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Wiltshire Council

Melksham Bypass Outline Business Case

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Options Assessment Report

28/05/21

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This document has 270 pages including the cover.

Document history

Revision	Suitability	Purpose description	Originated	Checked	Reviewed	Authorised	Date
C02	A1	Full draft (with appendices)	LA/JR/AR/ DC	NW	SP	AM	28/05/21
C01	A1	First Issue (after WC comments)	LA/JR/AR/ DC	NW	SP	AM	30/04/21

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The purpose of this Options Assessment Report (OAR) is to document the process of identifying a suitable transport intervention that would address current and future transport problems identified with respect to the A350 through Beanacre and Melksham in Wiltshire. It ultimately seeks to identify better performing option(s) that demonstrate a good case to progress to further appraisal as part of a business case submission within the context of the DfT's Large Local Majors (LLM) fund and its associated objectives. The approach aligns with relevant government (DfT) guidance.

This OAR reviews, refreshes and updates a previous OAR from 2017. This ensures that it is based upon the latest context and evidence and also aligns with a consultation exercise undertaken by Wiltshire Council between November 2020 and January 2021.

Executive Summary

The context – the A350 and Melksham

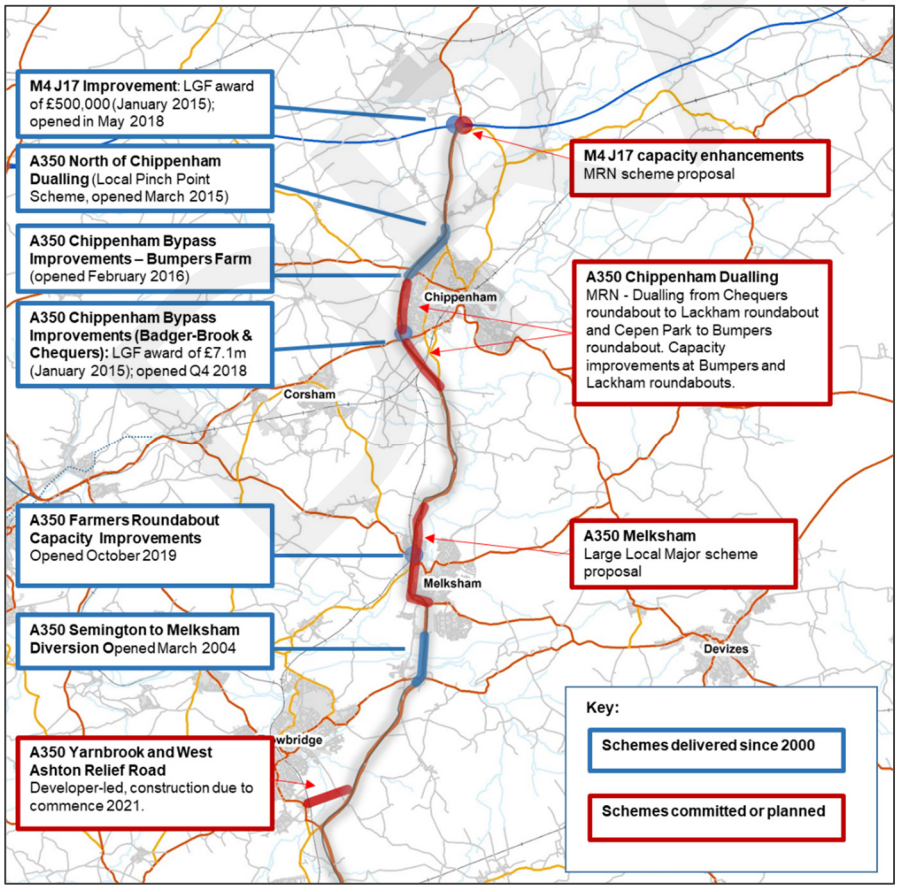
The A350 in Wiltshire forms part of the Major Road Network (MRN). It connects the M4 corridor (at Junction 17) with the Dorset Coast and Poole port and is the main transport artery serving the A350 Growth Zone identified in the Swindon and Wiltshire Strategic Economic Plan (SEP). Improvement to the A350 route forms a key part of the Western Gateway Strategic Transport Plan 2020 – 2025, which identifies improved north / south connectivity between the Midlands and South Coast as a fundamental priority for the Western Gateway region.

Between Chippenham and Trowbridge the A350 passes through Melksham (a market town of c.31,000 population) and the smaller village of Beanacre to the north. Here, the A350 also serves an important local function providing access to key commercial and retail sites, in addition to the town's railway station. Sections of the route are also fronted by residential properties, with the speed limit restricted to 30mph. Annual Average Daily Traffic Flows are up to approximately 30,000 vehicles, with HGVs accounting for approximately 7% to 9% of traffic. Approximately 40% of traffic is through-traffic, comprising the main north / south movement and also other through routes which are served by the A350 at Melksham. The route suffers from delays and congestion, including at key junctions.

The A350 corridor has experienced significant growth over the last decade, and this trend is expected to continue. Key policy documents including the SEP and Wiltshire Core Strategy 2006-2026 confirm that population, housing and economic growth in Wiltshire is expected to be concentrated in the A350 corridor, and this is supported by housing allocations and planning permissions that are now in place for the 2017-2026 period. Wiltshire Council is currently undertaking a Local Plan Review which extends the planning horizon to 2036 and establishes a continued high demand for new housing in the A350 corridor linked to economic growth.

Addressing the A350 at Melksham is one of the key components of Wiltshire Council's comprehensive programme to improve north-south regional connectivity and sits alongside two other current MRN proposals for the A350 at Chippenham and M4 Junction 17 **(Figure 1)**.

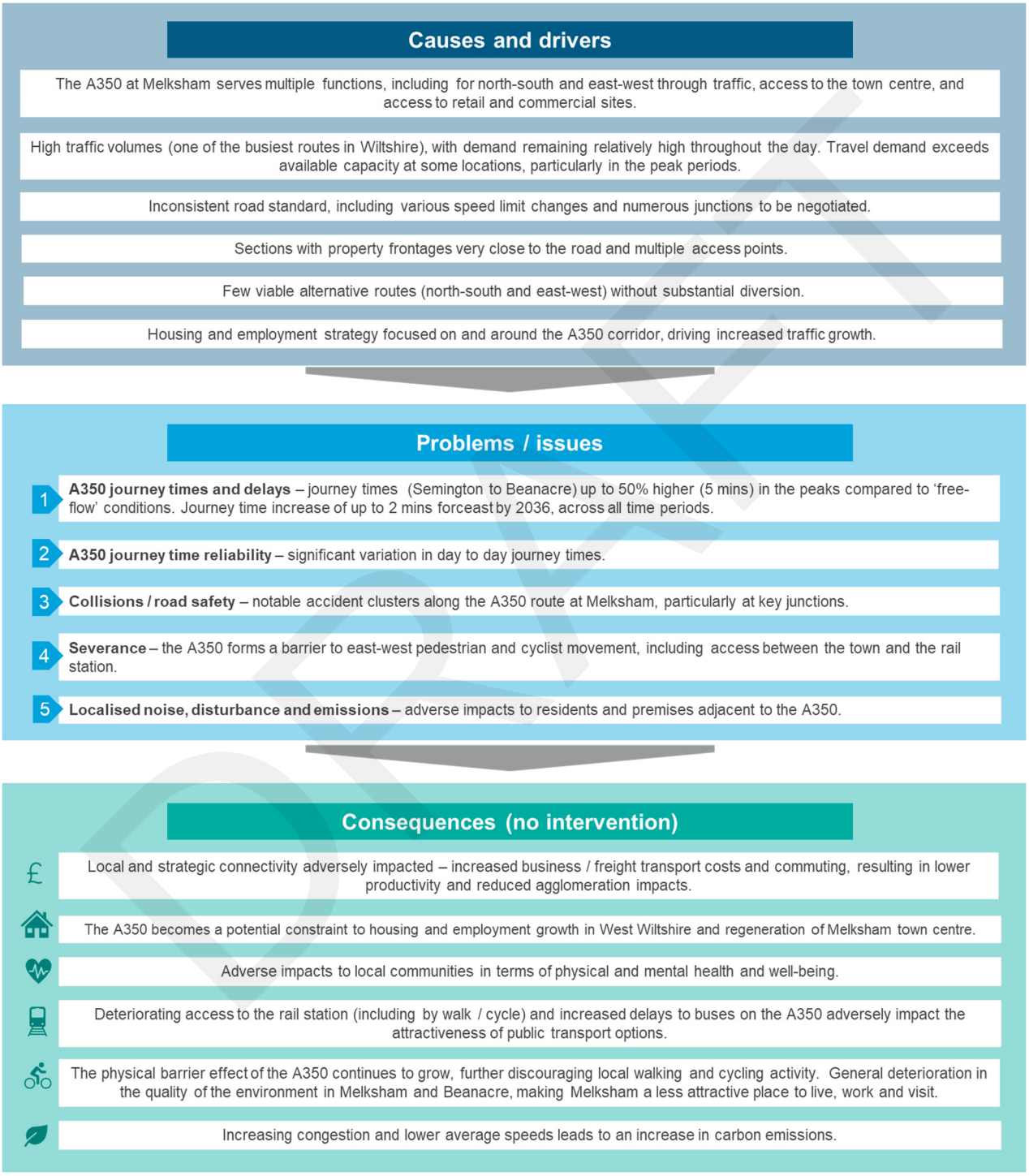
Figure 1 - A350 corridor – completed, committed and planned schemes



The identified problems and issues – need for intervention

Based on the evidence considered in this report and stakeholder consultation (Chapters 2 to 4), key transport problems with respect to the A350 at Melksham / Beanacre are: journey times and delays; poor journey time reliability; collisions (road safety); severance; and localised noise, disturbance and emissions. Collectively, these transport problems have the potential to create wider negative impacts on economic, environmental and social outcomes in Melksham and the wider A350 corridor **(Figure 2)**.

Figure 2 - Relationship between identified problems, underlying causes and consequences



Future traffic growth in the A350 corridor, linked to new housing and economic activity, is likely to exacerbate many of the issues identified. Traffic model forecast data predicts average peak period journey times on the A350 through Melksham to increase by approximately 10% to 13% between 2018 and 2036 (equating to

approximately 1 to 2 minutes additional journey time per vehicle). Without intervention, this suggests that by 2036 all through-traffic on the A350 at Melksham would incur a total additional 55,000 vehicle hours of journey time on this section over the course of a year. In indicative monetary terms, this has a value of approximately £0.7 million annually to transport users (through-trips alone).

The objectives

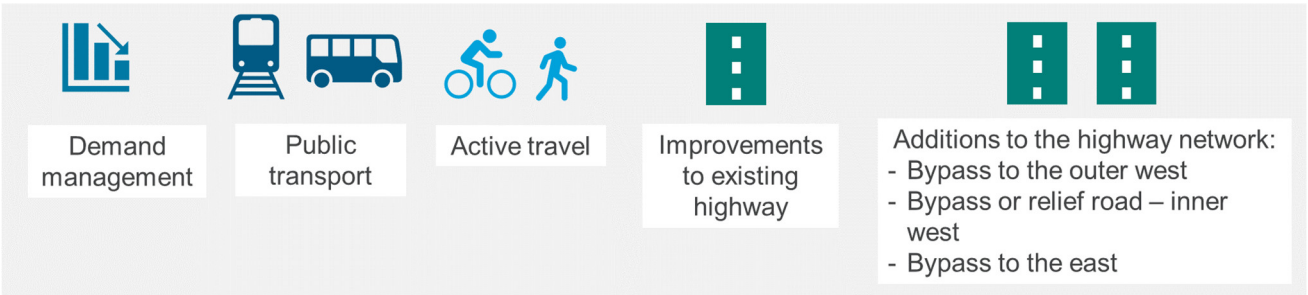
In response to the problems and issues, three strategic outcomes linked to five pairs of high-level objectives and transport objectives were identified for the scheme. Measures for success were also identified for each of the objectives. The objectives and outcomes have a strong alignment with the MRN / LLM fund objectives.

Table 1 – Strategic outcomes, high-level objectives and transport objectives

Strategic outcomes	High-level objectives	Transport objectives
Sustainable population and economic growth in the A350 corridor, with positive impact on regional and national economic productivity; Sustainable population and economic growth around Melksham / Bowerhill, supporting a revitalised town centre; Improved physical and mental wellbeing for users of the A350 and residents of Melksham.	Improve north-south connectivity between the M4 and South Coast, and provide capacity for growth in the A350 corridor between Trowbridge / Westbury and Chippenham / M4	Reduce journey times and delays and improve journey reliability on the A350 through Melksham and Beanacre, allowing for future growth in demand
	Improve connectivity for other through journeys via Melksham (to/from Bath, Calne and Devizes)	Reduce journey times and delays and improve journey reliability on the following routes through Melksham, allowing for future growth in demand: - A350 South - A3102 - A365 West - A365 East - A350 South - A365 West
	Improve connectivity within Melksham / Bowerhill, particularly for walking and cycling journeys to Melksham town centre and along the existing A350 corridor through Melksham	Provide enhanced opportunities for walking and cycling between Melksham town centre and rail station / Bath Road, and along the existing A350 corridor within Melksham
	Reduce personal injury accidents on the road network	Reduce personal injury accident rates and severity for the A350 and Melksham as a whole
	Reduce severance impacts of traffic on communities in Melksham / Bowerhill and Beanacre	Reduce the volume of traffic including HGVs, passing along the current A350 route in northern Melksham and Beanacre, and avoid negative impacts on other existing or potential residential areas

The potential options

An initial 'long-list' of transport options was generated and informed by feedback from stakeholder consultation. The list was subsequently refined into 18 individual options within four themes: demand management, public transport, upgrading the existing highway network, and new additions to the highway network:



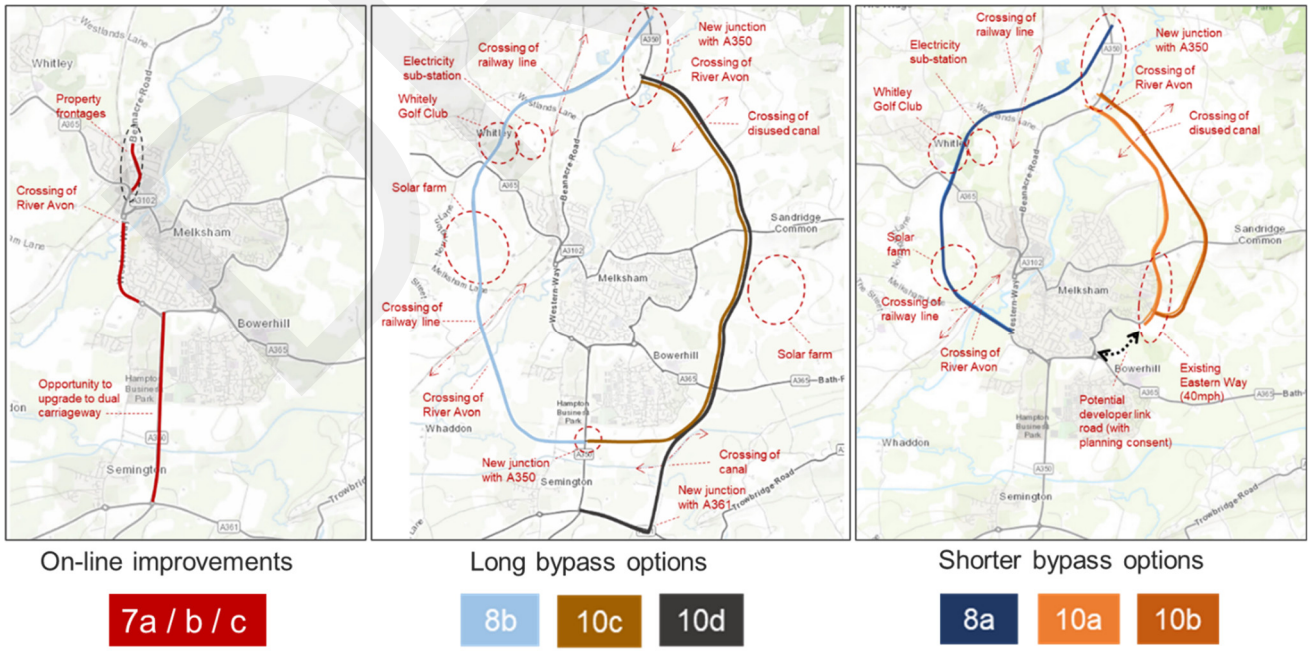
The 'long-list' of options included a total of ten bypass or relief road corridor options to the west and east of Melksham. Each bypass option was initially based on a general concept or corridor rather than any specific alignment and informed by a high-level feasibility review.

The initial options sift

Options were assessed against fit with the scheme objectives (including the scale of impact against addressing the underlying issues), fit with wider policy outcomes (such as economy, environment and society), and the likelihood of unacceptable impacts in relation to: economic or environmental impacts; major technical risks, and public / stakeholder acceptability (taking into account feedback from the consultation exercise).

- **Options discarded in full** – The demand management options did not demonstrate a good fit with the scheme objectives and wider outcomes and were not considered suitable to progress further. The two 'relief road' options to the west of Melksham which provide only a partial bypass of Beanacre and northern Melksham (utilising the corridor between the rail line and Southbrook Road) did not demonstrate a sufficiently strong impact against the scheme objectives due to limited potential journey time savings, and additionally were assessed as being technically very high risk and publicly unacceptable due to floodplain impacts and risk of increasing flooding to properties in Southbrook Road / Bath Road area.
- **Options discarded in part** – Individually, the three online highway improvement options (existing A350) did not demonstrate a sufficiently strong impact against the scheme objectives. However, there was considered to be merit in taking them forward for further consideration as a combined package. The walking and cycling and public transport options had only a moderate fit with the scheme objectives, but demonstrated a strong alignment with wider outcomes and were well supported through public and stakeholder consultation. It was concluded that there was merit in taking forward the concept of a complementary measures package which could supplement the other options to be progressed.
- **Options progressed**:
  - shorter and longer bypass options to the west and east of Melksham (8a, 8b, 10a, 10b, 10c, 10d) demonstrated a moderate to strong fit with scheme objectives and wider outcomes. Whilst all posed certain delivery challenges, it was concluded that these options warranted further investigation and assessment to consider them in more detail.
  - on-line improvements (7a / b/ c) were taken forward for further consideration as a combined package.
  - complementary walking, cycling (and potentially bus) measures were taken forward for further consideration in conjunction with other options.

Figure 3 – highway options progressed to further assessment (phase 1)



The further assessment (phase 1)

Options taken forward from the initial sift were subject to further assessment across a broader set of criteria and supported by the application of additional evidence and analysis. This included potential impacts in relation to economic, environmental and social criteria in addition to delivery and financial implications. In general, the longer bypass options (to the west and east) demonstrated a higher scale of impact in terms of potential for journey time improvements and traffic relief, although at a higher cost. All options were assessed as likely to result in at least slight adverse environmental impacts

- **Options discarded** – some significant delivery challenges were identified in relation to the long and short bypass options to the west of Melksham which require multiple structures for crossings of the River Avon and other floodplains, and the TransWilts rail line. These also contribute to likely higher cost compared to equivalent options to the east, but with broadly similar benefits and impacts across other assessment criteria. Therefore, it was concluded that these options should not be taken forward. Of the options to the east of Melksham, the longer bypass option crossing the Kennet and Avon canal to the south resulted in a higher cost and increased delivery risk, including acceptability (this was the least preferred bypass option from the consultation exercise). Following further assessment it was concluded that the online improvement package was unlikely to achieve a sufficient positive impact across the full range of scheme objectives and also presented delivery challenges due to constraints on the existing corridor.
- **Options progressed**:
  - 10c (long eastern bypass) - this demonstrated the best balance across expected benefits, potential adverse environmental and social impacts, cost and delivery risk. This option was also the most preferred of the bypass options from the consultation exercise
  - 10a (short eastern bypass) - the short eastern bypass option is likely to have a lower scale impact against key scheme objectives but represents a lower cost option and it was concluded that there was merit in considering this further relative to the higher cost long bypass option.
  - Dualling of the A350 south of Melksham between Western Way to Littleton Roundabout (7c) was identified as having merit for further consideration in conjunction with options 10a and 10c.
  - A complementary measures package was retained to be considered alongside each of the options.

The option development

The long (10c) and short (10a) bypass options to the east of Melksham identified from the further assessment (phase 1) were subject to further feasibility design. The indicative corridors upon which these were based were developed into potential alternative route alignments in order to facilitate more detailed assessment **(Figure 4, Figure 5**). Option 10a was refined into 1A / 1B / 1C. Option 10c was refined into 2A / 2B / 2C. This process involved consideration of factors such as: land use, key environmental features; design standards and feasibility; structures; and junctions. Feasibility cost estimates were produced for each route option, which included risk allowance based on a risk review.

Figure 4 – Development of long-list option 10a

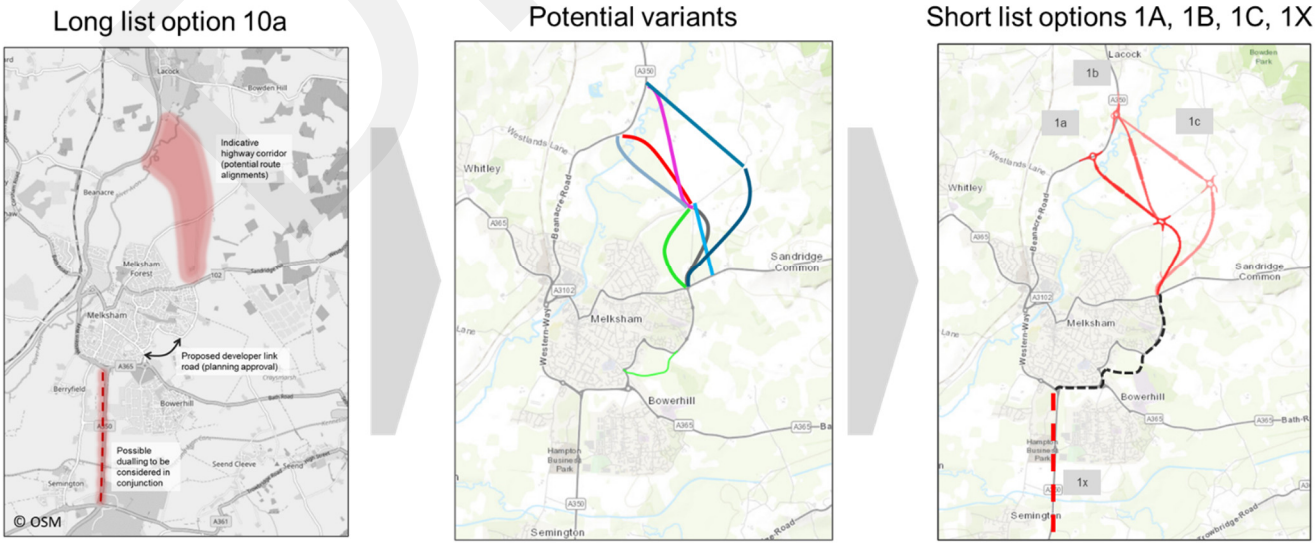
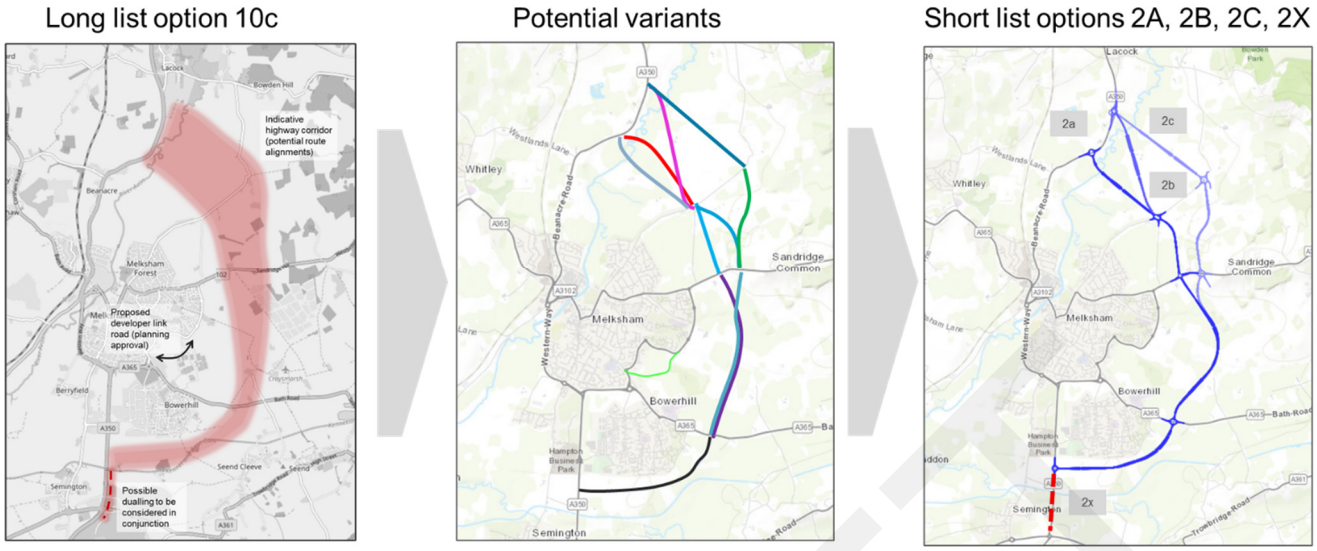


Figure 5 – Development of long-list option 10c



The further assessment (phase 2)

More detailed assessment was undertaken of the short-list options, including: traffic modelling (through use of the strategic Wiltshire Transport Model); further environmental assessment; delivery and risk review; and initial value for money assessment.

Intermediate eastern bypass (options 1A / 1B / 1C / 1X)

- Overall, based on the further assessment (phase 2) undertaken, of the intermediate bypass options 1A / 1B / 1C the combination of option 1C ('outer' alignment) in conjunction with A350 dualling to the south of Melksham (1X) is identified as having the greater prospect.
- Although the estimated cost (£158 million) is less than the full eastern bypass options, and some of the environmental impacts are assessed as not as significant, the scale of the expected benefits is also substantially less, and prospects in relation to the value for money position are lower (with a potential 'poor' value for money category).
- Contribution towards the scheme objectives, whilst positive, is also of a lower magnitude.
- Shorter bypass options received a lower level of support through the consultation exercise compared to the longer bypass options, and there is some further delivery risk and complexity associated with the inter-dependency with the planned developer link road extension to Eastern Way and the potential adverse impacts of the increased traffic levels on this part of the network as a result of the scheme.

On balance, within the context of the LLM funding business case submission, it is considered that there is not sufficient merit to progress this option further.

Full eastern bypass (options 2A / 2B / 2C / 2X)

- Overall, based on the further assessment (phase 2) undertaken, of the full eastern bypass options 2A / 2B / 2C the 'outer alignment' option 2C has been identified as having the greater prospects overall taking into account deliverability, risk, and acceptability as well as cost.
- This option demonstrates a strong fit with scheme objectives and the LLM / MRN objectives and funding criteria; it is expected to produce benefits to residents and road users locally (Melksham town and the surrounding area) as well as at a wider geographical level (West Wiltshire and beyond) associated with the improvement to the A350 corridor.
- The environmental assessment indicates slight to large adverse impacts across most of the environmental criteria for all route options, although 2C has a lower landscape / visual impact. Environmental impacts are assessed as more significant for option 2 compared to option 1, particularly in relation to biodiversity, cultural heritage and agricultural land holdings. There is scope for environmental mitigation to be incorporated into any further development of the option, as more information and survey data become available.

- The total outturn cost estimate for option 2C is £204 million, with whole life costs (60 years) of £31 million (current prices).
- The initial value for money assessment indicates a potential Value for Money category of 'low'. In order to increase the prospects of achieving a more favourable value for money position further development of the option should include opportunities for value engineering, to reduce costs, and further optimisation of the scheme to enhance the overall benefits.
- The potential need for dualling the short section of the A350 south of the southern bypass connection also warrants further consideration given the emerging capacity issues in the 2036 forecast year based on the traffic modelling assessment.

On balance, within the context of the LLM funding business case submission, it is proposed that the full eastern bypass option 2C is progressed for further consideration within the LLM Outline Business Case.

Complementary walk / cycle measures

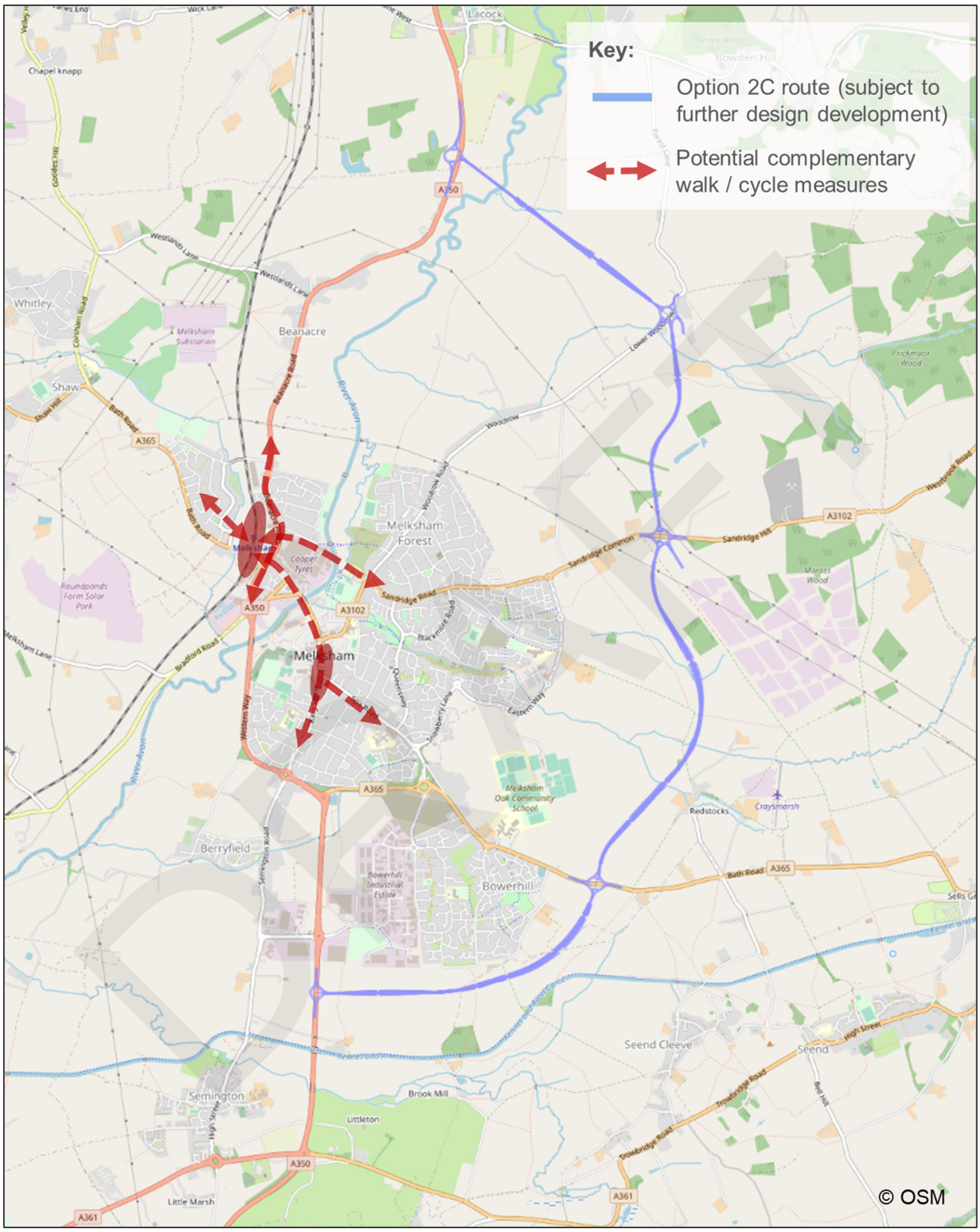
It is recommended that a complementary package of walk / cycle measures is considered further in conjunction with the bypass option to maximise the benefits of traffic relief on the existing A350 and other routes. In particular, there is scope to enhance east/west access between the town and the rail station and other land uses to the west of the A350.

