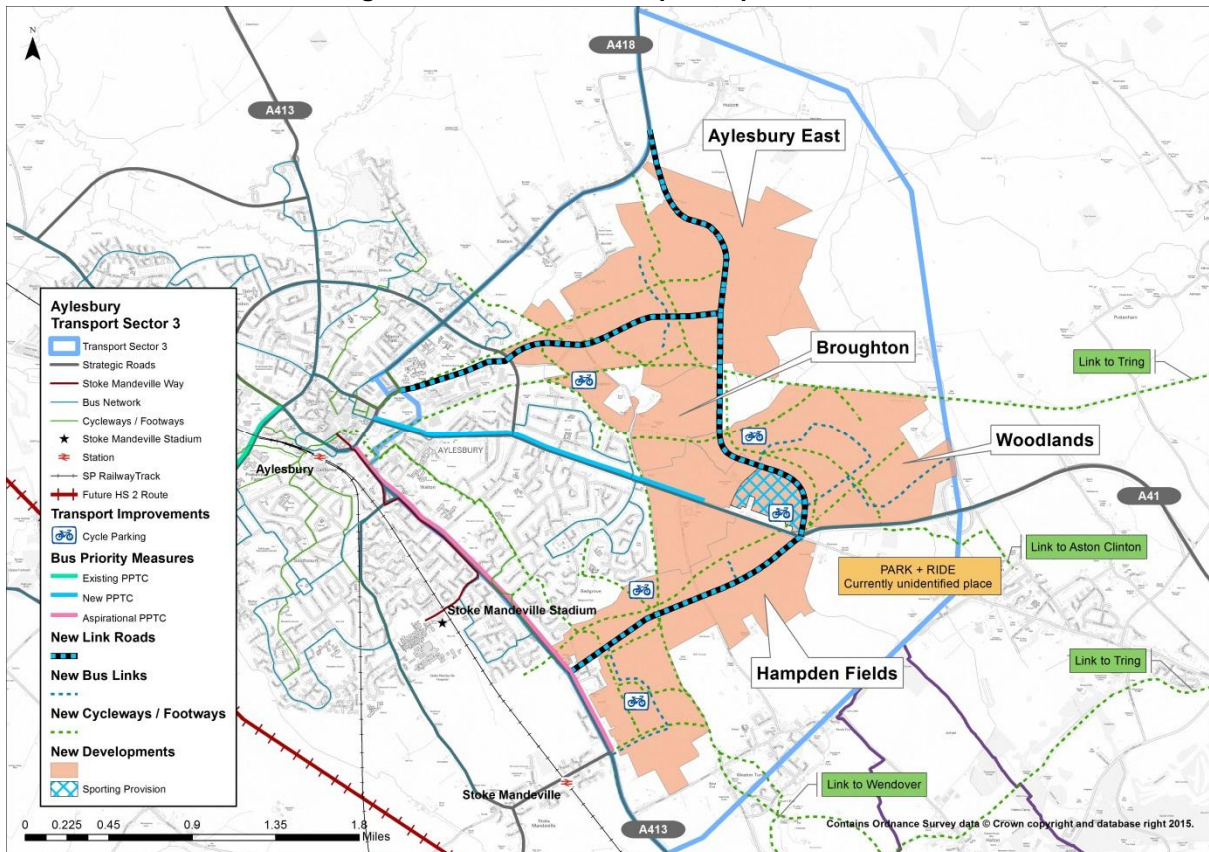
Table 6.15 – Sector 2 Implementation Plan

Implementation Timeframe	Transport Improvement/Scheme Descriptions
2016 - 2020	Improve safety on the highway network Integrate public transport ticketing Ensure accessibility for all within the town and to key destinations Improve safety on the highway network Provide or upgrade active travel information Improving access to travel information Develop a more comprehensive tool to test improvements to the transport network Update transport infrastructure to accommodate future transport technology
2020 – 2025	Improve the cycle network Increase the supply of cycle parking Promote cycling, walking and public transport travel through awareness campaigns
2025-2033	Implement new outer link road Implement bus priority measures Investigate HOV lane or similar on A418

Sector 3

- 6.4.56 Sector 3 is located in east Aylesbury. This Sector contains the majority of known development in Aylesbury including Aylesbury East, Broughton, Woodlands and Hampden Fields. Approximately 6,500 new dwellings and 85,000 square meters of employment floorspace are planned in this Sector. Several new link roads are proposed as part of these developments. The recently completed Stocklake Link Road is also in Sector 3.
- 6.4.57 The A41 and A413 are the key arterial routes in this Sector. The A41 links Tring, Berkhamsted, Watford and the M25 to Aylesbury. The A413 connects Wendover, Amersham and south Buckinghamshire to Aylesbury. **Figure 6.21** identifies the main TIs in Sector 3.

Figure 6.21 – Sector 3 Transport Improvements



- 6.4.58 New cycling links are proposed as part of the new developments as shown in **Figure 6.21**, in addition to more strategic cycling links to Tring, Aston Clinton and Wendover. There are also the canal triangle proposals which would create cycling links along the existing waterways. It can be recognised that most proposed new cycling routes are east-west, rather than north-south. Whilst this may match desire lines between towns, care should be taken to ensure that all the new developments are linked together.
- 6.4.59 A key cycling scheme should be progressed along Turnfurlong Lane approaching the Town Centre Sector. This is a key route from eastern Aylesbury into the Town Centre and has been identified as a known constraint. This should be progressed as a priority to ensure all new developments can link easily to the Town Centre.
- 6.4.60 Bus services are also proposed to serve the new developments as shown in **Figure 6.21**. The emphasis should also be on ensuring routes travel between developments as well as neighbouring Town Centres. Longer term, there are desires to include a PPTC (Primary Public Transport Corridor) on the A41 approaching central Aylesbury. This would provide priority measures for buses, pedestrians and cyclists. They aim to create a more attractive and reliable travel network, however it is acknowledged they would only be implemented if there was sufficient capacity on the road network to accommodate them. This hinges on the outer link road network which would help reduce flows on the A41.

- 6.4.61 Links to Sector 4 should also be provided where possible as there are proposals for sporting provision within the Woodlands development which would link to Stoke Mandeville Stadium in Sector 4. This is paramount as Stoke Mandeville is the birth place of the Paralympics so accessibility for all should be promoted. Links to Stoke Mandeville Railway Station and the Hospital in Sector 4 should also be maximised to ensure all desire lines are accounted for.
- 6.4.62 Given the plethora of development in Sector 3 it is also paramount that impacts on the A41 are carefully managed. Many of the new developments will generate traffic movements on the A41 which is a highly congested arterial road. Impacts further east of Aylesbury should also be carefully managed to ensure the future of the A41 is safeguarded.
- 6.4.63 The Transport Improvements relating to Sector 3 are shown in **Table 6.16**.

Table 6.16 – Sector 3 Transport Improvements

TI Description	Sector 3 Details
Implement new outer link roads	Proposed new link roads through the Aylesbury East, Broughton, Woodlands and Hampden Fields developments are key to this Sector. The feasibility and assessment of this scheme should be considered.
Improve safety on the highway network	Ensure conflicts between modes are minimised and ongoing monitoring helps identify any new collision sites in the Sector
Provide a Park & Ride system	This is a longer term ambition and a potential Park & Ride site was identified in development proposals which may come forward in the longer term. This should link to wider parking and public transport strategies.
Improve transport links to the railway stations	Links to Stoke Mandeville and Tring stations should be maximised for all modes. Synergies with future parking and public transport strategies should be made.
Implement bus priority measures	Possible PPTCs on the A41 and A413 approaching Aylesbury are longer term ambitions and could only be implemented if link roads are implemented which reduce flows. This should be addressed as part of a public transport strategy.
Improve the local bus network	Bus services are planned to serve the new developments and usage/demand should be monitored to ensure all needs are met. Links to the Rail Station should be regularly reviewed to ensure coverage. This should be addressed as part of a public transport strategy
Integrate public transport ticketing	Development of a uniform and coherent, smart public transport ticketing system, particularly for use at the railway station. This should be addressed as part of a public transport strategy
Improve the cycle network	Cycle links to/around the new developments and links to Waddesdon and Haddenham are planned. All routes should also link to the railway station and regular reviews undertaken. Turnfurlong is a known issue which should be addressed. All these linkages should be addressed through a cycling strategy.
Increase the supply of cycle parking	Ensure there is sufficient supply of cycle parking to meet current and future demand, particularly in new developments and at key attractors and employment sites. This should be addressed through a cycling strategy.
Improve safety in the pedestrian network	Ensure all pedestrian routes to and between new developments are safe and convenient
Ensure accessibility for all within the town and to key destinations	Ensuring/adapting the infrastructure around Sector 3 to ensure it is inclusive to people of all levels of mobility. An accessibility study/audit should be undertaken for all attractors/destinations in Sector 3
Provide or upgrade active travel information	Upgrading the existing pedestrian and cycling signage within/around Sector 3 (e.g. walking times signposted and walking/cycling maps displayed at key locations with a consistent branding, similar to the Legible London example). This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Improving access to travel information	Improving access to travel information by providing a single central place to get travel information online and making it available through technology such as travel mobile apps. Ensure this is promoted to residents in the new developments in Sector 3. This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Promote cycling, walking and public transport travel	It aims to change behaviour to more sustainable travel through directed awareness campaigns. Key employment

through awareness campaigns

centres in Sector 3 should be targeted to encourage travel plans and promote alternative travel modes . This should link to the wider public transport/cycling/walking strategies in Aylesbury.

Ensure accessibility within new developments

Ensure all services provided within the developments are fully accessible as are links to the existing public transport services. This should also form part of the public transport strategy

Ensure connectivity to and between new developments

Links between developments should be provided by all modes, especially walking, cycling and public transport. This should link to the wider public transport/cycling/walking strategies in Aylesbury.

Develop a more comprehensive tool to test improvements to the transport network

Developing a transport model that can capture many of the transport improvements identified in this strategy to be able to identify both the potential for mode shift and impact to traffic flows in the highway and public transport network. Currently the tool available, the Countywide Model, can only model the impact of the highway improvements. A public transport model could help identify journeys to/around Sector 3 given the bus network.

Update transport infrastructure to accommodate future transport technology

Identifying future trends in transport such as electric vehicles and driverless technology and identifying how existing transport infrastructure should be upgraded to accommodate this and how new infrastructure can be designed to incorporate upcoming advances in technology, e.g. an increase in the number of electric vehicle charging points at key destinations around Sector 3 (especially in the new developments)

- 6.4.64 Feedback gained at the 2nd Stakeholder Workshop relating to Sector 3 is summarised below:
- Bus priority on the proposed A41/A413 PPTCs was discussed. Stakeholders felt it may not be worthwhile using bus triggers at signals because they do not necessarily get traffic through junctions quicker. It is better to optimise junction signals for every approach;
 - Smart Ticketing was discussed. Buses sometimes have long dwell time at stops as tickets are purchased. Currently this is being investigated;
 - A41 Tring Road has lots of on road parking areas. This has an impact on buses using this route;
 - B4443 is sometimes used as an alternative to A413 South of Aylesbury; and
 - Growth of ride sharing was discussed. With all the new developments in Sector 3, could some kind of ride sharing be implemented? Queried how car sharing could be encouraged if it is not complemented by a Park and Ride? If one was implemented without the other, could this influence their success?
- 6.4.65 Results from the 2033 DS1 with Mitigation scenario referred to in Sector 6.3 indicate that Sector 3 is heavily impacted with the link road network in operation. Flows around the new link roads between either side of the A418 in southern and eastern Aylesbury indicate the link roads are a popular route choice, with flows exceeding 1,000 vehicles in the AM and PM peaks. The greatest reductions are seen on the A413 approaching Stoke Mandeville (up to 800 vehicles) with reductions recorded as far as the Town Centre. The A41 also benefits from a reduction in flows approaching central Aylesbury, (approximately 200 vehicles) however flows increase approaching the link road network in outer Aylesbury suggesting that some traffic may be rerouting to use the new network of link roads. These results indicate that PPTCs or capacity reduction schemes on the A413 and A41 approaching Aylesbury may be feasible.
- 6.4.66 The A4157 also records a reduction in flows (approximately 200 vehicles) as traffic can use the outer link road network. Local roads through existing developments generally show a reduction in flows which may present further opportunities for traffic calming or public transport schemes.
- 6.4.67 A summary of all proposed Transport Improvements and schemes in Sector 3 and their proposed implementation schedule is shown in **Table 6.17**. The dates are purely indicative at this stage and it is acknowledged that some improvements will lead onto other improvements or carry over into future implementation periods.
- 6.4.68 **Table 6.17** provides an indication of when the Transport Improvements and schemes should be considered. This table can be updated as the Aylesbury Transport Strategy develops.

Table 6.17 – Sector 3 Implementation Plan

Implementation Timeframe	TI/Scheme Descriptions
2016 - 2020	Improve safety on the highway network Integrate public transport ticketing Improve the cycle network Increase the supply of cycle parking Ensure accessibility for all within the town and to key destinations Provide or upgrade active travel information Improving access to travel information Develop a more comprehensive tool to test improvements to the transport network Update transport infrastructure to accommodate future transport technology
2020 – 2025	Implement new outer link roads Improve transport links to the railway stations Improve the local bus network Improve safety in the pedestrian network Promote cycling, walking and public transport travel through awareness campaigns Ensure accessibility within new developments Ensure connectivity to and between new developments
2025-2033	Provide a Park & Ride system Implement bus priority measures

Sector 4

- 6.4.69 Sector 4 is located in south Aylesbury. The A413, B4443 A4010 and A418 are the key arterial routes in this Sector. The A413 connects Wendover, Amersham and south Buckinghamshire to Aylesbury. The B4443 is a local link road running from Stoke Mandeville into Aylesbury however it is as strategically important as the A413. The B4443 also passes Stoke Mandeville hospital which is a key destination and major employer in Aylesbury. The A4010 links Princes Risborough and High Wycombe to Aylesbury. The A418 links Haddenham, Thame and the M40 to Aylesbury.
- 6.4.70 Sector 4 is heavily impacted by HS2 proposals which would divert the A4010 into a new junction with the B4443. Further link roads to the A413 and A418 are also proposed in this Sector. It is important to note that the construction impacts of HS2 have not been accounted for in this strategy. It is advised that should Royal Assent be achieved, the impacts of HS2 are reviewed in light of this strategy.
- 6.4.71 Sector 4 includes the South of Aylesbury development where approximately 2,000 new dwellings are proposed. Key attractors within Sector 4 also include Stoke Mandeville Railway Station, Stoke Mandeville Sports Stadium and Stoke Mandeville Hospital which is a major NHS site in Aylesbury and Buckinghamshire. **Figure 6.22** identifies the main Transport Improvements in Sector 4.

Table 6.18 – Sector 4 Transport Improvements

TI Description	Sector 3 Details
Implement new outer link roads	Proposed realigned and new link roads in this Sector are key to the continued growth of Aylesbury
Improve safety on the highway network	Ensure conflicts between modes are minimised and ongoing monitoring helps identify any new collision sites in the Sector
Improve transport links to the railway stations	Links to Stoke Mandeville Station should be maximised for all modes. Synergies with future parking and public transport strategies should be made.
Implement bus priority measures	Possible PPTCs on the A413 and B4443 approaching Aylesbury are longer term ambitions and could only be implemented if link roads are implemented which reduce flows. This should be addressed through a public transport strategy.
Improve the local bus network	Bus services are planned to serve the new developments and usage/demand should be monitored to ensure all needs are met. Links to the Rail Station should be regularly reviewed to ensure coverage. This should be addressed through a public transport strategy.
Integrate public transport ticketing	Development of a uniform and coherent, smart public transport ticketing system, particularly for use at the railway station. This should be addressed through a public transport strategy.
Improve the cycle network	Cycle links to/around the new developments and links to Wendover and Haddenham are planned. All routes should also link to the railway station and regular reviews undertaken. Synergies with HS2 proposals should be maximised. All these linkages should be addressed through a cycling strategy.
Increase the supply of cycle parking	Ensure there is sufficient supply of cycle parking to meet current and future demand, particularly in new developments and at key attractors and employment sites. This should be addressed through a cycling strategy.
Improve safety in the pedestrian network	Ensure all pedestrian routes to and between new developments are safe and convenient as well as to key attractors
Ensure accessibility for all within the town and to key destinations	Ensuring/adapting the infrastructure around Sector 4 to ensure it is inclusive to people of all levels of mobility. An accessibility study/audit should be undertaken for all attractors/destinations in Sector 4
Provide or upgrade active travel information	Upgrading the existing pedestrian and cycling signage within/around Sector 3 (e.g. walking times signposted and walking/cycling maps displayed at key locations with a consistent branding, similar to the Legible London example). This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Improving access to travel information	Improving access to travel information by providing a single central place to get travel information online and making it available through technology such as travel mobile apps. Ensure this is promoted to residents in the new developments in Sector 3. This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Promote cycling, walking and public transport travel through awareness campaigns	It aims to change behaviour to more sustainable travel through directed awareness campaigns. Key employment centres in Sector 3 should be targeted to encourage travel plans and promote alternative travel modes. This should link to the wider public transport/cycling/walking strategies in Aylesbury.

