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Wiltshire Council

Melksham Bypass Outline Business Case

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Outline Business Case (Draft)

12/11/21
A1

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This document has 305 pages including the cover.

Document history

Revision	Suitability	Purpose description	Originated	Checked	Reviewed	Authorised	Date
C01	A1	First Draft	**NW**	**AM**	**NW**	**AM**	**12**/11/21

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Purpose

Wiltshire Council is promoting a bypass scheme for the A350 at Melksham and is seeking funding from the Large Local Majors (LLM) fund administered by the Department for Transport (DfT). This Outline Business Case (OBC) represents 'Phase Two' of the three-phase DfT approval process. A Strategic Outline Business Case (SOBC) was approved by the DfT in March 2020.

Background

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. It forms a key strategic route in the Western Gateway area and also underpins the A350 Growth Zone, which is one of three key housing and employment growth focus areas in Wiltshire and Swindon.

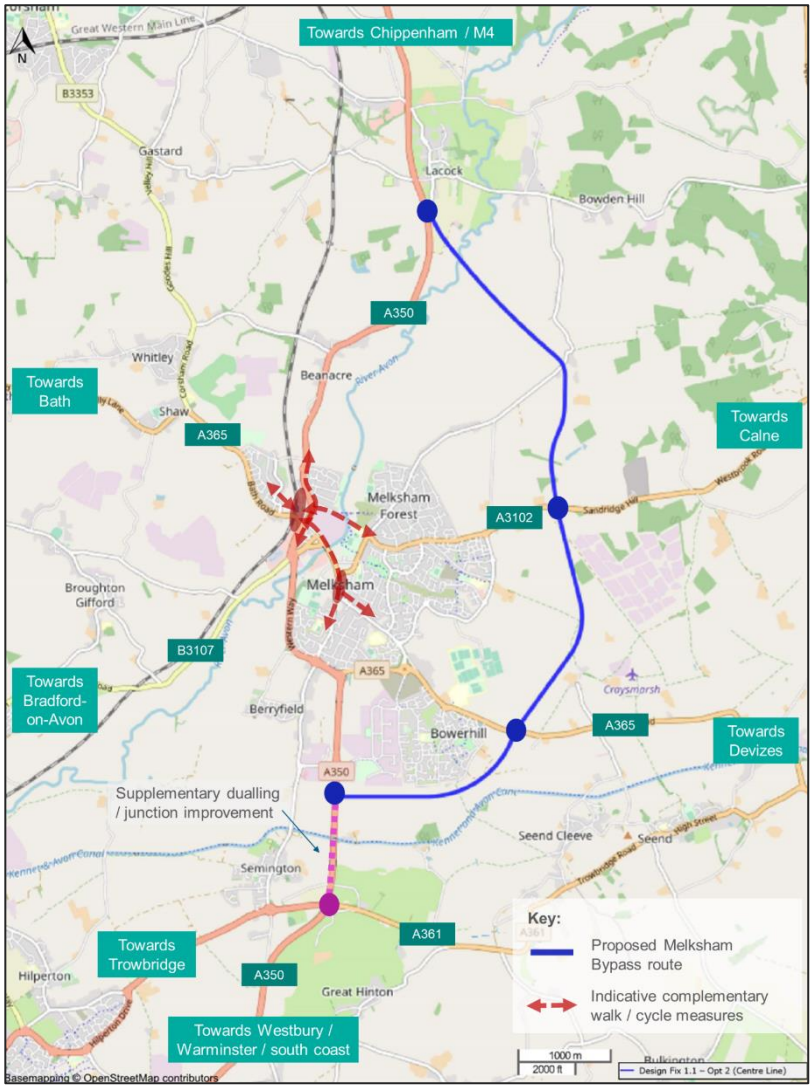
It has been a longstanding priority for Wiltshire Council to improve north-south connectivity via the A350 corridor, including alternatives to road travel such as rail. A number of improvements to the A350 corridor have been delivered by Wiltshire Council in recent times. The A350 Melksham Bypass scheme, in conjunction with further proposed MRN schemes at Chippenham and M4 Junction 17, reflects Wiltshire Council's continued, co-ordinated and strategic approach to the improvement of the corridor. In combination, these investments would represent a substantial upgrade to the A350.

The scheme

The A350 Melksham Bypass scheme comprises:

- A **full eastern bypass**, approximately nine kilometres in length and with four junctions;
- **Modifications and enhancements to Public Rights of Way** along the bypass route;
- **Supplementary highway improvement works** to the adjacent network; and
- **Complementary walking and cycling measures** within Melksham Town and around the existing A350 route.

The current bypass proposal is based on an 'emerging route', which was subject to consultation in summer 2021. Potential variants raised are to be considered further by Wiltshire Council.



Strategic Case

Rationale

The section of the road through Beanacre and Melksham has been a concern for many years. It has sections with 30mph speed limits passing through residential areas, with several busy junctions providing access to Melksham town centre, retail and commercial sites, the A365 Bath Road and A3102. The route is not suitable for the high traffic volumes (up to 35,000 vehicles daily, including c.8% HGVs). It also serves multiple functions and caters for both local and strategic traffic; it is not only the main north-south route through the town, but also the main east-west through route, and it further provides access to the town centre and retail developments along the A350 itself for local traffic. Approximately 40% of all traffic entering or leaving Melksham on the A350 via Beanacre is through-traffic.

A strong evidence base and stakeholder feedback point to five key related problem areas which are addressed by the scheme:

- A350 journey times and delays (slow moving traffic, not limited only to peak times);
- A350 journey time reliability (variability in traffic conditions);
- Collisions (safety);
- Severance (particularly east-west, e.g. between the town and the station and retail areas); and
- Noise disturbance and air quality.

Forecast traffic growth on the A350 (up to 20% to 30% by 2036) is expected to exacerbate these issues.

Strategic fit

The scheme has a **strong strategic alignment** with local and national policy and strategic priorities, including:

- Strategic priorities of the Western Gateway Sub-national Transport Body for enhanced north-south connectivity within the region to improve links between the M4 and south coast (including the ports) and increase economic productivity levels.
- Facilitating further jobs and housing growth within the A350 Growth Zone, which is a major component of Swindon and Wiltshire Local Enterprise Partnership's economic growth strategy.
- The need for a continued focus on housing delivery (in a sustainable manner) within the West Wiltshire towns in the A350 corridor in order to meet required housing targets, as established through Wiltshire Council's emerging Local Plan Review (to 2036).
- National priorities within the Transport Investment Strategy relating to creating a more reliable, less congested, and better connected transport network and building a stronger, more balanced economy.
- National Highway's M4 to Dorset Coast Connectivity strategic study (as part of RIS2), which is reviewing the function and role of key north-south routes, including the A350.
- Local priorities and outcomes for Melksham and the surrounding area established within Neighbourhood Plans, including town centre regeneration, access to services and health and wellbeing.

Options considered

A broad range of potential solutions has been considered (including non-road based) and stakeholder input has informed the option sifting and assessment process. A bypass type scheme was found to be the most effective in addressing the particular issues and objectives. Long and short bypass options to the east and west of the town have been considered. A full (long) bypass option to the east was found to offer the best balance in terms of impacts against objectives, cost, value for money and deliverability. It was further identified that this should be supported by a package of complementary walking and cycling measures within the town (on and around the existing A350). Several potential bypass route alignments have been considered and resulted in the identification of an 'emerging route', which was the subject of consultation in summer 2021.

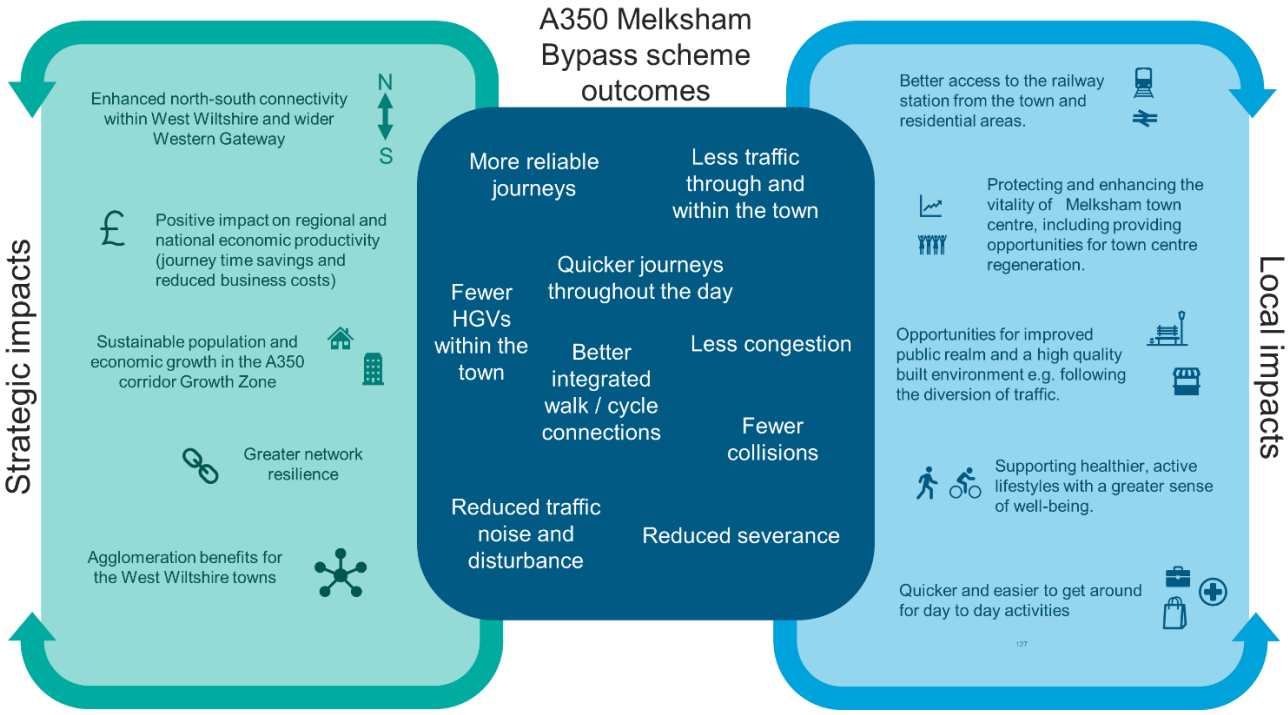
Scheme outcomes and impacts

The scheme is expected to be effective in addressing all five of the identified transport objectives:

- Reducing average north-south A350 journey times between Semington (south of Melksham) and Lacock (north of Melksham) by an average of 2.5 minutes per vehicle throughout the day, and increasing average speeds by 21kph (in a 2036 forecast year compared to without the scheme).
- Reducing average journey times on the other targeted routes through Melksham by 0.8 to 2.2 minutes per vehicle on average.
- Significantly reducing average two-way 12-hour AADT flows on the existing A350 route, by approximately 11,000 to 14,000 vehicles (equivalent to a 40% to 70% reduction), including up to 1,000 HGVs.
- Reducing the east-west severance effect of the A350. The complementary walking and cycling measures seek to build upon this opportunity and lock in the benefits of traffic reduction due to the bypass. This will result in a better-connected walking and cycling network for Melksham and encourage greater use of these modes.
- Reducing collisions by approximately 250 to 580 over a 60-year period; equivalent to a saving of approximately 4 to 10 collisions per year on average.

Through these primary transport outcomes the scheme will contribute to wider strategic and local impacts. At the strategic scale, it will enhance north-south regional connections between the M4, West Wiltshire and beyond to the south coast. At the local scale, it also tackles traffic-related severance, noise and safety concerns and supports sustainable development and regeneration of Melksham town.

Scheme outcomes and impacts



Consequences of not progressing the scheme

As part of a wider package of upgrades to the A350 intended to support housing and employment growth plans within the A350 Growth Zone, the omission of the Melksham Bypass scheme would increase the likelihood of the A350 becoming a key constraint, thus slowing economic growth. This is particularly the case given the strategic central location of Melksham within the West Wiltshire A350 corridor.

Further consequences relate to the development of Melksham town itself, with the bypass seen to be key to facilitating town centre regeneration and improving the local environment on and around the existing A350 route

Economic Case

Approach

Economic appraisal has been undertaken in line with DfT Transport Appraisal Guidance (TAG). Much of the appraisal is underpinned by predictions of the scheme impacts using the Wiltshire Transport Model (WTM); this is a strategic highways traffic model developed in line with relevant guidance and demonstrated to be a suitably robust and appropriate tool to assess the scheme impacts.

Monetised and non-monetised impacts have been assessed, relating to economic, environmental and social impacts. All typical monetised impacts (as recognised by DfT) are incorporated.

The economic appraisal is predominantly based on a Core scenario, reflecting land use and transport supply changes with the greatest certainty. Other alternative scenarios have also been assessed to consider: the scheme in combination with the other A350 MRN schemes; the emerging Local Plan; low growth; and high growth.

Overall Value for Money

The scheme is assessed as having a **final Value for Money (VfM) category of 'Low-Medium'**.

Based on the Core scenario, the scheme produces an Initial Benefit Cost Ratio (BCR) of 1.31, and an **Adjusted BCR of 1.55**.

The Core scenario Adjusted BCR produces a 'Medium' VfM category. There is a reasonable likelihood of a Medium VfM being achieved. Greater confidence could be placed on this should the development plans within the emerging Wiltshire Local Plan be realised by 2036 (with associated network mitigation) and / or national traffic growth is higher than core assumptions. If greater weight is placed on the landscape and biodiversity impacts, or traffic growth is lower than anticipated then a Low value for money outcome is possible. The scheme cost includes elements of future-proofing (provision for future dualling); these potential future cost savings are not reflected within the value for money assessment.

Value for Money categorisation

VfM category	Poor	Low	Medium	High	Very high
Likelihood	Very unlikely	Possible	Likely	Unlikely	Very unlikely

Benefit Cost Ratio

The Initial Benefit Cost Ratio (BCR) for the scenarios appraised has a range between 1.64 and 1.04, and the Adjusted BCR has a range between 1.95 and 1.23.

Initial and Adjusted Benefit Cost Ratio – all scenarios

	Core	MRN	Local Plan	Local Plan (Mitigation)	Low growth	High growth
PVB (Level 1 impacts)	£176.27m	£174.68m	£180.15m	£221.11m	£139.82m	£217.35m
Present Value of Costs (PVC)	£134.51m	£134.51m	£134.51m	£134.51m	£134.51m	£134.51m
Net Present Public Value (NPPV)	£41.76m	£40.17m	£45.64m	£86.60m	£5.31m	£82.84m
Initial BCR	1.31	1.30	1.34	1.64	1.04	1.62
PVB (Level 1 & 2 impacts)	£208.41m	£206.38m	£212.82m	£262.11m	£164.84m	£257.69m
Present Value of Costs (PVC)	£134.51m	£134.51m	£134.51m	£134.51m	£134.51m	£134.51m
Net Present Public Value (NPPV)	£73.90m	£71.87m	£78.31m	£127.60m	£30.33m	£123.18m
Adjusted BCR	**1.55**	**1.53**	**1.58**	**1.95**	**1.23**	**1.92**
Value for Money category	Medium	Medium	Medium	Medium	Low	Medium

2010 prices discounted to 2010

Present Value of Cost (PVC)

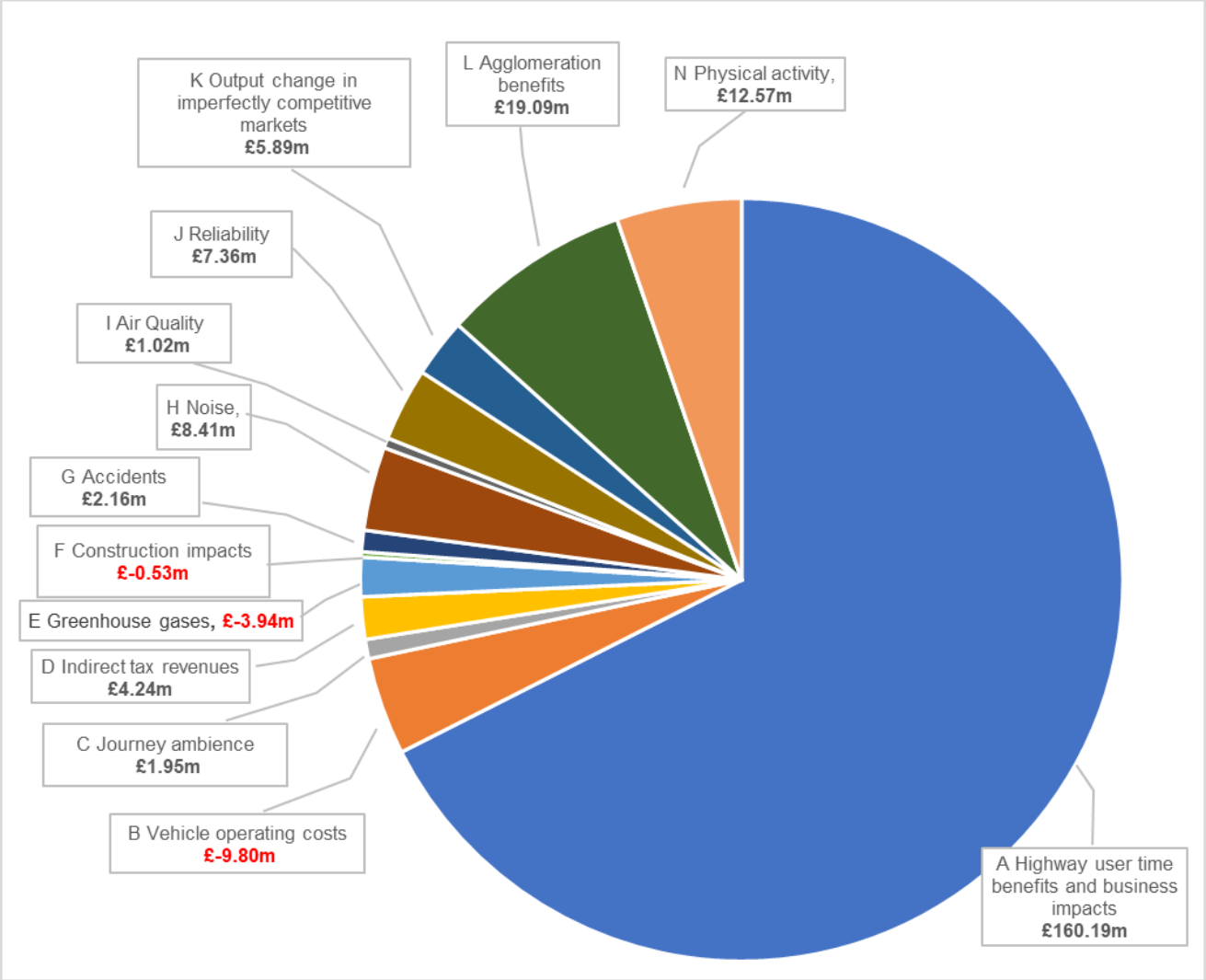
The total PVC is **£134.51m.** This covers investment cost and maintenance, and includes 23% optimism bias.

Monetised impacts

The total Present Value of Benefit (PVB) of all monetised impacts for the Core scenario is **£208.41m.** Level 1 impacts contribute **£176.27m** (85%), and Level 2 impacts contribute **£32.14m** (15%).

Travel time benefits account for the largest proportion of total monetised impacts (approximately 75%).

Breakdown of monetised impacts – Core scenario



Non-monetised impacts

Non-monetised environmental and social impacts have been assessed in line with TAG based on a seven-point scale from large beneficial to large adverse.

Landscape and biodiversity have been assessed as having a large adverse impact. These reflect a precautionary assessment as full details of potential mitigation can not be confirmed at this stage.

Assessment of non-monetised impacts

Non-monetised impact	Qualitative assessment score
Environment	
Landscape	Large adverse
Townscape	Neutral
Historic environment	Slight adverse
Biodiversity	Large adverse
Water environment	Neutral
Social	
Physical activity	Slight beneficial
Security	Neutral
Severance	Slight beneficial
Journey quality	Moderate beneficial
Accessibility	Neutral
Personal affordability	Slight adverse

Distributional impacts

The distributional impacts assessment has considered how the predicted scheme impacts might affect different social groups. All distributional impacts have been assessed as having a beneficial impact, with the exception of personal affordability which has been assessed as having a moderate adverse impact.

Uncertainty and sensitivity

The principles of the DfT's Uncertainty Toolkit have been applied to consider the implications of uncertainty and sensitivity within the economic appraisal.

Various types of uncertainty have been considered, including input uncertainty (different 'views of the world') and key modelling / appraisal assumptions and parameters. An assessment of these demonstrates that in most circumstances the outcome results in no change to the Core scenario Adjusted BCR VfM category (Medium), but in some cases results in a shift down one category (Low). It should also be noted that in some cases (e.g. 'low cost', 'high growth' and 'emerging Local Plan (mitigation)' the BCR is only marginally short of tipping into a High VfM category.

Taking into account the consideration of uncertainty, this indicates that there is a reasonable degree of certainty around the Core Adjusted BCR (and resultant Medium VfM category), but that there is also a possibility of the scheme VfM moving into a Low VfM category. As the majority of the scheme benefits are related to travel time savings, this would particularly be the case under conditions of reduced traffic demand and / or lower values of travel time saving. This is reflected within the overall VfM category of Low-Medium.

Uncertainty / sensitivity expressed through 'switching values' assessment

	Cost		Benefit	
VfM category (BCR)	Change	Likelihood	Change	Likelihood
Poor (0-1)	+£74m	Very unlikely	-£74m	Very unlikely
Low (1-1.5)	+£5m	Possible	+£6m	Possible
Medium (1.5-2)	0	Likely	0	Likely
High (2-4)	-£30m	Unlikely	+£62m	Unlikely
Very high (>4)	-£82m	Very unlikely	+£327m	Very unlikely

Financial Case

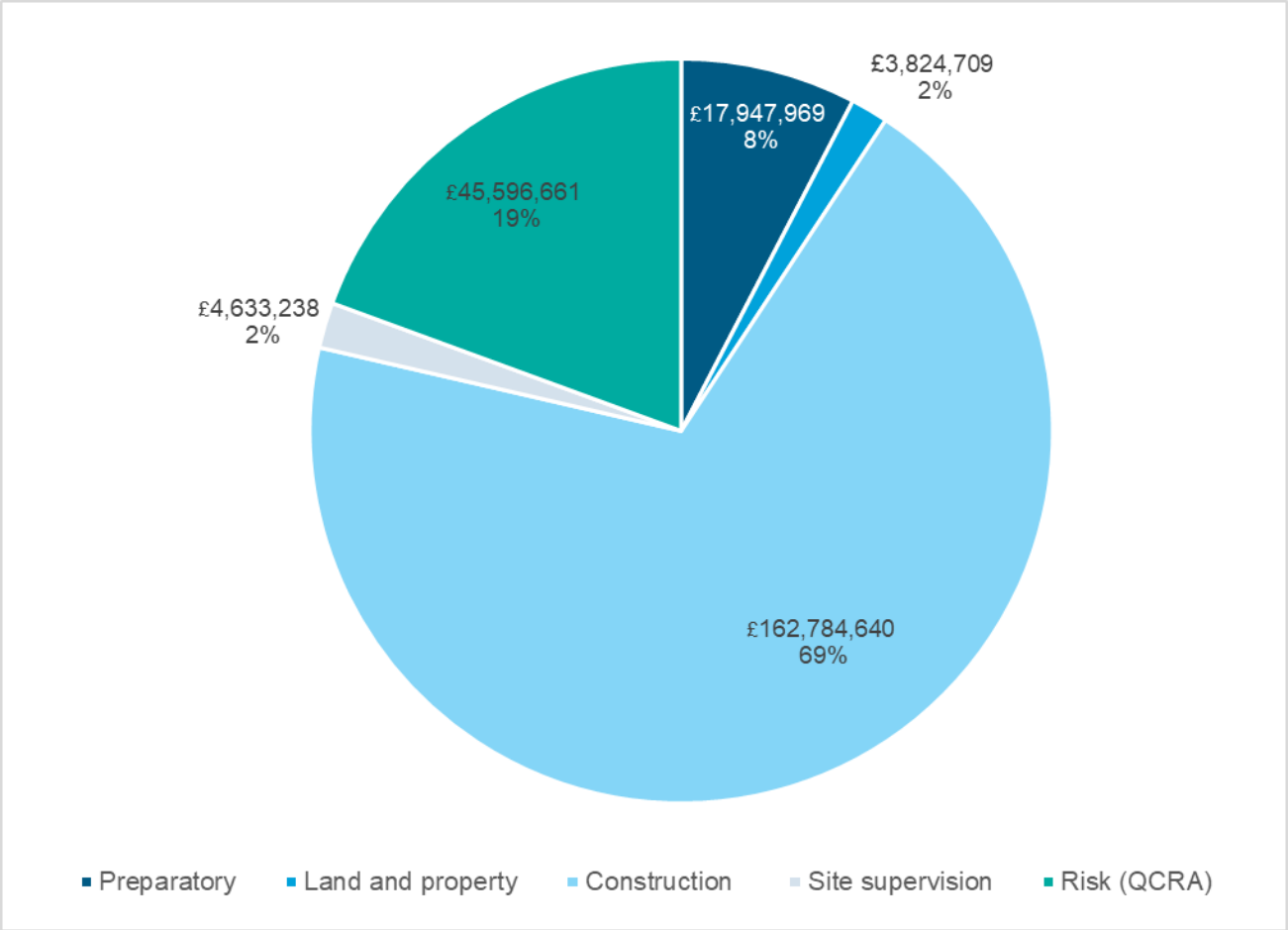
Scheme investment cost

The total estimated outturn scheme cost is £234.79 million. This is based on the current delivery programme which assumes scheme opening in 2028. The outturn cost includes inflation to the value of £53.6m.

The scheme cost estimate has been developed by Faithful & Gould based on the latest scheme scope and design specification. The estimate has been prepared in a 2019 (Q1) price base, with inflation applied to generate the final outturn cost.

The main construction works account for approximately 70% of the total cost. Risk has been valued via a Quantified Cost Risk Analysis (QCRA) and accounts for approximately 20% of scheme cost.

Breakdown of scheme outturn cost



Funding sources

It is currently anticipated that Wiltshire Council will be seeking £199.6m from the DfT Large Local Major Fund (85% of the total cost), with local contributions funding the remainder.

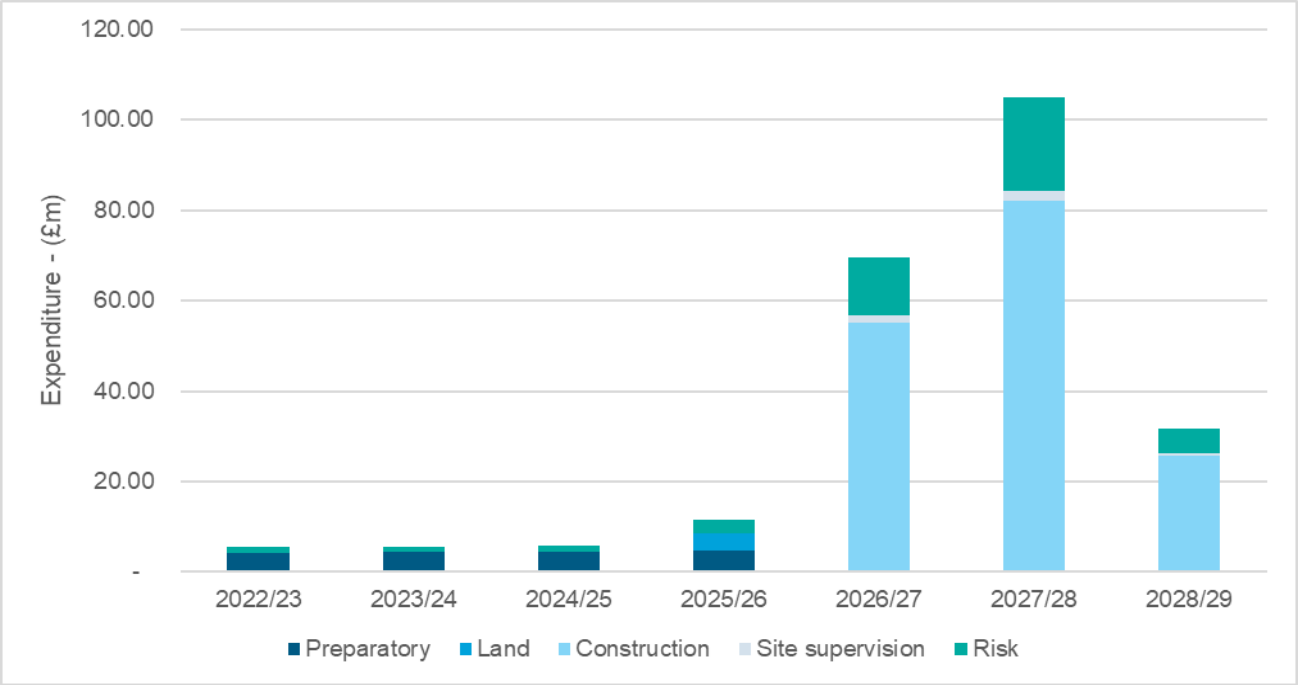
This is subject to confirmation by Wiltshire Council.

Expenditure profile

Expenditure is planned up to 2028/29. 88% of the costs are planned to be incurred between 2026/27 and 2028/29. The highest planned expenditure in any given year is £105m in 2027/28.

An even DfT / local funding split is currently assumed year-on-year. **This is subject to confirmation by Wiltshire Council.**

Planned expenditure profile



Whole life costs

Annual maintenance and capital renewals are estimated at £32.4m (2019 prices) over 60 years and are therefore expected to average approximately £0.5m per annum.

Wiltshire Council will be responsible for the maintenance of all new infrastructure created by the scheme. This will be funded through general annual maintenance budgets

Commercial Case

Procurement requirements

The design and construction of the A350 Melksham Bypass scheme is considered to be a significant project and a Procurement Strategy has been developed which would support delivery of the constituent parts in a timely, efficient, safe and cost-effective manner.

The estimated procurement value of the scheme is approximately £163 million (outturn prices for construction and preliminaries elements only). However, costs which are currently included in the risk budget and uncertainty allowance may be transferred across into the construction costs as the scheme is developed, leading to an increase in the actual value to be procured.

Preferred procurement approach and delivery model

The consideration of the procurement approach is based on a sound understanding of the specific 'needs' and 'wants' in relation to the scheme following consultation with Wiltshire Council. The key drivers are generally based around issues of cost, quality and time.

Based upon the assessment of alternative delivery models, it is currently proposed that the project would be delivered through a **'Multiparty ECI Environment'** approach. This model is based around Wiltshire Council entering into a series of contractual relationships; each supplier having an important role to play. All parties would operate in a collaborative environment, focused on Wiltshire Council's objectives.

The NEC Professional Services Contract (PSC4), Option E, would be used for the provision of the ECI services being sought.

The NEC4 Engineering and Construction Contract (ECC4), Option C, would be used for the construction aspect of the Project.

Route to market

Wiltshire Council intends to hold a market engagement event. The outcomes of this and definition of the ECI requirements will ultimately inform the final decision on selection of procurement procedure, but it is currently anticipated that the project is likely to be procured using the **Restricted Procedure**. This means that a prequalification exercise would apply and through this competition would be limited to shortlisted tenderers.

Management Case

Project governance and delivery capacity

Wiltshire Council has overall responsibility for delivery of the project. There are no other formal delivery partners. Wiltshire Council has a strong track record in delivering transport infrastructure schemes, including major schemes on the A350 route. It is confident that this project can be completed within the stated timescales and milestones.

A clear project governance structure is in place. The management team comprises the Project Manager and Project Director. Overall project progress and delivery is overseen by the A350 Melksham Bypass Project Board. The Senior Responsible Owner is Parvis Khansari (Director of Highways and Environment, Wiltshire Council).

Wiltshire Council is developing the scheme with the support of its term consultant Atkins (Member of the SNC-Lavalin Group). Atkins is a world-leading design, engineering and project-management consultancy. It brings industry-leading expertise, strategic insight and capability in relation to the planning and delivery of local and strategic highway infrastructure.

Approvals and assurance

Decision points are identified at key project milestones, aligning with the delivery programme. These include: at (OBC) funding approval; planning application submission; land acquisition and procurement / contract approval. Key decisions are made at Wiltshire Council Cabinet level in accordance with the Council's Constitution.

In addition to Wiltshire Council's own assurance processes, separate independent assurance of the project is being undertaken by Local Partnerships. This independent assurance function complements and enhances the overall project governance by providing an external perspective and is expected to benefit project delivery.

Delivery programme

A detailed project programme is in place. Post OBC approval, the programme provides for a period of approximately 2 years for preparation of the planning application, including the Environmental Impact Assessment. Timescales are largely dependent upon the necessary surveys. Assuming a positive determination of the planning application, the land assembly would then be progressed. A potential Compulsory Purchase Order (CPO) enquiry has been reflected in the programme, should this be required. Submission of the Full Business Case (FBC) is scheduled for February 2026, following completion of the land assembly and determination of the final contractor price. The contract award would follow FBC approval, with construction planned to commence in June 2026 with a duration of approximately 21 months

Project delivery milestones (summary)

Milestone (*=critical path date)	Milestone
Outline Business Case submission	Nov-21
DfT approval of OBC	Jan-22
Preliminary design commences	Feb-22
Pre-application (planning) submitted	Nov-23
Procurement ITT	Feb-24
Planning application submitted (including Environmental Impact Assessment)	Feb-24
Preferred bidder selected	Aug-24

Planning application determination	Sep-24
Detailed design commences	Sep-24
Landowner negotiations completed (CPO process commences if necessary)	Oct-24
CPO inquiry (if required- provision made within programme)	Apr-25
Secretary of State approval (planning)	Oct-25
Detailed design completed	Oct-25
End of judicial review period	Dec-25
Final contractor price	Dec-25
Land assembly complete	Feb-26
Full Business Case submission	Feb-26
DfT approval of FBC	Apr-26
Award of contract	May-26
Start Construction	Jun-26
Finish Construction	Apr-28

The scheme is not dependent upon other schemes, projects or programmes; rather it would complement the proposed MRN A350 schemes at Chippenham and M4 Junction 17.

Risk management

Risk management is being undertaken by Faithful & Gould (Member of the SNC-Lavalin Group), which provides leading project management consultancy within the construction sector. Risk workshops (involving all aspects of project delivery) have informed the current Risk Register, and a Risk Management Plan is in place.

Risks are considered to be generally typical for a project of this nature / scale at this stage of development. The Risk Register identifies mitigations with relevant owners and is reviewed on a regular basis in line with the project governance.

Stakeholder management

Stakeholders have been, and will continue to be, actively involved in the project development. Wiltshire Council has undertaken two consultation exercises to inform the development of the OBC. A Stakeholder Engagement and Communications Plan is in place which sets out who the stakeholders are and how they will be engaged throughout the lifecycle of the project.

Benefits realisation, monitoring and evaluation

A Benefits Realisation, Monitoring and Evaluation Plan has been developed which identifies the key desired outcomes and wider impacts related to the scheme and the proposed means of monitoring these. This is underpinned by the Logic Map.

The monitoring and evaluation framework includes assessment of the:

- **scheme inputs and outputs** (e.g. outturn cost, delivery timescales and scope);
- **outcomes** (e.g. changes in travel demand, journey time and network performance); and
- **wider outcomes and impacts** (e.g. local walking / cycling activity, local accessibility, economic performance within the A350 Growth Zone).

Introduction

Wiltshire Council is promoting a bypass scheme for the A350 at Melksham for submission to the Large Local Majors (LLM) fund administered by the Department for Transport (DfT). It addresses existing and future congestion issues and contributes to both strategic and local outcomes. At the strategic scale it will enhance north-south regional connections between the M4, West Wiltshire and beyond to the south coast. At the local scale it also tackles traffic-related severance, noise and safety concerns and supports sustainable development and regeneration of the town.

The scheme is 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.

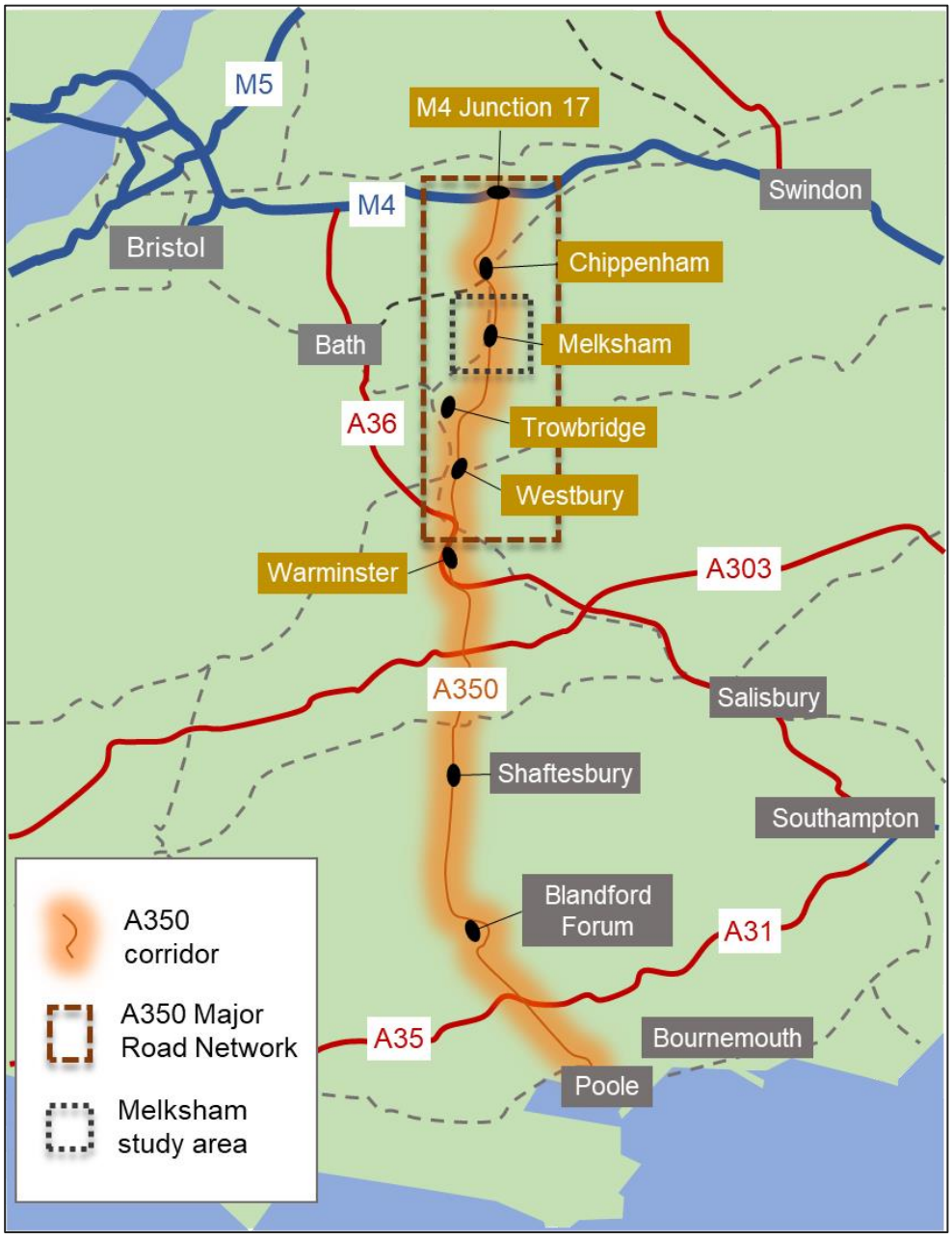
This Outline Business Case (OBC) represents the next business case milestone in the decision-making process. It builds upon the SOBC and is informed by further technical inputs relating to design / engineering, environmental assessment, traffic modelling and appraisal. It is further informed by stakeholder engagement events undertaken during 2020/21.

1. Background and introduction

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 also **underpins the A350 Growth Zone**, which is one of three key housing and employment growth focus areas in Wiltshire and Swindon[1]. Within Wiltshire, the corridor consists of **a series of inter-linked towns** which represent a major agglomeration of economic activity – these include the two Principal Settlements[2] of Chippenham and Trowbridge, along with the Market Towns of Corsham, Melksham, Bradford-on-Avon, Westbury and Warminster.

Figure 1-1 - The A350 corridor



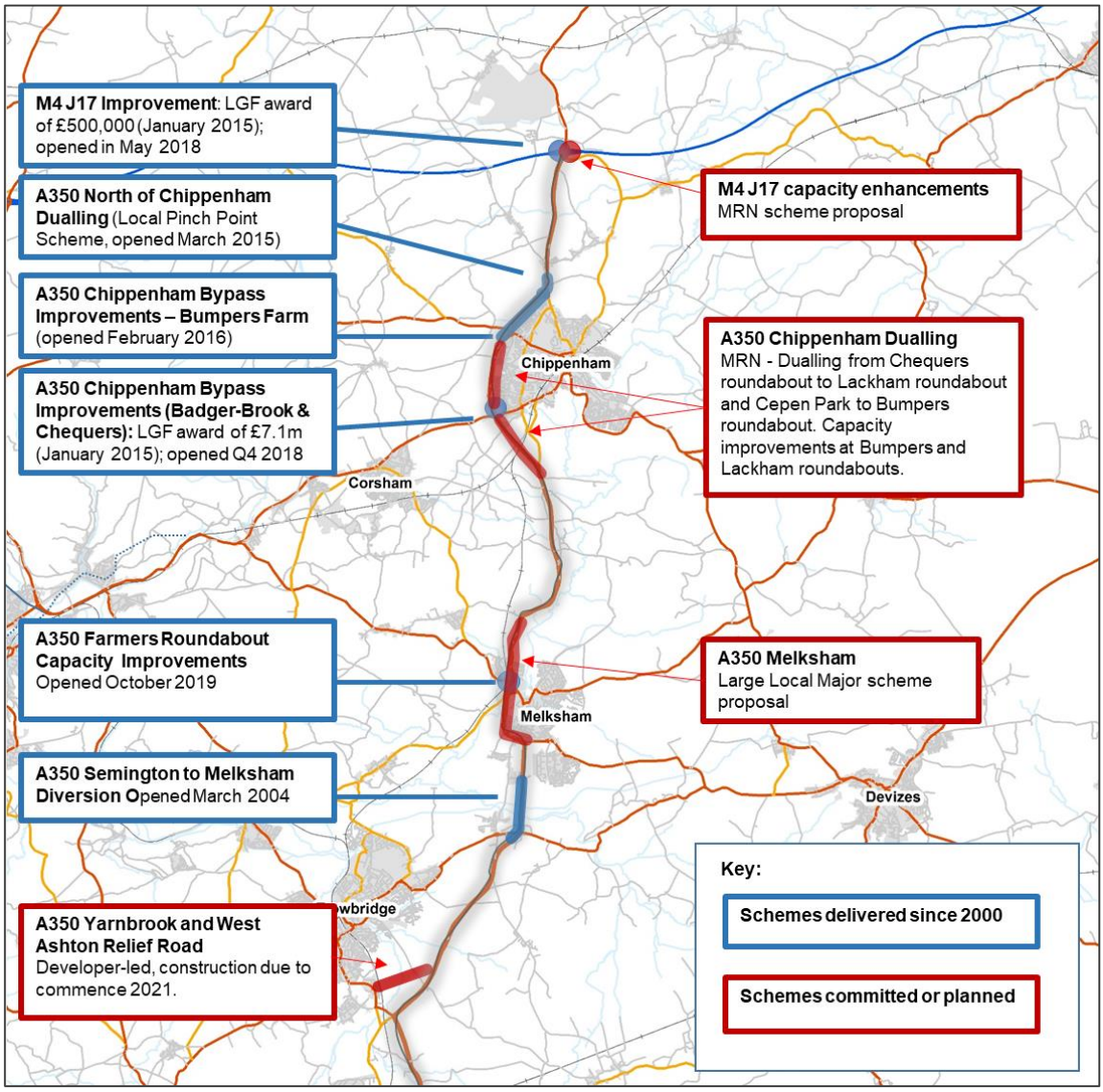
[1] As identified in the Swindon and Wiltshire Strategic Economic Plan (Swindon and Wiltshire Local Enterprise Partnership, Jan 2016)
[2] Principal Settlements as defined within the Wiltshire Council Core Strategy (2015)

The A350 has a major strategic role in supporting economic activity and growth at a local and regional level, including:

- Providing **strong local connectivity in the West Wiltshire area** to serve the high (and growing) demands for inter-urban travel associated with commuting, business, shopping and leisure trips;
- Providing **effective links between the West Wiltshire area and surrounding major economic centres** such as Bristol, Bath and Swindon, and beyond via the Strategic Road Network (SRN);
- Providing **regional connectivity for longer distance north-south travel** between Dorset, Wiltshire Gloucestershire and West of England, including for business and leisure (including an important tourism function); and
- Providing for **efficient transport of freight** to / from the south coast ports (Poole, Southampton, Portland) and the Western Gateway area / South Wales.

It has been a longstanding priority for Wiltshire Council to improve north-south connectivity via the A350 corridor, including alternatives to road travel such as rail. Over the last 15 years the A350 Growth Zone has accounted for approximately 60% of all housing growth in Wiltshire and is set to continue to be the major focus for future planned growth within the county. The efficient and reliable operation of the A350 is a pre-requisite to support this further growth whilst protecting the strategic function of the corridor. 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 improvements to the corridor **(Figure 1-2)**.

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



Recent scheme delivery has included **improvements to M4 Junction 17** and **upgrades to the A350 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 currently promoting **two proposed MRN schemes for the A350** – completion of dualling of the A350 at Chippenham (approved by DfT to progress to Full Business Case); and additional capacity enhancements at M4 Junction 17, subject to Outline Business Case approval **(Figure 1-2)**. The 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.