The short-listed option(s) for further appraisal

Based on the outcomes of the option generation, sifting and assessment process, it is proposed that the most suitable option to progress to further appraisal as part of the LLM Outline Business Case submission comprises the full eastern bypass option 2C ('outer' alignment), plus a package of complementary measures focused on walking and cycling to 'lock in' the benefits of the traffic reduction on the existing A350 and other adjacent routes.

The final short-listed option(s) to be considered for the OBC are subject to confirmation by Wiltshire Council following a further consultation exercise.

Figure 6 - Short-listed option 2C (subject to further design development)



The proposed short-listed option 2C - further development

Further development of option 2C should be undertaken as part of further refining the design specification for consideration within the OBC. This is necessary to facilitate the full appraisal across all economic, environmental and social impacts. This also provides an opportunity to further optimise the scope and design of the scheme based upon the findings from the further assessment (phase 2). Potential factors for further consideration would include:

- The **siting of the northern junction with the A350**, where there are challenges associated with the impacts on the roman road. There is scope to consider locating the junction further north, and potentially taking the bypass alignment over the roman road.
- Reviewing the **need for a full junction at Lower Woodrow Road** – with a view to reducing the impacts on adjacent properties as well as potentially benefiting traffic flow and journey times on the bypass route.
- Undertaking **value engineering** with a view to reducing scheme costs where practicable, which would benefit the value for money position.
- Incorporating further **stakeholder feedback**.
- Reviewing the case for **dualling of the short section of the existing A350** between the southern bypass connection and Littleton Roundabout, based upon forecast traffic flows (including a 'high growth' scenario), benefits / cost, and other potential impacts (e.g. environmental).
- Further developing the scope of a potential **complementary measures package**, with a suggested focus on building upon the traffic reduction benefits of a bypass scheme. This might include improved east/west access for pedestrians and cyclists, improved access to and integration with the rail station, and further supporting measures within the town centre.
- Identifying the scope for **environmental mitigation and enhancement**, particularly where the most significant potential adverse impacts have been identified through the options assessment.
- Seeking to **minimise the carbon footprint**, which might entail: incorporating provision to support electric vehicles (e.g. space for charging points); means of carbon off-setting (e.g. tree planting); low-energy operational features (e.g. solar / wind powered signs and signals); minimising the scale of earthworks; and designing for low-carbon construction methods.

Scheme development would be subject to the formal regulatory processes which apply. In particular, at the relevant stage, the scheme would be subject to a planning application including a full Environmental Impacts Assessment.

1. Introduction

Wiltshire Council is promoting a scheme for the A350 at Melksham as part of an application to the Large Local Majors (LLM) fund administered by the Department for Transport (DfT).

The scheme was one of nine priority schemes identified by the Western Gateway Sub-national Transport Body (STB). In March 2020, the Government awarded funding to further develop the case for the project, having considered an initial Strategic Outline Business Case (SOBC) submission made in July 2019.

To support the submission of an Outline Business Case (OBC) Wiltshire Council has commissioned Atkins to review, refresh and update the evidence base relating to the consideration of scheme options and to produce an updated Options Assessment Report (OAR) in line with DfT guidance. The OAR sets out full consideration of the issues the scheme is intended to address, the potential options and an assessment of these against key criteria such as: fit with scheme and wider objectives; economic, social and environmental impacts; affordability; and value for money.

1.1. The A350 corridor

The A350 is a key north-south route between the M4 corridor and South Coast, and is part of the Major Road Network (MRN) comprising the UK's busiest and most economically important local authority 'A' roads **(Figure 1-1)**. It forms a key strategic route in the Western Gateway area and underpins the A350 Growth Zone identified in the Swindon and Wiltshire Strategic Economic Plan[1]. The route provides connections between the two Principal Settlements[2] of Chippenham and Trowbridge along with the Market Towns of Corsham, Melksham, Bradford-on-Avon, Westbury and Warminster.

It has been a longstanding priority for Wiltshire Council to improve north-south connectivity via the A350 corridor, which includes alternatives to road travel such as rail. This reflects the significant role of the A350 in supporting economic activity and growth at a local and regional level. The A350 Growth Zone has accounted for approximately 60% of all housing growth in Wiltshire over the last 15 years. Strong local connectivity in the West Wiltshire area as well as effective north-south links to the M4 are a pre-requisite to support further growth and in order to open up new business opportunities by making it easier to transport freight from the south coast ports and improve road access to London and the rest of the Western Gateway area.

Wiltshire Council is taking a strategic approach to the planning and delivery of improvements and upgrades to the A350. This has drawn upon various funding opportunities within the last 10 to 20 years to deliver necessary improvements to the corridor **(Figure 1-2)**. This has included improvements to M4 Junction 17 and upgrades to the A350 route around Chippenham (link and junction improvements). Further south, the proposed Yarnbrook and West Ashton Relief Road scheme (to be delivered by developers and set to commence construction in late 2021) will provide a new route for the A350 east of Trowbridge and facilitate the development of the Ashton Park urban expansion. Wiltshire Council is also likely to seek funding to improve the A350 at Westbury, but this will fall into a further round of government funding which is unlikely to begin until 2025.

[1] Swindon and Wiltshire Strategic Economic Plan (Swindon and Wiltshire Local Enterprise Partnership, Jan 2016)
[2] Principal Settlements as defined within the Wiltshire Council Core Strategy (2015)

Figure 1-1 - The A350 corridor

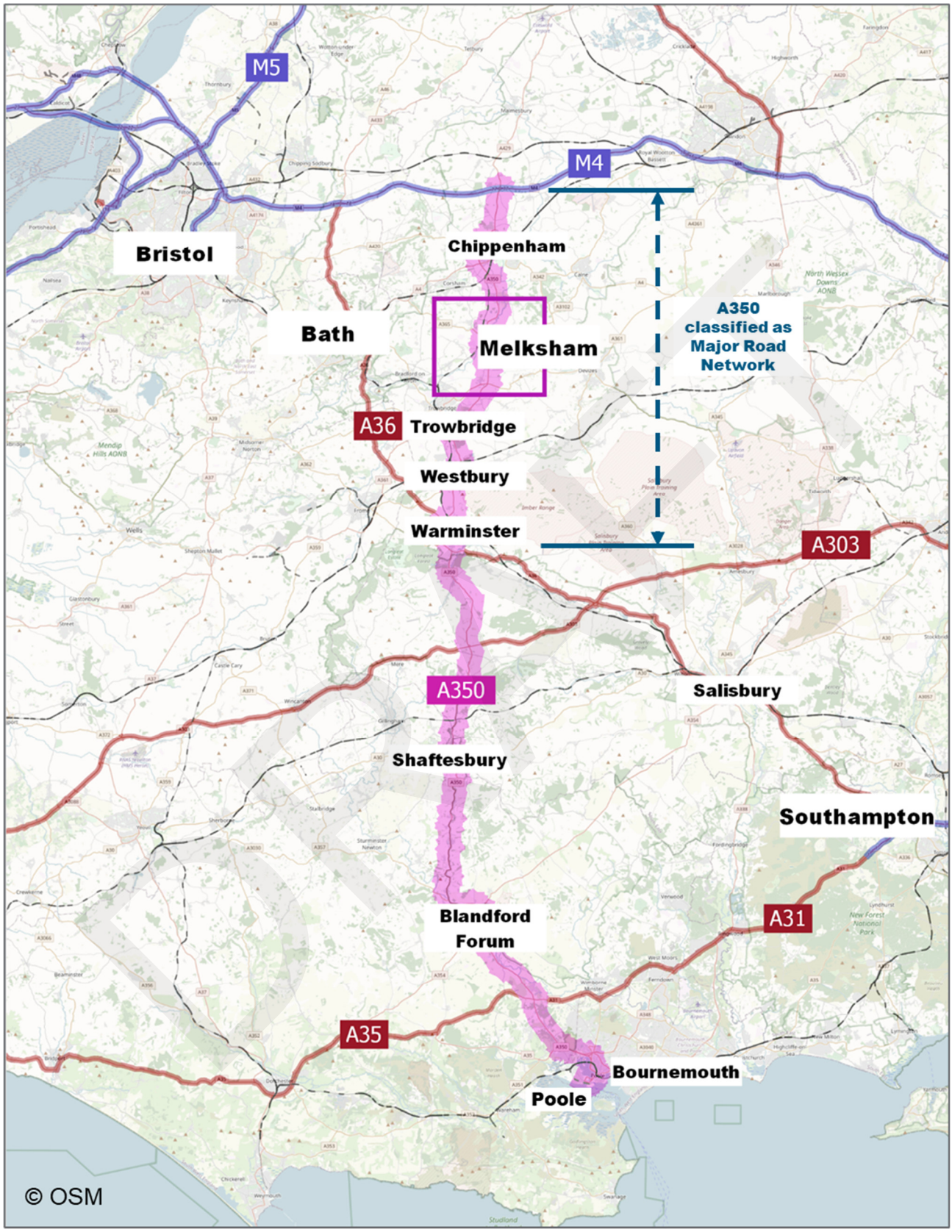
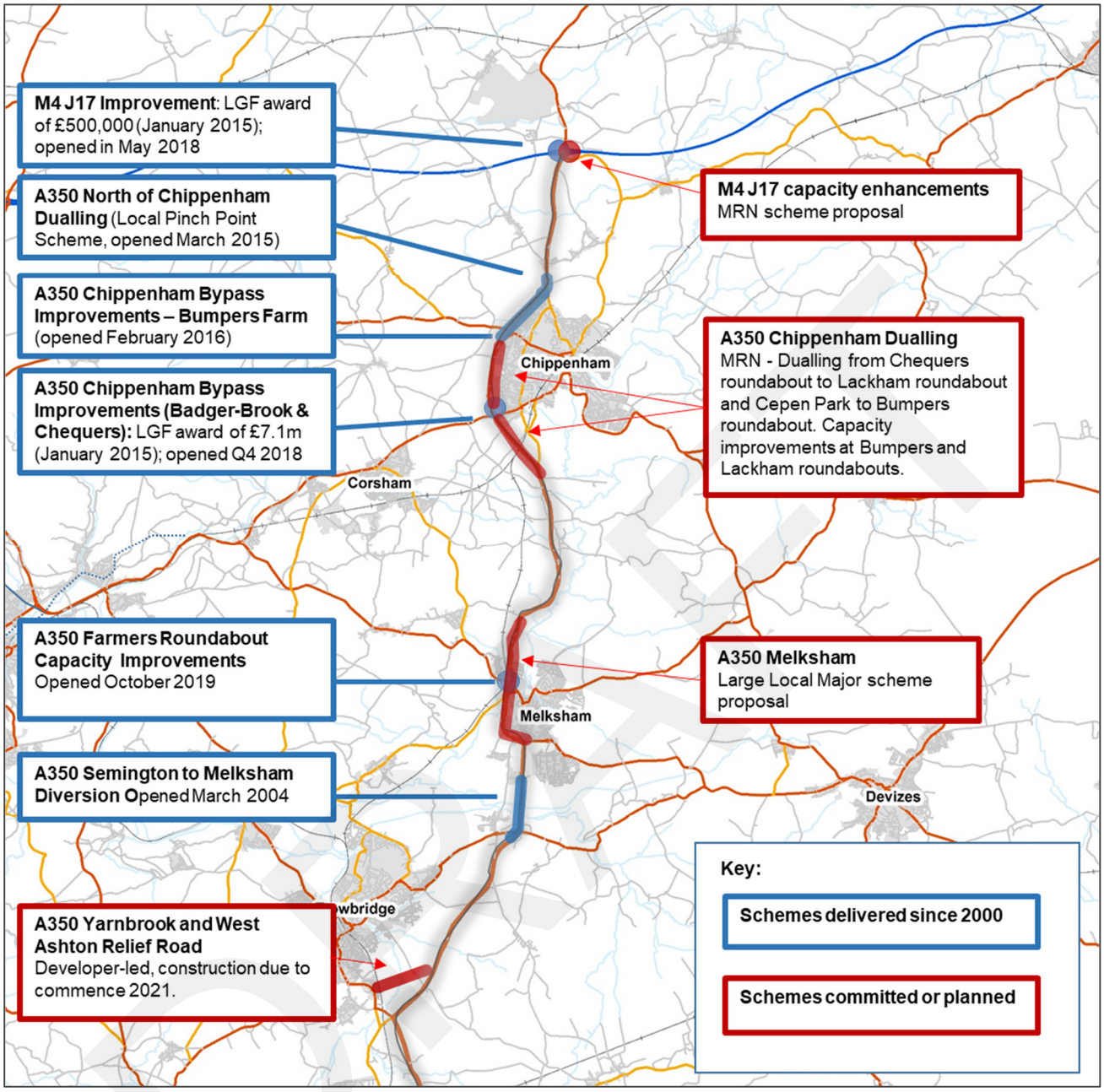


Figure 1-2 - A350 corridor – completed, committed and planned schemes



1.2. The A350 at Melksham

Melksham is one of Wiltshire's oldest towns, located between Chippenham (to the north) and Trowbridge (to the south). The Melksham Community Area has a population of approximately 31,000[3]. Melksham has a strong employment and manufacturing base (with its major employers including Cooper Avon Tires and Avon Technical Products) and there are business parks and industrial sites at Bowerhill, Avonside Enterprise Park and Challeymead.

The market towns of Trowbridge, Chippenham and Devizes are within close proximity of Melksham and the city of Bath and Swindon are only 30 and 45 minutes away respectively. Inter-dependency between these centres generates regional economic advantage. Melksham town centre provides a range of local services and convenience shopping.

[3] Melksham Community Area Joint Strategic Needs Assessment (Wiltshire Council, 2020)

The section of the A350 through Melksham has been identified as a key remaining constraint on the route within Wiltshire, lying at the heart of the A350 corridor between Chippenham and Trowbridge. Issues include 30mph sections through residential areas of Beanacre and northern Melksham, and frequent peak period congestion throughout Melksham, including at the busy Bath Road, Farmers, Semington Road and Western Way junctions.

1.3. The LLM funding opportunity

Improvements to the A350 at Melksham have been considered by Wiltshire Council for many years. The Large Local Majors fund made available by Government has made it possible to put forward a proposal for a scheme of the scale and nature required to address the transport issues in a comprehensive manner. The LLM is funded through the National Roads Fund and shares the same objectives as the MRN:

- Reduce congestion;
- Support economic growth and rebalancing;
- Support housing delivery;
- Support all road users; and
- Support the Strategic Road Network.

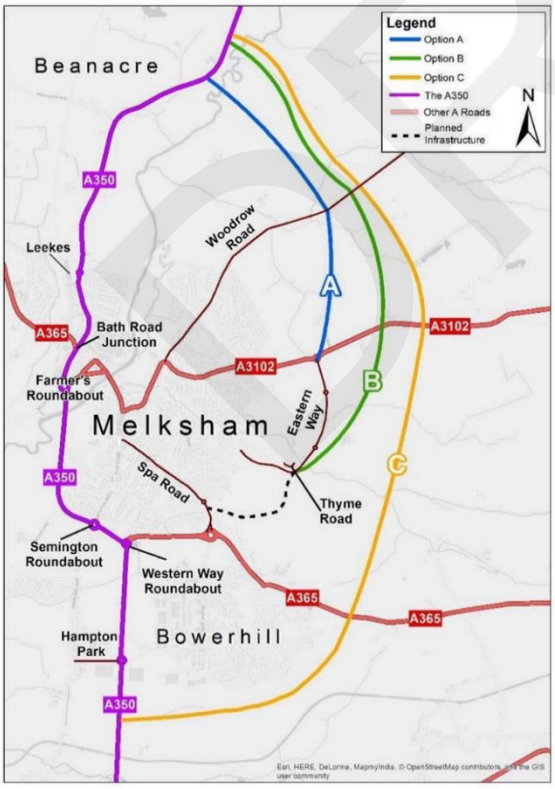
The LLM funding is intended to support a small number of exceptionally large local highway authority transport schemes that could not be funded through normal routes and would exceed the upper threshold for Major Road Network (MRN) proposals.

The A350 Melksham scheme also complements two other proposed MRN schemes in Wiltshire – completion of dualling of the A350 at Chippenham; and additional capacity enhancements at M4 Junction 17 **(Figure 1-2)**.

1.4. SOBC and earlier work

The SOBC (originally 2017, updated in 2019) set out the strategic need for the scheme and presented an initial assessment of the case for investment, including value for money. The SOBC itself was informed by earlier options study work. An Interim Options Assessment Report (IOAR) was developed in 2016. This was subsequently updated in an Options Assessment Report (OAR) in 2017 which identified three short-listed options (indicative corridors) which were subject to consideration within the SOBC **(Figure 1-3)**.

Figure 1-3 - SOBC 'short-list' options



1.5. OAR update and OBC

In preparation for the OBC, Wiltshire Council has taken the opportunity to review the strategic context in relation to the scheme and to refresh the OAR. This will enhance the evidence base and robustness of the OBC through:

- incorporating feedback / comments on the SOBC submission (including from DfT);
- reflecting on / responding to more recent policy developments, including the climate change agenda;
- taking into account any changes in the local context, including housing and employment developments;
- incorporating additional engineering, traffic modelling and environmental assessment work which has been undertaken since 2017;
- reviewing scheme objectives to ensure they remain relevant;
- ensuring the potential alternative options considered are comprehensive; and
- aligning the options review with a stakeholder engagement exercise.

The OBC is currently planned to be submitted to DfT in October 2021.

1.6. Public and stakeholder consultation (Winter 2020)

There is a wide range of stakeholders with a potential interest in the project. Key stakeholders include:

- Local residents and users of the A350;
- Businesses and business forums;
- Western Gateway Sub-national Transport Body;
- Swindon and Wiltshire Local Enterprise Partnership;
- Highways England;
- Statutory Environmental Bodies and other environmental groups and organisations;
- Transport user groups; and
- Transport operators.

A key component of the OAR update is a consultation exercise undertaken by Wiltshire Council from November 2020 to January 2021. Full details of the consultation and report on findings have been published online[4]. The findings from the consultation are referred to at relevant sections throughout this document.

1.7. Purpose and structure of this OAR document

The overall purpose of the OAR is to take an evidence-based approach to identifying the better performing scheme option(s) which will then be subject to full appraisal for the OBC and lead to the identification of a preferred option. As such, this OAR refresh will test / validate conclusions from the previous version of the OAR in light of the latest context and information.

The OAR follows DfT's Transport Appraisal Guidance (TAG) and documents Stage 1 (Option Development) of the Transport Appraisal Process **(Figure 1-4)**. The document is structured in line with these steps **(Figure 1-5).**

[4] For full details of the consultation exercise see: https://www.wiltshire.gov.uk/highways-a350-melksham-bypass

Figure 1-4 – Option development Stage 1 (Transport Appraisal Guidance, Department for Transport)

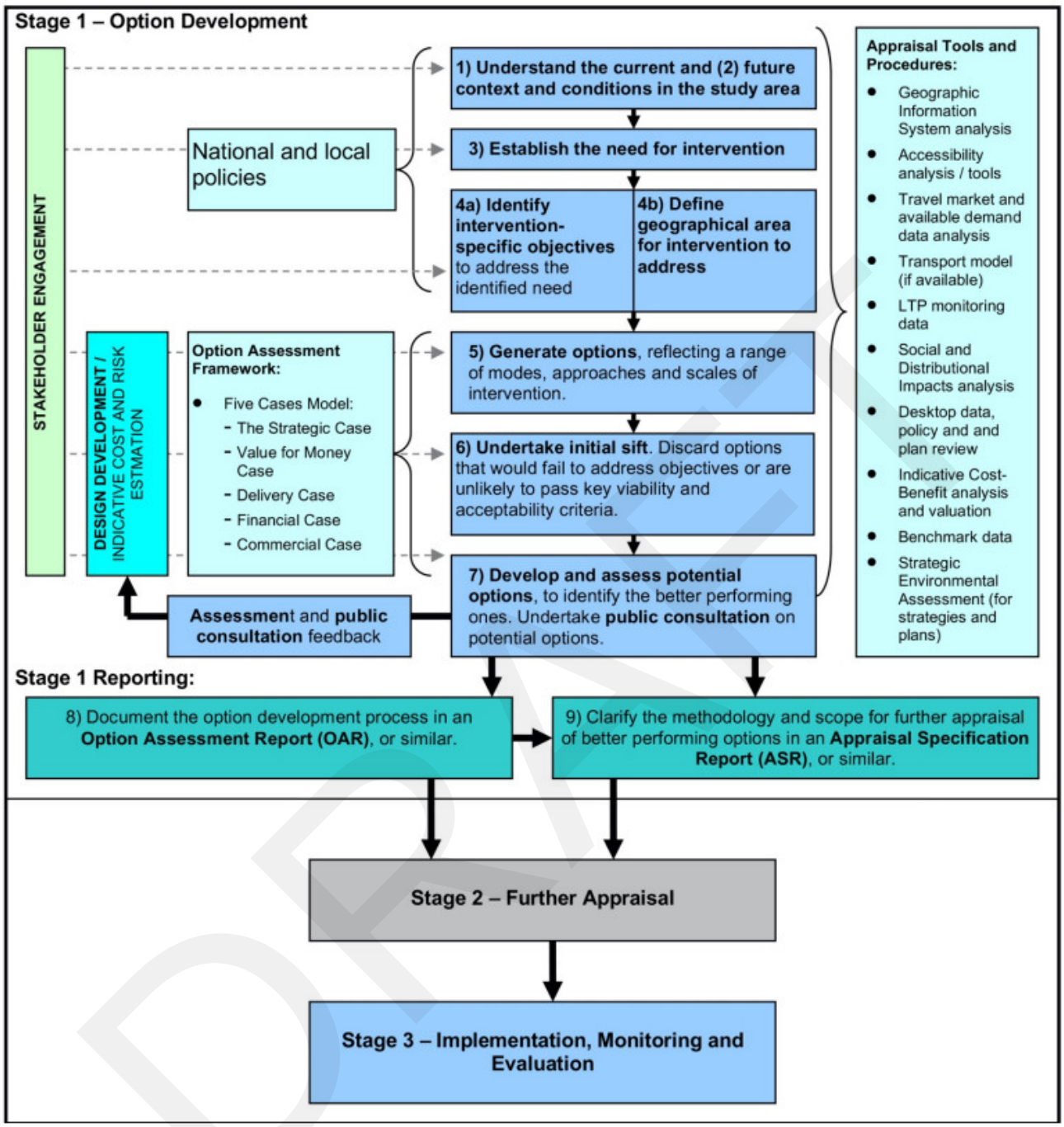


Figure 1-5 – Structure of the Options Assessment Report

Chapter 2 Step 1: Understand the current situation	• Sets out the problems and challenges in relation to the A350 Melksham project, supported by relevant evidence. Evidence has been reviewed and updated from the previous OAR where appropriate.
Chapter 3 Step 2: Understand the future situation	• Establishes the future 'without scheme' case, taking into account known and planned development and changes to the transport network. This is supported by additional traffic modelling evidence.
Chapter 4 Step 3: Establish the need for intervention	• Confirms the rationale for change, including the implications of not progressing the A350 Melksham project.
Chapter 5 Step 4a / 4b: Identifying objectives and area of impact	• Sets out clear objectives for the A350 Melksham project and the intended outcomes. Previous objectives have been reviewed and updated where appropriate to ensure they remain relevant and aligned with wider objectives and priorities.
Chapter 6 Option generation, sifting and assessment process	• Outlines the approach taken to option identification, initial sifting and further assessment (as part of Steps 5 to 7).
Chapter 7 Step 5: Option generation	• Presents the full range of potential options identified.
Chapter 8 Step 6: Initial options sift	• Describes the process and outcomes of an initial option sift, including clear rationale for discarding of options at this stage.
Chapters 9 & 10 Step 7: further option assessment (phase 1 and 2)	• Details the process and outcomes of further assessment of the remaining options, supported by evidence, to identfiy the better performing option(s) to progress to full appraisal.
Chapter 11 Conclusions and next steps	• Summarises the key findings from the OAR and confirms the option(s) to progess to full appraisal within the OBC.

2. Understanding the current situation

This section contributes to developing an understanding of the current situation in the study area in terms of:

- Current transport and other policies;
- Current travel demand and levels of service; and
- Current opportunities and constraints.

2.1. Current transport and other policies

The relevance and implications of the current policy context at a local, regional and national level have been reviewed. This sets the scene in relation to consideration of the A350 Melksham project and how it relates to transport and wider priorities.

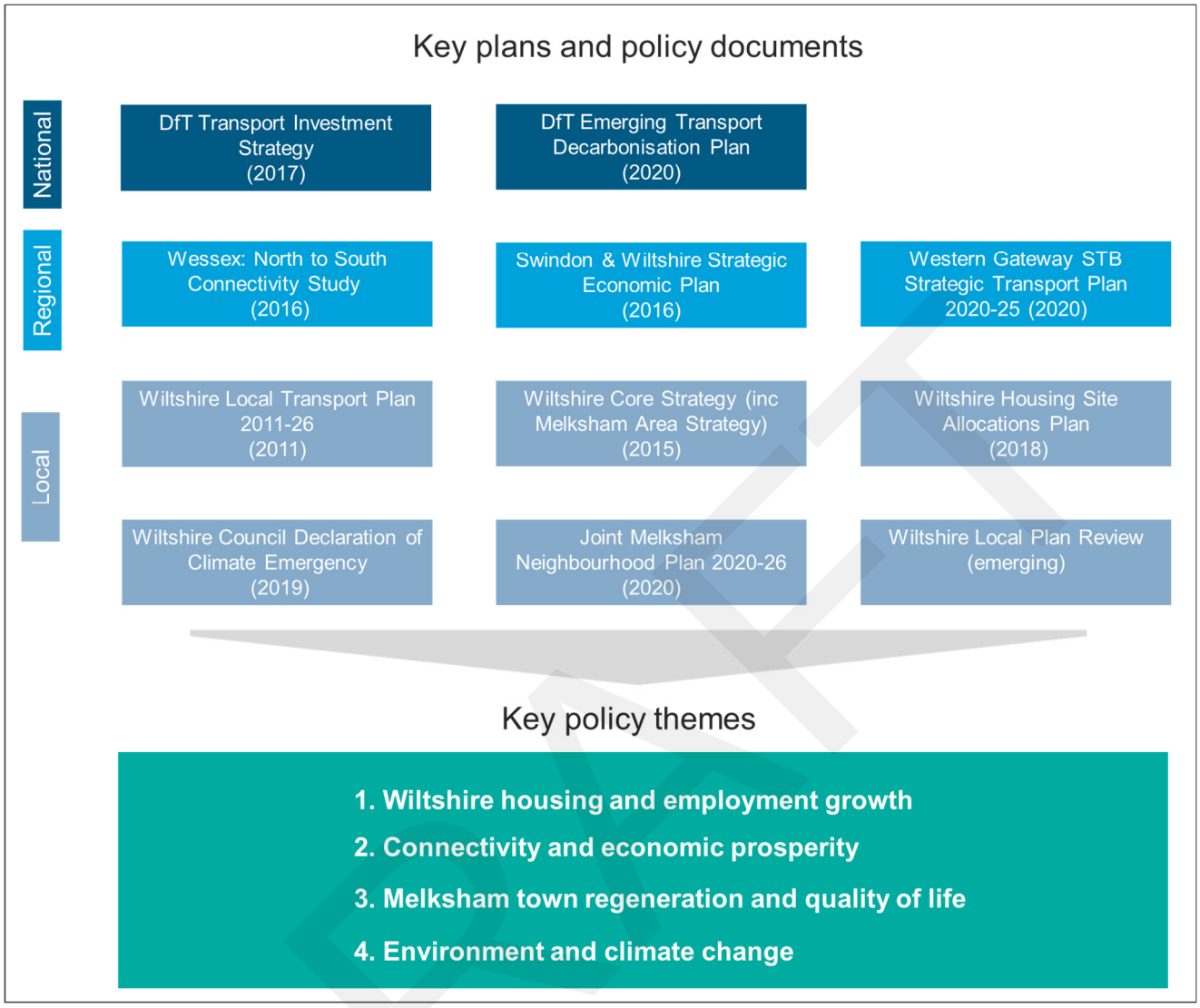
Summary of key points

- Key relevant policy themes include: housing and employment growth within the A350 corridor; connectivity and economic prosperity; Melksham town regeneration and quality of life; and environment and climate change.
- The A350 corridor in West Wiltshire has been the focus of significant housing and employment growth in recent years and based on current and emerging policy this trend is expected to continue. As at April 2019, Wiltshire Council had identified sites (either as committed or allocated) for approximately 12,000 dwellings within the A350 corridor for delivery up to 2026, including approximately 1,100 dwellings at Melksham. The ongoing Local Plan Review also seeks to allocate additional sites to meet housing needs up to 2036.
- The A350 has an important regional function. It is part of the Major Road Network and the Western Gateway Sub-national Transport Body has identified it as the second highest priority corridor in the region, due to the importance of improved north / south connectivity to the economy.
- Regeneration and sustainable development of the town are important local priorities for Melksham and the surrounding area.
- In line with national carbon targets, in February 2019 Wiltshire Council resolved to acknowledge a climate emergency and to seek to make the county carbon neutral by 2030.
- Transport provision has an important role to play across all of these key policy areas. Any transport intervention needs to take account of the relationship to all of these, recognising that the relative contribution to individual policy areas is likely to vary.

2.1.1. Key policy themes

Four key strategic policy themes have been identified **(Figure 2-1)** and these are considered in the following sections.

Figure 2-1 - Strategic policy context and key policy themes



2.1.2. Housing and employment growth

At a national level the government has made strong commitments (such as within the Planning for the Future White Paper, August 2020).to build more homes, more quickly and take action to remove the barriers to getting onto the housing ladder.

The transport network, and specifically the A350 corridor, has a major role to play in meeting housing and employment needs in Wiltshire in a sustainable manner. Local economic and land use policy identifies the need for selective improvement to the A350 to maintain and enhance journey times and reliability, with the aim of aiding housing and employment growth at Chippenham, Melksham, Trowbridge, Westbury and Warminster.