Ensure accessibility within new developments	Ensure all services provided within the developments are fully accessible as are links to the existing public transport services. This should form part of the public transport strategy.
Ensure connectivity to and between new developments	Links between developments should be provided by all modes, especially walking, cycling and public transport. This should link to the wider public transport/cycling/walking strategies in Aylesbury.
Develop a more comprehensive tool to test improvements to the transport network	Developing a transport model that can capture many of the transport improvements identified in this strategy to be able to identify both the potential for mode shift and impact to traffic flows in the highway and public transport network. Currently the tool available, the Countywide Model, can only model the impact of the highway improvements. A public transport model could help identify journeys to/around Sector 4 given the bus and rail network.
Update transport infrastructure to accommodate future transport technology	Identifying future trends in transport such as electric vehicles and driverless technology and identifying how existing transport infrastructure should be upgraded to accommodate this and how new infrastructure can be designed to incorporate upcoming advances in technology, e.g. an increase in the number of electric vehicle charging points at key destinations (Station, Stadium and Hospital) around Sector 4 (especially in the new developments)

- 6.4.76 Feedback gained at the 2nd Stakeholder Workshop relating to Sector 4 is summarised below:
- The initial modelling has indicated there is further congestion on the Stoke Road approach to the Stoke Road gyratory. Stakeholders acknowledged this is constrained by the narrow bridge over the railway line on Stoke Road. Stakeholders highlighted there is a scheme designed to replace this railway bridge but it has never proceeded as it is linked to the courthouse development. Requested this is re-examined;
 - Stakeholders highlighted that with an aging demographic in Aylesbury, there is a need to consider that many more trips to the hospital will probably be made by private vehicle;
 - The future HS2 routing of the A4010 could have significant positive impact. However it would be interesting to consider the risk of no HS2 amendments on the Strategy;
 - Accidents at the Risborough Road / Mandeville Road level crossing were discussed. Stakeholders noted it is now intended to replace this level crossing with a bridge but no other details are known. Proposals should be monitored and possible impacts assessed;
 - Stoke Mandeville Railway Station requires better links to bus services and should not rely on Aylesbury Station;
 - Solutions need to be considered for how cyclist / pedestrian routes from Sector 4 into the Town Centre could be improved; and
 - The implications of the East West rail crossing need to be fully quantified on Sector 4. Could there be accessibility issues?
- 6.4.77 Results from the 2033 DS1 with Mitigation scenario referred to in **Section 6.3** indicate that Sector 4 is impacted with the link road network in operation. The realigned A4010 and link roads to the A413 and A418 are heavily used (up to 1,300 vehicles) and relieve congestion and flows on the A413. Flows and congestion along the B4443 are still critical with this route proving to be one of the most congested in Aylesbury. Flows around local roads in southern Aylesbury reduce with the link roads in operation which suggest traffic may be using these routes to travel between the A418 and B4443 without the link roads in operation.
- 6.4.78 A summary of all proposed Transport Improvements and schemes in Sector 4 and their proposed implementation schedule is shown in **Table 6.19**. The dates are purely indicative at this stage and it is acknowledged that some improvements will lead onto other improvements or carry over into future implementation periods. **Table 6.19** provides an indication of when the Transport Improvements and schemes should be considered. This table can be updated as the Aylesbury Transport Strategy develops.

Table 6.19 – Sector 4 Implementation Plan

Implementation Timeframe	TI/Scheme Descriptions
2016 - 2020	Implement new outer link roads Improve safety on the highway network Improve transport links to the railway stations Integrate public transport ticketing Improve the cycle network Increase the supply of cycle parking Ensure accessibility for all within the town and to key destinations Provide or upgrade active travel information Improving access to travel information Develop a more comprehensive tool to test improvements to the transport network Update transport infrastructure to accommodate future transport technology
2020 – 2025	Improve the local bus network Improve safety in the pedestrian network Promote cycling, walking and public transport travel through awareness campaigns Ensure accessibility within new developments Ensure connectivity to and between new developments
2025-2033	Implement bus priority measures

6.5 Summary

- 6.5.1 This chapter has described how the full set of Transport Improvements for the strategy was developed. Initially a list of known and desired transportation schemes/options were put forward at the first Stakeholder Workshop. This list of transportation schemes/options was developed further using SWOT analysis, based on baseline evidence and stakeholder feedback.
- 6.5.2 This resulted in the 25 Transport Improvements detailed in **Table 6.1**. The Transport Improvements represent those ideas put forward by stakeholders, in addition to the improvements identified in response to the SWOT analysis.
- 6.5.3 An assessment of the full set of Transport Improvements was undertaken to determine how well they support the strategy objectives. This included setting out the improvements in a series of logic maps to identify how they lead to change in the transport network and ultimately support the strategy objectives. Pro-formas were created for each Transport Improvement to set out their benefits and risks in more detail, including their transport benefits, fit with the strategy objectives, potential risks in implementation and potential sources of funding. The results of this exercise confirmed that all the Transport Improvements identified would contribute to delivering Aylesbury’s Transport Strategy.
- 6.5.4 The Countywide Modelling undertaken has confirmed that many of the Transport Improvements proposed can progress further into feasibility and further individual scheme assessment. The initial results help support the case for the range of Transport Improvements proposed, noting that many are reliant on the completion of the outer link road network.
- 6.5.5 The identification of five Transport Sectors in Aylesbury will help target and define the progression of the Transport Improvements required. There is a need to determine and define the detail of all Transport Improvements proposed in the sectors, including specific considerations of the deliverability of options. All Transport Improvements should also link to more focused strategies which cover all five sectors to ensure there is a coherent approach when addressing the improvements proposed.

6.5.6 **Figure 6.23** details all the Transport Improvements across the five sectors and **Table 6.20** summarises the implementation plan across Aylesbury, which provides a guide for staging the implementation across the sectors to the level of detail appropriate to a transport strategy. Specific timing of each improvement is dependent on the timing of the developments and the availability of funding, which will be known as the transport improvements progress to the next stage of planning.

Figure 6.23 – Combined Sector Transport Improvements in Aylesbury

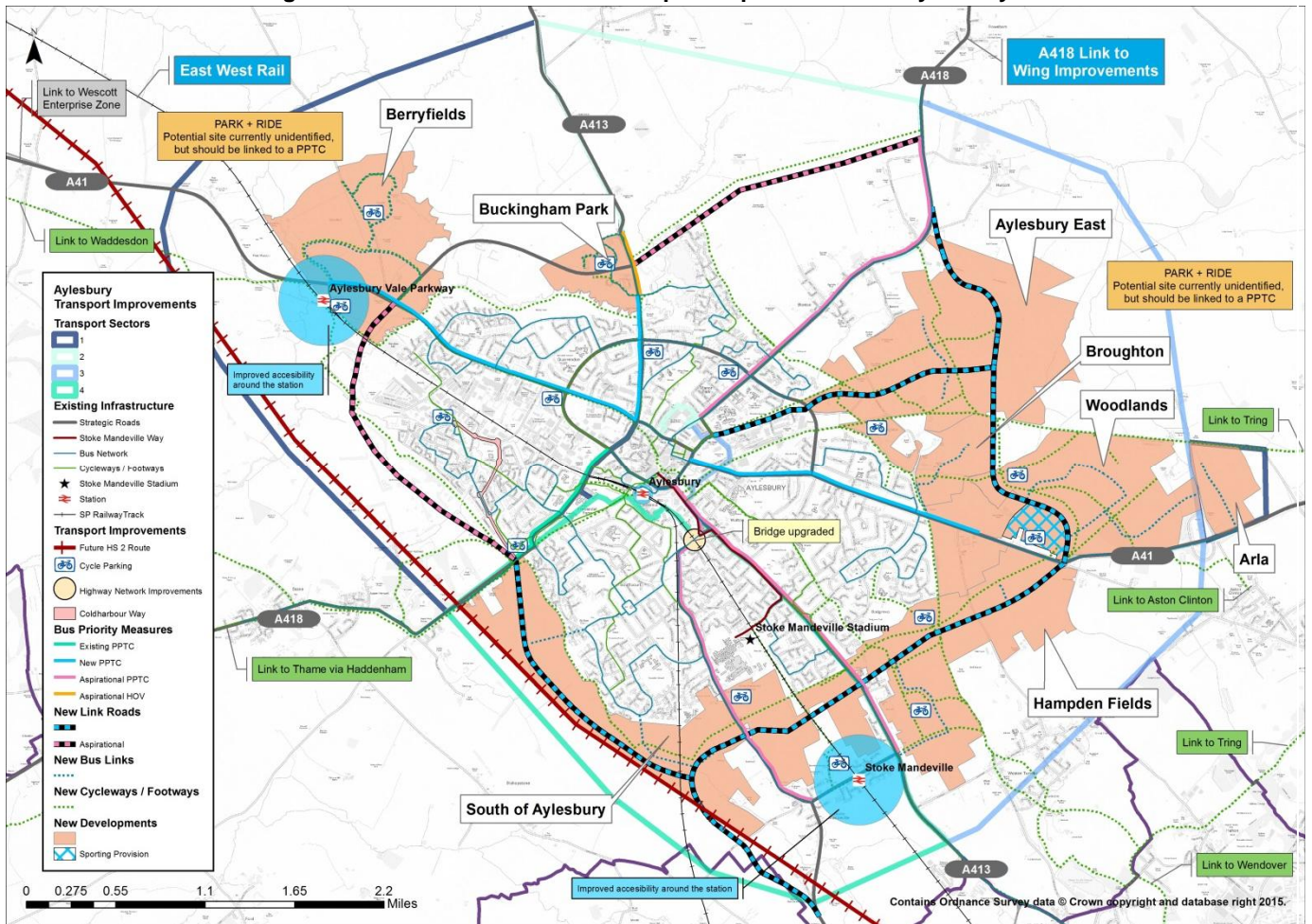


Table 6.20 – Aylesbury Transport Improvement Implementation Plan by Sector

Implementation Timeframe	Town Centre Transport Improvements	Sector 1 Transport Improvements	Sector 2 Transport Improvements	Sector 3 Transport Improvements	Sector 4 Transport Improvements
2016 - 2020	<p>Ensure all transport policies align within BCC/AVDC</p> <p>Improve safety on the highway network</p> <p>Analyse parking provision and controls</p> <p>Integrate public transport ticketing</p> <p>Improve transport links to the railway system</p> <p>Improve the cycle network</p> <p>Increase the supply of cycle parking</p> <p>Improve safety in the pedestrian network</p> <p>Ensure accessibility for all within the town and to key destinations including the canal basin</p> <p>Provide or upgrade active travel information</p> <p>Improving access to travel information</p> <p>Develop a more comprehensive tool to test improvements to the transport network</p> <p>Update transport infrastructure to accommodate future transport technology</p>	<p>Improve safety on the highway network</p> <p>Improve the local bus network</p> <p>Integrate public transport ticketing</p> <p>Improve the cycle network</p> <p>Increase the supply of cycle parking</p> <p>Improve safety in the pedestrian network</p> <p>Ensure accessibility for all within the town and to key destinations</p> <p>Provide or upgrade active travel information</p> <p>Improving access to travel information</p> <p>Ensure accessibility within new developments</p> <p>Develop a more comprehensive tool to test improvements to the transport network</p> <p>Update transport infrastructure to accommodate future transport technology</p>	<p>Improve safety on the highway network</p> <p>Integrate public transport ticketing</p> <p>Ensure accessibility for all within the town and to key destinations</p> <p>Improve safety on the highway network</p> <p>Provide or upgrade active travel information</p> <p>Improving access to travel information</p> <p>Develop a more comprehensive tool to test improvements to the transport network</p> <p>Update transport infrastructure to accommodate future transport technology</p>	<p>Improve safety on the highway network</p> <p>Integrate public transport ticketing</p> <p>Improve the cycle network</p> <p>Increase the supply of cycle parking</p> <p>Ensure accessibility for all within the town and to key destinations</p> <p>Provide or upgrade active travel information</p> <p>Improving access to travel information</p> <p>Develop a more comprehensive tool to test improvements to the transport network</p> <p>Update transport infrastructure to accommodate future transport technology</p>	<p>Implement new outer link roads</p> <p>Improve safety on the highway network</p> <p>Improve transport links to the railway stations</p> <p>Integrate public transport ticketing</p> <p>Improve the cycle network</p> <p>Increase the supply of cycle parking</p> <p>Ensure accessibility for all within the town and to key destinations</p> <p>Provide or upgrade active travel information</p> <p>Improving access to travel information</p> <p>Develop a more comprehensive tool to test improvements to the transport network</p> <p>Update transport infrastructure to accommodate future transport technology</p>
2020 - 2025	<p>Commercial/residential redevelopment</p> <p>Improve the pedestrian network and public realm in the Town Centre area</p> <p>Improve the local bus network</p> <p>Improve the regional bus network</p> <p>Upgrade the existing bus station in Aylesbury town</p> <p>Promote cycling, walking and public transport travel through awareness campaigns</p>	<p>Improve transport links to the railway station</p> <p>Promote cycling, walking and public transport travel through awareness campaigns</p> <p>Ensure connectivity to and between new developments</p> <p>Coldharbour Way Improvements</p>	<p>Improve the cycle network</p> <p>Increase the supply of cycle parking</p> <p>Promote cycling, walking and public transport travel through awareness campaigns</p>	<p>Implement new outer link roads</p> <p>Improve transport links to the railway stations</p> <p>Improve the local bus network</p> <p>Improve safety in the pedestrian network</p> <p>Promote cycling, walking and public transport travel through awareness campaigns</p> <p>Ensure accessibility within new developments</p> <p>Ensure connectivity to and between new developments</p>	<p>Improve the local bus network</p> <p>Improve safety in the pedestrian network</p> <p>Promote cycling, walking and public transport travel through awareness campaigns</p> <p>Ensure accessibility within new developments</p> <p>Ensure connectivity to and between new developments</p>
2025-2033	<p>Restrict through traffic within Aylesbury Town Centre</p> <p>Implement a low emission zone for the centre of Aylesbury</p> <p>Implement bus priority measures</p> <p>Introduce a cycle hire facility</p> <p>Provide a Park & Ride system</p>	<p>Implement new outer link roads</p> <p>Provide a Park & Ride system</p> <p>Implement bus priority measures</p>	<p>Implement new outer link road</p> <p>Implement bus priority measures</p> <p>Investigate HOV lane or similar on A418</p>	<p>Provide a Park & Ride system</p> <p>Implement bus priority measures</p>	<p>Implement bus priority measures</p>

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Monitoring the Strategy

7

7. Monitoring and Review of the Strategy

7.1 Monitoring Plan

- 7.1.1 A strategy monitoring plan has been developed for the ATS in order to set out a plan for monitoring the overall performance of the strategy over time against the strategy objectives. The strategy monitoring plan will be essential in determining the overall success of the ATS and should also be linked to a regular review of the strategy as discussed in Section 7.2 below. The requirements for the monitoring plan and review of the strategy need to be considered at an early stage to ensure adequate baseline information exists at the beginning of the strategy and appropriate resource planning is in place to allow for future monitoring and review activities.
- 7.1.2 The Department for Transport (DfT) considers monitoring and evaluation to be an important element in project planning in order to identify after implementation whether the desired outcomes of a transport improvement are being achieved. Therefore, a plan needs to be put in place during the planning phase in order to ensure sufficient baseline and future evidence is gathered in order to adequately evaluate the actual benefits. This is relevant to both the ATS and its specific transport improvements which will require more detailed monitoring plans in the case of larger infrastructure, particularly where the DfT have contributed to funding.
- 7.1.3 The DfT's three main objectives for monitoring and evaluation include:
- To establish a proportionate monitoring and evaluation programme to ensure that the cost of the monitoring activities is proportionate to the size of the initiative or returns which can be generated by the investment;
 - To ensure a robust governance framework which incentivises the delivery of good quality monitoring and evaluation; and
 - Embed a culture of monitoring and evaluation to fully embrace learning about what works and why / why not.
- 7.1.4 The monitoring plan sets out the strategy objectives and the outcomes from the transport improvements identified in the logic maps that directly support these objectives. The possible ways to measure the outcomes and the data source for these are also set out in the plan to enable BCC to start considering what baseline evidence they have available.
- 7.1.5 **Table 7.1** presents the monitoring plan, including the measures that can be used for monitoring and a potential frequency of collecting such data. The programme for monitoring should also be linked to a regular review of the strategy, which is discussed below.

Table 7.1 – Strategy Monitoring Plan

Objectives	Outcomes of the Strategy	Performance Indicators	Data Source	Timeframe for Impact (based on implementation)	Suggested Frequency of Data Collection
Improve transport connectivity and accessibility within Aylesbury town	More comfortable and accessible bus station	Improved public transport waiting areas and pedestrian environment	Pedestrian Environment Review System (PERS) audit Community surveys Outputs from the DfT Propensity to Cycle Tool	Medium Term	Every 5 years
	Increased permeability of town centre for active modes of transport	Quality of cycling and walking network and coverage			
	Greater amount of space available for pedestrians and cyclists	Number of shared paths and shared spaces			
	Reduced traffic circulation in town	Traffic volumes on congested routes in the town centre, particularly the inner ring road	Traffic surveys	Long Term	Following implementation of the link roads
Improve accessibility to other urban centres and new growth areas outside Aylesbury town	Improved connections to employment areas	Existing public transport service (coverage and frequency) to surrounding urban centres	Transport for Buckinghamshire	Medium Term	Every 10 years
		Accessibility to employment opportunities	Census / Nomis data	Medium Term	Every 10 years
	Encourage active travel in new growth areas	Existing shared path links within and to new development	Aylesbury shared path network	Medium Term	Every 5 years
		Journey to Work walking and cycling mode share amongst new residents and employees	Census data	Medium/Long Term	Every 10 years
	Improved journey time reliability for public transport	No. of bus and rail services running on time	Bus and rail operators' data	Long Term	Every 10 years
	Improved access to public transport services	Proportion of the local population within walking distance of a bus stop or train station	GIS data	Medium Term	Every 10 years
Reduced queuing and congestion	Queue lengths and delays at key junctions on strategic roads	Traffic surveys	Long Term	Every 10 years	
Contribute to improved air quality by minimising the growth	Reduced HGV and high polluting vehicle flows in town centre	HGV flows on inner ring road	Traffic surveys	Long Term	Every 10 years

in traffic levels and congestion	Lower emissions	Operational CO2 emissions	Data from existing diffusion tubes in AQMAs	Long Term	Every 5 years
	Air quality	Annual mean concentration of NO2 levels in AQMAs	Data from existing diffusion tubes in AQMAs	Long Term	Every 5 years
	Reduced private vehicle mode share	Journey to Work private vehicle mode share	Census Data	Medium/Long Term	Every 10 years
	Reduced queuing and congestion	Queue lengths and delays at key junctions on strategic roads	Traffic surveys	Long Term	Every 10 years
Improve journey time reliability	Improved journey time reliability	Road traffic journey time reliability data	Trafficmaster	Medium Term	Every 10 years
	Improved journey time reliability for public transport	No. of bus and rail services running on time	Bus and rail operators' data / GPS tracking	Medium Term	Every 10 years
	More efficient use of road network	Car and public transport journey times to new areas of development	Trafficmaster	Long Term	Every 5 years
		Average journey times to surrounding key centres			
	Countywide congestion indicator	TRADS and HATRIS Highways England data	Long Term	Every 5 years	
Reduce the risk of death or injury on the transport network	Reduced risk to safety on roads	No. of people killed or seriously injured in road traffic incidents	Road accident and safety statistics from BCC and DfT	Medium Term	Every 3 years
	Reduced safety risk for pedestrians and cyclists	Satisfaction survey on public perception of personal safety on the transport network	Community surveys	Medium Term	Every 5 years
		Coverage and safety of cycling network	PERS audit	Medium Term	Every 5 years
Make it easier and more attractive to travel by active and public transport modes	Greater amount of space available for pedestrians and cyclists	Number of shared paths and shared spaces	PERS audit	Medium Term	Every 5 years
	Increased mode share for walking and cycling	Levels of cycling in Aylesbury	Census Data	Medium/Long Term	Every 10 years
		Journey to Work Mode Share			
	Increased mode share for public transport	Journey to Work Mode Share	Census Data	Long Term	Every 10 years
Public transport journey time reliability	No. of bus and rail services running on time	Bus and rail operators' data / GPS tracking	Medium Term	Every 10 years	

Enhanced passenger information to encourage and make it easier to use	Community Feedback No. of real time information boards at stops and stations Availability of a travel app and travel information in one central online location	Community surveys Site audits	Medium Term	Every 5 years
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7.1.6 Many of the timeframes for impacts and monitoring above are indicative only and highly dependent on the implementation of the transport improvements.