National Highways has also commenced a strategic M4 to south coast study (as part of its Road Investment Strategy 2), considering the future role and function of key routes, including the A350.

1.2. The A350 at Melksham

Melksham is one of Wiltshire's oldest towns, lying **at the heart of the A350 corridor** between Chippenham (to the north) and Trowbridge (to the south). It is Wiltshire's fifth largest settlement; **the town itself has a population of approximately 20,000**, whilst the total population of the wider Melksham Community Area (including several surrounding smaller villages) is approximately 31,000[3].

The section of the A350 through Melksham has been identified as **a key remaining constraint on the route within Wiltshire**. This section **serves multiple purposes**. In addition to its strategic function it has an important local function serving traffic movements to, from and within the town as well as providing access to various retail and commercial uses and the rail station adjacent to the A350. Issues include **frequent peak period congestion**, **varying speed limits**, **severance** and **noise disturbance** (associated with sections through residential areas of Beanacre and northern Melksham), and safety issues. The route is considered sub-standard for the current and projected volume and nature of traffic, including significant HGV movements.

1.3. The LLM funding opportunity

The Large Local Majors (LLM) fund is part of 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.

Government intends the LLM fund to support a small number of exceptionally large local highway authority transport schemes that could not be funded through normal mechanisms and would exceed the upper threshold (scheme value) for MRN proposals. Improvements to the A350 at Melksham have been considered by Wiltshire Council for many years and the LLM fund 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.

1.4. SOBC and earlier work

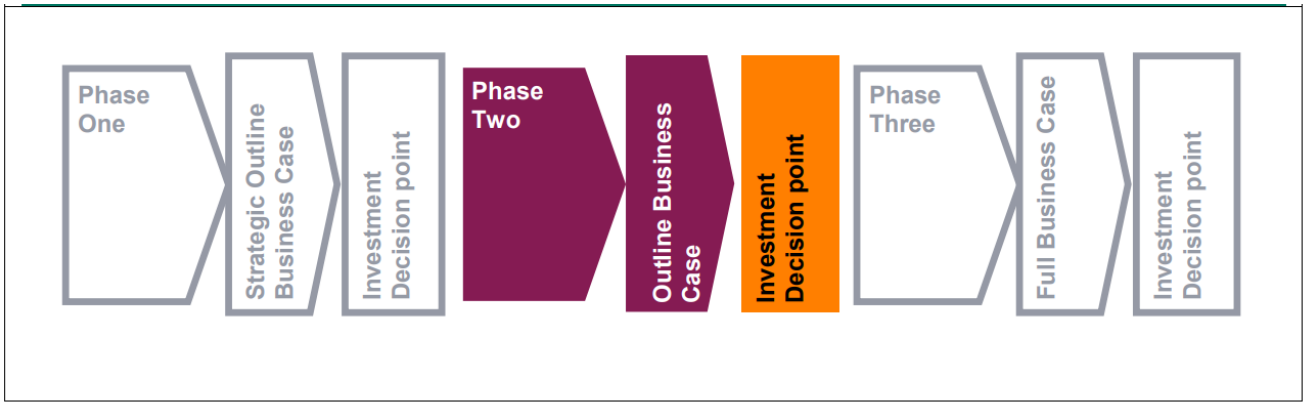
The Strategic Outline Business Case (originally 2017, updated in 2019) set out the strategic need for the scheme and presented an initial assessment of the case for investment, including value for money. The SOBC itself was informed by earlier options study work. An Interim Options Assessment Report (IOAR) was developed in 2016 and assessed a wide range of options, including non-road options, and found a bypass to be the best solution to the identified problems. 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.

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

1.5. Development of the OBC

This Outline Business Case forms the second phase in the DfT business case approval process **(Figure 1-3)**. The OBC reconfirms the conclusions from the SOBC but concentrates on detailed assessment of the options to find the best solution. It presents full economic and financial appraisals in support of the preferred option.

Figure 1-3 – DfT transport business case approval phases



In summary, the Outline Business Case:

- is used to continually **align the progress of the project towards achieving objectives**;
- confirms the **strategic fit** and the **case for change**;
- sets out a detailed assessment of the options to find the **preferred solution**;
- refines the investment/intervention proposal; and
- provides details of the project's **overall balance of benefits and costs against objectives**.

In preparation for the OBC, Wiltshire Council has taken the opportunity to enhance the evidence base and robustness of the OBC through:

- incorporating **feedback / comments on the SOBC submission** (including from DfT);
- **reviewing the strategic context** in relation to the scheme, including:
  - responding to more recent policy developments;
  - taking into account changes in the local context, including housing and employment developments; and
  - reviewing scheme objectives to ensure they remain relevant.
- undertaking a comprehensive **refresh of the Options Assessment Report**;
- incorporating additional engineering, traffic modelling and environmental assessment work which has been undertaken since 2017; and
- undertaking **two public consultation exercises**.

1.6. Public and stakeholder consultation

Development of the OBC has been informed by two consultation exercises undertaken by Wiltshire Council in Autumn 2020 (November 2020 to January 2021) and Summer 2021 (June 2021 to August 2021). Full details of the consultation and report on findings have been published online[4]. The key findings from the consultation exercises are referred to at relevant sections within this OBC.

1.7. The A350 Melksham Bypass preferred option

The preferred scheme option being promoted by Wiltshire Council within this OBC comprises:

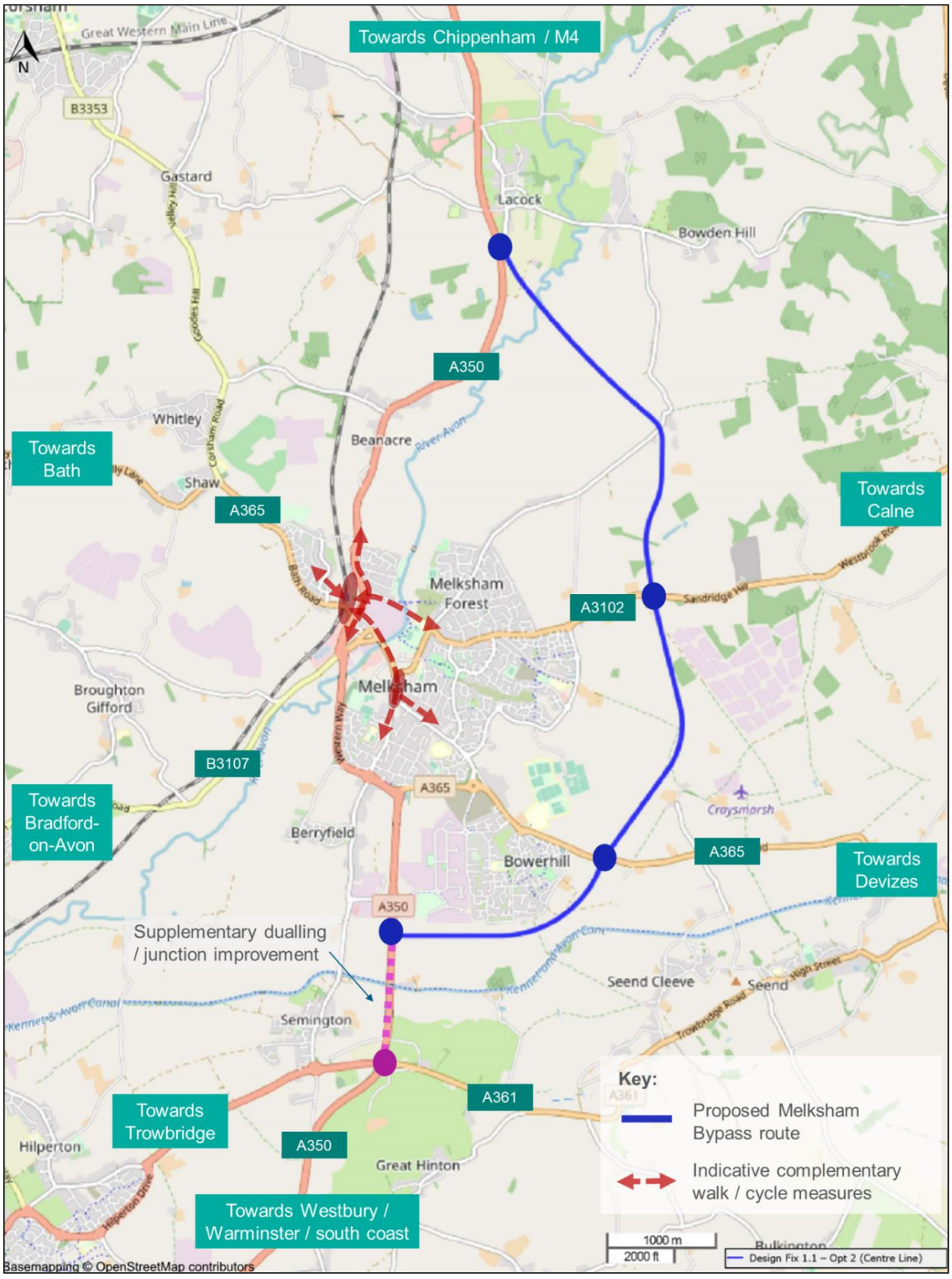
- A **full eastern bypass**, approximately nine kilometres in length and with four junctions;
- **Modifications and enhancements to Public Rights of Way** along the bypass route;

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

- **Supplementary highway improvement works** to the adjacent network; and
- **Complementary walking and cycling measures** within Melksham Town and around the existing A350 route.

The main scheme proposal is illustrated in **Figure 1-4**.

Figure 1-4 – The A350 Melksham Bypass preferred option ('emerging route')

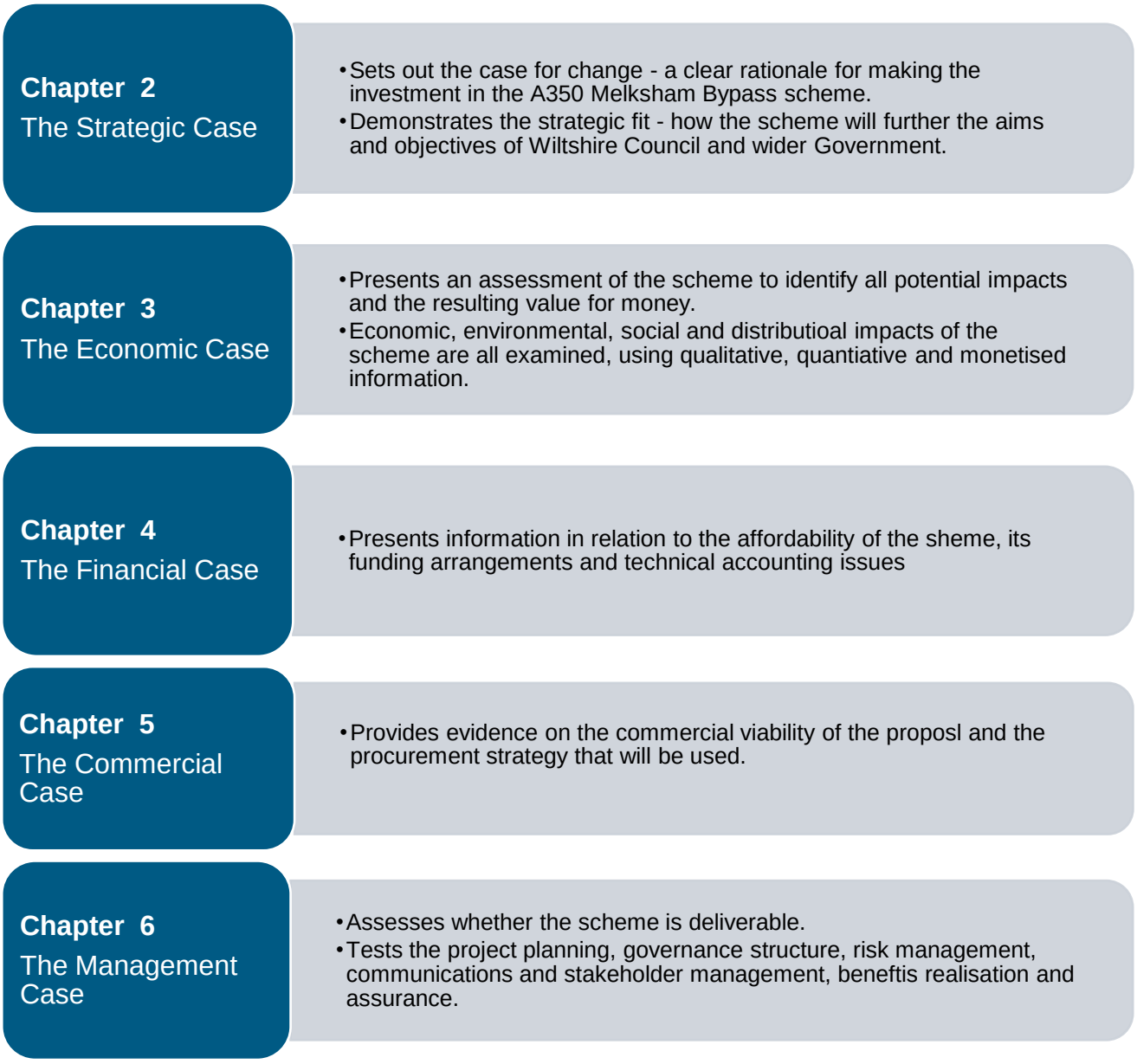


1.8. Structure of this Outline Business Case document

The purpose of this OBC is to present key information in relation to the A350 Melksham Bypass proposal in a transparent manner in order to support evidence-based decision making. In line with government guidance and best practice this follows the five case model[5] **(Figure 1-5)**. The purpose of this approach is to demonstrate how the scheme:

- is supported by a robust case for change that fits with wider public policy objectives – the **'strategic case'**;
- demonstrates value for money – the **'economic case'**;
- is financially affordable – the **'financial case'**;
- is commercially viable – the **'commercial case'**; and
- is achievable – the **'management case'**.

Figure 1-5 – Structure of the Outline Business Case



[5] Updated business case guidance was released by DfT in September 2021 during the preparation of this OBC. Key aspects of the updated guidance are considered to be incorporated where proportionate. It should be noted that the new guidance refers to five 'dimensions' (rather than 'cases'), although the subject matter remains the same.

Strategic Case

The Strategic Case sets out the ‘case for change’ in relation to the A350 Melksham Bypass scheme. It explains the rationale for making the investment and the implications of the scheme not being progressed. It presents evidence on the strategic policy fit of the proposed scheme.

This section also sets out the scheme options which have been considered and the process of arriving at the preferred option.

2. Strategic Case

In demonstrating the overall need for the A350 Melksham Bypass scheme, the Strategic Case is developed around a number of key sub-sections **(Figure 2-1)**.

Figure 2-1 – Structure of the Strategic Case

Strategic Case overview

A summary of the key points from the Strategic Case is presented in **Table 2-1,** in relation to key questions typically asked by decision-makers when considering the merits of proposed projects[6].

Figure 2-2 presents a logic map, which provides an overview of the context and rationale for the scheme and its expected outcomes. The logic map is referred to at various points within the Strategic Case.

[6] The typical questions are based on those presented within DfT guidance 'The Transport Business Cases' (DfT, January 2013).

Table 2-1 – Overview of the Strategic Case

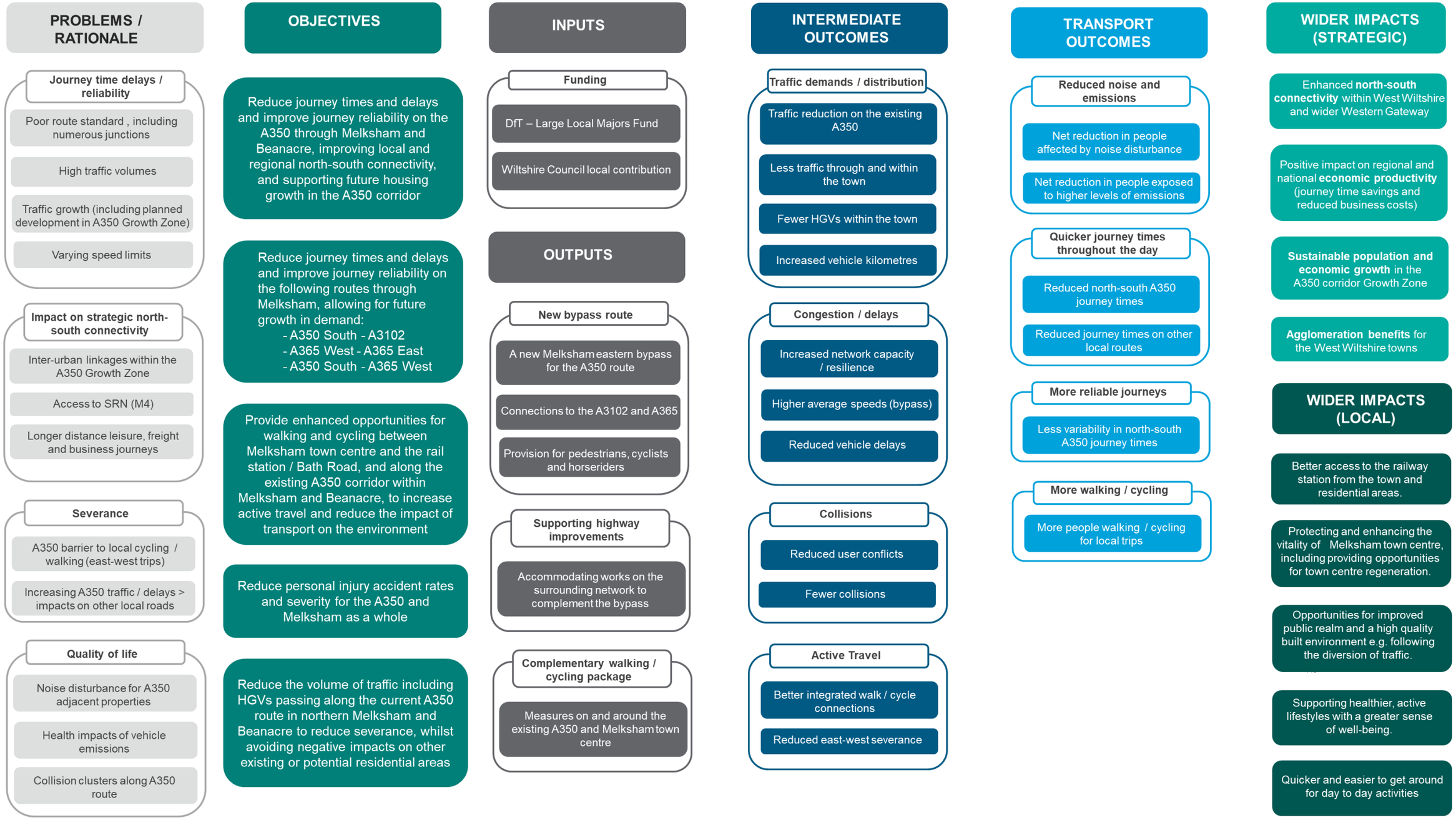
Key Strategic Case content	Summary	Section reference
What are the organisation's main aims, and how does the project fit within this?	Improving north-south connectivity, including via the A350 route, has a been a long-standing priority for Wiltshire Council. It provides a vital spine connecting several of its largest settlements, whilst also providing connections between the Strategic Road Network (M4) and the south coast. The corridor is designated as part of the Major Road Network owing to its critical role for Wiltshire's economic well-being and as a major focus of recent and future housing and employment growth plans. A number of improvements to the A350 corridor have been delivered by Wiltshire Council in recent times. The A350 Melksham Bypass scheme, in conjunction with further proposed MRN schemes at Chippenham and M4 Junction 17, reflects Wiltshire Council's continued, co-ordinated and strategic approach to the improvement of the corridor. In combination, these investments would represent a substantial upgrade to the A350.	2.2
Are there any other objectives, such as local, regional or network objectives that the scheme might contribute to?	The case demonstrates how the scheme is fully aligned with strategic priorities of the Western Gateway STB and the Swindon and Wiltshire Local Enterprise Partnership. Wiltshire Council has worked closely with these bodies in determining the economic and connectivity strategy for the region and the strategic transport investment priorities to support this. Highways England is due to commence a strategic connectivity study for the area which will consider whether the A350 should become part of the SRN. Should that be the case, investment in the A350 Melksham Bypass scheme, plus the other A350 MRN proposals, would be considered essential to ensure the route meets the appropriate standard. The Strategic Case also demonstrates how the scheme has an important role in supporting more local outcomes for Melksham and the surrounding area, including town centre regeneration, access to services and health and wellbeing.	2.2
What are the existing arrangements for the provision of services? Can they be better utilised, or are more fundamental changes required? What are the constraints?	The existing A350 route passes through the village of Beanacre and built-up sections of north Melksham. There are several changes in speed limit and numerous junctions / accesses. The existing route has been subject to improvements in recent years. Further significant upgrade has been considered through the options assessment process which concluded that a bypass scheme is the most appropriate solution to address the particular issues. Key constraints in relation to the existing route include adjacent properties and land uses.	2.3 2.8
What is/are the identified problem(s), and the key drivers?	The case presents evidence demonstrating 5 key problem areas: • A350 journey times and delays • A350 journey time reliability; • Collisions; • Severance; and • Noise disturbance and air quality. These are existing issues (supported by stakeholder feedback) and evidence indicates that they are expected to worsen by 2036. The fundamental underlying drivers are the high traffic volumes (up to 35,000 vehicles daily), including c.8% HGVs, and the sub-standard nature of the existing route.	2.5

Key Strategic Case content	Summary	Section reference
What are the aims of the proposed scheme, and how do they address all the problems identified?	Five transport objectives have been identified for the scheme, which would help to deliver desired strategic and local outcomes. • Reduce journey times and delays and improve journey reliability on the A350 through Melksham and Beanacre, improving local and regional north-south connectivity, and supporting future housing and employment growth in the A350 corridor. • Reduce journey times and delays and improve journey reliability on other key routes through Melksham: - A350 South – A3102 - A365 West – A365 East - A350 South – A365 West • Provide enhanced opportunities for walking and cycling between Melksham town centre and the rail station / Bath Road, and along the existing A350 corridor within Melksham and Beanacre, which help reduce the impact of transport on the environment and support local economic activity • Reduce personal injury accident rates and severity for the A350 and Melksham as a whole, to make the corridor safer and more resilient • Reduce the volume of traffic, including HGVs, passing along the current A350 route in northern Melksham and Beanacre to reduce severance, whilst avoiding negative impacts on other existing or potential residential areas The objectives align closely with the identified problems. The logic map helps to demonstrate the relationship between the problems, the objectives, the scheme outputs, and impacts.	2.6 Figure 2-2
What is the scope of the project?	• The A350 Melksham Bypass scheme comprises: • A full eastern bypass – single carriageway, approximately nine kilometres in length and with four junctions; • Modifications and enhancements to Public Rights of Way along the bypass route; • Supplementary highway improvement works to the adjacent network (including a short section of dualling and junction improvement to the south of the bypass); and • Complementary walking and cycling measures within Melksham Town and around the existing A350 route.	2.7
What will constitute success for the project, and how will it be measured? Is there a clear logic model for how the outcomes will be achieved?	A logic mapping exercise has been undertaken which illustrates the relationship between the problems / issues, objectives, scheme inputs / outputs, outcomes and wider impacts. The primary measures of success relate to the successful reduction in traffic on the existing A350 route and improvement in journey times. Other strategic and local outcomes would fundamentally flow from this, including improved economic productivity and competitiveness, housing and employment delivery, and improved health and wellbeing (reduced noise disturbance and severance impacts). The case presents a set of potential measurable performance indicators which are aligned to the scheme objectives and would be assessed before and after scheme opening.	2.6.3 Figure 2-2

Key Strategic Case content	Summary	Section reference
What was the process for generating and shortlisting options?	The options assessment process has been reviewed and refreshed as part of the OBC development and is documented within an updated Options Assessment Report (in line with TAG). A full range of potential solutions has been considered (including non-road based). A staged approach to sifting considered options in a consistent and transparent manner and at each stage identified better performing options and documented reasons for discounting of any options. The assessment of better performing options was informed by a comprehensive evidence base, including: feasibility design; costing; traffic modelling / initial appraisal; environmental assessment; and stakeholder feedback.	2.11
What are the attitudes of key groups / stakeholders to the proposed scheme and how have those attitudes informed the strategic plan?	Wiltshire Council has undertaken two public consultation exercises during the development of the OBC (c.1,200 respondents to the first exercise, and a similar number for the second). A majority of respondents supported the need for intervention and the responses also confirmed that the scheme objectives reflected key issues considered to be of high importance. The most popular bypass option (full bypass to the east - which reflects the current preferred option) was preferred by similar numbers to improvements to the existing A350. Feedback from the consultation has informed the options assessment process and scheme design. Walking and cycling measures were well supported and have been incorporated into the scheme as a complementary package, as well as ensuring high quality provision through the scheme design. Stakeholder feedback (including landowners and environmental bodies) will continue to inform the further refinement of the scheme design.	2.10
How does the scheme contribute to key objectives, including wider transport and government objectives?	The case demonstrates that the scheme is expected to be effective in addressing all five of the identified transport objectives, including: • Reducing average north-south A350 journey times between Semington (south of Melksham) and Lacock (north of Melksham) by an average of 2.6 minutes per vehicle throughout the day, and increasing average speeds by 21kph (in a 2036 forecast year compared to without the scheme). • Reducing average journey times on the other targeted routes through Melksham by 0.8 to 2.2 minutes per vehicle on average. • Significantly reducing average two-way 12-hour AADT flows on the existing A350 route, by approximately 11,000 to 16,000 vehicles (equivalent to a 40% to 70% reduction), including up to 1,000 HGVs. • Reducing the east-west severance effect of the A350. The complementary walking and cycling measures seek to build upon this opportunity and lock in the benefits of traffic reduction due to the bypass. This will result in a better-connected walking and cycling network for Melksham and encourage greater use of these modes.	2.12 2.2
What are the constraints and dependencies, in light of other programmes and projects which are underway?	The successful delivery of the scheme is not dependent upon any other transport schemes, nor delivery of specific housing or employment developments.	2.8 2.9

Key Strategic Case content	Summary	Section reference
What is the overall level of impact in combination with other connected schemes?	The scheme is complementary to, but not dependent upon, two further MRN schemes for the A350 being promoted by Wiltshire Council at Chippenham and M4 Junction 17. The scheme is therefore considered to enhance this wider package of improvement measures for the A350, which would be most effective when delivered in combination.	2.9
What are the consequences of not progressing the project?	Traffic modelling indicates that without the scheme, the performance of the A350 route would be further compromised over time. As part of a wider package of upgrades to the A350 intended to support housing and employment growth plans within the A350 Growth Zone, the omission of the Melksham Bypass scheme would increase the likelihood of the A350 becoming a key constraint, thus slowing economic growth. This is particularly the case given the strategic central location of Melksham within the West Wiltshire A350 corridor. Further consequences relate to the development of Melksham town itself, with the bypass seen to be key to facilitating town centre regeneration and improving the local environment on and around the existing A350 route.	2.5

Figure 2-2 – A350 Melksham Bypass Logic Map



2.1. Socio-economic context

Covered in this section

This section introduces background information with regards to the regional, sub-regional and local context relevant to the A350 Melksham Bypass scheme, focussing on the economy and socio-demographics.

2.1.1	Regional context	2.1.2	Sub-regional context	2.1.3	Local context

Summary of key points

The A350 corridor lies within the Western Gateway Sub-national Transport Body area and provides a key north-south connection within the area, between the M4 and south coast.

The Western Gateway area economy experiences challenges in relation to productivity and lags behind other areas - this is in part due to poor transport connectivity.

The A350 corridor area within Wiltshire is designated as a Growth Zone by the Swindon and Wiltshire Local Enterprise Partnership (SWLEP). It consists of a series of inter-linked towns and represents a major agglomeration of economic activity which is hugely significant to the SWLEP area economy.

The Growth Zone has a combined population of 190,000 (26% of the SWLEP area) and is home to approximately 10,000 businesses, generating 24% of the total SWLEP area GVA.

Melksham is a traditional market town occupying a central location within the A350 Growth Zone and lies between Chippenham and Trowbridge.

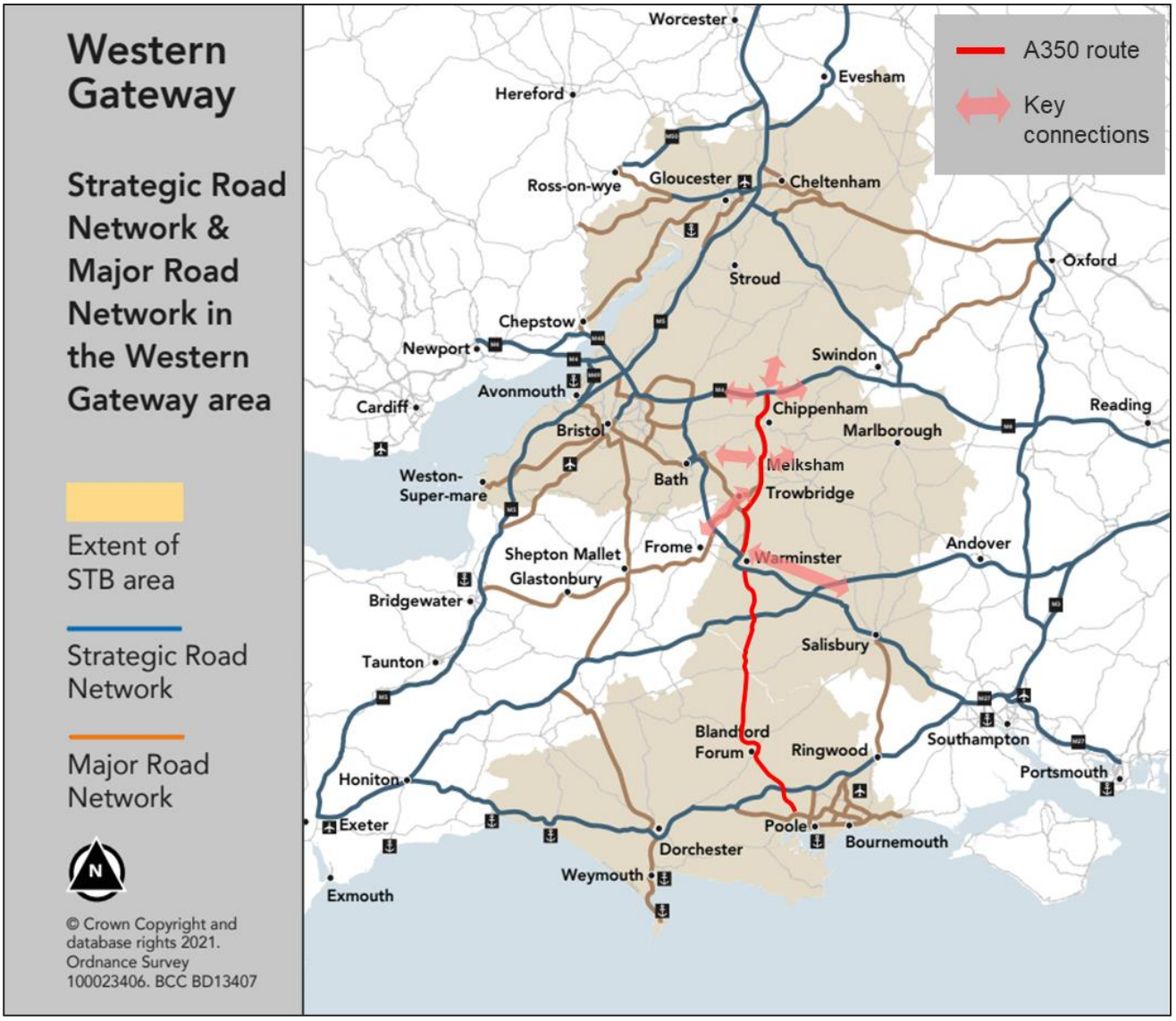
Key employment sites are reliant on the A350 through Melksham for access to the M4.

The Melksham Community Area has a population of approximately 31,000. The town has a strong employment and manufacturing base. Key commercial and retail areas are clustered around the A350. Parts of the town are in need of regeneration.

2.1.1. Regional context

The A350 corridor is a key north-south connection within the Western Gateway Sub-national Transport Body area **(Figure 2-3).**

Figure 2-3 – The Western Gateway area, including Wiltshire and the A350 corridor



The Western Gateway

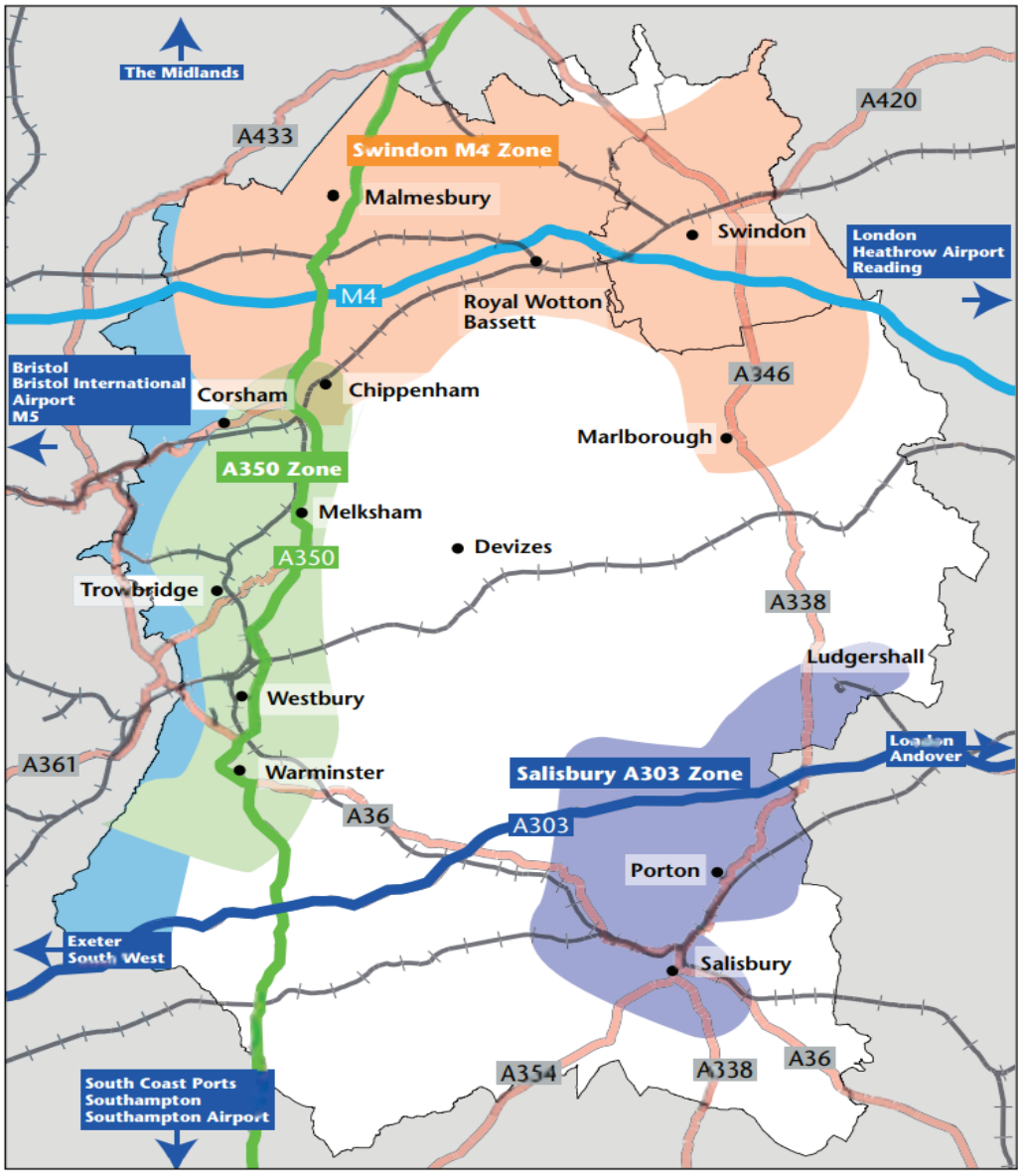
- includes the local authority areas of Wiltshire, Dorset, Bath & North East Somerset, Bristol, South Gloucestershire and Gloucestershire.
- a highly desirable destination to live and work in, as well as for leisure / tourism.
- home to over 3 million people, supports over 1.6 million jobs and is a key area for future economic growth.
- population is forecast to increase by 448,000 people by 2041, a growth rate of 15%. This is faster than the 12% growth rate forecast for England over the same time period.
- experiences productivity challenges, particularly in the Wiltshire and Dorset / coastal areas (where productivity is below the national average) driven by poor transport connectivity.

The **Western Gateway is important regionally and nationally** as it is both a single area containing some of the UK's fastest-growing local economies as well as being a **crucial facilitator of improved connectivity to other parts of the country**, including the South West, the Solent area, South Wales and the West Midlands. Wiltshire occupies a particularly strategic location centrally within the STB area, acting as an **important gateway to other parts of the region**. The A350 is one of the key transport corridors which link strategically important locations across the Western Gateway area, including the main urban centres, ports and airports **(Figure 2-3)**. The northern section of the A350 through West Wiltshire connects the southern sections of the A350 and A36 (south of Warminster) to the M4. The A36 / A46 via Bath provides an alternative connection (and is the currently designated SRN), but suffers from significant constraints through the Bath area. The A350 through Wiltshire is therefore an **important strategic connection to the M4 (and beyond) for major trip generators on the south coast**, including: the Port of Poole; Weymouth Port; Port of Portland (at the southern end of the A350 corridor); and the Port of Southampton (at the southern end of the A36).

2.1.2. Sub-regional context

The local authorities of Swindon and Wiltshire comprise the economic geography for the Swindon and Wiltshire Local Enterprise Partnership (SWLEP). The SWLEP area is largely rural in character, interspersed by a **number of economic centres which intersect with key transport corridors**. It is defined by **three Growth Zones** where there are currently large agglomerations of economic activity with the greatest capacity for supporting sustainable growth in the future **(Figure 2-4)**.

Figure 2-4 – Swindon and Wiltshire Local Enterprise Partnership Growth Zones



The A350 Growth Zone

- includes Chippenham, Corsham, Melksham, Trowbridge, Westbury and Warminster.
- a combined population of some 190,000, equivalent to 26% of the total population of the SWLEP area.
- generates almost a quarter of the SWLEP area's total GVA.
- comprises approximately 10,000 businesses (30% of the total business stock in the SWLEP area) and approximately 85,000 employees.
- manufacturing is a particular strength, accounting for 8% of total employment (higher than the UK average).

In general, the performance of the SWLEP economy is comparable to other LEP areas. Rates of business growth are strong, but it does lag behind others in terms of total GVA and GVA per job which suggests **challenges in relation to productivity**[7].

The A350 within Wiltshire has several key roles in supporting the SWLEP Growth Zones, including:

- Acting as a spine which holds the A350 Growth Zone together;
- Connecting the A350 Growth Zone to the M4 (and beyond);
- Connecting the Swindon M4 Growth Zone with points south and west; and
- Connecting the Salisbury Growth Zone with the M4 (and beyond to the north and west).

The A350 Growth Zone represents a **major agglomeration of economic activity** and there is a **high degree of self-containment** within the zone (approximately 76% of residents live and work within the zone). The towns along the corridor create an **interlinked series of local employment hubs** including business parks, trading estates and three campuses of Wiltshire College which are all heavily reliant upon the A350 route through Melksham for efficient movement of goods, business travel and access to the workforce **(Figure 2-5)**.

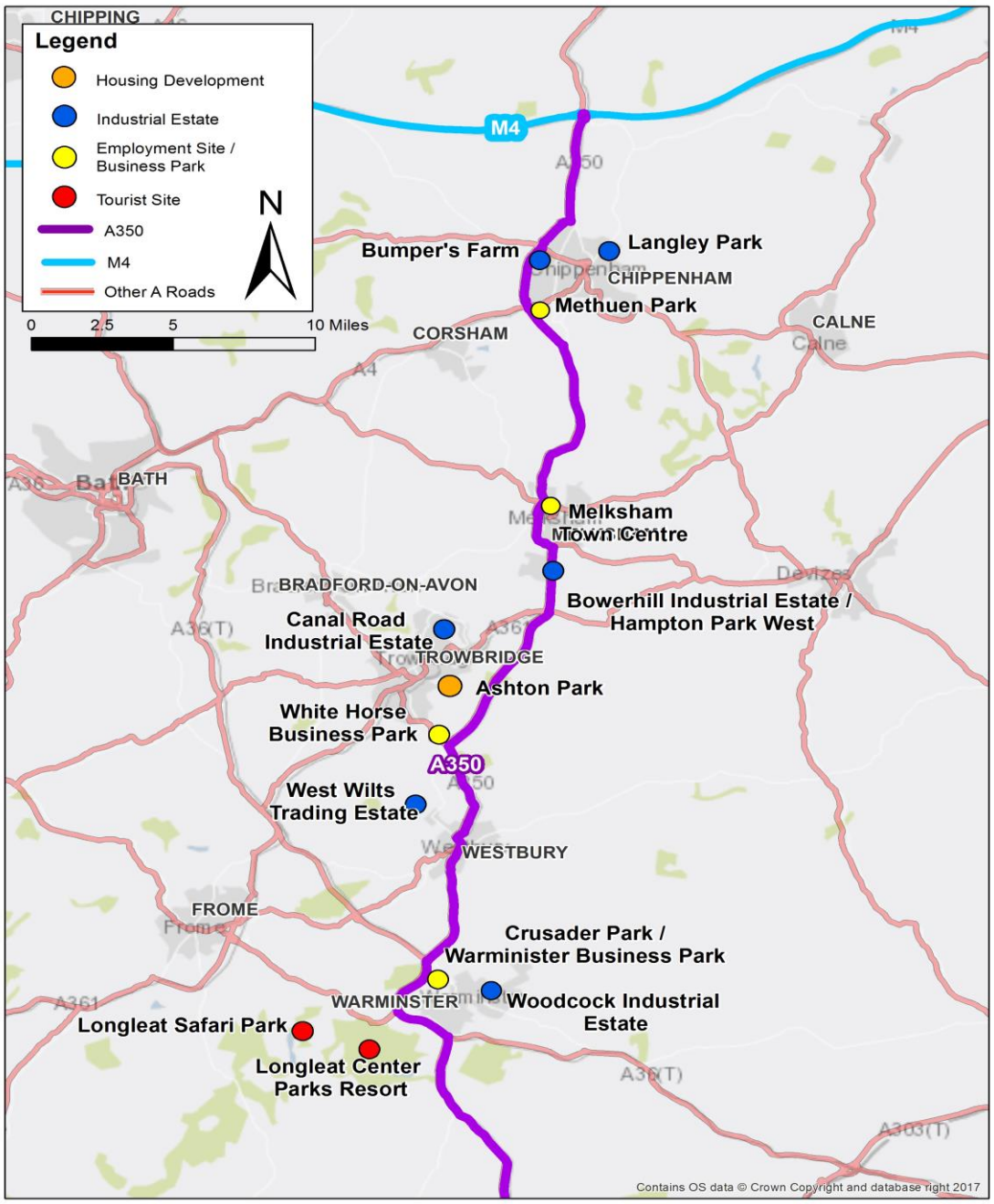
Several key employment sites are also located south of Melksham and are therefore **dependent on the A350 through Melksham for access to the M4**. These include the Bowerhill Industrial Estate and Hampton Park West (Melksham), White Horse Business Park (Trowbridge) and West Wilts Trading Estate (Westbury), which are home to several major manufacturers along with a variety of wholesalers and retailers **(Figure 2-5).**

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

Furthermore, the A350 Growth Zone has **strong links with neighbouring economic centres** such as Bath, Bristol, and Swindon, facilitated by the A350 route through Melksham. Of the 24% of the A350 Growth Zone residents working outside of the zone, almost half travel to these destinations.

[7] Swindon and Wiltshire Economic Assessment (Regeneris Consulting, May 2018)

Figure 2-5 - Key economic and development sites in the A350 Corridor



2.1.3. Local context

Melksham is a market town on the banks of the River Avon, strategically located on the A350 between Chippenham (to the north) and Trowbridge (to the south). It is Wiltshire's fifth largest settlement.