A350 Growth Zone

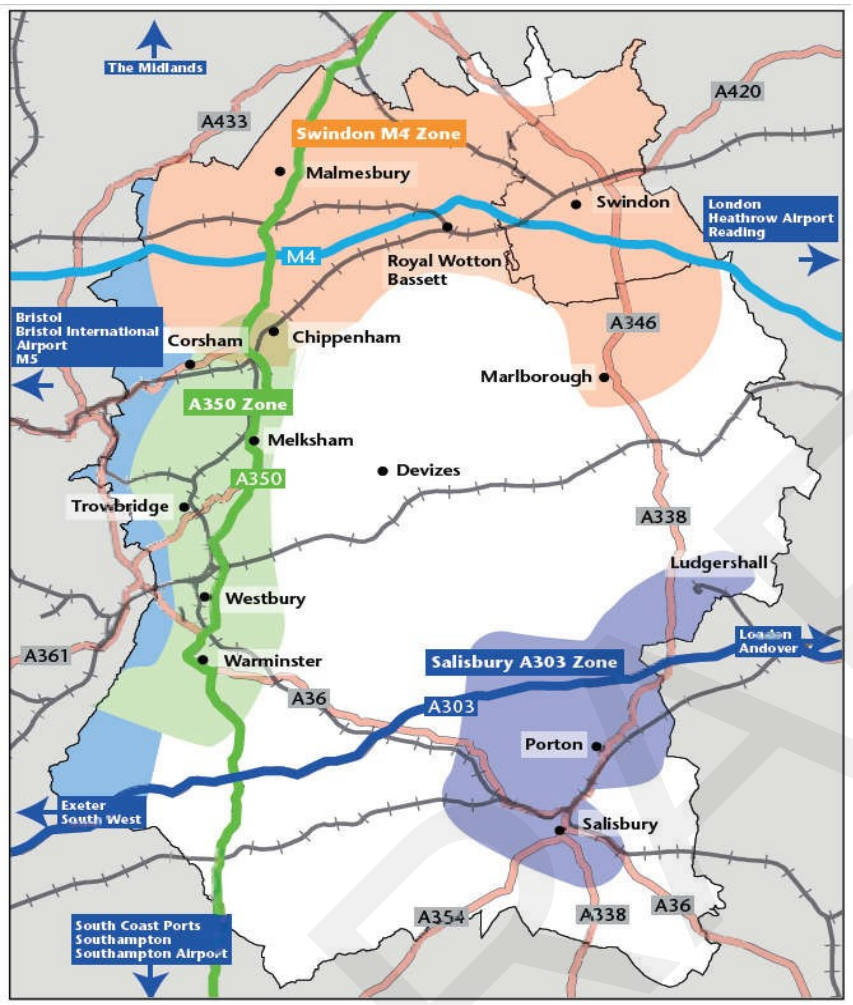
The Swindon and Wiltshire Local Enterprise Partnership (SWLEP) identifies three priority housing and employment growth areas within its Strategic Economic Plan (SEP), as illustrated in **Figure 2-2**.

- A350 Growth Zone;
- Swindon M4 Growth Zone; and
- Salisbury A303 Growth Zone.

The A350 Growth Zone has a combined population of some 190,000, equivalent to 26% of the total population of the SWLEP area. The zone represents a major agglomeration of economic activity. The towns along the A350 corridor (including Malmesbury, Chippenham, Melksham, Trowbridge, Westbury and Warminster) create

an interlinked series of local employment hubs including business parks, trading estates and three campuses of Wiltshire College. It comprises approximately 8,200 businesses (25% of the total business stock in the SWLEP area) and approximately 80,000 employees.

Figure 2-2 - Swindon and Wiltshire Strategic Economic Plan Growth Zones



Wiltshire Core Strategy (2006 to 2026) and Local Plan Review (2016 to 2036)

The Council's overall spatial vision, key objectives and overall principles for development are set out in the Wiltshire Core Strategy (WCS) for the plan period 2006 to 2026. The WCS identifies six key challenges for Wiltshire:

- Economic growth to reduce levels of out-commuting from many of Wiltshire's settlements;
- Climate change opportunities to reduce greenhouse gas emissions and mitigate the consequences of a changing climate;
- Providing new homes to complement economic growth and a growing population;
- Planning for more resilient communities;
- Safeguarding the environmental quality of the County whilst accommodating new growth; and
- Infrastructure investment to meet the needs of the growing population and economy.

The WCS established the need for delivery of approximately 41,000 dwellings across Wiltshire between 2006 and 2026. The Wiltshire Housing Site Allocations Plan (WHSAP), published in February 2020, reports housing completions between 2006 to 2017 along with developable commitments up to 2026, in order to assess progress towards achieving the housing requirements outlined in the WCS.

Table 2-1 shows the distribution of housing development between 2006 to 2026 in the Wiltshire Housing Market Areas (HMA) and Melksham for reference.

Table 2-1 - Distribution of housing development 2006-26 in Wiltshire HMAs (2020)

	Minimum Core Strategy housing requirement [a]	Housing completions (2006-17) [b]	Developable commitments (2017-26) [c]	Variation [a] – [b+c]	Additional Core Strategy allocations (2017-26)
East HMA	5,940	3,624	2,311	-5	161
North & West HMA	24,740	13,025	10,606	-1,109	1,103
South HMA	10,420	5,388	3,701	-1,331	804
Melksham	2,240	1,445	1,113	+318	0

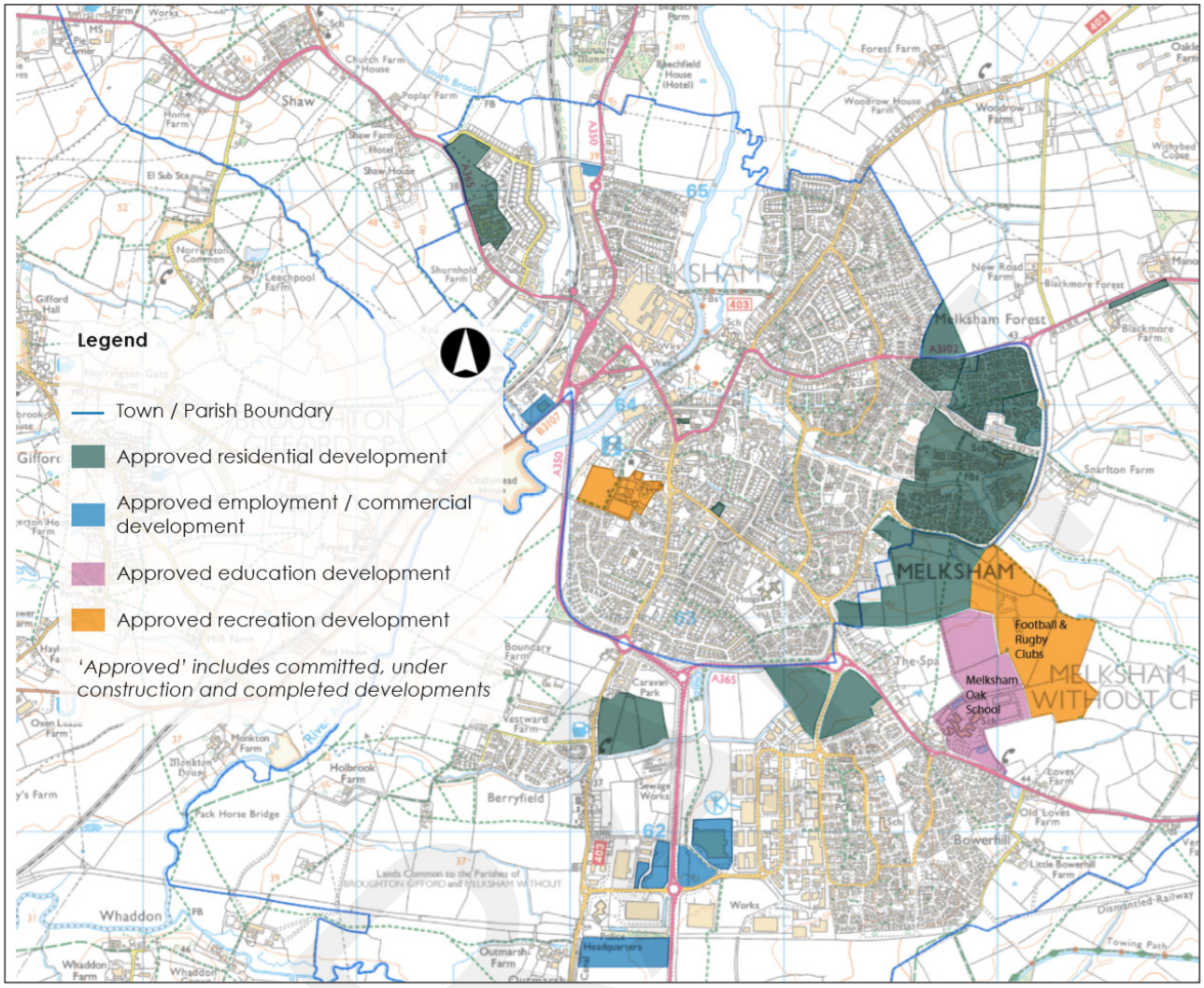
Source: Wiltshire Housing Site Allocations Plan (February 2020)

By 2017, approximately 22,000 dwellings had been delivered across Wiltshire. The North West Housing Market Area (which includes the key A350 corridor settlements of Chippenham, Trowbridge, Warminster, Westbury and Melksham) accounted for 60% of these. Progress towards achieving the housing requirements outlined in the WCS has been less than expected for the North West HMA overall (13,000 delivered by 2017, against a requirement of 25,000 by 2026). However, specifically in relation to Melksham (within the North West HMA) progress has been higher than expected (1,450 delivered by 2017, against a requirement of 2,250 by 2026).

To address the shortfall within the North West HMA the WHSAP proposes new allocations for residential development at six sites in Trowbridge (800 dwellings) and four sites in Warminster (235 dwellings) to ensure that the overall indicative housing requirement for 2026 will be met. The major shortfall at Trowbridge is due largely to delays in developing Ashton Park on the south-eastern edge of the town; originally planned to create 2,600 new dwellings by 2026, this has now been revised to 1,600, with the remaining 1,000 expected to be completed during the 2026-2036 period.

For Melksham, the WHSAP indicates that the indicative requirement in the WCS is likely to be exceeded, with total completions to 2026 approximately 14% higher than the minimum housing requirement. This is based on several major planning permissions having been granted for new housing developments on the south and eastern edges of Melksham near Western Way, Spa Road and Eastern Way **(Figure 2-3).**

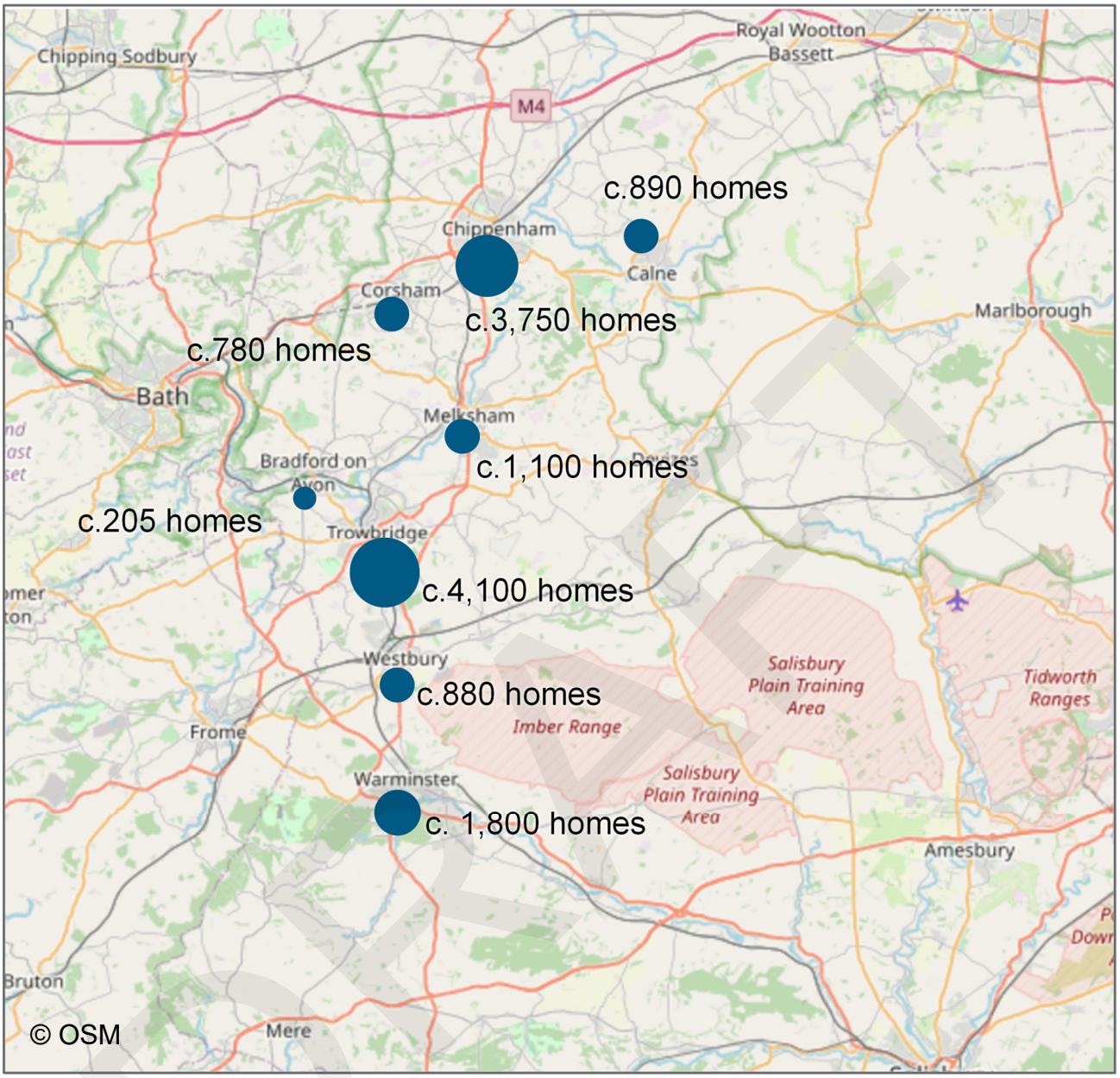
Figure 2-3 – Recently implemented sites and planned development sites within Melksham



Source: Melksham Joint Neighbourhood Plan

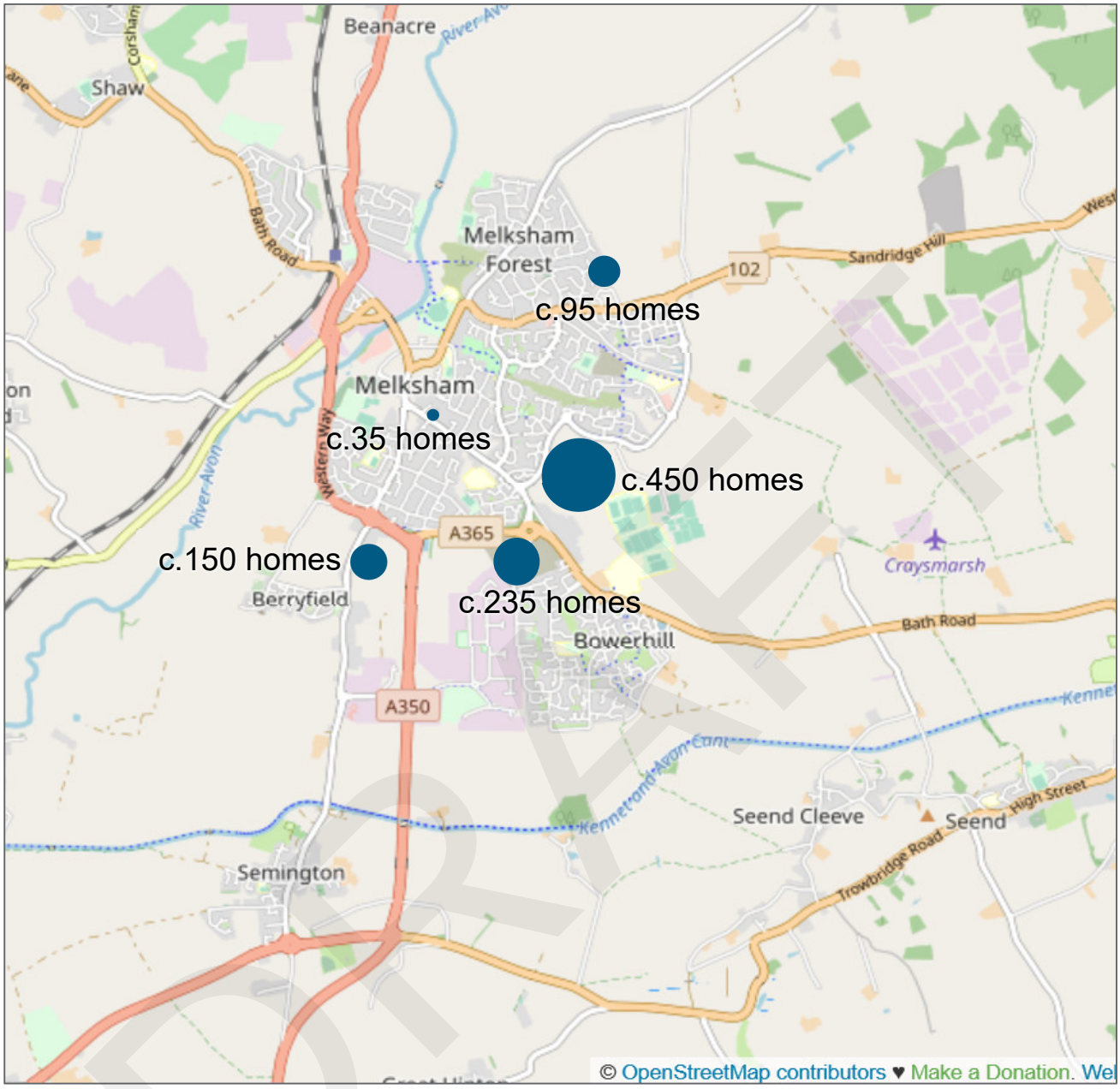
As at April 2019, Wiltshire Council had identified sites (either as committed or allocated) for approximately 12,000 dwellings within the A350 corridor for delivery up to 2026 **(Figure 2-4).** This includes approximately 1,100 dwellings at Melksham **(Figure 2-5).**

Figure 2-4 - Committed/planned dwellings (2017-26) within the A350 corridor in Wiltshire



Source: Wiltshire Housing Land Supply Statement (2018)

Figure 2-5 – Committed / planned dwellings (2017-26) in Melksham (main sites)



Source: Wiltshire Housing Land Supply Statement (2018)

Wiltshire Local Plan Review 2016 to 2036

The adopted WCS is being reviewed by Wiltshire Council to assess the future needs for new homes and employment land in Wiltshire over an extended period of 2016 to 2036 (known as the Local Plan Review). This is currently expected to be adopted in 20235.

The details of the Local Plan Review are considered in more depth in Chapter 3. The key emerging implications include:

- The preferred strategy for the Local Plan identifies a housing need of 45,600 dwellings in Wiltshire for the period 2016 to 2036. Of these, approximately 31,500 dwellings (70%) are identified for settlements within the A350 corridor. When completions and existing developable commitments are taken into account, there

[5] Wiltshire Local Development Scheme (Wiltshire Council, July 2020)

is a residual requirement (as of April 2019) for further sites to accommodate approximately 13,000 dwellings within the A350 corridor up to 2036.

- Melksham has been identified as a key location for growth, with a residual requirement for a further 2,600 dwellings to be accommodated by 2036. At the current stage of Local Plan development, preferred sites for Melksham have not been identified but Wiltshire Council has published potential development sites around the town to be subject to further assessment.
- Significant allocations for housing at Chippenham and Trowbridge and employment land at both Trowbridge and Westbury are likely to increase travel demand on the A350 corridor through Melksham. The emerging Local Plan identifies an A350 bypass to the town as a priority to improve the efficiency of the transport network and lead to other benefits for the town[6].

2.1.3. Strategic connectivity and economic prosperity

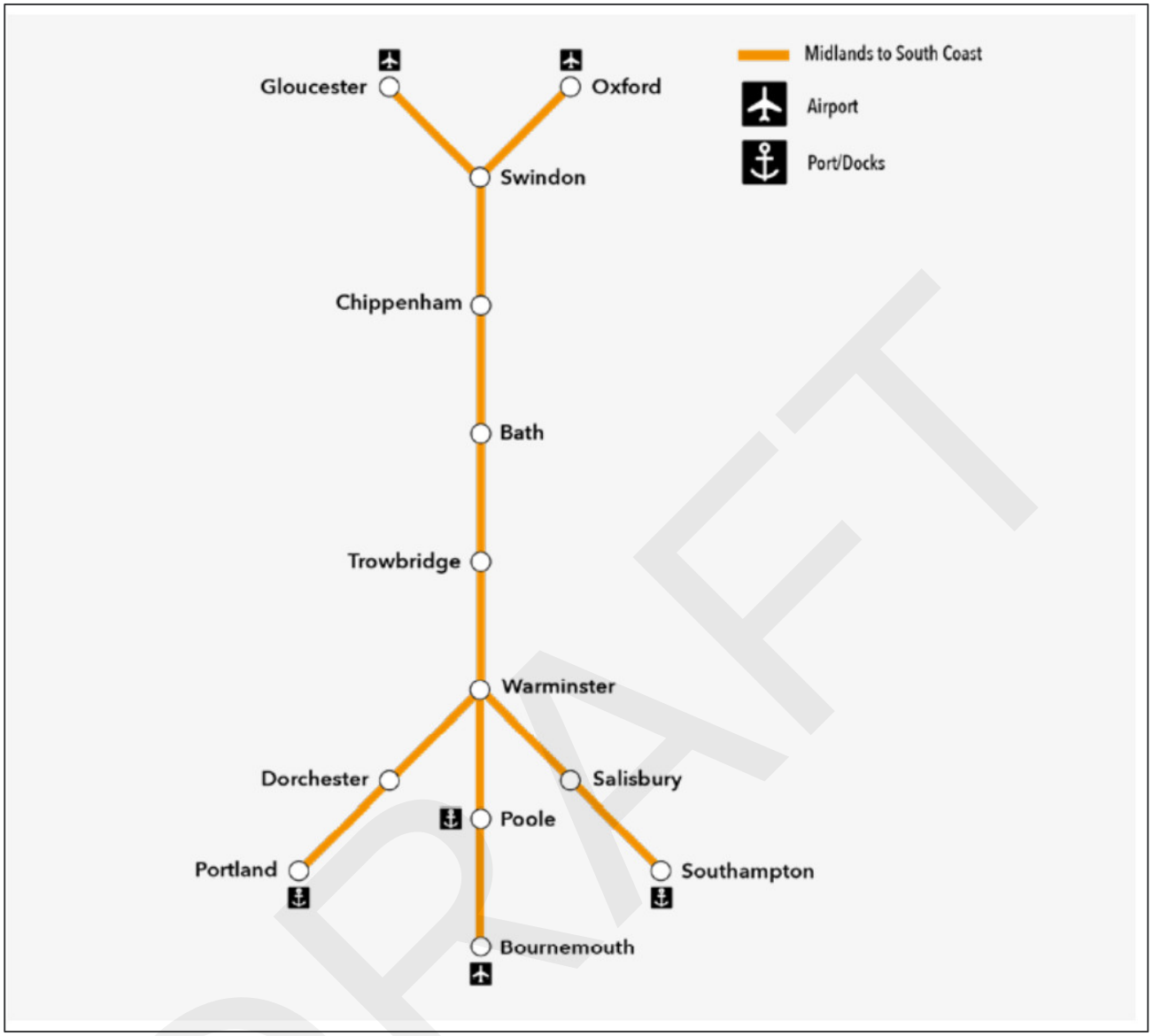
The Transport Investment Strategy (DfT, 2017) places a high priority on creating a more reliable, less congested, and better-connected transport network.

Strategic corridors in the Western Gateway area

At a regional level, in defining its most important strategic corridors the Western Gateway Sub-national Transport Body (STB) has identified strategic north-south connectivity in the Western Gateway area as a key transport priority (Western Gateway Strategic Transport Plan 2020 to 2025). The importance of an effective north-south link and network resilience was highlighted by the Transport and Business Forum especially in relation to the freight challenge and accessing international ports. The Plan identifies that improved connectivity would open up new business opportunities by making it easier to transport freight from the ports and improve road access to London and the rest of the Western Gateway area. It refers to this north-south corridor as the 'Missing Link Strategic Corridor Midlands to South Coast' **(Figure 2-6)**. To fulfil the economic potential of the corridor the Western Gateway STB identifies an essential need to develop a strategic programme of interventions which balance investment in highway infrastructure with a longer-term ambition to improve connectivity by rail.

[6] Wiltshire Council Local Plan – Planning for Melksham (January 2021)

Figure 2-6 – The 'Missing Link Strategic Corridor Midlands to South Coast' (Western Gateway STB[7])



Wiltshire, Dorset, and Bath and North-East Somerset Councils commissioned the Wessex: North to South Connectivity Study[8] in 2016, which considers the wider economic benefits from improvements to the A36/A46 and A350 corridors. A key issue highlighted by the study is that Dorset and Wiltshire have poor connectivity to the major areas of economic activity to the north in comparison with the neighbouring authorities of Devon (connected by the M5) and Hampshire (connected by the M3 and A34), and that this is contributing to relatively low productivity in Dorset and Wiltshire. The study calculated that a 5% improvement in journey times across the entire A350 corridor from M4 Junction 17 to Poole (representing a scenario with no bottlenecks or restrictions) would produce £12.2 billion of agglomeration[9] benefits over a 60 year period.

The Western Gateway STB's Economic Connectivity Study (WSP, 2019) identified the A350 route as the second highest priority corridor within the region based on factors such as productivity and new housing and jobs creation. Strategic connectivity improvements for this corridor have the potential to realise both local growth ambitions and forge significant agglomeration benefits by removing barriers to increased north and

[7] Western Gateway Strategic Transport Plan 2020 to 2025 – Appendix A
[8] https://beta.bathnes.gov.uk/sites/default/files/2018-10/north_south_connectivity_final_report_081117.pdf
[9] Agglomeration relates to a localised economy in which a large number of companies, services, and industries exist in close proximity to one another and benefit from the cost reductions and gains in efficiency that result from this proximity.

south connectivity in the Western Gateway area. A phased approach to improving the A350 route has been identified by the Western Gateway STB. The initial phase comprises the planned MRN funded schemes at M4 Junction 17 and Chippenham, plus the LLM funded scheme at Melksham (the subject of this OAR). The Western Gateway STB's stated intention is that improvements to the central and southern sections will be prioritised within its Long-term Strategic Plan.

A subsequent 'Case for Action', submitted to the government by Wiltshire, Dorset, and Bath and North-East Somerset[10], sought for the strategic and economic role of the A350 to be recognised nationally and for further investment in the route to enable the area to better support delivery of the UK Industrial Strategy. In March 2020, the government confirmed its Road Investment Strategy (2020-25) for the Strategic Road Network (RIS2). Within this there was recognition of the case for improving north-south connectivity within the Western Gateway area and Highways England will commission a strategic study examining strategic access between the M4 and Dorset Coast. The study is expected to include consideration of options around trunking of the A350 route – whereby the A350 would be managed by Highways England rather than Wiltshire Council and Dorset Council in the future.

Major Road Network – A350

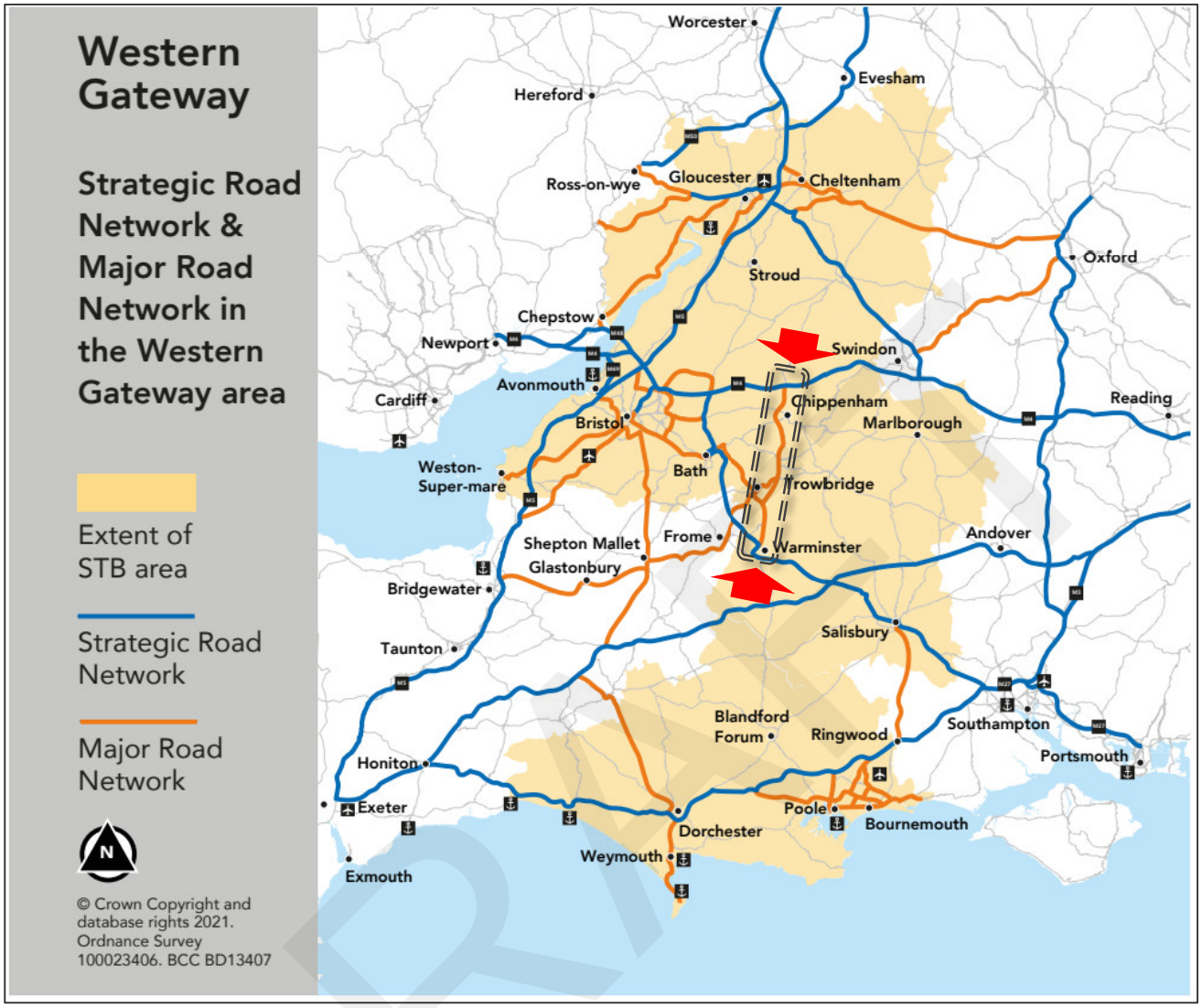
In support of the Transport Investment Strategy (DfT, 2017) the government introduced the concept of the Major Road Network (MRN), which includes the busiest and most economically important local authority 'A' roads and forms a middle tier of roads sitting between the national Strategic Road Network (SRN) and the rest of the local road network. The objectives of the MRN are:

- Reducing congestion;
- Supporting economic growth and rebalancing;
- Supporting housing delivery;
- Supporting all road users; and,
- Supporting the Strategic Road Network (SRN).