7.1.7 Much of the baseline information for the performance indicators above is currently available and has been presented either in **Chapter 2** of this report as a summary or in more detail in the supporting summary report for Stage 2, *the Aylesbury Transport Strategy Stage 2 Report: Existing and Future Conditions*. However there are a number of indicators listed above that are currently not available and the strategy would benefit from these being collected for baseline information prior to improvements being put in place, such as:

- A PERS audit in the town centre and around key destinations;
- Community surveys to gauge public opinion on the quality of the shared path network and public spaces and their current access to travel information;
- Traffic surveys; and
- Bus and rail operators' data on the no. of services currently running to schedule.

7.1.8 It should be noted with many of the highway network performance indicators will not show significant benefits until after all the construction traffic associated with development, highway upgrades and HS2 has reduced on the highway network. From that perspective, many of these indicators should continue to be collected beyond the life of the strategy to determine the true impacts.

7.2 Review

7.2.1 Reviewing the strategy is also an important consideration at this stage to ensure a plan is in place from the beginning to continually review its policy context and progress. As the strategy takes a long term view, it is most likely it will evolve over time to remain relevant to local, regional and national policy. The progress of the strategy will be linked to the outcomes set out in the Monitoring Plan, and as such, updating data against the performance indicators should form part of this review.

7.2.2 Transport strategies of this size are typically reviewed at least every two years and should consider the following:

- Any changes in policy context at a local, regional and national level and therefore future funding opportunities;
- Potential changes to the strategy objectives in consideration of the contextual changes above;
- Whether the scale of growth and phasing has changed and will impact the transport proposals;
- Ensure that an upcoming schemes in the strategy match with the availability of upcoming funding opportunities;
- Consider the outcomes of the ongoing monitoring plan to identify where objectives are being met;
- Consider outcomes from specific schemes and whether key learnings can be taken from these in the development of new schemes.
- Determine whether new and emerging data collection technology can be used in monitoring the strategy.

7.2.3 By reviewing the strategy regularly there will be opportunity to take advantage of future policy, funding and innovations in transport technology and data collection.

7.3 Risk Register

- 7.3.1 Through mapping out the outcomes of the transport improvements in the logic maps discussed in **Chapter 6**, some of the potential risks and unintended consequences of the strategy have been identified. These have been gathered together along with additional risks drawn out of discussions with stakeholders and discussed in the following risk register for the ATS.
- 7.3.2 This seeks to highlight potential risks to the success of the strategy early on so that preventative actions can be included in the planning for each transport improvement to ensure its success in achieving the strategy objectives. This by no means an exhaustive list for each element of the strategy and a full risk assessment for each individual improvement will need to be undertaken when concept and detailed designs are being undertaken. Feasibility and deliverability risks associated with the development and implementation of projects were also identified and discussed in more detail in each transport improvement's specific pro-forma discussed in **Chapter 6**.
- 7.3.3 The risk register is presented in **Table 7.2**.

Table 7.2 – Risk register

ID	Potential Risk	Effect	Likelihood	Impact	Risk rating	Actions	Post Mitigation Risk
1	Unlocking latent demand on the highway network with capacity increases in the new link roads	Increase in traffic levels and private vehicle mode share	High	High	High	Ensure that bus priority and shared path network improvements are implemented simultaneously or immediately after the highway capacity improvements (if more practical)	Moderate
2	Long term traffic congestion and delay during construction works	Drop in visitors to Aylesbury and decrease in economic growth	High	High	High	Ensure highway improvements are appropriately phased and spread across the town so that the construction work does not impact the entire network all at once and consider conflict with HS2 construction traffic	Moderate
3	Delay in the implementation of new outer link roads	Continuing increase in congestion and delays on the existing road network	Moderate	High	Moderate	<p>Ensure plans are put in place early in the life of the strategy to ensure the roads are prioritised according to need</p> <p>Continue travel behaviour change programmes and implement improvements to the shared path network as early as possible to encourage a mode shift amongst existing private vehicle trips</p>	Moderate
4	Impact to the potential for economic growth due to HGV restrictions in the town centre in the long term	Decrease in economic growth in Aylesbury	Moderate	Moderate	Moderate	Provide alternative routes and loading areas for HGVs and/or allocate alternative hours for their access outside of peak times	Low
5	Parking is reduced as a result of the review of the parking supply and demand in the town centre	Reduction in visitors to the town centre	Moderate	High	Moderate	<p>Ensure adequate shared path and public transport links are provided to the town centre before any new parking restrictions are introduced</p> <p>Undertake a travel planning programme with local businesses and schools in the town centre</p>	Moderate

6	No uptake of the Park & Ride service to the town centre	Inefficient use of land and resources	Moderate	High	Moderate	Park & Ride system will only be successful if bus travel times are competitive with private vehicle journey times to the town centre and parking is restricted. Therefore, ensure the site is not implemented before bus priority and potential parking restrictions are put in place in the town centre	Low
7	Lack of space for capacity improvements to central bus station in the town centre	Unable to provide sufficient space for upgraded vehicles and capacity for increased services	High	High	High	In the short term, consider allocating additional capacity in nearby streets (which will likely cause traffic disruption). In the long term, consider either an additional station elsewhere in the town centre or relocation of the station to the nearby carpark and closer to Aylesbury rail station (which would require a redesign of the existing carpark)	Moderate
9	New outer road links would not provide enough additional capacity to capture existing trips on the inner roads and accommodate traffic growth	Continued congestion on the inner road network	Moderate	High	Moderate	Current mitigation modelling being undertaken separately to this study is testing the impact to the road network with the new highway links in place and should determine whether additional capacity enhancements would be required	Low
10	Low passenger demand on bus services even after PPTCs are implemented	Insufficient fare revenue and low mode shift to public transport	Moderate	Moderate	Moderate	Undertake sensitivity tests to assess feasibility under different levels of passenger demand forecasts Undertake widespread travel planning and public transport awareness campaigns to promote an uptake in bus trips	Low
12	Unable to reach an agreement with bus and rail operators to implement integrated ticketing	Delay to implementing the idea and facilitating wider use of PT	High	Moderate	Moderate	Gain the support of the DfT and join with other local authorities to achieve a wider integrated ticketing system	Low
14	Misalignment between improving cycle network and providing improved and additional cycle parking capacity at key destinations	Cycling uptake is insignificant and network improvements are underutilised	Moderate	Moderate	Moderate	Synchronise delivery of enhanced cycle parking along with improvements in the cycle network	Low
15	Lack of demand for cycle hire scheme due to poor cycle network and facilities	Cycle hire bikes are underutilised and resources wasted	Low	Moderate	Moderate	Should be taken forward after improving the cycle network and incorporated facilities to support cycling	Low

17	Risk to safety for pedestrians and cyclists if more shared space is created with cars in town centre	Increased potential for collisions between peds, cyclists and vehicles and deterrence from walking and cycling	Low	Moderate	Low	Ensure a road safety audit is undertaken for any new shared space design for the town centre	Low
21	Overall impact of travel awareness campaigns does not reach a large audience	Ineffective campaigns that do not achieve the desired impact	Low	Moderate	Low	Experience from previous marketing and promotional campaigns will be drawn upon and campaigns will be targeted at specific audience	Low
22	Risk that residents of new developments would rely on private car if parking is not restricted in new development areas	Low uptake of walking, cycling and public transport in new development areas	Moderate	Moderate	Moderate	Provision of good public transport connections to the new development areas and well connected shared path infrastructure is in place early Undertake travel planning with new residents in development areas to encourage sustainable travel behaviour	Low

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Discussion and Summary

8

8. Discussion and Summary

8.1 Discussion and Summary

- 8.1.1 This document provides the overarching transport strategy for Aylesbury, identifying the key areas for improvement in relation to the highway, public transport, walking and cycling network to address current issues on the network and growth over the next 20 years. This strategy has been developed with the guidance of a Steering Group formed of BCC and AVDC staff and input at key stages from local stakeholders.
- 8.1.2 Initially the wider context of local and national policy was considered along with the current issues on the transport network and consideration for the scale of growth expected around the town to determine a set of guiding objectives for the strategy. These were discussed and agreed with the Steering Committee and stakeholders and guided the development of the full list of transport improvements in the strategy. The strategy objectives include:
- Improve transport connectivity and accessibility within Aylesbury town;
 - Improve accessibility to other urban centres and new growth areas outside Aylesbury town;
 - Contribute to improved air quality by minimising the growth in traffic levels and congestion;
 - Improve journey time reliability;
 - Reduce the risk of death or injury on the transport network; and
 - Make it easier and more attractive to travel by active and public transport modes.
- 8.1.3 The success of the strategy should be determined by how well it can meet these objectives and as such the monitoring plan for the strategy sets out a number of measures to help track the outcomes against these objectives and a timeline for capturing the impacts as the strategy is implemented.
- 8.1.4 Informing the selection of transport improvements was an analysis of the existing baseline evidence through data collection and separate highway modelling from which a set of issues and opportunities were identified. The work was also informed by two workshops held with stakeholders throughout the development of the strategy, initially to discuss the strategy objectives, transport issues and growth and then at a later stage to go through the proposed set of Transport Improvements to be included in the strategy.
- 8.1.5 This strategy has highlighted that the transport network in Aylesbury will change considerably over the next 20 years. Aylesbury is unique as there are plans to provide additional roads which can play a considerable part in helping deliver and leverage a range of transport improvements around the town. The existing road network is congested and if new links were not proposed, the town would stagnate and prevent future economic growth given the development planned.
- 8.1.6 The mitigation modelling results have identified that the outer link road network does have a positive impact around Aylesbury. This strategy has confirmed that the transport improvements identified, and confirmed by stakeholders, should all be investigated further. Whilst the scale of improvements will differ by Sector across Aylesbury, there are opportunities to enhance and improve the highway, public transport, cycling and walking networks across Aylesbury and the surrounding area. Best practice and similar success stories from other transport strategies should be used to further define and shape the transport improvements proposed. Links to future technology and ensuring Aylesbury has a transport network fit for the next decades are paramount considerations.
- 8.1.7 Modelling also shows a reduction in traffic in the town centre, helping to highlight that the proposed transport mitigation package is helping to deliver / achieve the Strategy objectives.
- 8.1.8 To facilitate the progression of transport schemes and interventions which are likely to be required to successfully facilitate the planned growth, it is important to consider the following next steps for each of the three key modes:

- Highways: results from the transport modelling provide a high level evidence base for the potential highway schemes in this ATS. As a next step, feasibility of schemes should be assessed using early option generation and sifting processes. Examples of best practice and lessons learnt should be referred to during option sifting/scheme design. This will help create initial scheme details/designs which can then be assessed by stakeholders, defined, prioritised and progressed to business cases where appropriate. This will ensure the interventions provide value for money.
- Public transport: the implementation of the public transport improvements should be preceded by work to understand the likely users/benefits and feasibility. This will ensure future proofing of potential interventions and seek to maximise a step change in modal shift, whilst also enabling innovative approaches to be incorporated. A dedicated public transport strategy which links bus and rail passenger requirements, along with physical infrastructure on street and linking to the latest smart technology would be a good way to address this.
- Walking/cycling: a holistic approach across Aylesbury should be taken forward to estimate the likely users and benefits of the proposed walking and cycling infrastructure. Furthermore, scheme design should be considered to ensure any potential constraints are identified early on in the process and therefore overcome efficiently.

- 8.1.9 It may be that each of the categories above form separate targeted strategies, such as a Walking and Cycling Strategy or continue to progress as part of BCC's transport program. Already a parking review/strategy in Aylesbury is due to start development shortly, which should seek to link to the transport improvements identified in the ATS.
- 8.1.10 Currently, the proposed implementation plan identified as part of the ATS has highlighted that the emphasis should be on highway and public transport schemes in the short term as the additional link roads are key to unlocking other transport improvements proposed.
- 8.1.11 There are a number of shorter term schemes which should be progressed immediately which will help plug gaps or address key issues in the existing highway and public transport networks. Improving safety on the highway network, integrating public transport ticketing, developing a more comprehensive tool to test improvements and improving access to travel information are all improvements which can be made immediately with longer term benefits. A more comprehensive modelling tool to assess schemes is a key element of this and will help manage the planned growth in Aylesbury. This tool will also help developers fully understand the impacts of their proposals and show the strategic and local impacts of changes in the transport network.
- 8.1.12 Finally, in addition to the next steps outlined above, the likelihood and phasing of developments in and around Aylesbury are subject to ongoing planning applications and finalising the VALP, therefore changes to future development planning will impact the prioritisation and implementation of the transport improvements discussed.

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Glossary

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9. Glossary

9.1.1 The following is a glossary of abbreviations used throughout the progress of the ATS.

AONB	Area of Outstanding National Beauty
AQMA	Air Quality Management Area
ATCP	Aylesbury Town Centre Plan
ATS	Aylesbury Transport Strategy
AVDC	Aylesbury Vale District Council
BCC	Buckinghamshire County Council
BTVLEP	Buckinghamshire Thames Valley Local Enterprise Partnership
DM	Do Minimum Modelling Scenario
DS	Do Something Modelling Scenario
HEDNA	Housing and Economic Development Needs Assessment
HELAA	Housing and Economic Land Availability Assessment
IMD	Index of Multiple Deprivation
JTW	Journey to Work
LSOA	Lower Layer Super Output Area
LTP	Local Transport Plan
MSOA	Middle Super Output Area
OAN	Objectively Assessed Need
ORR	Office for Rail and Road
PPTC	Primary Public Transport Corridor
SEMLEP	South East Midlands Local Enterprise Partnership
SEP	Strategic Economic Plan
SWOT	Strength, Weakness, Opportunity, Threat
TfB	Transport for Buckinghamshire
TI	Transport Improvement
VALP	Vale of Aylesbury Local Plan

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Appendices

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10. Appendices

Appendix A: Workshop Summaries

Summary of Aylesbury Transport Strategy 1st Stakeholder Workshop

Introduction

The Aylesbury Transport Strategy (ATS) stakeholder workshop was held at Aylesbury Vale District Council's (AVDC) offices, on 28th April 2016 (Thursday), between 1pm and 5pm, with the aim of reaching a common understanding of the views that stakeholders hold on:

- Transport issues in Aylesbury today;
- The scale of growth around Aylesbury and the transport challenges associated with this growth; and
- Potential transport opportunities and interventions for Aylesbury.

Agenda

Below is the agenda for the workshop.

1. Strategy Context (1:40 pm – 1:50 pm)
2. Strategy Objectives (1:50 pm – 2:10 pm)
3. **Group feedback**
4. Existing Transport Conditions in Aylesbury (2:10 pm – 3:20 pm)
5. **Group feedback**
6. *Break (3:20 pm – 3:30 pm)*
7. Committed Growth & Impacts (3:30 pm – 3:50 pm)
8. Aylesbury Local Plan Growth (3:50 pm – 4:00 pm)
9. Potential Transport Challenges and Interventions (4:00 pm – 4:50 pm)
10. **Group feedback**
11. Next steps (4:50 pm – 5:00 pm)

Attendees

Below is a list of those people who attended the workshop.

Name	Representing
Andrew Clarke	Buckinghamshire County Council (Passenger Transport)
Andy Kirkham	AVDC (Planning)
Anthony Blackmore	Transport for Buckinghamshire (Network Management)
Dave Roberts	Transport for Buckinghamshire (Network Management)
David Heathfield	Chiltern Railways
Del Tester	Buckinghamshire County Council (Development Management)
Hayley Jeffery	AVDC (Development Management)
Ian McGowan	Buckinghamshire County Council (Infrastructure Delivery)
Jack Mayhew	Buckinghamshire County Council (Growth & Development Strategy)
Joan Hancox	Buckinghamshire County Council (Transport Strategy)
Jonathan Clark	Buckinghamshire County Council (Strategic Access)
Peter Challis	Sustrans
Peter Williams	AVDC (Planning / DM)
Rachel Wileman	Buckinghamshire County Council (Strategic Planning)
Rebecca Dengler	Buckinghamshire County Council (Transport Strategy)
Sarah Gibson	Buckinghamshire County Council (Transport Strategy)
Susan Kitchen	AVDC (Development Management)
Thomas Fitzpatrick	Buckinghamshire County Council (HS2)
Paul Hodson	Buckinghamshire County Council (Localities)
Tom Burton	Buckinghamshire County Council (Public Health)
Siamak Khorgami	AECOM
Ian Burrows	AECOM
Andy Firman	AECOM
Kit Tang	AECOM
Chris Wood	AECOM
Amanda Tobin	AECOM
Tara Tanoz-Sargeant	AECOM

Strategy Objectives Feedback and Comments

The objectives of the ATS agreed with the Steering Committee were presented to the stakeholders, who were invited to provide their feedback on them. The table below summarises their comments.

Strategy Objective	Feedback
<i>Improve transport access and movement in town centre</i>	<ul style="list-style-type: none"> • Suggestion to change objective name to “Permeability of Town Centre” • Defining town centre – larger than the area enclosed by the inner ring road- town centre has expanded and the ring road has become a barrier to pedestrian movement • Connectivity of town centre
<i>Make it easier and more attractive to travel by active and public transport modes</i>	<ul style="list-style-type: none"> • Need to consider One Transport Project within this objective • Suggestion to change the name of objective to “Non-car travel” • Ensure it covers consideration for reducing the need to travel e.g. faster broadband to encourage working from home. • Incorporate improved accessibility into this objective.
<i>Reduce the risk of death or injury on the transport network</i>	<ul style="list-style-type: none"> • Residents often raise road safety concerns through local forums, particularly speeding in general and parking outside schools. With an aging population this will be more important at both new and existing developments. • If speeding is an issue, this needs to be identified through evidence.
<i>Minimise the impact of future growth on traffic levels, congestion and air quality</i>	<ul style="list-style-type: none"> • Suggestion to change the focus of this objective to improving air quality, which can be achieved by reducing congestion.
<i>Improve journey time reliability</i>	<ul style="list-style-type: none"> • Need to define ‘good’ journey times? • Which users are going to be targeted - active and public transport modes may come at a cost to private vehicle users. • Where does the Park & Ride fit in?
<i>Improve accessibility to other urban centres and new growth areas</i>	<ul style="list-style-type: none"> • What is the study area - split between strategic and local areas? • Planning permission is granted to developments on the outskirts of the existing town centre, which often include plans to improve the road near them. This approach should be reconsidered. Perhaps a more sustainable transport focus should be encouraged in new developments, i.e. developments need to be designed from the outset so that active and public transport modes are the quickest and most convenient ways to travel in order to help deter car use

Existing Transport Conditions in Aylesbury

A presentation was given by AECOM about the existing transport conditions in Aylesbury, followed by a session of smaller breakout groups amongst the stakeholders to discuss the transport issues for Aylesbury. Each group provided feedback to the wider workshop group at the end of this session and facilitators at each table took notes. The following is a summary of the current transport issues raised by stakeholders.