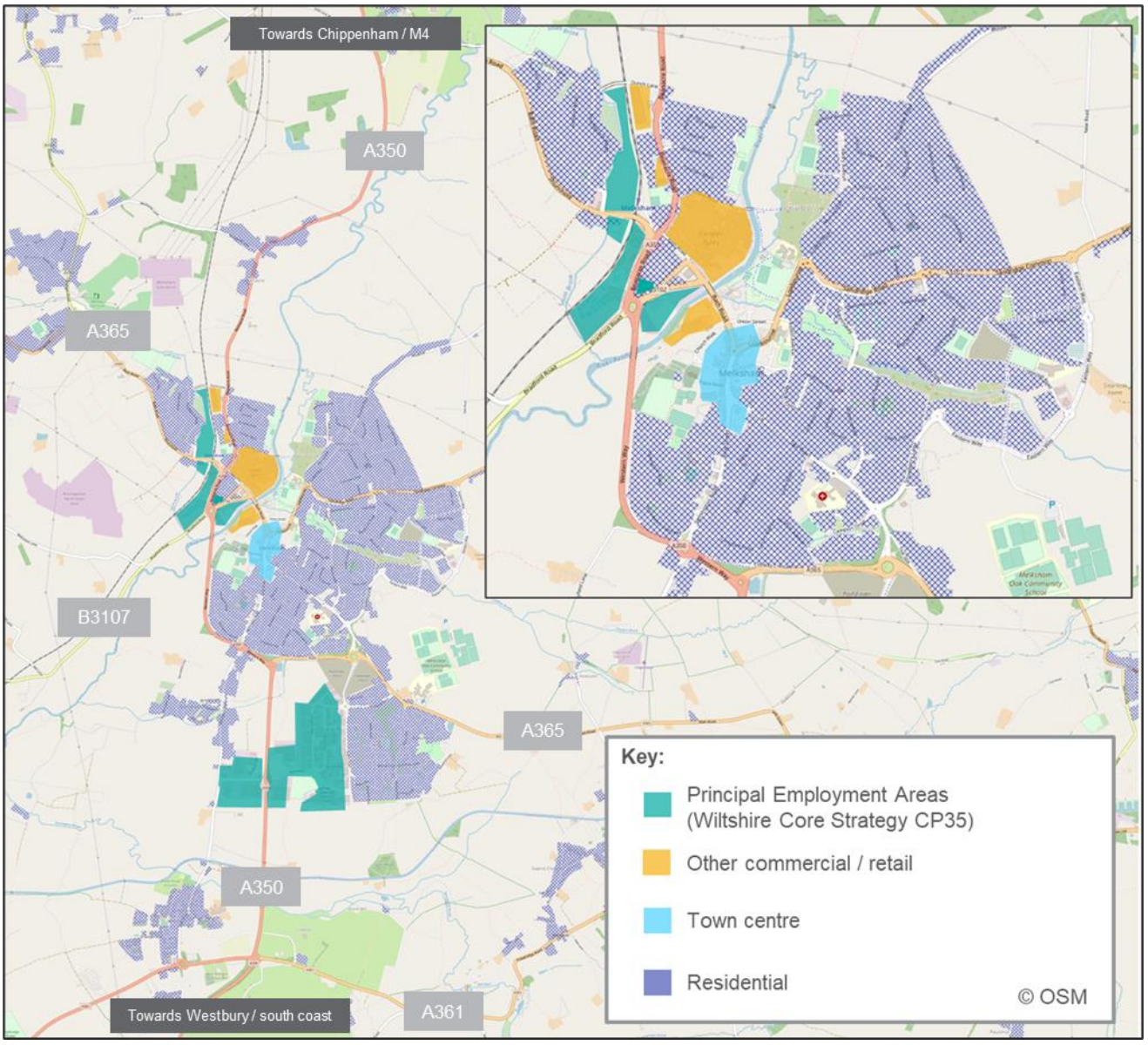
Melksham

- a town population of approximately 20,000, with a total population for the wider Melksham Community Area (including several smaller villages) of approximately 31,000.
- 58% of the population are working age (slightly lower than then Wiltshire average).
- Population has increased by 3.1% since 2015, higher than the increase for Wiltshire as a whole (2%).
- has a strong employment and manufacturing base and its major employers include Cooper Avon Tires, Avon Technical Products and Knorr-Bremse.

The A350 at Melksham **serves multiple purposes**. In addition to its strategic function it has an **important local function** serving traffic movements to, from and within the town as well as providing access to various retail and commercial uses. Other key routes (intersecting with the A350) provide access to Bath (A365), Calne (A3102), Devizes (A365) and Bradford on Avon (B3107).

Melksham's Principal Employment Areas (as defined within the Wiltshire Core Strategy) are clustered around the A350 (towards the north and south of the town), and hence **the route is fundamental for access to these sites,** both locally and from farther afield **(Figure 2-6)**. The main town centre commercial and retail area is located to the east of the A350, and the route separates this part of the town from employment and residential areas to the west. The A350 also provides access to Melksham rail station (on the TransWilts rail line), which is situated to the west of the route,

Figure 2-6 - Key employment and commercial areas within Melksham



The town's economy is not as buoyant as some of its neighbouring towns and inward investment is required to assist with redevelopment, including within the town centre. Parts of the town (central and northern) fall within the second most deprived decile nationally of the Index of Multiple Deprivation, whereas many of the surrounding villages are some of the least deprived.

2.2. Business strategy and strategic fit

Covered in this section

This section demonstrates how investment in the A350 Melksham Bypass scheme would further the aims and priorities of Wiltshire Council and wider Government.

2.2.1	Strategic policy context and key policy themes	2.2.2	Strategic policy aim 1: connectivity and economic prosperity	2.2.3	Strategic policy aim 2: housing and employment growth
2.2.4	Strategic policy aim 3: Melksham town regeneration and quality of life	2.2.5	Strategic policy aim 4: environment and climate change		

Summary of key points

Upgrading the A350 has been a long-standing priority for Wiltshire Council and reflected in a substantial programme of improvements delivered in the last 20 years.

The A350 Melksham Bypass scheme has a strong fit with key national, regional and local policy objectives.

The scheme has a particularly strong alignment with policy to promote improved transport connectivity as a means to drive enhanced economic performance, which has a prominent role within the national Transport Investment Strategy and the Western Gateway Strategic Transport Plan.

The scheme supports housing and employment growth priorities within the current Wiltshire Core Strategy and emerging Local Plan Review, with approximately 31,500 new homes planned within and around the A350 corridor between 2016 to 2036.

The scheme has an important role in facilitating local policy objectives for the Melksham area and is cited as a priority within the recent Joint Melksham Neighbourhood Plan in order to support sustainable development of the town and plans for regeneration, and to provide opportunities for improved quality of life and wellbeing.

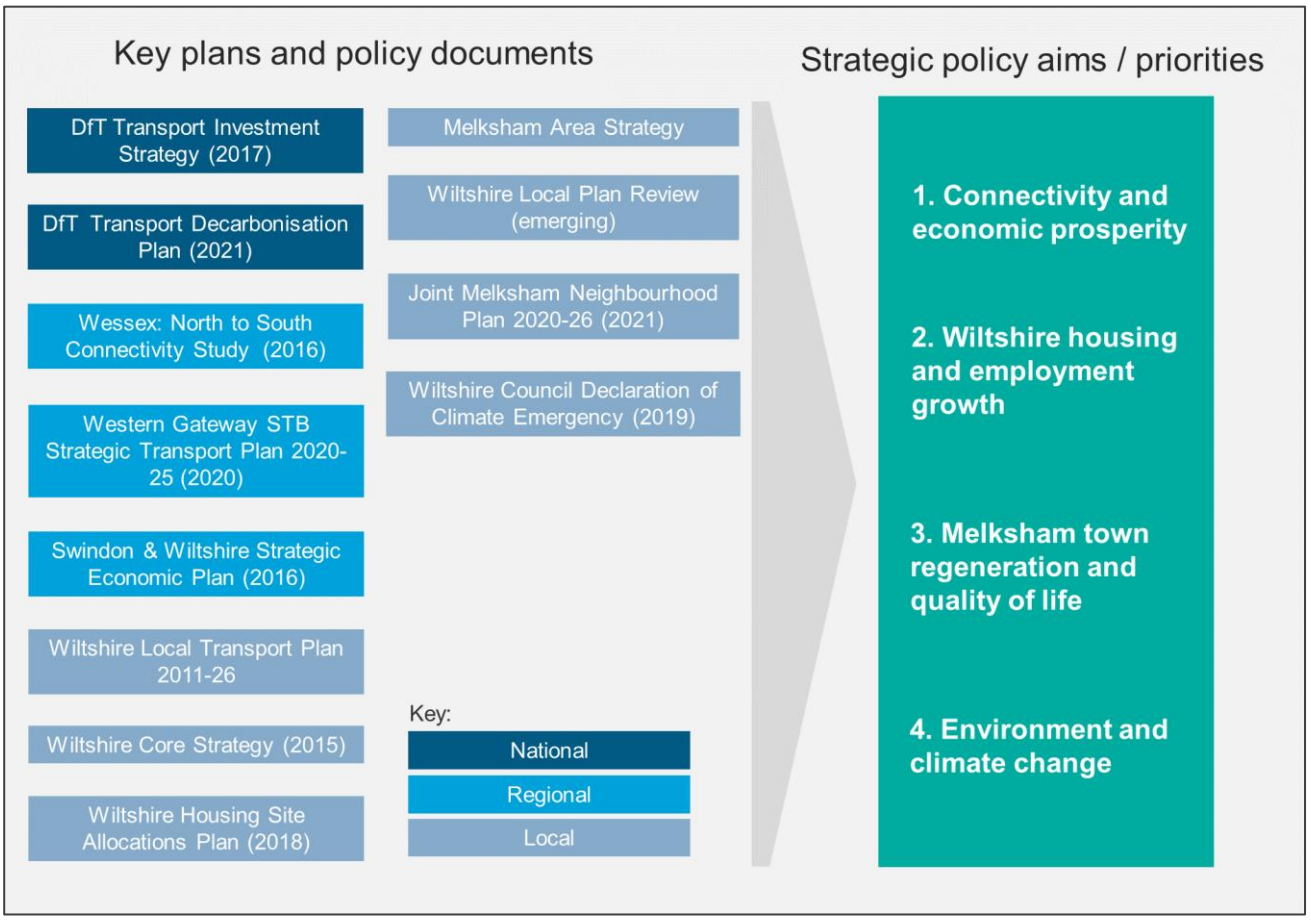
National and local policy seeks to achieve carbon reduction and environmental protection / betterment. The Government's Transport Decarbonisation Plan supports continued investment in roads, alongside increased measures to promote use of alternative modes and accelerate the transition to a zero-emission vehicle fleet. The scheme provides opportunities to make Melksham a more pedestrian and cyclist friendly town - encouraging active travel for local journeys, whilst removing congestion to improve fuel efficiency.

Environmental impacts from the scheme can not be completely avoided. But environmental mitigation is central to the scheme design. Opportunities for enhancement will also be sought, in line with policy objectives around biodiversity net gain.

2.2.1. Strategic policy context and key policy themes

It is important that investment in the A350 Melksham Bypass scheme would further the aims and priorities of Wiltshire Council and wider Government. **Four key strategic policy aims / priorities** have been identified which reflect relevant policy context at a local, regional and national level, **(Figure 2-7)**.

Figure 2-7 - Strategic policy context and key policy themes



The relevant key objectives from these plans and strategies and the fit with the A350 Melksham Bypass scheme are summarised in **Table 2-2**[8].

Sections 2.2.2 to 2.2.5 address each of the four strategic policy aims / priorities in turn and consider the contribution of the scheme in relation to these.

[8] Note that as some of these plans and strategies are emerging, specific strategic objectives may not yet have been developed, and so these are excluded from the table.

Table 2-2 - Strategic objectives from key policy documents relevant to the A350 Corridor

Document	Summary of relevant strategic objectives	Link to strategic policy aims / priorities[9]	Contribution of Melksham Bypass scheme[10]
DfT Transport Investment Strategy	DfT1: Creating a more reliable, less congested, and better-connected transport network that works for the users who rely on it.	[1]	✓✓✓
	DfT2: Building a stronger, more balanced economy by enhancing productivity and responding to local growth priorities.	[2, 1]	
	DfT3: Enhancing our global competitiveness by making Britain a more attractive place to trade and invest.	[1]	
	DfT4: Supporting the creation of new housing.	[2]	
DfT Transport Decarbonisation Plan	1. Accelerating modal shift to public and active transport	[4]	✓
	2. Decarbonisation of road vehicles	[4]	
	3. Decarbonising how we get our goods	[4]	
	4. Place-based solutions	[3]	
	5. UK as a hub for green transport technology and innovation	[1, 4]	
	6. Reducing carbon in a global economy	[4]	
Western Gateway SNTB Strategic Transport Plan	Economic Objectives:		✓✓✓
	WG1: Ensure the effective operation of labour markets.	[1]	
	WG2: Enable greater integration between employment clusters.	[1]	
	WG3: Enhance business connectivity to international markets.	[1]	
	WG4: Support growth of international gateways.	[1]	
	WG5: Improve North-South connectivity.	[1]	
	Social Objectives:		
	WG6: Support the delivery of new homes and employment opportunities.	[2]	
	WG7: Support multi-modal travel options for urban travel to work areas.	[1]	
	WG8: Embrace the role of technology in supporting strategic travel.	[-]	
	Environmental Objectives:		
	WG9: The Decarbonisation of the strategic transport network.	[4]	
	WG10: Support the adoption of fossil-fuel-free transport.	[4]	
	WG11: Improve air quality.	[3]	
Swindon and Wiltshire Strategic Economic Plan	SEP2: Transport infrastructure improvements - we need a well-connected, reliable and resilient transport system to support economic and planned development growth at key locations.	[1]	✓✓✓
	SEP4: Place shaping - we need to deliver the infrastructure required to deliver our planned growth and regenerate our City and Town Centres, and improve our visitor and cultural offer.	[2, 3]	

[9] Refer to Figure 2-7 for the strategic policy aims and priorities, numbered 1 to 4.
[10] ✓✓✓ = higher contribution / ✓✓ = good contribution / ✓ = lower contribution

Document	Summary of relevant strategic objectives	Link to strategic policy aims / priorities[9]	Contribution of Melksham Bypass scheme[10]
Wiltshire Local Transport Plan	Goal: Support Economic Growth		✓✓
	LTP1: Support and help improve the vitality, viability and resilience of Wiltshire's economy and market towns.	[3]	
	LTP4: Minimise traffic delays and disruption and improve journey time reliability on key routes.	[1]	
	LTP10: Encourage the efficient and sustainable distribution of freight in Wiltshire.	[1]	
	LTP12: Support planned growth in Wiltshire and ensure that new developments adequately provide for their sustainable transport requirements and mitigate their traffic impacts.	[2]	
	Goal: Reduce Carbon Emissions		
	LTP2: Provide, support and promote a choice of sustainable transport alternatives.	[4]	
	LTP11: Reduce the level of air pollutant and climate change emissions from transport.	[4]	
	LTP13: Reduce the need to travel, particularly by private car.	[4]	
	Goal: Contribute to Better Safety, Security and Health		
	LTP8: Improve safety for all road users and reduce the number of casualties on Wiltshire's roads.	[1, 3]	
	LTP9: Reduce the impact of traffic speeds in towns and villages.	[3]	
	LTP14: Promote travel modes that are beneficial to health.	[3]	
	Goal: Promote Equality of Opportunity		
	LTP5: Improve sustainable access to a full range of opportunities particularly for those people without access to a car.	[3]	
	Goal: Improve Quality of Life and a Healthy Natural Environment		
	LTP3: Reduce the impact of traffic on people's quality of life and Wiltshire's built and natural environment.	[3]	
	LTP7: Enhance Wiltshire's public realm and street scene.	[3]	
	LTP18: Enhance the journey experience of transport users.	[1, 3]	
Wiltshire Core Strategy	WCS1: Delivering a thriving economy.	[1]	✓✓✓
	WCS3: Providing everyone with access to a decent, affordable home.	[2]	
	WCS4: Helping to build resilient communities.	[3]	
	WCS6: Ensuring that adequate infrastructure is in place to support our communities.	[3]	
Wiltshire Council Declaration of Climate Emergency	Ambition to make Wiltshire carbon neutral by 2030	[4]	✓
Joint Melksham Neighbourhood Plan	1. Reducing carbon emissions to contribute to carbon neutrality in Wiltshire by 2030	[4]	✓✓

Document	Summary of relevant strategic objectives	Link to strategic policy aims / priorities[9]	Contribution of Melksham Bypass scheme[10]
	3. Encouraging and promoting the use of sustainable technologies	[-]	
	4. Enabling and promoting the importance of early community engagement in change and development	[-]	
	6. Promoting the delivery of infrastructure to address the needs of the population	[2, 3]	
	7. Protecting and enhancing the vitality of Melksham town centre	[3]	
	9. Supporting improved transport infrastructure for the increasing Melksham population	[2, 3]	
	10. Encouraging journeys by rail and bus together with improving cycle and walking routes to reduce the need to travel by car	[3, 4]	
	12. Promoting opportunities for people to lead healthier lifestyles with a greater sense of well-being	[3]	
	15. Ensuring that new development is sympathetic to our built heritage and the character of the area, with high standards of design	[2, 3]	

2.2.2. Strategic policy aim 1: connectivity and economic prosperity

The role of the Major Road Network

The **Transport Investment Strategy** (DfT, 2017) places a high priority on creating a more reliable, less congested, and better-connected transport network. In support of the Transport Investment Strategy 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 (see also Section 2.1.1 and Figure 2-3). 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.

Strategic connectivity in the Western Gateway area

At a regional level, the **Western Gateway Sub-national Transport Body** (STB) identifies good connectivity as an essential component of the Western Gateway economy within its **Strategic Transport Plan 2020 to 2025**. The Western Gateway covers some of the country's most prosperous, fastest-growing conurbations with several high-tech and high value sectors now providing a wide range of employment opportunities in the STB. Despite these concentrations of economic activity, the Western Gateway has several areas and communities that experience poor transport connectivity, especially with respect to corridor connectivity.

The Western Gateway's objective is to **maximise the capacity and resilience of the strategic transport corridors**. By enhancing the existing links to local, national and international markets, the Gateway will achieve its own ambitions of delivering **productivity improvements, housing and economic growth** as well as helping other regions and STBs achieve their own objectives. Attracting and retaining businesses within the

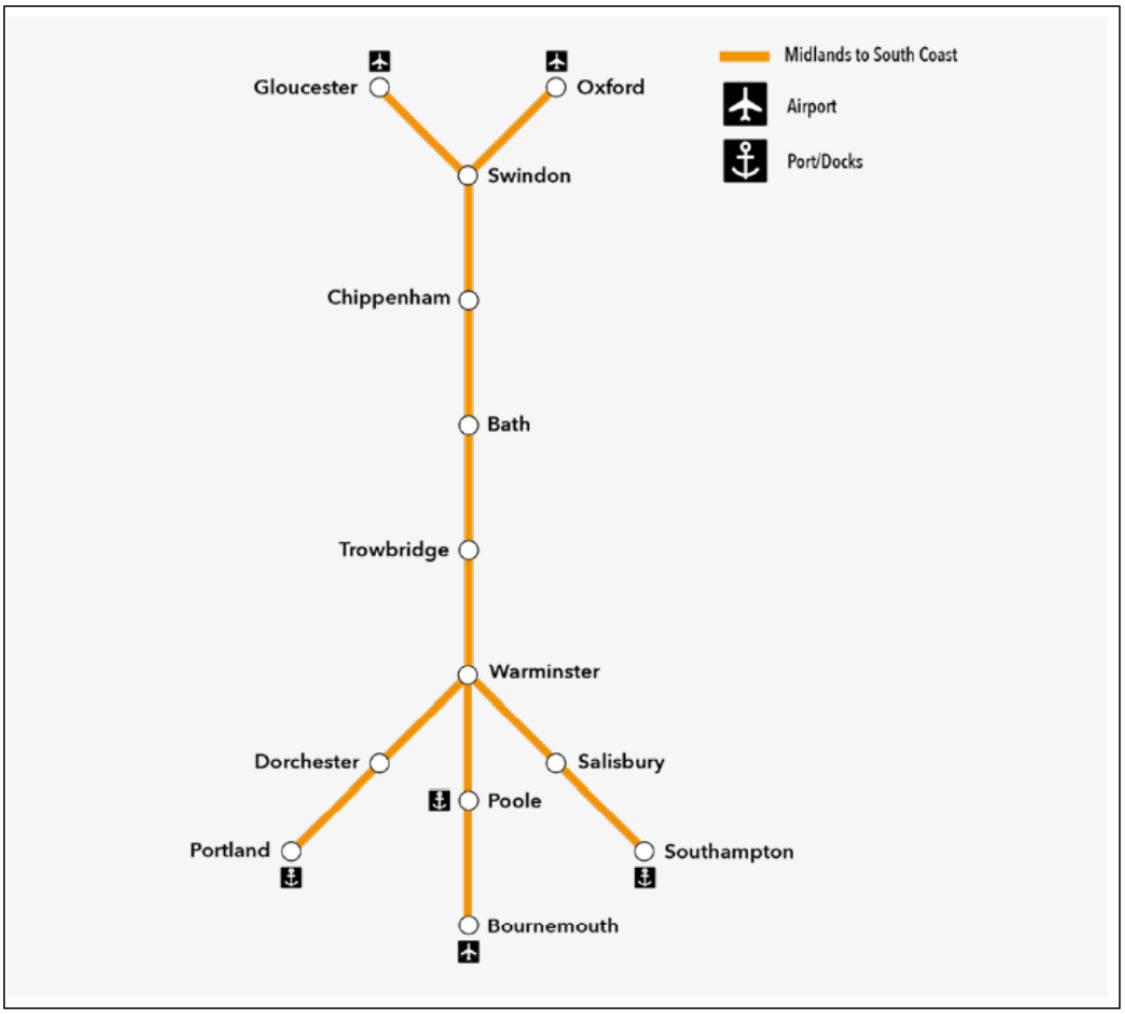
STB area is of paramount importance to ensure the number of working age people increases (against the backdrop of an aging population). Strategic corridor enhancements will therefore play a major role in redressing this by providing improved connectivity and accessibility to attract and retain businesses within the area to support the retention of the working age population.

North-south connectivity and the role of the A350

In defining its most important strategic corridors, the Western Gateway STB has identified strategic north-south connectivity as a key transport priority. There are **a lack of suitable north-south connections** in the strategic network; within this area, north-south connections are made either by the A36 / A46 through Bath, or the A350 and A338 primary routes. **These routes experience considerable congestion and road safety problems**, and their increasing unreliability is significantly **constraining development and business growth** across the region. Addressing these constraints is vital to **improve productivity** and increase **access to markets** located in the midlands and the north. Improving business to business or business to skilled people connectivity will **help close current 'productivity gaps'** by reducing non-productive travel time.

The importance of an effective north-south link and network resilience was highlighted by the **Business and Transport Forum**[11] especially in relation to the freight challenge and accessing international ports (such as the Port of Poole). The Western Gateway STB refers to this north-south corridor as the 'Missing Link Strategic Corridor Midlands to South Coast' **(Figure 2-8)**. 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.

Figure 2-8 – The 'Missing Link Strategic Corridor Midlands to South Coast' (Western Gateway STB)



[11] The Business and Transport Forum acts as an advisory body to the Western Gateway Board and Senior Officer Group representing the views of stakeholders. It consists of a wider group of representatives including LEPs, Universities, public transport operators, port and airport authorities, as well as Government and National Agencies.

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. 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 OBC) at the northern end of the route. The Western Gateway STB's stated intention is that subsequent improvements to the central and southern sections will be prioritised within its forthcoming **Long-term Strategic Plan**.

Evidence base and studies

Several studies provide the evidence base to support the priority role of the A350 corridor. Wiltshire, Dorset, and Bath and North-East Somerset Councils commissioned the **South of England North-South Connectivity: Economic Study**[12] in 2016, which considers the wider economic benefits from improvements to the A350 and A36 / A46 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[13] 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 south connectivity in the Western Gateway area.

A subsequent **'Case for Action'**, submitted to the government by Wiltshire, Dorset, and Bath and North-East Somerset[14], 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 **(Figure 2-9)**.

Figure 2-9 – The 'Case for Action' for the economic role of north-south connectivity

[12] https://beta.bathnes.gov.uk/sites/default/files/2018-10/north_south_connectivity_final_report_081117.pdf
[13] 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.
[14] https://www.bathnes.gov.uk/sites/default/files/connectivity_prospectus_single_page_version.pdf

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.

How does the A350 Melksham Bypass scheme align with strategic policy aims to enhance **strategic connectivity and economic prosperity?**

The scheme addresses a key pinch-point on the A350 route prioritised by the Western Gateway STB to improve north / south connectivity between the M4 and the south coast. It forms part of a package of measures (including other MRN schemes) to initially improve access within the northern section of the route within Wiltshire. Improvements to this corridor will fundamentally improve access, enhance connections between major areas of economic activity, and enable significant opportunities for growth throughout the Gateway area.

In particular, the scheme will support:

- **Enhanced productivity** - geographic concentrations of people and business, such as the A350 Growth Zone, contribute towards improved economic performance and productivity, delivering wider economic benefits as a consequence. The A350 Melksham Bypass scheme will improve the efficiency of the corridor by reducing delays and congestion, and improving reliability and resilience, thus serving to increase the 'effective density' of the corridor by increasing the number of people who can access the area quickly and easily. This expands the prospective pool of talent to businesses, creates opportunities for networking and helps to attract supporting services and amenities.

- **Access to the south coast ports** – improvements to the A350 support improved connectivity for freight traffic to / from the Port of Poole. Frieght would be subject to fewer delays, shorter journey times and hence lower transport costs overall.

- **Additional GVA / jobs and land value gains** – e.g. from new housing and employment sites within the corridor that will be 'unlocked' (in part) and / or accelerated by the improvements (see also Section 2.2.3)

- **Rebalancing the economy** – by tackling the relative deprivation within the corridor, including parts of Melksham itself which are in the second most deprived decile nationally.

- **A strong and resilient tourism sector** – the visitor economy in Wiltshire generates approximately £900m GVA and accounts for 8% of all jobs. It is also a major part of Dorset's economy. Reliable and resilient transport connections via the A350 corridor are key to sustaining and growing the tourism sector.

2.2.3. Strategic policy aim 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 need for additional housing is one of the most important requirements across the whole of the Western Gateway area. An ambitious agenda has been developed which aims to deliver 300,000 new homes and 190,000 new jobs at various locations over the next 20 years to match the needs and the increasing attractiveness of the Western Gateway as a place for inward investment and continued economic development[15]. This will also help address the national requirement for new housing.

Within Wiltshire, the transport network (and specifically the A350 corridor) has a major role to play in meeting housing and employment needs in a sustainable manner. This is particularly the case given the status of the

[15] Western Gateway Strategic Transport Plan 2020-25

A350 Growth Zone as a continued focus for delivery of new homes and jobs (see also Section 2.1.2). **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. Emerging policy recognises the role of an A350 Melksham Bypass in delivering this growth.

Wiltshire Core Strategy (2006 to 2026)

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 2-3).**

Table 2-3 - Distribution of housing development 2006-26 in Wiltshire HMAs (as at 2017)

Housing Market Area (HMA)	Minimum housing requirement	Housing completions (2006-17)	Developable commitments (2017-26)	Variation	New Plan allocations (2017-26)
East HMA	5,940	3,624	2,311	-5	161
North & West HMA[16]	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)

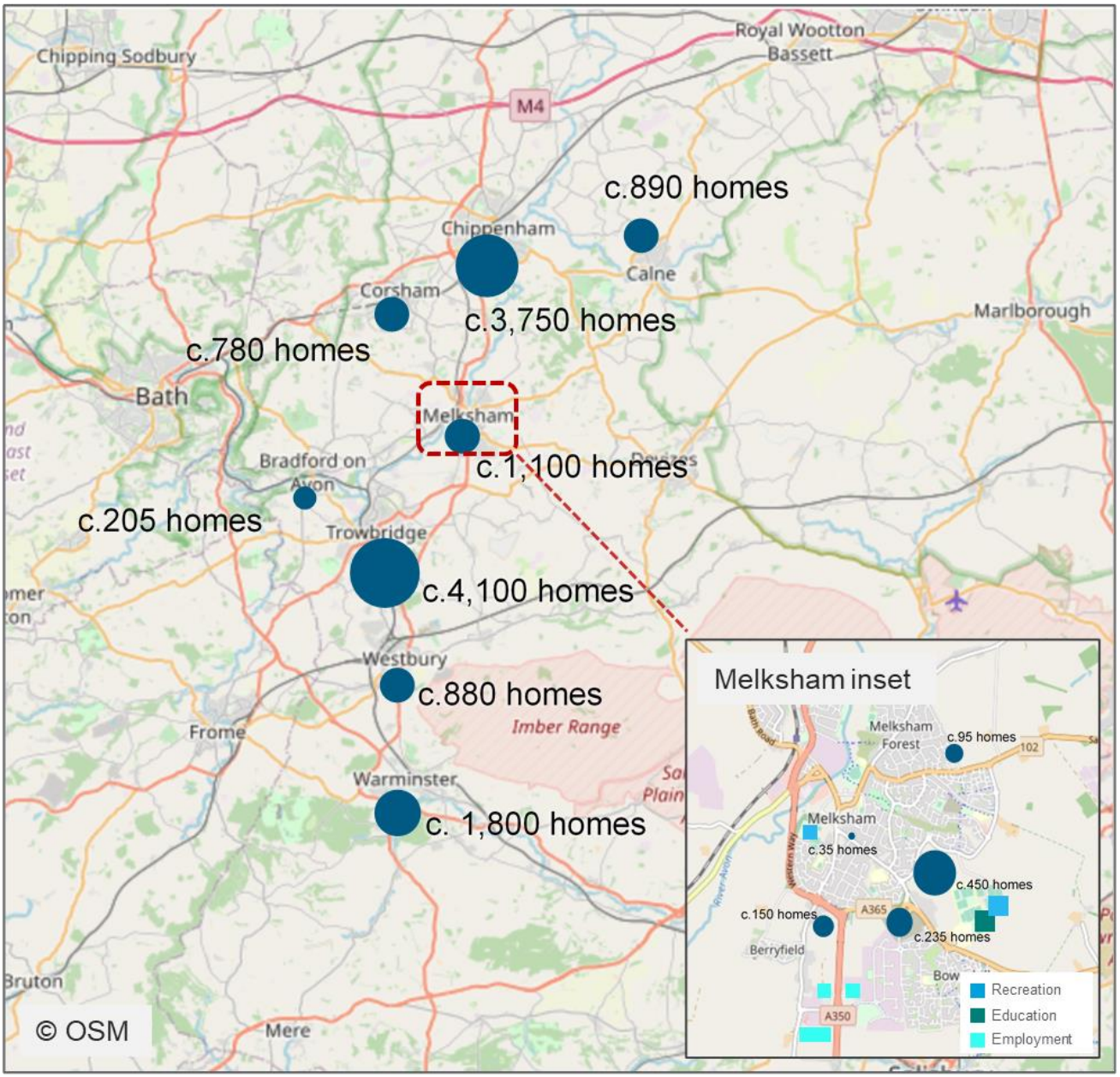
- By 2017, approximately 22,000 dwellings (of the planned 41,000 by 2026) had been delivered across Wiltshire. The North & West HMA (reflecting housing delivery on and around the A350 corridor) accounted for 60% of these.
- Progress towards achieving the housing requirements outlined in the WCS has been less than expected for the North West HMA overall (13,000 delivered by 2017, against a requirement of 25,000 by 2026)[17].
- 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).
- 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

[16] The North West HMA includes the key A350 corridor settlements of Chippenham, Trowbridge, Warminster, Westbury and Melksham. Melksham is also shown separately for reference.
[17] 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 to 2036 period.

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.

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 **(Figure 2-10).**

Figure 2-10 – Committed / allocated dwellings (2017-26) within the A350 corridor in Wiltshire



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 2023[18].

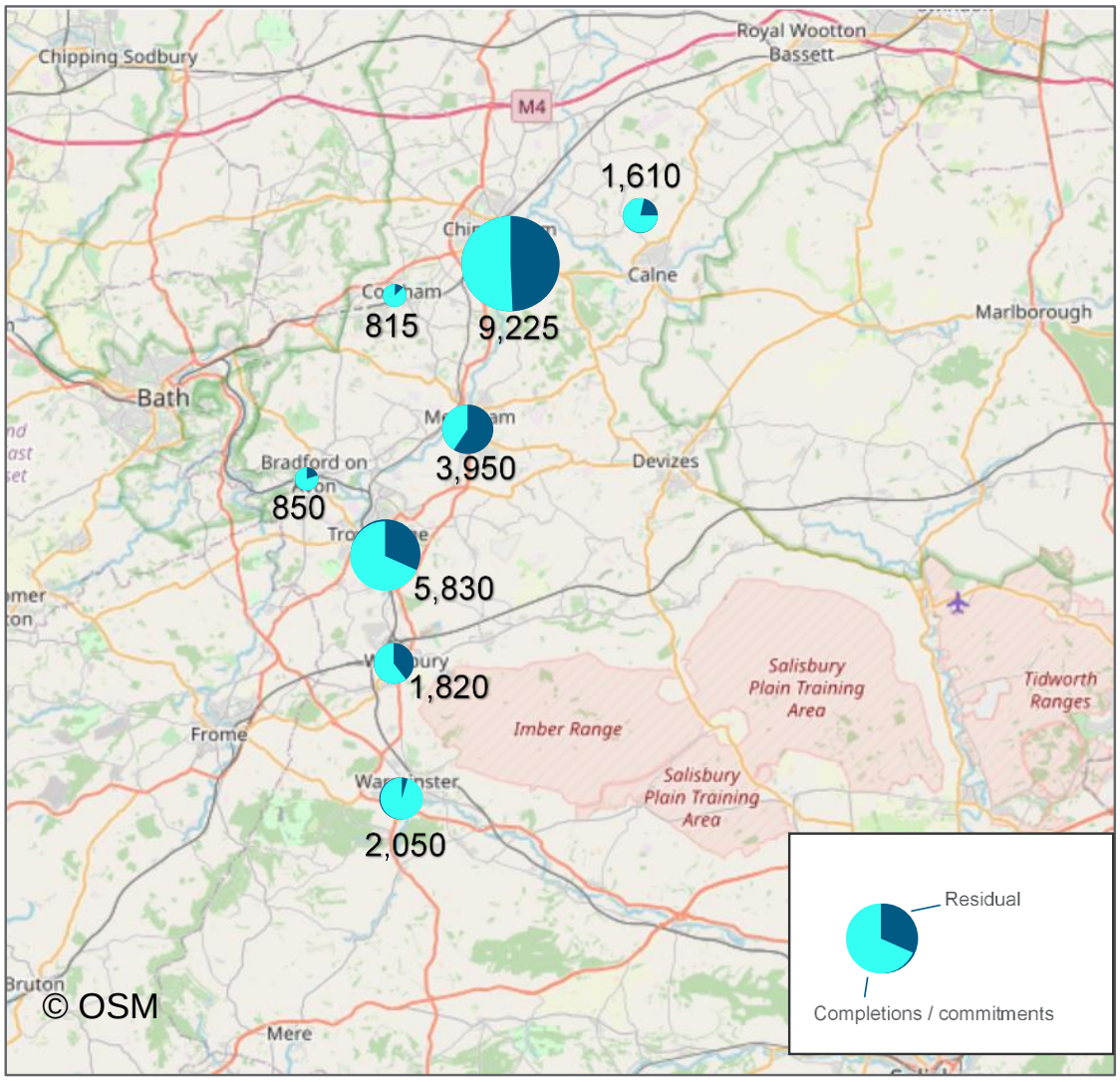
The housing and employment requirements for the period 2016 to 2036 by settlement are summarised in **Table 2-4** and illustrated in **Figure 2-11.** This includes the total requirement, and the residual dwellings once completions and planning commitments are taken into account (as detailed within the previous section relating to the Core Strategy).

Table 2-4 – 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)[19]	Residual at 1 April 2019[20]	
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**

[18] Wiltshire Local Development Scheme (Wiltshire Council, July 2020)
[19] Total housing reuirement 2016 to 2036, as determined via the full Objective Assessed Need within the Local Housing Needs Assessment.
[20] Total housing requirement 2016 to 2036 less completions up to 1 April 2019, and planned commitments as at 1 April 2019

Figure 2-11 – Housing requirement 2016 to 2036 (committed / residual) within the A350 corridor



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

Key points in relation to the Local Plan Review 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**. This highlights the **continued emphasis on the A350 corridor to support increasing travel demands** associated with new housing (see also Section 2.4 for further detail and analysis).
- When completions and existing developable commitments are taken into account, there is a residual requirement (as of April 2019) for additional sites to be identified to accommodate approximately 13,000 dwellings within the A350 corridor up to 2036.
- **Significant allocations for housing at Chippenham and Trowbridge and employment land at both Trowbridge and Westbury will increase travel demands on the A350 corridor through Melksham**.
- **Melksham has also been identified as a key location for growth**, with a housing requirement of almost 4,000 dwellings for the period 2016 to 2036 (2,600 being residual)[21].

[21] 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.

The emerging Local Plan identifies draft priorities for Melksham; draft priority 3 states:

"An A350 bypass to the town is a priority to improve the efficiency of the transport network and lead to other benefits for the town." (Wiltshire Council Local Plan – Planning for Melksham, January 2021)

The **Wiltshire Local Plan Transport Review**[22] provides the transport evidence base in relation to the impacts of the emerging housing and employment proposals. Key points include:

- The assessment identifies **potential 'severe impacts'** on the A350 as a result of the Local Plan growth, including at Melksham; and
- Identified **mitigation measures include an A350 Melksham Bypass** – "*proposals for the Melksham Bypass will play an important role in helping to mitigate the impacts of strategic development" (Local Plan Transport Review, page 31).*

Further analysis of the impacts of future growth and the implications for the A350 at Melksham is provided in Section 2.4.

How does the A350 Melksham Bypass scheme align with strategic policy aims to **support housing and employment growth?**

Effective planning and delivery of strategic infrastructure is critical to realise Wiltshire's growth plans to deliver approximately 31,500 new homes and 10 hectares of employment land between 2016 to 2036 on and around the A350 corridor. The corridor is due to take 70% of Wiltshire's total housing requirement. The need for a bypass at Melksham is recognised within Wiltshire Council's emerging Local Plan.

With Melksham, Chippenham and Trowbridge being a focus of growth, this will have a cumulative impact on the A350 through Melksham, which already has issues with congestion and delays. The scheme will relieve congestion (both existing and future) on the A350 through Melksham, improving journey times for both local and more strategic journeys, and unlocking barriers to new housing and employment development on the corridor. The scheme is therefore key to facilitating growth in a timely manner, whilst supporting sustainable development and meeting broader regional and local economic objectives.

2.2.4. Strategic policy aim 3: Melksham town regeneration and quality of life

Local priorities for Melksham town are identified within plans such as the **Wiltshire Core Strategy** and emerging **Local Plan**, and the recent **Joint Melksham Neighbourhood Plan (2020 to 2026)**. These include priorities relevant to the A350 Melksham Bypass scheme, related to regeneration, sustainable growth and improved quality of life **(Table 2-5)**.

[22] Wiltshire Local Plan – Transport Review (Atkins, January 2021)

Table 2-5 – Relevant local policy objectives for Melksham

Local policy objective	Priorities relevant to the A350 Melksham Bypass scheme
Regeneration	• **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. • **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.
Sustainable growth	• supporting **improved transport infrastructure for the increasing Melksham population.** • connecting new development to the town centre via **strong walking and cycling linkages.**
Improved quality of life	• **encouraging journeys by rail together with improving cycle and walking routes**, thus reducing the need to travel by car. • promoting opportunities for people to lead **healthier lifestyles with a greater sense of well-being**; and • 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. • conserving and enhancing the **quality of the natural landscape.**

The traffic reduction on the existing A350 route resulting from the bypass scheme would have a major role to play in meeting these local priorities, through the wider opportunities it presents to enhance the town:

"Bypassing Melksham could also reduce severance between the town centre and areas adjacent to the A350 (including the rail station and recent supermarket developments), create an opportunity to re-design the existing A350 corridor through the town, and support efforts to regenerate the town centre" (Local Plan – Planning for Melksham)

Levelling up – Melksham regeneration

A town centre masterplan / vision is currently being developed. The main objectives are likely to include minimising volumes and speeds of through-town traffic, minimising pollution, promoting shared spaces and developing and utilising event space.

In support of this vision, Wiltshire Council has submitted an application for around £5m to the Levelling Up Fund to renovate Melksham House as a multifunctional hub for the local community. Money from this bid would also help fund active travel and sustainable measures in the town, which will make the area more accessible and improve connectivity.

Traffic relief from a bypass will assist with repurposing central areas, and the associated complementary walking and cycling measures would further enhance connectivity throughout the town to this central hub.

https://www.wiltshire.gov.uk/bid-levelling-up

As a key element in the local sustainable transport network, further improvements to the accessibility and **quality of the links between the wider town and Melksham Railway Station are also an important priority**. The **Melksham Hub** is a programme of improvements to the station area to provide a range of community facilities, with the initial phases having been recently completed. The station lies to the west of the A350 – as well as providing essential access to the station, the high traffic volumes on the A350 also act as a

barrier to east-west access to the station on foot and cycle and hence improved access is a priority to continue to support the growing role of the rail station.

How does the A350 Melksham Bypass scheme align with strategic policy aims to support **regeneration and improved quality of life?**

Both the emerging Local Plan and The Joint Melksham Neighbourhood Plan recognise the role of a bypass at Melksham in meeting local objectives, in addition to its strategic benefits:

"In order for sustainable development to take place in Melksham and reduce high levels of traffic congestion on the A350, a By-pass to the town is a priority. This will need to improve the efficiency of the A350 as well as improve the local economy and meet other economic objectives for the town". (JMNP - Priority Statement 3)

The scheme will support policy objectives around local regeneration and improved quality of life by:

- removing strategic North-South traffic from Melksham – the current route along the A350 creates severance between the town centre, and the station and residential areas to the north west of the town.
- capitalising on this reduced through traffic with complementary walking and cycling measures connecting the town centre with the station and these residential areas, which will improve journey quality for people walking and cycling.
- facilitating rail travel to and from Melksham, creating a more welcoming route into the town centre for visitors as well as making it easier for Melksham residents to access the rail network.
- enhancing the overall capacity, efficiency and resilience of the road network around Melksham, facilitating traffic to be diverted from areas which are a priority for improved public realm and regeneration.
- helping to attract inward investment to support regeneration and local job creation by reducing travel costs and improving accessibility.
- reducing adverse impacts related to air quality and noise levels for residents along the current route.

2.2.5. Strategic policy aim 4: environment and climate change

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 its **Transport Decarbonisation Plan** (TDP) in July 2021. The plan sets out 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 plan covers 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.

The TDP reflects an increasing priority for decarbonisation of the transport network, including a greater focus on public transport and active modes (as set out in other strategies such as **Gear Change** and **Bus Back Better**). However, the TDP also states that:

"Continued high investment in our roads is therefore, and will remain, as necessary as ever to ensure the functioning of the nation and to reduce the congestion which is a major source of carbon."

Government policy therefore continues to support investment in the local road network, although it is important that possible effects of schemes on carbon, both positive and negative, are fully considered and transparent.

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[23]. 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.

Environment and biodiversity

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[24] 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.

[23] https://www.wiltshire.gov.uk/green-economy-climate-emergency
[24] 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

How does the A350 Melksham Bypass scheme align with strategic policy aims to support **improved environment and climate change?**

Any major infrastructure project will have significant environmental considerations and the extent to which impacts can be mitigated (or even betterment achieved) is a key factor in the overall case for a scheme. Following the publication of the Government's Transport Decarbonisation Plan, national policy continues to support investment in roads. The A350 Melksham Bypass scheme seeks to embed key principles around environmental consideration from the outset, which run throughout effective planning and design, with input from key environmental stakeholders. These principles include minimising environmental impact where practicable associated with the design, construction and operation of the scheme, and seeking opportunities for environmental enhancement.

Key points in relation to the fit of the scheme with environment and climate change policy include:

- The scheme promotes improved fuel efficiency for vehicles by tackling queueing and congestion on this section of the A350. However, it should be recognised that the new bypass route would also be longer and hence increase total vehicle kilometres travelled.
- The scheme addresses areas on the existing A350 which are sensitive to noise disturbance (and classified as Noise Important Areas) and would improve localised air quality. This needs to be considered alongside any noise and air quality impacts from the new bypass route. The route has been designed to minimise the number of properties potentially impacted.
- The bypass presents opportunities to enhance local active travel as a result of the traffic reduction on the existing A350 and other local roads. In order to maximise this opportunity and to 'lock in' the benefits, the scheme includes complementary walking and cycling improvements. This aligns with policy objectives to maximise active travel for local journeys, and the improved connections to the station would also help encourage travel by rail for longer journeys in Wiltshire. This would promote alternatives to the car for some journeys and hence reduce emissions associated with these trips.
- There are opportunities to make provision for electric vehicle charging facilities within the the design of the bypass, in line with policy objectives to support the uptake of electric vehicles with lower (or zero) emissions.
- Environmental impacts can not be completely avoided. But environmental mitigation is central to the scheme design. Opportunities for enhancement will also be sought, in line with policy objectives around biodiversity net gain.
- Construction of any infrastructure will involve 'embodied carbon'. Scheme construction would seek to utilise low-carbon construction methods and minimise the amounts of materials imported in order to minimise the carbon impact.

The OBC is supported by a Preliminary Environmental Assessment, including a carbon assessment. At the planning application stage the scheme would be subject to a full Environmental Impacts Assessment. This will ensure full transparency to inform decision makers in relation to the expected environmental impacts.

2.3. Current travel demands and level of service

Covered in this section

This section details the existing situation in terms of the current transport network, travel demands and how the network functions. It provides evidence around the issues that the scheme seeks to address.

2.3.1	Current A350 road network provision	2.3.2	Origin-destination travel patterns	2.3.3	Traffic flows on the A350
2.3.4	A350 journey times and delays	2.3.5	A350 journey time reliability	2.3.6	Collisions
2.3.7	Public transport provision and demand	2.3.8	Walking / cycling and severance	2.3.9	Traffic noise and emissions

Summary of key points

The A350 is one of Wiltshire's busiest routes. Annual Average Daily Traffic on the A350 at Melksham is up to approximately 34,000 vehicles. HGV traffic is significant, accounting for approximately 7% of all traffic (up to 1,800 HGVs daily).

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 daily traffic (and is higher in the peaks). 24% of through movements are north / south.

The existing A350 route through Melksham is sub-standard for the volume and type of traffic. There are several changes in speed limit, several key junctions and accesses to adjacent land uses. The confluence of the A350 and other radial routes (A365, A3102 and B3107) also contributes to the significant peak hour congestion and delays, particularly in the central section of the A350 through the town. The route suffers from journey time delays and poor journey time reliability; in the AM peak journey times are 50% longer than 'free-flow' conditions.