Given its regional and local importance, the A350 (between the M4 and the A36 at Warminster) has been classified as part of the MRN **(Figure 2-7)**. National policy supports future investment in the MRN to: facilitate delivery of economic plans and the government's Industrial Strategy at the local and regional level; deliver economic growth; support economic agglomeration; and unlock new housing development.

[10] http://www.bathnes.gov.uk/sites/default/files/connectivity_prospectus_single_page_version.pdf

Figure 2-7 – Strategic Road Network and Major Road Network in the Western Gateway Area



2.1.4. Melksham town regeneration, quality of life and environment

Local priorities for Melksham town are identified within plans such as the Wiltshire Core Strategy and the recent Joint Melksham Neighbourhood Plan (2020 to 2026) in addition to public surveys, such as the Wiltshire Council 'your local priorities' survey **(Figure 2-8)**.

Regeneration and growth

There is a significant focus on enhancing the existing business and retail offer in Melksham and ensuring that the town can accommodate new housing and employment in a sustainable manner. This includes:

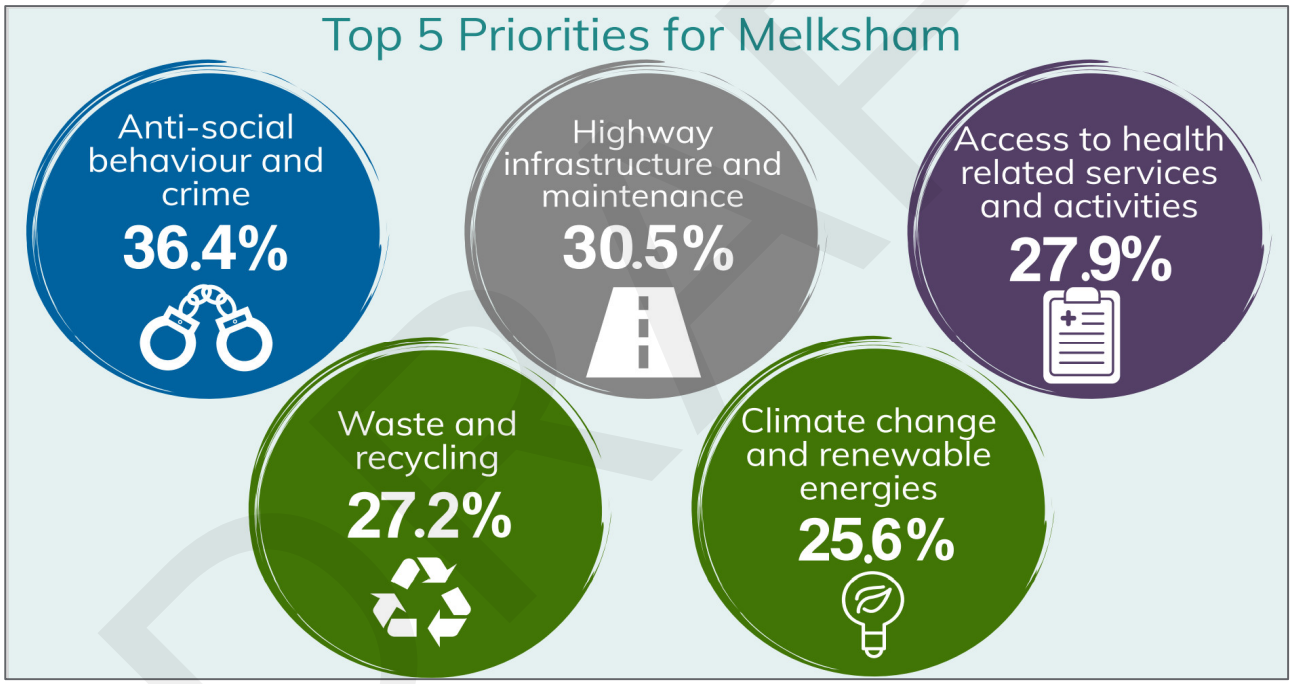
- regeneration and improvement of existing employment sites, such as the Bowerhill Industrial Estate, providing sites and / or practical infrastructure support to attract strategically important business investment within the A350 corridor;
- diversification of the existing employment base;
- protecting and enhancing the vitality of the town centre and ensuring growth contributes towards town centre regeneration, including traffic management improvements and the revitalisation of the retail and employment offer;
- planning for new development that addresses the impact of climate change;
- supporting improved transport infrastructure for the increasing Melksham population; and
- connecting new development to the town centre via strong walking and cycling linkages.

Improved quality of life

There is a further strong policy focus on improving overall quality of life for residents within Melksham. This includes:

- encouraging journeys by rail together with improving cycle and walking routes, thus reducing the need to travel by car;
- preserving and increasing the network of green spaces;
- improving public transport provision in the area, including: improving bus services; improving the railway station; promoting more frequent services; providing more car parking at the station and access for buses; and establishing a safe cycle route network for Melksham;
- promoting opportunities for people to lead healthier lifestyles with a greater sense of well-being;
- protecting, improving and expanding existing services and facilities to promote health, education and social needs;
- conserving and enhancing the quality of the natural landscape; and
- ensuring that new development is sympathetic to built heritage and the character of the area, with high standards of design.

Figure 2-8 - Wiltshire Council "Your local priorities" survey (Community Area Joint Strategic Needs Assessment, 2020)



A350

The Joint Melksham Neighbourhood Plan recognises the local and strategic role of the A350 at Melksham and the constraints and issues which underpin a need for improvement. It expresses support for a bypass (Draft Priority Statement 4), stating that this is a priority in order for sustainable development to take place in Melksham and for the wider objectives around regeneration and quality of life for the town to be met.

2.1.5. Environment and climate change

Wiltshire Council's Local Plan Review acknowledges the need to reverse the growing ecological crisis through a programme of measures that include biodiversity net gain and placing green spaces at the heart of sustainable place shaping.

The Local Plan Review, 'Addressing Climate Change and Biodiversity Net Gain' paper[11] identifies key themes that are considered at this stage of the plan making process to be fundamental in helping to tackle climate change and reversing biodiversity loss in Wiltshire. They are broad to ensure that establishing sustainable communities through the delivery of place shaping planning policies is undertaken holistically to provide joined-up solutions for adapting to and mitigating the effects of climate change:

- Tackling flood risk and promoting sustainable water management;
- Enhancing green / blue infrastructure and biodiversity;
- Delivering sustainable design and construction methods in the built environment;
- Encouraging sustainable renewable energy generation and management; and
- Promoting sustainable transport, active travel and improving air quality.

National carbon emission targets

In June 2019, parliament passed legislation requiring the government to reduce the UK's net emissions of greenhouse gases by 100% relative to 1990 levels by 2050. Doing so would make the UK a 'net zero' emitter.

Accelerating the shift to zero emission vehicles is one of the priorities in creating an environmentally sustainable economy. Coupled to a commitment to end the sale of new petrol and diesel cars and vans from 2030 (a decade earlier than initially planned), it forms one of the points in the Government's Ten Point Plan for a Green Industrial Revolution, published in November 2020.

The DfT published 'Decarbonising Transport: Setting the challenge' in March 2020. It had originally expected to release a full Transport Decarbonisation Plan by the end of 2020, but this is now due later in 2021. The plan will set out in detail the actions required to significantly reduce emissions from transport in order to achieve carbon budgets and net zero emissions across all modes of transport in the UK by 2050. The final plan is expected to cover six strategic priorities:

- Accelerating modal shift to public and active transport;
- Decarbonisation of road vehicles;
- Decarbonising how we get our goods;
- Place-based solutions;
- UK as a hub for green transport technology and innovation; and
- Reducing carbon in a global economy.

Wiltshire Council Climate Emergency

In February 2019 Wiltshire Council resolved to acknowledge a climate emergency and to seek to make the county carbon neutral by 2030[12]. A Global Warming and Climate Emergency Scrutiny Task Group was set up to gather evidence and come up with recommendations on achieving net zero. A commitment was also made to make the council carbon neutral by 2030. A new climate strategy is being prepared to enable the Council to meet these commitments

Wiltshire Council's current Local Transport Plan (LTP) supports the improvement of alternative modes of travel to the private car. The LTP is currently under review and will seek to align with the targets relating to carbon neutrality whilst also addressing economic prosperity and growth and quality of life.

Climate change and carbon emissions are relevant to the A350 Melksham project given the high volumes of vehicular traffic on the route, the traffic conditions and the impact of these on the use of non-car modes within Melksham; all of which have an association with overall carbon emissions.

[11] https://www.wiltshire.gov.uk/media/5622/Addressing-Climate-Change-and-Biodiversity/pdf/Wiltshire_Local_Plan_Addressing_Climate_Change_and_Biodiversity_FINAL.pdf?m=637469175263630000

[12] https://www.wiltshire.gov.uk/green-economy-climate-emergency

2.2. Current travel demands and level of service

Summary of key points

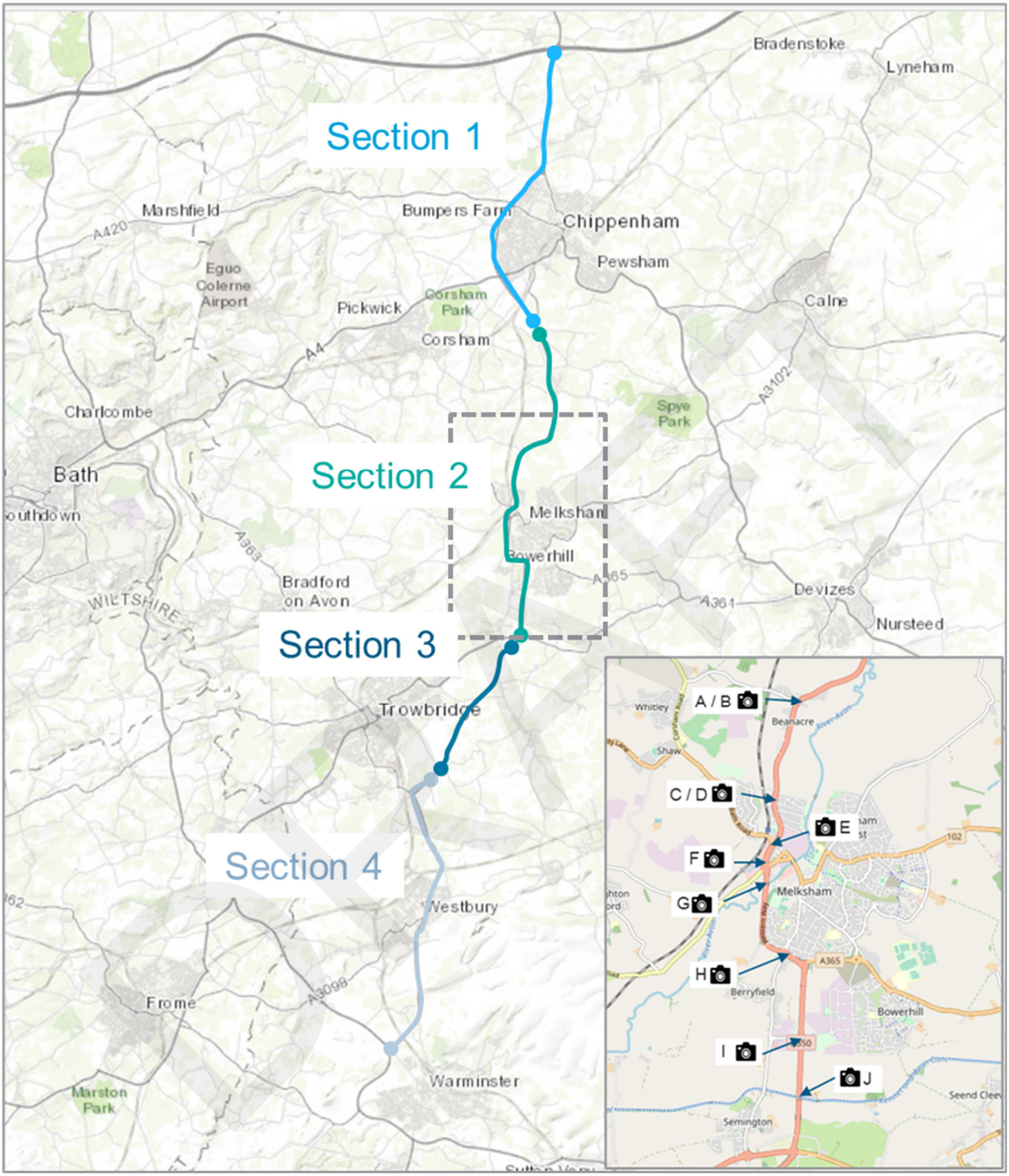
- Annual Average Daily Traffic on the A350 at Melksham is up to approximately 34,000 vehicles, with HGVs accounting for 7% to 9% of all traffic.
- The polycentric nature of the A350 growth zone, with a significant concentration of employment centres, results in significant commuting flows between towns on the A350 in West Wiltshire.
- Through-traffic on the A350 at Melksham accounts for approximately 40% of all traffic. 24% of through movements are north / south. Other through movements account for approximately 13% of all traffic, with the A350 (south) / A3102 (east) movement being the highest. The proportion of through movements is higher for HGVs.
- Melksham is also served by a rail station (located to the west of the A350), with the TransWilts service providing links between Westbury and Swindon at a frequency of approximately one train every 2 hours.
- The local bus network operates at relatively low frequencies. The main service utilising the A350 is the X34 between Trowbridge and Chippenham, operating at approximately a half hour frequency.
- In relation to the walking and cycling network in Melksham, the quality and usability of routes varies with many catering more towards leisure journeys than utility trips. There are sections of cycleway spread throughout the town. These are generally disconnected and therefore do not form a comprehensive and cohesive network for cyclists to access the different areas of Melksham.

2.2.1. Current A350 road network provision

In its Wiltshire section, the A350 connects the Principal Settlements of Chippenham and Trowbridge, via Melksham and the neighbouring village of Beanacre. It also provides the main link between the M4, Chippenham and the towns of Westbury and Warminster, and the main crossing (from north to south) of the River Avon between Trowbridge/Westbury and Chippenham.

The key features of the route, by section, are described in the following paragraphs. **Figure 2-9** illustrates the route sections and the locations of the photographs.

Figure 2-9 – Current A350 road network provision – section reference



M4 – Chippenham (section 1)

From M4 Junction 17, the A350 runs south 4km to the Malmesbury Road Roundabout on the northern outskirts of Chippenham. This section is now fully dualled following the completion of a local Pinch Point scheme in 2015.

The route then bypasses Chippenham to the west and forms the western boundary of the town. This 6km section from Malmesbury Road to Lackham Roundabout includes five other roundabout junctions which include the junctions with the A420 to Bristol at Bumpers Farm Roundabout and A4 primary route to Corsham and Bath

at Chequers Roundabout. These junctions also provide accesses to residential, employment and retail areas of Chippenham.

The bypass was constructed during the 1990s as a single-carriageway but designed to enable easy upgrade to dual-carriageway in the future. With the growth of Chippenham, congestion has increased around some of the junctions, resulting in efforts to increase capacity on the route. The section from Brook to Bumpers Farm was upgraded to dual-carriageway in 2015- 16, and in 2018 dualling was completed along the northern section from Badger to Brook roundabout. This resulted in over one-third (2km) of the bypass being dualled by the end of 2018, including enhancements at most of the junctions, significantly improving peak period journey times along the route. The next phases will see the sections between Bumpers Farm and Cepen Park South roundabouts and Chequers and Lackham roundabouts also upgraded to dual-carriageway.

Beanacre and Melksham (section 2)

Following the southern end of the Chippenham bypass at Lackham Roundabout, the A350 continues south towards Melksham, bypassing the National Trust village of Lacock. At around 4.5km south of Lackham, the route enters the village of Beanacre with residential properties on both sides of the road **(Figure 2-10)**. For around one kilometre through Beanacre the speed limit is reduced to 30mph, before increasing to 40mph between Beanacre and Melksham.

Figure 2-10 - A350 through Beanacre village (Google Streetview)

A) North of Westlands Lane Junction (south) **B) South of Westlands Lane Junction (north)**

Approximately one kilometre south of Beanacre, the A350 enters Melksham and the speed limit is again reduced to 30mph. The northern section of around 600m passes through a relatively densely developed area, with a sequence of housing and retail facilities on both sides of the road, including sections where residential properties front directly onto the road **(Figure 2-11)**. A number of key junctions provide accesses to Leekes Department Store, fast food and supermarket sites to the west and heavily populated residential areas to the east.

Figure 2-11 - A350 through Melksham - northern section (Google Streetview)

C) North of Aldi /McDonalds Junction (north)

D) South of Aldi / McDonalds Junction (south)

The central section through Melksham (300m in length) is marked by three key junctions. From the north, the A350 widens to two lanes in each direction and the speed limit increases to 40mph as it passes the key junction with the A365 Bath Road and then a signalised junction providing access to an Asda superstore on the western side **(Figure 2-12)**. This is followed by the Farmers Roundabout, which provides access to Melksham town centre to the east and B3107 towards Bradford-on-Avon to the west. The Farmers Roundabout junction was subject to an improvement scheme, including signalisation, completed in October 2019[13].

Figure 2-12 - A350 through Melksham - central section (Google Streetview)

E) A365 Bath Road Junction (south)

F) Asda Junction (south)

The southern section (1.6 kilometres in length) reduces back to single-carriageway with a 60mph speed limit, which crosses the River Avon and bypasses Melksham town centre **(Figure 2-13)**. The final 250m of the section between the Semington and Western Way Roundabouts is dual-carriageway. The Semington Roundabout provides access to Melksham town centre from the south, whilst the Western Way Roundabout links new developments on the eastern side of Melksham, Bowerhill village and Trading Estate, and the A365 towards Devizes.

[13] https://www.wiltshire.gov.uk/news/farmers-roundabout-milestone

Figure 2-13 - A350 through Melksham - southern section (Google Streetview)

G) River Avon overbridge south of Farmers Roundabout (north)

H) Semington Road Roundabout (south)

Semington – West Ashton (section 3)

South of Melksham, the A350 follows the 3km Semington bypass (opened in 2004) via a further roundabout providing access to Bowerhill Trading Estate and Hampton Park West (Business Park) **(Figure 2-14)**. This section of road is single carriageway with a 60mph limit. After the roundabout, the Semington bypass continues south, passing underneath the Kennet and Avon Canal carried by an aqueduct **(Figure 2-14)**. The A350 then crosses the A361 at Semington, which provides the main route north from Trowbridge towards Melksham, Chippenham and the M4.

Figure 2-14 – A350 south of Melksham (Google Streetview)

I) Roundabout accessing Bowerhill Trading Estate and Hampton Park West (south)

J) Kennet and Avon Canal Aqueduct (south)

West Ashton – Warminster (section 4)

About five kilometres south of the Kennet and Avon Canal, the road passes through a 40mph section in the small village of West Ashton. It then carries onto the Yarnbrook Roundabout which provides access to southern parts of Trowbridge including the White Horse Business Park and to the West Wilts Trading Estate on the outskirts of Westbury. The planned A350 Yarnbrook and West Ashton Relief Road (in connection with the Ashton Park urban extension) will divert the A350 to bypass West Ashton and provide access to the proposed development of about 2,600 dwellings and 15ha employment land on the south-eastern fringe of Trowbridge.

About 3km south of Yarnbrook, the A350 passes through the town of Westbury itself, and continues for a further 6km until it reaches the junction with the A36 Warminster bypass.

2.2.2. Economic activity in the A350 corridor

Manufacturing is a particular strength within the corridor, with nine manufacturing sectors accounting for 8% of total employment. This represents a higher proportion of employment in these sectors locally than the UK average, as demonstrated by the Location Quotient (LQ[14]) **(Table 2-2)**. Public administration and defence are also significant sectors, reflecting the location of Trowbridge as an administrative centre for Wiltshire and the presence of MOD facilities at Corsham and Warminster.

Table 2-2 - Employment concentrations in the A350 corridor

Sector	Employees	Location Quotient[14]
31: Manufacture of furniture	1,900	6.0
22: Manufacture of rubber and plastic products	2,000	3.2
20: Manufacture of chemicals	1,100	3.0
17: Manufacture of paper and paper products	600	2.9
64: Financial service activities	5,000	2.5
95: Repair of computers and personal and household goods	500	2.4
63: Information service activities	500	1.7
26: Manufacture of computer, electronic and optical products	700	1.7
55: Accommodation	2,900	1.6
27: Manufacture of electrical equipment	600	1.6
18: Printing and reproduction of recorded media	700	1.6
30: Manufacture of other transport equipment	800	1.5
45: Wholesale and retail trade and repair of motor vehicles and motorcycles	3,300	1.5
84: Public administration and defence	7,200	1.4
32: Other manufacturing	500	1.4
87: Residential care activities	4,100	1.4
80: Security and investigation activities	1,000	1.3
46: Wholesale trade, except of motor vehicles and motorcycles	5,900	1.3

Note – includes only sectors with employment >500, and LQ >1.2

Several key employment sites are located south of Melksham, and are therefore dependent on the A350 through Melksham for access to the M4 **(Table 2-3, Figure 2-15)**. These include the Bowerhill Industrial Estate mentioned previously and Hampton Park West (Melksham), White Horse Business Park (Trowbridge) and West Wilts Trading Estate (Westbury), which are home to several major manufacturers along with a variety of wholesalers and retailers. A summary of key employers and activities at these sites is provided in **Table 2-3**.

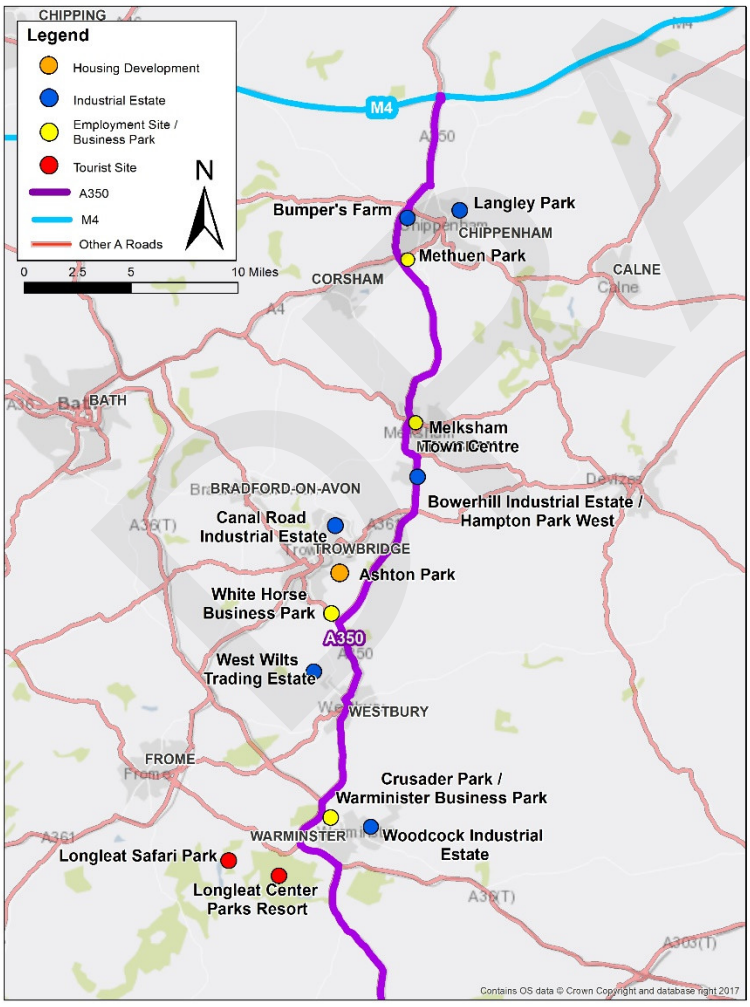
The A350 also connects to important tourist destinations and employers at Longleat Safari Park and Centre Park Resort, two kilometres west of Warminster.

[14] **Location quotient** (LQ) is a means of quantifying how concentrated an industry is in a region compared to the nation. Values greater than 1 indicate a higher proportion of employment in the sector locally than the UK average, e.g. a value of 2 indicates that proportionately twice as many people are employed locally in the sector as is the case nationally.

Table 2-3 - Selected manufacturers located at sites in A350 corridor south of Melksham

Location	Company	Product(s)
Bowerhill Industrial Estate / Hampton Park West, Melksham	Knorr-Brense Rail Systems	Air brakes for rail vehicles
	Sofa Brands International	Home furnishings
White Horse Business Park, Trowbridge	Acheson & Acheson	Beauty products
	Atlas Genetics	Medical diagnostic instruments
	Danone Nutricia	Early life nutrition
	Summit Chairs	Office furniture
West Wilts Trading Estate	Arla Foods	Skimmed milk and butter
	Audience Systems	Venue seating
	Powerful Vision	Illuminated mirrors
	SPC	Rubber compounds
	Welton Bibby & Baron	Retail packaging
	Avon Rubber	Rubber products for industry
	Herman Miller	Office furniture

Figure 2-15 - Key economic and development sites in the A350 Corridor



Contains OS data © Crown Copyright and database right 2017

2.2.3. Origin-destination patterns: travel to work

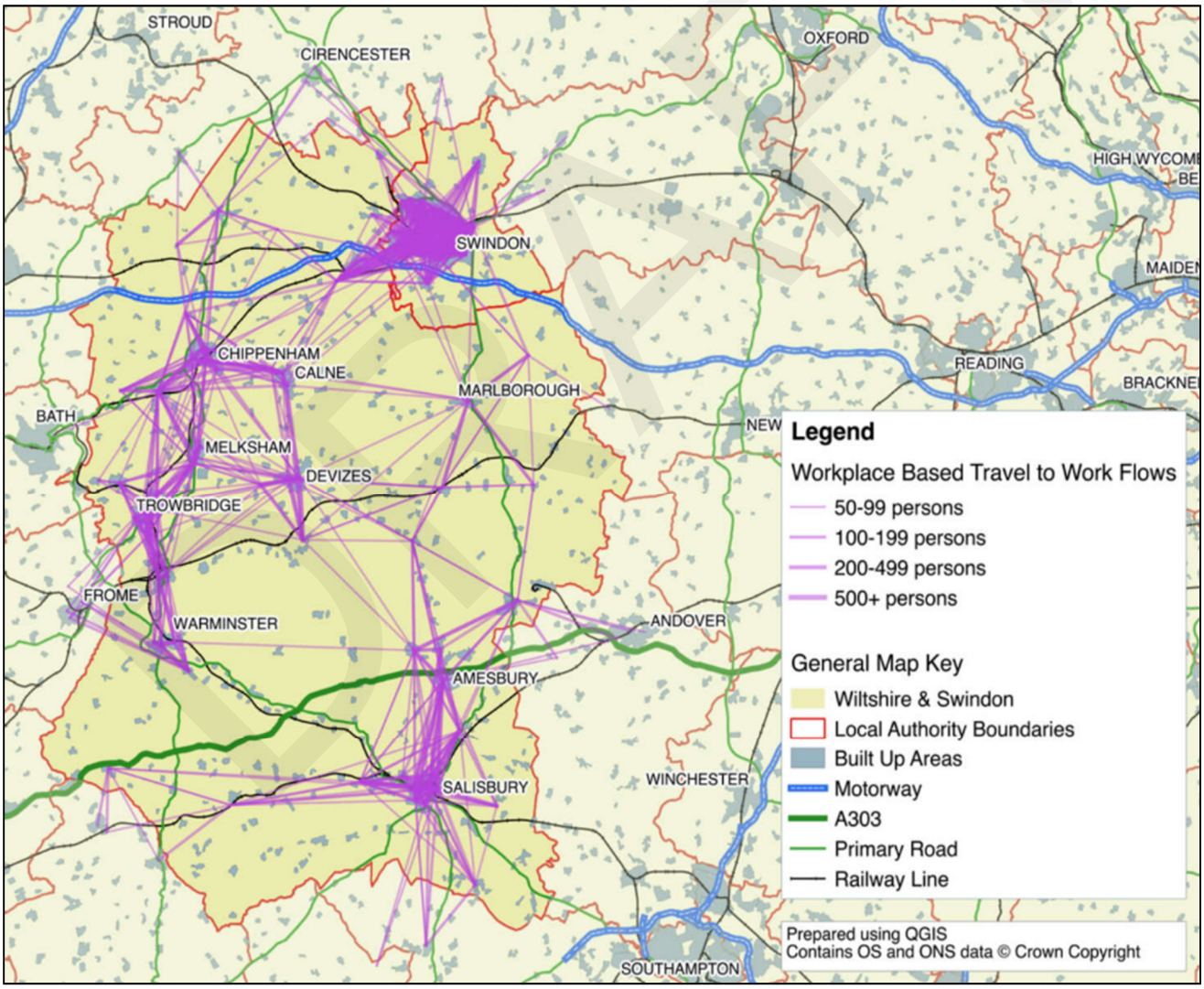
The polycentric nature of the A350 growth zone results in significant commuting flows between towns on the A350 **(Figure 2-16)**. There are strong north-south commuter flows along the Chippenham / Melksham / Trowbridge / Westbury / Warminster axis, with key movements via the A350 at Melksham comprising:

- Melksham – Trowbridge
- Melksham – Chippenham
- Melksham – Corsham
- Trowbridge – Chippenham.

Travel to work outside Wiltshire from Melksham towards Bath is also likely to contribute to commuter flows using sections of the A350 around Melksham.

Based on the 2011 Census[15], travel to work to and from the Melksham area is heavily dominated by car (72% share for car driver, 78% share for car driver and passenger). Other modes account for a significantly lower proportion – walking (10%), cycling (3%), bus (2%), and rail (0.5%). Factors such as the age of the census data and more recent improvements to some of these modes should be recognised (in particular rail – see 2.2.5).