Highway Network

- Network was designed for inbound trips with Aylesbury as a destination, whereas now it is used for a large number of through trips.
 - o High volumes of through traffic are an issue through the town centre, there are no alternative viable routes around the town, i.e., link roads.
- Linked trips – where people cross the town centre multiple times in a peak. For example dropping off children at school, returning home, driving to work. All these are short, cross town movements. Radial road network possibly contributes.
- Road network has little to no resilience- road closures have a disproportionate effect on other arterial routes.

Buses

- Regional bus services supplement the local routes in accessing Aylesbury town centre and key destinations. i.e. links to Stoke Mandeville Hospital
- The Aylesbury – Oxford bus service via Thame should be improved and enhanced
- Developer funding for Primary Passenger Transport Corridors (mentioned in the LTP3) has been obtained but the A41 is so heavily used that there is no public support or the political will to implement them at the moment.
 - o These should be considered in the long term when alternative viable routes exist and carriageway capacity can be reduced in favour of bus priority, which will reduce the use of the A41 by private vehicles.
- A stakeholder's view was that bus services are not reliable or necessarily direct routes to the town centre.
- A stakeholder's view was that the Rainbow bus routes are frequent but their journey times are not reliable.
- Bus tickets are different for each operator, no central ticketing system and needs more integration.
- More direct and faster public transport services are required.
- Bus station is not fit for purpose.
 - o 1960's bus station infrastructure can't cope with new bus fleets
 - o Operators have invested in new buses, but there is no capacity
 - o Hidden under shopping centre
 - o Needs investment
 - o Exhaust fumes from buses come into shopping centre above
- Bus ridership has steadied or increased [no figures were given]

Rail

- Station area and roads/bus services have little connectivity
- Station access - no sight line from (Aylesbury) station to the town centre
- East West Rail proposals-
 - o Single line on the Princes Risborough route restricts the number of carriages and the speeds that trains can travel.
 - o Journey time and capacity improvements
- Metropolitan line – run by TfL also has capacity and speed restrictions.

Car Parking

- Availability of residential parking in the town centre and beyond.
- Parents/students who drive to school take up parking near schools.
- No clear parking strategy
- Lack of coach parking/drop off points at the theatre and museum in the town centre.
- Need to distinguish between 24 hour car parks and those with limited opening hours.
- Private parking is rarely enforced and often used to access the town centre rather than the businesses themselves.

Walking & Cycling

- Quality of the infrastructure is just as important as the quantity.
 - o Overall journeys important – how do they get to where they want to go once the majority of the journey is completed? E.g. you arrive at the bus/rail station but how do you complete the final leg of your journey – it should be easy, quick and convenient.

- Most existing cycling/walking facilities are on shared footways – can have some issues with cyclists not being courteous and sharing space
- Taking cycling routes off road loses priority, e.g. cyclists must give way at driveways, forecourts or access paths.
 - o Routes are not continuous – cycle infrastructure provision variable along the routes
- Aylesbury is a “less successful” cycle demonstration town. There has been some change in the levels of cycling and infrastructure improvements have been made, but impacts are not as great as in other locations.
- Want to follow an “evidence” based approach of what works – is Aylesbury following a key strategy now? Or has the cycle demonstration town label clouded the issue?
 - o Should align the evidence from other, similar towns in the UK and Europe.
- Short trips - > 5 km are driven – these should be the focus of encouraging modal shift towards active and public transport modes of transport. Links to the model analysis of the existing trip patterns
- Roundabouts prove a barrier to less confident cyclists using on road routes.
- Cycling network should be publicised to residents and businesses along the routes.
- Due to government cutbacks, BCC does not have a cycling officer now –Sustrans tries to fulfil this role but noted is very difficult and resources are sparse.
- Greater permeability for walking and cycling – keep car routes but make them longer/less accessible. Ensure the access to key destinations/attractors is very good and a priority for cyclists/pedestrians. Motorist access should follow as a second consideration.
- Subway from town centre to Cambridge Street retail park heavily used, there are a lack of at grade crossings on Cambridge Street

Additional Issues Raised

- Lack of travel planning for businesses
 - o some the schools have them in place but not businesses.
 - o Travel plans are not followed up to make sure they are being implemented.
- LTP3 – some aspects of this are still valid, in some cases more specific than the LTP4 that has been approved, so they should both be considered.
- Deliverability – how will we measure what is put in?
- Queried if there is actually the political support for change to encourage walking and cycling e.g. A politician will happily open a new cycle parking area, but wouldn't want to be associated with opening a road closure to facilitate better access to it.
- Getting it right for the future and making longer term decisions is difficult, but necessary. As an example, increased physical activity equals better health for residents, but quantifying the longer term savings through business cases is needed.
- Aylesbury Transport Hub - tried to satisfy everyone but the public information centre was shut down within 1 year, and has now been closed for 6 years.
- Additional usage of the towpath and access over Canal and River trust land will be considered as long as it is suitable to cope with the additional usage in terms of width, surfacing and safety. The trust welcomes early contact from developers/district council/county council to discuss this.
 - o Access onto their land requires a commercial agreement but they are willing to consider the whole package and if improvements can be made with funding, they may be able to consider a lower connection license fee.

Committed Growth and its Impact

A brief presentation was given on the committed developments around Aylesbury. Below are some points raised by stakeholders.

- Much of the development is likely to be the South and East of Aylesbury
 - o Between HS2 line and Aylesbury
 - o Towards Arla Factory to the South East
 - o East of town, some large developments are yet to obtain planning permission
- Suggestions that growth and infrastructure should consider the current and future demographics of the town.

Future Challenges and Suggested Interventions

In this activity, the growth being considered in the Vale of Aylesbury Local Plan (VALP) was presented by Peter Williams of AVDC. This was then followed up with smaller breakout groups again to discuss the future impacts and opportunities for transport in Aylesbury based on this growth. The following are the key points that were raised in these discussion groups.

Highway Network

- New link roads within new developments should only be for local traffic. Other traffic should be directed onto peripheral roads
- Who will pay for future capacity upgrades to developer funded roads?

Bus

- Relocation of the bus station, to allow it to expand and cater for increased or improved services should be considered
 - o but keep it close to the rail station
 - o alternatively consider a series of dispersed, smaller bus stations, which also has issues in connecting them. Consider whether they would be within walking distance of one another.
- Improved bus frequency/reliability

Rail

- Parkway station does not align with the growth which is all in the South and East.
 - o Stoke Mandeville may be a better investment if the growth is closer to it, however a review of the requirements for bus interchange and cycle parking at this station would need to be undertaken to ensure it can cope with additional demand.
- Connectivity to Tring, Aylesbury Vale Parkway and Stoke Mandeville.
- East West Rail will bring journey time improvements and improved accessibility to the North and East.
 - o Aylesbury to Milton Keynes ~ 33 mins
- Wi-Fi on trains, allow people to be more productive whilst commuting.

Town Centre

- Growth in the town centre – takes out parking spaces, primarily residential or commercial land use.
- Improve public realm, pedestrian and cycle facilities.
- Redirect through-traffic to peripheral routes rather than through the town centre which would make the town centre more pedestrian friendly.

Car Parking

- Park and ride –if it can be proven/shown to be quicker. All plans so far would have users stuck in traffic in a bus rather than a car. Dedicated bus lanes to accompany it/them would be required
- Regeneration leads to lower car parking provision.

Walking/Cycling

- Public transport, walking and cycling links should be completed at the same time as new development. Otherwise new residents only consider travelling by private car from the start
- Legible London style signing should be provided – show people options and how easy they are. Already cycling times on posts – this should be expanded throughout the town
- Cycle hire – not sure it could be supported in Aylesbury
- Increased levels of secure and convenient cycle parking definitely needed – especially at the bus/rail stations
- Overarching cycling, walking and public transport strategy is needed
- Cycle routes to Waddesdon, Wendover and Grand Union Triangle route already planned
- Is there enough cycle parking to cope with current and future demand?

Additional Suggestions

- Need to match “motivation” and “infrastructure”. The new modes need to sell themselves visually
- Business travel plans should be implemented and enforced with employers in Aylesbury
- New developments should feature intelligent designs – promoted by town and country planning
 - o Link infrastructure – such as shops on cycling/pedestrian routes – parking should not be directly outside etc.
 - o E.g. Wokingham development which was designed with active travel/public transport first. New residents were advised they “don’t need a car”. Could Aylesbury follow this?
- The design of new housing areas should be a coordinated approach – e.g. planners, architects, engineers and operators all liaising throughout the process rather than only being involved at certain times of the process.
- Greater links to Tring?
- Digital mapping and support of facilities on maps is key. Highlight how close areas are and how journeys can be made by active modes/public transport.

Feedback – Top 3 Schemes by Group

Following the previous activity, each of the discussion groups reported back to the wider workshop what their top three priorities are for transport improvements in Aylesbury. These are listed below.

Table 1 – Walking/Cycling/PT

Ensure that the cycle/walking network is more complete – connections between the radial network (More complete walking / cycling routes)

Raise awareness – intelligent design of newer developments so that active and public transport modes are given equal weight – car parks less accessible easier walking routes etc. (Intelligent design of new developments)

Information easier to access, e.g. Legible London – walking times signposted, and incorporating more technology – mobile apps, single central place to get information. (Information campaign)

Table 2 – Walking/Cycling/PT

Central transport interchange that integrates bus, cycle and rail access and easily links to the town centre (Bus, rail and cycle hub linked to the town centre)

Travel Awareness campaign – combination of hard and soft measures as part of the new infrastructure (Travel awareness campaign)

Strategy to connect new developments, both with each other and the town centre by active and public transport modes

Table 3 – Highway Network

Ring Road – outside town centre with an associated package of PT measures for the town centre (Outer ring road & associated package of public transport measures (including bus station))

Bus station improvements – capacity and ambience, access to the town centre

Rail Station Access – for all three stations that serve Aylesbury including Stoke Mandeville – if development growth is in that direction, perhaps it should be made larger.

Table 4 – Town Centre & Parking

Link new developments to the town centre by active and public transport modes

Upgrade/relocate bus station

Ensure correct demographics are catered for and targeted – in both campaigns and transport provision (Ensure right demographics are catered for)

The top 3 suggestions from each group above were then ranked, using votes given by each stakeholder to their preferred improvements. Note, since there were repeated instances of bus station upgrades, these were incorporated into a single scheme suggestion:

Transport Intervention	Votes	% Votes
More complete walking / cycling routes	13	7%
Intelligent design of new developments	6	3%
Information campaign	10	6%
Bus, rail and cycle hub linked to the town centre	36	20%
Travel awareness campaign	8	4%
Network of active and public transport modes	9	5%
Link new developments to the town centre by active and public transport modes	20	11%
Ensure right demographics are catered for	15	8%
Outer ring road & associated package of public transport measures (including bus station)	42	24%
Rail station access (for all stations)	19	11%

The three schemes from above that received the most support are:

1. Implementation of an outer ring road with public transport measures (including bus station)
2. Bus, rail and cycle hub linked to the town centre
3. Link new developments to the town centre by active and public transport modes.

Summary of Aylesbury Transport Strategy 2nd Stakeholder Workshop

Introduction

The Aylesbury Transport Strategy (ATS) 2nd and final workshop was held at Aylesbury Vale District Council's (AVDC) offices, on Monday 19th September, 9-11.30am, with the aim of reaching a common understanding of the views that stakeholders hold on:

- Potential growth and phasing:
- The transport improvements and packaging these into transport sectors.

Agenda

Below is the agenda for the workshop.

1. Workshop purpose (9:30am – 9:35am)
2. Agenda and introductions (9:35am – 9:45am)
3. Recap from last workshop (9:45am – 9:55am)
4. Potential growth and phasing (9:55am – 10:00am)
5. Observations and comments (10am – 10:15am)
6. Defining and progressing the transport improvements (10:15am – 10:30am)
7. Packaging into transport sectors and transport improvements (10:30am – 10:45am)
8. **Breakout session** (10:45am – 11:05am)
9. **Collective discussion/group feedback** (11:05am – 11:20am)
10. Wrap up and next steps (11:20am – 11:30am)

Attendees

Below is a list of those people who attended the workshop.

Name	Representing
Amanda Tobin	AECOM
Andy Firman	AECOM
Andy Kirkham	Aylesbury Vale District Council
Chris Wood	AECOM
Dave Roberts	Transport for Buckinghamshire
David Heathfield	Chiltern Railways
Elaine Hassall	Aylesbury Vale District Council
Graham White	Buckinghamshire County Council
Hayley Jeffery	Aylesbury Vale District Council
Ian Burrows	AECOM
Jack Mayhew	Buckinghamshire County Council
Jessica Everett	Buckinghamshire County Council
Joan Hancox	Buckinghamshire County Council
Jon Clark	Buckinghamshire County Council
Jonathan Levis	AECOM
Paul Goodwin	Buckinghamshire County Council
Peter Williams	Aylesbury Vale District Council
Rebecca Dengler	Buckinghamshire County Council
Ruben Tobajas	AECOM
Sally Sharp	Buckinghamshire County Council
Sarah Gibson	Buckinghamshire County Council
Siamak Khorgami	AECOM
Susan Kitchen	Aylesbury Vale District Council
Teresa Lane	Aylesbury Vale District Council
Tony Blackmore	Transport for Buckinghamshire

Growth: Observations and Comments

A presentation was given by AVDC about the potential growth and its phasing in Aylesbury. The potential growth was split into three stages with indicative timing to form the phasing. AVDC were looking for feedback from the stakeholders about the growth and its phasing, in particular on Stage 3.

The following is a summary of the observations and comments raised by stakeholders in relation to the growth.

Stage 3

- Difficult to agree to specific periods for the potential growth.
- Currently AVDC is actively encouraging growth.
- Concerns about transport improvements associated with new developments, as infrastructure is very often implemented once the development has been built. Thus, transport habits are already established when the infrastructure is being built.
 - o How can they be brought together?
 - o It is necessary to hold early conversations with developers to deliver plans and work together to reach a coordinated effort.
 - o What mechanisms are available to achieve this?
 - o Some infrastructure may not be built until 2030, how could potential growth affect the transport network in the meantime?

Additional comments were also raised around other topics related to the growth.

Parking supply in the town centre and the upcoming parking strategy

- New developments will have a big impact on parking demand within the town.
- Developments are often built with unrestricted parking capacity.
- How is it going to be possible to deal with new journeys? Could current capacity support potential growth?
- Parking should be part of overall transport strategy. Review parking supply as a part of the parking strategy including the impact due to new developments with planning permission.
- Also, commercial sites in developments should be considered with respect to their impact on future traffic if unlimited parking supply is provided.

Oxford – Cambridge Expressway

- Current timescales include the design to be completed by 2025 and if construction takes approximately 7 years then the expressway would open around 2033.
- Expressway is most likely outside the timeframe for this strategy, therefore it should only be considered as a long term aspiration.
- Need to consider that if it was not included, which infrastructure would Aylesbury need? On the other hand, if it goes ahead, would this imply that additional traffic would come to Aylesbury creating a further problem.

Future HS2 Route

- It would be necessary to ensure that all HS2 bridges introduced across existing carriageways are built to accommodate the infrastructure that is needed, e.g. highway capacity, shared paths and bus priority. The link across the A418 was brought up as an example of this.

Transport Improvements and Packaging into Sectors

A presentation was given by AECOM about the transport improvements and packaging into transport sectors, followed by a session of smaller breakout groups amongst the stakeholders to discuss the different questions shown below. Each group then provided feedback to the larger stakeholder group.

The breakout session was focused on five key questions. Each group discussed one common question related to the town centre, and another one associated with a particular sector allocated to the smaller group. The following is a summary of the feedback from the stakeholders.

Town Centre: What are the priorities – short/med/long term?

Short term

- Alignment of policies is necessary to face the problems and achieve the improvements required.
- Pedestrian network improvements, key locations have to be improved, solving the current pedestrian barrier around the town centre.
- Sheltered bike facilities including new cycle parking.

Short – Medium term

- East West rail could have impacts on Aylesbury station and encourage more journeys. Felt that this impact has not been quantified yet and is a potential risk. Accessibility issues which could arise should be taken into account.
- New link roads will reduce the traffic in town centre and on the inner ring road.

Medium term

- Parking:
 - o Different groups agreed that the town centre parking is one of the most important issues in the medium term and needs to be addressed on the political agenda. Relocate some of the large car parks further away from the town centre and encourage people to walk/cycle/use a shuttle bus to reach the town centre.
 - o Acknowledged that Aylesbury spent a lot installing digital schemes advising of parking capacity but in reality they're only needed at peak Christmas shopping time. At all other times there is no real pressure on parking. The only car parks which approach capacity are the two near the station.
 - o Suggested that parking is restricted for commuters – i.e. those who arrive before 9am are charged increased fees, whereas those who arrive to do shopping or in the evening are charged only a small fee. Parking is known to be free in estates around the town centre so commuters use this. It was highlighted that many BCC employees park in the AVDC car park and walk in as it's free.

- o Implementing a residents parking zone or similar around the town centre is difficult politically – they begin as a free carpark, but then residents have to fund it which isn't popular. It has been tried in the past and never progressed. Rail operators traditionally approve car park expansion plans as they're very profitable.
- Pedestrianize key shopping areas and key routes around the town centre.
- If a cycle hire facility is introduced, ensure gaps in the cycle network are addressed and the current network is maintained.
- Encourage visitors to the Canal Basin area and improve accessibility through town centre for pedestrians and cyclists. A signage improvement programme is starting in 2017.