The busy nature of the A350, with a relatively high volume of HGVs and peak period congestion, impacts significantly on residents living in northern parts of the town and Beanacre in particular where there are properties directly fronting the road. It restricts their access to local shops and the town centre / rail station, discourages walking and cycling, and exposes them to higher noise levels and poorer air quality than would be experienced in other parts of Melksham. There are several Noise Important Areas along the route.

There are notable collision clusters along the A350 at Melksham.

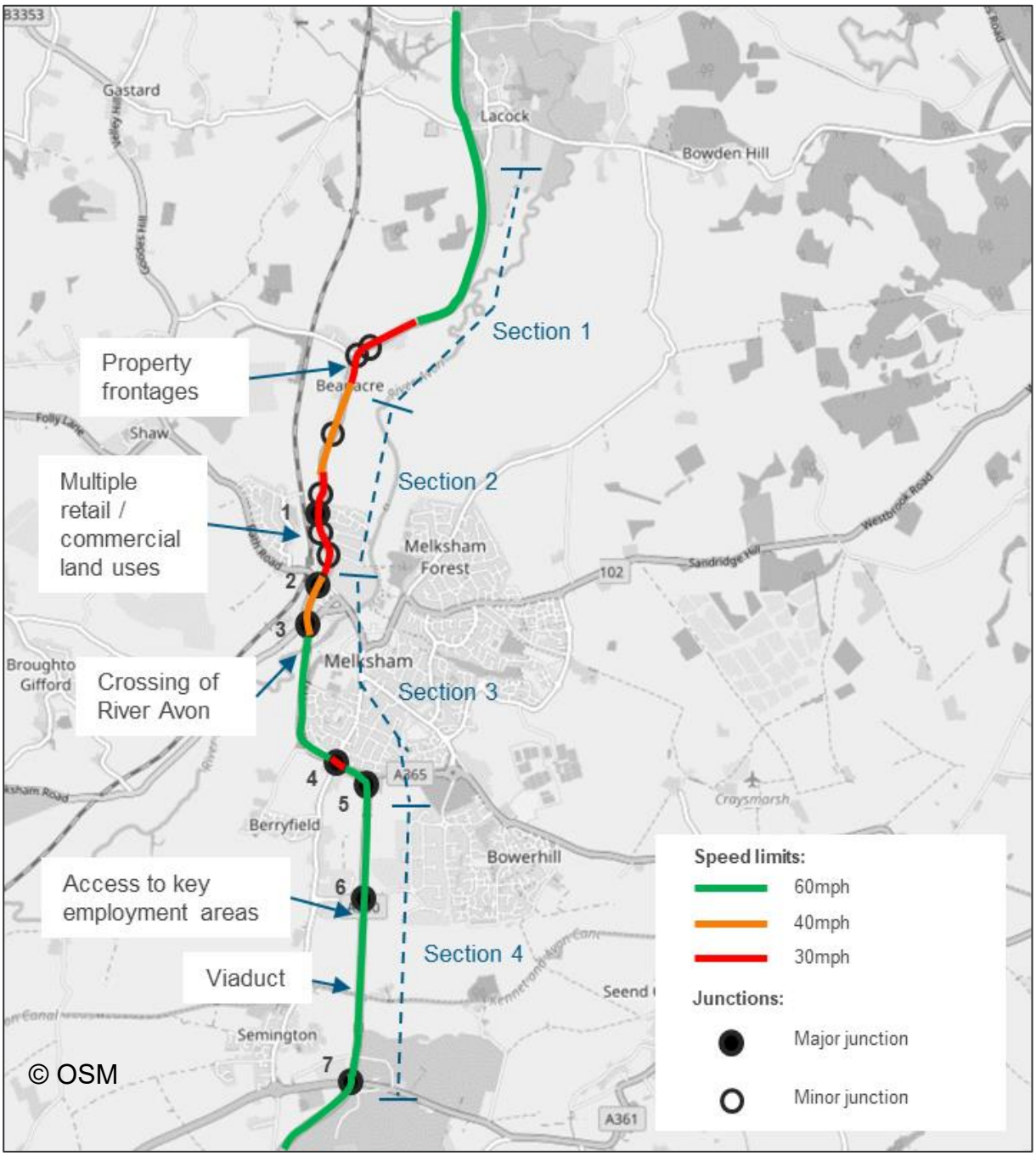
Many of the issues are relevant throughout the day; problems are not confined to the peak hours.

Congestion and delays also affect local bus services which operate on parts of the A350, impacting on service reliability.

2.3.1. Current A350 road network provision

The A350 route within Wiltshire is approximately 40 kilometres in length A full description of the route (from M4 J17 to Warminster) is provided in Appendix A1. The section around Melksham (between the A361 at Semington to the south, and Lacock to the north), is approximately 9 kilometres in length and the character of the route and the speed limit varies as it passes through Beanacre and Melksham **(Figure 2-12)**. This section of the A350 is the **only part of the route north of Westbury where it passes through significant settlements including 30mph zones**.

Figure 2-12 - Key characteristics of the A350 route through Melksham



The nature of the existing route is an important factor with regards to the issues that the scheme seeks to address **(Table 2-6** and **Figure 2-13)**.

Table 2-6 – Key characteristics of the A350 route through Melksham (north to south)

Section	Key characteristics
Section 1: Lacock - Beanacre	• Largely rural single carriageway with a 60mph speed limit between Lacock and Beanacre. • Through the village of Beanacre there are residential properties on both sides of the road and the speed limit is reduced to 30mph for around one kilometre.
Section 2: Northern Melksham	• The route 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. • A number of key junctions **[1]** provide accesses to Leekes Department Store, fast food and supermarket sites to the west and heavily populated residential areas to the east.
Section 3: Central Melksham	• The A350 widens to two lanes in each direction as it passes the key junction with the A365 Bath Road **[2]** and then a signalised junction providing access to an Asda superstore on the western side. • This is followed by the Farmers Roundabout[25] **[3]**, which provides access to Melksham town centre to the east and B3107 towards Bradford-on-Avon to the west. • The route reverts to single-carriageway with a 60mph speed limit as it crosses the River Avon. • The Semington Roundabout **[4]** provides access to Melksham town centre from the south, whilst the Western Way Roundabout **[5]** links new developments on the eastern side of Melksham, Bowerhill village and Trading Estate, and the A365 towards Devizes.
Section 4: Southern Melksham	• The A350 follows the 3km Semington bypass (opened in 2004) via a further roundabout **[6]** providing access to Bowerhill Trading Estate and Hampton Park West (Business Park). This section of road is single carriageway with a 60mph limit. • The route continues south, passing underneath the Kennet and Avon Canal carried by an aqueduct and intersects with the A361 at Semington via a priority roundabout **[7]**.

Note - numbered references refer to junctions illustrated within Figure 2-12.

[25] The Farmers Roundabout junction was subject to an improvement scheme, including signalisation, completed in October 2019 (https://www.wiltshire.gov.uk/news/farmers-roundabout-milestone)

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

Section 1 - At Beanacre (south)

Section 2 - Northern Melksham (south)

Section 3 - Central Melksham (south)

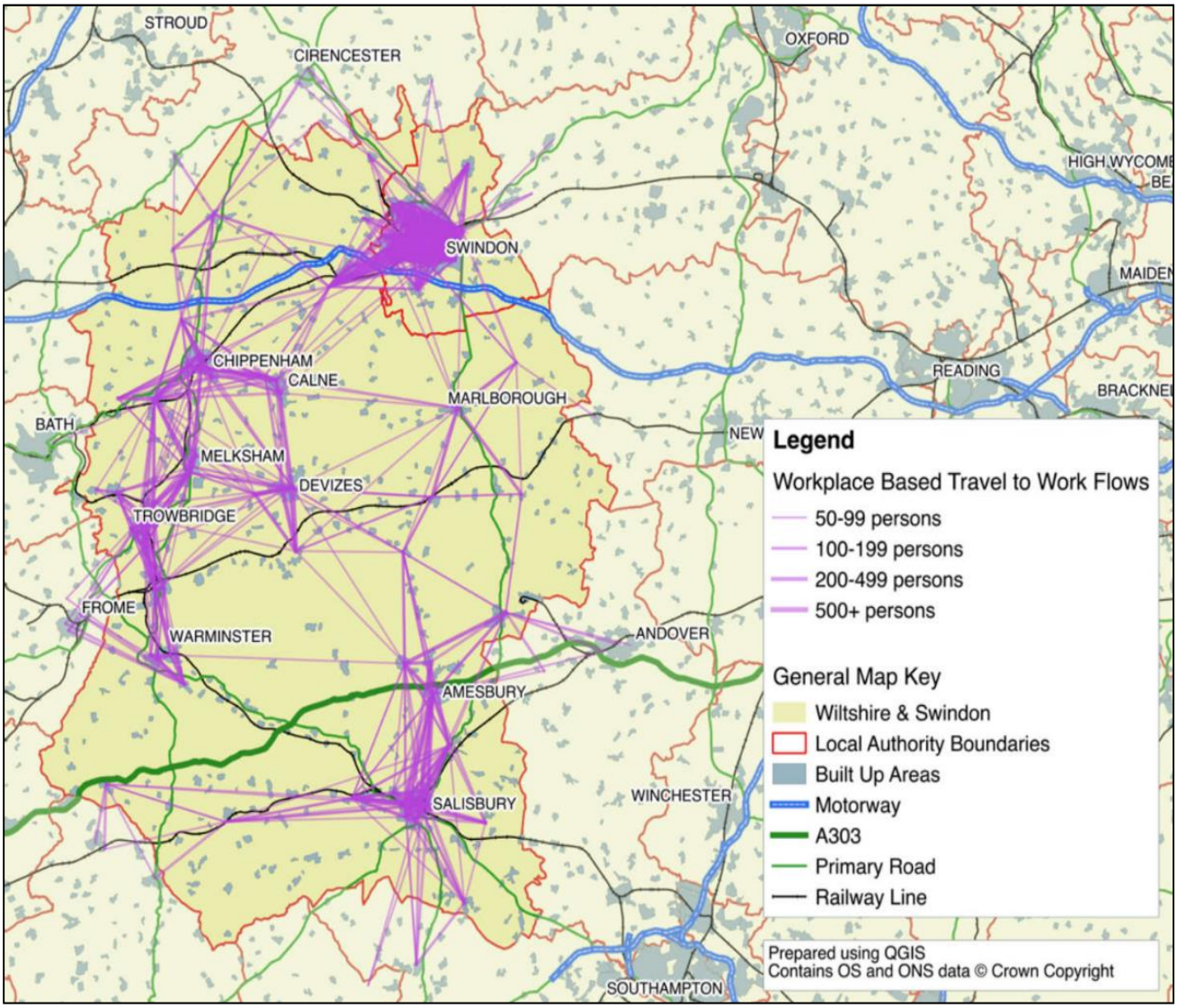
Section 4 - Southern Melksham (south)

2.3.2. Origin-destination travel patterns

The polycentric nature of the A350 growth zone results in significant commuting flows between towns on the A350 **(Figure 2-14)**. 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.

Figure 2-14 - 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

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

Based on the 2011 Census[26], **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 2.3.4).

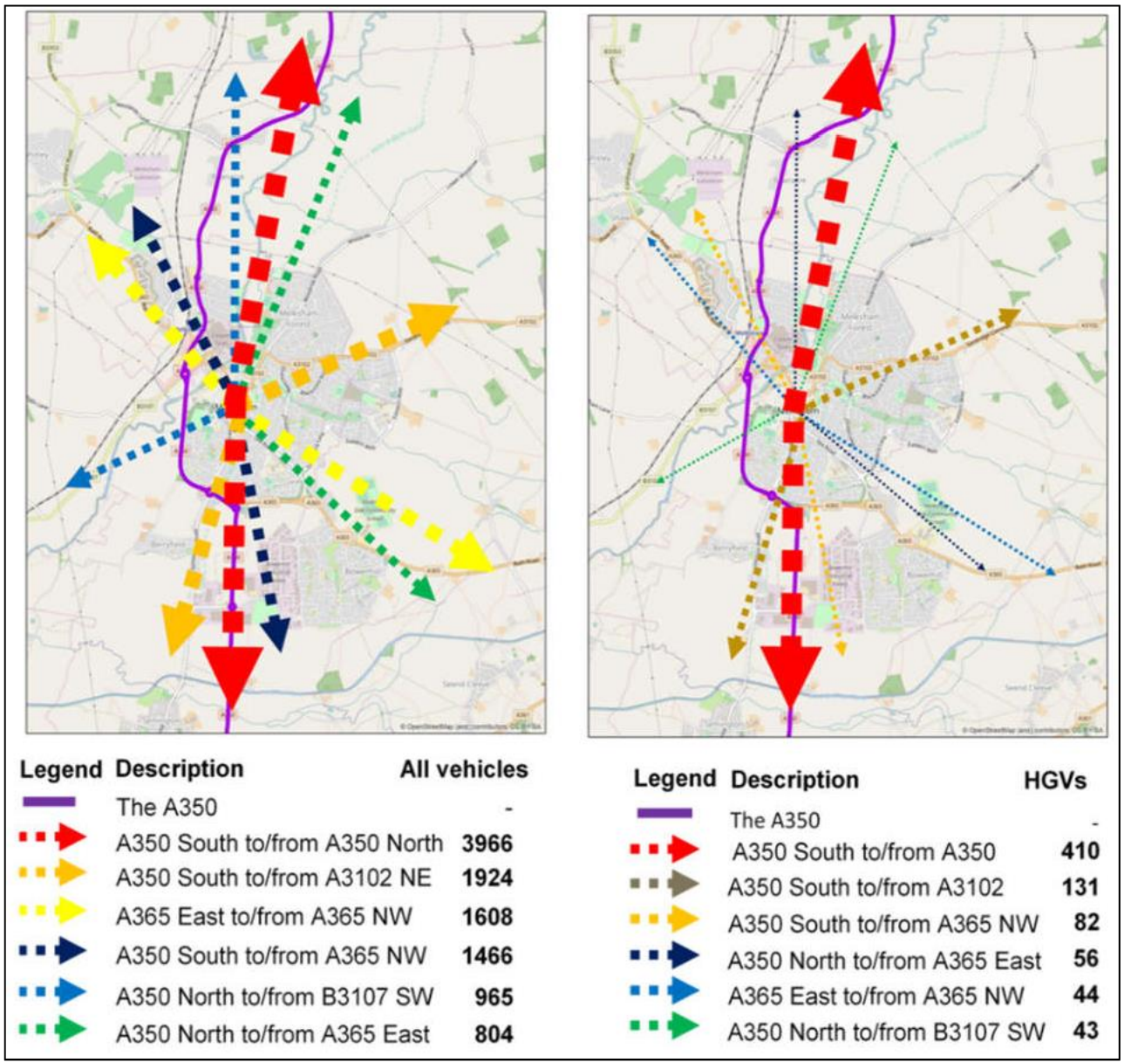
Origin-destination patterns of vehicle trips through Melksham

Further evidence of travel patterns is provided from an Automatic Number Plate Recognition (ANPR) survey[27]. Analysis illustrates the key patterns and volume of trips which pass through Melksham but do not start or finish there **(Figure 2-15, Figure 2-16)**. The patterns of through-traffic on different sections of the route have also been identified **(Figure 2-17)**.

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

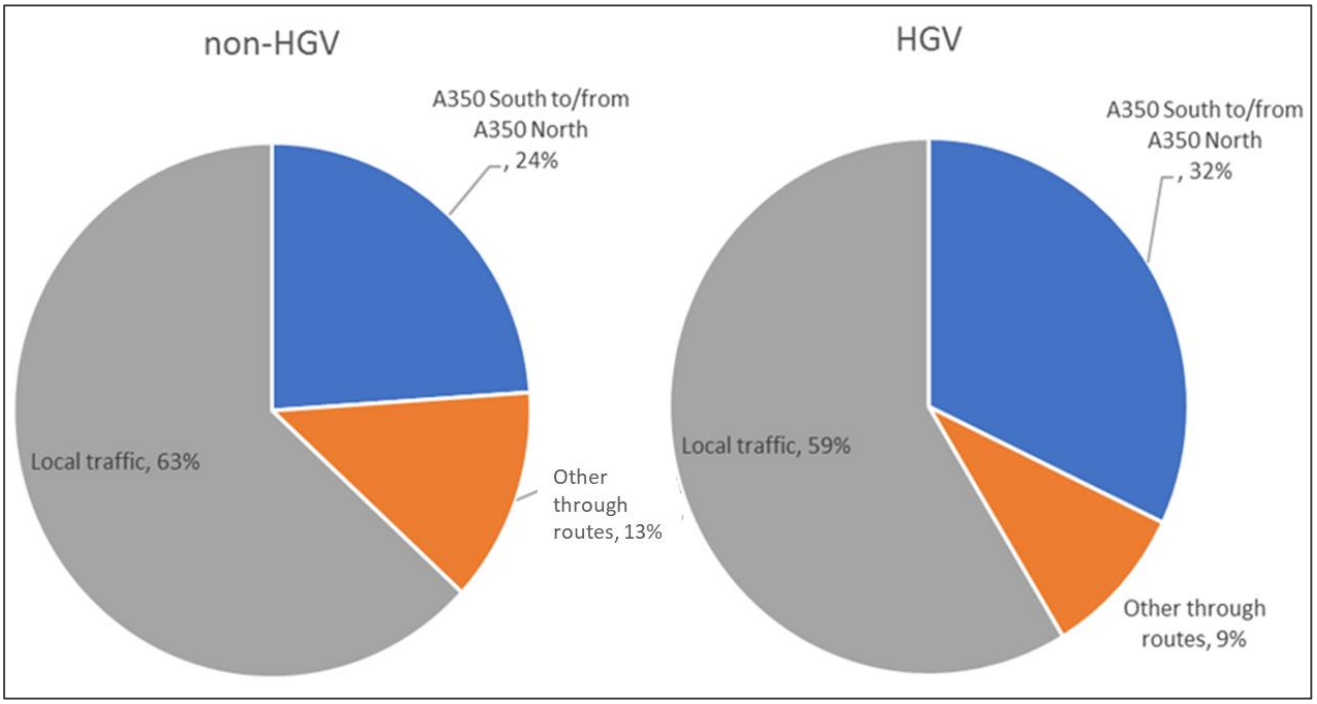
[27] The ANPR survey was undertaken in June 2017 and comprised nine sites strategically placed on the A350, and around Melksham on other main roads, in order to generate Origin-Destination pairs for the area.

Figure 2-15 - Daily through-traffic flows (all vehicles and HGVs) through Melksham, 0700-1900



(Source: 2017 ANPR survey)

Figure 2-16 - Estimated proportions of local versus through-traffic on the A350 between Melksham and Beanacre, 0700-1900

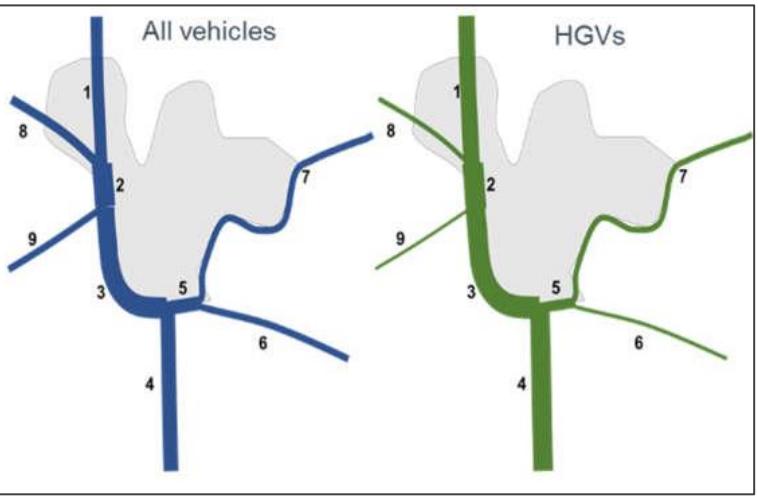


(Source: 2017 ANPR & ATC survey)

Figure 2-17 - 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)

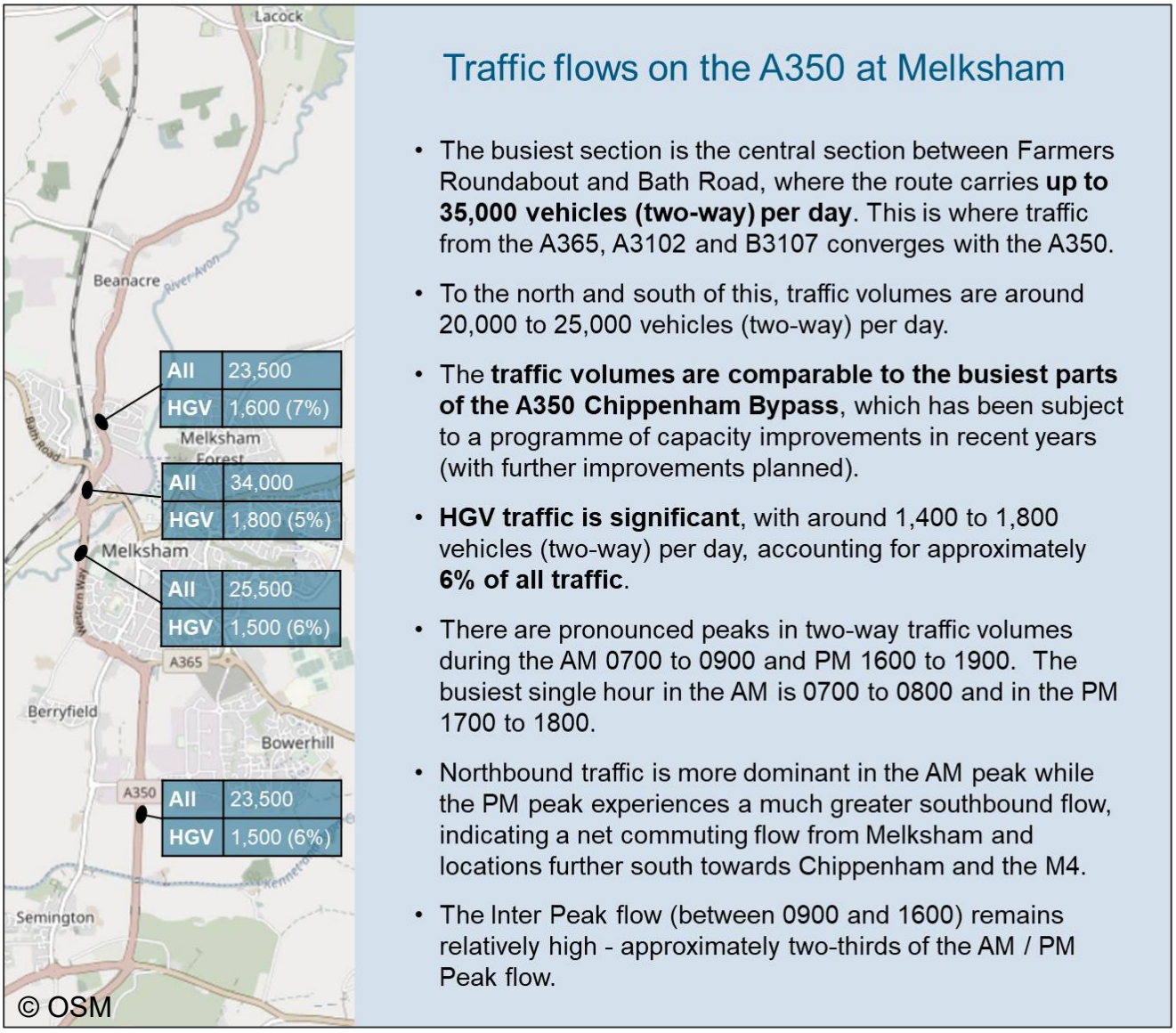
The survey data (for the 12-hour period 0700 to 1900) indicates that **approximately 40% of all daily traffic entering or leaving Melksham on the A350 via Beanacre is through-traffic**, with the remaining 60% starting or ending their journey in Melksham. Other key observations include:

- Approximately **one quarter (24%) of all traffic was recorded as passing through on the A350 from north to south, or vice versa**. 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 higher in the peak periods (47%)**, so that approximately 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.

2.3.3. Traffic flows on the A350

As a key north-south connection for West Wiltshire and the wider Western Gateway region the A350 carries high volumes of traffic, including local and longer-distance Heavy Goods Vehicles (HGVs). Analysis of several traffic data sources from 2016 to 2019[28] indicates the following key points in relation to traffic on the A350 around Melksham:



[28] Traffic data sources include Automatic Traffic Count sites, an ANPR survey, and DFT annual traffic count data – see Appendix A for details.

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.

The high traffic volumes and HGV demand, the mix of local and 'through-traffic' (Section 2.3.2), and the sub-standard nature of the A350 through Melksham / Beanacre (Section 2.3.1) means that **the operation of the route is sub-optimal**. This manifests through **traffic congestion and delays** for users of the A350, as well as traffic-related impacts on other transport users and residents including **severance**, **noise disturbance** and **safety** concerns. These issues are explored further in Sections 2.3.4 to 2.3.9.

Bath Clean Air Zone

The Bath Clean Air Zone (CAZ) became operational 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. Due to Covid-19 the full impacts of the CAZ on traffic flows is yet to be determined. As the A36 / A46 through Bath is an alternative to the A350, the CAZ may result in additional traffic on the A350 through Melksham. The business case for the Melksham bypass does not include impacts from the CAZ, but any such impacts would add to the need for this scheme.

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

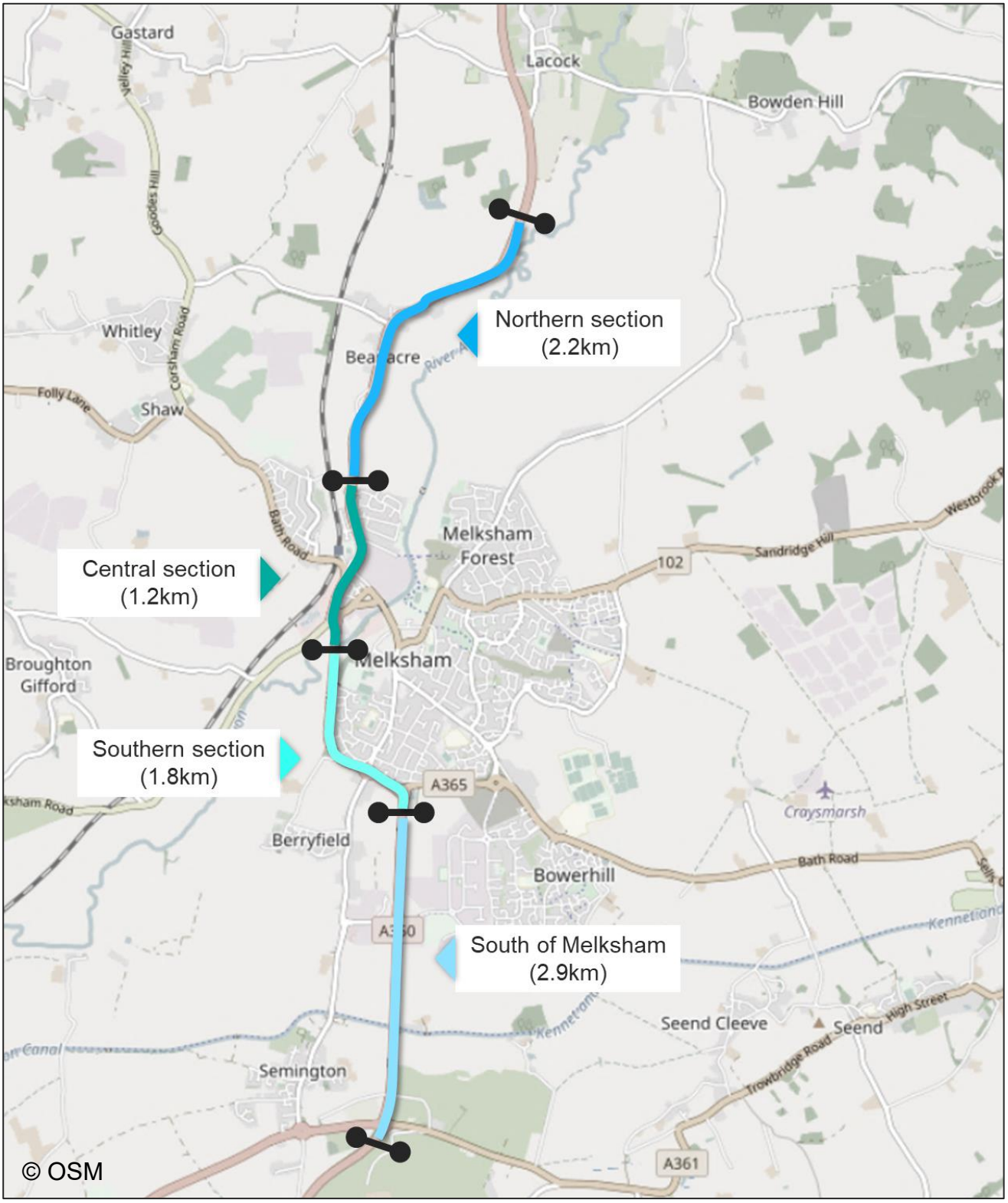
2.3.4. A350 journey times and delays

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[29] (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 2-18)**.

[29] 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 2-18 - 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 2-7, Table 2-8)**.

Table 2-7 - A350 Average journey times through Melksham (Northbound)

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	09:39	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 2-8 - 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:

- **Northbound journey times are 50% longer in the AM peak**, compared to free-flow conditions, and 30% longer even in the Inter-peak.
- In the **southbound direction, journey times are typically around 30% longer**, compared to free-flow conditions, for much of the day.
- The greatest journey time increases in the AM peak northbound and PM peak southbound reflect the traffic demands and the tidal nature of flows resulting from commuting patterns.

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 2-9, Table 2-10)**.

Table 2-9 - 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	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	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	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 2-10 - 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	**Northern**	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 hour, 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 is likely to 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.

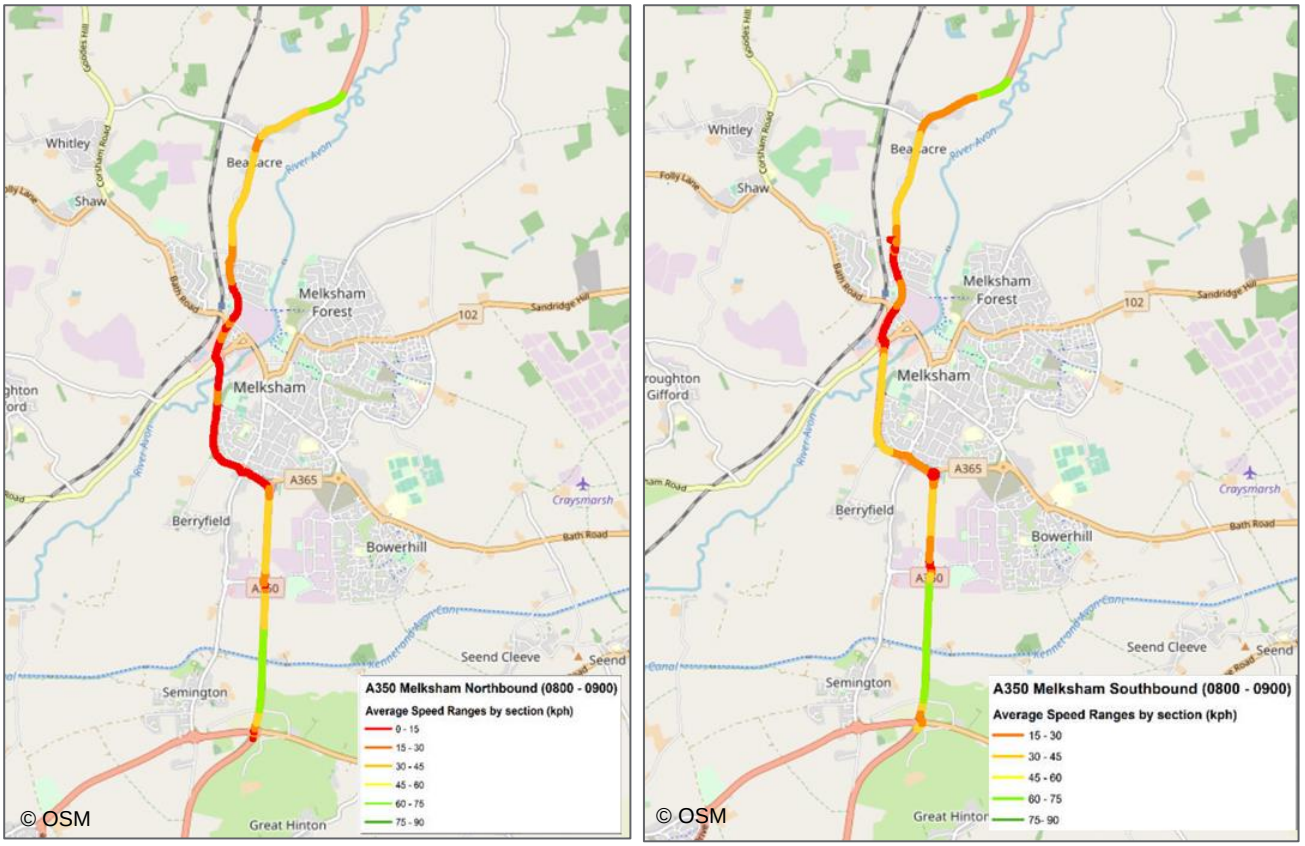
Overall, the analysis indicates notable differences in journey time performance along the A350 route at Melksham. Particular sections experiencing congestion and delays are from Western Way Roundabout to Leekes on the northern edge of Melksham, with significant delays occurring in both directions throughout 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 and traffic conditions. Consequently, as demonstrated by the TomTom data, there is a significant variation in average vehicle speeds along the route **(Figure 2-19)**. 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 2-19 - Average vehicle speed recorded on A350 through Melksham in AM Peak (0800 – 0900)



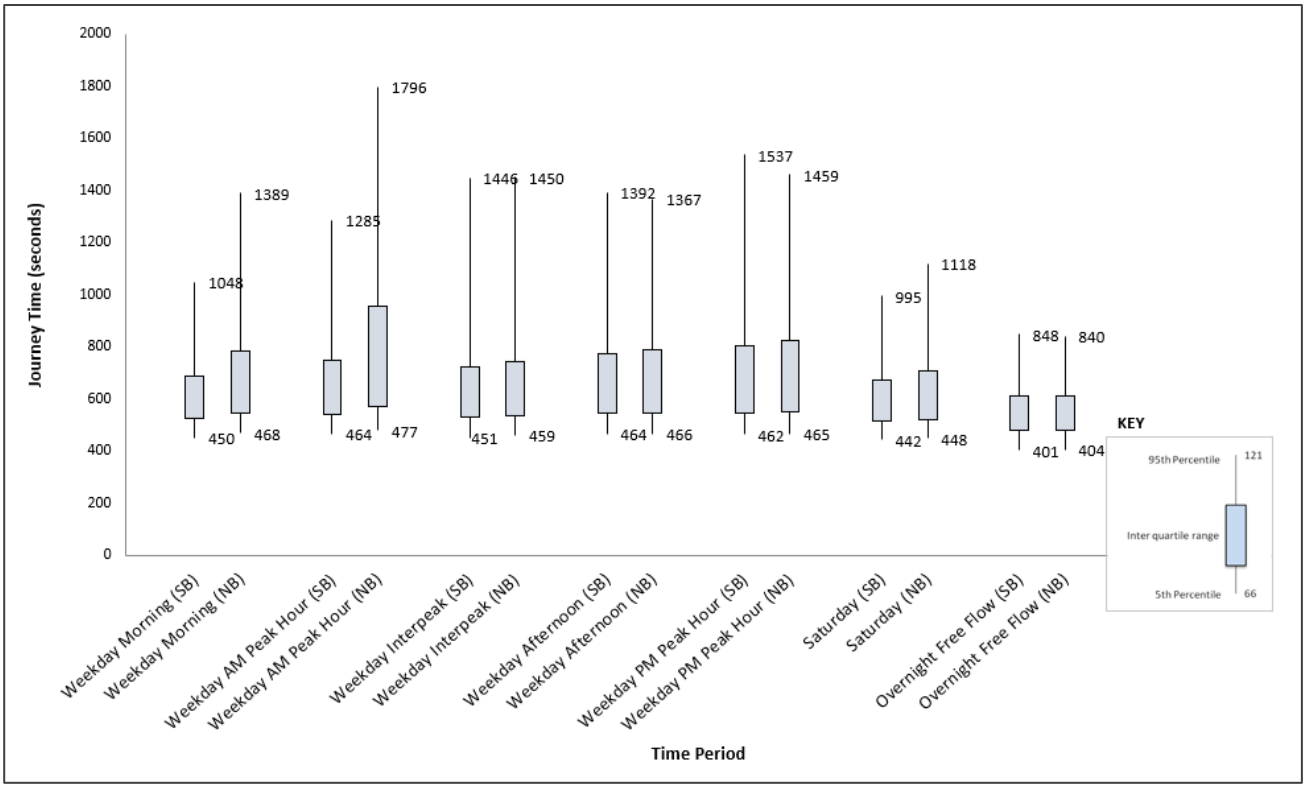
In summary:

- there are peak and inter-peak delays in the central and southern sections in particular, demonstrating that **the issues are not limited to specific pinch point(s), nor solely related to commuter peaks**.
- there is a lesser, but still significant, congestion issue in the south of Melksham section.
- the northern section experiences less delay / congestion but vehicle speeds are restricted by 30mph speed limits and a high number of junctions / accesses, in addition to the other severance and noise issues which affect this section (see Sections 2.3.8 and 2.3.9 for instance).

2.3.5. A350 journey time reliability

Further analysis of the TomTom data identifies variability in journey times **(Figure 2-20)**. This indicates the extent to which journey times are likely to fluctuate from day to day, for different time periods.

Figure 2-20 – Journey time reliability along the A350 at Melksham (annual data, 2019)



Note – the Interquartile Range is a measure of variability based on splitting data into quartiles (dividing the range of data into four equal parts). The values that split each part are known as the first, second and third quartile. The interquartile range is equal to quartile 3 minus quartile 1. The greater the range, the higher the variability.

Key points in relation to journey time reliability 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.
- There is a range of around 15 minutes between the 5th and 95th percentile for much of the weekday, indicating that **reliability is affected throughout the day and not confined to the peak hours**. The journey time ranges on a Saturday and overnight are much smaller.
- For all time periods, the range between the upper quartile and the 95th percentile is greater than the range between the lower quartile and the 5th percentile, suggesting that **when there are variations to the journey time, journey time increases are much more significant than journey time decreases**, with the potential for large variations in journey times due to delays and congestion.
- The largest interquartile range is again in the weekday AM peak northbound at around six and a half minutes, suggesting that **variations in journey time for the weekday AM peak are relatively common**. All other weekday interquartile ranges are around 3 to 4 minutes.

The route is more susceptible to variations in journey time as there are very limited alternative north-south routes. Hence, incidents on the route are more likely to result in significant congestion and delays.

2.3.6. Collisions

Between 2015 and 2019, 304 collisions were reported in Melksham **(Table 2-11)**. Overall, the collision rate for the Melksham area is broadly in line with the Wiltshire average. However**, almost 40% of the collisions within Melksham have occurred on the A350 route**, with more notable concentrations of collisions compared to the other radial routes.

Table 2-11 - Personal injury vehicle collisions reported on the A350 in Melksham from 2015 to 2019

Year	Number of collisions	% of total	Involved Cyclists	% of total	Involved Pedestrian	% of total
2015	80	26%	10	28%	9	33%
2016	70	23%	8	22%	4	15%
2017	48	16%	4	11%	5	19%
2018	59	19%	6	17%	6	22%
2019	47	15%	8	22%	3	11%
Collision severity						
Fatal	7	2%	0	0%	1	4%
Serious	51	17%	8	22%	6	22%
Slight	246	81%	28	78%	20	74%
Total collisions	304	100%	36	100%	27	100%

Source: STATS19 Database / Wiltshire Council

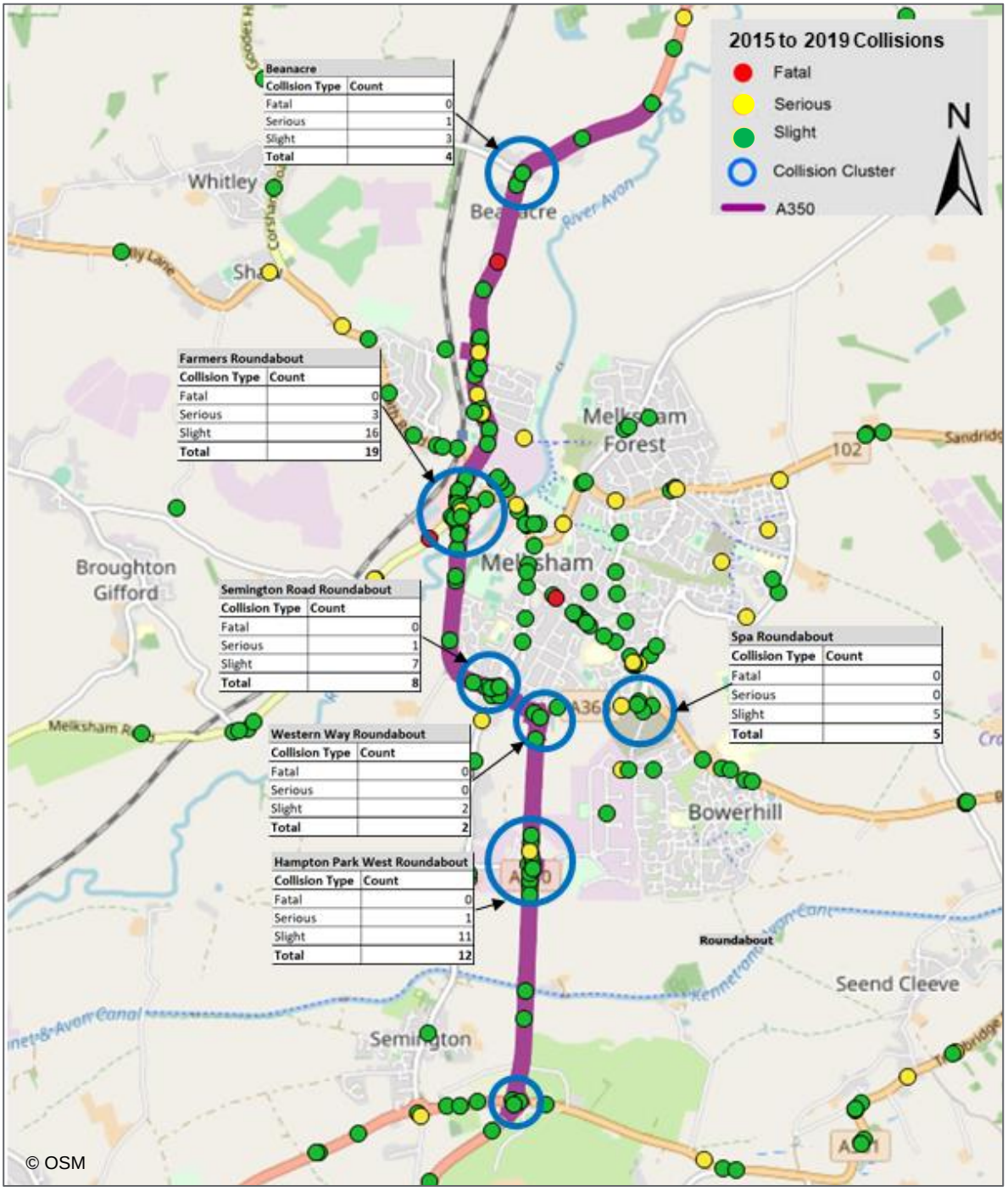
There are **several key clusters of collisions along the A350**, in particular at its busiest junctions **(Figure 2-21)**. This includes at Farmers Roundabout[30], but also at Semington Road, Western Way, Spa and Hampton Park West Roundabouts. Approximately 16% of collisions on the A350 involve pedestrians or cyclists.

The high concentration of these types of collision on the A350 is considered to reflect a combination of the high traffic volumes, congestion and close separation of junctions on the section north of Farmers Roundabout, leading to increased risks from driver frustration and lapses of concentration.

In addition to the personal injury, social and financial costs associated with collisions, the high incidence along the A350 will contribute to disruption of traffic flow (e.g. affecting reliability – see Section 2.3.5), particularly if account is taken of the potentially larger number of unreported collisions which did not involve personal injury.

[30] It should be noted that improvements were made at Farmers Roundabout in late 2019 that may reduce accidents, but this data is not captured here.

Figure 2-21 - Personal injury vehicle collisions reported in Melksham 2015 to 2019



Source: STATS19 Database / Wiltshire Council

2.3.7. Public transport provision and demand

Rail services

Melksham is served by the TransWilts railway line[31] which connects it to the A350 corridor towns of Chippenham, Trowbridge and Westbury, with services operated between Swindon and Westbury **(Figure 2-22)**.

[31] The TransWilts service is a partnership between Great Western Railway and TransWilts Community Rail Partnership.

Figure 2-22 - Rail and strategic bus links in north Wiltshire

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.

In 2013, the weekday service provision was increased from two to nine services in each direction[32], providing an approximate two hourly frequency. Passenger numbers at Melksham have increased by 17% between 2014/15 and 2018/19. However, the service does not provide a particularly strong alternative for commuters and the single track limits the ability to increase frequencies easily. Notwithstanding this, the rail service has an important local function and the A350 has a significant bearing on access to the station (which is also being developed into a local hub[33]), both in terms of vehicle access and east-west access on foot / cycle which requires crossing of the A350 (see also Sections 2.2.4 and 2.3.8).

[32] 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. The increase in service provision was implemented as part of the Local Sustainable Transport Fund project.