Figure 2-16 - Workplace-based travel to work flows in Wiltshire and Swindon



Source: 2011 Census / Swindon and Wiltshire Functional Economic Market Area Assessment, Hardisty Jones Associates, 2016

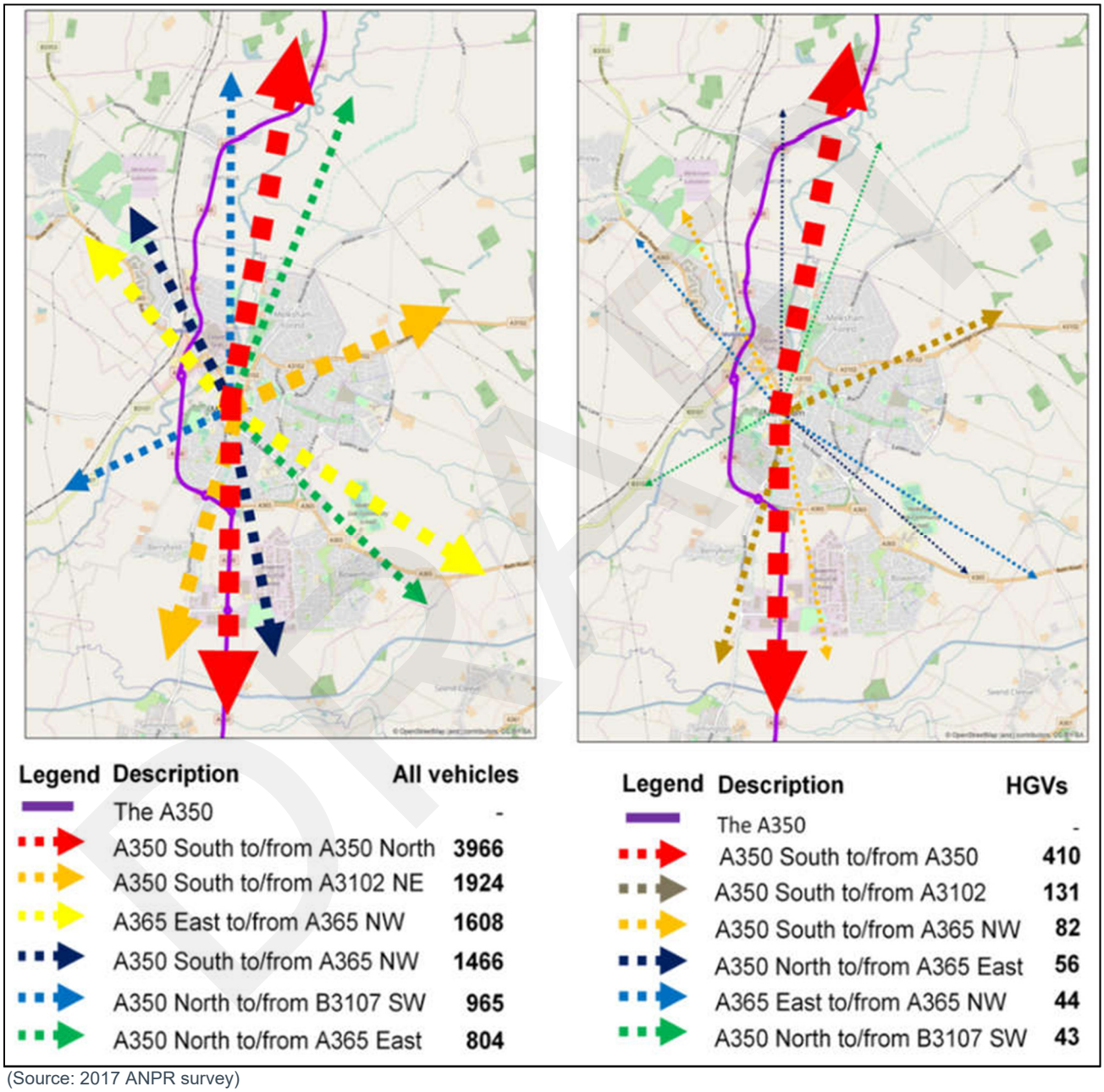
[15] Based on Middle-layer Super Output Areas 020 and 022

Origin-destination patterns of vehicle trips through Melksham

An Automatic Number Plate Recognition (ANPR) survey was undertaken in June 2017 which generated Origin-Destination pairs for the area. Nine sites were used in the survey located on the A350 and strategically placed around Melksham on other main roads.

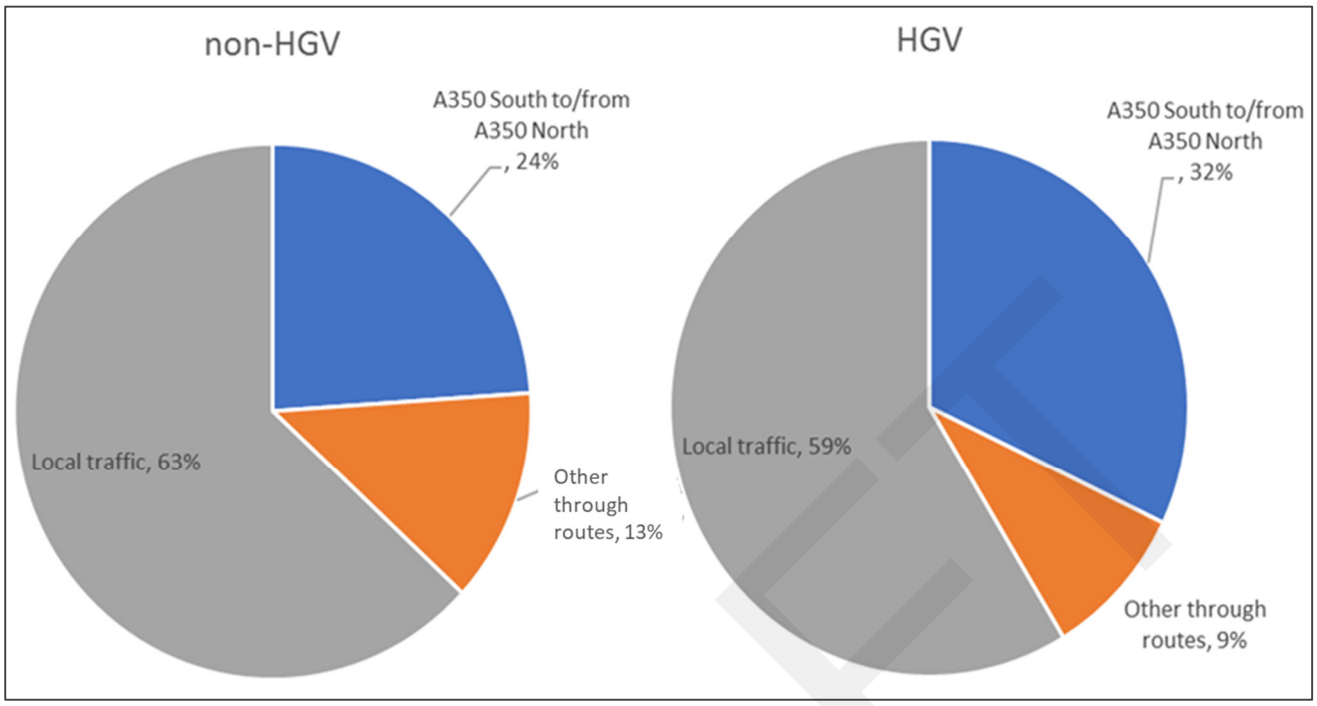
The ANPR survey provides an insight to the patterns and volume of trips which pass through Melksham but do not start or finish there **(Figure 2-17, Figure 2-18)**. The patterns of through-traffic on different sections of the route have also been considered **(Figure 2-19)**.

Figure 2-17 - Daily through-traffic flows (all vehicles and HGVs) through Melksham, 0700-1900



(Source: 2017 ANPR survey)

Figure 2-18 - Estimated proportions of local versus through-traffic on the A350 between Melksham and Beanacre

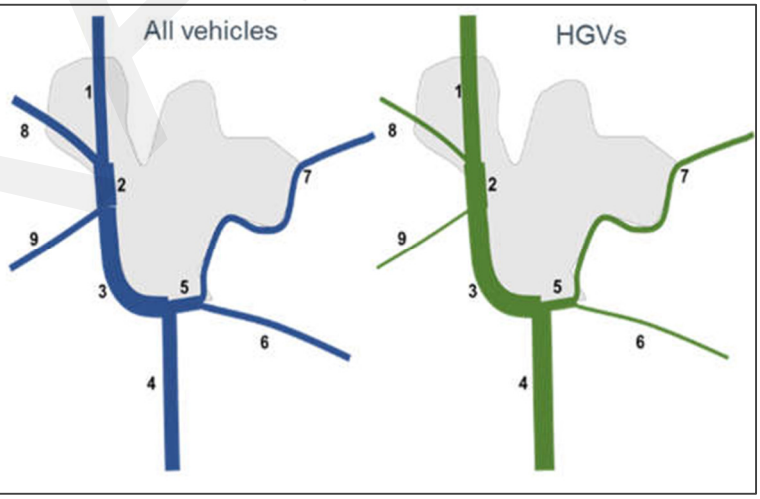


(Source: 2017 ANPR & ATC survey)

Figure 2-19 - Daily through-traffic flows (all vehicles and HGVs) through Melksham, 0700-1900

Link	Description	All vehicles	HGVs
1	A350 north of Bath Road	6014	528
2	A350 Farmers to Bath Road	9994	684
3	A350 Semington to Farmers	9029	641
4	A350 south of Semington	7760	642
5	A365 Western Way	6184	303
6	A365 to Devizes	3015	117
7	A3102 to Calne	3169	186
8	A365 to Bath	3980	156
9	B3107 to Bradford-on-Avon	3022	105

(0700-1900)



(Source: 2017 ANPR survey)

Taking account of sample rates for the ANPR survey, the survey data (for the 12 hour period 0700 to 1900) indicates that approximately 40% of all traffic entering or leaving Melksham on the A350 via Beanacre is through-traffic, with the remaining 60% starting or ending their journey in Melksham. Other key observations include:

- In total, around 4,000 vehicles were reported as passing through on the A350 from north to south or vice versa. Taking account of sample rates this equates to approximately 24% of all traffic. For through traffic HGV movements specifically, 32% are north-south.
- Of the A350 north-south through movements (all vehicles), 15% were recorded travelling the length of the A350 between the M4 and a point south of Westbury. For HGV's this increases to 22%.

- Other through movements account for approximately 13% of all traffic, with the A350 south / A3102 movement being the highest, followed by: A365 west/east; A350 north / B3107; and A350 north / A3102.
- Through movements are greatest on the central section between Farmers Roundabout and Bath Road (as expected). Through movements reduce by approximately 40% on the section to the north between Bath Road and Leekes.
- The proportion of through movements is around 10% higher in the peak periods, so that half of all peak traffic is passing through rather than starting or ending in Melksham at these times. Furthermore, trips to / from Bowerhill and Semington were classified as starting / ending in Melksham, so including these as through trips would further increase the total proportion of through movements.

2.2.4. Traffic flows on the A350

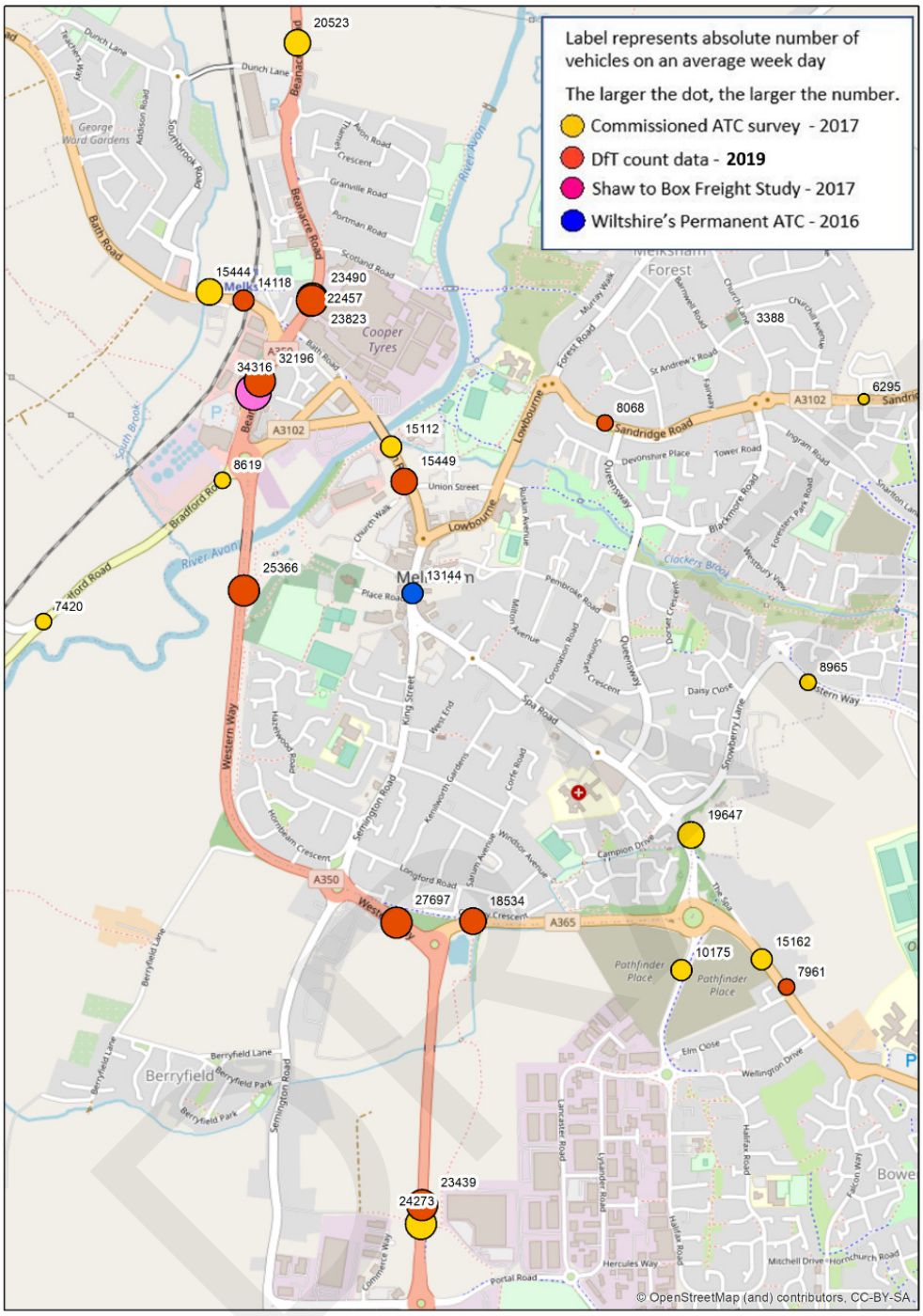
Automatic Traffic Count (ATC) surveys were undertaken in June 2017 at many locations around Melksham. Other data sets have also been referred to where available, such as:

- Annual traffic counts available from the DfT's website (2019);
- A one-day ANPR survey undertaken at the Farmers Roundabout in 2017;
- Permanent ATC's installed by Wiltshire Council; the data is taken from a week in 2016; and
- An ATC survey completed over 7 days for the Shaw to Box Freight Study in 2017.

A350 – Melksham area

Within the Melksham area **(Figure 2-20)**, the highest recorded traffic flows are all on the A350 with the busiest being the central section between Farmers Roundabout and Bath Road (32,000 daily vehicles). All locations along the A350 recorded counts of more than 20,000 vehicles per day, along with just under 20,000 at Western Way (18,500) and Spa Road (19,500). Other A-roads providing access to Melksham generally experience 10,000 to 15,000 vehicles per day, while the Eastern Way distributor road currently handles around 8,000 vehicles per day.

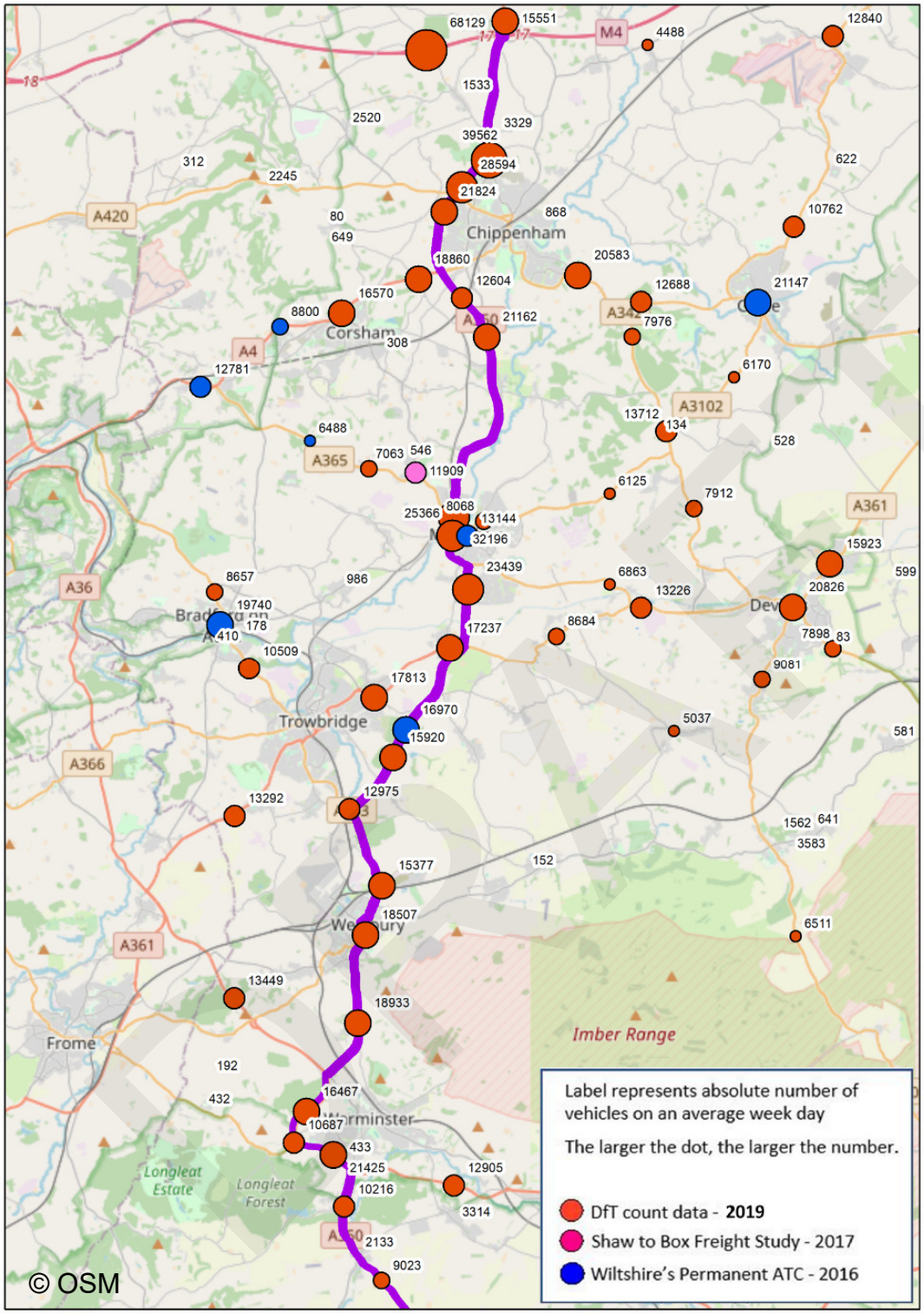
Figure 2-20 - Total Daily Traffic Flows in immediate Melksham area (both directions)



A350 corridor and surrounding area

The highest flows are consistently on the A350, particularly on the sections to the west of Chippenham and through central Melksham **(Figure 2-21)**. Daily traffic flows on these sections are in the region of 34,000 vehicles. Traffic flows decrease further south along the A350 (26,000 near Semington to 18,000 through Westbury).

Figure 2-21 - Total daily traffic flows in the A350 corridor area (both directions)



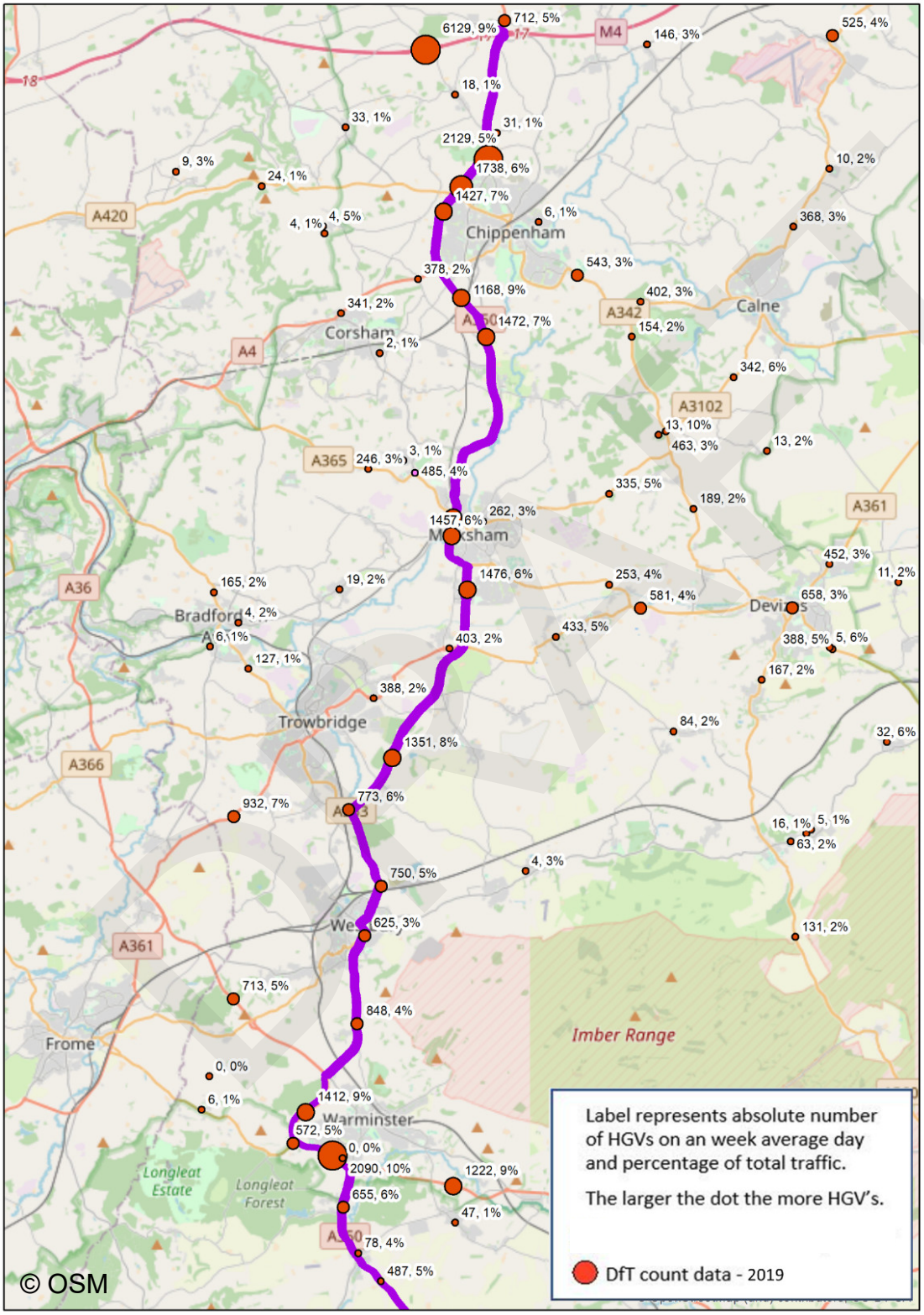
Heavy Goods Vehicles

Figure 2-22 presents HGV daily volumes and proportions of all traffic in the A350 corridor. The routes which see both the highest proportion of HGVs and the highest absolute values are the A350 between the M4 and Warminster, and the A36 east of Warminster; these are the only routes where over 1,000 HGVs per day were recorded. HGV flows on the A350 are highest around the Chippenham bypass (1,200 to 2,200 per day) and through Melksham (1,400 to 1,800 per day), typically representing 6-7% of all traffic. South of the Yarnbrook

junction, HGV volumes decline to below 800 per day before increasing significantly again around Warminster after connecting to the A36.

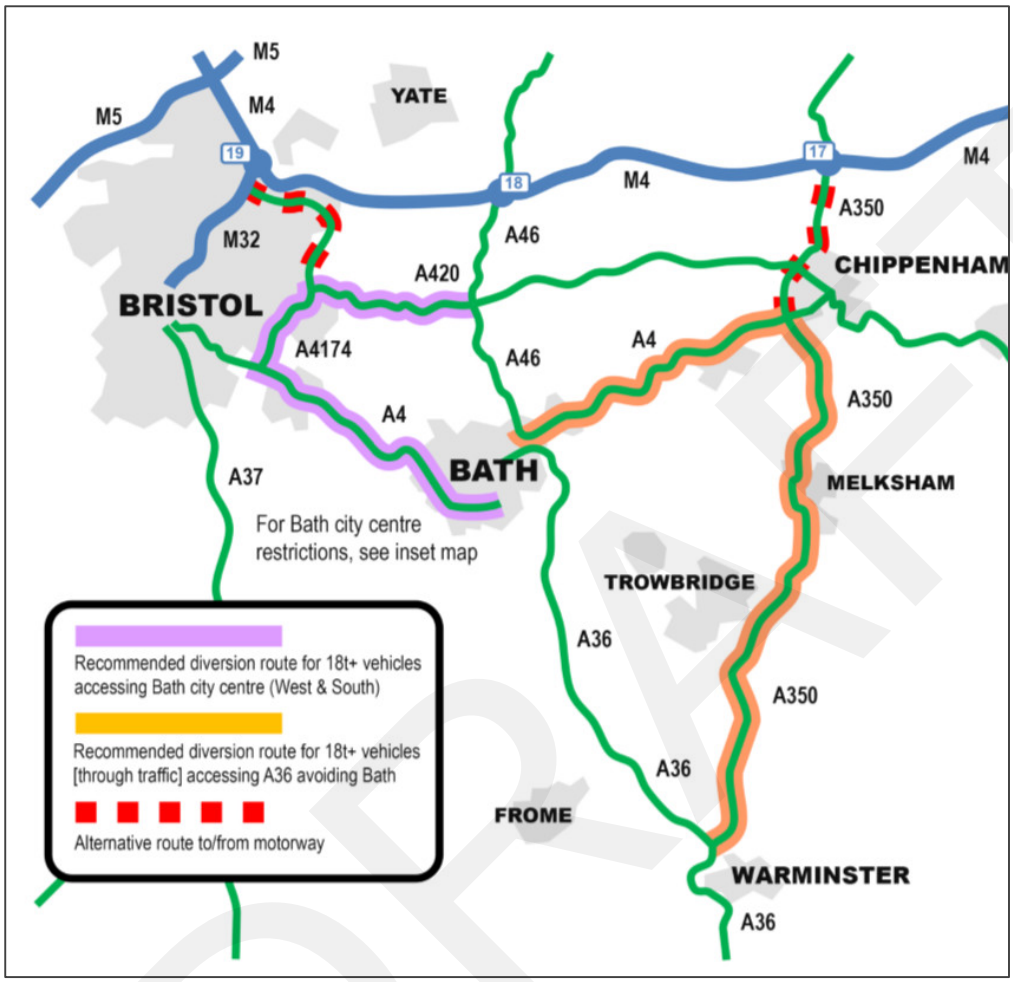
Locally, around Melksham, other roads have much lower HGV flows with Western Way having the highest volumes at approximately 750 vehicles per day.

Figure 2-22 – HGV daily flows and proportion of all traffic in the A350 corridor area



From 3 Feb 2020 Bath and North East Somerset Council (B&NES) introduced an 18 tonne weight restriction on Cleveland Bridge on the A36 in Bath **(Figure 2-23)**. It has been introduced as a precautionary measure until necessary repair works on the bridge have been completed. HGV through traffic accessing the A36 is being diverted via the A350 (through Melksham). Wiltshire Council estimates that this is resulting in an increase in HGV traffic at Melksham of approximately 14%[16]. The restriction is expected to be temporary. B&NES had an application to the Highways Maintenance Challenge Fund approved in Feb 2020 for funding for repair works to the bridge.

Figure 2-23 – A36 Bath 18 tonnes weight restriction

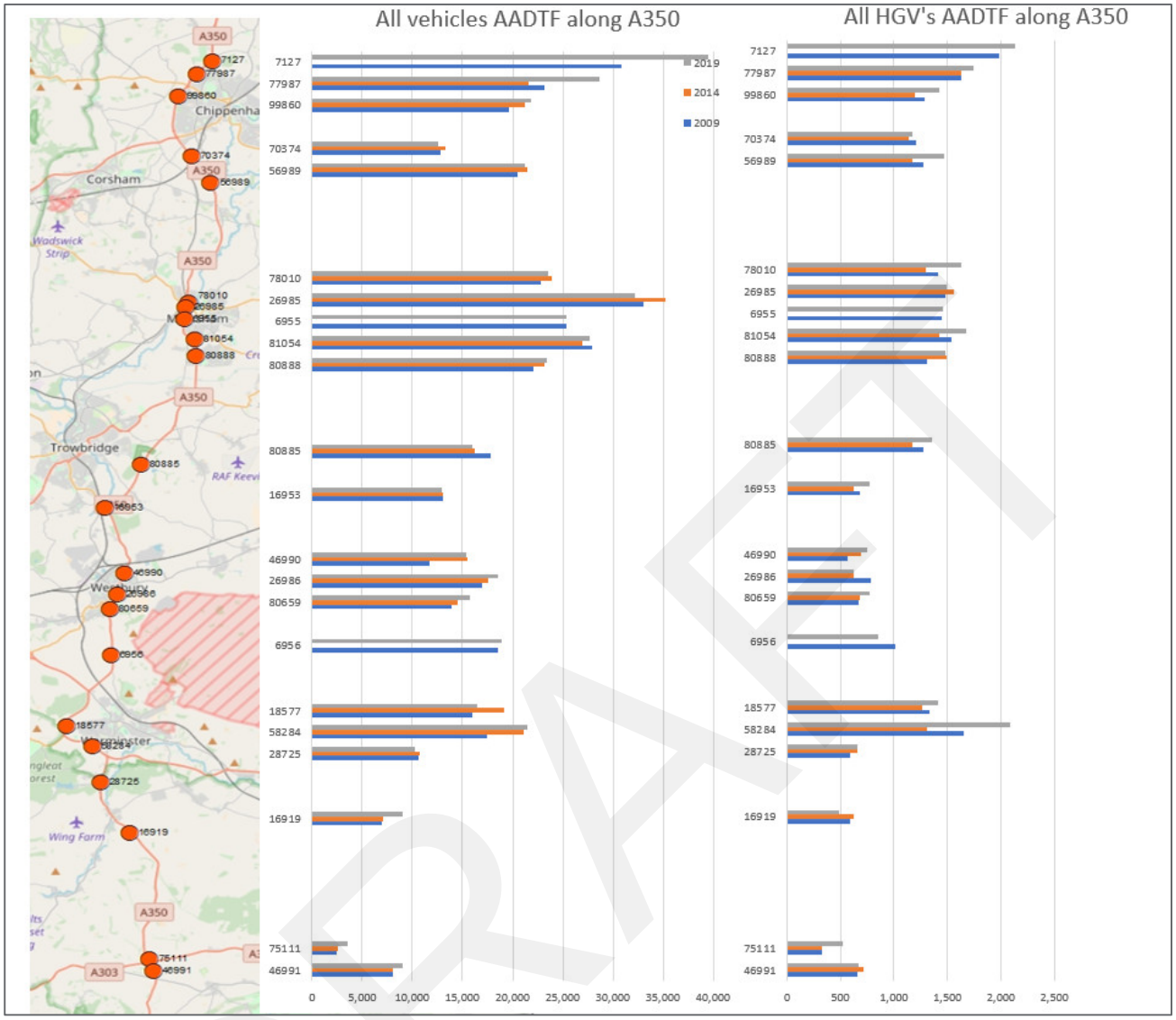


Changes in traffic volumes, 2009-2019

Changes in traffic flows over time for the A350 between the M4 and Warminster demonstrates a varied picture **(Figure 2-24)**. Some sections of the A350 have seen considerable growth in the last ten years (such as around Chippenham and Warminster). Traffic volumes in Melksham have remained relatively consistent, although the sites to the north and south of Melksham show some modest increase. With regards to HGVs, there is a relatively similar pattern to general traffic. At Melksham, there is a more notable increase in HGV traffic volumes at some sites compared to all traffic.