Long term

- All the groups defined the potential bus station relocation as a priority in the long term. Examine options for relocating the bus station as it's not suitable for the size of vehicles using it and is also a bleak environment. Different possibilities and criteria were raised:
 - o Bus station close to rail station.
 - o Good connectivity between bus and rail station.
 - o Proper access for users.
 - o Possible financial benefit if it was integrated into shopping centre.
 - o Relocation to a car park, could it be available?
- Park + ride.

Other comments

- Ensure infrastructure implemented as soon as possible before travel pattern decisions occur in new developments.
- The idea of promoting Tring Station as an alternative to Aylesbury was discussed, however the car park at Tring station is almost at capacity and also this would compromise highway links to here risking the introduction of more demand.

Sector 1: How could accessibility to Aylesbury Vale Station be enhanced? What would the PPTC on A41 include?

- No accessibility issues to Aylesbury Vale Station were identified.
- PPTC would include full time bus lane to access the town centre.
- Coldharbour Way represents a link road through the current sector. Need to consider its functions at each end.
- No outer ring roads in the current sector, only local roads. This may become a problem in future. Thus, link A418/A41 will become priority if link roads going ahead. Could stop development if traffic patterns change? May also become key if development in Haddenham progresses.

Sector 2: Is this sector at risk if the link roads don't proceed? Could a PPTC be proposed on A413/A418 without them?

- Highlighted the planning application in this area was rejected due to its possible impacts on the landscape. Suggested any link road proposed may have similar problems progressing.
- Unsure how a new link road would be funded if not linked to development.
- Highlighted some traffic currently travels down the A413, across the A4157 and then up the A418 as there are no direct alternatives. Mentioned there are rat-runs between those roads further north, but they're not well used. If the link road doesn't proceed, could investigate signing an alternative route between the 413 and A418 further north.
- The Horse and Jockey junction (A413/A4157 signals) is a known bottleneck. There are no easy schemes to relieve congestion here.
- There has been a desire for a southbound bus lane on the A413 from the new development into the town centre but it's difficult due to congestion. Suggested this may be linked to a park and ride scheme in the future, or become a High Occupancy Vehicle Lane if a bus lane isn't feasible.

Sector 3: What could the PPTCs on the A41/A413 include? Are there any challenges posed by the new developments not accounted for?

- The idea of bus triggers at signals was discussed; however it was raised that this may not be worthwhile because they do not necessarily move traffic through quicker. Best to just optimise junction signals for every approach.
- Currently smart ticketing is being investigated.
- Buses currently have long dwell time.
- The on-road parking on the A41 Tring Road has an impact on bus movements.
- B4443 could be an alternative to A413 in South of Aylesbury development.
- With all the new development, some kind of ride sharing could be implemented.

Sector 4: How could accessibility to Stoke Mandeville Station be enhanced? Do you feel the future of the hospital is safeguarded?

- Improvements on Stoke Road gyratory needed.
- The initial modelling has indicated there is further congestion on the Stoke Road approach to the Stoke Road gyratory. Acknowledged this is constrained by the narrow bridge over the railway line on Stoke Road. Highlighted there has been a scheme designed to replace this railway bridge but it has never proceeded as linked to the courthouse development. Requested that this may be re-examined. Also highlighted that with an aging demographic in Aylesbury there is a need to consider that many more trips to the hospital will probably be made by private vehicle.
- Future HS2 route could have significant positive impact. However it would be interesting to consider risk of no HS2 in the strategy.
- Risborough Road – Mandeville Road level crossing accidents. Not intended to replace with bridge but need to know possible proposals.
- Stoke Mandeville Station needs bus link. Cannot rely on Aylesbury Station. Not just benefit to hospital but sector overall.
- Need to consider solution for cycling/ walking in town.
- East West rail crossing. Are there accessibility solutions?

Appendix B: SWOT Analysis

1.1 Highway Network/Car Parking

<p>Strengths</p> <ul style="list-style-type: none"> • Aylesbury is a focal point of Buckinghamshire County Council (BCC)'s road network. The town is connected to the wider highway network via the A41, A418 and A413 • The A4157 provides an internal semi-circular road around the north of the town providing an alternative route to crossing the central area • Employment sites are generally within the town centre and west along the A41, therefore well connected to the wider highway network • There is a clear public car parking price structure for short and long stays • Pay & Display car parking on-street in the town centre provides high vehicle rotation. It benefits short stay purposes as personal business and shopping. 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Private vehicles are the primary transport mode within the study area. Average car ownership is 1.5 cars per household and approximately 66% of the residents and 76% of the study area employees travel to work by car • The highway network in Aylesbury is not growing as much as the new developments. The key north-south and east-west highway connections within Aylesbury are generally congested during peak hours. • Due to the radial highway network structure for Aylesbury, high volumes of through traffic are an issue through the town centre. • Arterial routes to/from Aylesbury are busy and congested during the morning and evening peak hours, particularly along the A41 and the southern links. • School traffic occurs at same time as morning peak hour and contributes to congestion. • Road network has little to no resilience to incidents - road closures have a disproportionate effect on other arterial routes. • High supply of car parking may be one of the causes to the high number of car journeys to Aylesbury. Private parking (retail) is rarely enforced and often used to access the town centre rather than the businesses themselves. • Lack of availability of residential parking within the Old Town area of the town centre. • Controlled parking zones for residents are being implemented but they need to be expanded. • Lack of coach parking/drop off points, particularly at the town centre's main attractions (e.g. theatre, museum). • Rat running occurs to avoid the congested arterial routes. • There are roads currently experiencing congestion issues (based on the base year of the Countywide VISUM transport model), those roads showing the highest congestion (volume/capacity) in the peaks include: <ul style="list-style-type: none"> ○ A4010 (Stoke Mandeville) ○ A413 (Whitchurch) ○ A418 on southern edge of Aylesbury town ○ Wendover Road and Walton Street approaching the gyratory ○ Approaches to the A418/Bicester Road/A413 triple roundabout ○ A 41 on both approaches to Aylesbury town ○ A413 Buckingham Road near the A4157 • Additionally, there are junctions with delays of more than three minutes in the peaks (based on the base year of the Countywide VISUM transport model), those include: <ul style="list-style-type: none"> ○ Risborough Road/North Lee Lane ○ A41/Station Road/Townsend Road ○ A41/Martin Dalby Way ○ Eastcote Road/Wendover Road ○ Stoke Mandeville exit/Lower Road ○ Junctions along the A418 north of town centre
<p>Opportunities</p> <ul style="list-style-type: none"> • New transport infrastructure (e.g. planned road network) can improve connectivity between Aylesbury and other towns. • Delivery of new link roads will support the significant growth committed and planned in the area (>30,000 houses in Aylesbury Vale, including 14,000 in 	<p>Threats</p> <ul style="list-style-type: none"> • Many improvements on the highway network may attract more car journeys to the town centre. Restrictions to parking in the town centre need to be considered. • No improvements to the network resilience may cause severe traffic congestion when the High Speed 2 (HS2) construction starts.

<p>Aylesbury by 2033)</p> <ul style="list-style-type: none"> • Delivery of the proposed new primary link roads outside the town centre will create part of an external circular ring road and redirect through-traffic to peripheral routes rather than through the town centre, providing a more pedestrian friendly town centre. Implementation of new link roads will release capacity on existing inner roads and allow new bus priority infrastructure to be implemented on these roads. • Upcoming East West Rail service may encourage a mode shift from car journeys to rail • Reduce car journeys within Aylesbury town centre through the introduction of a Park&Ride system. However this would need to be supported by reduced parking supply in the town centre. Dedicated bus lanes must accompany the Park&Ride system. • Enforcing strict rules on parking near schools may reduce the number of car journeys to town and provide safer areas in the vicinity of schools. 	<ul style="list-style-type: none"> • Possibility of no funding for capacity upgrades on the highway network • The lack of enforcement on parking supply or price in private car parks (retail) may not discourage car journeys to the town centre. • A Park & Ride system based on buses to the town centre should not be introduced if not proven to be quicker than the car. Otherwise, it will not be used. • Initial modelling of the future scenario based on current local plan growth and committed new road links only has shown peak hour congestion³⁹ on some additional roads to those identified in the base year above: <ul style="list-style-type: none"> ○ Martin Dalby Way ○ A418 approaching A4157 ○ Mandeville Road ○ A418 approaching A41 ○ Portway Road ○ Aylesbury Gyratory ○ Walton Street ○ Station Road at Stoke Mandeville ○ Griffin Lane ○ Rabans Lane ○ Local roads in Southcourt and in vicinity of Stoke Mandeville hospital
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1.2 Public Transport

<p>Strengths</p> <ul style="list-style-type: none"> • Chiltern Railways provide direct rail access to London (Marylebone) and its rail journey times to/from London are favourable when compared to the private vehicle, which makes the train a valuable choice • The same rail line also links Aylesbury rail station to High Wycombe rail station, the largest town in Buckinghamshire. • Aylesbury town centre is served by local bus routes which cover the main residential areas and link roads. • Regional bus services supplement the local routes in accessing Aylesbury town centre to/from other key urban centres (High Wycombe, Milton Keynes, Hemel Hempstead, Chesham, Bicester and Oxford) • Aylesbury – Oxford bus service via Thame is the best performing route in the county and one of Arriva’s national exemplar “Sapphire” services. It has a comprehensive 7 day per week timetable, high quality buses, wifi etc. 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Public Transport does not have a high modal share, for commuting purposes, within the study area. Less than 10% of journeys to work are made by train or bus as the main mode. • Bus journey times are not competitive against private vehicle journey time (but on price bus journeys are competitive). • Arterial routes to/from Aylesbury are busy and congested during the morning and evening peak hours which affects the bus services as well. • Aylesbury town bus station is not fit for purpose. Its infrastructure is old (1960’s) and does not have capacity for new bus fleets that operators have invested in.
<p>Opportunities</p> <ul style="list-style-type: none"> • Overarching cycling, walking and public transport strategy is needed to encourage a mode shift away from the car where possible. • East West Rail service will make the route competitive to the private vehicle. Improved connectivity between Aylesbury and other towns. Aylesbury will be better connected to other employment centres, including Oxford, Milton Keynes and Cambridge with East West rail. • Whilst not a direct service, an improvement on the Chiltern Railway train frequency to High Wycombe would provide a stronger connectivity between the main town centres in Buckinghamshire. • Improved bus frequency/reliability would attract more bus passengers. Bus priority measures would help to improve reliability for congested routes. • Delivery of the planned new primary link roads outside the town centre will help shift demand away from the A41 and reduce congestion on this route, which may open doors to the obtain funding for Primary Passenger Transport Corridors (mentioned in the LTP3). • Relocation of the bus station to allow it to expand will raise the number of public transport journeys. It can provide higher bus capacity and better conditions to passengers and, if close to the rail station provide a good interface between the two. • Improving bus connectivity to Tring, Aylesbury Vale Parkway and Stoke Mandeville stations will support public transport growth. However, as part of this integrated ticketing between rail/bus services would need to be considered along with a parking strategy for the station and bus priority measures. • An integrated bus ticketing system between operators would help to increase the public transport use. 	<p>Threats</p> <ul style="list-style-type: none"> • Maintaining existing highway network conditions will keep the bottlenecks on key roads entering Aylesbury and not support bus usage. • The current single line on the Princes Risborough route (East West Rail proposals) restricts the number of carriages and the speeds that trains can travel. • Transport system may not be accessible for aging population expected in future

1.3 Cycling/Walking

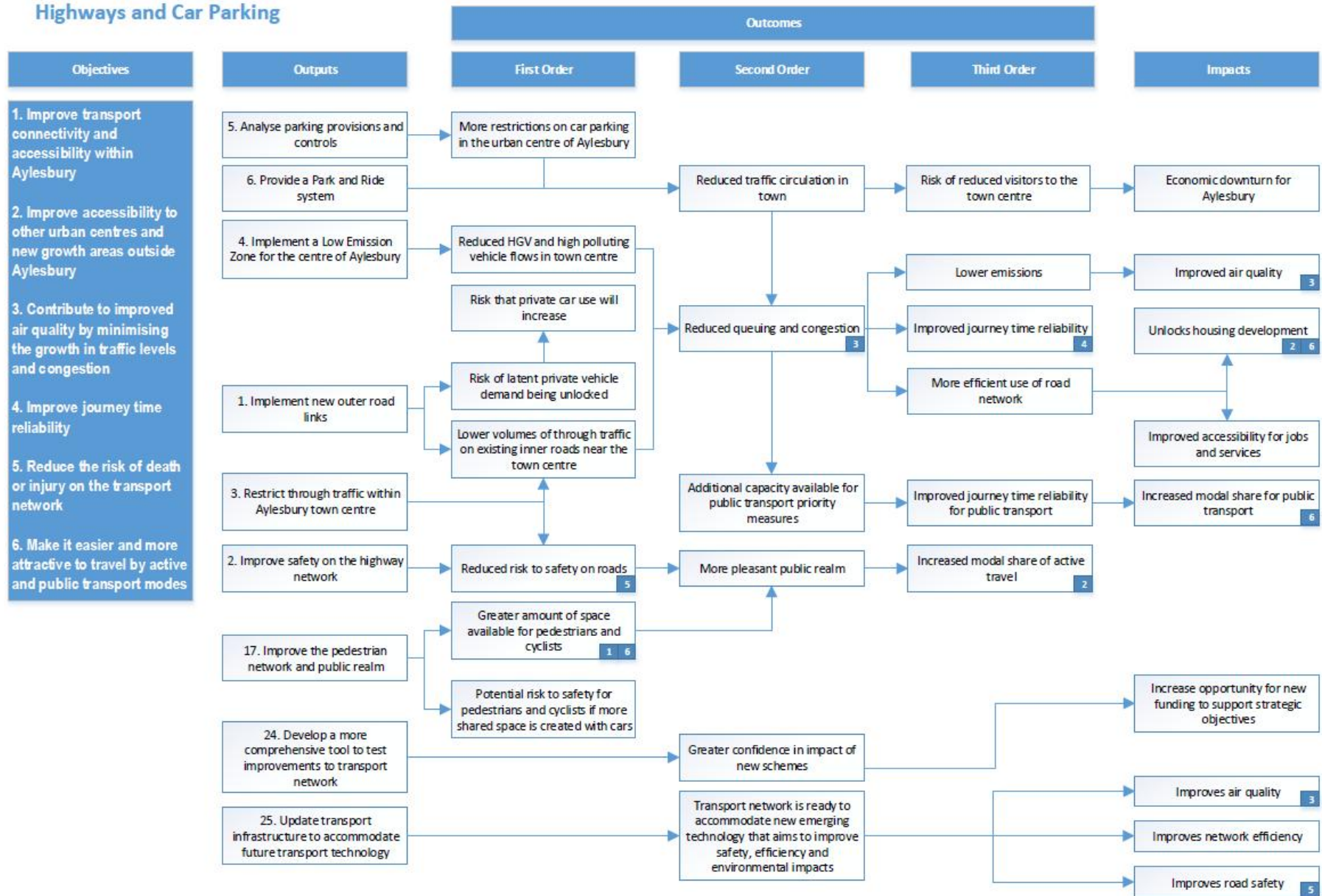
<p>Strengths</p> <ul style="list-style-type: none"> • Flat topography and good existing cycle infrastructure creates easy access for cyclists and pedestrians. • Already an existing cohesive network of radial cycling routes into the town centre. • Employment sites are generally within the town centre which provides relatively short distances to services and main residential areas. 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Private vehicles are the primary transport mode within the Study Area. • Ring road around town centre is a barrier to pedestrians. • No bypass to re-route the traffic away from the town centre. • High dependence on the private car for trips. • Car parking widely available within the town centre, encouraging car use. • Most existing cycling/walking facilities are on shared footways – can have some issues with cyclists not being courteous and sharing space. • Taking cycling routes off road loses priority, e.g. cyclists must give way at driveways, forecourts or access paths. • Cycle routes are not continuous and cycle infrastructure provision is variable along the routes. • Uptake of cycling in Aylesbury has not been as high as other Cycle Demonstration towns. • Many short trips are currently by car, these should be the focus of encouraging a mode shift to active modes. • Safety issue for cyclists and pedestrians at some roundabouts/complex junctions, evidence of collision history at these sites. • BCC does not have a cycling officer now – Sustrans tries to fulfil this role but noted is very difficult and resources are sparse. • Subway from town centre to Cambridge Street retail park heavily used, there are a lack of at grade crossings on Cambridge Street. • Lack of links between existing radial cycle routes • No sight line for pedestrians interchanging between Aylesbury bus station and rail station
<p>Opportunities</p> <ul style="list-style-type: none"> • Opportunity to provide a high quality walking/cycling network in new growth areas. • Shorter journeys could be made by active modes of transport. • A new cycleway will be built with the A4010 Stoke Mandeville link road and link road extension proposed as part of the HS2 mitigation measures • Consider evidence from other successful cycling towns to see what can work well in Aylesbury. • Greater permeability for walking and cycling – keep car routes but make them longer/less accessible. Ensure the access to key destinations/attractors is very good and a priority for cyclists/pedestrians. • Public transport, walking and cycling links should be completed at the same time as new development to encourage uptake of these modes within the growth areas. • Legible London style signing should be provided to show people options and how easy they are. Already cycling times on posts – this should be expanded throughout the town. • Introduce a cycle hire facility • Increased levels of secure and convenient cycle parking definitely needed – especially at the bus/rail stations. • Cycle routes to Waddesdon, Wendover and Grand Union Triangle route already planned. • Given Stoke Mandeville was the origin of the Paralympics and Stoke Mandeville Hospital is a significant health facility in the region, there is the opportunity to ensure the whole Aylesbury area represents best practice 	<p>Threats</p> <ul style="list-style-type: none"> • Abundance of parking and limited parking restrictions – does not encourage cycling and walking trips.