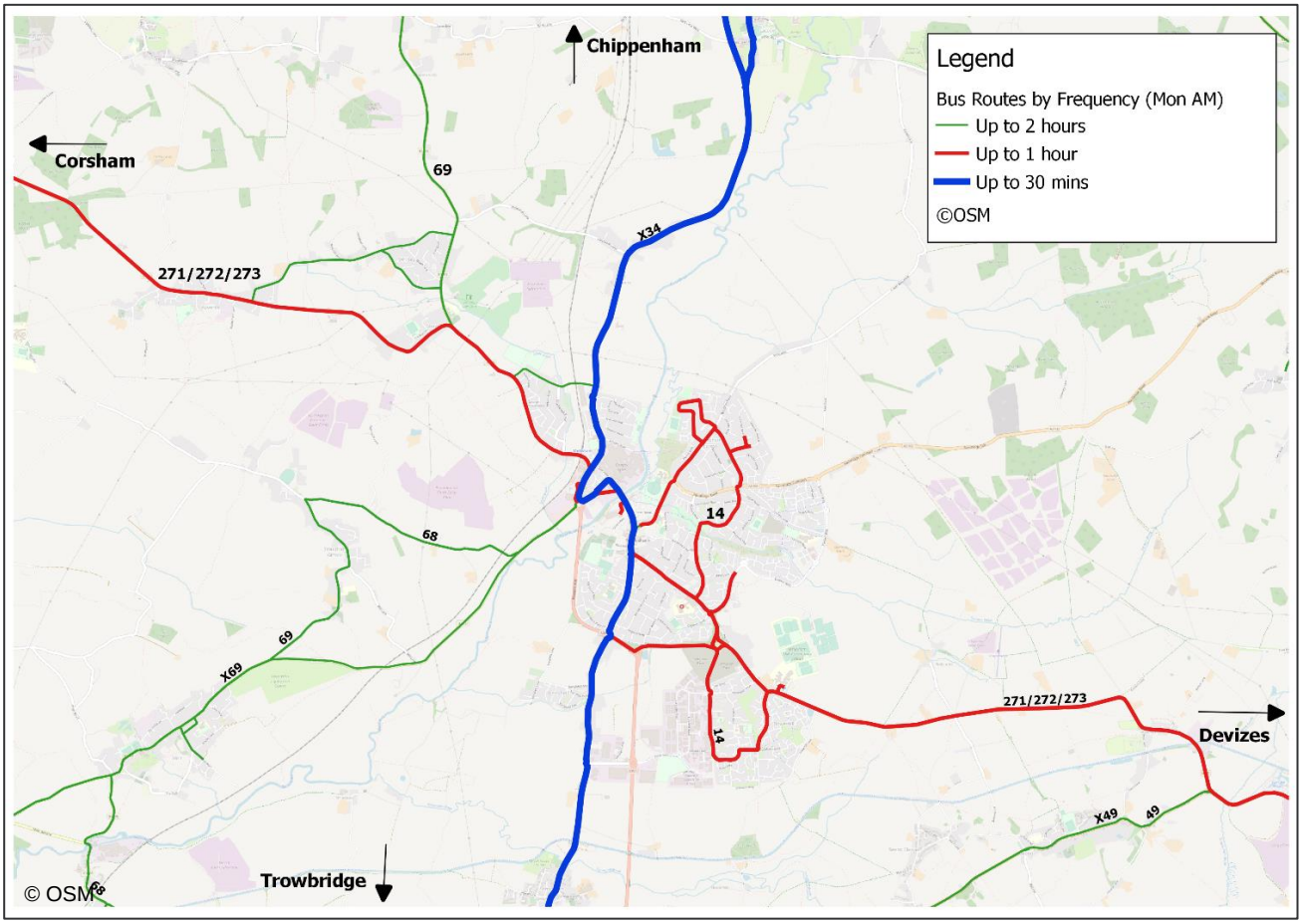
[33] https://www.transwilts.org/news/8-news/192-transwilts-awarded-60-000-for-melksham-station-plans

Bus services

Melksham is served by several bus services although these operate at a relatively low frequency **(Figure 2-23).**

The X34, from Trowbridge to Chippenham, is the primary inter-urban service and operates on the central and northern sections of the A350 route around Melksham. A number of other services also operate on the central section (including east-west services). Consequently, all of these **bus services are affected by the same congestion and delays as general traffic, impacting on service reliability**. Furthermore, the high traffic flows on the A350 can delay buses from pulling out of bus stop bays, particularly on the higher speed northern section.

Figure 2-23 - Bus routes serving Melksham and A350 corridor by frequency (Monday AM)

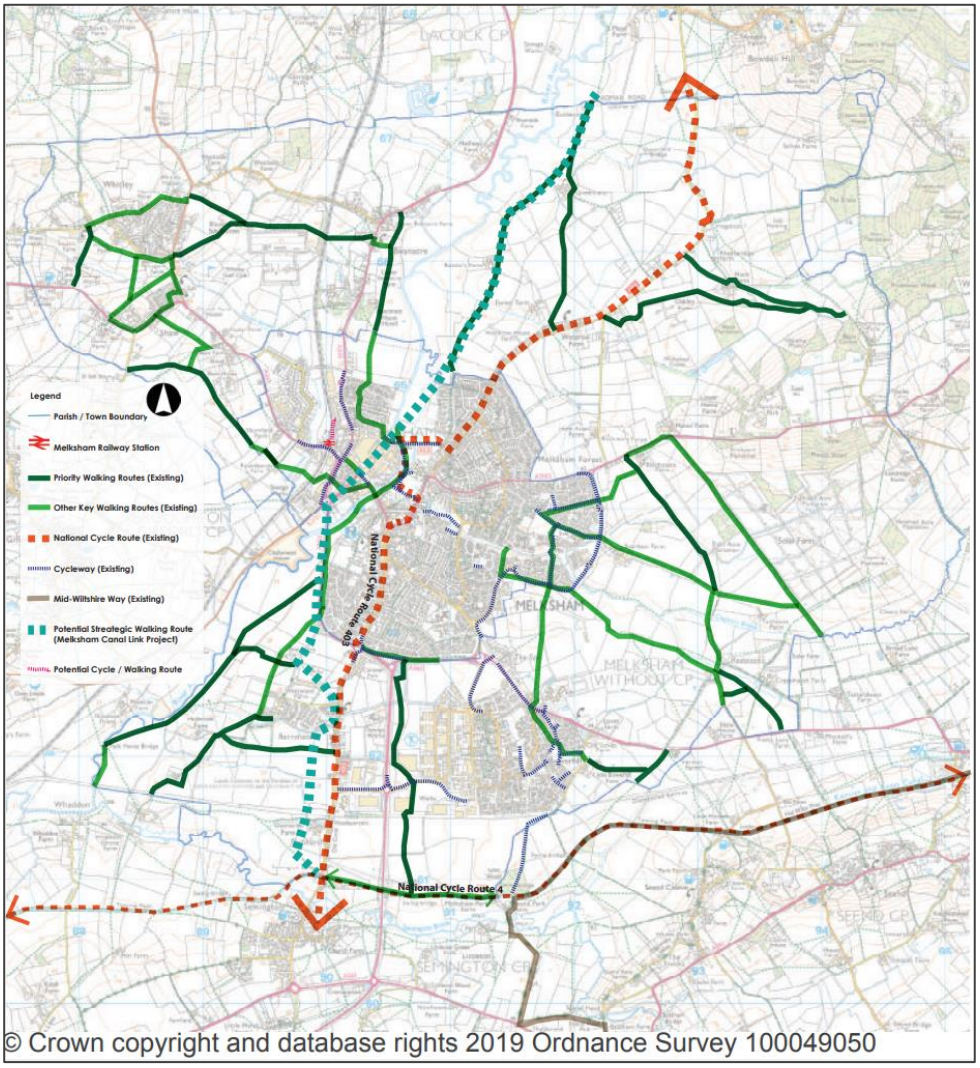


2.3.8. Walking / cycling and severance

Melksham town has a relatively fragmented walking and cycling network. There are sections of cycleway spread throughout the town **(Figure 2-24)**, but these are generally disconnected and therefore do not form a comprehensive and cohesive network for cyclists to access the different areas of Melksham.

There are a large number of Public Rights of Way (PRoW) within and around the town, 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.

Figure 2-24 – Active travel routes within the Melksham area (Melksham Joint Neighbourhood Plan)

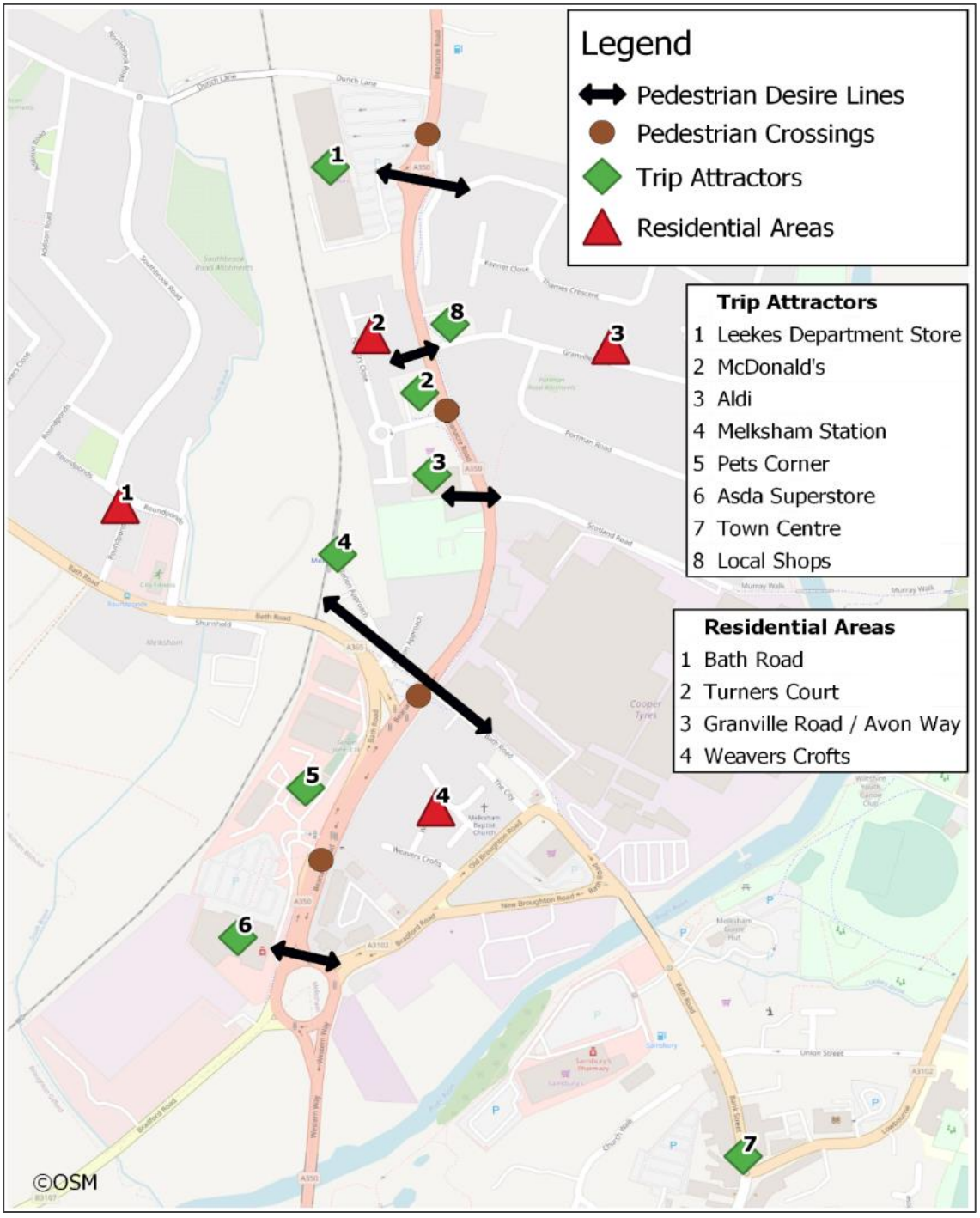


The A350 generally acts as **a barrier to local walking / cycling connectivity**. The sections of the A350 which pass through built-up areas in Beanacre and Melksham create problems of severance for residents living in these areas. This should be seen in the context of the volume and type of traffic using the route (section 2.3.3), in particular the volume of HGV's.

At Beanacre, the A350 is the main thoroughfare through the village, with no controlled crossing points. Properties are located very close to the road – some less than three metres from the carriageway.

In northern Melksham, the A350 acts as a barrier to pedestrian and cycle movements between the town centre / east Melksham and areas to the west of the River Avon, including various retail and commercial uses, such as the Asda superstore, rail station, Aldi, and Leekes department store **(Figure 2-25)**.

Figure 2-25 - Severance issues in northern Melksham



The A350 separates housing on the eastern side (Granville Road / Avon Road) and western side (Turners Court). A precinct of local shops (Premier food store, restaurant and takeaway) is also located on the east side of the A350 at Granville Road, with no walking route or crossing point from housing directly opposite at Turners Court. The only pedestrian access to Turners Court is via the signalised crossing at the Aldi / McDonalds junction, 100m to the south.

Between Aldi / McDonalds and Bath Road, the A350 forms the only route connecting northern parts of Melksham with other parts of the town but is very constrained by building frontages on both sides, with no alternative pedestrian or cycle route.

Access to the rail station is a key issue and a constraint on the ambition to grow the role of rail travel for Melksham. A pedestrian subway provides a crossing point between the town centre and Bath Road (including the rail station) but may present security concerns for some users as it is fenced in on the western side. There

is no at-grade crossing at the Bath Road junction and the subway is the only pedestrian route between the town centre and rail station / Bath Road residential areas on the western side. Further south, a controlled crossing at Asda junction) provides access to the superstore and other businesses on the western side of the A350.

Along the southern section of the A350 through Melksham, although crossing points are provided, the A350 still forms a barrier between Berryfield / Semington Road and the town centre at Semington Road roundabout. As noted above, this roundabout is the location of a cluster of vehicle collisions involving cyclists.

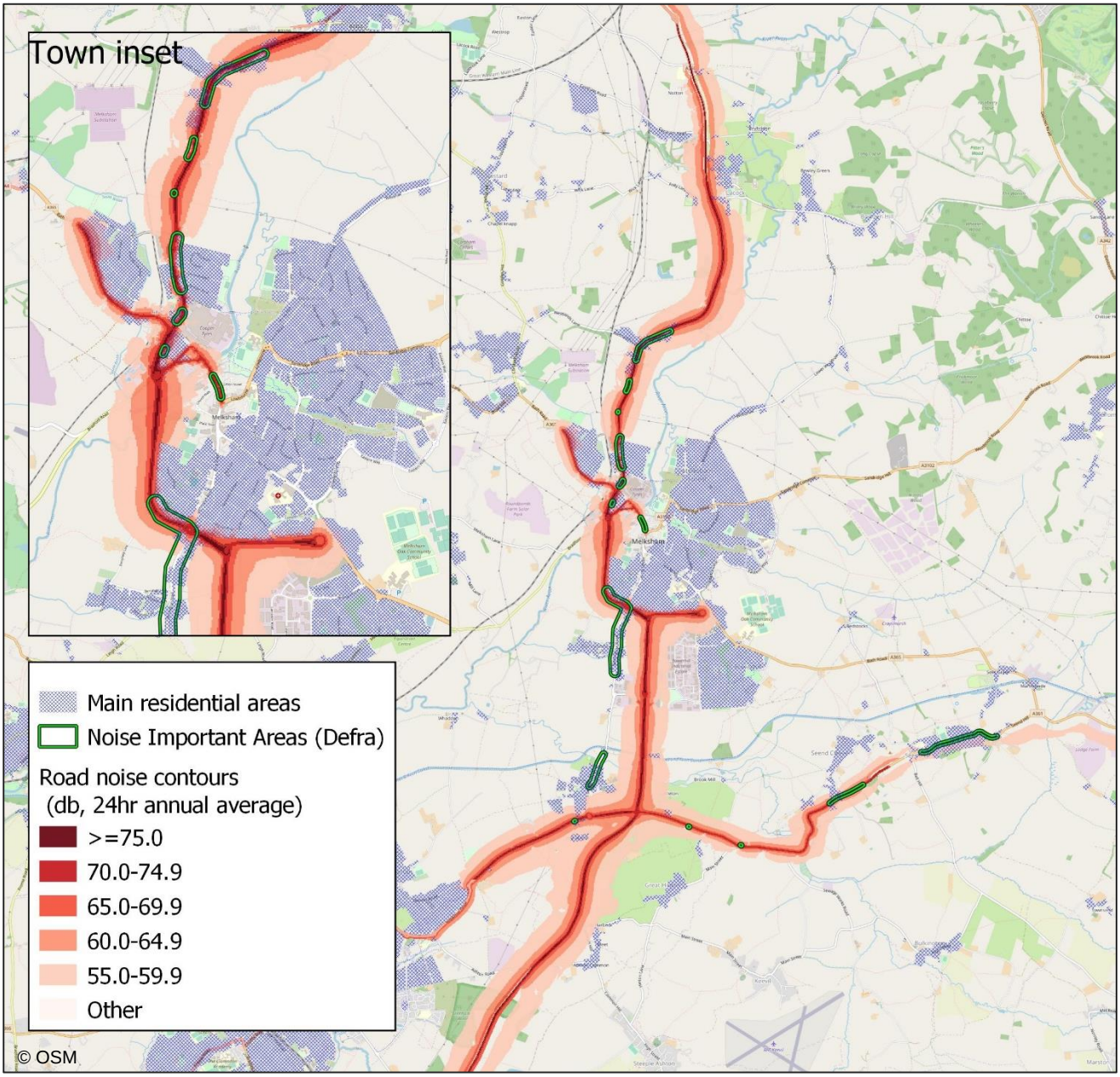
Overall, the busy nature of the A350, with a relatively high volume of HGVs and peak period congestion, as well as a lack of pedestrian crossings at natural desire lines, impacts significantly on residents living in northern parts of the town. It restricts their access to local shops and the town centre, discourages walking and cycling, and exposes them to higher noise levels and poorer air quality than would be experienced in other parts of Melksham.

2.3.9. Traffic noise and emissions

On certain sections of the A350 route, where properties are in close proximity to the road, the high volumes of traffic (including HGVs) results in significant noise disturbance. This has led to the classification of several Noise Important Areas[34] along the route which reflect locations where the population is likely to be at the greatest risk of experiencing a significant adverse impact to health and quality of life as a result of their exposure to road traffic noise **(Figure 2-26).**

[34] Important Areas with respect to noise from major roads outside agglomerations are where the 1% of the population that are affected by the highest noise levels from major roads are located according to the results of the DEFRA strategic noise mapping.

Figure 2-26 – Strategic noise mapping of major road sources (DEFRA, 2017)

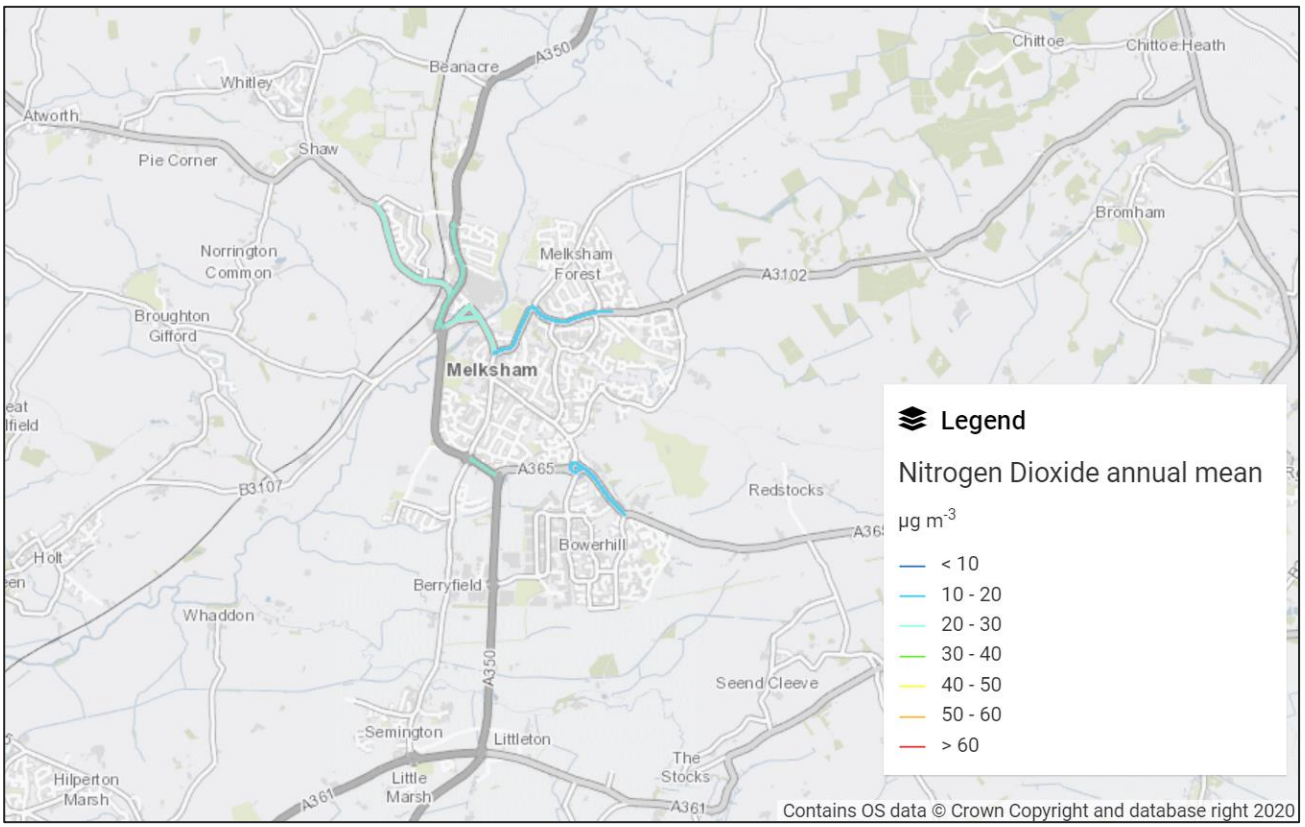


Source data: https://www.gov.uk/government/publications/strategic-noise-mapping-2019

Given that the stretch of the A350 through Melksham is associated with several Important Areas, DEFRA guidance **recommends that measures should be considered that could address the noise issues at all the locations concurrently**.

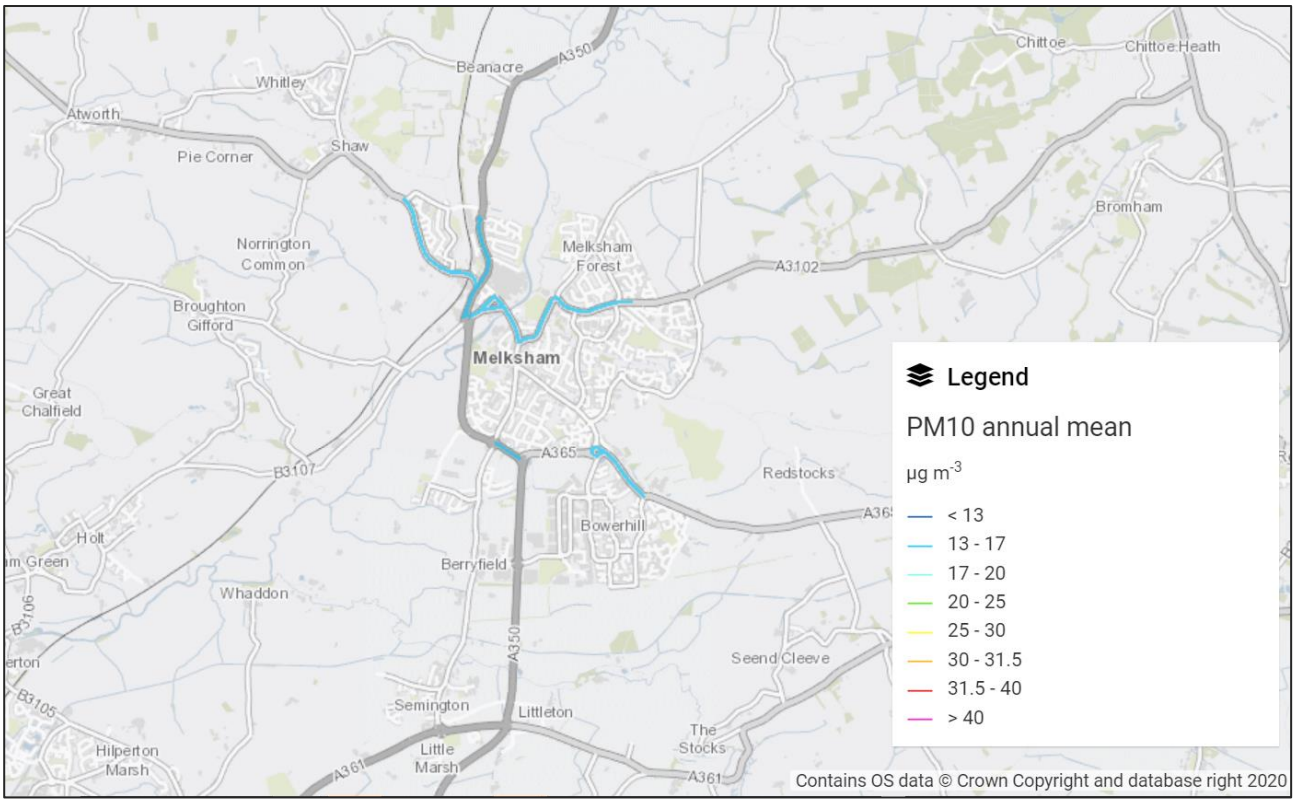
In relation to vehicle emissions and air quality, there are no areas formally designated as Air Quality Management Areas (AQMA). Roadside emissions for Nitrogen Dioxide (NO2) and PM10 are both within Government's national air quality objective of 40 μgm^{-3} **(Figure 2-27** and **Figure 2-28)**. However, reduced traffic on the A350 would still provide the opportunity for air quality improvements within adjacent residential and commercial / retail areas.

Figure 2-27 – Roadside Nitrogen Dioxide (NO2) emissions (DEFRA, 2019)



Source: Department for Environment Food and Rural Affairs, https://uk-air.defra.gov.uk/data/gis-mapping/

Figure 2-28 – Roadside PM10 emissions (DEFRA, 2019)



2.4. Future challenges

Covered in this section

This section considers the future situation in relation to the implications of housing and employment growth and other planned changes to the transport network.

2.4.1	Population and household growth	2.4.2	Housing requirement (to 2036)	2.4.3	Economic growth and employment land
2.4.4	Future travel demands	2.4.5	Future changes to the transport system	2.4.6	Future forecast traffic conditions – Wiltshire Transport Model
2.4.8	Future issues in relation to public transport, walking and cycling	2.4.7	Covid-19 – potential impacts on future traffic		

Summary of key points

31,500 dwellings are planned between 2016 to 2036 within the Chippenham and Trowbridge Housing Market Areas (which relate to the A350 corridor). Taking into account recent completions and existing commitments leaves a residual requirement of new site allocations for approximately 13,000 dwellings.

The emerging Local Plan Review (LPR) identifies significant new site allocations at Chippenham (5,100 dwellings) and Trowbridge; located to the north and south of Melksham these will generate additional inter-urban travel.

Recent high rates of housing growth at Melksham are expected to continue, with 3,950 dwellings planned between 2016 to 2036. Additional site allocations are required for c.2,600 dwellings; preferred sites have not yet been confirmed.

12-hour traffic demand for the A350 corridor (West Wiltshire) is forecast to increase by 24% between 2018 (model base year) and 2036 (model forecast year), based on a core growth scenario (not reflecting the emerging LPR) of the Wiltshire Transport Model.

Based on this core growth scenario, by 2036 average hourly AM peak period traffic flows on the A350 through Melksham are forecast to increase by up to 30%, and average journey times on the A350 are forecast to increase by 1 to 2 minutes.

Traffic demand growth is strongest in the Inter-peak period. By 2036, traffic conditions in the Inter-peak are forecast to be worse than the present-day peak periods.

The Local Plan Review will result in higher levels of traffic growth within the A350 corridor than those currently forecast through national assumptions (TEMPro); the scheme therefore also needs to be considered within this context.

Section 2.2.3 introduced the Wiltshire Core Strategy (WCS) and Local Plan Review (LPR) which set out the current and emerging policy in relation to housing and employment development within Wiltshire. Changes in population, jobs and housing distribution will impact future travel demands on the A350 at Melksham and the scheme seeks to respond to these future challenges, as well as addressing the existing issues.

2.4.1. Population and household growth

To inform the Local Plan Review, the Swindon and Wiltshire Local Housing Needs Assessment (LHNA, 2019) 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.

Growth rates for the 2016 to 2036 period derived from the LHNA are presented in **Table 2-12**, with a comparison against TEMPro (Version 7.2) data[35].

Table 2-12 - 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.

The LHNA forecasts **population and household growth of around 20%** for the Chippenham and Trowbridge HMA's between 2016 and 2036. Compared to TEMPro, whilst the overall growth at a Wiltshire level is similar, the growth within the Chippenham and Trowbridge HMA's is notably higher. 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.

2.4.2. Housing requirement (to 2036)

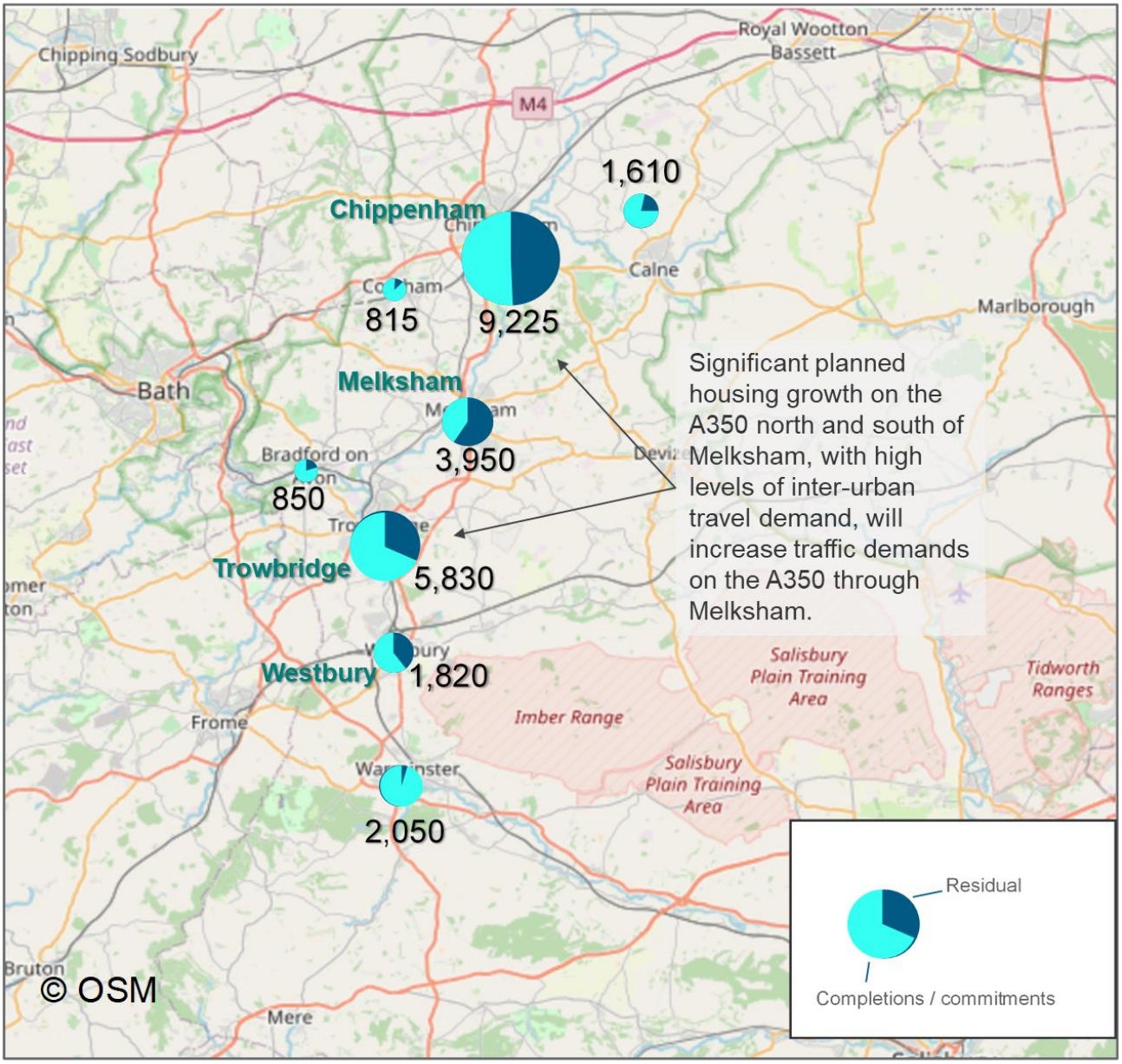
Based on the HMA projections and detailed analysis of the housing market, the LHNA identifies a full Objective Assessed Need for Housing over the 20-year period from 2016 to 2036 of:

- 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 scale of the future housing challenge relevant to the scheme is demonstrated through the requirement for **approximately 31,500 dwellings on and around the A350 corridor** (2016 to 2036). This is an increase of approximately 18% on the previous 20-year planning period (2006 to 2026). From the total housing requirement any recent housing completions or sites within the planning system (e.g. with planning permission) need to be taken into account, leaving a 'residual' amount (approximately 13,000 dwellings) to be met through additional site allocations **(Figure 2-29)**.

[35] 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.

Figure 2-29 – Housing requirement 2016 to 2036 (committed / residual) within the A350 corridor



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

Housing sites

The towns of Melksham, Chippenham and Trowbridge have the highest levels of planned housing growth.

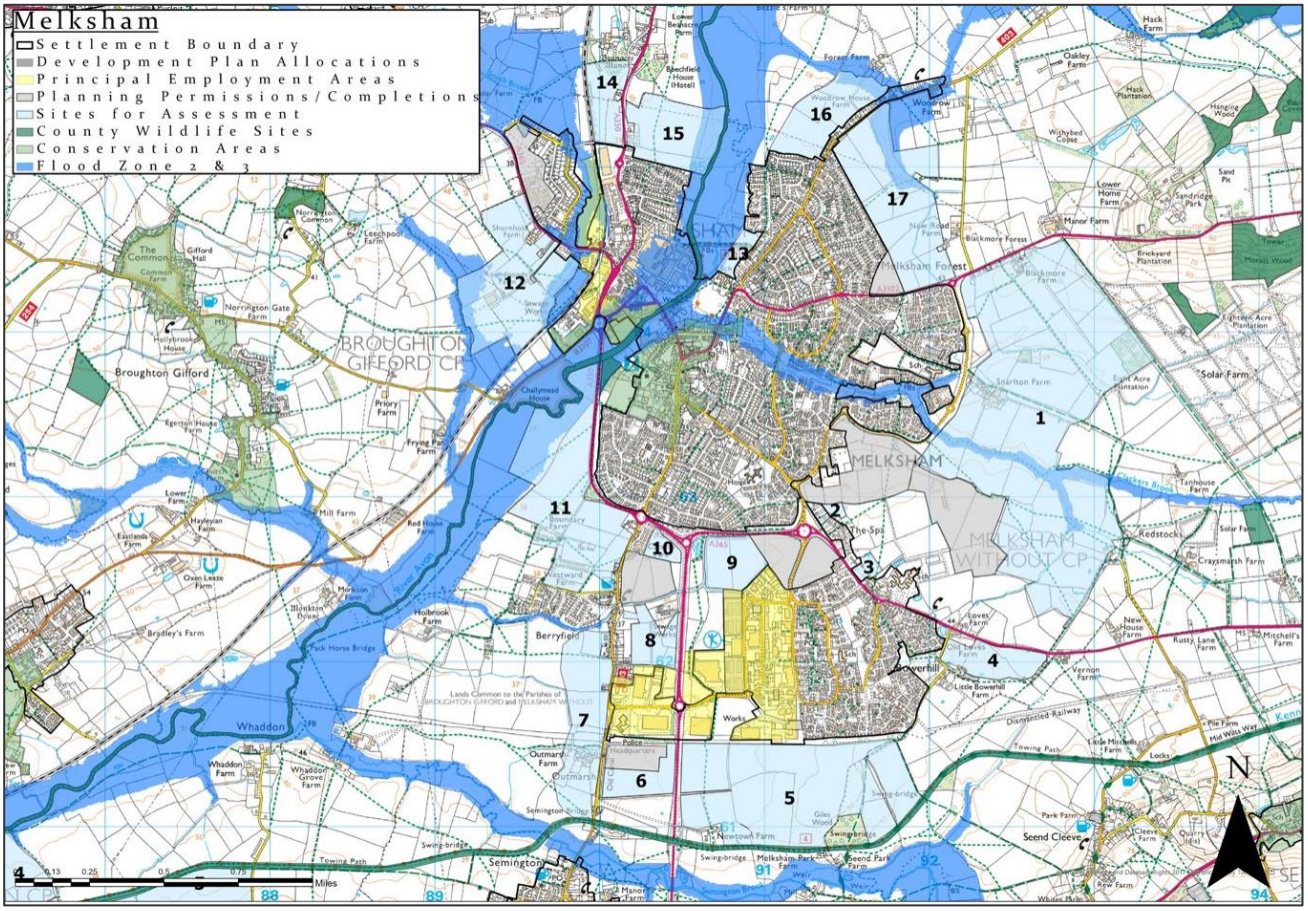
At Chippenham and Trowbridge, in addition to substantial planning commitments totalling approximately 8,000 dwellings, the LPR has identified preferred sites within the two towns to accommodate a further 6,500 dwellings up to 2036[36].

In relation to Melksham, there are several sites, mainly to the south and east of the town which are considered as planning commitments, totalling approximately 1,100 dwellings **(Figure 2-30)**. There is a need to allocate site(s) for a further 2,600 dwellings. At the current stage of the LPR, specific preferred site(s) have not yet been

[36] This includes preferred sites to the south east of Chippenham which are consistent with the 'Future Chippenham' proposal being promoted through the Housing Infrastructure Fund (HIF)[36]. 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.

identified for Melksham – potential sites are illustrated in **Figure 2-30.** The selected site(s) will have a bearing on the level of development traffic demand on the A350.

Figure 2-30 – Current permissions and potential development sites in Melksham



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

2.4.3. Economic growth and employment land

A Functional Economic Market Area (FEMA) assessment commissioned by Wiltshire and Swindon Councils has forecast the creation of an additional 13,800 FTE jobs between 2016 and 2036 across the A350 corridor area, representing growth of around 10% over the period[37].

The jobs growth rate for the A350 corridor calculated from the FEMA compares to a TEMPro forecast of 8,800 additional jobs for the same geographical area (representing around 6% growth over the same timescale). 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.

Taking account of the existing supply of floorspace and employment land availability, Wiltshire Council has identified a net additional requirement of around 10 hectares of land for business within the A350 corridor.

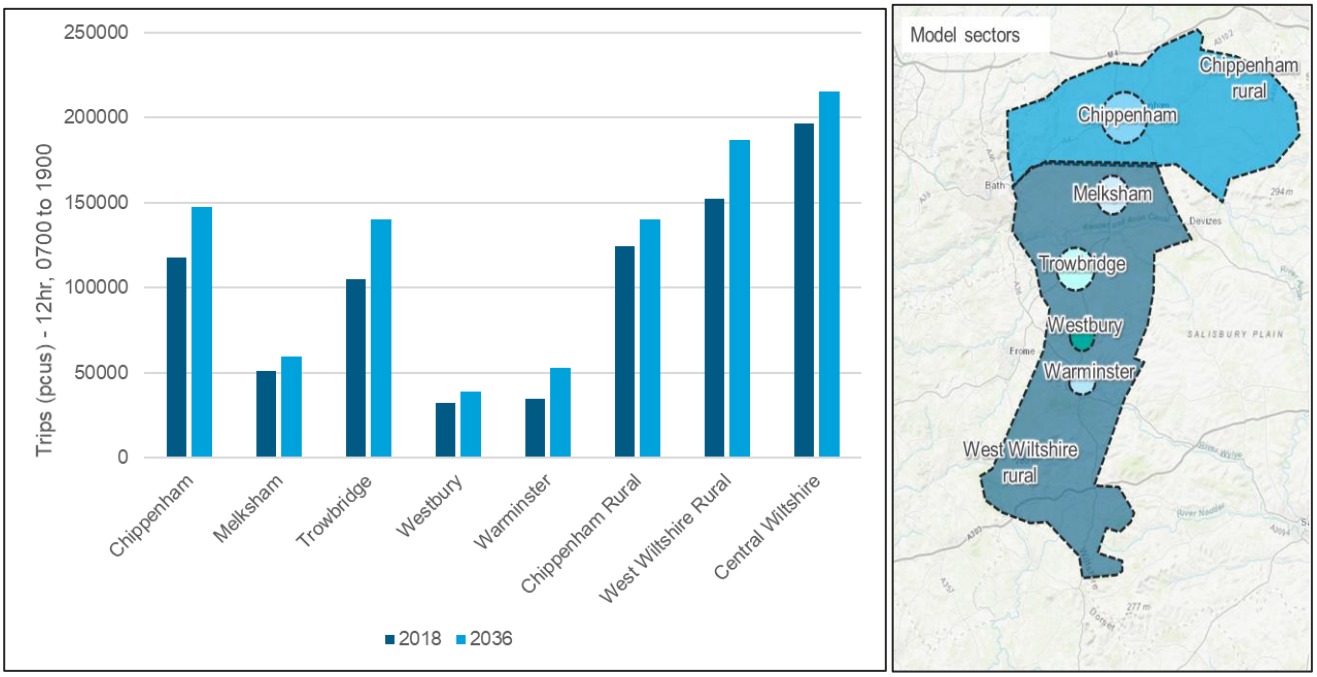
2.4.4. Future travel demands

The Wiltshire Transport Model (WTM)[38] forecasts **a 24% increase in 12-hour vehicle trip ends** for the West Wiltshire A350 area between 2018 (model base year) and 2036 (model forecast year). This is based on a core

[37] The employment forecasts were derived from economic forecasts produced by Oxford Economics and Cambridge Econometrics, adjusted to take account of local factors.
[38] 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.

growth scenario (population and land use assumptions)[39], which does not reflect the housing and jobs distribution from the emerging Local Plan Review (which would result in increased traffic demands within the A350 corridor). The forecast traffic demand growth varies by location **(Figure 2-31)** and reflects the focus of housing growth, particularly at Chippenham and Trowbridge.

Figure 2-31 - Change in forecast 12-hr vehicle trip ends 2018-2036 (Wiltshire Transport Model, core growth scenario)



Note – an urban extension development at Trowbridge falls within the West Wiltshire Rural model sector (2036)

The rate of forecast growth in traffic demand is greatest in the Inter-peak period (26%, compared to approximately 20% in the AM and PM peak periods). This means that **by 2036 not only would there be worsening of peak period congestion, but also Inter-peak conditions similar to today's peaks**.

It should be noted that the core growth scenario does not reflect the emerging Local Plan Review, which is expected to result in higher levels of traffic growth within the A350 corridor due to the focus of housing delivery within the West Wiltshire towns.

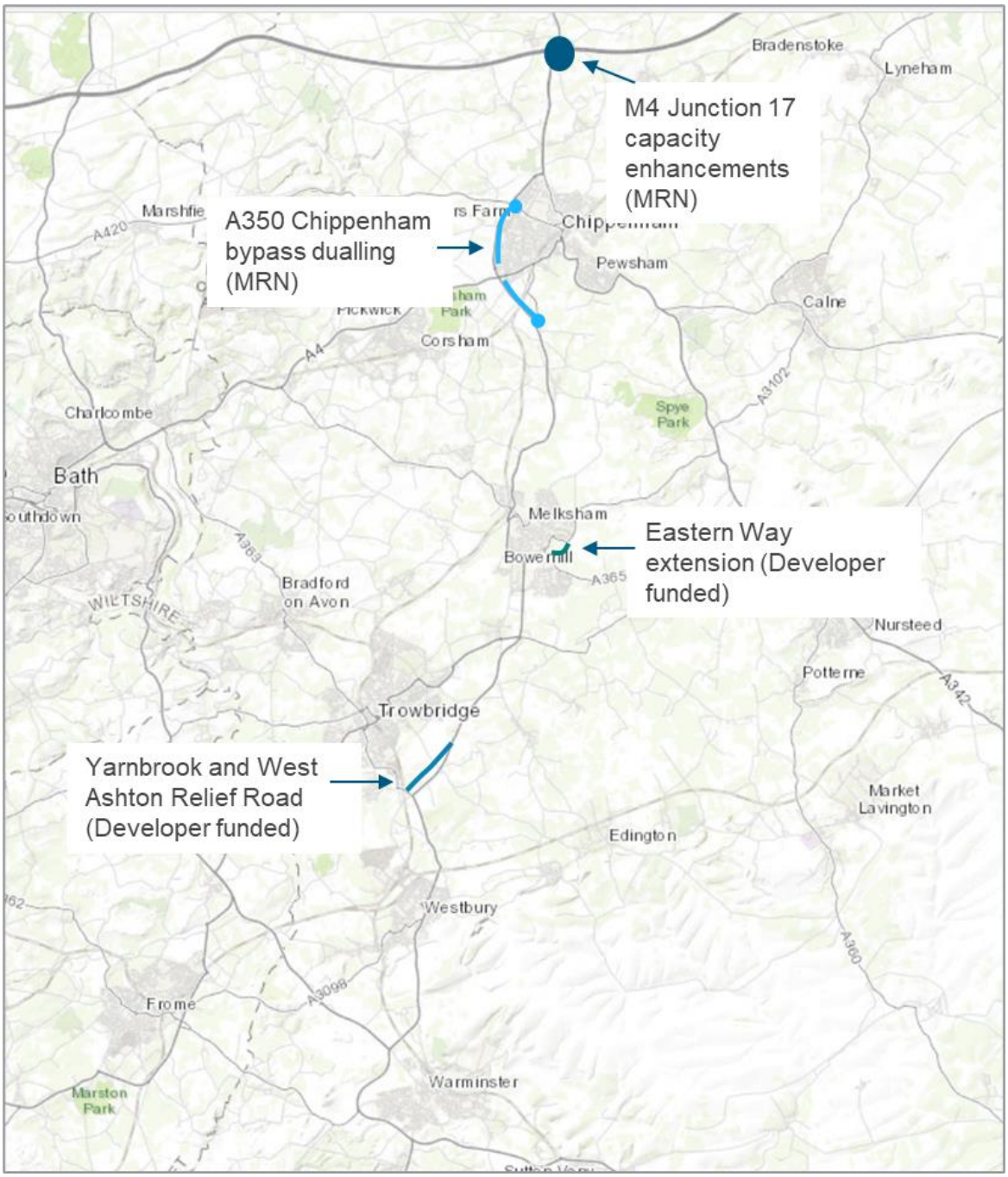
2.4.5. Future changes to the transport system

Other transport schemes and proposals which are either committed or planned (with a reasonable prospect) could have a bearing on the A350 Melksham Bypass scheme **(Figure 2-32)**[40].