[16] Wiltshire Council briefing note (Jan '20)

Figure 2-24 – Average Annual Daily Traffic Flows along the A350, 2009-2019 (DfT count data)

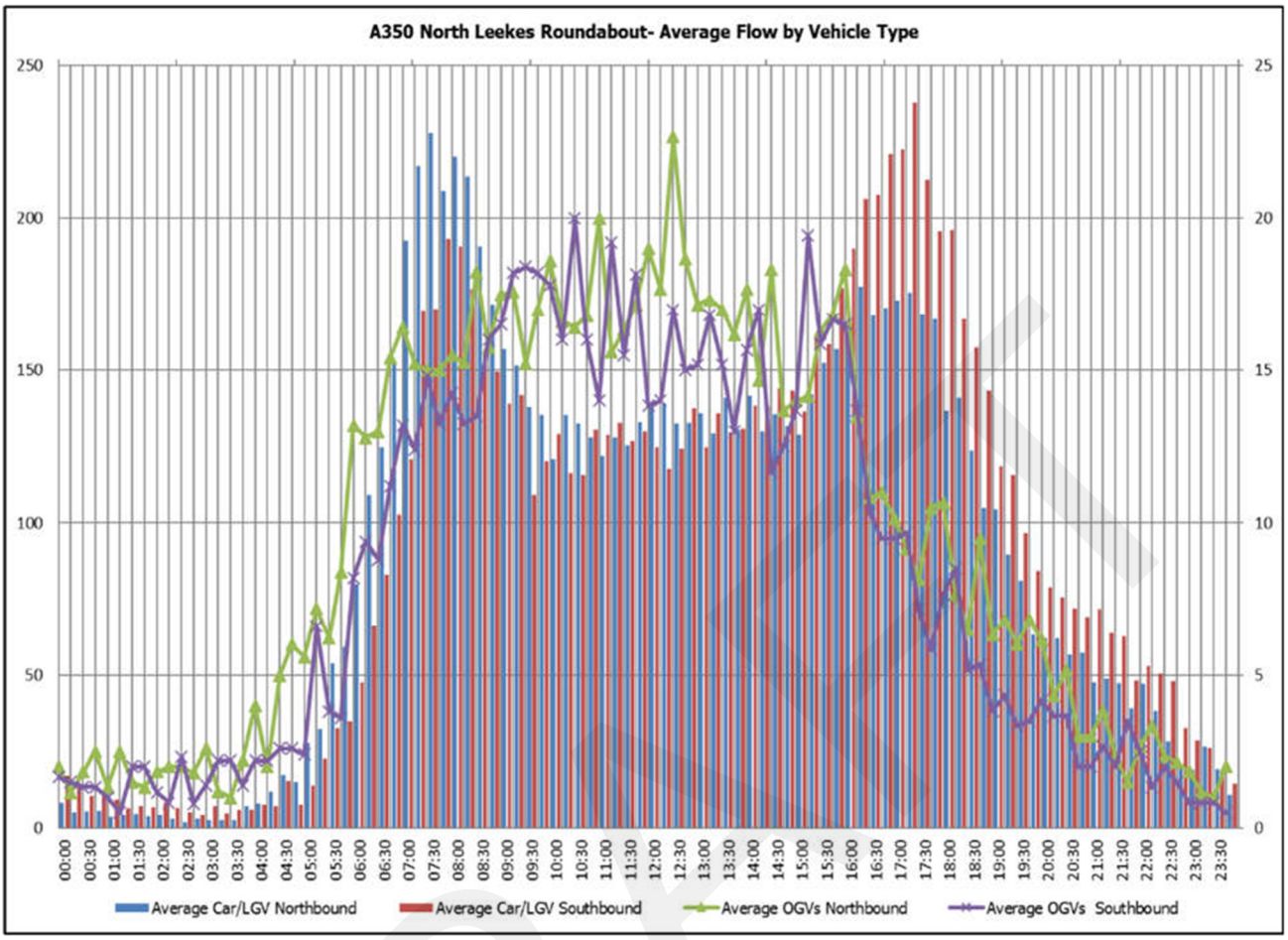


2.2.4.1. Weekday distribution of traffic flows

Based on the 2017 ATC recorded traffic flows for 15-minute segments (average weekday) it is evident that there are peaks in two-way traffic volumes during the AM 0700 – 0900 and PM 1600 – 1900 **(Figure 2-25)**. The busiest single hour in the AM is 0700 – 0800 and in the PM 1700 – 1800. Other key observations include:

- Northbound traffic is more dominant in the AM peak with up to 50 more cars/vans per 15 minute segment, while the evening peak experiences a much greater southbound flow, indicating a net commuting flow from Melksham towards Chippenham.
- The Inter Peak flow (between 0900 and 1600) is approximately two-thirds of the AM/PM Peak flow.
- HGV flows (reported as OGVs in the survey) are less 'peaky', with consistent volumes recorded between 0700 and 1600 in both directions, although a marked northbound peak is evident around midday.
- HGV traffic increases at a greater rate earlier in the morning compared to car/van traffic – with flows over 10 HGVs per 15 minutes from 0600 onwards. HGV traffic declines from 1600 onwards, more rapidly than general traffic. The AM peak therefore includes a higher proportion of HGVs compared to the PM peak.

Figure 2-25 - Distribution of traffic throughout weekday on A350 immediately north of Melksham



2.2.5. Public transport provision and demand

Rail services

Melksham is served by the TransWilts railway line which connects it to the A350 corridor towns of Chippenham, Trowbridge and Westbury, with services operated between Swindon and Westbury **(Figure 2-26)**. At Chippenham, Swindon and Westbury the TransWilts railway line connects to mainline rail services to London Paddington and Waterloo, with connections also to Bristol / Cardiff, Gloucester / Great Malvern, and Southampton / Portsmouth. The TransWilts service is a partnership between Great Western Railway and TransWilts Community Rail Partnership.

Westbury, Trowbridge and Bradford-on-Avon are located on the main line between Bristol Temple Meads and Portsmouth Harbour, with services also extending to Gloucester / Great Malvern and Frome.

Historically, the northern and southern parts of the Wiltshire rail network had been disconnected. Until 2013 only two services per day operated in each direction via Melksham, with journeys between Westbury / Trowbridge and Chippenham / Swindon otherwise requiring a change of trains at Bath Spa. However, as a result of the Local Sustainable Transport Fund project, in 2013 the weekday service provision was increased from two to nine services in each direction. This meant that journeys between Chippenham and Trowbridge could be more frequently made direct (approximately 20 minutes) rather than via Bath Spa (between 37 and 46 minutes depending on the connection time).

Figure 2-26 - Rail and strategic bus links in north Wiltshire

In terms of the weekday timetable for the TransWilts line, whilst there is now a fairly even spread of services throughout the day on the line – approximately every two hours – the service times offer little for commuters travelling in the AM and PM peaks in either direction **(Figure 2-27).** Travelling north in the morning from Westbury there is one morning train at suitable commuter times (07:37) but then a large gap before the next train at 09:45, and there are no southbound return journeys between 17:36 and 20:45. In the opposite direction, the only morning train that could be suitable for commuters departs Chippenham at 08:59, followed by a large gap until 11:20. Returning northbound in the evening peak there is a gap between 16:25 and 18:39. These gaps in services during the peak place time constraints on commuters, and will discourage use of rail to commute.

Figure 2-27 - TransWilts line weekday timetable (Summer 2020)

Westbury	05:17	07:37	09:45	12:16	14:16	16:25	18:39
Trowbridge	05:23	07:43	09:51	12:22	14:22	16:31	18:45
Melksham	05:33	07:53	10:02	12.:32	14:32	16:41	18:55
Chippenham	05:43	08:03	10:14	12:42	14:42	16:51	19:05
Swindon	05:59	08:19	10:34	13:01	15:01	17:08	19:21
Swindon	06:11	08:44	11:05	13:14	15:14	17:36	20:45
Chippenham	06:27	08:59	11:20	13:29	15:29	17:51	21:00
Melksham	06:36	09:09	11:30	13:39	15:39	18:01	21:10
Trowbridge	06:46	09:18	11:39	13:48	15:48	18:10	21:19
Westbury	06:53	09:25	11:46	13:55	15:55	18:17	21:26

With Chippenham, Trowbridge and Westbury all benefitting from main line rail services as well as TransWilts services, the impact of additional services on overall passenger numbers between Chippenham and Trowbridge is not evident. However, the improved service has had a significant impact on the volume of passengers using rail at Melksham **(Table 2-4)**.

Table 2-4 - Passenger numbers using TransWilts rail stations 2014/15 – 2018/19

	2014/15	2015/16	2016/17	2017/18	2018/19	% Growth
Chippenham	1,895,980	1,815,922	1,938,692	1,890,094	1,972,350	4%
Melksham	51,858	60,676	74,666	74,220	74,534	17%
Trowbridge	903,248	902,966	983,704	930,134	933,894	3%
Westbury	529,358	544,244	578,256	569,372	548,720	4%

Figures based on ORR Estimated Entries and Exits which are based on ticket sales.

Since the service improvements in 2013, the platform at Melksham station has been extended to accommodate three carriages rather than one. The TransWilts Community Rail Partnership is also planning more improvements to the station as part of its ambition to further increase rail use within Melksham. This includes construction of an extended car park and creation of a station hub – work commenced in 2020[17].

Bus services

Figure 2-28 shows local bus services operating in Melksham by frequency, and a summary of these services and the extent to which they use the A350 is provided in **Table 2-5**.

No timetabled long-distance buses use the A350 at Melksham. However, one National Express Coach (the 402 Frome – London service) passes east-west through Melksham once a day in each direction.

None of the bus services offer a north-south route fully along the A350. The closest provision is the X34 from Trowbridge to Chippenham, which mostly follows the A350 between Melksham and Chippenham and then travels via the historic A350 route through Semington village south of Melksham. This offers a route connecting Wiltshire College campuses, employment centres in the towns, some residential areas of Melksham, but few residential areas of Chippenham and Trowbridge. There is a half-hourly frequency until the early afternoon, then hourly until 17:30.

[17] https://www.transwilts.org/news/8-news/192-transwilts-awarded-60-000-for-melksham-station-plans

The section of the A350 between Farmers Roundabout and Bath Road is the most heavily used by buses – this includes all the services identified in Table 2-5. Elsewhere, the A350 is little used by buses; south of Melksham the Semington Road is used in preference to the A350, and the X34 is the only significant service on the A350 north of Melksham.

Around 50% of Wiltshire's buses are supported by Wiltshire Council, including some of the services in Melksham. There was concern over funding of supported buses when the Local Transport Plan was published in 2011, and in 2015 the Council started a review of supported bus services in response to funding constraints. A consultation was completed, and as a result some reductions to services were made in 2015/16, namely the 234 Trowbridge-Chippenham evening services and the Melksham Station rail link (which provided an experimental link from Melksham station to the town).

Figure 2-28 - Bus routes serving Melksham and A350 corridor by frequency (Monday AM)

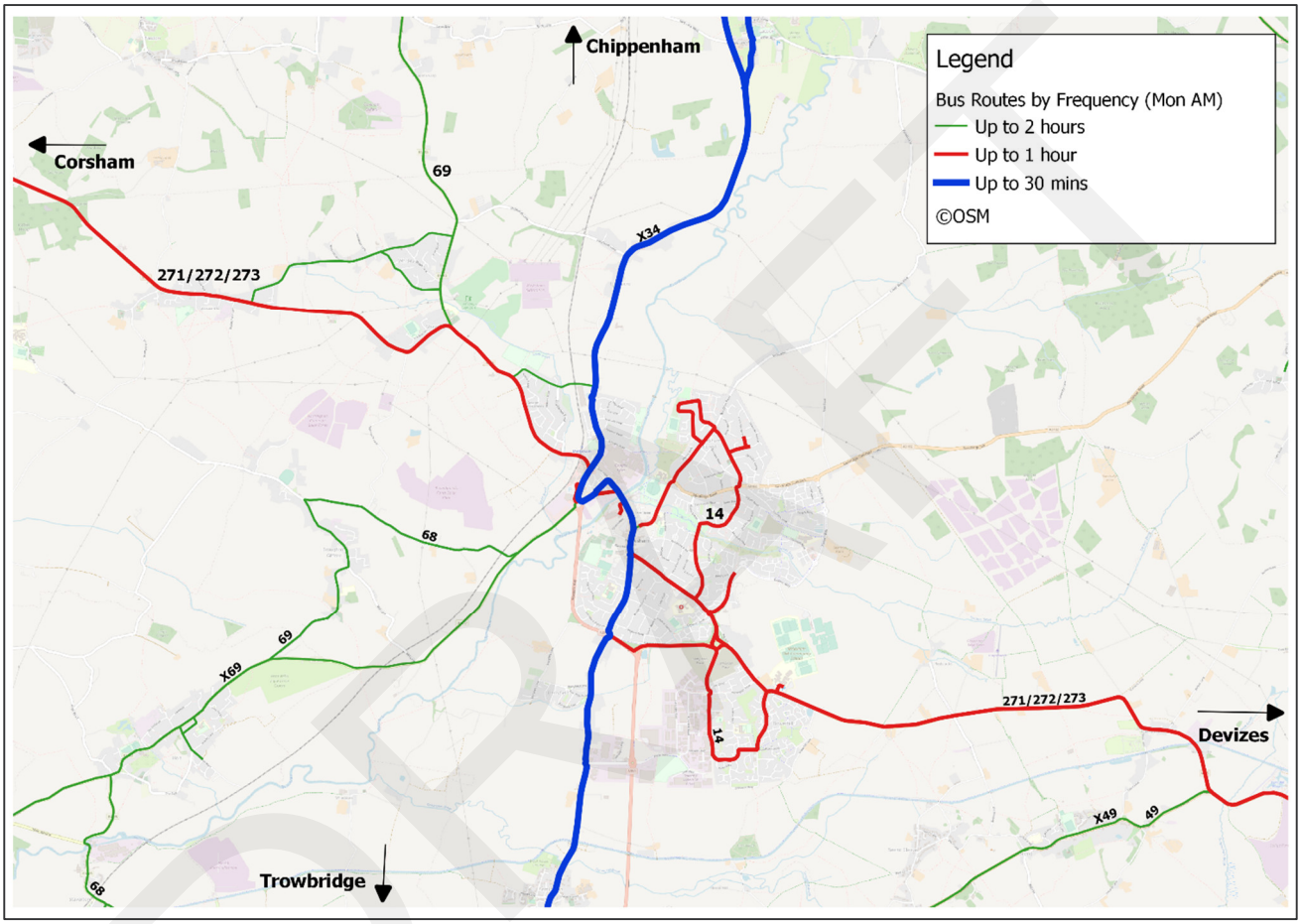


Table 2-5 - Bus routes serving Melksham and A350 corridor

Number	Route	Connection with A350	Frequency at Melksham	Notes
14 to Melksham Forest	Around Melksham town - east of A350, starting and finishing at Asda.	Via A350 between Farmers Roundabout and Bath Road.	Monday to Friday (M-F): a circular route running 18 times a day. Saturday (Sat): 10 services. Sunday: no service.	
14 to Addison Road, Dunch Lane and Granville Road	Around Melksham town, both east and northwest of A350.	Via A350 between Farmers Roundabout and Leekes roundabout.	M-F: a circular route running 5 times a day. Sat: 3 services. Sunday: no service.	
15	A circular route around Melksham town. With two services visiting Holbrook Vale (to the South West of the town).	Via A350 between Farmers Roundabout and Bath Road. Two services cross the A350 as it travels along Semington Road.	M-F: a circular route running 6 times a day, 2 services visiting Holbrook Dale. Sat: 2 reduced services. Sunday: no service.	
X34	Chippenham – Melksham – Trowbridge – Frome	Via A350 from Farmers Roundabout to Chequers Roundabout, Chippenham. (Distance of 6 miles and takes an average of 16 minutes.)	M-F: Southbound 19 daily services to Trowbridge, 16 continuing to Frome; Northbound 19 daily services to Chippenham (3 of which start in Trowbridge), 2 daily services ending in Melksham. Sat: 10 in each direction. Sunday: no service.	Until 2015/16 this service was supplemented by the 234 evening service.
68, 69, X69	Corsham – Whitley – Atworth – Melksham – Bradford on Avon – Trowbridge	Via A350 between Farmers Roundabout and Bath Road.	M-F: Southbound 8 services a day; Northbound 7 services a day. Sat: 5 or 6 in each direction. Sunday: no service.	
271, 272, 273	Bath – Melksham – Devizes	Via A350 between Farmers Roundabout and Bath Road.	M-F: Eastbound 29 services a day (4 AM services only between Melksham and Bowerhill/Devizes); Westbound 24 services a day. Sat: 25 or 23 in each direction. Sunday: 6 in each direction.	273 – evening/Sunday trips provided with financial support by Wiltshire Council.
X76	Marlborough to Bath hospital	Via A350 between Farmers Roundabout and Bath Road.	M-F: once a day in each direction.	

2.2.6. Walking and cycling

Key active travel routes have been identified within the Melksham Joint Neighbourhood Plan **(Figure 2-29).**

There are a large number of Public Rights of Way (PRoW), with the majority designated as footpaths and bridleways. These routes provide a loose network; however, the quality and usability of routes varies, with many catering more towards leisure journeys than utility trips.

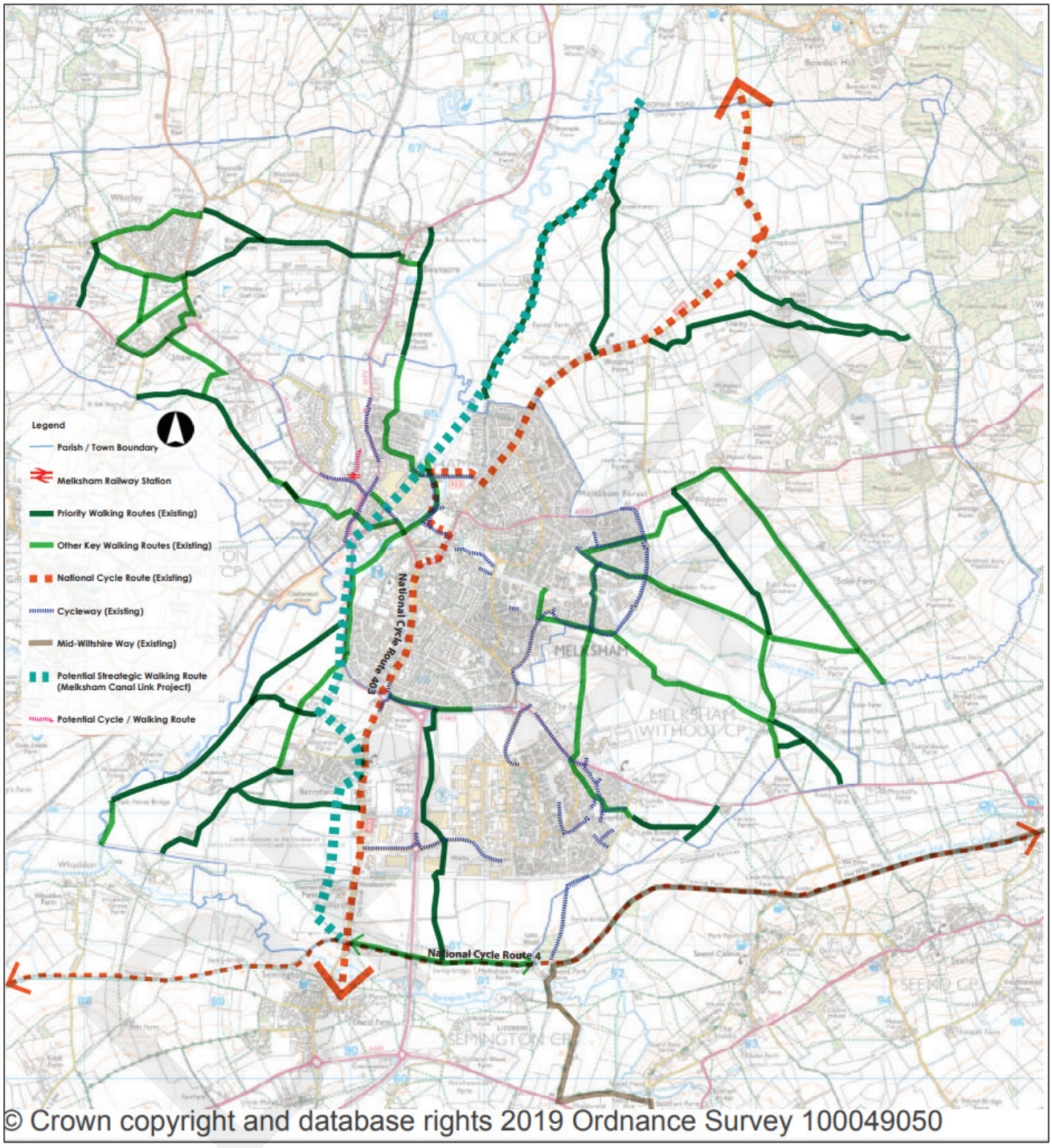
There are sections of cycleway spread throughout the town. These are generally disconnected and therefore do not form a comprehensive and cohesive network for cyclists to access the different areas of Melksham.

There is also a dense network of bridleways to the east of Melksham, located around Sandridge solar farm.

National Cycle Network (NCN) Route 4 runs east to west linking London to Bristol, passing approximately 3km south of Melksham town centre and connecting the towns of Devizes in the east and Trowbridge immediately to the west of Melksham. The section of Route 4 that passes through the Melksham area is a 'NCN traffic-free route', running along the north side of the Kennet and Avon Canal. NCN Route 403 branches off the NCN Route 4 at Semington Bridge and continues directly north through Melksham town centre, Melksham Forest residential estate and further north onto Chippenham.

The Melksham canal link project is part of the larger ambition to restore the original Wiltshire and Berkshire Canal. The Wilts & Berks Canal Trust '*is committed to restoring the full length of this historic canal; from Wiltshire through Swindon and into Oxfordshire'*. The proposed Melksham link project would provide a canal link between the Kennet and Avon Canal north of Semington and the River Avon to the east of Melksham town centre (**Figure 2-29**). The regeneration project involves 3km of new canal that will also include new towpath for walking and cycling routes that could be used to link up the existing cycling and walking routes south-east of Melksham.

Figure 2-29 – Active travel routes within the Melksham area (Melksham Joint Neighbourhood Plan)



2.3. Current opportunities and constraints

Developing an understanding of the physical, legal and institutional constraints, and the opportunities affecting the Melksham area and the wider A350 corridor is an important step in providing the context for the consideration of any potential transport solutions.

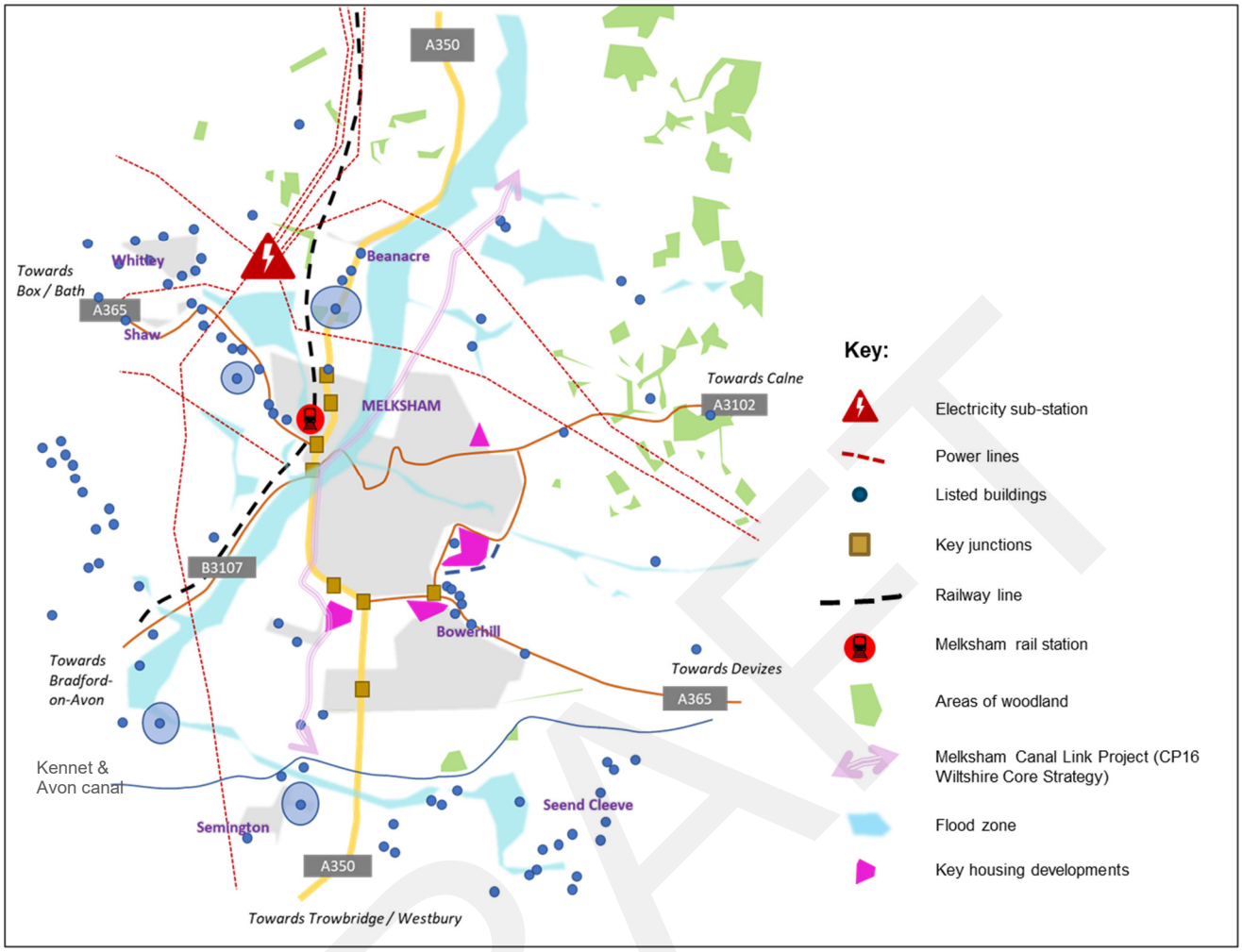
Summary of key points

- There are a number of physical and environmental constraints within and surrounding Melksham.
- Physical constraints presented by the built environment include: built up sections along the existing A350 route; the railway line to the west of the A350; the electricity sub-station to the west of the town (and the associated power lines); and surrounding settlements (including Shaw, Whitley, Beanacre, Seend Cleeve and Semington.
- Melksham is surrounded by a largely rural setting. Some of the key environmental constraints include: the River Avon (and its floodplain); scattered areas of woodland to the east of the town; and the Kennet and Avon Canal to the south of the town.
- There is a well-recognised opportunity in relation to the restoration of the West Berks Canal and the creation of a footway / cycleway link between south Melksham and Lacock (Melksham Canal Link Project). This has significant local support

2.3.1. Physical and environmental constraints

Melksham is a medium sized market town which has experienced a relatively high level of growth in housing and employment in recent years. It is surrounded by several smaller village settlements within a largely rural setting. It is also defined by its location next to the River Avon. These factors produce a number of constraints associated with both the built and natural environment which could have a bearing on any transport solutions - either improvement to existing provision or new infrastructure corridors **(Figure 2-30)**.

Figure 2-30 - Key physical and environmental constraints in the Melksham area



Built environment

In terms of built environment features, the most significant constraints include:

- The existing A350 passes through the settlements of Beanacre and Melksham:
  - At Beanacre, the speed limit is reduced to 30mph for approximately 1km, with residential properties on both sides of the road, including some with frontage directly on to the road
  - In the northern 600m section through Melksham (between Leekes and Bath Road), the road passes through another 30mph residential area and is hemmed in by frontage development at various points.
  - There are several key junctions along the existing A350 route which connect the surrounding road network and provide access to adjacent land uses. These junctions provide a general constraint to the overall operation of the route and the scope for enhancement.
- There are several other smaller village settlements surrounding Melksham, including: Whitley and Shaw (north-west); Berryfield and Semington (south); and Seend (south east). There are clusters of listed buildings associated with these older settlements. Listed buildings and older properties also tend to extend along the radial routes as they enter Melksham.
- The TransWilts (Chippenham-Westbury) rail line runs parallel to the A350 to the west of Beanacre and presents a significant physical barrier to the west of the town. The line is single track and this in itself presents a constraint to increasing the frequencies of rail services operating via Melksham.
- Melksham electricity sub-station is located to the west of Beanacre. There is a network of power lines to the western side of the town but also, to a lesser extent, to the east.
- There are two large solar farms – one to the west of Melksham and one to the east.

New development

There are five significant planning commitments on the south and eastern sides of Melksham, four of which are residential **(Figure 2-30)**. These developments are at various stages of delivery:

- Land east of Semington Road / west of A350: 150 dwellings.
- Land south of A365 Western Way / north of Bowerhill: 235 dwellings.
- Land east of Spa Road / south of Eastern Way (part of Core Strategy): 450 dwellings (plus extension to Eastern Way between Thyme Road and Spa Road).
- Land north of A3102 Sandridge Road: 100 dwellings.
- Melksham Health and Wellbeing Centre (southeast of Eastern Way): integrated sports campus including provision of new football and rugby facilities, changing rooms, clubhouse and football stadium, together with car parking and a new access road and junction.

As noted in section 2.1.2, Wiltshire Council is currently undertaking a Local Plan Review and this is likely to result in the identification of additional sites to be allocated within Melksham up to 2036. At the current stage, no specific sites have been proposed.

Natural environment

Melksham is surround by a largely rural setting. Some of the key environmental constraints include:

- The River Avon floodplain bisects Melksham on a north-south axis. The river is bridged by the A350 immediately south of Farmers Roundabout. The floodplain forms a significant barrier to the east of the A350 on the north side of Melksham and to the west of the A350 on the south side of the town.
- A second area of floodplain lies to the north-west of Melksham, including land south of the electricity sub-station, and the corridor of land to the west of the rail line as it passes through Melksham.
- There are scattered areas of woodland to the east of the town. A small number of these are designated as priority habitats.
- The Kennet and Avon Canal runs east-west to the south of Melksham. An aqueduct carries the canal over the A350. The canal offers recreational use as well as habitat to wildlife.

More specific details on environmental features can be found within the environmental assessment report (Appendix C).