accessibility to all levels of mobility, particularly ensuring all shared use paths are for all users, including walkers, cyclists, wheelchairs, adapted bikes, etc.	
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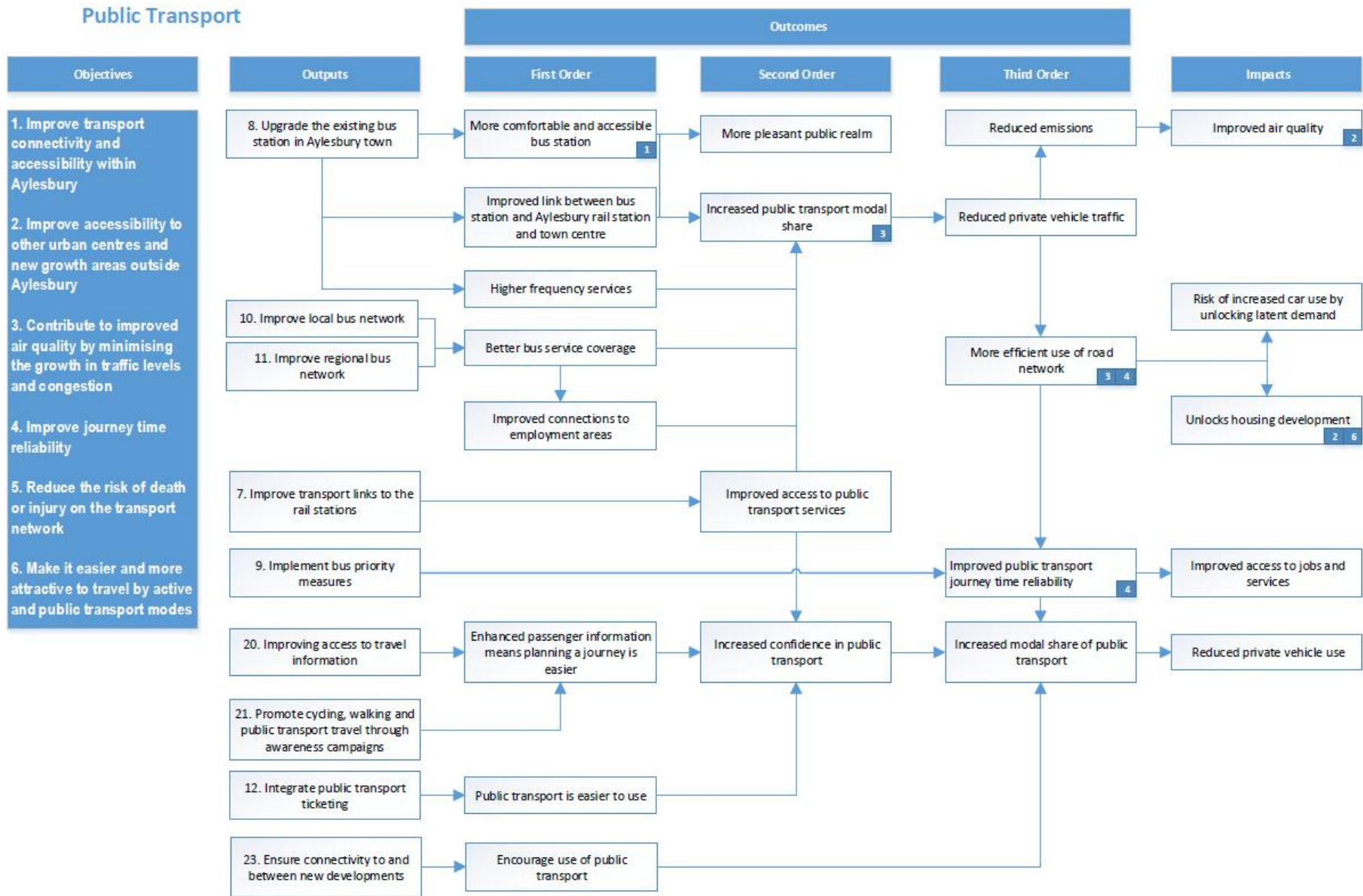
Appendix C: Logic Maps

Appendix C 1- Highway Network Logic Map

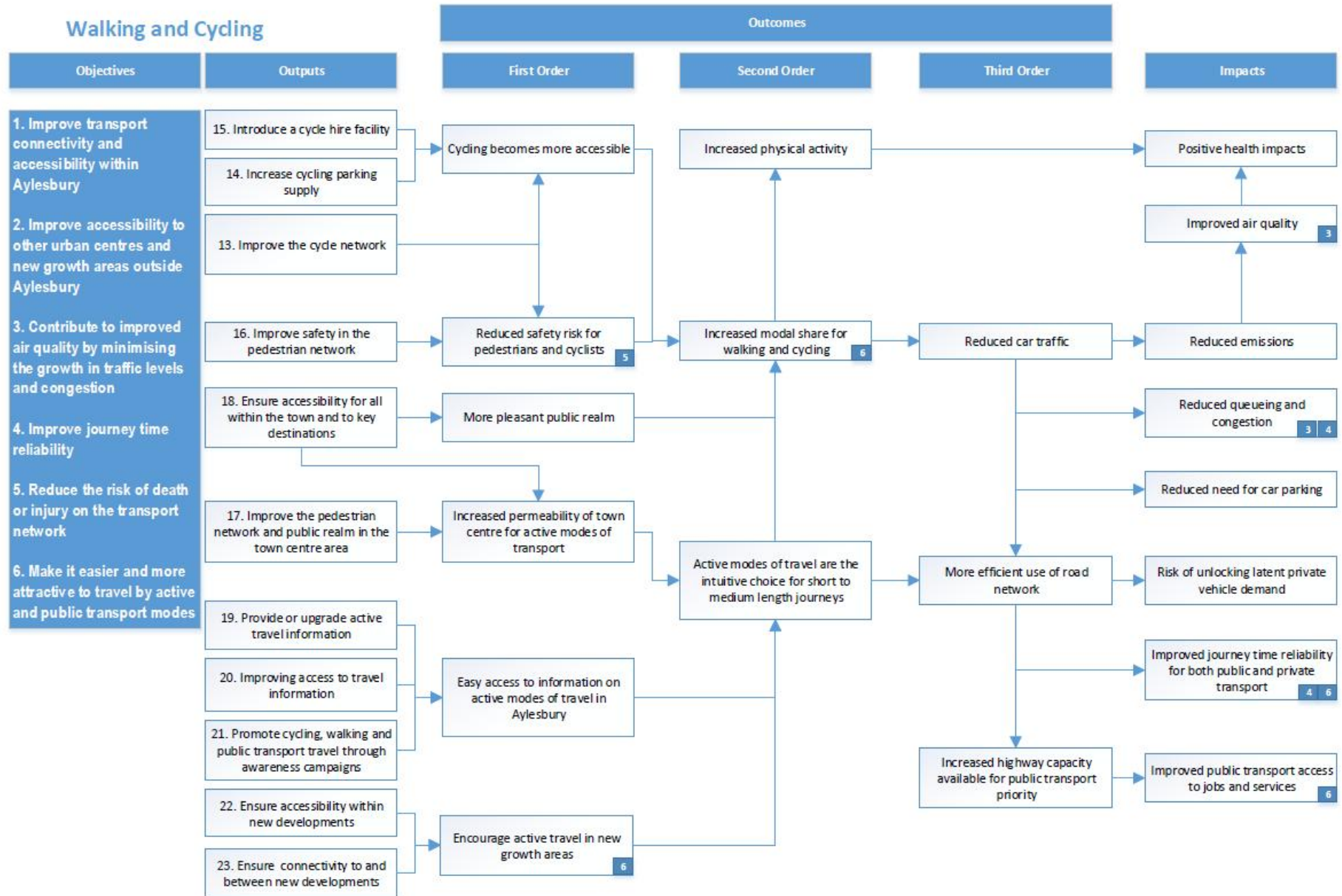
Highways and Car Parking



Appendix C 2- Public Transport Logic Map



Appendix C 3- Walking & Cycling Logic Map



Appendix D: Transport Improvement Pro-formas

Transport Improvement					
Reference	1		Type	Highway	
Name	Implement new outer road links				
Description	<p>It aims to create a consistent primary highway network that reduces congestion within Aylesbury town centre by enabling traffic to avoid passing through it. It consists of implementing new link roads to connect the existing radial roads, in particular the South Eastern and Southern link roads that connect the A413 to the A41 and to the A418 through the North Eastern link road (already approved).</p> <p>This scheme provides a new connection between the north and south of the county, it is identified in the BCC's LTP4 (draft report) as a key transport improvement link to address. Also, when removing traffic on the radial roads it enables road space to be reallocated to public transport (e.g. PPTC – primary passenger transport corridors as mentioned in BCC's LTP3).</p> <p>In future stages other link roads are as well important to be considered as part of the primary highway network: the Stoke Mandeville A4010 realignment (proposed and to be funded by HS2) and other links that may provide an external circular road to the town, North East link road, A413/B4443 link road (extension of the A4010 realignment) and A413/A418 link road (south of Aylesbury).</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓
Scale of Impact		Very High	Public Support		Very High
Transport Benefits					
Economic Growth		Very High	Wellbeing / Accidents		High
Socio-Distributional		Very High	Local environment		High
Implementation					
Status	Proposed	Timescale	Medium / Long Term		
Indicative Cost	Very High	Likely Promoter	BCC, AVDC, BTV LEP, HE, private developer		
Indicative Delivery Risk Assessment					
Feasibility Risk		High	Deliverability Risk		High
Assumptions					
<ul style="list-style-type: none"> The improvement fits well with the strategy objectives. It is likely to generate very high public support as it provides a solution to the existing congestion. Many of the schemes involved were referenced at the stakeholders' workshop. Very high transport benefits will result from congestion relief and accident savings, but there is a risk that car trips may increase. It is likely the improvement will be costly, but there may be opportunity for funding from more than one promoter. There exists a high feasibility and deliverability risk as it involves implementing major infrastructure and managing substantial costs. 					

Transport Improvement					
Reference	2		Type	Highway	
Name	Improve safety on the highway network				
Description	It aims to develop ways to address safety (e.g. design, signalisation) on the highway network where there are ongoing safety issues, such as those already identified through the area's road collision history. Sites to address would include the triple roundabout at the Royal Buckinghamshire Hospital Junction, and the A41 Bicester Road between Gatehouse Road and Jackson Road, particularly the site close to Broadfields Retail Park.				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓	✓✓	✓✓	✓✓	✓✓✓	✓✓
Scale of Impact		High	Public Support		High
Transport Benefits					
Economic Growth		High	Wellbeing / Accidents		Very High
Socio-Distributional		High	Local environment		Moderate
Implementation					
Status	Concept	Timescale	Short Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC		
Indicative Delivery Risk Assessment					
Feasibility Risk		Moderate	Deliverability Risk		Moderate
Assumptions					
<ul style="list-style-type: none"> The improvement fits well with the strategy objectives. It is likely to generate high public support as it focuses on improving safety. High transport benefits will result from the improvement, particularly linked to accident savings. It is likely the improvement will be a moderate cost depending on how many sites are included, but it most likely will be implemented in the short term. There exists a moderate feasibility and deliverability risk as it may involve re-designing some road sites/junctions and implementing the changes in busy areas. 					

Transport Improvement					
Reference	3		Type	Highway	
Name	Restrict through traffic within Aylesbury town centre				
Description	<p>This consists of developing speed and capacity control measures on existing roads close to the town centre (e.g. speed humps, controlled speed traffic lights, dedicated bus lanes) that help to deter traffic from the town centre and reduce congestion.</p> <p>This improvement should only be taken forward after the most new outer road links are implemented (Transport Improvement (TI) 1) to ensure there is a viable alternative for through traffic around the town centre.</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓	✓✓✓	✓	✓✓✓	✓✓✓
Scale of Impact		High	Public Support		Moderate
Transport Benefits					
Economic Growth		Very High	Wellbeing / Accidents		High
Socio-Distributional		High	Local environment		Very High
Implementation					
Status	Concept	Timescale	Medium / Long Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC		
Indicative Delivery Risk Assessment					
Feasibility Risk		Moderate	Deliverability Risk		Moderate
Assumptions					
<ul style="list-style-type: none"> • The improvement fits well with the strategy objectives. It is likely to generate moderate public support as it will most likely please businesses but inconvenience car drivers. If made public posteriorly to TI 1 implementation, it may have higher support. • Very high transport benefits will result from congestion relief and environment impacts, resulting from a reduction in noise and pollution in the town centre. • It is likely the improvement will be moderately costly and only implemented in the medium/long term. • Feasibility and deliverability risks are most likely dependent on the type of measures implemented but they are likely to be moderate. 					

Transport Improvement					
Reference	4		Type	Highway	
Name	Implement a low emission zone for the centre of Aylesbury				
Description	<p>It aims to improve the air quality within Aylesbury by reducing emissions from vehicle traffic within the town centre, through restricting HGV and high polluting vehicle movements through the area.</p> <p>This transport improvement can be staged to grow from a smaller to a larger radius of the town centre and/or to different time periods (e.g. start applying it to peak hours only).</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓	✓✓✓	✓	✓✓	✓✓
Scale of Impact		High	Public Support		Moderate
Transport Benefits					
Economic Growth		Very High	Wellbeing / Accidents		Moderate
Socio-Distributional		High	Local environment		Very High
Implementation					
Status	Concept	Timescale	Medium / Long Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC		
Indicative Delivery Risk Assessment					
Feasibility Risk		Low	Deliverability Risk		Moderate
Assumptions					
<ul style="list-style-type: none"> The improvement fits well with the strategy objectives. It is likely to generate moderate public support as it may be supported by businesses but not car drivers. If made public posteriorly to TI 1 implementation, it may have higher support. Very high transport benefits will result from congestion relief and environment impacts, resulting from a reduction in noise and pollution in the town centre. It is likely the improvement will be moderately costly and only implemented in the medium/long term. Low feasibility risk but higher deliverability risk exists as it will involve restricting traffic movements. 					

Transport Improvement					
Reference	5		Type	Car Parking	
Name	Analyse parking provision and controls to determine changes to parking provision				
Description	<p>It consists of a review of the current parking in Aylesbury as several stakeholders and previous studies have identified that there is an excess supply of parking in the town centre, which in turn encourages unnecessary private vehicle trips to the town centre. Initially a supply and demand audit of parking in Aylesbury would be undertaken, in order to reassess parking provisions and controls, followed by a recommendation to change parking provision if necessary through fiscal or policy measures.</p> <p>There is a general consensus among stakeholders that there is oversupply of parking in Aylesbury town centre and not enough control over existing retail parking supply, however there appears to be limited evidence to demonstrate this or the current level of demand that currently exists. The concern is that with an oversupply of parking, there is little incentive for visitors to the town centre to take any alternative modes, which may be contributing to congestion. Therefore, if confirmed, this study should identify measures to control the retail parking supply and whether restrictions to public parking in the town centre are possible.</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓	✓✓✓	✓✓	✓	✓✓✓
Scale of Impact		High	Public Support		Moderate
Transport Benefits					
Economic Growth		Moderate	Wellbeing / Accidents		Low
Socio-Distributional		High	Local environment		High
Implementation					
Status	Concept	Timescale	Short / Medium Term		
Indicative Cost	Low	Likely Promoter	BCC, AVDC, BTV LEP, Retailers		
Indicative Delivery Risk Assessment					
Feasibility Risk		High	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> • The improvement moderately fits with the strategy objectives, but is considered particularly important to understand current parking demand in order to control traffic growth and car dependency in future. • It is likely to generate high public support as an initial study. However, if affecting the provision of parking (through significant restrictions) support may decrease significantly. • The transport benefits resulting from the improvement are expected to be moderate. These will be linked particularly to the reduction of traffic in the town centre, which will affect the environment, through reduced noise and pollution. • It is likely the improvement will be low cost, and potentially funded by a wide range of promoters. • There is high feasibility risk as retailers or other stakeholders may not agree to additional parking restrictions. 					

Transport Improvement					
Reference	6		Type	Car Parking	
Name	Provide a Park & Ride system				
Description	<p>It consists of providing one or more large parking supply sites outside Aylesbury town centre with an express bus service connecting it to the town centre to provide an alternative for car traffic. The express bus may not only connect to the town centre but to other key destinations if appropriate (e.g. major employment sites and railway stations in peak hours) and will most likely make use of an existing bus service to be viable.</p> <p>It is understood that Park & Ride has been considered in the past for Aylesbury, and the scheme was not progressed due to there being a low demand for such a system due to the existing parking supply already in the town centre and also there bring no space on the current road network for a full time bus lane connecting the site to the town centre. Therefore, this improvement should only be taken forward after most new outer road links are in place (TI 1), also, if placing additional control on the supply of parking in the town centre (associated with TI 5) and public transport corridors priority is in place linking the Park & Ride site (TI 9), otherwise bus journey times from the Park & Ride site will not provide reliable journey times that are competitive with the car.</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓✓	✓✓✓	✓✓✓	✓	✓✓✓
Scale of Impact		Very High	Public Support		High
Transport Benefits					
Economic Growth		High	Wellbeing / Accidents		High
Socio-Distributional		High	Local environment		Very High
Implementation					
Status	Concept	Timescale	Medium / Long Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC, BTV LEP		
Indicative Delivery Risk Assessment					
Feasibility Risk		High	Deliverability Risk		Moderate
Assumptions					
<ul style="list-style-type: none"> The improvement fits well with the strategy objectives. It is likely to generate high public support as it creates a new transport solution for the town that significantly reduces congestion, although it was raised at the stakeholders' workshop with mixed support. High transport benefits will result from congestion relief and environment impacts, through reduced noise and pollution. It is likely the improvement will be moderately costly but may be funded by a wide range of promoters. There is a medium/high feasibility risk as it involves finding a suitable location and having implemented bus priority corridors to the town centre. 					

Transport Improvement					
Reference	7		Type	Public Transport	
Name	Improve transport links to the railway stations				
Description	<p>It consists of improving the infrastructure for bus, cycle and pedestrian access to all railway stations within the study area, including Aylesbury, Stoke Mandeville, Aylesbury Vale Parkway and Tring stations. It will particularly support the accessibility to the new East-West rail line once it opens.</p> <p>This improvement aims to capture and shift journeys being made by car to the railway stations, so it should be taken forward simultaneously with improvements to the local and regional bus networks (TI 10 and TI 11).</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓	✓✓✓	✓	✓✓✓	✓✓	✓✓✓
Scale of Impact		High	Public Support		Very High
Transport Benefits					
Economic Growth		Very High	Wellbeing / Accidents		Very High
Socio-Distributional		Very High	Local environment		Very High
Implementation					
Status	Concept	Timescale	Short Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC, DfT, Network Rail, rail operators		
Indicative Delivery Risk Assessment					
Feasibility Risk		Moderate	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> • The improvement fits well with the strategy objectives. It is likely to generate high public support as it improves connectivity to the railway stations. • Very high transport benefits will result if capturing people who normally travel to the stations by car. Benefits will mainly be linked to congestion relief, environmental impacts (reduction in noise and pollution) and wellbeing, as more people are likely to travel to the stations by walking or cycling. • It is likely the improvement will be moderately costly but may be funded by a wide range of promoters. • Relatively low risks are involved. 					