[39] 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 is used to further consider alternative growth scenarios, including the emerging Local Plan Review, as part of the Economic Case.

[40] 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 2-32 - Location of future planned changes to the transport network

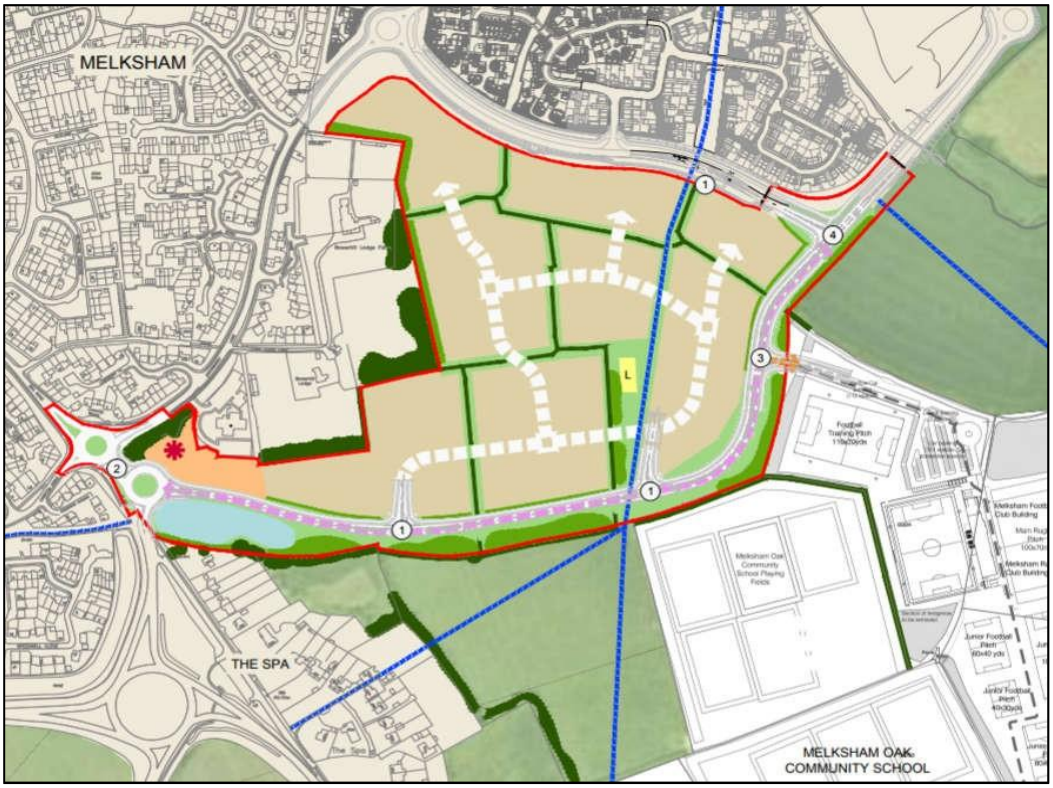


At the northern end of the A350 the **two MRN schemes at M4 Junction 17 and Chippenham would be complementary to the A350 Melksham Bypass scheme**, in terms of the overall enhancement to this section of the corridor. The MRN schemes would be delivered by 2025, subject to funding approval; the Economic Case considers the 'in combination' effects of these schemes with the A350 Melksham Bypass. Each scheme contributes to the overall improvement of the corridor, which attracts additional traffic. Hence the schemes perform best in combination, and **the case for the Melksham Bypass scheme is enhanced by the MRN schemes**.

Further south on the A350, 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. The scheme is currently planned to commence in 2021, although the timescales are dependent upon the progress of the development.

Within Melksham, the eastern local distributor road (Eastern Way) is due to be extended as part of a planning permission for a development of up to 450 dwellings east of Spa Road. **(Figure 2-33)**. The full development build out is conditional on the provision of the new link road. The link would also provide access to the planned Melksham Health and Wellbeing Centre / sports campus via priority junctions including right-turning lanes.

Figure 2-33 - Plan of proposed extension to Eastern Way distributor road, Melksham



2.4.6. Future forecast traffic conditions – Wiltshire Transport Model

The planned housing and jobs (Sections 2.4.1 to 2.4.3), resultant forecast changes in travel demand (Section 2.4.4) and planned changes to the transport network (Section 2.4.5) all influence the predicted future conditions on the highway network, and hence the scale of the challenge that the scheme seeks to address.

This section considers the WTM core growth scenario, which does not reflect the emerging Local Plan Review development sites (yet to be adopted by Wiltshire Council) which are expected to have a strong focus around the A350 corridor, including north of Melksham at Chippenham and to the south at Trowbridge. Inclusion of these would be expected to further increase traffic volumes and predicted journey times on the A350 at Melksham given that the level of inter-urban movement currently observed would be expected to increase proportionately with the increased demand.

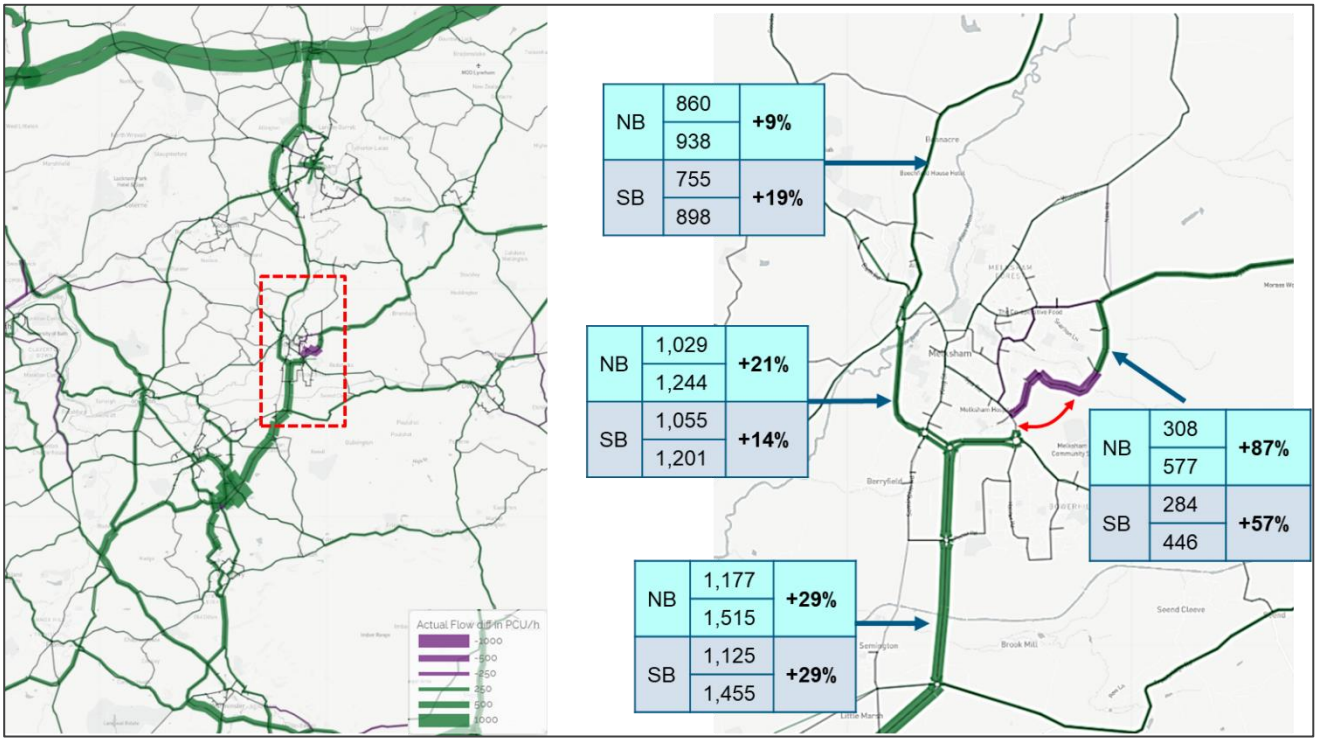
It should also be noted that the WTM represents an average hour within each of the 3-hour peak periods. Therefore, any trends and issues would be further intensified in the true peak hours.

Forecast traffic flow changes (Wiltshire Transport Model)

Average hourly **AM peak period traffic flows on the A350 through Melksham are forecast to increase by up to 30%** between 2018 and 2036 **(Figure 2-34)**. The forecast increase in traffic flows is greatest to the south of Melksham, although it should be recognised that as traffic conditions deteriorate on the main A350 there is an **increased likelihood of some traffic diverting to use alternative routes** (which could result in other traffic-related impacts for communities along these routes). There are also significant increases in traffic flow forecast on the A350 at Trowbridge and Chippenham (reflecting the levels of planned growth).

Predicted traffic flow changes in the PM peak period are similar to the AM. In the Inter-peak period, the pattern of traffic flow changes is similar to the AM / PM, although the scale of increase is generally greater (reflecting the higher growth in Inter-peak travel demand (Section 2.4.4). By 2036, traffic flows in the Inter-peak are generally higher than the current (2018) traffic flows for the AM peak period.

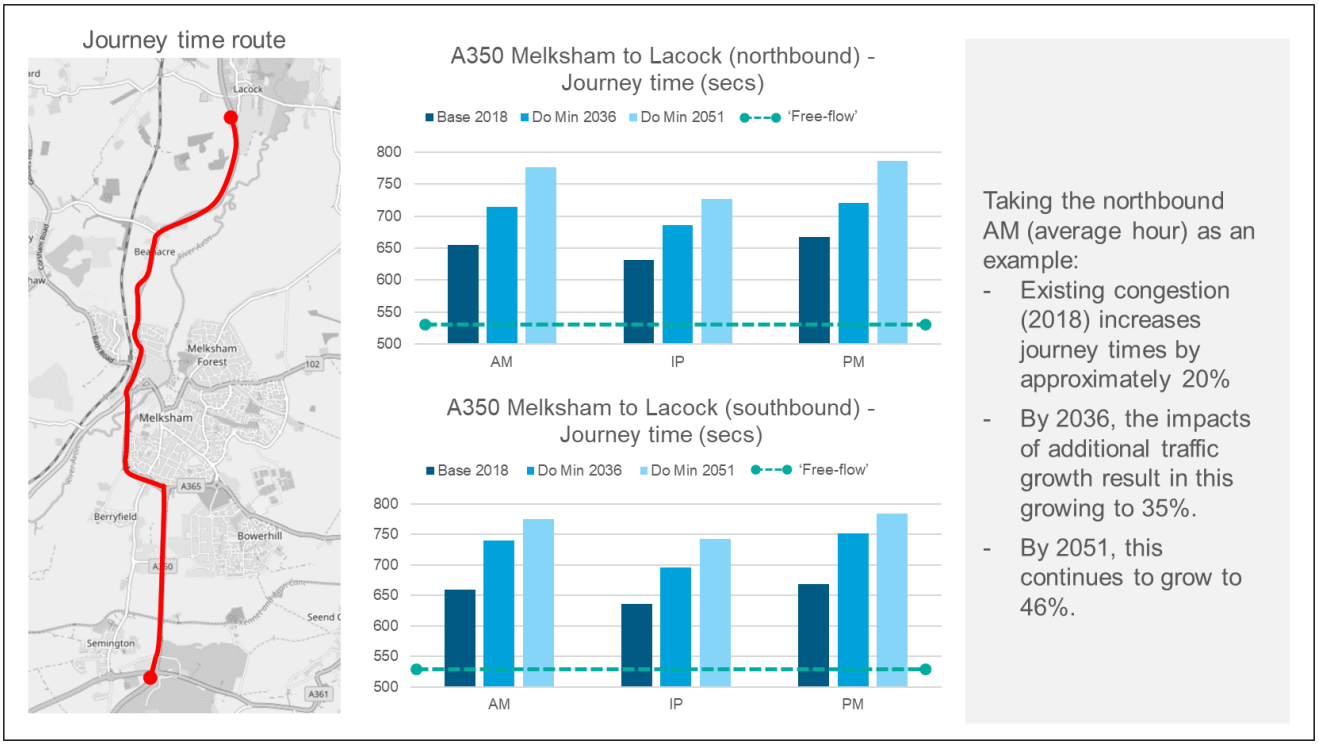
Figure 2-34 - Forecast change in traffic flows 2018 to 2036, AM average peak hour (WTM)



Forecast journey time changes (Wiltshire Transport Model)

Based upon evidence from the core growth scenario of the Wiltshire Transport Model, **average peak period journey times on the A350 at Melksham are predicted to increase by approximately 10% to 13%** between 2018 and 2036, and up to 20% by 2051 **(Figure 2-35)**. This equates to an additional 1 to 2 minutes journey time per vehicle.

Figure 2-35 - Forecast change in journey times between 2018 and 2036, without intervention (Wiltshire Transport Model)



The predicted growth in journey time is greater in the southbound direction. The scale of increase in journey times is relatively consistent across all time periods, indicating that traffic levels throughout the day lead to additional delays. This correlates with the predicted greater relative increase in inter-peak travel demands.

Without intervention, the model forecast data 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** (compared to 2018).

Forecast changes in volume to capacity (Wiltshire Transport Model)

From 2018 to 2036 the WTM predicts a marked increase in the volume to capacity ratio[41] of links on the A350 route **(Figure 2-36)**. This is further exacerbated by 2051.

Figure 2-36 - Volume to capacity ratio for 2018 (left), 2036 (centre), and 2051 (right) - AM peak period (Wiltshire Transport Model)

Link capacity is a particular issue on the central to southern sections of the route. For the central to northern sections, link capacity is less of an issue but it is the multiple junctions, reduced speed limits and adjacent properties and other land uses which impact the performance of the route. The A350 Melksham Bypass scheme provides a holistic solution to address these various issues.

2.4.7. Covid-19 – potential impacts on future traffic conditions

The Covid-19 pandemic has had a significant impact on travel demands and patterns. This includes a rise in home working, which has been associated with less intensive peak demands. The potential longer-term implications are still uncertain. Latest traffic monitoring (as at July 2021) by Wiltshire Council on the A350 south of Melksham suggests that overall daily traffic is close to pre-Covid levels, although with traffic in the AM and PM peak hours at approximately 85% of previous volumes. The heaviest hourly two-way flow is approximately 2,050 vehicles, compared to 2,400 vehicles pre-Covid. Whilst the possible longer-term impacts of changes in travel patterns have the potential to dampen the busiest peak hours, analysis presented within this OBC identifies that the role and benefits of the A350 Melksham Bypass scheme are broader than a 'commuter peaks' issue.

[41] Volume to capacity ratio is a measure of the traffic flow on a link compared to its theoretical capacity. Typically, up to 85% volume to capacity ratio is considered to be an acceptable level of operation. Beyond this, significant delays and poor journey time reliability are far more likely.

The OBC is undertaken in line with prevailing Government guidance (e.g. TAG). In line with this, the Economic Case addresses uncertainty as part of the economic appraisal.

2.4.8. Future issues in relation to public transport, walking and cycling

Aspirations for further improvements to rail transport in the corridor, whilst beneficial, are unlikely to be able to achieve a significant impact on traffic volumes given the relatively limited number of trips that would be attracted to rail. There is a clear future role for rail in facilitating journeys between town centres in the A350 corridor and connections for longer distance journeys to / from the M4 corridor and London, but the main residential and employment areas in the A350 corridor developed over the last few decades have been in locations that are distant from the rail line. There may be potential to grow the amount of Park and Ride traffic using the rail services at Melksham, with road access to the station from most of the town being dependent on the A350.

The forecast increased traffic volumes and congestion on the A350 through Melksham (without intervention) are likely to have significant secondary impacts on the attractiveness of public transport, walking and cycling, including:

- **Increased risk of collisions** between vehicles and with cyclists and pedestrians.
- **Increased severance** for residents living in the northern part of the town along the A350 and in Beanacre village, with potentially increased noise and air pollution.
- **Increased delays and journey times for bus services**.
- There is also the possibility of **increased traffic volumes attempting to use the alternative routes through the town centre** (i.e. Bank Street, High Street, Spa Road) to bypass queues on the A350. This would be of concern given the function of these roads serving residential and town centre retail areas, and the relatively high incidence of traffic collisions with pedestrians and cyclists on these roads currently.

2.5. Summary of problems and issues and impacts of not changing

Covered in this section

Sections 2.3 and 2.4 addressed the evidence relating to current and future transport issues and challenges with regards to the A350 at Melksham. This section summarises and confirms the key transport problems that the A350 Melksham Bypass scheme tackles. It considers the underlying causes of these, and the implications if these problems are not addressed. This helps to demonstrate the overall need for the scheme.

2.5.1	Key transport problems	2.5.2	Stakeholder feedback on problems and issues	2.5.3	Impacts of not changing

Summary of key points

There are five key problem areas that the scheme addresses:

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

The significance of the existing issues is supported by stakeholder feedback and the majority (60%) of respondents to the consultation exercise supported the need for improvements.

The fundamental underlying causes and drivers of the problems are the high traffic volumes (up to 35,000 vehicles daily), including c.7% HGVs, and the sub-standard nature of the existing route through Melksham.

The problems are not confined to the main peak hours, and the highest forecast growth in traffic demand is in the Inter-peak period.

Evidence indicates that the identified problems are expected to worsen by 2036, without intervention. In addition to further deterioration of traffic conditions within the peaks, by 2036 traffic conditions in the Inter-peak are predicted to be worse than present day conditions for the peaks. A general deterioration is therefore expected throughout the day. This would adversely impact wider economic, social and environmental outcomes. If not addressed, the issues relating to the A350 could suppress economic growth and slow housing delivery within the A350 Growth Zone.

2.5.1. Key transport problems addressed by the A350 Melksham Bypass scheme

Based upon the evidence relating to existing and future issues and feedback from stakeholders, the scheme seeks to address five key transport issues **(Figure 2-37).**

Figure 2-37 – Key transport problems and issues

Problem 1: A350 journey times and delays	• 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. • 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).
Problem 2: A350 journey time reliability and resilience	• The sub-standard nature of the route for the high traffic volumes (including HGVs) leads to day to day variance in journey times. • The lack of suitable alternative north-south routes means that the network is subject to significant disruption when incidents (or planned works) occur on the A350.
Problem 3: Collisions / safety	• Traffic safety on the A350 is a concern. There are several accident clusters identified on the A350 route. Accident rates are higher on the A350 at Melksham compared to other routes.
Problem 4: Severance, quality of life and wellbeing	• The A350 presents a barrier to east-west movements on foot and cycle, between the town centre (to the east of the A350) and the rail station and various commercial / retail units (to the west of the A350). • Properties adjacent to the A350 (particularly at Beanacre and north Melksham) are subject to noise disturbance and vehicle emissions.
Problem 5: Noise disturbance and air quality	• Several areas along the existing A350 are particularly sensitive to adverse impacts from traffic noise, and have been classified as Noise Important Areas. • Although vehicle emissions are currently within nationally acceptable limits, further traffic growth and increased congestion presents a risk to further deterioration in local air quality.

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.

Future traffic growth within the A350 corridor, linked to new housing and economic activity, is likely to exacerbate many of the issues identified. 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.

Collectively, the identified transport problems have the potential to create wider negative impacts on economic, environmental and social outcomes in Melksham and the wider A350 corridor (see Section 2.5.3).

2.5.2. Stakeholder feedback on problems and issues

The stakeholder engagement exercise undertaken by Wiltshire Council from November 2020 to January 2021 provided an opportunity to capture stakeholder feedback relating to the significance of current issues with regards to the A350 at Melksham **(Figure 2-38)**.

Figure 2-38 - Consultation responses to the significance of current issues (Wiltshire Council)

	Very concerned	Somewhat concerned	Neutral	Somewhat unconcerned	Very unconcerned
Road safety	20.9%	23.3%	23.6%	14.0%	18.2%
Traffic congestion and delays	30.1%	20.1%	18.9%	15.2%	15.6%
Impact of traffic on residential properties	26.6%	21.9%	23.3%	12.2%	16.0%
Landscape and scenery	25.3%	25.1%	22.0%	12.4%	15.1%
Employment and businesses	11.1%	21.4%	35.1%	16.7%	15.8%
Walking and cycling facilities	**30.5%**	26.1%	22.4%	9.3%	**11.6%**

Overall, the stakeholder responses support the identified problems:

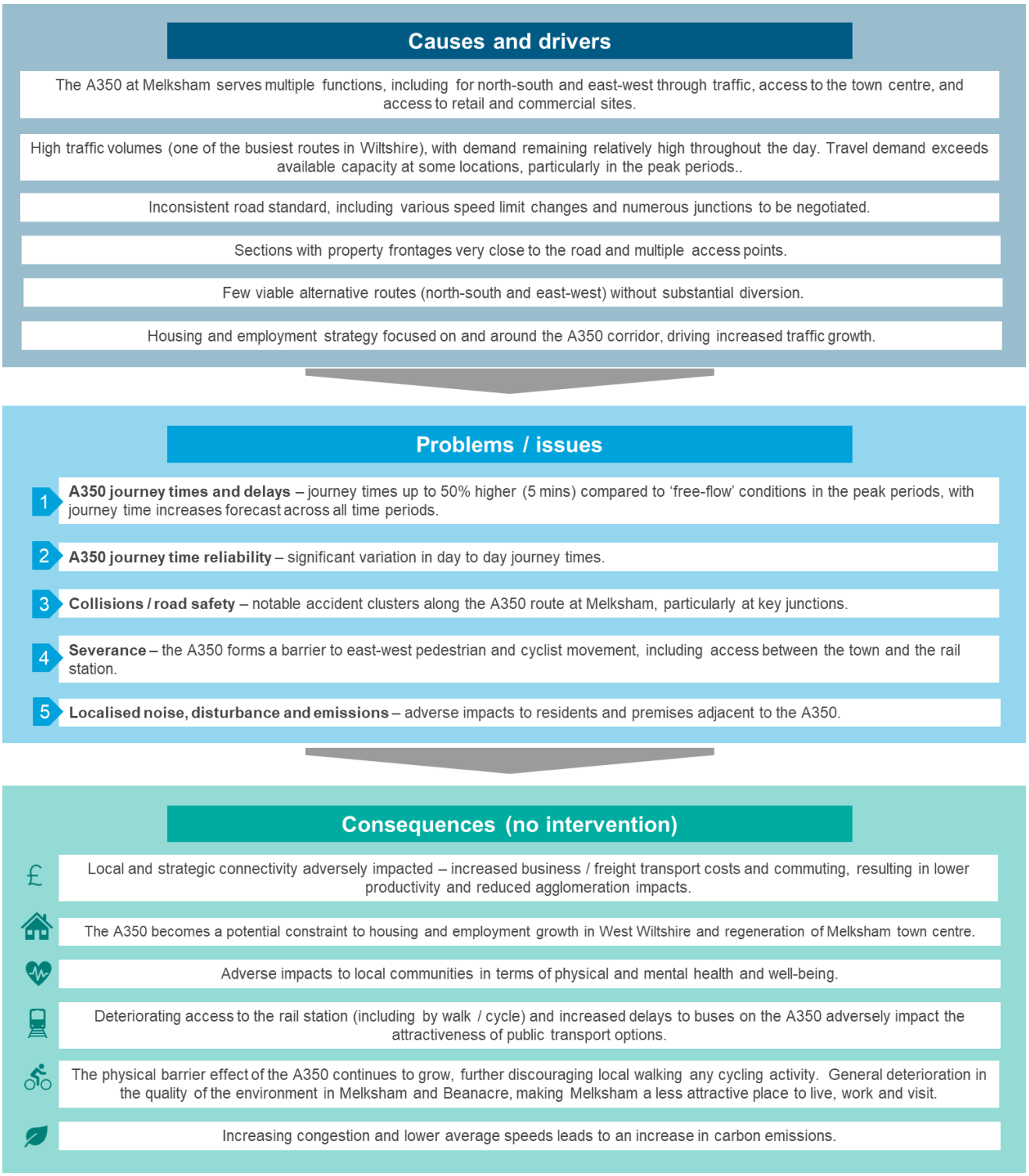
- The **highest level of concern was in relation to walking and cycling facilities** (57% of respondents). This reflects the identified **severance issues** on the A350 at Melksham (Section 2.3.8). TransWilts highlighted the impact of the A350 on access to the station by walking and cycling.
- Traffic **congestion and delays** were also identified as an issue of concern for just over 50% of respondents.
- In addition to the more direct transport related issues, approximately **50% of respondents also expressed concern in relation to associated environmental and quality of life impacts**.
- Overall, **60% of respondents supported the need for improvement** to the A350 at Beanacre and Melksham.

2.5.3. Impacts of not changing (causes and consequences)

The key current and future transport issues have been identified and demonstrated through supporting evidence to establish the need for intervention in relation to the A350 at Melksham. Without intervention, and with expected future housing and employment growth, many of these issues are expected to be exacerbated and with further deterioration in general traffic conditions.

To demonstrate the overall need for intervention, **Figure 2-39** illustrates the relationship between the underlying causes and drivers related to the issues in addition to the consequences of not addressing them.

Figure 2-39 - The relationship between identified problems, underlying causes and consequences of no intervention



The problems and issues are closely linked with the relevant local, regional and national policy objectives (Section 2.2), such that the consequences of not addressing them are framed in terms of the impact on achieving these policy outcomes. These not only cover transport policy outcomes, but also those relating to the economy, environment, health and well-being and quality of life. This process demonstrates that if the problems

associated with the A350 at Melksham are not addressed, and persist or worsen, then adverse impacts would be expected against these wider outcomes.

Of particular note is the threat to the efficient operation of the A350 corridor such that its role in providing local and strategic connectivity within west Wiltshire and the wider Western Gateway area would increasingly become compromised (particularly if other planned improvements on the A350 also do not materialise). The potential significance of this is demonstrated through the fact that the A350 Growth Zone accounts for 24% of the total GVA for Wiltshire and Swindon[42] - strong north-south connectivity is a key priority for the economic success of the west Wiltshire towns and the wider region. Furthermore, the A350 will be a key consideration in the ability to deliver future housing and jobs, including additional sites to be considered through the ongoing Local Plan Review.

[42] Western Gateway Sub-National Transport Body (2020) Draft Strategic Transport Plan.

2.6. Objectives and measures for success

Covered in this section

This section presents the objectives for the A350 Melksham Bypass scheme, which are closely aligned to the identified problems and issues for the scheme and the objectives contained within other relevant policies and plans. It details the key 'success factors' and how these can be measured.

2.6.1	Desired outcomes and transport objectives	2.6.2	Alignment with identified problems and wider objectives	2.6.3	Measures for success

Summary of key points

Five transport objectives for the scheme are identified. Successful delivery against these objectives is related to achievement of strategic and local outcomes for the economy, society and the environment.

The process through which the scheme impacts will be realised to achieve the objectives and outcomes is demonstrated within a logic map (Figure 2-2).

A series of performance indicators have been identified to measure success against each of the transport objectives. Initial targets have been determined for each indicator.

The scheme objectives define what the investment should seek to achieve and what success looks like. The objectives have been developed in order that:

- they **address the transport problems and issues** identified in Sections 2.3 to 2.5; and
- they **relate to the strategic objectives** of the key policy documents reviewed in Section 2.2 (e.g. DfT Transport Investment Strategy, Western Gateway STB Strategic Transport Plan, Swindon and Wiltshire Local Economic Plan, Wiltshire Core Strategy and Local Transport Plan).

A hierarchy of objectives has been developed, including strategic / local outcomes and specific transport objectives.

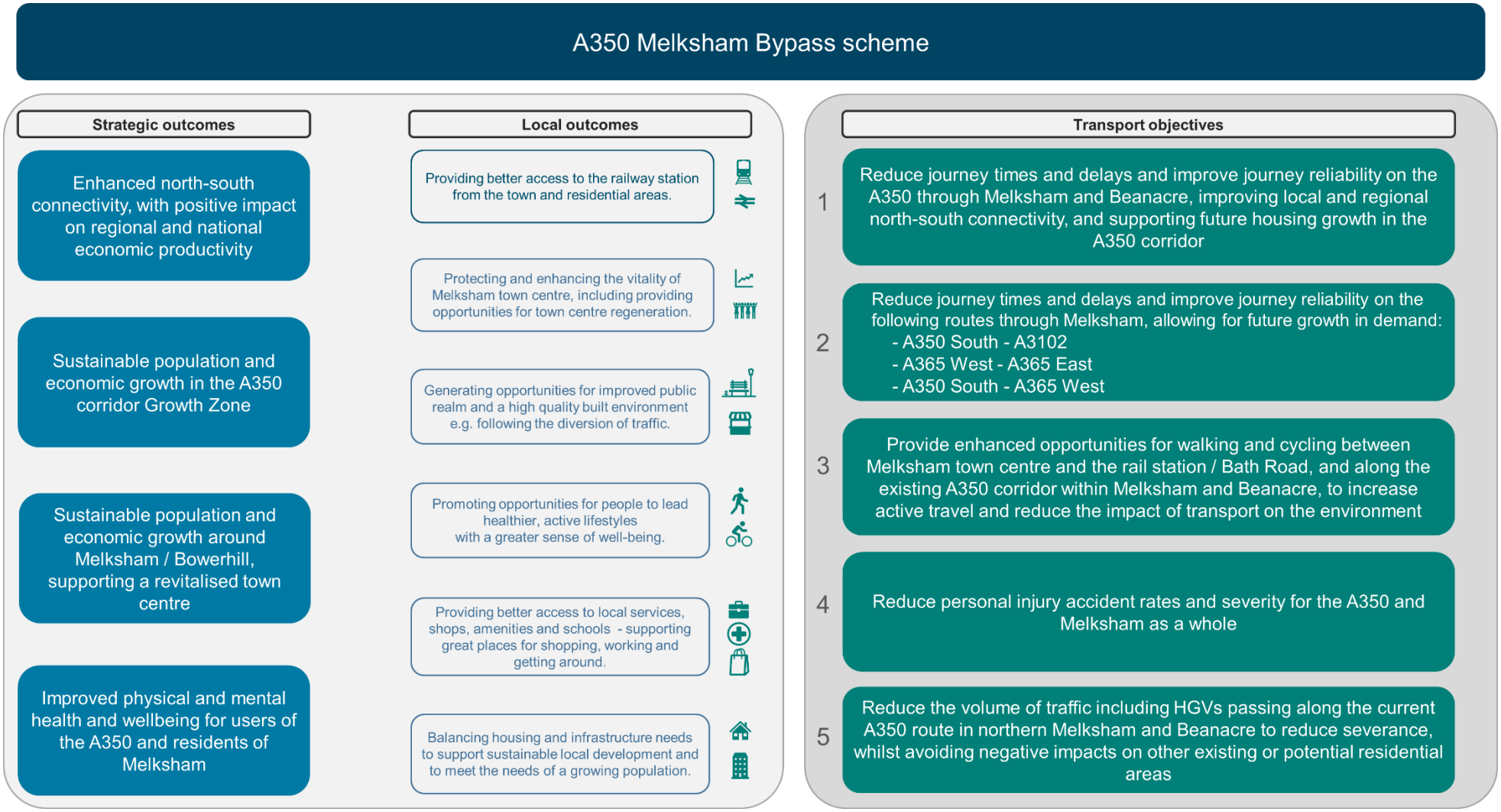
2.6.1. Desired outcomes and transport objectives

The identified strategic / local outcomes and transport objectives for the A350 Melksham Bypass scheme are illustrated in **Figure 2-40**.

Section 2.2 identified key policy aims / priorities relating to regional and national economic growth, local economic prospects, physical / mental well-being and quality of life. Section 2.5.3 demonstrated how, left unaddressed, the transport problems associated with the A350 at Melksham would adversely impact against these priorities. The desired outcomes for this scheme, from a strategic and local perspective, therefore reflect these priorities.

Five linked transport objectives have been identified. These support the desired outcomes and aim to specifically address the transport problems. The objectives should be interpreted as relating to the difference between the 'with scheme' and the 'without scheme' scenario in the year after scheme opening or completion.

Figure 2-40 – A350 Melksham Bypass outcomes and transport objectives



2.6.2. Alignment with identified problems and wider objectives

The scheme objectives demonstrate a good alignment with the identified problems and issues (see Section 2.5) and wider strategic objectives of other relevant policies and plans of wider government and other organisations (see Section 2.2.1 and Table 2-2 for details of these). The relationship between the objectives, the problems and issues, and the wider strategic objectives is presented in **Table 2-13**.

Table 2-13 – Alignment of the transport objectives with identified problems and wider objectives

Problems and issues	Transport objective	Contribution to wider strategic objectives[43]
Problem 1: A350 journey times and delays	Reduce journey times and delays and improve journey reliability on the A350 through Melksham and Beanacre, improving local and regional north-south connectivity, and supporting future housing growth in the A350 corridor	DfT: 1, 2, 3 WG: 1, 2, 5, 6 SEP: 2 WCS: 1, 6 LTP: 1, 4, 10, 12, 18
Problem 2: A350 journey time reliability	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	DfT: 1, 2, 3 WG: 1, 2 SEP: 2 WCS: 1, 6 LTP: 1, 4, 10, 12, 18
Problem 3: Collisions and road safety	Reduce personal injury accident rates and severity for the A350 and Melksham as a whole	DfT: - WG: - SEP: - WCS: 4 LTP: 3, 4, 8
Problem 4: Severance	Provide enhanced opportunities for walking and cycling between Melksham town centre and the rail station / Bath Road, and along the existing A350 corridor within Melksham and Beanacre, to increase active travel and reduce the impact of transport on the environment	DfT: 2, 3, 4 WG: 7, 10, 11 SEP: 4 WCS: 1, 3, 4, 6 LTP: 1, 2, 5, 7, 12, 13, 14, 18
Problem 5: Noise disturbance and vehicle emissions	Reduce the volume of traffic including HGVs passing along the current A350 route in northern Melksham and Beanacre to reduce severance, whilst avoiding negative impacts on other existing or potential residential areas	DfT: - WG: 7 SEP: 4 WCS: 4 LTP: 1, 3, 7, 8, 9, 11

*Numbers refer to those used in Table 2-2.

2.6.3. Measures for success

The transport objectives have been developed to be SMART (Specific, Measurable, Agreed upon, Realistic and Time-bound). The identification of measures for success helps to define a more tangible outcome and also provides the basis for future monitoring and evaluation of the scheme (covered in more detail in the Management Case). The proposed indicators to measure the success of the scheme, including initial targets, are summarised in **Table 2-14**. The process through which the scheme impacts will be realised to achieve the objectives and outcomes is demonstrated within the logic map (Figure 2-2).

[43] Numbers refer to those used in Table 2-2

Table 2-14 - Measures for success

Transport objective		Indicator		Targets	Timescale
1	Reduce journey times and delays and improve journey reliability on the A350 through Melksham and Beanacre, improving local and regional north-south connectivity, and supporting future housing growth in the A350 corridor	A	Average AM / PM peak journey times experienced on the A350 between Lacock and Semington	*20% to 30% reduction*	Compare 1 year before to 1 year / 5 years after opening
		B	Average Inter Peak journey times on the A350 between Lacock and Semington	*10% to 20% reduction*	
		C	Standard deviation of AM / PM peak journey times on the A350 between Lacock and Semington	*Measurable reduction*	
2	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	D	Average AM / PM peak journey times between Semington (A350) and Sandridge (A3102)	*10% reduction*	Compare 1 year before to 1 year / 5 years after opening
		E	Average AM / PM peak journey times between Shaw (A365 W) and Bowerhill (A365 E)	*10% reduction*	
		F	Average AM / PM peak journey times between Semington (A350) and Shaw (A365 W)	*10% reduction*	
3	Provide enhanced opportunities for walking and cycling between Melksham town centre and the rail station / Bath Road, and along the existing A350 corridor within Melksham and Beanacre, to increase active travel and reduce the impact of transport on the environment	G	Walking and cycling journeys between town centre and rail station / Bath Road	*10% increase*	Compare 1 year before to 1 year / 5 years after opening
		H	Walking and cycling journeys along the existing A350 corridor (between Bath Road and Leekes)	*10% increase*	
4	Reduce personal injury accident rates and severity for the A350 and Melksham as a whole	I	Personal injury accident rates on A350 between Lacock and Semington with lower average severity	*20% to 30% reduction*	Compare 5 years before and after opening
		J	Personal injury accident rates for Melksham overall, with lower average severity	*10% reduction*	

Transport objective		Indicator		Targets	Timescale
5	Reduce the volume of traffic including HGVs passing along the current A350 route in northern Melksham and Beanacre to reduce severance, whilst avoiding negative impacts on other existing or potential residential areas	K	12-hour Annual Average Daily Traffic (all vehicles) on the existing A350 route at: - northern Melksham and Beanacre - Farmers Roundabout - A350 Semington Bypass	*30% to 50% reduction*	Compare 1 year before to 1 year / 5 years after opening
		L	12-hour Annual Average Daily Traffic (HGVs) on the existing A350 route in northern Melksham and Beanacre	*40% to 50% reduction*	
		M	12-hour Annual Average Daily Traffic (all vehicles) on other residential roads in Melksham (Semington Road / King Street, Spa Road (north of Snowberry Lane), Lowbourne / Sandridge Road)		

Initial targets have been identified for each objective. These will be reviewed as the project progresses. At this stage, the initial targets have been established following consideration of the baseline data relating to the current and future situation, as presented in Chapters 3 and 4. For example, the average journey and peak delay time reduction targets consider the extent to which each route is currently subject to congestion and delay; those which pass through the full length of the A350 through Melksham and Beanacre have the highest journey time targets, whereas those which only use part of the existing A350 have much lower targets.

The potential to reduce existing traffic volumes in northern Beanacre and Melksham takes account of the current mix of through and local traffic in the area, and provides the basis for the accident reduction target on the A350. The wider accident reduction target for Melksham takes account of the proportion of personal injury accidents which occur on the A350, and the potential for reductions on the A350 and any new highway provision such as a bypass.

Most of the measures should be assessed in the year after scheme opening, i.e. comparing journey times and traffic volumes observed before and after. Although any impact on accident rates may also occur within the first year, it will take time to accumulate sufficient data for a robust analysis, and it will be more appropriate to compare the five-year periods before and after scheme opening rather than a single year.

2.7. Scope of the A350 Melksham Bypass scheme

Covered in this section

This section provides details of the proposed A350 Melksham Bypass scheme preferred option. It clarifies the key components and what is included and excluded from the project scope. Key features of the bypass design are explained.

2.7.1	A350 Melksham Bypass scheme components	2.7.2	Bypass scope and design	2.7.3	Provision for non-motorised users
2.7.4	Supplementary highway improvement works	2.7.5	Complementary measures	2.7.6	Scheme area of impact

Summary of key points

The A350 Melksham Bypass scheme comprises:

- A full eastern bypass, single carriageway, approximately nine kilometres in length and with four junctions;
- Modifications and enhancements to Public Rights of Way along the bypass route;
- Supplementary highway improvement works to the adjacent network; and
- Complementary walking and cycling measures within Melksham Town and around the existing A350 route.

The scheme has been developed to an advanced feasibility design (3D design) including the main highways design plus drainage, structures and lighting. The design is informed by stakeholder input and feedback. The bypass route has been designed to minimise impacts on properties, environmental features and other constraints as far as practicable. The route takes account of requirements for potential future dualling.

The bypass route includes provision for potential sections of combined footway / cycleway parallel to the new road. These would be connected to existing footpaths and bridleways, creating more opportunities for residents to access and enjoy the local countryside.

Where direct impacts on existing PRoW are unavoidable, the general principle is to provide alternative facilities, with betterment where possible.

A potential package of walking and cycling improvements on and around the A350 and the town centre is proposed to complement the bypass scheme and create a better-connected walking and cycling network for Melksham. This would help to lock in the benefits from the bypass for traffic relief on the A350 and other local routes.

2.7.1. A350 Melksham Bypass scheme components

The preferred scheme option being promoted by Wiltshire Council within this OBC comprises:

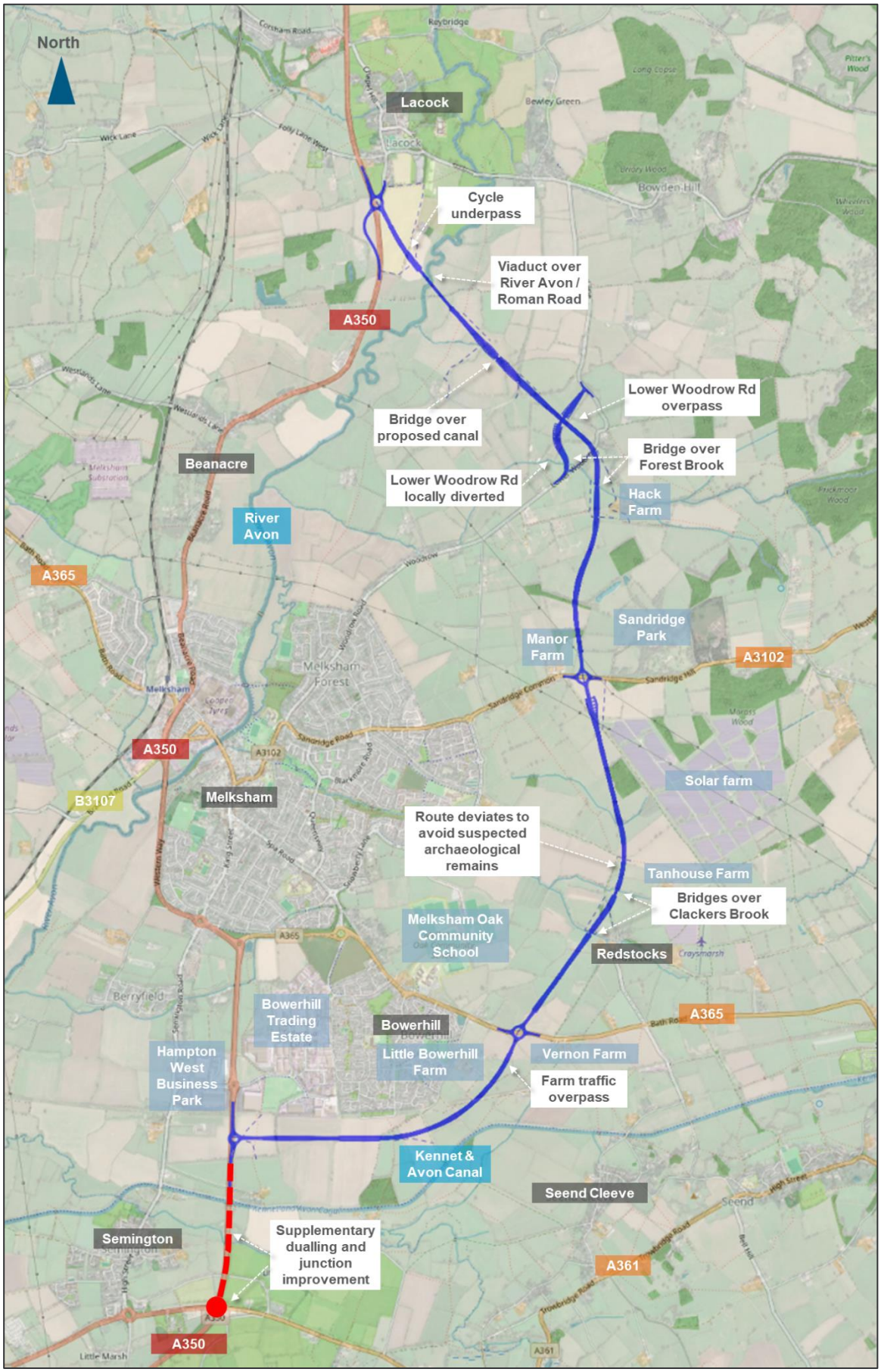
- A **full eastern bypass**, approximately nine kilometres in length and with four junctions;
- **Modifications and enhancements to Public Rights of Way** along the bypass route;
- **Supplementary highway improvement works** to the adjacent network; and
- **Complementary walking and cycling measures** within Melksham Town and around the existing A350 route.

2.7.2. Bypass scope and design

Bypass overview

The current preferred option for the bypass (based on the 'emerging route') is illustrated in **Figure 2-41**. A full route description and scheme drawings are provided in Appendix A3. Summary information is provided in the following sections.