2.3.2. Transport and development opportunities

Improved transport provision within the Melksham area and the A350 corridor opens up potential opportunities at a local and regional level. Those considered to be of most relevance include:

- With the government backing a strategic study into north-south connectivity within the region (section 2.1.3) and two other major MRN schemes on the A350 in Wiltshire there is increasing recognition of the role of the A350 corridor. Coupled with significant housing and employment growth plans there is a significant impetus to take a holistic approach to improving transport connections at the heart of the A350 corridor - creating agglomeration benefits for industry and supporting the continued growth of the existing manufacturing cluster in the Melksham-Westbury area. Agglomeration allows for employment diversification and the potential to reduce the need for out-commuting.
- Whilst specific housing sites for Melksham are yet to be identified through the Local Plan process, transport (and the A350 in particular) will be a significant consideration – both in terms of the cumulative impact of proposed development across west Wiltshire, plus potential access to new sites.
- There is a close relationship between transport and quality of life. Transport can have a significant role in meeting wider objectives for Melksham, including regeneration of the town centre area, better access to facilities and green spaces, and addressing health and well-being.
- TransWilts has a focus on further realising opportunities in relation to the role of rail services for Melksham and has an aspiration to achieve substantial growth in passenger usage of up to 450,000 passengers per annum by 2026. Good quality access to the station by a variety of modes will be an important factor.
- The rising prominence of the concept of ‘biodiversity net-gain’ can place a different perspective on the impacts of significant transport infrastructure on the environment – the approach seeks to identify ways to achieve overall betterment to the environment through proactive planning rather than a focus on mitigation.

- There is a well-recognised opportunity in relation to the restoration of the West Berks Canal and the creation of a footway / cycleway link between south Melksham and Lacock (Melksham Canal Link Project). This has significant local support.

3. Understanding the future situation

Any transport intervention for the A350 at Melksham needs to be considered within a future context. Investment decisions need to be made on sound evidence regarding the need and suitability of the scheme not just in the present day, but also for the longer-term. This section considers:

- future land-uses and policies;
- future travel demands; and
- future changes to the transport system.

3.1. Future land-uses and policies

The documents reviewed in Chapter 2 include the Wiltshire Core Strategy (WCS), which sets out current planning and economic development policies, including housing and employment land allocations for the period to 2026. In order to extend the planning horizon Wiltshire Council is in the process of undertaking a Local Plan Review based on responding to assessed housing and employment needs for the period 2016 to 2036. A consultation exercise to inform the draft plan ran from January to March 2021.

Summary of key points

- The Local Housing Needs Assessment identifies a full Objective Assessed Need for Housing over the 20 year period from 2016 to 2036 of approximately 31,500 dwellings within the Chippenham and Trowbridge Housing Market Areas (which relate to the A350 corridor). Taking into account completions and commitments leaves a residual requirement of approximately 13,000 dwellings.
- Melksham has a requirement for 3,950 dwellings and of these 65% (2,585) are residual. The rates of household growth experienced around Melksham over the last decade are therefore expected to continue.
- The emerging Local Plan Review identifies significant sites at Chippenham (5,100 dwellings). Specific proposed sites for Melksham (to accommodate the residual requirement for 2,585 dwellings) have not yet been confirmed.

3.1.1. Population and household growth

The Swindon and Wiltshire Local Housing Needs Assessment (LHNA, 2019) has developed new population and housing demand projections for both local authority areas and four Functional Housing Market Areas. Melksham lies within the Chippenham Housing Market Area (HMA), which includes the northern section of the A350 corridor and extends eastwards to include Calne, Devizes and Pewsey. The southern section of the A350 corridor lies within the Trowbridge HMA and includes Bradford- on-Avon, Westbury and Warminster.

Population, household and employment projections used to determine future growth in travel demand for transport appraisals are generally derived from the DfT's National Trip End Model (NTEM) and accessed using the TEMPro software. Compared to TEMPro (Version 7.2), the LHNA report predicts higher levels of population and household growth in the Chippenham and Trowbridge Housing Market Areas for the 2016 to 2036 period. The main reasons for this difference are: a) use of a 10-year migration trend as the basis of future population projections in the LHNA report, rather than the 5-year trend used in the NTEM, and b) much greater concentration of population growth in the A350 corridor predicted in the LHNA report, with lower growth expected in other parts of the county.

Comparative growth rates for the 2016 to 2036 period derived from TEMPro and the LHNA report are shown in **Table 3-1**. For Wiltshire, the different migration rate assumptions in the LHNA report result in population and household growth rates which are 4% higher than those derived from TEMPro. The growth rates in Chippenham and Trowbridge HMAs are 6 to 9% higher than that for Wiltshire based on the LHNA figures (compared to only 1 to 2% in TEMPro).

Table 3-1 - Projected growth rates for population and households, 2016-2036

	Population growth 2016-36		Household growth 2016-36	
	TEMPro	LHNA	TEMPro	LHNA
Chippenham HMA	10%	21%	16%	24%
Trowbridge HMA	12%	20%	16%	20%
Wiltshire	10%	14%	15%	15%

Source: Swindon and Wiltshire Local Housing Need Assessment, Opinion Research Services, 2019; NTEM 7.2.

3.1.2. Housing requirement (to 2036)

Based on the HMA projections and detailed analysis of the housing market, the LHNA identifies a full Objective Assessed Need for Housing over the 20 year period from 2016 to 2036 of:

- 20,400 dwellings within the Chippenham HMA;
- 11,000 dwellings within the Trowbridge HMA; and
- 45,600 dwellings across the whole Wiltshire Council authority area (inclusive of Chippenham and Trowbridge HMA).

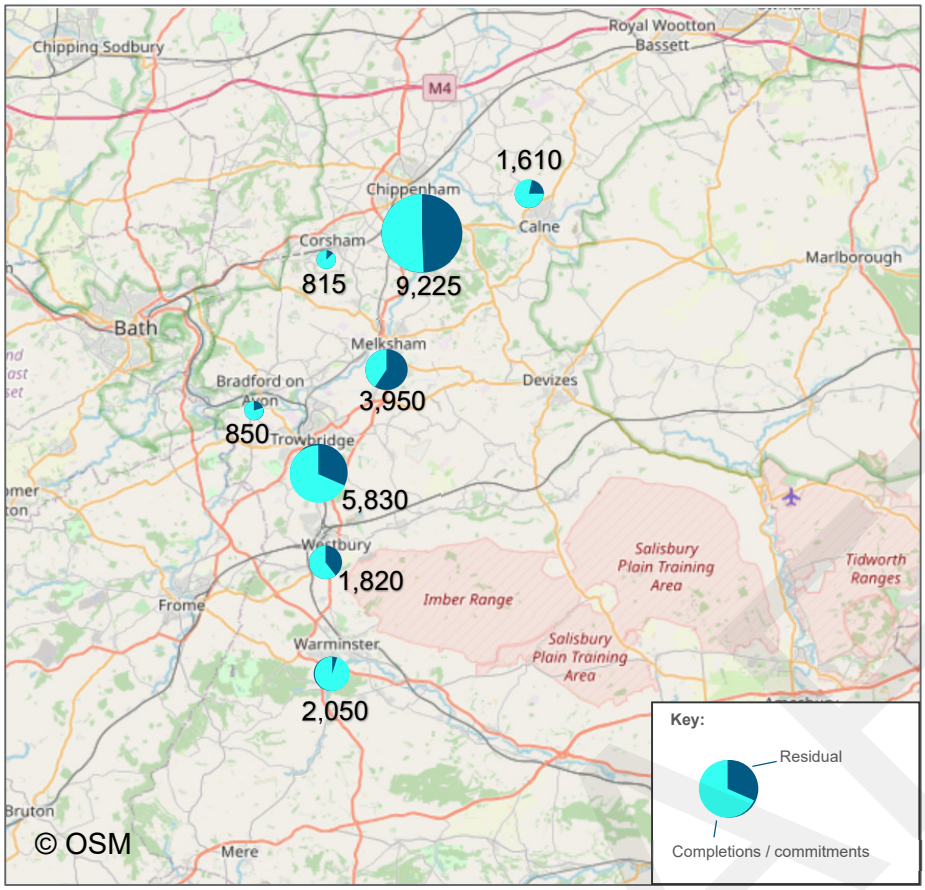
The calculated housing requirements to 2036 need to be set against any completions since 2016 and known commitments, such as planning permissions, to determine the residual requirement **(Table 3-2, Figure 3-1)**.

Table 3-2 – Housing and employment requirements within the A350 corridor

		Overall Housing Requirement (Dwellings)		Overall Employment Requirement (Hectares)
	Wiltshire Core Strategy (2006-2026)	Emerging Strategy (2016-2036)	Residual at 1 April 2019	
Calne	1,440	1,610	360	4
Chippenham	4,510	9,225	5,100	5
Corsham	1,220	815	120	0
Devizes	2,010	1,330	330	0
Malmesbury	885	665	95	0
Melksham	2,240	3,950	2,585	0
Rest of HMA	1,992	2,805	1,270	0
Chippenham HMA sub-total	14,297	20,400	9,860	9
Bradford on Avon	595	350	80	0
Trowbridge	6,810	5,830	1,805	0
Warminster	1,920	2,050	60	0
Westbury	1,500	1,820	710	1
Rest of HMA	665	950	550	0
Trowbridge HMA sub-total	11,490	11,000	3,205	1
Grand total	**25,787**	**31,400**	**13,065**	**10**

Source: Wiltshire Local Plan – Emerging Spatial Strategy (January 2021)

Figure 3-1 – Housing requirement 2016 to 2036 (committed / residual) within the A350 corridor



Source: Wiltshire Local Plan: Emerging Spatial Strategy (January 2021)

In relation to the prospective future housing provision within and around the A350 corridor, key points include:

- Approximately 58% of the calculated housing requirement for 2016 to 2036 is identified as being met through completions and commitments, leaving a residual requirement of approximately 13,000 dwellings.
- Chippenham town has the highest total housing requirement (9,225 dwellings, with 5,100 residual).
- Melksham has a requirement for 3,950 dwellings and of these 65% (2,585) are residual. The rates of household growth experienced around Melksham over the last decade are therefore expected to continue.

Housing sites

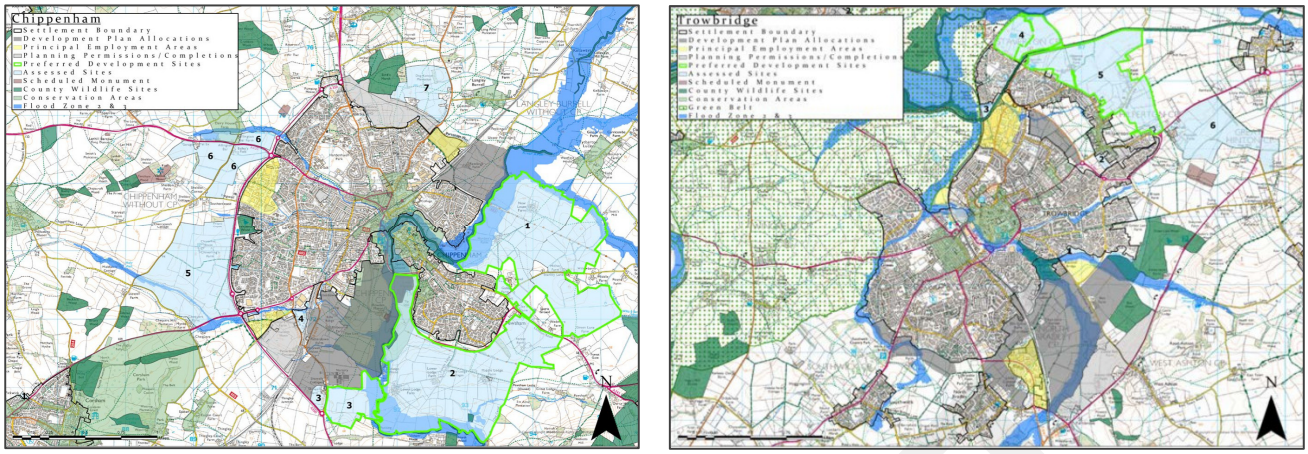
At the current stage of the Local Plan Review specific preferred sites have only been considered in relation to the Principal Settlements, which include Chippenham and Trowbridge **(Figure 3-2)**.

The preferred sites to the south east of Chippenham are consistent with the 'Future Chippenham' proposal being promoted through the Housing Infrastructure Fund (HIF)[18]. These sites would be dependent upon the provision of a new distributor road to the south and east of Chippenham, which forms part of the HIF proposals.

In relation to Melksham, Wiltshire Council has identified a number of potential sites around the town and these will be subject to further consideration **(Figure 3-3)**.

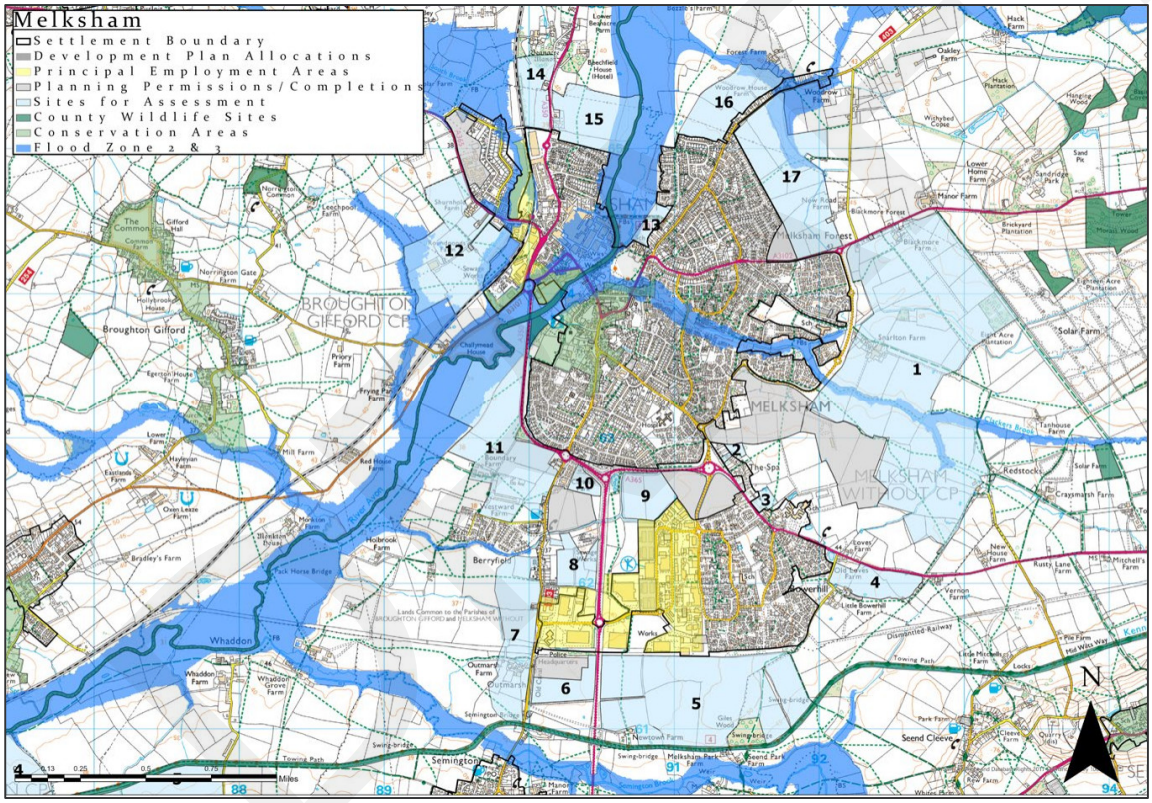
[18] https://www.wiltshire.gov.uk/future-chippenham

Figure 3-2 – Preferred housing sites at Chippenham (left) and Trowbridge (right)



Source: Wiltshire Local Plan: Planning for Chippenham (January 2021) / Planning for Trowbridge (January 2021)

Figure 3-3 – Current permissions and potential development sites in Melksham



Source: Wiltshire Local Plan: Planning for Melksham (January 2021)

3.1.3. Economic growth and employment land

Wiltshire and Swindon Councils have also commissioned a Functional Economic Market Area (FEMA) assessment. The FEMA study develops employment forecasts for the three FEMAs across Wiltshire and Swindon for the 2016 to 2036 period and identifies implications for demand for employment land. The employment forecasts were derived from economic forecasts produced by Oxford Economics and Cambridge Econometrics, adjusted to take account of local factors.

The 'A350 corridor and West/Central Wiltshire Towns' FEMA aligns closely with the combined Chippenham and Trowbridge HMAs referred to in section 3.1.1 and includes the A350 growth zone.

The creation of an additional 13,800 FTE jobs is forecast across the A350 corridor area, representing growth of around 10% over the period **(Table 3-3)**. This varies between sectors, with strong growth particularly in the construction, financial and business services, and education and health sectors. The only sectors forecast to reduce in employment terms are primary industries, public administration and defence, and utilities. Whilst the strongest growth is predicted in service sectors, it should be noted that net growth is expected in manufacturing, construction, wholesale and retail, which implies that demand for freight transport in the A350 corridor is also likely to experience continued growth in the long term.

Table 3-3 - Forecast employment change by sector in the A350 corridor and West/Central Wiltshire Towns FEMA 2016-2036

Sector	Employment change (FTEs)
Primary Industries	-500
Manufacturing	600
Utilities	-100
Construction	2,800
Wholesale and Retail	900
Transport and Logistics	100
Accommodation and Food Service	700
Information and Communication	800
Financial and Business Services	4,600
Public Administration and Defence	-900
Education and Health	2,900
Other Services	1,800
Total	13,800

Swindon and Wiltshire Functional Economic Market Area Assessment, Hardisty Jones Associates, 2016

For the 2016 to 2036 period, TEMPro forecasts 8,800 additional jobs for the same geographical area as the 'A350 corridor and West/Central Wiltshire Towns' FEMA - representing around 6% growth over the period. The higher growth rate projected in the FEMA is due to the more concentrated pattern of growth predicted in the A350 corridor compared to other parts of Wiltshire.

The FEMA assessment builds on this analysis to develop an understanding of likely future employment sites and premises requirements for the 2016 to 2036 period. There is already a large supply of land available to meet business needs across the County. Taking account of existing floorspace and employment land availability, Wiltshire Council has identified a net additional requirement of around 10 hectares of land for business.

3.2. Future travel demands

Summary of key points

- Future housing and employment growth is associated with increased travel demands. The Wiltshire Transport Model forecasts an increase in highways demand between 2018 (model base year) and 2036 (model forecast year) for the Wiltshire area of 12% to 20%. This varies by time period: AM peak +12%; Inter-peak +20%; and PM peak +16%.
- Average hourly AM peak period traffic flows on the A350 through Melksham are forecast to increase by up to 30%.

3.2.1. National Trip End Model (TEMPro)

TEMPro forecasts future transport demand from the National Trip End Model (NTEM) for all parts of the UK, based on planning assumptions (population, households and employment). The growth rates for 'Car Drivers' for Melksham (2016 to 2036) are shown in **Table 3-4**.

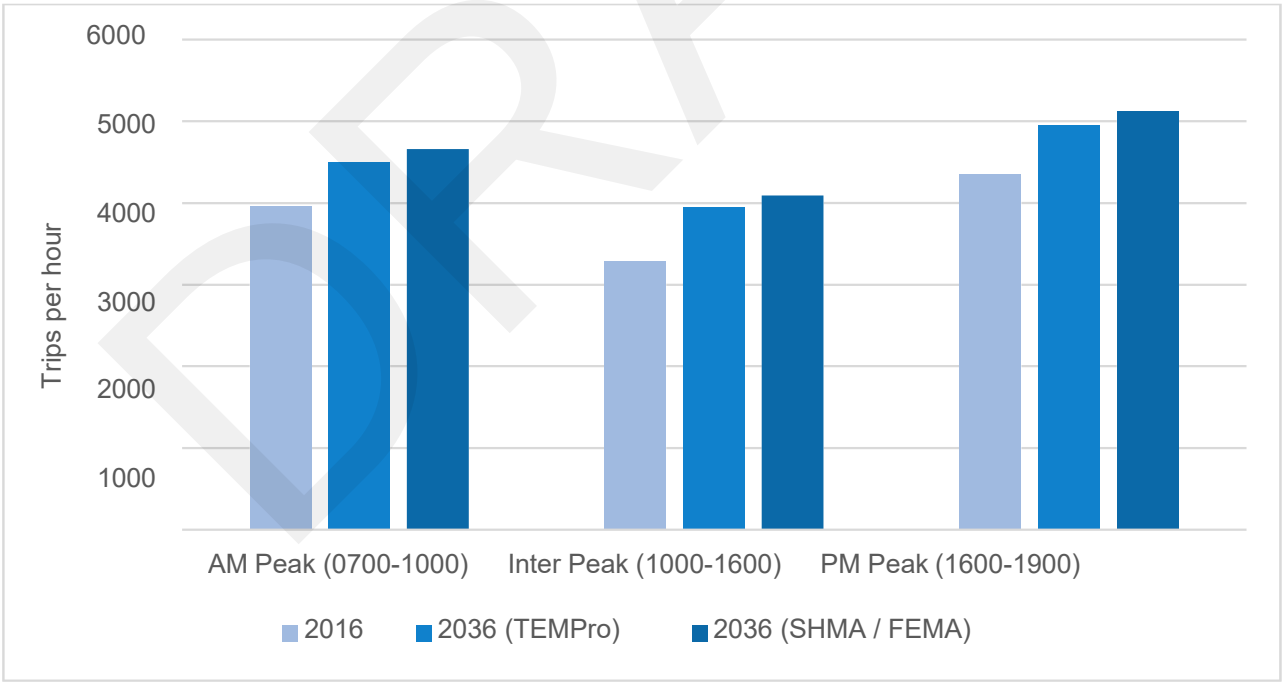
Overall, TEMPro forecasts growth of 11% to 16% in the AM and PM Peak periods and 20% in the Inter Peak period. There is strong growth (20% to 23%) forecast in 'Other' trips, with weaker growth (5% to 13%) in business and commuting trips. The differences in growth rates is largely explained by national-level demographic trends; around two-thirds of population growth over the period is predicted to be in the 75+ age range, resulting in a major increase in the non-working population and hence much stronger growth in non-work-related trips.

Table 3-4 - TEMPro forecast trip end growth rates for the Melksham Community Area 2016-2036

Purpose (Car Driver)	AM Peak (0700-1000)		Inter Peak (1000-1600)		PM Peak (1600-1900)	
	Origin	Destination	Origin	Destination	Origin	Destination
Business	7%	13%	11%	11%	13%	8%
Commute	6%	13%	8%	7%	11%	5%
Other	21%	23%	23%	23%	19%	19%
Total	11%	16%	20%	20%	16%	12%

Considering the total number of Car Driver trip ends per hour (origins and destinations) for the Melksham area in 2016 and 2036 **(Figure 3-4)**, TEMPro forecasts that Inter Peak hourly demand in 2036 would be similar to the 2016 hourly demand for the AM Peak. The implication of this would be a greater pressure on the road network throughout the day, and not specifically limited to the AM and PM peak periods.

Figure 3-4 - Total Car Driver trip ends per hour in Melksham Community Area, 2016 and 2036



Including the additional household and employment growth resulting from the more concentrated development pattern predicted in the LHNA and FEMA reports (i.e. 22% net growth in households and 10% net growth in employment) results in forecast 'Car Driver' growth rates for the Melksham area which are 3% to 4% higher.

The forecast Inter Peak hourly demand in 2036 exceeds 2016 AM Peak demand, with over 4,000 trip ends per hour during the Inter Peak, and over 5,000 trip ends per hour during the PM peak.

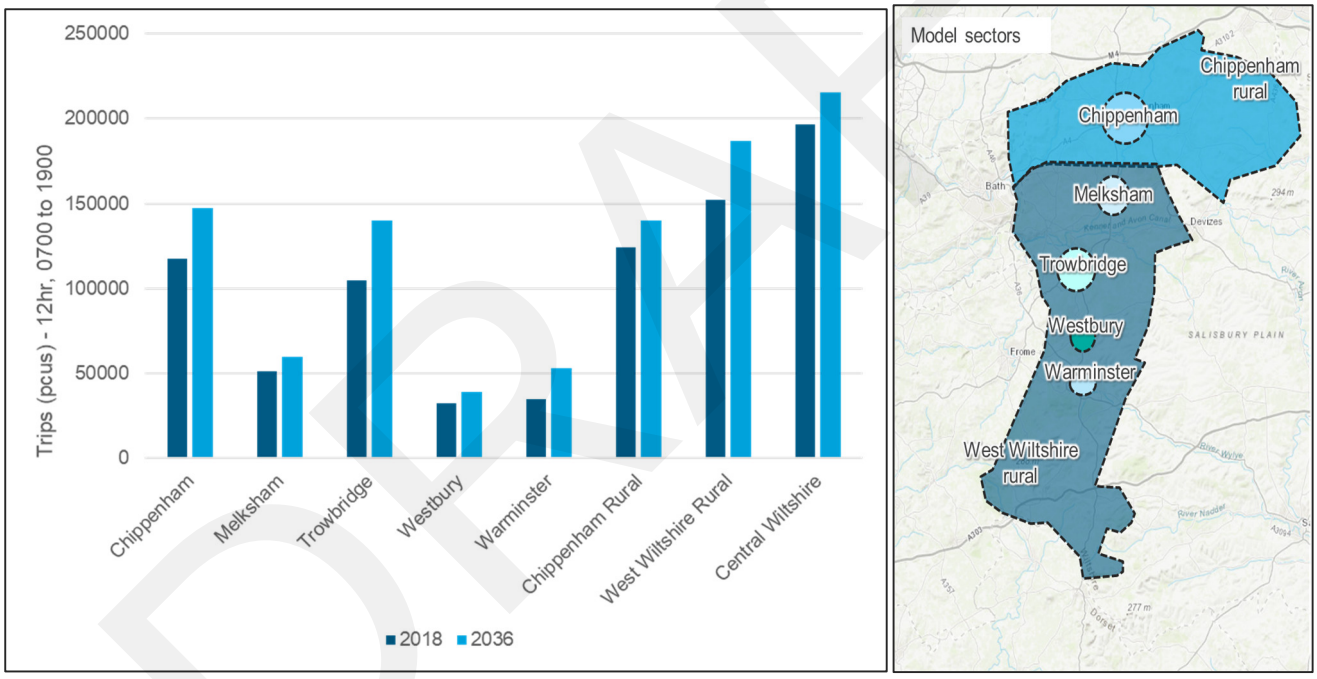
3.2.2. Forecast traffic demands (Wiltshire Transport Model)

The Wiltshire Transport Model (WTM) is the current forecasting tool relevant to the A350 corridor in west Wiltshire. It is a highways model focused on the Wiltshire area, but has a national coverage. The WTM takes local planning and land use assumptions together with TEMPro inputs to predict traffic demands in future forecast years.

Based on a core growth scenario[19] between 2018 (model base year) and 2036 (model forecast year) the WTM forecasts an increase in highways demand for the Wiltshire area of 12% to 20%. This varies by time period: AM peak +12%; Inter-peak +20%; and PM peak +16%. The higher growth in the Inter-peak period is consistent with the TEMPro analysis for the Melksham community area referred to previously.

At a more detailed level, the differences in traffic demand growth forecast by the WTM by location can be identified **(Figure 3-5)**. Between 2018 and 2036 the WTM forecasts an increase in 12-hour vehicle trip ends for the Principal Settlements of Trowbridge and Chippenham of 35,000 and 30,000 respectively. This is consistent with the focus of housing and employment growth in the core growth scenario. In relation to Melksham, the forecast increase in 12-hour vehicle trip ends is approximately 9,000 – this represents a 17% increase between 2018 and 2036.

Figure 3-5 - Change in forecast 12-hr vehicle trip ends 2018-2036 (Wiltshire Transport Model, core growth scenario)

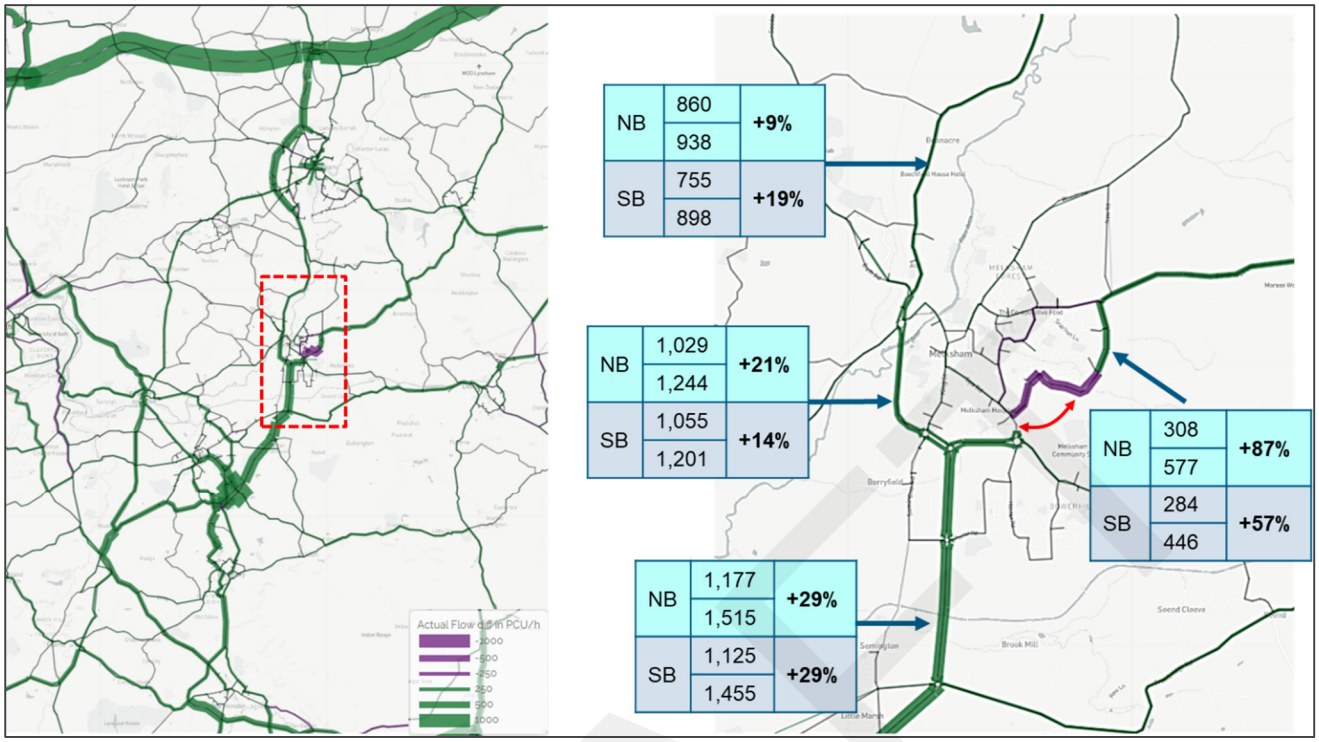


3.2.3. Forecast A350 traffic flow changes (Wiltshire Transport Model)

The forecast increases in travel demand is directly related to predicted traffic flows on the highway network **(Figure 3-6)**. Average hourly AM peak period traffic flows on the A350 through Melksham are forecast to increase by up to 30%. The forecast traffic growth is greatest to the south of Melksham, although it should be recognised that some traffic may be diverting away from the A350 to use alternative routes as traffic volumes increase. Significant forecast increases in traffic flow on the A350 at Trowbridge and Chippenham are also evident.

[19] The WTM core growth scenario reflects land use or transport supply changes with a high degree of certainty (in this case mainly reflecting the current Wiltshire Core Strategy), with overall growth across the modelled area controlled to TEMPro. The WTM will be used to further consider alternative growth scenarios as part of the Outline Business Case.