Transport Improvement					
Reference	8		Type	Public Transport	
Name	Upgrade the existing bus station in Aylesbury town				
Description	<p>It aims to increase the number of bus passengers by increasing the capacity, comfort and accessibility of the Aylesbury bus station. The accessibility improvements would create a proper interchange with the railway station (Aylesbury), and improve links with the cycle and the pedestrian networks.</p> <p>The bus station improvement would therefore consist of reviewing the current layout of the bus station in order to identify improvements required to its capacity (increased number of bus stops and bus parking), ambience (better comfort and amenities for bus passengers) and accessibility. However, current site constraints mean that expanding the area of the site would not be possible, therefore if additional stops or parking are required, they may need to be located in streets close by in the short to medium term. Possible relocation of the station or reconfiguration of the area surrounding the station could be considered in the long term to accommodate its expansion or alternatively provide an additional station elsewhere within the town, when the passenger demand has increased to a level high enough.</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓✓✓	✓	✓✓	✓	✓✓✓
Scale of Impact		High	Public Support		Very High
Transport Benefits					
Economic Growth		Very High	Wellbeing / Accidents		High
Socio-Distributional		Very High	Local environment		High
Implementation					
Status	Concept	Timescale	Medium Term		
Indicative Cost	Very High	Likely Promoter	BCC, AVDC, PT operators, retailers on the site		
Indicative Delivery Risk Assessment					
Feasibility Risk		High	Deliverability Risk		High
Assumptions					
<ul style="list-style-type: none"> The improvement fits well with the strategy objectives. It is likely to generate very high public support as it improves a major transport interface in the area. This improvement was much referenced at the stakeholders' workshop. Very high transport benefits will result from congestion relief assuming more people will be using the bus network. It is likely the improvement will be very costly but may be funded by a wide range of promoters. There is high feasibility and deliverability risk as it involves implementing major infrastructure and managing substantial costs and disruption to bus services and town centre traffic. 					

Transport Improvement					
Reference	9		Type	Public Transport	
Name	Implement bus priority measures				
Description	<p>It consists of implementing bus priority measures (e.g. bus lanes and priority at traffic lights) within the main bus corridors of Aylesbury, particularly on radial roads and on the corridors already identified by BCC's LTP3 as Primary Passenger Transport Corridors (PPTC): Bicester Road, Buckingham Road and Tring Road.</p> <p>This improvement which aims to significantly improve journey time reliability and increase the public transport mode share may be implemented in stages (e.g. prioritising PPTC corridors and/or operating bus lanes in these corridors for peak hours only).</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓✓	✓✓✓	✓✓✓	✓	✓✓✓
Scale of Impact		Very High	Public Support		Very High
Transport Benefits					
Economic Growth		Very High	Wellbeing / Accidents		Moderate
Socio-Distributional		Very High	Local environment		Very High
Implementation					
Status	Proposed	Timescale	Medium / Long Term		
Indicative Cost	High / Very High	Likely Promoter	BCC, AVDC, BTV LEP, bus operators		
Indicative Delivery Risk Assessment					
Feasibility Risk		High	Deliverability Risk		High
Assumptions					
<ul style="list-style-type: none"> The improvement fits well with the strategy objectives. Very high transport benefits will result from congestion relief and reduced environmental impact, assuming it leads to a significant mode shift to bus travel by those people who travel by car. It also has the potential for high socio-distributional benefits. It is likely the improvement will be very costly but may be funded by a wide range of promoters. There is high feasibility and deliverability risk as it involves managing substantial costs, reallocating road space to bus priority, which will have significant traffic congestion impacts during construction and initially after implementation until significant mode shift occurs. 					

Transport Improvement					
Reference	10		Type	Public Transport	
Name	Improve the local bus network				
Description	<p>It consists of reviewing the existing bus network coverage and frequency in Aylesbury town and planning for improvements to the network. These improvements may include express routes to the town centre and major employment areas and/or access to new growth areas and key destinations. Improved frequency should take into account a possible increase in all day bus frequencies to key locations and peak hour bus frequencies to main residential areas.</p> <p>This improvement will be particularly important in increasing the use of the bus system within Aylesbury but will likely require negotiations with bus operators and acquisition of new vehicles, which will lengthen the timescale for implementation. It should be taken forward after improving capacity at the Aylesbury town centre bus station (TI 8).</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓✓✓	✓✓	✓	✓	✓✓✓
Scale of Impact		High	Public Support		High
Transport Benefits					
Economic Growth		Very High	Wellbeing / Accidents		Moderate
Socio-Distributional		Very High	Local environment		Very High
Implementation					
Status	Concept	Timescale	Medium Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC, BTV LEP, bus operators		
Indicative Delivery Risk Assessment					
Feasibility Risk		Moderate	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> The improvement fits well with the strategy objectives. It is likely to generate high public support as it improves access to a more sustainable mode. Very high transport benefits will result from possible congestion relief with mode shift, environment and accident savings, assuming more people will be using the bus network. It is likely the improvement will be moderately costly but may be funded by a wide range of promoters. Relatively low feasibility and deliverability risks are involved. 					

Transport Improvement					
Reference	11	Type	Public Transport		
Name	Improve the regional bus network				
Description	<p>It aims to increase the number of bus passengers on medium/long distance journeys, particularly focusing on journeys to work, by improving the bus frequencies (and perhaps routing) for regional bus routes linking Aylesbury to other towns.</p> <p>Current bus frequencies show low frequencies in the peak hours to destinations identified as particularly important for journeys to work (e.g. Census data identifies Dunstable, and Milton Keynes as two main key destinations and there are only 1 bus per hour to Dunstable and 2 buses per hour to Milton Keynes).</p> <p>This improvement will likely require negotiations with bus operators and acquisition of new vehicles, which will lengthen the timescale for implementation. It should only be taken forward after improving capacity at the Aylesbury town centre bus station (TI 8).</p> <p>Other transport improvements, such as improving access to travel information (TI 21), will also be important to encourage a wider uptake of public transport and therefore should be taken forward simultaneously with this scheme.</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓	✓✓✓	✓✓	✓✓	✓	✓✓✓
Scale of Impact		High	Public Support		Very High
Transport Benefits					
Economic Growth		Very High	Wellbeing / Accidents		Moderate
Socio-Distributional		Very High	Local environment		Very High
Implementation					
Status	Concept	Timescale	Medium Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC, BTV LEP, bus operators, large employers		
Indicative Delivery Risk Assessment					
Feasibility Risk		Moderate	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> • The improvement fits well with the strategy objectives. • It is likely to generate high public support as it improves access to a more sustainable mode. • Very high transport benefits will result from congestion relief, environment and accident savings, assuming more people will be using the bus network as a result of these improvements. People from many deprived areas will benefit from the improvement. • It is likely the improvement will be moderately costly but may be funded by a wide range of promoters. • Relatively low feasibility and deliverability risks are involved. 					

Transport Improvement					
Reference	12	Type	Public Transport		
Name	Integrate public transport ticketing				
Description	<p>It consists of introducing an integrated ticketing system (possibly along with new smart ticketing technology) across all public transport operators within Aylesbury (possibly even at the county level). Currently each operator uses their own ticketing system, which does not promote interchange between operators and reduces the potential frequency of available public transport to passengers, particularly on the bus network (there are cases where different operators provide the same service, e.g. to Aylesbury town centre, but passengers have a ticket which will only allow them to use the buses of a single operator.</p> <p>Other transport improvements, such as improving access to travel information (TI 21) are very important to encourage a wider uptake of public transport and therefore they should be taken forward simultaneously with this scheme.</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓	✓✓✓	✓✓	✓✓	✓	✓✓✓
Scale of Impact		High	Public Support		Very High
Transport Benefits					
Economic Growth		High	Wellbeing / Accidents		Low
Socio-Distributional		High	Local environment		Moderate
Implementation					
Status	Concept	Timescale	Short / Medium Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC, BTV LEP, PT operators		
Indicative Delivery Risk Assessment					
Feasibility Risk		High	Deliverability Risk		Moderate
Assumptions					
<ul style="list-style-type: none"> The improvement fits well with the strategy objectives. It is likely to generate very high public support as it results in a wider and more comprehensive network being accessible to passengers, as referenced at the stakeholders' workshop. Moderate to high transport benefits will result, particularly from journey time savings. The improvement may be moderately costly but may be funded by a wide range of promoters. There may be high feasibility risk involved as it may be difficult to get consensus on prices and profits between operators. 					

Transport Improvement					
Reference	13		Type	Cycle	
Name	Improve the cycle network				
Description	<p>It aims to increase the number of cyclists within Aylesbury by reviewing the current cycle network and creating new cycle links that complete the gaps in the network, particularly providing links between the existing radial routes that would then create a circular route around the town centre.</p> <p>It should also include any necessary improvements and maintenance of signage and infrastructure to existing routes.</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Scale of Impact		Very High	Public Support		Very High
Transport Benefits					
Economic Growth		Moderate	Wellbeing / Accidents		Very High
Socio-Distributional		Very High	Local environment		Very High
Implementation					
Status	Concept	Timescale	Short / Medium Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC, DfT, private developers		
Indicative Delivery Risk Assessment					
Feasibility Risk		Moderate	Deliverability Risk		High
Assumptions					
<ul style="list-style-type: none"> • The improvement fits well with the strategy objectives. It is likely to generate very high public support as it improves an alternative and more sustainable mode of travelling. The cycle network was raised frequently at the stakeholders' workshop. • Very high transport benefits will result from improved wellbeing and local environment impacts (reduced noise and pollution) if there is a consistent modal shift from car to cycle. People of a lower socio-economic background will benefit from the improvement as it provides an alternative to the private vehicle. • It is likely the improvement will be moderately costly but may be implemented in the short term and partly funded by private developers where possible. • There is some deliverability risk if maintenance of the network is not undertaken. 					

Transport Improvement					
Reference	14		Type	Cycle	
Name	Increase the supply of cycle parking				
Description	<p>It consists of providing more cycle parking throughout Aylesbury and including facilities within the sites to support regular cycling, such as change rooms and cycle repair facilities, particularly at major destinations and employment sites not located in the central town area which is currently reasonably covered (e.g. retail park, industrial area, others).</p> <p>This improvement should be aligned with the improvements to the cycle network (TI 14), providing parking at strategic sites along the routes.</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓	✓✓	✓✓	✓	✓	✓✓
Scale of Impact		Moderate	Public Support		High
Transport Benefits					
Economic Growth		Low	Wellbeing / Accidents		High
Socio-Distributional		High	Local environment		High
Implementation					
Status	Concept	Timescale	Short Term		
Indicative Cost	Low	Likely Promoter	AVDC, BTV LEP		
Indicative Delivery Risk Assessment					
Feasibility Risk		Low	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> • The improvement is a reasonably good fit with the strategy objectives. • It is likely to generate high public support as it creates more support for cycling. • High transport benefits will result from wellbeing and local environment impacts (reduced noise and pollution) if associated with a consistent and long term modal shift to cycling. • It is likely the improvement will be less costly and can be implemented in the short term. • Relatively low risks are involved. 					

Transport Improvement					
Reference	15		Type	Cycle	
Name	Introduce a cycle hire facility				
Description	<p>It consists of creating a cycle hire system for people who do not have a bicycle but would like to make their journeys by cycling, particularly short journeys.</p> <p>It can be implemented in stages. If demand is not expected to be significantly high at the start, rental cycle kiosks can be initially installed at strategic sites to enable residents, employees or visitors to rent bicycles (e.g. railway station, bus station, Park & Ride). When the demand significantly increases, a larger automatic cycle hire system can replace the previous one (e.g. Santander's cycle system in London). Although not necessarily essential, this improvement should be taken forward after improving the cycle network (TI 14). Facilities to support cycling may also be incorporated into the cycle hire sites, such as cycle repair stations (similar to TI 15).</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓	✓✓	✓✓	✓	✓	✓✓
Scale of Impact		Moderate	Public Support		High
Transport Benefits					
Economic Growth		Low	Wellbeing / Accidents		High
Socio-Distributional		High	Local environment		High
Implementation					
Status	Concept	Timescale	Short / Medium Term		
Indicative Cost	Low / Medium	Likely Promoter	AVDC, BTV LEP		
Indicative Delivery Risk Assessment					
Feasibility Risk		Moderate	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> • The improvement is a reasonably good fit with the strategy objectives. • It is likely to generate high public support as it creates more support for cycling. • High transport benefits will result from wellbeing and local environment impacts (reduced noise and pollution) if associated with a consistent modal shift to cycling. • It is likely the improvement will be low cost and implemented in the short term. • Relatively low risks are involved. 					

Transport Improvement					
Reference	16		Type	Pedestrian	
Name	Improve safety in the pedestrian network				
Description	It aims to reduce the likelihood of pedestrian accidents at crossing points within Aylesbury by addressing existing safety issues on the network. In general, it consists of implementing additional pedestrian crossings or other simpler safer solutions where safety is an issue or where major roads act as a barrier to pedestrian movements, including Cambridge Street, Bicester Road near the Retail Park and Friarage Road.				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓	✓	✓	✓	✓✓✓	✓✓✓
Scale of Impact		Moderate	Public Support		Very High
Transport Benefits					
Economic Growth		Moderate	Wellbeing / Accidents		Very High
Socio-Distributional		High	Local environment		Moderate
Implementation					
Status	Concept	Timescale	Short Term		
Indicative Cost	Low	Likely Promoter	BCC, AVDC, DfT		
Indicative Delivery Risk Assessment					
Feasibility Risk		Low	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> • The improvement is a reasonably good fit with the strategy objectives. • It is likely to generate very high public support as it is intended to improve safety at sites with known safety issues. • High transport benefits are expected, particularly from accident savings. • It is likely the improvement will be less costly and implemented in the relatively short term. • It is expected the risk will be minimal. 					

Transport Improvement					
Reference	17		Type	Pedestrian	
Name	Improve the pedestrian network and public realm in the town centre area				
Description	<p>It consists of undertaking a detailed review of pedestrian movements within the town centre area, which may involve creating shared spaces and removing traffic at particular sites where the pedestrian movements are predominant. This improvement aims to increase safety and improve the public realm.</p> <p>This improvement is particularly important in the town centre where the pedestrianised network should be expanded and should only be taken forward when levels of car traffic decrease in the area, mainly after alternative highway links are in place and through traffic is restricted (TI 1 and TI 3) and when parking restrictions are applied (TI 5), i.e. when there is a significant mode shift away from the private vehicle to the town centre.</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓	✓✓	✓	✓✓	✓✓✓
Scale of Impact		High	Public Support		High
Transport Benefits					
Economic Growth		Moderate	Wellbeing / Accidents		Very High
Socio-Distributional		High	Local environment		High
Implementation					
Status	Concept	Timescale	Medium / Long Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC, retailers		
Indicative Delivery Risk Assessment					
Feasibility Risk		Moderate	Deliverability Risk		High
Assumptions					
<ul style="list-style-type: none"> • The improvement fits well with the strategy objectives. It is likely to generate high public support as it improves the public realm. • High transport benefits will result from the improvement, particularly related to wellbeing and local environment, as the improved areas create safer and less polluted sites. • It is likely the improvement will be moderately costly but implemented in the medium to long term as it should only be implemented after traffic is restricted in the town centre and alternative routes are created. • There is a high deliverability risk if consideration for alternative routes for traffic is disregarded, which would result in high levels of congestion. 					

Transport Improvement					
Reference	18	Type	Pedestrian		
Name	Ensure accessibility for all within the town and to key destinations				
Description	It consists of adapting the pedestrian infrastructure to ensure it is inclusive to people of all levels of mobility. An accessibility study should be undertaken for urban areas and key destinations within the study area (including Aylesbury town and Stoke Mandeville) to understand where there are gaps in accessibility and identify how to overcome these. Stoke Mandeville is the home of the Paralympics and as such there is a responsibility for the area to represent best practice in accessibility for all users of the transport network, including those of limited mobility; also particularly ensuring all shared use paths are for all users, including walkers, cyclists, wheelchairs, adapted bikes, etc.				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓	✓	✓	✓✓✓	✓✓✓
Scale of Impact		High	Public Support		Moderate
Transport Benefits					
Economic Growth		Moderate	Wellbeing / Accidents		Very High
Socio-Distributional		Very High	Local environment		Low
Implementation					
Status	Concept	Timescale	Short / Medium Term		
Indicative Cost	Low / Medium	Likely Promoter	BCC, AVDC, DfT		
Indicative Delivery Risk Assessment					
Feasibility Risk		Low	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> • The improvement fits well with the strategy objectives. It is likely to generate moderate public support as it may not be seen as having a large impact. • High transport benefits will result from it, particularly from wellbeing and socio-distributional impacts as it will bring a positive change for many vulnerable groups. • It is likely the improvement will be less costly and implemented in the short term. • It is expected the risk will be minimal. 					

Transport Improvement					
Reference	19	Type	Travel Information		
Name	Provide or upgrade active travel information				
Description	<p>It consists of upgrading the existing pedestrian and cycling signage along main routes, particularly within Aylesbury town centre (e.g. walking times signposted and walking/cycling maps displayed at key locations with a consistent branding, similar to the Legible London example).</p> <p>This improvement should be taken forward in association with the improvements to the pedestrian and cycle networks (TI 14 and TI 18).</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓	✓✓	✓✓	✓	✓✓✓
Scale of Impact		High	Public Support		High
Transport Benefits					
Economic Growth		Moderate	Wellbeing / Accidents		High
Socio-Distributional		Moderate	Local environment		Moderate
Implementation					
Status	Concept	Timescale	Short Term		
Indicative Cost	Low	Likely Promoter	BCC, AVDC, retailers		
Indicative Delivery Risk Assessment					
Feasibility Risk		Low	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> The improvement fits well with the strategy objectives. It is likely to generate high public support as it supports active travel modes, a topic which came up frequently at the stakeholders' workshop. Moderate transport benefits will likely result from it and the improvement to pedestrian and cycle movements will directly affect the community's wellbeing. It should be an easy and less costly improvement to be implemented in the short term. It is expected the risk will be minimal. 					

Transport Improvement					
Reference	20	Type	Travel Information		
Name	Improving access to travel information				
Description	<p>It consists of improving access to travel information by providing a single central place to get travel information online and making it available through technology such as travel mobile apps.</p> <p>Currently it is difficult to consult public transport timetables and maps as the information is spread across different operators' websites and there is no central tool to plan journeys in the area, which creates a barrier to using the public transport network, particularly when using more than one operator or mode.</p> <p>Other transport improvements such as integrated transport ticketing (TI 13) are very important to encourage a wider uptake of public transport and therefore they should be taken forward simultaneously with this scheme.</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓	✓✓✓	✓	✓✓	✓	✓✓✓
Scale of Impact		High	Public Support		Very High
Transport Benefits					
Economic Growth		Moderate	Wellbeing / Accidents		Moderate
Socio-Distributional		High	Local environment		High
Implementation					
Status	Concept	Timescale	Short Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC, BTV LEP, PT operators, DfT		
Indicative Delivery Risk Assessment					
Feasibility Risk		Low	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> The improvement fits well with the strategy objectives. Moderate to high transport benefits will result from it, particularly if it leads to a mode shift from people currently travelling by car to public transport. It is likely the improvement will be funded by a wide range of promoters, and will have relatively low feasibility and deliverability risks involved. 					