Figure 2-41 – A350 Melksham Bypass preferred option (emerging route)



Key features of the bypass

- The route is approximately **nine kilometres long** and has a total footprint of around 50 hectares.
- The design is based on a **single carriageway** (9.3m wide), with scope to widen, and is designed for **national speed limit (60 mph)**.
- There are **four new roundabouts** – from south to north, these are: at the A350 just south of Hampton Park roundabout; at the A365; at the A3102; and at the A350 between Halfway Farm and Lacock village (this would upgrade the existing junction with Melksham Road).
- A **viaduct (approximately 410 metres in length)** is provided over the River Avon and its flood zone, and the historic Roman Road.
- A **bridge carries the bypass over the Wilts and Berks canal** (currently not in use), which requires four culverts.
- Four bridges are proposed over the Clackers and Forest brooks
- Drainage **attenuation ponds** and other measures are provided to reduce flood risk and avoid pollution.
- As part of the scheme there would be opportunities for **landscape planting** to be included along the route to help mitigate impacts on the residential and rural areas.
- Existing Public Rights of Way routes for walking, cycling and horse-riding will be adjusted or new routes provided to ensure connectivity.

Current status

The proposed emerging route has been subject to consultation in summer 2021. Feedback in relation to potential variants to the route is being considered by Wiltshire Council. This includes potential refinement to the route in connection with the National Trust land (northern end), archaeological remains (A365 – A3102), and the proximity of the alignment to properties at the southern end. Further details are provided in Appendix A.3.5.

Basis of design

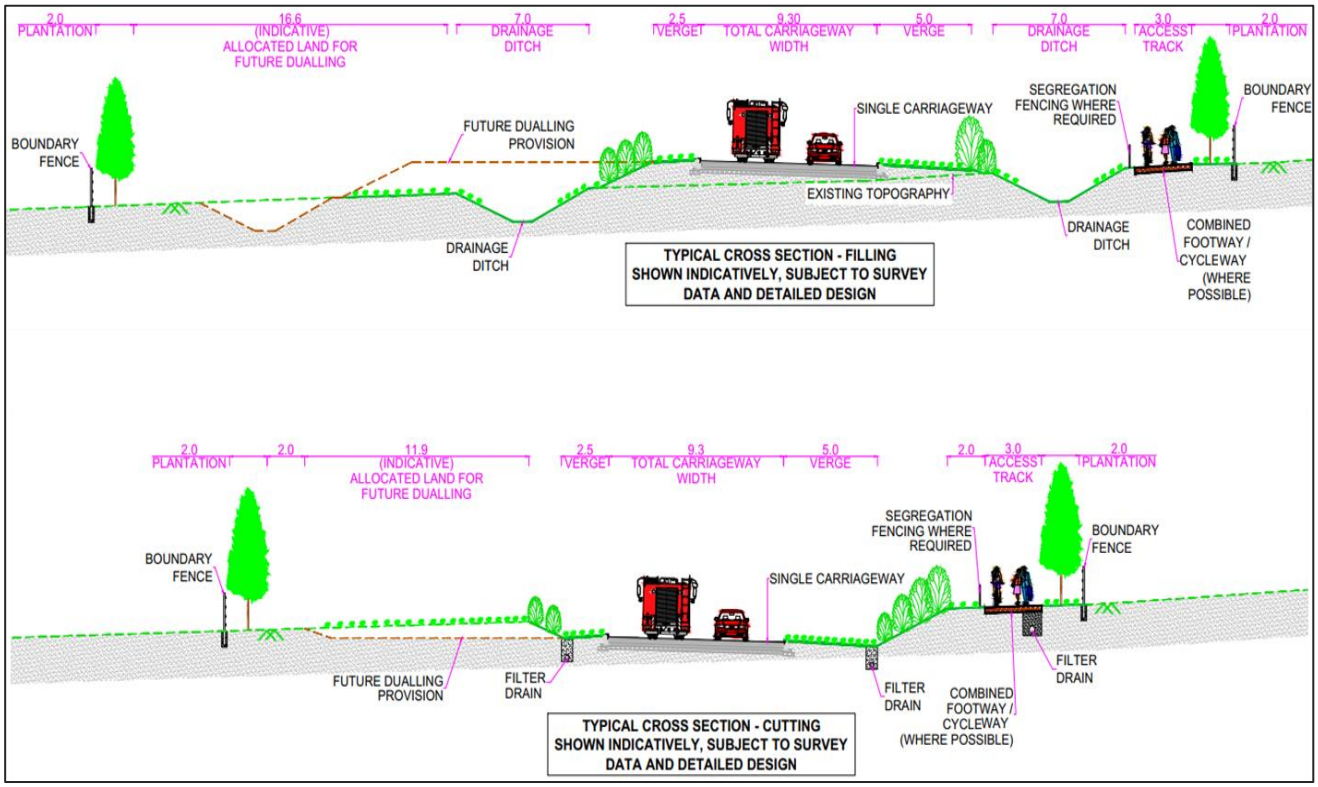
The main bypass route has been developed to an advanced stage of feasibility design considering both horizontal and vertical alignment (3D design). The level of design is sufficient to provide a robust cost estimate for the purposes of the OBC and identification of key delivery risks.

The route has been designed to standards established within the Design Manual for Roads and Bridges (DMRB). Whilst the scheme comprises a single carriageway route, future-proofing for potential dualling has been incorporated into the design process and therefore the design parameters have been derived for dual carriageway. The same principle has been adopted for the design of the bypass junctions.

Typical bypass cross-section

The profile of the bypass route will change depending on whether the bypass is raised or cut into the existing landscape **(Figure 2-42)**. The maximum total corridor width is around 100 metres, and this includes provision for potential future dualling of the route. The carriageway itself is 9.3 metres wide including hard-strips, with drainage features and verges on either side, as required. Provision would be made for a potential footway / cycleway adjacent to some sections of the bypass route, where possible.

Figure 2-42 – A350 Melksham Bypass preferred option – typical cross-section (view looking north)



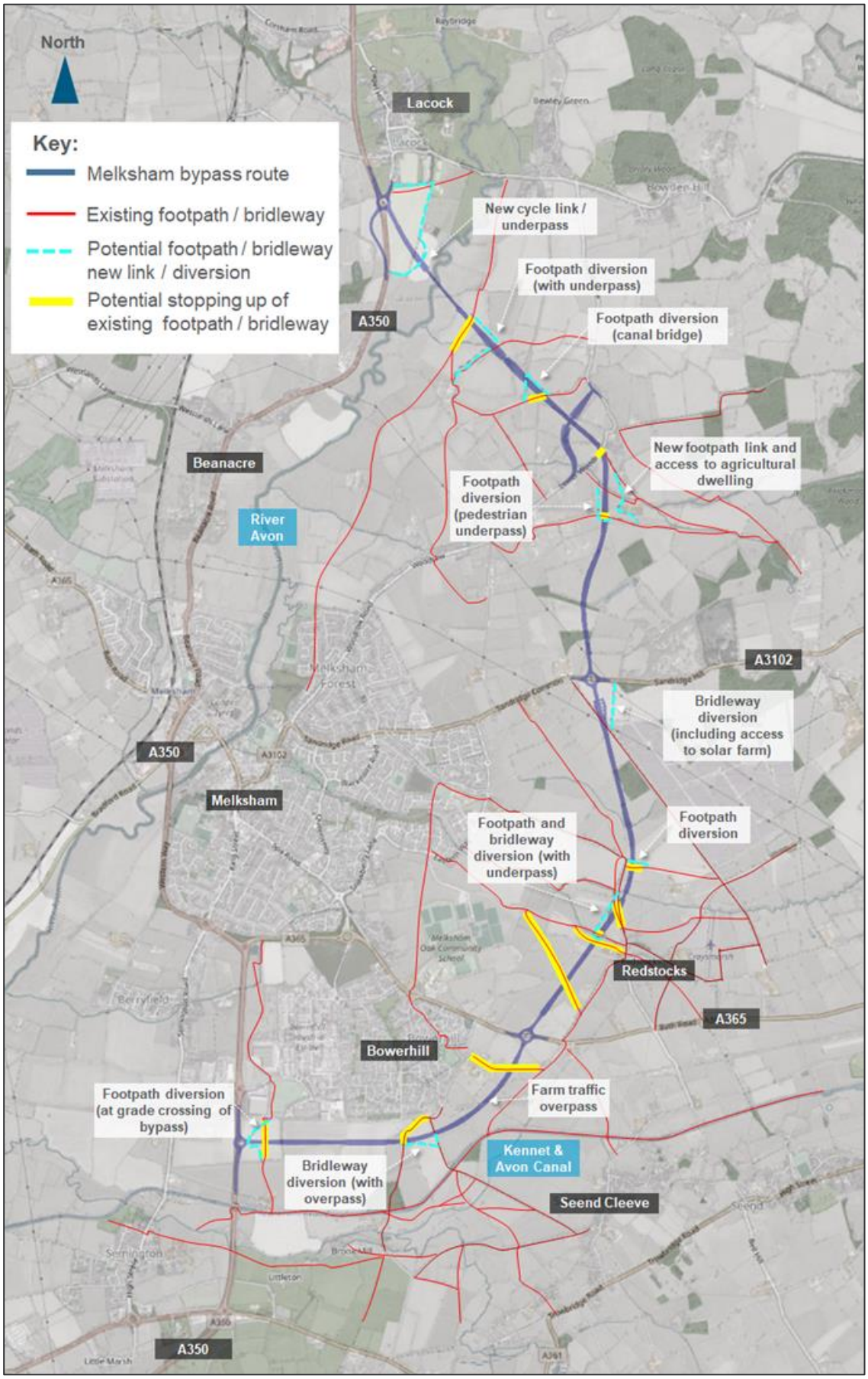
2.7.3. Provision for non-motorised users

The proposed bypass design takes account of existing Public Rights of Way (PRoW) and other facilities currently used by pedestrians, cyclists and horse-riders. At this stage, the design process has been informed by a Walking, Cycling & Horse-riding Assessment and Review (WCHAR), engagement with PRoW officers from Wiltshire Council and wider feedback obtained through public consultation.

The current bypass route includes provision for potential sections of combined footway / cycleway parallel to the new road (**Figure 2-42**). These would be connected to existing footpaths and bridleways, creating more opportunities for residents to access and enjoy the local countryside.

Where direct impacts on existing PRoW are unavoidable, the general principle is to provide alternative facilities, with betterment where possible. The number of crossing points of the bypass has been rationalised - some diversions to routes are proposed, and some routes are proposed to be stopped up (although with alternative connections being maintained where feasible). PRoW connections across the bypass route are predominantly designed with the bypass passing over the PRoW. **Figure 2-43** illustrates the proposed changes to the PRoW network, as per the current design.

Figure 2-43 – Potential alterations to the Public Rights of Way Network



The design of the new junctions on the bypass route also seeks to ensure safe provisions for pedestrians, cyclists and horse-riders (where appropriate), such as through crossing facilities and the use of signal controls.

Detailed design of the provision for pedestrians, cyclists and horse-riders will be subject to further stakeholder input.

2.7.4. Supplementary highway improvement works

To ensure that the introduction of the bypass is conducive with the surrounding network the potential need for limited additional highway improvements has been identified. These are:

- **Capacity improvements to the Littleton Roundabout** on the A350 near Semington, to the south of the bypass route. This is the junction between the A350 and the east-west A365 route.
- **Upgrading the existing section of the A350 between the southern A350 / bypass junction and the Littleton Roundabout to dual carriageway**. This section is approximately 1.2 kilometres in length and was originally constructed with potential future dualling in mind.
- **Signalisation of the A3102 / A342 junction** to the east of the bypass route.

These supplementary improvements are currently included within the scheme scope but will be subject to review and further assessment as the project develops.

2.7.5. Complementary measures

A potential **package of walking and cycling improvements** on and around the A350 and the town centre is proposed to complement the bypass scheme and create a better-connected walking and cycling network for Melksham. This would help to **lock in the benefits from the bypass for traffic relief** on the A350 and other routes through:

- Making use of existing walking and cycling connections in Melksham.
- Creating a cohesive walking and cycling network.
- Reducing pedestrian and cyclist casualties.
- Creating more opportunities for active travel.

Three main components to the complementary measures have currently been identified:

A – Pedestrian-Friendly Town Centre

Improve access for people to the town centre, through walking and cycling improvements on King Street / Bank Street.

B – Better access to Melksham rail station

More direct links across the A350 between the rail station / employment areas and the rest of the town.

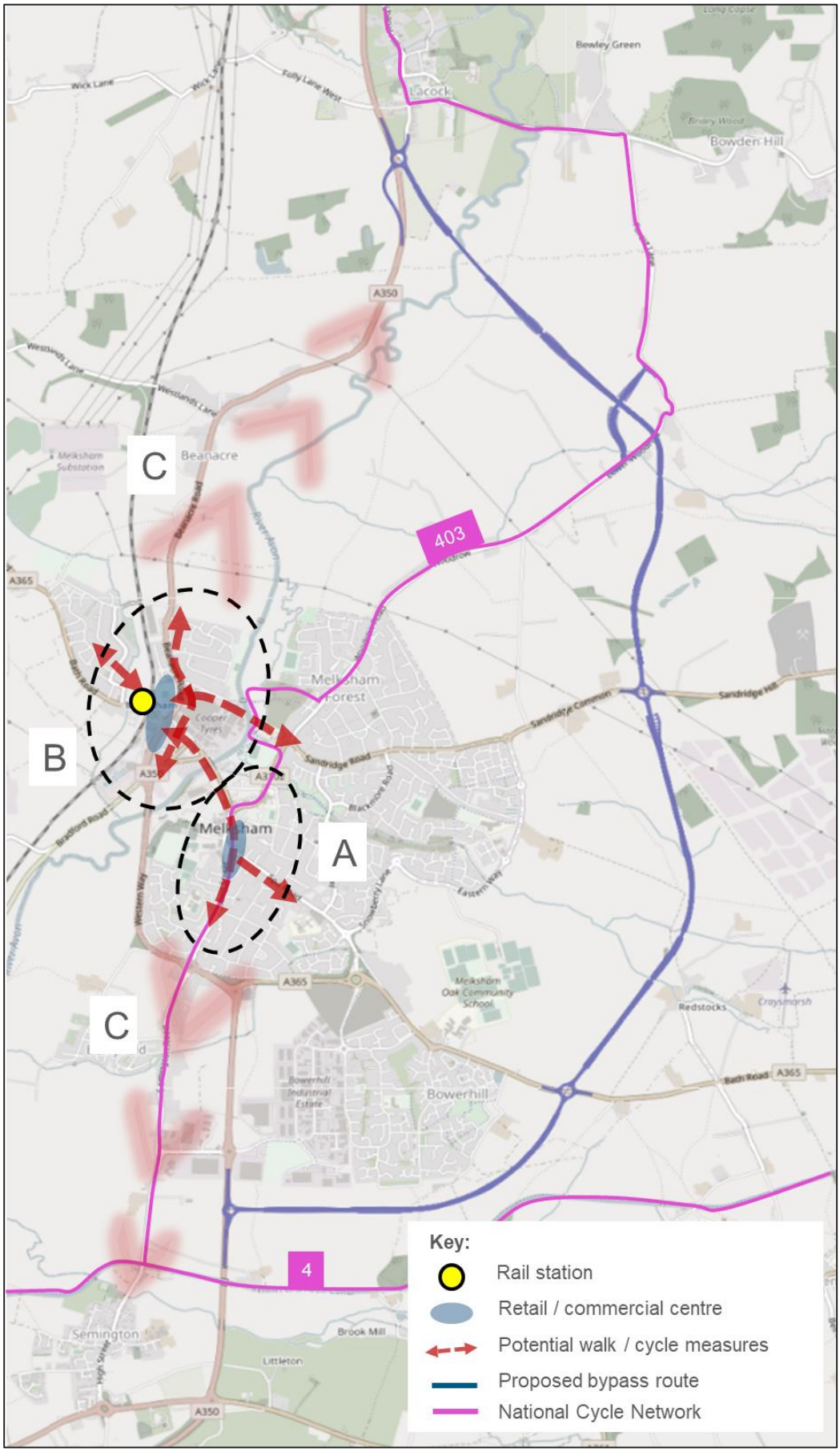
C – Wider connections

Potential improved routes heading south towards Semington, Trowbridge and Bradford-on-Avon, via the National Cycle Network route 403, and north towards Lacock.

These components are illustrated in **Figure 2-44**.

The scope of complementary measures currently identified reflects initial feasibility and stakeholder engagement. Whilst representative, it is expected that the package of measures will continue to evolve, particularly with further input from local stakeholders.

Figure 2-44 – A350 Melksham Bypass – complementary walking and cycling measures

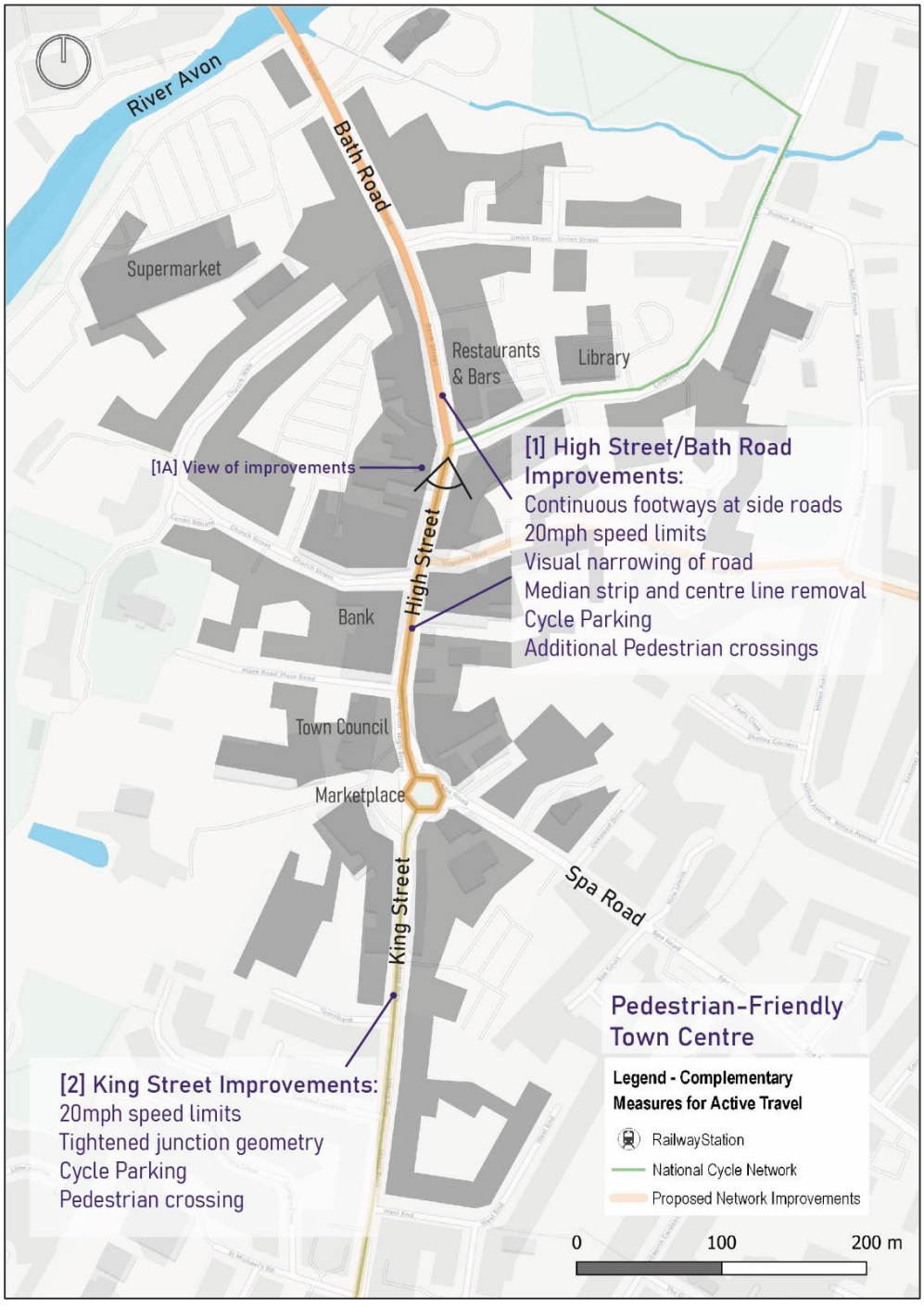


Complementary measures component A – Pedestrian-Friendly Town Centre

Indicative measures within the town centre area include:

- Continuous footways at side roads along Bath Road and High Street, 20mph speed limits and visual narrowing of carriageway, cycle parking at key destinations, and three additional pedestrian crossing points.
- Tightened junction geometries along King Street to support speed reduction, improved pedestrian crossing provision at roundabout, and additional cycle parking.

Figure 2-45 – Complementary walking and cycling measures: pedestrian friendly town centre

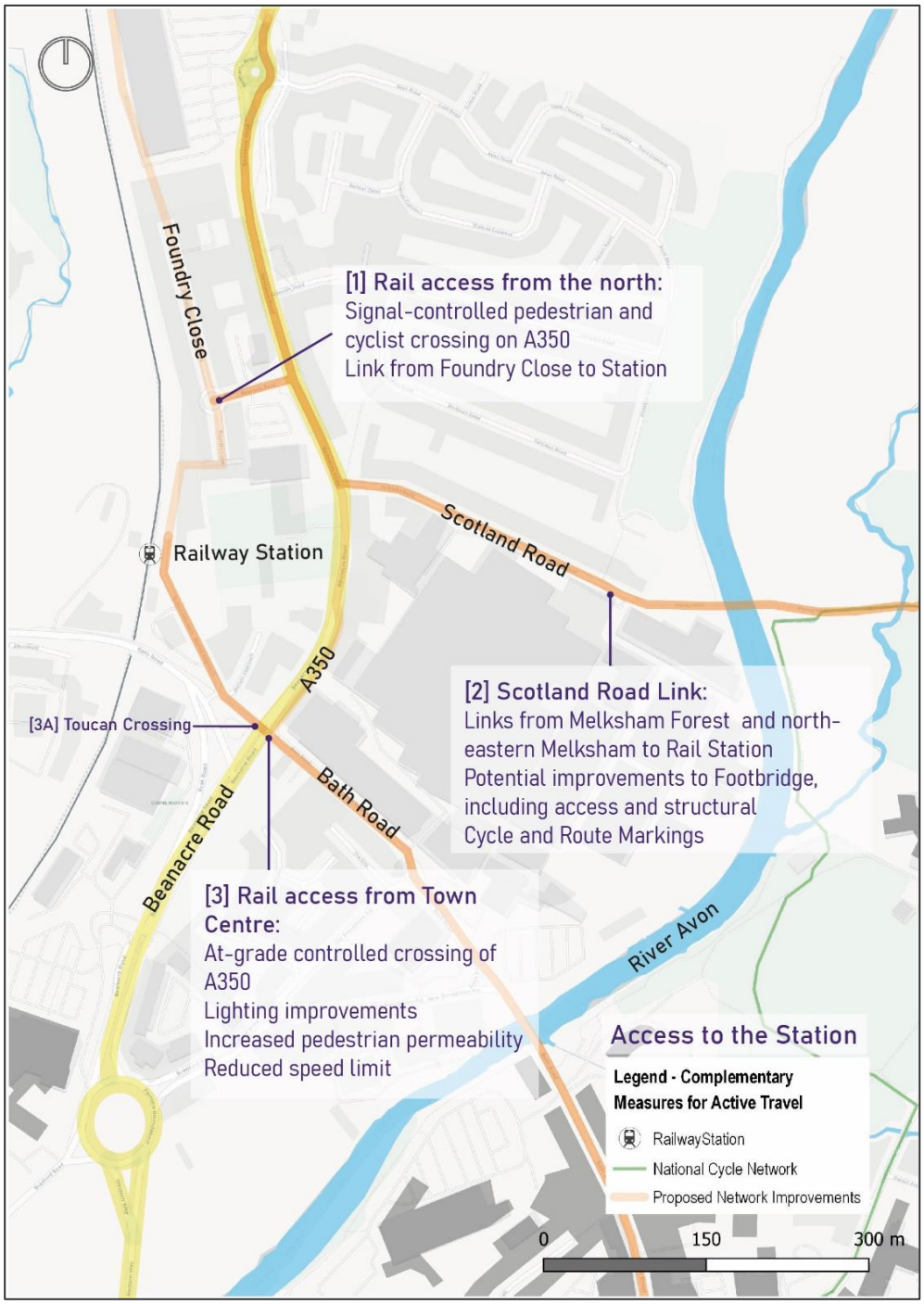


Complementary measures component B – Access to Melksham Rail Station

Access on foot and cycle to the station (and other retail and commercial areas to the west of the A350) is hindered by the severance impacts of the existing A350 route. To build upon the benefits of the bypass, indicative measures in relation to improving access to the rail station include:

- Signalised crossing and integration with any future station link from Foundry Close.
- Quiet link via Scotland Road, providing direct access from Melksham Forest and the northern end of the Town.
- At-grade controlled crossing of A350 at Bath Road.

Figure 2-46 – Complementary walking and cycling measures: access to Melksham rail station



Complementary measures component C – Northern / southern wider connections

There is further scope to extend the town network to provide improved walking / cycling routes heading north towards Lacock and / or south towards Semington, Trowbridge and Bradford-on-Avon, via the National Cycle Network route 403. The use of the existing A350 (post bypass implementation) for a cycle link between the rail station and Lacock was a concept raised via stakeholder feedback. Lacock village is a tourist destination and Melksham is the closest local rail station – hence an improved cycle link would promote more sustainable access for visitors.

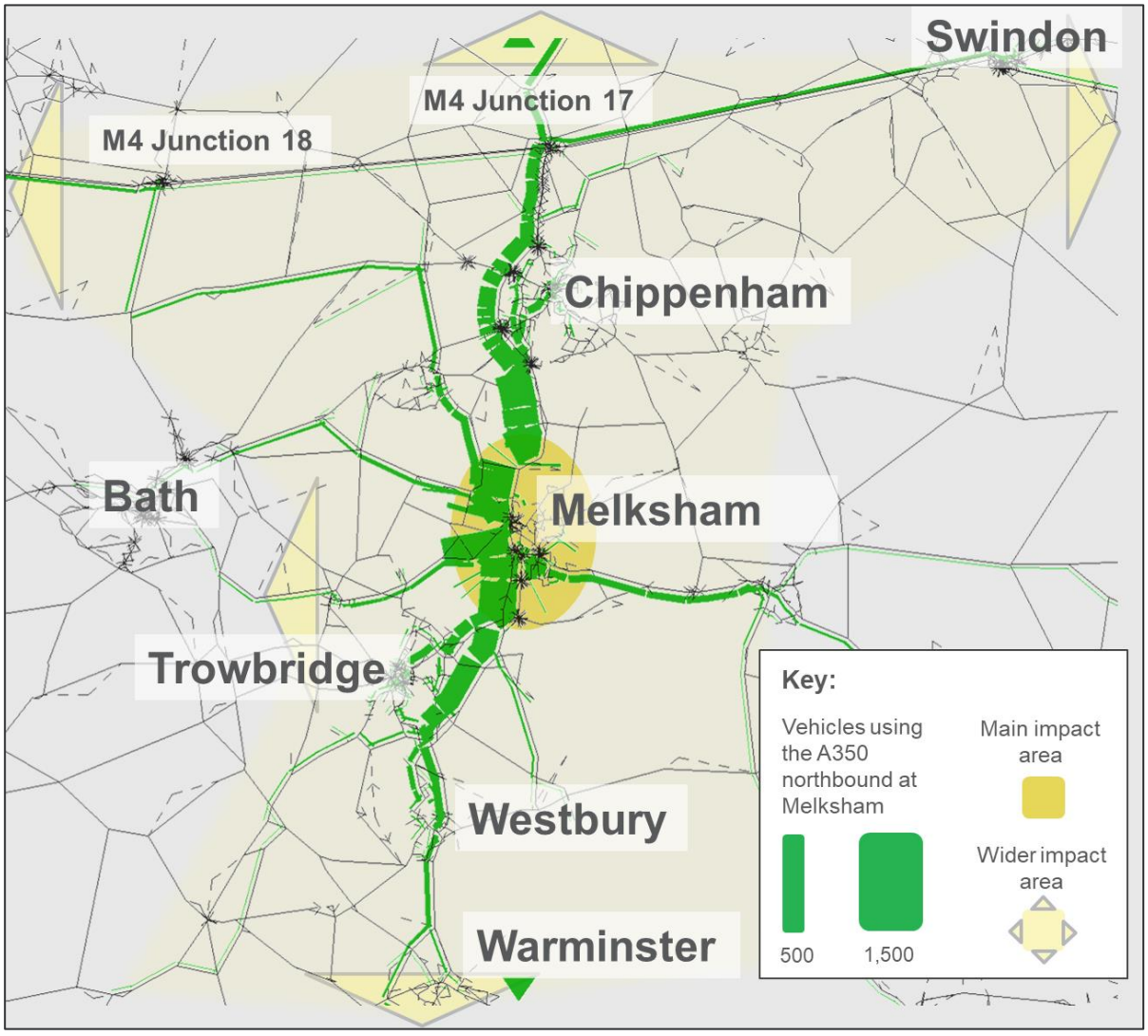
2.7.6. Scheme area of impact

The anticipated geographical area of impact of the scheme has been determined through:

- an understanding of the geographical scope of the **travel demands and key origins and destinations** (Section 2.3), including the distribution of origins and destinations of users of the A350 at Melksham taken from the Wiltshire Transport Model); and
- an analysis of the **geographical extent of current and future transport problems** and underlying drivers (Sections 2.3 to 2.5).

The main area of scheme impact **(Figure 2-47)** is defined as the Melksham urban area, including the A350 corridor from north of Beanacre to Semington, adjacent communities, plus the wider town and surrounding community area. The wider area of influence includes the Melksham urban area, plus the wider A350 corridor between the M4 Junction 17 and the A36 at Warminster, including the settlements of Chippenham, Trowbridge, Westbury, Calne and Devizes, and beyond.

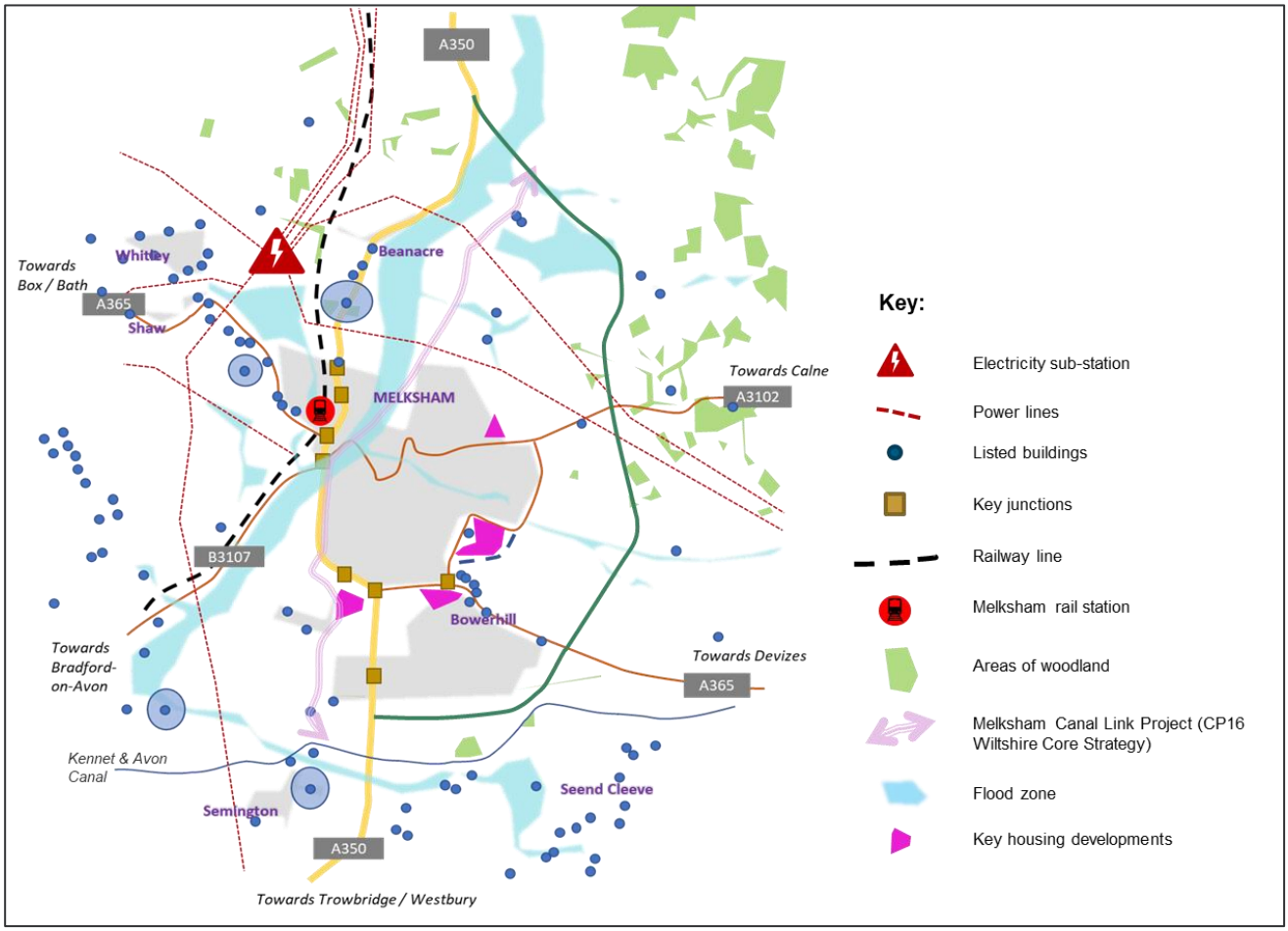
Figure 2-47 - Modelled distribution of trips using the A350 northbound at Melksham (Wiltshire Transport Model)



2.8. Constraints

Key physical and environmental constraints in relation to the scheme are illustrated in **Figure 2-48.**

Figure 2-48 - Key physical and environmental constraints in the Melksham area



Melksham town is surrounded by several smaller village settlements within **a largely rural setting** comprising agricultural land and scattered woodland. The **River Avon** and its floodplain bisects Melksham on a north-south axis. The **Kennet and Avon Canal** runs east-west to the south of Melksham and offers recreational use as well as habitat to wildlife. The existing A350 route is relatively constrained as it passes through Beanacre and north Melksham - the speed limit is reduced to 30mph on certain sections, with residential properties on both sides of the road, including some with frontage directly on to the road. The **TransWilts (Chippenham-Westbury) rail line** (single track) runs parallel to the A350 to the west of the town and presents a significant physical barrier.

These factors produce a number of constraints associated with both the built and natural environment which have influenced the identification of the Preferred Option (Section 2.11) and its design (Section 2.7).

The preferred bypass option routes to the east of the town. The key constraints in relation to the scheme are summarised in **Table 2-15**. The route of the bypass has been designed to fit within these constraints and minimise the impact on both natural and human features as far as is practicable.

More specific details on environmental constraints and features can be found within the Preliminary Environmental Assessment Report.

Table 2-15 – Key constraints in relation to the Preferred Option

Category / key constraint	Description / details
Natural environment	
River Avon	The bypass route avoids the flood zone as far as possible. It crosses an approximately 400m wide section of floodplain with a viaduct.
Forest Brook	Located towards the northern end of the bypass route, the re-aligned Lower Woodrow Road crosses the brook via a bridge.
Clackers Brook	Located to the north of the hamlet of Redstocks, the bypass crosses two streams via two separate bridges approximately 350m apart.
Kennet & Avon canal	Runs east – west to the south of the southern end of the bypass route. At its closest point, the bypass lies approximately 180m north of the canal. Connections between the canal and the Bowerhill area would be maintained.
Wilts & Berks canal	Currently disused, but with plans to restore it (Melksham Canal Link Project), the canal route runs southwest – northeast towards the northern end of the bypass route. A bridge will allow for the canal to be reconstructed in accordance with the *Wilts & Berks Canal Trust Engineering Specification and Design Guidance* recommendations, making provision for towpaths on both sides of the waterway.
Priority habitat	There are scattered areas of woodland to the east of Melksham. The bypass route impacts three relatively small areas of woodland which are classed as priority habitat. Loss of woodland would be mitigated with additional replacement woodland planting.
Built environment	
Listed buildings	There are several listed buildings within the area to the east of Melksham. The bypass route does not directly impact any listed buildings. There is a significant cluster of listed buildings within the centre of the village of Lacock, approximately 0.5km from the northern A350 junction of the bypass.
Roman Road	A historical Roman Road runs east – west just south of the northern A350 junction of the bypass. Impact of the bypass route is minimised through the bypass crossing over this feature on the same viaduct structure that takes it over the River Avon.
Buried archaeology	Wiltshire Council has advised of suspected archaeological remains of historical importance within the area to the east of Snarlton Farm. The alignment of the bypass route has been amended to avoid this area.
Historic landfill	There are four identified historic landfill sites to the east of Melksham. Two of these lie to the east of Beanacre, which the bypass avoids by routing further north to connect to the A350. The other two sites are located in the A3102 Sandridge Hill area with the bypass routing to the west of these (approximately 200m from the nearest site)
Power lines	Two power lines run north west – south east around the Sandridge Common area. The bypass route avoids any impact. A further set of power lines run east – west at the southern end of the bypass. The road alignment remains to the north of these to avoid any impact.
Solar Farm	A solar farm of approximately 75 hectares is located south of the A3102 at Sandridge Hill. The bypass does not directly impact the solar farm – access is to be maintained as part of the A3102 junction arrangement.
Residential properties / built up areas	The bypass route lies to the east of the main built up area of Melksham. At the southern end the route skirts around the Bowerhill area (approximately 170m distant). The bypass routes approximately 150m to the west of the hamlet of Redstocks, at the point where the alignment seeks to avoid the suspected archaeological remains. Other clusters of properties are located around the A3102 and Woodrow / Lower Woodrow Road. The wider bypass alignment (to the east) avoids the most significant direct impacts to these properties.

Category / key constraint	Description / details
Planning applications / site allocations	Five significant planning commitments have been identified on the south and eastern sides of Melksham. The bypass route does not directly impact any of these. • 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 together with car parking and a new access road and junction.

2.9. Inter-dependencies

This section considers any dependencies between the successful delivery of the A350 Melksham Bypass scheme and other currently identified housing or employment sites. However, it will provide general opportunities for future growth around Melksham and within West Wiltshire by increasing the capacity of the road network.

2.9.1. Factors dependent upon delivery of the scheme

There are **no other known schemes or projects directly dependent upon the delivery of the A350 Melksham Bypass scheme**. As identified within Sections 2.2 and **Error! Reference source not found.**, the delivery of the scheme has an important role in supporting local and regional economic and social outcomes.

Within Melksham, delivery of the bypass scheme would be **a precursor to reconsidering the role and design of the existing A350 corridor** through the town and would further support plans for town centre regeneration.

At a more regional level, **Highways England is commencing a M4 to South Coast strategic study** to examine whether the current SRN (A36/A46) is best, or whether an alternative route (e.g. A350) would provide an enhanced strategic link. Should the conclusions of the study support the latter, the A350 Melksham Bypass scheme (in addition to the other A350 MRN schemes being promoted by Wiltshire Council) would prove fundamental in order to bring the route up to a suitable standard for trunking. Similarly, the successful delivery of the scheme has a significant role in delivering the economic growth strategy for West Wiltshire and the wider Western Gateway area

2.10. Stakeholders

2.10.1. Key stakeholders / stakeholder groups

The key stakeholder groups and their involvement or interest in the Melksham Bypass scheme are summarised in **Table 2-16**.

Table 2-16 – Key stakeholder groups

Stakeholder group	Key stakeholders	Involvement / interest
General public	Residents in Melksham Residents in Wiltshire A350 users	• Potential beneficiaries of the scheme. • Potential for adverse impacts resulting from the scheme – either directly or indirectly, e.g. localised noise impacts. • Provision of inputs to scheme design aspects.
Businesses	Business in Melksham Wiltshire Chamber of Commerce Wiltshire businesses Hauliers	• Potential beneficiaries of the scheme – in terms of business costs and / or employee and customer access. • Potential for adverse impacts resulting from the scheme – either directly or indirectly, e.g. re-routing of traffic resulting in reduced 'pass-by' trade.
Statutory and non-statutory environmental bodies	Historic England Natural England Environment Agency English Heritage	• Proposed crossings of the floodplains of the River Avon and Clackers Brook will require the support of the Environment Agency and compliance with the Water Framework Directive. • Agreement of mitigation measures, such as compensatory flood storage. • Will be consulted at various stages of scheme design, in particular to inform the scope of the Environmental Impact Assessment undertaken in support of the planning application.
Town and parish councils	Melksham Town Council Melksham Without Parish Council Seend Parish Council	• Representing the views and interests of local residents and businesses
Landowners	Various individual landowners National Trust (Lacock)	• Various land parcels to the east of Melksham are required for / impacted upon by the bypass route and supporting works. • Landowner interests / concerns will be considered wherever feasible to ensure that the design process is informed to minimise and / or mitigate adverse impacts.
Walking / cycling / horse-riding groups		• Interest in the provision for pedestrians, cyclists and horse-riders and impacts of the scheme on existing Public Rights of Way • Provision of inputs to specific scheme design aspects.
Regional bodies	Western Gateway Sub-national Transport Body Swindon and Wiltshire Local Enterprise Partnership	• Interest in the role of the Melksham Bypass scheme in supporting regional transport and economic priorities.

Stakeholder group	Key stakeholders	Involvement / interest
Local media	Melksham News, Wiltshire Times, BBC Wiltshire, BBC Points West, ITV West Country	• Dissemination of information in relation to the Melksham Bypass proposals. The media is an important means of raising awareness / interest and encouraging participation in consultation and engagement activities.
Political representatives	Local MP, Michelle Donelan Wiltshire Council members Melksham area board	• Represent the interests of local constituents
Neighbouring local authorities	Dorset County Council Bath & North East Somerset Council	• Interest in direct or indirect impacts of the scheme (beneficial or adverse) on their local authority areas and residents / businesses.
Funding approval	Department for Transport	• Considers the overall strength of the business case (including value for money) in making recommendations to ministers with regards to central government funding for the scheme.

2.10.2. Stakeholder activity undertaken

Approach

Wiltshire Council seeks to manage the different stakeholder needs and expectations in a balanced manner, alongside the need to ensure that the scheme will also continue to meet its primary objectives. A key consideration for the Melksham Bypass scheme is the delivery of wider benefits for the town, businesses and A350 users set against the localised impacts on residents and landowners more directly affected by the construction of the new route. The potential for the scheme has been recognised for many years and has been raised by stakeholders within the context of various local and regional plans. Key stakeholders were also engaged during the development of the SOBC.

As part of the development of the OBC, Wiltshire Council has taken the opportunity to undertake more formal and widespread public consultation (non-statutory) in order to capture a diverse spectrum of views. Scheme development has been undertaken in an open manner with stakeholder participation being actively encouraged, including through:

- the use of a **dedicated web page** hosting key information regarding the scheme development[44];
- **meetings with key stakeholders** throughout scheme development; and
- **two formal public engagement exercises** held during the development of the OBC (in Winter 2020 and Summer 2021), with a record of the responses and survey findings provided on the scheme web page.

Stakeholder participation will be integral throughout the whole project lifecycle (development, construction and operation). The role of stakeholder input in the options development process is documented in full within the Options Assessment Report. A full Stakeholder Engagement and Communications Plan is in place for the scheme (Appendix E3) and further planned engagement and consultation activity is addressed within the Management Case. As the scheme progresses, continued engagement with key stakeholder groups will play an important role in mitigating and minimising any adverse impacts where practicable.

Public consultation – 2020 / 2021

Two public consultation exercises have been undertaken **(Figure 2-49)**; an initial exercise in Winter 2020 (November ’20 to January ’21) and a further exercise in Summer 21 (June ’21 to August ’21). Full consultation reports have been published on the scheme web page[45].