Figure 3-6 - Forecast change in traffic flows 2018 to 2036, AM average peak hour (Wiltshire Transport Model)



3.3. Future changes to the transport system

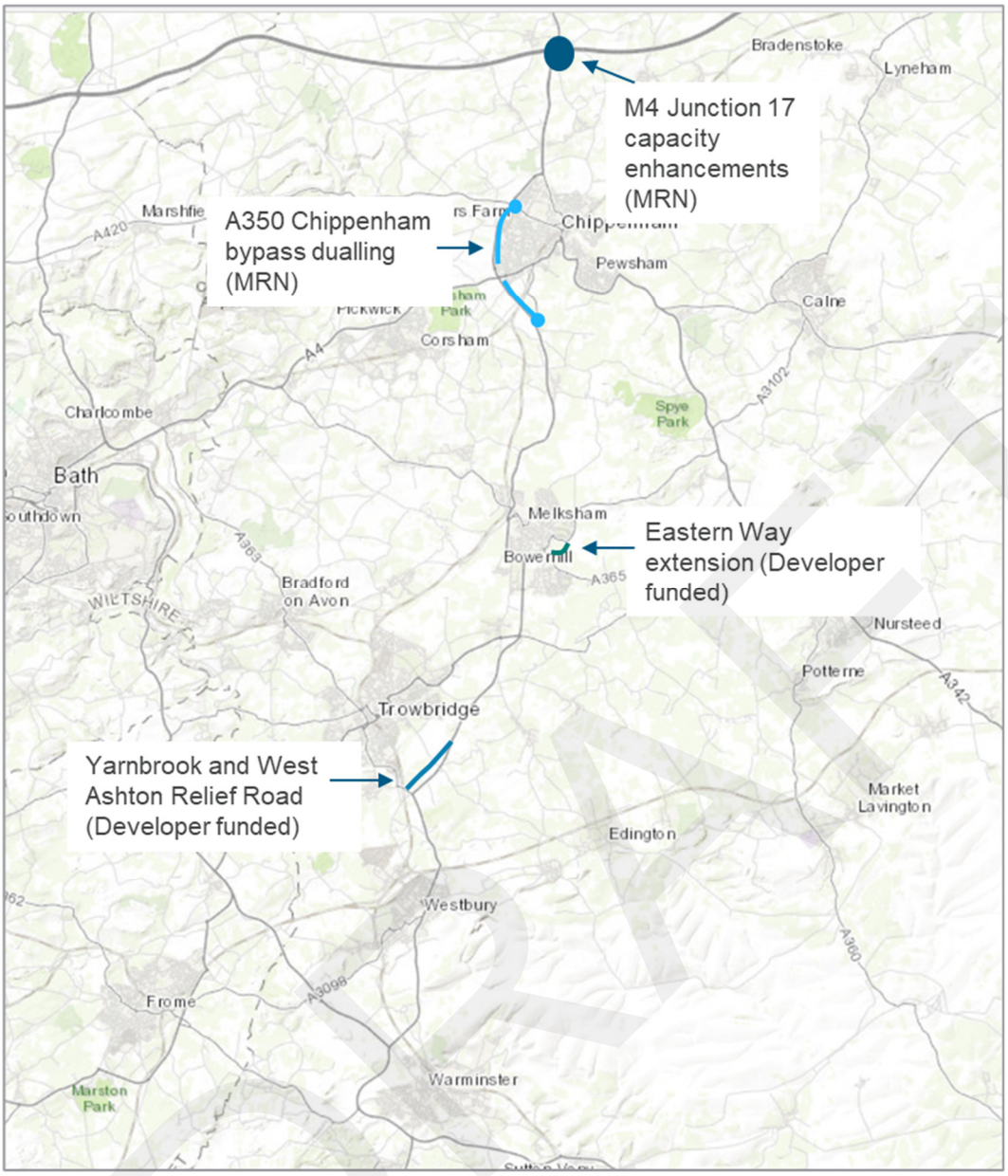
Other transport schemes and proposals which are already committed or planned could have a bearing on the consideration of transport intervention for the A350 at Melksham.

Summary of key points

- Other potential planned transport schemes of relevance include: capacity improvements at M4 Junction 17 (MRN funding application); A350 Chippenham Bypass dualling phases 4 and 5 (MRN funding application); and Yarnbrook and West Ashton Relief Road (developer led).
- Within Melksham, a housing site to the south east of the town for 450 dwellings received planning consent in 2016. The development is conditional on the provision of a new link road which extends the current Eastern Way through to a new junction with Spa Road (between the existing Spa Roundabout and Snowberry Road roundabout).
- The Bath Clean Air Zone (CAZ) became operational in March 2021. Private cars are not charged, but many trucks, lorries, vans and HGVs have to pay a charge to enter the zone. Whilst recognising Bath and North East Somerset Council's desire to improve air quality Wiltshire Council has expressed concerns that many drivers will reroute through Wiltshire communities to avoid paying the charge, potentially aggravating issues with traffic congestion and air quality. This could potentially include impacts on the A350.

The most relevant and likely changes to the transport network have been identified **(Figure 3-7)** and are summarised below. Infrastructure more directly associated with potential new development site allocations (via the Local Plan Review) are not included here as these are not currently adopted by Wiltshire Council.

Figure 3-7 - Location of future changes to the transport network



3.3.1. M4 Junction 17 improvements

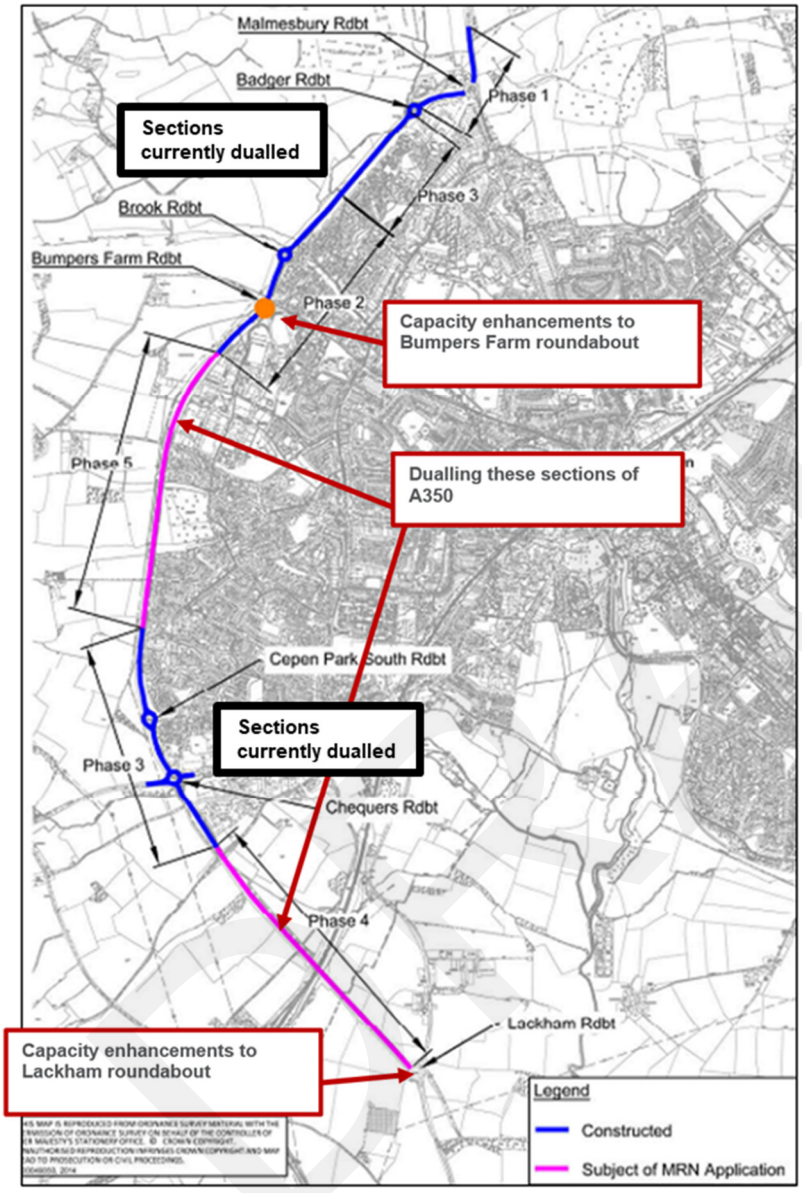
The A350 connects with the M4 at its northern end via Junction 17. Improvement works, including part-signalisation of the roundabout, have taken place in recent years such as works funded from the Local Growth Fund. A mitigation scheme associated with the Chippenham Gateway development (south of the junction) is due to be implemented in 2021.

Further enhancements to the junction are currently proposed via the MRN fund and Wiltshire Council is currently preparing the Outline Business Case for the scheme which is intended to provide a more comprehensive upgrade to the junction in light of future housing and employment growth and increased travel demands. The scheme involves: widening and signalisation of the A350, A429 and B4122 approaches and both northern and southern circulatory; widening of all M4 on / off-slips; and increasing the number of lanes on the overbridges from 2 to 3 (via use of narrow lanes). If funding is secured the scheme is expected to be implemented by 2024.

3.3.2. A350 dualling (Chippenham)

This scheme is also being progressed through the MRN fund and seeks to dual the remaining sections of the A350 to the west of Chippenham **(Figure 3-8)**. This would mean that the A350 would become dual carriageway continuously from M4 Junction 17 to the south of Chippenham. Wiltshire Council has submitted the Outline Business Case to government and the outcome is pending. If successful it is expected that the scheme would be implemented by 2024.

Figure 3-8 – A350 Chippenham Dualling Phases 4 & 5



3.3.3. A350 Yarnbrook and West Ashton Relief Road

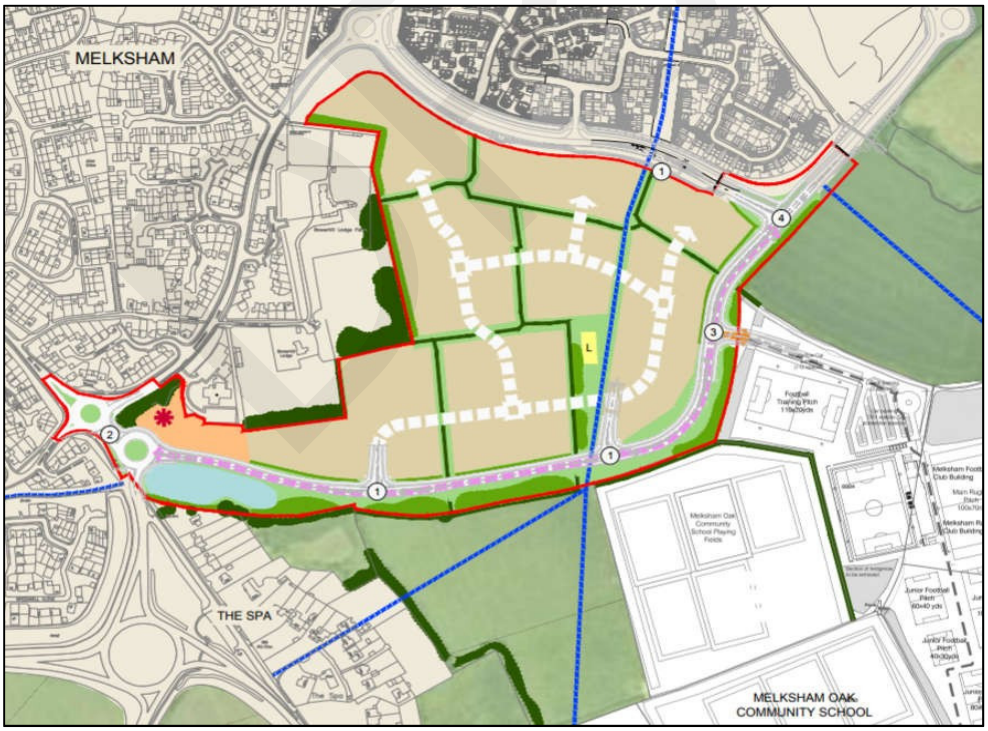
The A350 Yarnbrook and West Ashton Relief Road is designed to alleviate current and future network capacity issues to the south-east of Trowbridge and facilitate the proposed Ashton Park development of about 2,600 dwellings. It comprises 2.5km of new carriageway, bypassing the village of West Ashton, and providing links to West Ashton, the Yarnbrook Roundabout and Ashton Park development, with the existing A350 stopped up to through traffic **(Figure 3-9)**. The scheme is currently planned to commence in 2021, although the timescales are dependent upon the progress of the development.

Figure 3-9 - Plan of proposed A350 Yarnbrook and West Ashton Relief Road

3.3.4. Extension of Eastern Way distributor road, Melksham

In 2016 planning permission was granted for a development of up to 450 dwellings east of Spa Road in Melksham **(Figure 3-10)**. The development is conditional on the provision of a new link road which extends the current Eastern Way through to a new junction with Spa Road (between the existing Spa Roundabout and Snowberry Road roundabout). The link would also provide access to the planned Melksham Health and Wellbeing Centre / sports campus via priority junctions including right-turning lanes.

Figure 3-10 - Plan of proposed extension to Eastern Way distributor road, Melksham



3.3.5. Bath Clean Air Zone

The Bath Clean Air Zone (CAZ) became operational very recently in March 2021. The CAZ sees some vehicles that do not meet emission standards charged to enter some parts of Bath. Private cars are not charged, but many trucks, lorries, vans and HGVs have to pay a charge to enter the zone. Whilst recognising Bath and North East Somerset Council's desire to improve air quality Wiltshire Council has expressed concerns that many drivers will reroute through Wiltshire communities to avoid paying the charge, potentially aggravating issues with traffic congestion and air quality. This could potentially include impacts on the A350.

Wiltshire Council has publicly shared its correspondence with key figures on the Bath CAZ following discussions at its Cabinet meeting on Tuesday 16 March[20]

[20] https://www.wiltshire.gov.uk/news/bath-clean-air-zone-correspondence

4. Establishing the need for intervention

Based upon the current and future context (Chapters 2 and 3), the next step involves identifying and evidencing the key problems and issues relating to the A350 at Melksham in order to establish the rationale for intervention. This chapter covers:

- current transport-related problems;
- future transport-related problems; and
- underlying causes and drivers.

Summary of key points

- Based on the evidence considered and stakeholder consultation, key transport problems with respect to the A350 at Melksham / Beanacre are: journey times and delays; poor journey time reliability; collisions (road safety); severance; and localised noise, disturbance and emissions. Collectively, these transport problems have the potential to create wider negative impacts on economic, environmental and social outcomes in Melksham and the wider A350 corridor.
- Journeys on the A350 at Melksham during the peak and inter-peak periods typically take 2 to 3 minutes longer compared to free-flow conditions (an increase of up to 30%). For the AM 0800-0900, in the northbound direction journey times are 5 minutes longer (an increase of 50%).
- Average speeds on the A350 through Melksham are relatively low and affected by varying speed limits.
- There are accident clusters identified on the A350 route. Accident rates are higher on the A350 at Melksham compared to other routes
- Future traffic growth in the A350 corridor, linked to new housing and economic activity, is likely to exacerbate many of the issues identified. Traffic model forecast data predicts average peak period journey times on the A350 through Melksham to increase by approximately 10% to 13% between 2018 and 2036 (equating to approximately 1 to 2 minutes additional journey time per vehicle).
- Further traffic growth and increased delays are likely to lead to traffic seeking to use alternative, less-suitable routes which could extend traffic-related issues to other surrounding communities.
- Key underlying causes of the issues relate to the level of traffic demand (current and future) exceeding the capacity of the existing route, the inconsistency in the standard of the route and speed limits, and the multiple land uses and functions served by the A350 at Melksham.

4.1. Current transport related problems

Key issues have been identified through a comprehensive review and analysis of relevant datasets, site visits, plus feedback from stakeholders. The following sections detail the issues identified in relation to:

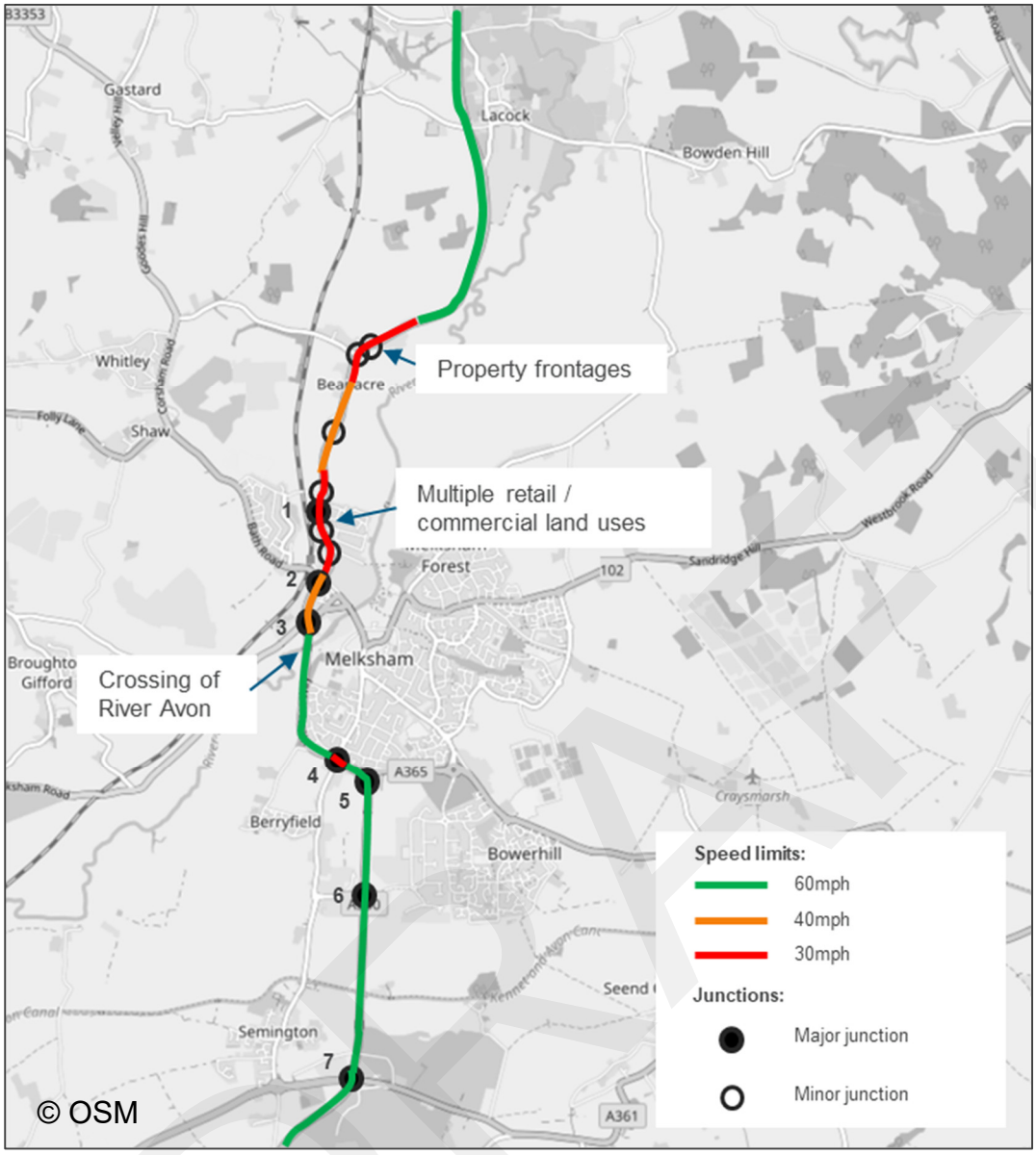
- A350 journey times and delays;
- A350 journey time reliability;
- Collisions; and
- Severance.

4.1.1. A350 journey times and delays

Route standard

The Beanacre-Melksham section of the A350 is the only part of the route north of Westbury where it passes through significant settlements including 30mph zones. The central section in Melksham between Farmers Roundabout and Leekes Department Store poses challenges due to physical constraints including housing frontages on to the road, and a succession of busy junctions which provide access to Melksham town centre, Asda superstore, A365 Bath Road and Leekes, along with other retail and housing developments **(Figure 4-1)**.

Figure 4-1 - Key characteristics of the A350 route through Melksham



A350 journey times Semington to Beanacre

Journey times on the A350 are relevant in terms of both individual users and in terms of the wider economy / society.

Journey time data collected by TomTom from satellite navigation devices for the A350 through Melksham has been analysed for 2019[21] (excluding times when roadworks have been identified as occurring in these months). The data is based on seven time periods for four sections of the A350 through Beanacre and Melksham with a total length of 8.1 kilometres **(Figure 4-2)**.

[21] More recent 2020 data was not used due to irregularities due to Covid and lockdowns. The Farmers Roundabout signalisation scheme was implemented in October 2019.

Figure 4-2 - A350 Melksham-Beanacre route sections used in TomTom journey time analysis

A comparison of typical 'free-flow' (e.g. overnight) journey times against other time periods during the day allows observations to be made in relation to the impact of traffic conditions on journey times **(Table 4-1 and Table 4-2)**.

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Table 4-1 - A350 Average journey times through Melksham (Northbound)

Analysis	Overnight (free-flow)	Weekday morning (0700-0800)	Weekday morning (0800-0900)	Weekday Inter-peak (0900-1500)	Weekday afternoon (1600-1700)	Weekday afternoon (1700-1800)	Saturday (1100-1300)
Time	09:39	12:25	14:37	12:26	12:21	12:45	11:07
Difference	-	02:46	04:58	02:47	02:42	03:06	01:28
%	-	29%	51%	29%	28%	32%	15%

Data collected anonymously from vehicles with TomTom satellite navigation devices

Table 4-2 - A350 Average journey times through Melksham (Southbound)

Analysis	Overnight (free-flow)	Weekday morning (0700-0800)	Weekday AM peak hour (0800-0900)	Weekday Inter-peak (0900-1500)	Weekday afternoon (1600-1700)	Weekday PM peak hour (1700-1800)	Saturday (1100-1300)
Time	09:43	10:55	12:01	12:22	12:20	12:49	10:36
Difference	-	01:12	02:18	02:39	02:37	03:06	00:53
%	-	12%	24%	27%	27%	32%	9%

Data collected anonymously from vehicles with TomTom satellite navigation devices

Based on the average total journey times for the whole route (all four sections) the key observations include:

- Free-flow journey times are very similar in northbound and southbound directions - 9m 39s and 9m 43s respectively.
- During the peak and inter-peak periods for the northbound direction, journeys typically take 2 to 3 minutes longer compared to free-flow conditions. For the AM 0800-0900, journey times are 5 minutes longer – increasing the total journey time to almost 15 minutes.
- In the southbound direction journeys typically take 2 to 3 minutes longer compared to free-flow conditions for most time periods, with journeys taking almost 13 minutes in the PM 1700-1800.
- The greatest journey time increases being AM peak northbound and PM peak southbound suggests a tidal nature in the flows. It should be noted that journey times northbound and southbound in the PM peak are similar, but AM peak journey times are significantly higher northbound than southbound.

A350 journey times by route section

Further insights into the traffic conditions and journey times on the route have been gained by analysing the data by each individual route section **(Table 4-3 and Table 4-4)**.

Table 4-3 - A350 Average journey times through Melksham (individual sections northbound)

	Section	Analysis	Overnight (free-flow)	Weekday morning (0700-0800)	Weekday AM peak hour (0800-0900)	Weekday Inter-peak (0900-1500)	Weekday afternoon (1600-1700)	Weekday PM peak hour (1700-1800)	Saturday (1100-1300)
Northbound	**South of Melksham**	Time	02:59	03:43	04:42	03:23	03:43	03:59	03:09
		Difference	-	00:44	01:43	00:24	00:44	01:00	00:10
		%	-	25%	58%	13%	25%	34%	6%
	Southern	Time	00:01:58	03:13	04:03	03:09	02:45	02:55	02:15
		Difference	-	01:15	02:05	01:11	00:47	00:57	00:17
		%	-	64%	106%	60%	40%	48%	14%
	Central	Time	00:02:06	02:37	02:58	03:00	03:00	02:58	02:54
		Difference	-	00:31	00:52	00:54	00:54	00:52	00:48
		%	-	25%	41%	43%	43%	41%	38%
	Northern	Time	00:02:36	02:52	02:54	02:54	02:53	02:53	02:49
		Difference	-	00:16	00:18	00:18	00:17	00:17	00:13
		%	-	10%	12%	12%	11%	11%	8%

Data collected anonymously from vehicles with TomTom satellite navigation devices

Table 4-4 - A350 Average journey times through Melksham (individual sections southbound)

	Section	Analysis	Overnight (free-flow)	Weekday morning (0700-0800)	Weekday AM peak hour (0800-0900)	Weekday Inter-peak (0900-1500)	Weekday afternoon (1600-1700)	Weekday PM peak hour (1700-1800)	Saturday (1100-1300)
Southbound	**North**	Time	02:29	02:42	02:46	03:15	03:18	03:17	02:41
		Difference	-	00:13	00:17	00:46	00:49	00:48	00:12
		%	-	9%	11%	31%	33%	32%	8%
	Central	Time	02:27	02:39	03:03	03:55	03:22	03:22	02:59
		Difference	-	00:12	00:36	01:28	00:55	00:55	00:32
		%	-	8%	24%	60%	37%	37%	22%
	Southern	Time	01:59	02:11	02:27	02:05	02:16	02:26	01:59
		Difference	-	00:12	00:28	00:06	00:17	00:27	00:00
		%	-	10%	24%	5%	14%	23%	0%
	South of Melksham	Time	02:48	03:23	03:45	03:07	03:24	03:44	02:57
		Difference	-	00:35	00:57	00:19	00:36	00:56	00:09
		%	-	21%	34%	11%	21%	33%	5%

Data collected anonymously from vehicles with TomTom satellite navigation devices

Key observations in relation to journey times on different route sections include:

- For northbound journeys, the central section (from Farmers Roundabout to Leekes) and the southern section (Farmers Roundabout to Western Way Roundabout) experience the greatest increase in journey times, by 40% to 70% for most of the peak and inter-peak periods.
- In the AM peak northbound journey times on the southern section increase by over 100%.
- For southbound journeys the central section demonstrates the greatest increase in journey times, by 30% to 60% in many time periods. The greatest increase occurs in the inter-peak period – this may be associated with the retail and commercial uses on this section.

- The northern section (through Beanacre) experiences relatively modest journey time increases in the northbound direction (up to 12%), with greater journey time increases of up to 33% in the southbound direction.

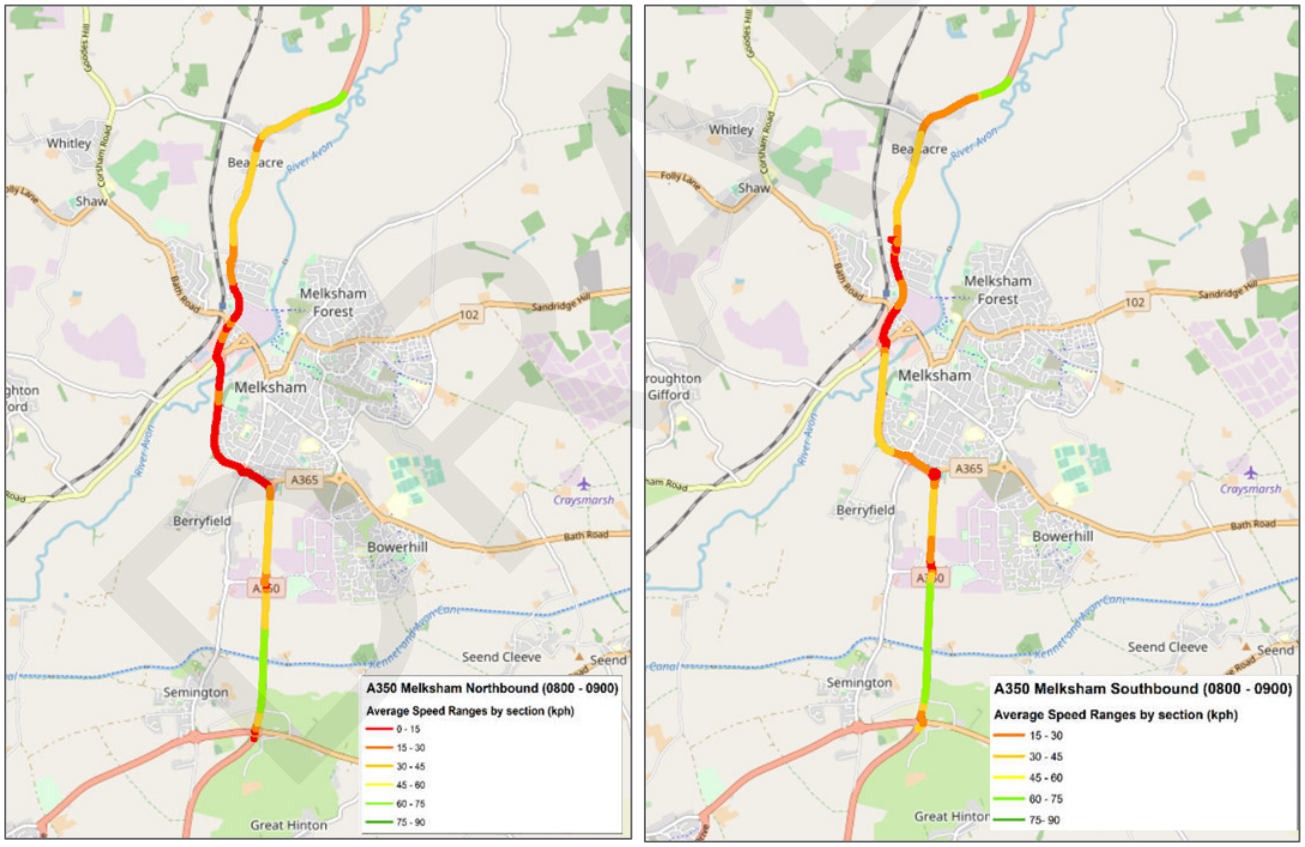
Overall, the analysis indicates notable differences in journey time performance along the A350 route at Melksham. Particular sections experiencing congestion and delays are from Western Way Roundabout to Leekes on the northern edge of Melksham, with significant delays occurring in both directions throughout the day. On the southern section in the northbound direction journey times are more than double the free-flow time in the AM peak.

Average vehicle speed

Average vehicle speeds experienced along the route are a function of the speed limits **(Figure 4-1)** and traffic conditions. Consequently, as demonstrated by the TomTom data, there is a significant variation in average vehicle speeds along the route **(Figure 4-3)**. Whilst performance is generally better in the northern section through Beanacre, the 30mph limit for a large part of this section means average vehicle speeds remain low compared to sections of the A350 outside Melksham-Beanacre.

Delays experienced at the various junctions through the central section (Farmers – Bath Road – Leekes) and southern section (Semington – Western Way) are notable and have a significant impact on average speeds and journey times.

Figure 4-3 - Average vehicle speed recorded on A350 through Melksham in AM Peak (0800 – 0900)



4.1.2. A350 journey time reliability

Further analysis of the TomTom data identifies variability in journey times **(Figure 4-4)**. This indicates the extent to which journey times are likely to fluctuate from day to day, for different time periods. Key points include:

- The weekday AM peak hour northbound experiences the greatest variation in journey time, with a range of over twenty minutes between the 5th and 95th percentile. This is consistent with this section also experiencing the greatest increase in average journey time.