Transport Improvement					
Reference	21		Type	Travel Information	
Name	Promote cycling, walking and public transport travel through awareness campaigns				
Description	It aims to change behaviour to more sustainable travel through directed awareness campaigns. It will consider the evidence of success in past active travel and public transport travel campaigns, and develop a package of programmes to target specific groups (e.g. travel planning for businesses, daily events campaigns, cycle training events, community consultation on improvements to the active or public transport networks).				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓	✓	✓✓	✓✓	✓	✓✓✓
Scale of Impact		Moderate	Public Support		High
Transport Benefits					
Economic Growth		Moderate	Wellbeing / Accidents		Very High
Socio-Distributional		Very High	Local environment		High
Implementation					
Status	Concept	Timescale	Short Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC, BTV LEP, DfT		
Indicative Delivery Risk Assessment					
Feasibility Risk		Low	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> • The improvement is a reasonably good fit with the strategy objectives. • It is likely to generate high public support as it will create awareness of and support more sustainable ways of travelling. • High transport benefits will result from it as people are informed and eventually change their journey patterns. Benefits to wellbeing and local environment are expected to be particularly high. • It is likely the improvement will be a moderate cost but implemented in the short term. • Relatively low risks are involved. 					

Transport Improvement					
Reference	22	Type	New Developments / Planning		
Name	Ensure accessibility within new developments				
Description	It consists of incorporating intelligent and appealing design within new developments to ensure that active travel and public transport modes are attractive to use from the beginning for new residents and workers. Cycle parking facilities, an accessible and well-connected pedestrian network and innovative bus stops are some potential schemes that could be included in this.				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓	✓✓	✓✓	✓✓	✓✓✓
Scale of Impact		High	Public Support		Moderate
Transport Benefits					
Economic Growth		Moderate	Wellbeing / Accidents		High
Socio-Distributional		High	Local environment		Moderate
Implementation					
Status	Concept	Timescale	Short / Medium Term		
Indicative Cost	Low	Likely Promoter	AVDC, private developers		
Indicative Delivery Risk Assessment					
Feasibility Risk		Low	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> • The improvement fits well with the strategy objectives and it is likely to generate moderate public support. • Moderate/high transport benefits will result from it, particularly related to wellbeing and providing more opportunity to vulnerable groups. • It is likely the improvement will be funded by private developers and should be included in their designs for the new developments, therefore low feasibility and deliverability risks should be involved. 					

Transport Improvement					
Reference	23	Type	New Developments / Planning		
Name	Ensure connectivity to and between new developments				
Description	<p>It consists of implementing an overarching strategy to ensure new developments are well connected, both with each other, to key destinations and to the town centre by active and public transport modes.</p> <p>This improvement is associated with others and therefore should be taken forward simultaneously with improving the bus networks (TI 10 and TI 11), improving the cycle network (TI 14) and increasing the supply of cycle parking (TI 15).</p>				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓✓	✓	✓✓	✓✓	✓	✓✓✓
Scale of Impact		High	Public Support		Very High
Transport Benefits					
Economic Growth		High	Wellbeing / Accidents		Very High
Socio-Distributional		High	Local environment		High
Implementation					
Status	Concept	Timescale	Short / Medium Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC, private developers		
Indicative Delivery Risk Assessment					
Feasibility Risk		Moderate	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> The improvement fits well with the strategy objectives. It is likely to generate very high public support as it creates new transport links. High transport benefits will result from congestion relief, wellbeing and environmental impacts (reduced noise and pollution). It is likely the improvement will be a moderate cost, to be implemented in the short or medium term, once planned developments are in place. 					

Transport Improvement					
Reference	24		Type	Technology / Innovation	
Name	Develop a more comprehensive tool to test improvements to transport network				
Description	It consists of developing a transport model that can capture many of the transport improvements identified in this strategy to be able to identify both the potential for mode shift and impact to traffic flows in the highway and public transport network. Currently the tool available, the Countywide Model, can only model the impact of the highway improvements.				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓	✓✓	✓✓	✓✓✓	✓✓	✓
Scale of Impact		High	Public Support		Moderate
Transport Benefits					
Economic Growth		High	Wellbeing / Accidents		High
Socio-Distributional		High	Local environment		High
Implementation					
Status	Concept	Timescale	Medium / Long Term		
Indicative Cost	Low	Likely Promoter	BCC, AVDC		
Indicative Delivery Risk Assessment					
Feasibility Risk		Low	Deliverability Risk		Low
Assumptions					
<ul style="list-style-type: none"> • The improvement fits well with the strategy objectives. • Its benefits may be high, including transport benefits arising from new solutions being tested with the tool. • It is likely the improvement will have a relatively low cost and could be implemented in the medium term. • Low feasibility and deliverability risks are involved. 					

Transport Improvement					
Reference	25		Type	Technology / Innovation	
Name	Update transport infrastructure to accommodate future transport technology				
Description	It consists of identifying future trends in transport such as electric vehicles and driverless technology and identifying how existing transport infrastructure should be upgraded to accommodate this and how new infrastructure can be designed to incorporate upcoming advances in technology, e.g. an increase in the number of electric vehicle charging points at key destinations.				
Strategic Fit					
Aylesbury Transport Strategy Objectives					
1	2	3	4	5	6
Improve transport connectivity and accessibility within Aylesbury	Improve accessibility to other urban centres and new growth areas outside Aylesbury	Contribute to improved air quality by minimising the growth in traffic levels and congestion	Improve Journey Time Reliability	Reduce the risk of death or injury on the transport network	Make it easier and more attractive to travel by active modes and public transport
✓✓	✓✓	✓✓✓	✓	✓	✓✓✓
Scale of Impact		High	Public Support		High
Transport Benefits					
Economic Growth		High	Wellbeing / Accidents		Moderate
Socio-Distributional		Moderate	Local environment		High
Implementation					
Status	Concept	Timescale	Short / Medium Term		
Indicative Cost	Medium	Likely Promoter	BCC, AVDC, BTV LEP, DfT		
Indicative Delivery Risk Assessment					
Feasibility Risk		Moderate	Deliverability Risk		Moderate
Assumptions					
<ul style="list-style-type: none"> • The improvement fits well with the strategy objectives. It is likely to generate moderate public support as innovative initiatives are launched. • High transport benefits will result from it, as it involves more sustainable transport solutions. Benefits will particularly be related to congestion relief and environmental impacts. • It is likely the improvement will be moderately costly and implemented in the short/medium term. • Moderate feasibility and deliverability risks are involved as generally it is difficult to predict how much the new transport solutions will be used. 					

Appendix E: Countywide Modelling Additional Information

Countywide Modelling Parameters

Key Characteristics Countywide Transport Model 2013 Base

Model Structure	Highway Assignment Model
Software Package	VISUM 15.0
Base Model Year	2013
Model Area	Buckinghamshire County and surrounding highway network
Time Periods	AM peak (0800 - 0900), interpeak (average hour between 1000 and 1600) PM peak (1600 – 1900)
User Classes	3 – Car, LGV, HGV
Zoning System	865 Zones in the model
Calibration/Validation	Following WebTAG M3.1 principles, but not full compliance

2033 DM and DS Infrastructure Schemes

Scheme	District	Description	Scenario
Winslow Relief Road	Aylesbury	Bypass of existing A413	DS
Buckingham Western Link	Aylesbury	New link road in west Buckingham	DS
Winslow Station	Aylesbury	New railway station at Winslow	DM & DS
A421 Link Road	Aylesbury	New link road from Winslow to A421	DS
West Street, Buckingham	Aylesbury	Downgrade of route	DS
A421 Corridor	Aylesbury	Capacity improvements on the A421	DS
Bletchley Bypass	Aylesbury	New link road linking A421 and A4146	DS
Haddenham & Winslow mitigation	Aylesbury	New link roads to support the new proposed settlements	DS
New Grid Road	Aylesbury	New link road to prevent rat running through Waddon	DS
HS2: Realignment of A41 Bicester Road	Aylesbury	New junction and realignment of existing A41	DM & DS
HS2: Realignment of Station Road	Aylesbury	Station Road and surrounding roads realigned	DM & DS
HS2: Realignment of Perry Hill	Aylesbury	Realignment of existing road	DM & DS
Chesham Town Centre	Chiltern	Signal amendments through town centre	DS
Gore Hill Roundabout	Chiltern	Capacity improvements at the roundabout	DS
HS2: Chalfont Lane Widening	Chiltern	Widening of Chalfont Lane to increase link capacity	DM & DS
HS2: Realignment of B485 Chesham Road and Kings Lane	Chiltern	Existing road realigned with upgraded junction	DM & DS
A4 Bath Road Roundabout	Chiltern / South Bucks	New roundabout on A4 linked to development	DS
Crossrail	South Bucks	Iver and Taplow facilities increase due to Crossrail	DM & DS
Heathrow Express	South Bucks	Relocation of works depot to Langley	DM & DS
A412/Bangers Road North	South Bucks	Capacity improvements at junction in Iver	DS
A40/Berry Hill	South Bucks	Capacity Improvements	DS
A355 Relief Road	South Bucks	New link road between Pyebush Roundabout and A355 north of Beaconsfield	DM & DS
M4 Smart Motorway	South Bucks	J3 to J8/9 upgraded to a smart motorway	DM & DS
Western Rail link to Heathrow	South Bucks	Closure of Hollow Hill Lane	DM & DS
Abbey Barn Link	Wycombe	Remove Abbey Barn Link to Genoa Way	DS
Holland Farm Spine Road	Wycombe	New spine road	DS
Princes Risborough A4010 Amendments	Wycombe	New route to west of A4010 and traffic calming on A4010	DS
A4010 Improvements	Wycombe	A4010 / Chapel Lane junction and New Road / Cressex Road junction improvements	DM & DS
Daws Hill Improvements	Wycombe	Daws Hill / Abbey Barn South – Daws Hill Lane/Marlow Hill junction improvements	DM & DS
A40 Improvements	Wycombe	A40 corridor improvements	DS

Gomm Valley	Wycombe	New link road associated with Gomm Valley Development	DS
Airpark Link Road	Wycombe	New link road between Clay Lane and Wycombe Road	DS
Town Centre Masterplan	Wycombe	Capacity reduction on A40 with new link roads and capacity increases elsewhere	DM & DS
Southern Quadrant	Wycombe	Upgrade to Cressex Road / Cressex link junction and John Hall Way	DM & DS
Coates Lane	Wycombe	New link road from Morrison's to Coates Lane	DM & DS
Chapel Lane Junction	Wycombe	Junction improvements	DM & DS

To analyse the impacts of the DS1 scenarios further, it would be useful to analyse Congestion Ratio changes on links between scenarios. Link stress percentage plots would also help identify links which may be approaching capacity, and those which are over capacity. This could also help identify which of the new link roads may require dual carriageway design considerations, and those which would be sufficient as single carriageways. As new link roads are designed, it is imperative that designs account for all possible growth/widening/capacity improvements which may be required.

Figure 10.1 – 2033 AM: DS1 with Mitigation minus DM

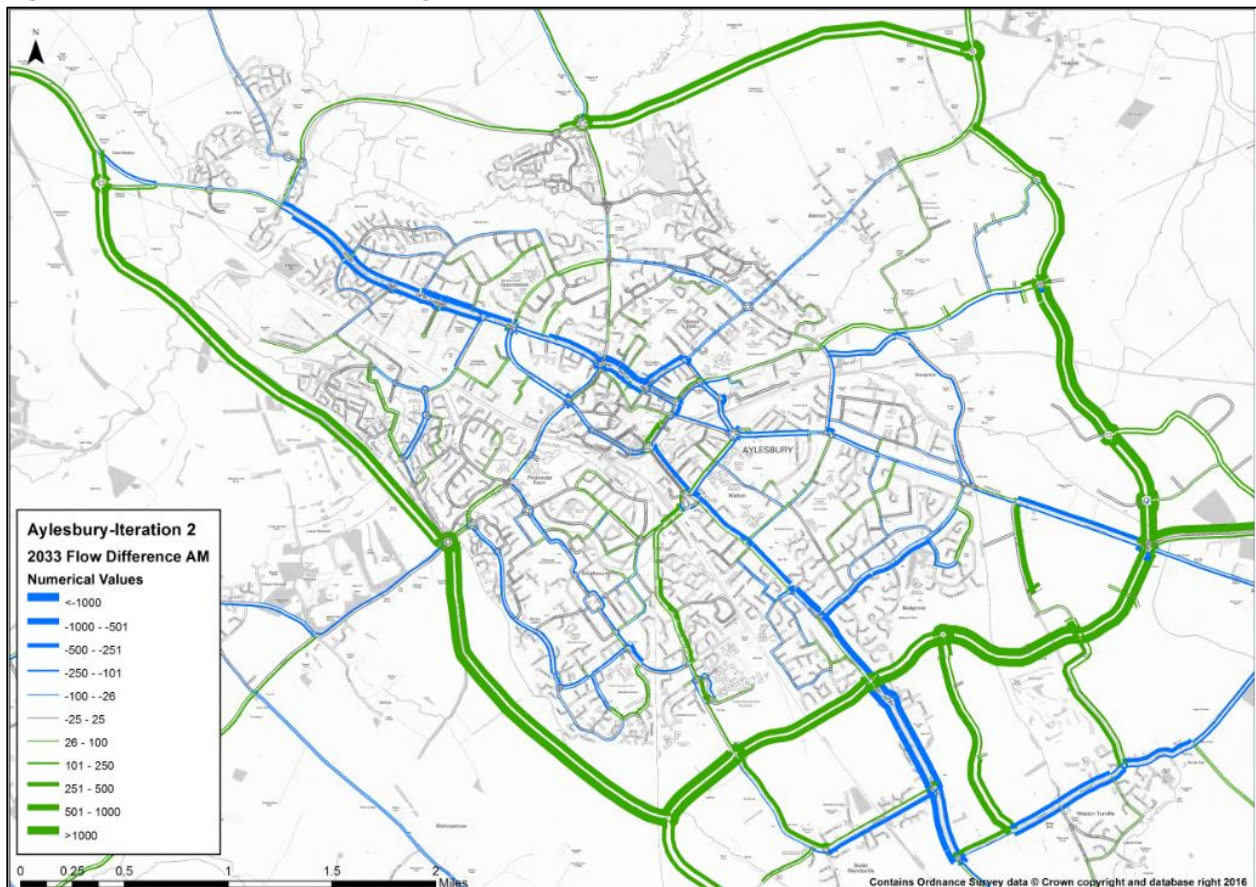
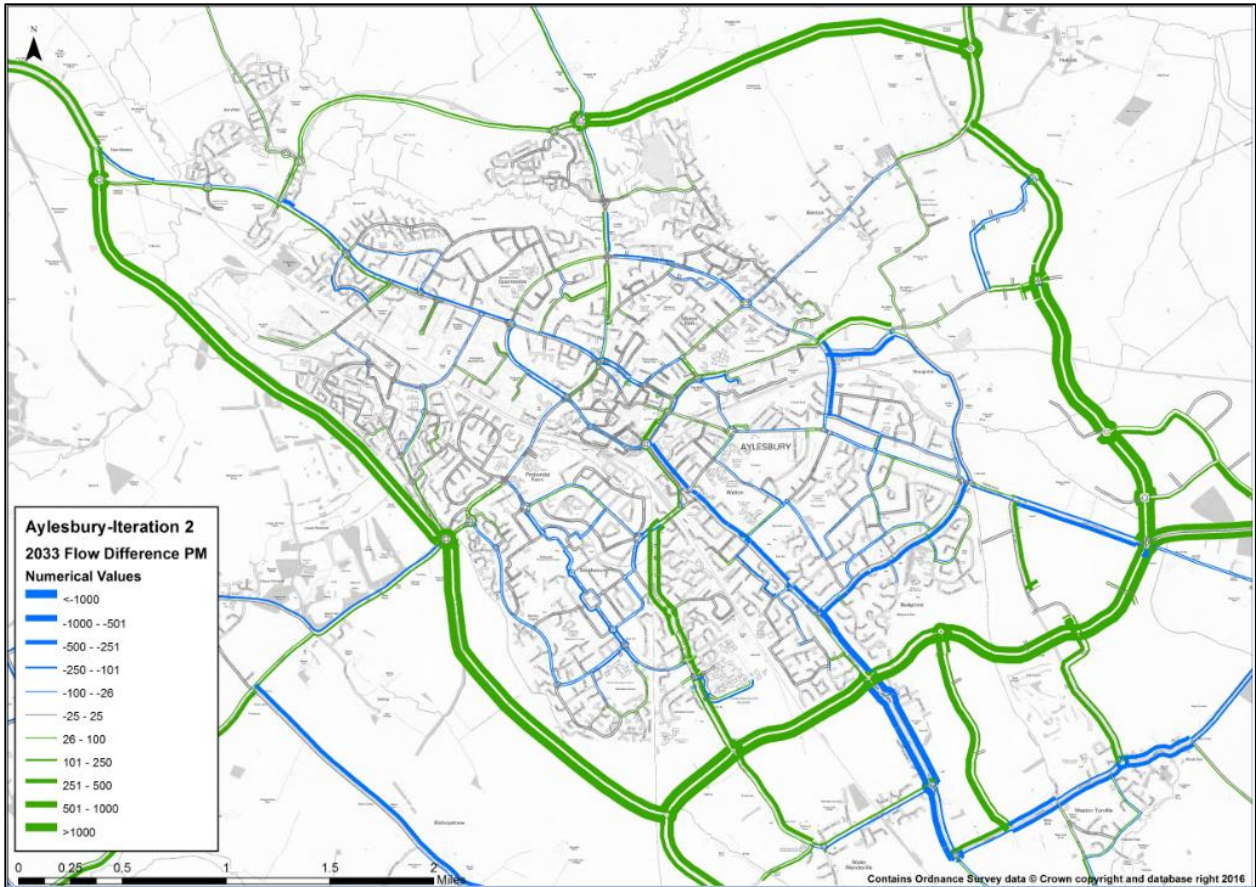


Figure 10.2 – 2033 PM: DS1 with Mitigation minus DM



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