[44] https://www.wiltshire.gov.uk/highways-a350-melksham-bypass
[45] https://www.wiltshire.gov.uk/highways-a350-melksham-bypass

Figure 2-49 – Overview of consultation activity during OBC preparation

Winter 2020 consultation

Type of consultation undertaken:
- On-line materials, information pack and Frequently Asked Questions
- Online webinar (pre-recorded)

Key aims:
- To raise awareness and clarify the current scheme status and scheme development process
- To generate and collate feedback on potential options

Key subject matter:
- Background to the scheme
- Current and future problems and issues related to the A350 at Melksham
- Proposed project objectives and outcomes sought
- Long-list of potential options and initial options assessment

1,175 responses

Headline findings:
- 60% of respondents supported the need for improvement of the A350 at Melksham
- Of the road based options, the most preferred options were a long eastern bypass and improvements to the existing A350 route (between 28% and 31% of respondents)
- 68% of respondents supported complementary walking and cycling facilities as part of any bypass scheme

Summer 2021 consultation

Type of consultation undertaken:
- On-line materials, information pack and Frequently Asked Questions
- Online webinar (pre-recorded)
- Public display boards / drop-in sessions

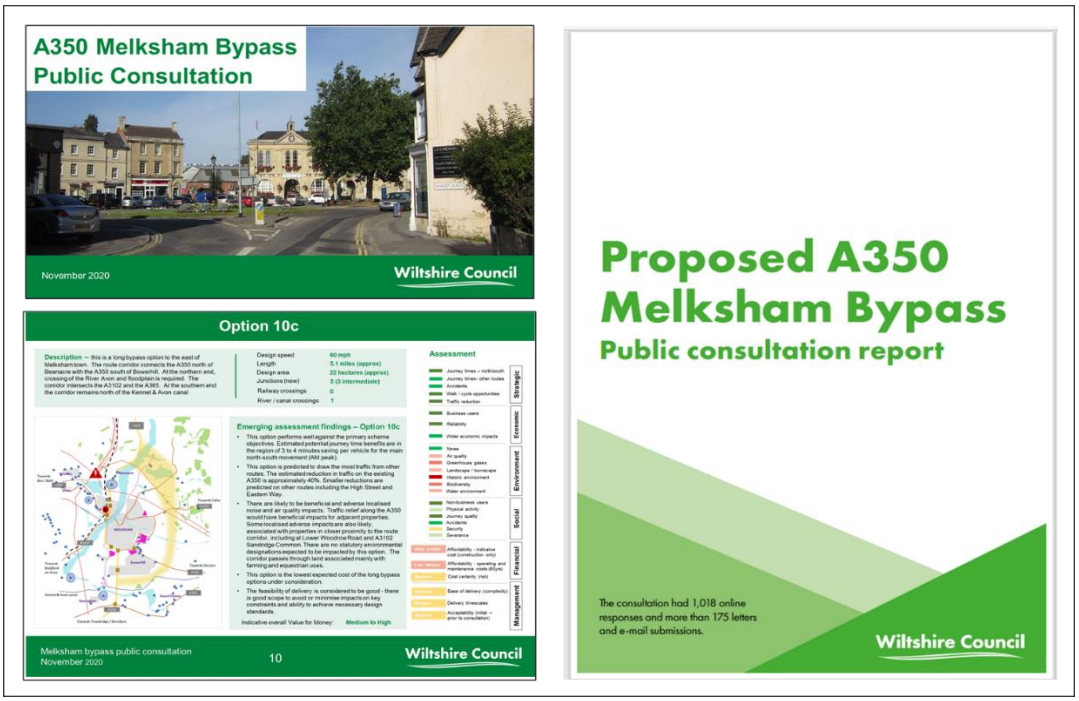
Key aims:
- To inform public and stakeholders of the emerging proposals and the process undertaken to arrive at them
- To generate input to inform further detailed design development

Key subject matter:
- Conclusions of options assessment exercise
- Presentation of the emerging preferred bypass option
- Complementary walking and cycling measures

1,240 responses

Headline findings
- 43% of respondents supported the need for improvement
- 33% of respondents considered that the emerging route would be suitable (67% considered it not suitable)
- In terms of the northern bypass connection, Option A, connecting to the southern roundabout at Lacock, had more support than Options B or C, but a majority did not prefer any
- The biggest concern was about the potential impact on the countryside, habitats, and the environment
- Potential variants to alignment and mitigation suggested

Figure 2-50 – Public consultation – Winter 2020



A majority of respondents to the initial consultation exercise supported the need for intervention. Of the bypass options, those to the east of the town received the highest levels of support. Local walking and cycling improvements were also well supported – a complementary package of walking and cycling measures has been further developed as part of the scheme.

As well as serving to raise awareness of the project and to promote engagement with stakeholders, the first consultation exercise also highlighted other key matters, such as:

- The importance held by the local community with regards to access to the countryside.
- Information regarding local environmental matters.
- Potential alternative route suggestions.
- Various ideas and initiatives regarding potential walking and cycling measures.
- Concerns around the potential severance affect that some alternative route options may have generated.
- Other valuable local information which has fed into the development of the scheme.

The second engagement exercise provided an opportunity for more detailed feedback on the proposed bypass route alignment and design (including potential alternative alignments at the northern end of the bypass). The outcomes identified clear opposing views about the need for a bypass, and this was reflected within the views on the suitability of the proposed emerging route. However, Wiltshire Council considers that the emerging route, or a variation of it, could provide a suitable route for the scheme.

A significant amount of information was gathered with regards to the issues that are of most concern locally in connection with the scheme, which will continue to inform scheme refinement throughout the detailed design process. The biggest concern (as per the first consultation) is the potential impact on the countryside, habitats, and the environment. The consultation responses suggested variations to sections of the route (as identified in section 2.7.2) and in some cases potential mitigation measures were suggested.

2.11. Options

Covered in this section

This section covers the process of identifying the current preferred scheme option. It details the range of options which have been considered and the process through which options have been assessed. The reasons for discounting of other options are presented.

2.11.1	Options considered	2.11.2	Options sifting and assessment overview	2.11.3	Options discounted
2.11.4	Development of the Preferred Option				

Summary of key points

A comprehensive options assessment exercise has been undertaken to identify the preferred scheme option. Two public consultation exercises have informed this process.

A wide range of potential solutions have been considered, including non-road based options. Short and long bypass options to the east and west of the town have been considered, in addition to improvements to the existing A350 route.

The options assessment concluded that:

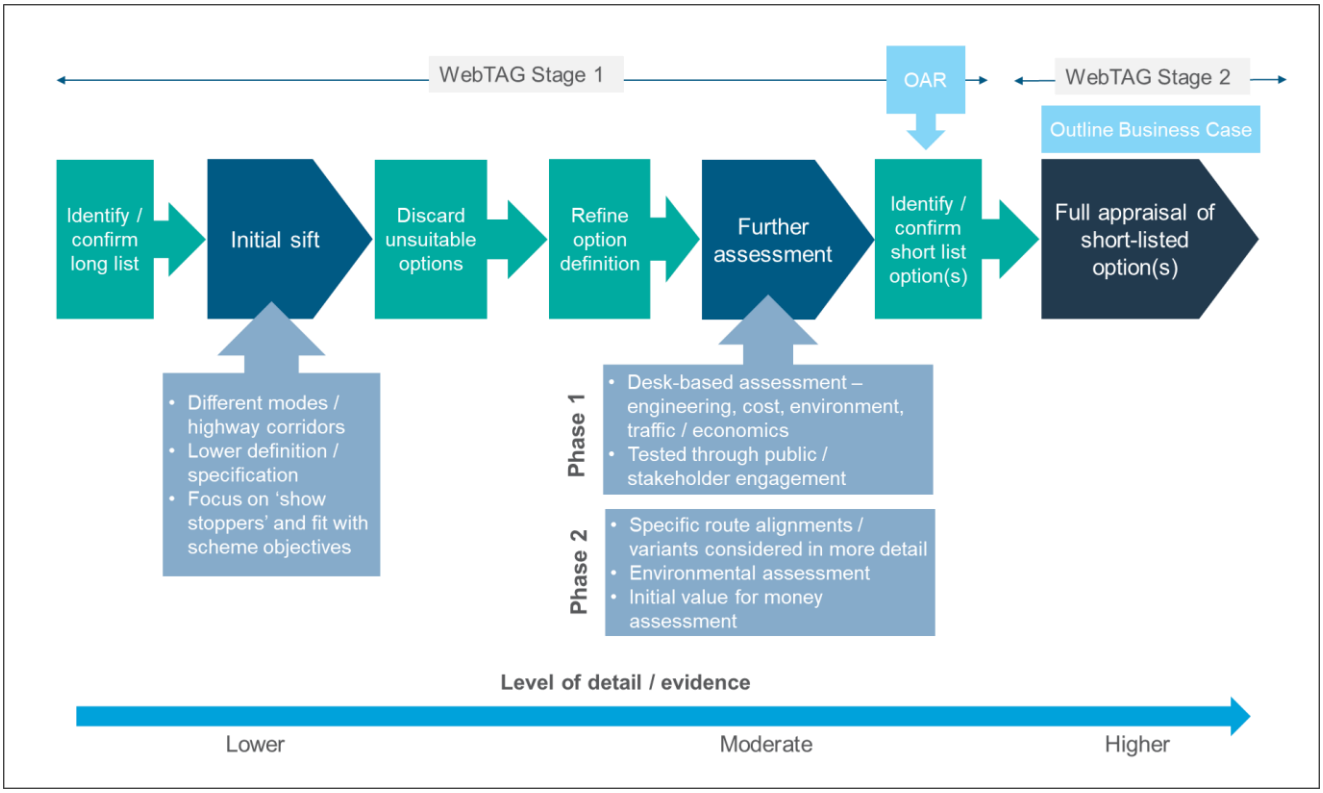
- Non-road based solutions (as options in their own right) were unlikely to meet all objectives or provide the scale of impact required against the objectives.
- On-line improvements would partially address the objectives, but would also likely be limited in their extent by key constraints.
- Longer bypass options, although more expensive, were more effective than shorter bypass options and had a greater scale of impact across all objectives.
- Eastern and western bypass options were similar in their benefits and impacts against objectives, but western options were subject to greater delivery challenges and higher costs. Eastern options also received greater levels of support from the public consultation.
- Walking and cycling measures, although not suitable as stand-alone options, were recommended for inclusion in conjunction with any bypass scheme.

A full eastern bypass corridor was determined as offering the best balance across impacts against objectives, cost and value for money, and deliverability. This corridor formed the basis for more detailed investigation around alternative route alignments and this process identified an emerging ‘outer’ route alignment which formed the basis of the current emerging route which was subject to consultation in Summer 2021.

The concept of a Beancre / Melksham bypass has been around for some years and studies on potential options have been undertaken over the course of that time. More recently, an **Options Assessment Report** (OAR), in line with DfT guidance, was produced in 2017 to support an SOBC submission. In preparation for this current OBC submission, Wiltshire Council commissioned a review, refresh and update of the evidence base relating to the consideration of scheme options as part of an **updated OAR**. In line with WebTAG steps 1 to 8, 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.

An overview of the option generation, sifting and assessment process is illustrated in **Figure 2-51**. Key inputs to the updated OAR included **new traffic modelling**, further **design and costing**, **environmental assessment** and **stakeholder feedback** (Section 2.10). The OAR sets out the reasons for discounting alternative options in a comprehensive manner and the rationale for the selection of the preferred scheme option now the subject of this OBC submission (Section **Error! Reference source not found.**). The following sections provide a summary of the options development and assessment.

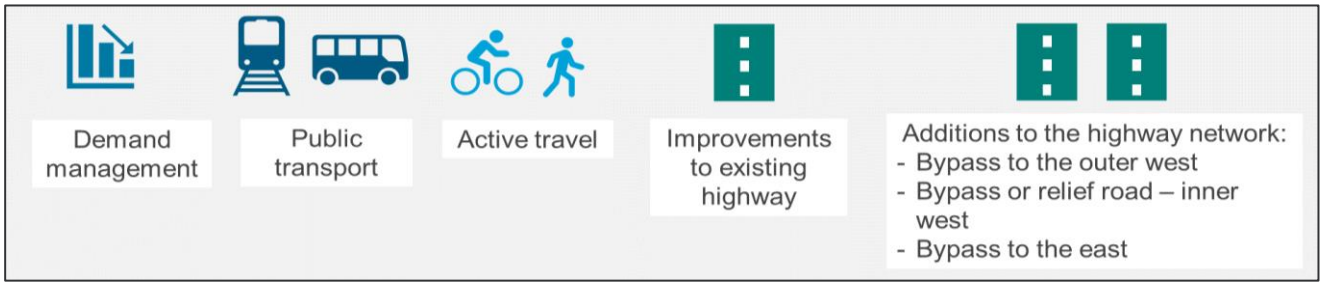
Figure 2-51 – Option generation, sifting and assessment process



2.11.1. Options considered

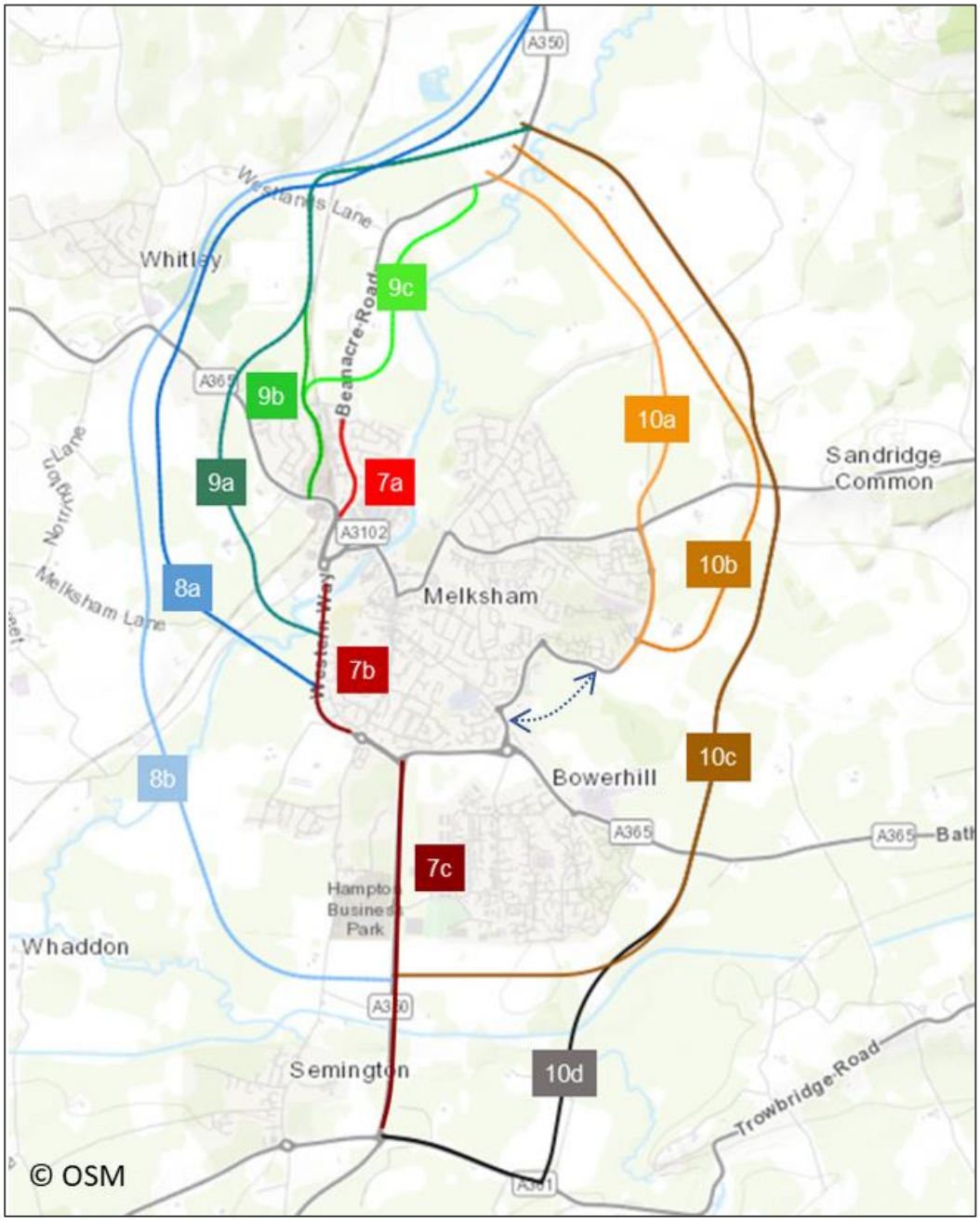
An initial **'longlist' of transport options** was generated and informed by feedback from stakeholder consultation. This initially reflected a wide range of types of potential solutions. The list was refined into 18 individual options within four themes: demand management, public transport, upgrading the existing highway network, and new additions to the highway network:

Figure 2-52 – Range of options considered (longlist stage)



The ‘longlist’ of options included a total of ten bypass or relief road corridor options to the west and east of Melksham **(Figure 2-53)**. Each bypass option was initially based on a general corridor with indictive routes informed by a high-level feasibility review.

Figure 2-53 – Highways options (longlist) – indicative corridors

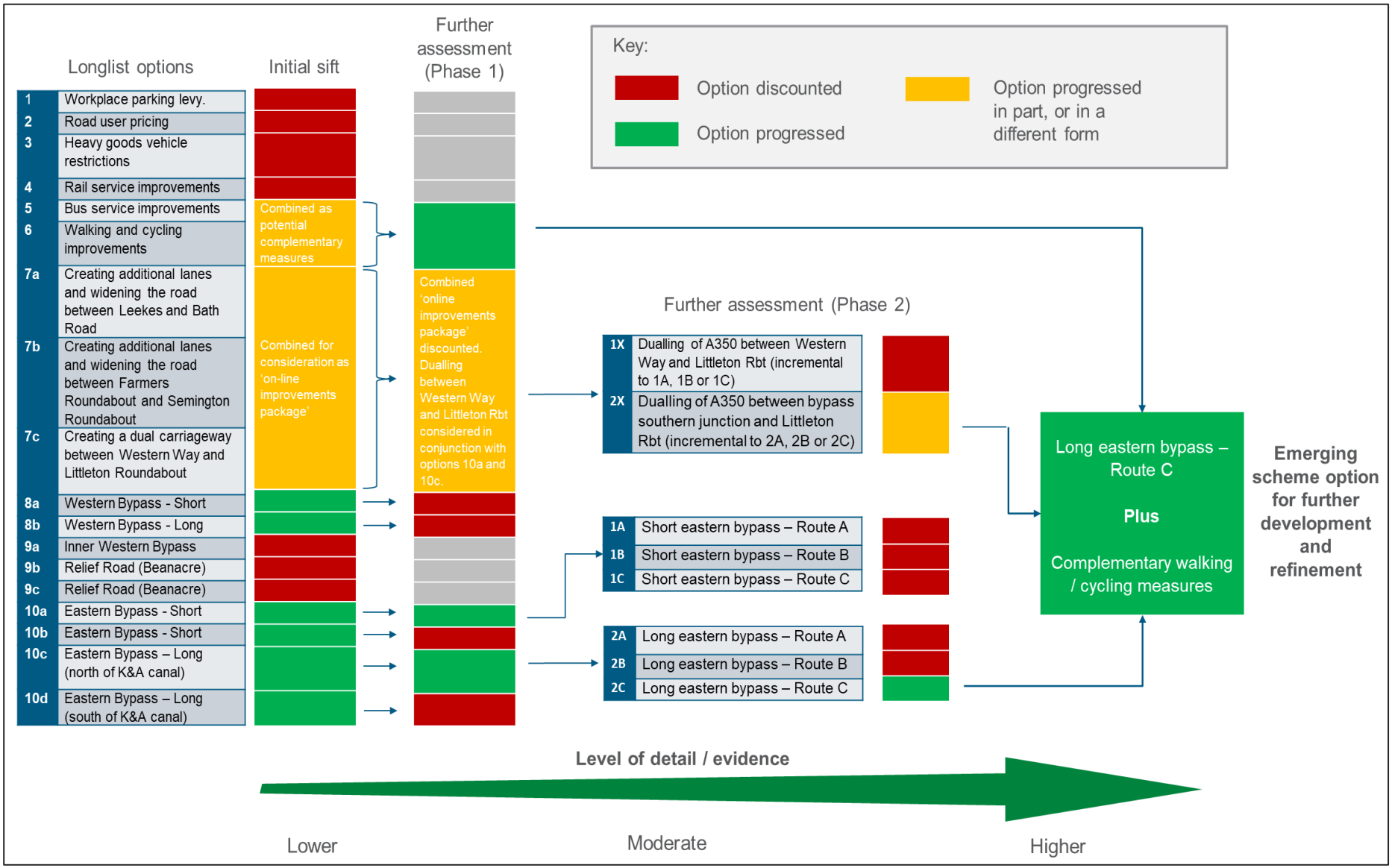


2.11.2. Options sifting and assessment overview

The staged approach to options sifting and assessment sought to identify **better performing options** and progressively reduce the number of options under consideration. As the process progressed the level of analytical rigour and evidence applied increased. Where appropriate, options were also considered in combination.

An overview of the outcomes of the options sifting and assessment is provided in **Figure 2-54**.

Figure 2-54 – Overview of outcomes from the options assessment and sifting process



The options sifting and assessment process narrowed the longlist of options down to two:

- **Option 10c** – a full bypass to the east of Melksham, with a southern connection to the A350 north of Littleton Roundabout; and
- **Option 10a** – a shorter, partial bypass to the east of Melksham connecting into the existing Eastern Way (at the A3102).

Options 10a and 10c were then considered in more detail, including development of the indicative corridors into specific alternative route options.

The assessment concluded that a **full eastern bypass** (based upon Option 10c) was the most preferable option to progress, as:

- it **provides the best balance overall** in terms of the expected traffic benefits and impact across all scheme objectives, the scheme cost, environmental impact and deliverability;
- it demonstrates a **strong fit** with 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;
- it provides a **good level of flexibility** in terms of the specific route for the road, meaning that there are improved opportunities for future-proofing and avoidance of key constraints; and
- it is likely to provide a **higher overall value for money** compared to other options.

The assessment also concluded that **a complementary package of walking and cycling measures** should be considered in conjunction with the bypass scheme (see Section 2.7.5). In particular, scope was identified to enhance east/west access between the town and the rail station and other land uses to the west of the A350.

A summary of the reasons for discounting options is provided in Section 2.11.3. The development of the preferred option is detailed in Section 2.11.4.

2.11.3. Options discounted

A summary of the reasons for discounting options is provided in **Table 2-17**. Full details can be found within the OAR.

Some general points of note include:

- The sifting and assessment process identified that the **non-road based options (as standalone options) were unlikely to deliver the scale of impact required** across the specific scheme objectives. It should be noted that this does not imply that these options would not have merit as part of a wider transport strategy.
- In general, the **longer bypass options (to the west and east of Melksham) demonstrated a higher scale of impact** in terms of potential for journey time improvements and traffic relief, although at a higher cost.
- Some **significant delivery challenges were identified in relation to the bypass options to the west of Melksham** which would require multiple structures for crossings of the River Avon and other floodplains, and the TransWilts rail line. These factors also contribute to likely higher cost compared to equivalent options to the east, but with broadly similar benefits and impacts across other assessment criteria.
- All bypass options were assessed as likely to result in at least slight adverse environmental impacts, with more significant impacts generally associated with the longer bypass options. Scope was identified for environmental mitigation to be incorporated into any further option development, as more information and survey data become available.

Table 2-17 – Summary of options discounted

Option		Description	Stage discounted	Summary of reasons for option not being progressed
1	Workplace parking levy.	Non-road-based demand and traffic management measure.	Initial sift	• Nearly 70% of people during the first consultation scored it very low on their list of preferred options. • Would need to be combined with a residential parking scheme. • Potential negative impact on the local economy. • Doesn't directly address journey times, collisions, severance or produce improved connectivity.
2	Road user pricing	Non-road-based demand and traffic management measure.	Initial sift	• Just over 50% of people during the first consultation chose it as their least preferred option. • Doesn't address the scheme's objectives. • Likely to be associated with negative impacts on the economy. • Potential adverse equality and inclusion impacts. • Traffic avoiding the charge could negatively impact local communities. • High operating cost.
3	Heavy goods vehicle restrictions	Non-road-based demand and traffic management measure.	Initial sift	• A relatively low-cost option that could remove much of the HGV traffic from Melksham. However, it is not consistent with the policy for improving the corridor for HGV traffic. • Some risk of adverse economic impact (e.g. increased costs to businesses / hauliers). • Challenging to implement and with limited flexibility as there is a lack of alternative suitable routes for HGVs. • Whilst providing some benefits to those living adjacent to the A350 through Melksham, it is likely to be a case of moving the issue elsewhere.
4	Rail improvements	Non-road-based public transport	Initial sift	• A good fit with wider policy outcomes. However, it is not expected to achieve the scale of impact required to significantly address the scheme objectives. • Further increasing frequencies is likely to require significant infrastructure improvement (e.g. double track). • The option is however likely to have a role to play as part of the wider strategy for the A350 corridor, Melksham and West Wiltshire. • The emerging bypass option could support / enhance use of rail by facilitating improved access to Melksham rail station.

Option		Description	Stage discounted	Summary of reasons for option not being progressed
5	Bus improvements	Non-road-based public transport	Initial sift (as standalone option)	• A good fit with wider policy outcomes. However, the relatively frequent bus services that already exist on the main inter-urban routes provide limited scope for further improvements without ongoing revenue support. • As a standalone option, it is expected to have a modest impact on journey times and traffic reduction. • The emerging bypass option could support / enhance bus travel by reducing traffic and improving journey times / reliability on the existing A350.
6	Walking and cycling improvements	Non-road-based active modes.	Initial sift (as standalone option) Included as part of Preferred Option	• Expected to influence trips of a more local nature and as a standalone option in isolation it is considered unlikely to deliver the scale of impact required against the A350 Melksham scheme objectives. • However, walking and cycling improvements were well supported in the first consultation and support outcomes such as health and well-being. We are considering a potential package of complementary walking and cycling measures in conjunction with the emerging bypass option, building upon the expected benefits from reduced traffic levels on the A350 and other routes.
7a	Improvements to the existing A350 road between Leekes and Bath Road	Road-based option - additional lanes and widening, junction improvements	Initial sift (as standalone options) Further assessment (as a combined option)	• As individual, standalone options, potential benefits are considered to be relatively modest in relation to the current and future transport problems and issues identified. • We also considered 7a / 7b / 7c as a combined option. There is potential to deliver some capacity and journey time improvements. However, the scale of impact is expected to be limited by existing speed restrictions, land and property constraints on the more built up sections of the A350, and the need to balance the needs and safety of different users of the A350, including pedestrians and cyclists. There is reduced flexibility with this option and it offers less opportunity for future-proofing, compared to some of the bypass options for instance. • Does not address severance issues, particularly on the A350 to the north of the town, as traffic would continue to use the existing A350. The need to maintain traffic flow, speeds, and reliability on the A350 would present challenges for implementing enhanced provision for pedestrians and cyclists. • Compared to the likely scale of benefits it is considered that these options would offer lower overall value for money. • The assessment did identify potential for Option 7c to be considered in conjunction with the emerging bypass option to provide a targeted increase in capacity on the A350 route at the point where traffic converges leaving or joining the bypass.
7b	Improvements to the existing A350 road between Farmers Roundabout & Semington Roundabout	Road-based option - additional lanes and widening, junction improvements		
7c	Improvements to the existing A350 road between Western Way and Littleton Roundabout	Road-based option - additional lanes and widening, junction improvements		

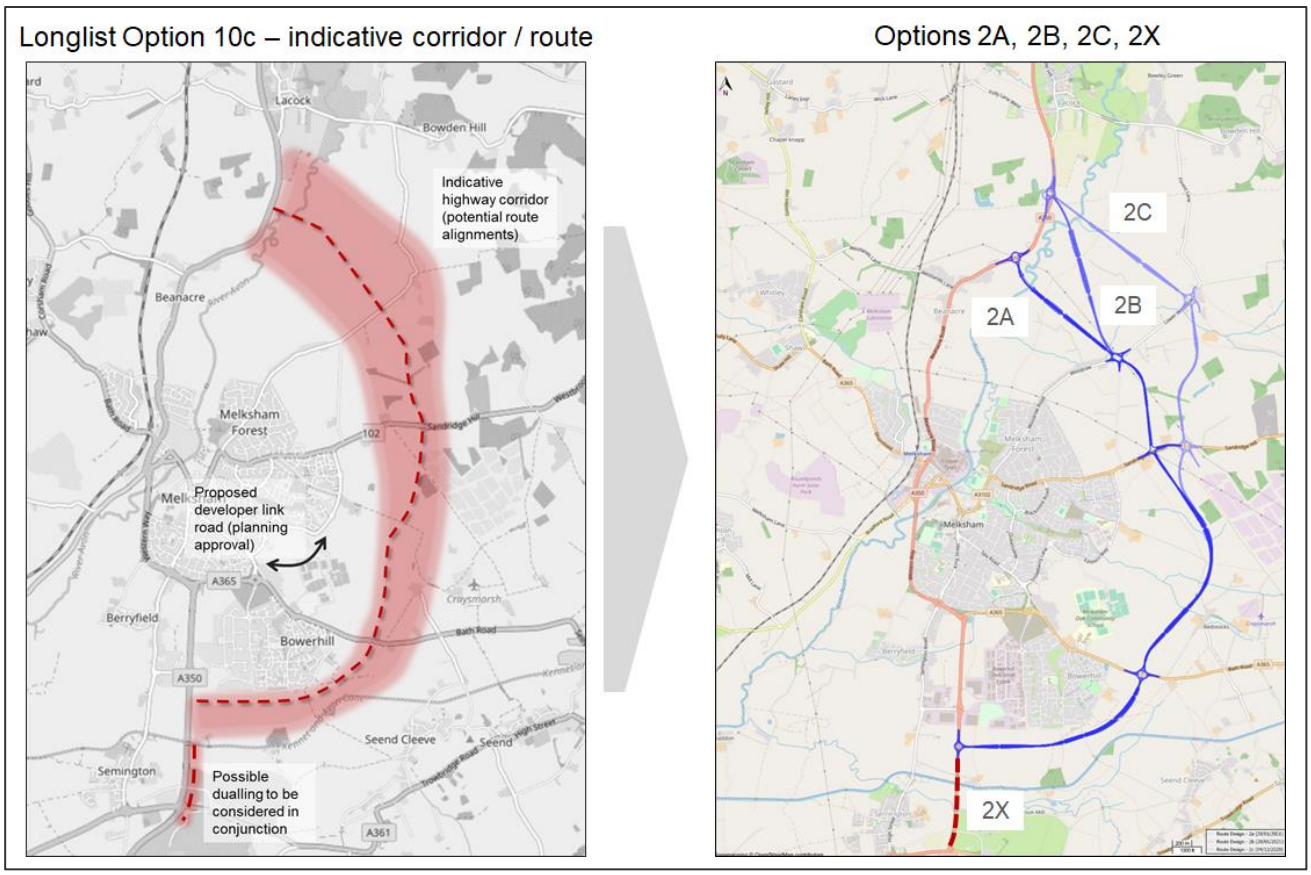
Option		Description	Stage discounted	Summary of reasons for option not being progressed
8a	Western Bypass - Short	Road-based option. Provides a bypass link to the west of Melksham Town between the A350 north of Beanacre and the A350 Western Way.	Further assessment	• Performs well against the primary scheme objectives, but despite offering the greatest traffic benefits of the shorter bypass options, the high cost, delivery challenges and technical complexity are considered to make this a less viable option. • The route would directly impact Whitley Golf Course and Roundponds Farm Solar Park. • The multiple and / or large structures required for rail, road and floodplain crossings present additional technical challenges and environmental risk. Two crossings of the railway line are required. • Constraints within the corridor mean there is less flexibility to avoid impacts on surrounding properties, such as around A365 Bath Road and the village of Shaw. • In the first consultation, western route options received lower levels of support than eastern options.
8b	Western Bypass - Long	Road-based option. Provides a full bypass to the west of Melksham Town between the A350 north of Beanacre and the A350 south of Hampton Park (Bowerhill).	Further assessment	• Performs well against all of the primary scheme objectives and whilst expected benefits are similar to Option 10c (long bypass to the east), it has a higher estimated cost (highest of all options) and greater technical and environmental risk in comparison. It is therefore a less viable option and likely to offer lower overall value for money. • Like option 8a, the route corridor faces a number of constraints which present some significant delivery challenges (and contribute to the high cost). • In the first consultation, western route options received lower levels of support than eastern options.
9a	Inner Western Bypass	Road-based option. Provides a shorter bypass to the west of Melksham Town, similar to option 8a.	Initial sift	• Expected to have a moderate impact with regards to the scheme objectives, but the expected scale of cost, technical feasibility challenges and potential environmental impact related to required floodplain and rail and road crossings mean that this is not considered to be a viable option.
9b	Relief Road West	Road-based option. Provides a partial bypass between the north side of Beanacre and A365 Bath Road.	Initial sift	• These options avoid Beanacre but then re-join the A350 at the Bath Road junction, thus putting a significant volume of traffic back onto the A350 north of Farmers Roundabout. • Expected to only have a minor impact with regards to the scheme objectives, along with limited flexibility, high technical risks, and potential environmental impacts, including the route between Southbrook Road and the rail line which is prone to flooding and could have an adverse impact (noise, air quality, flooding) on residences in Southbrook Road.

Option		Description	Stage discounted	Summary of reasons for option not being progressed
9c	Relief Road East	Road-based option. Provides a partial bypass between the north side of Beanacre & A365 Bath Rd.	Initial sift	• Due to the technical challenges the cost is expected to be high in relation to the scale of impact / benefits. • These options had the lowest levels of support (of the road options) in the first consultation.
10a	Eastern Bypass - Short	Road-based option. Provides a new link between the A350 north of Beanacre and the existing Eastern Way distributor road (at the A3102).	Further assessment	• This option underwent detailed assessment alongside Option 10c as a potential lower cost alternative to a full eastern bypass. • Whilst the option has a lower cost than the full eastern bypass option and some of the environmental impacts are not as significant, the scale of the expected traffic benefits is also substantially less. This means the overall value for money is expected to be lower. • Traffic modelling predicts significant traffic increases on existing parts of the road network, such as at Spa Road and Eastern Way, which could lead to local traffic impacts. • The option requires delivery of an extension to Eastern Way, currently planned to be implemented as part of a housing development. This creates an additional delivery risk. • The shorter eastern bypass options (10a and 10b) received lower levels of support compared to the longer bypass options from the first consultation.
10b	Eastern Bypass - Short	Road-based option. Provides a new link between the A350 north of Beanacre and the existing Eastern Way distributor road.	Further assessment	• Expected to provide slightly greater traffic benefits than Option 10a, but with a higher cost, a greater loss of farmland, and potential visual / amenity impacts around Sandridge Common. • The option also received slightly less support than 10a through the first consultation exercise.
10d	Outer Eastern Bypass - Long	Full bypass to the east of Melksham Town, crossing the Kennet & Avon canal at the southern end and connecting to the A361.	Further assessment	• Performs well against the primary scheme objectives and with similar traffic benefits to Option 10c However, it has a higher estimated cost and additional environmental impacts are likely, particularly in relation to the crossing of the Kennet and Avon canal and Semington Brook at the southern end of the route. • The option was the least preferred of the bypass options during the first consultation with some significant objections being raised, particularly in relation to the potential environmental impact.

2.11.4. Development of the Preferred Option ('emerging route')

The indicative corridor for Option 10c was developed into **three potential alternative route alignments** (2A / 2B / 2C) in order to facilitate more detailed assessment **(Figure 2-55)**. This process involved consideration of factors such as: land use, key environmental features; design standards and feasibility; structures; and junctions. The assessment process found there could also be a case for dualling the short section of the A350 south of the bypass to Littleton Roundabout (with junction improvements) in combination with the bypass. This potential additional component is referred to as Option 2X.

Figure 2-55 – Development of Option 10c



Following further traffic modelling, environmental assessment and feasibility design, **Option 2C was identified as the most suitable** taking into account factors such as deliverability, risk, acceptability, and cost. Option 2C results in less direct impact on properties around Lower Woodrow Road / New Road and the A3102. It also offers more flexibility as the route is less constrained, meaning there is greater scope to accommodate potential environmental mitigation measures as well as allowing for potential dualling in the future.

The assessment recognised that there were opportunities to improve the prospects of achieving a more favourable value for money position, including through value engineering, to reduce costs, and further optimisation of the scheme to enhance the overall benefits

Further scheme refinement ('emerging route')

Some further design refinement was carried out on Option 2C to arrive at the 'emerging route' (as presented in section 2.7, and which was subject to consultation in Summer 2021). This included:

- **Relocating the northern A350 junction slightly further north**. This assists with mitigating impacts on the Roman Road that runs east-west at this location. It also addresses existing traffic and safety issues at the existing A350 junction to the south of Lacock.
- **Removing the junction of the bypass with Lower Woodrow Road** and diverting the existing road northwards over the bypass. Lower Woodrow road is a lightly trafficked, narrow rural road. Traffic modelling indicated that the provision of a junction could increase the risk of 'rat-running' with undesirable consequences for residents within this area. Some adjacent properties at this location would also have

been more significantly affected by the footprint required for a junction. Furthermore, the National Cycle Network route 403 runs along Lower Woodrow Road. The alternative arrangement means that cyclists can cross over the bypass via a bridge with no need to navigate a new junction.

2.12. Scheme impacts and outcomes

The Strategic Case for the A350 Melksham Bypass scheme has demonstrated that:

- There is a **clear and strong strategic context and rationale** supporting the scheme, including strong alignment with:
  - Wiltshire Council's strategic approach to the upgrading of the A350 corridor (including other MRN schemes at Chippenham and M4 Junction 17) as a primary route connecting several of its key towns.
  - Strategic priorities of the Western Gateway STB and the Swindon and Wiltshire Local Enterprise Partnership to enhance north-south connectivity within the region and to facilitate further housing and jobs growth within the A350 Growth Zone
  - Wiltshire Council's emerging Local Plan Review (to 2036), with a continued focus of housing delivery within the West Wiltshire towns in the A350 corridor.
  - National priorities relating to improvement of the MRN.
  - National Highway's strategic study for the M4 to Dorset Coast Connectivity (as part of RIS2).
  - Local priorities and outcomes for Melksham and the surrounding area, including town centre regeneration, access to services and health and wellbeing.
- There is **good evidence of existing and future issues** in relation to: journey times and delays; journey time reliability; safety; severance; noise disturbance; and air quality.
- There are **clear, well-defined objectives** for what the scheme is seeking to achieve.
- A **range of options have been considered** to arrive at the preferred option, with stakeholder input informing this process.
- The scheme **scope is well-defined and sufficiently developed** to understand the key scheme impacts.
- The scheme is **not dependent** upon other schemes, projects or programmes; rather it would complement the proposed MRN A350 schemes at Chippenham and M4 Junction 17.

This section concludes the Strategic Case by presenting a summary of the expected impact of the scheme against each of the five objectives (as identified in Section 2.6), and the resultant wider impacts at a strategic and local level.

Full analysis of the scheme impacts, and assessment of its value for money, is addressed within the Economic Case.

2.12.1. Delivering against objectives

Figure 2-56 demonstrates that the A350 Melksham Bypass scheme is expected to be effective in addressing all five transport objectives and will benefit a wide range of transport users and non-transport users.

Figure 2-56 – A350 Melksham Bypass – objectives, impacts and beneficiaries

A350 Melksham Bypass objectives	A350 Melksham Bypass impacts (direct)	Who benefits?
Reduce journey times and delays, and improve reliability on the A350 through Melksham and Beanacre.	• Average journey times between Semington (south of Melksham) and Lacock (north of Melksham) are forecast to be reduced by an average of 2.6 minutes per vehicle during the day (0700 to 1900, 2036 forecast year), based on the bypass route. Average speeds are predicted to increase by 21kph. • The greatest journey time savings are forecast for the southbound direction during the AM peak period (a reduction of 3 minutes). • Additionally, with the bypass the journey times on the existing A350 route are also predicted to reduce by an average of 1.3 minutes per vehicle during the day.	• Commuters between West Wiltshire towns • Longer distance business / commuter travel (e.g. to M4) • Freight / hauliers • Leisure / tourist journeys
Reduce journey times and delays and improve journey reliability on the following routes through Melksham: A350 South – A3102; A365 West – A365 East; A350 South – A365 West	• Average journey times on other routes through Melksham are predicted to reduce by 0.8 to 2.2 minutes per vehicle on average. • The route between A350 south of Littleton Rbt (Semington) to A3102 (Westbrook) is predicted to experience the greatest journey time saving – a maximum of 2.6 minutes per vehicle in the eastbound direction for the PM peak period.	• Melksham residents going about daily activities • Commuters (e.g. to Bath / Calne) • Local businesses
Reduce the volume of traffic, including HGVs, passing along the current A350 route in northern Melksham and Beanacre to reduce severance, whilst avoiding negative impacts on other existing or potential residential areas.	• In the 2036 forecast year, the scheme is predicted to significantly reduce average two-way 12-hour AADT flows on the existing A350 route, by approximately 11,000 to 16,000 vehicles (equivalent to a 40% to 70% reduction). • Through Beanacre, two-way 12-hour AADT flows are predicted to reduce by 13,500 vehicles, including 950 HGVs. • Other parts of the local road network are also predicted to experience reductions in traffic as a result of the bypass: - Eastern Way (c. 7,000 vehicles) - Spa Road / High Street / Bank Street (c. 2,000 vehicles) - A3102, west of bypass (c.5,000 vehicles) - Hither Way, Lacock (c.4,000 vehicles) • Traffic volumes are predicted to increase by around 10% to 15% on the A350 at either end of the bypass route as a result of the bypass providing a quicker and more effective route, drawing some additional traffic from surrounding minor routes	• Melksham / Beanacre residents adjacent to the existing A350 • Melksham residents adjacent to other routes with traffic reduction • Pedestrians / cyclists
Reduce personal injury accident rates and severity for the A350 and Melksham as a whole, to make the corridor safer and more resilient.	• An overall reduction of approximately 250 to 580 collisions is predicted over a 60 year period; equivalent to a saving of approximately 4 to 10 collisions per year on average.	• All road users • Melksham residents and workers • Pedestrians / cyclists
Provide enhanced opportunities for walking and cycling	It is predicted that the scheme will reduce traffic volumes on the existing A350 north-south route by over 60%. This will reduce the east-west severance effect of the A350. The complementary walking and cycling measures seek to build upon this opportunity and lock in the benefits of traffic reduction due to the bypass. This will result in a better connected walking and cycling network for Melksham and encourage greater use of these modes.	• Melksham residents and workers • Rail users (access to / from station)

2.12.2. Outcomes and wider impacts

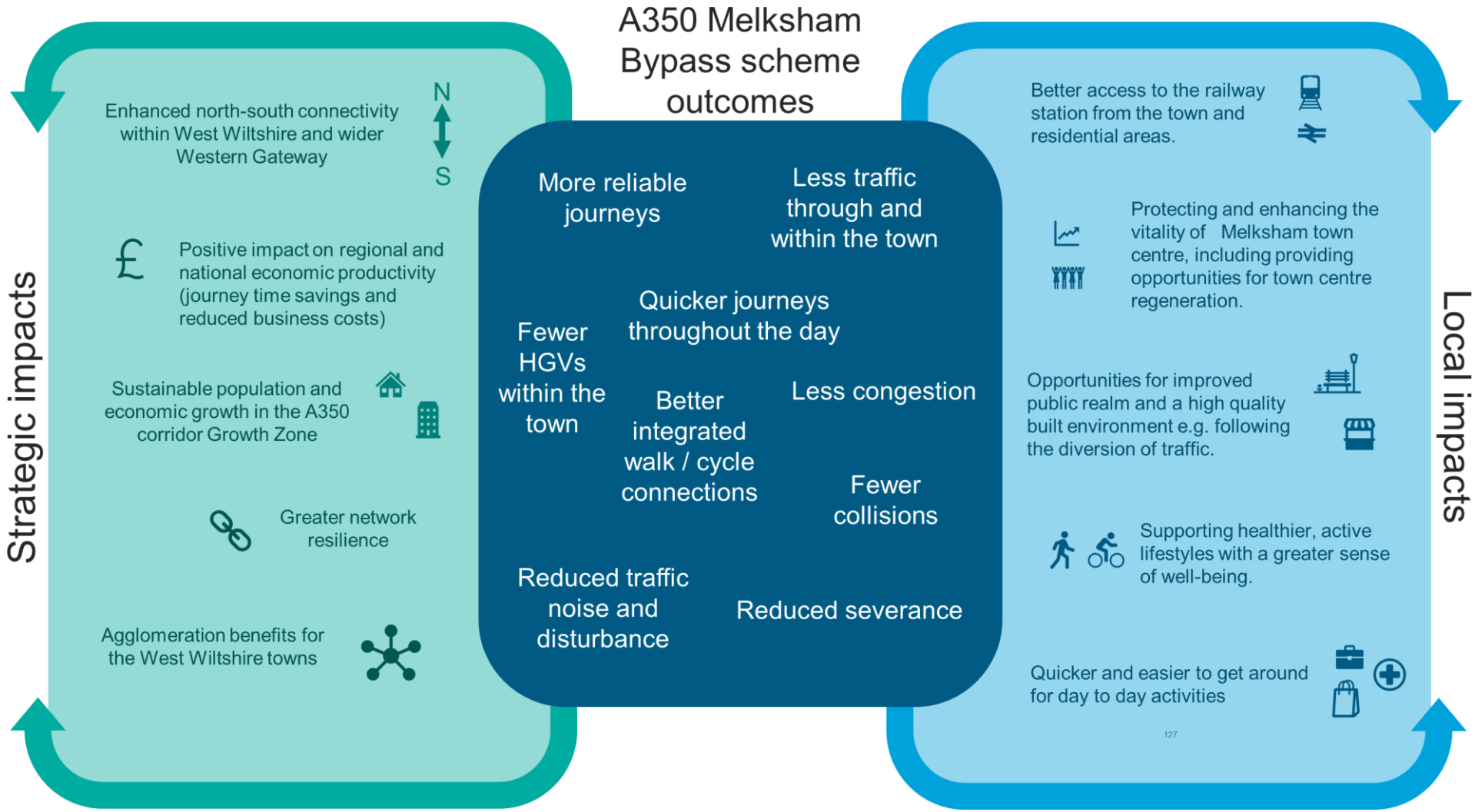
Figure 2-57 Illustrates how successful delivery against the key transport objectives is expected to result in a positive contribution towards relevant broader strategic and local outcomes (as identified within Section 2.6). The logic map **(Figure 2-2)** further demonstrates the relationship between the identified problems / issues and objectives, the scheme inputs / outputs, and its resultant outcomes and wider impacts.

Faster and more reliable journey times for the key A350 route resulting from the Melksham Bypass scheme will provide **improved north-south connectivity** for West Wiltshire and the wider Western Gateway region – a recognised priority for the Western Gateway STB and the local authorities within the region. In combination with further A350 MRN schemes promoted by Wiltshire Council at Chippenham and M4 Junction 17, this section of the A350 would be substantially upgraded to a standard more compatible with its strategic function and importance to the local economy and housing growth plans within the A350 Growth Zone.

Based upon the expected impacts from the scheme, it is further anticipated to have an **important role in supporting local outcomes for residents, businesses and workers** within Melksham and the surrounding area. In particular, the bypass scheme can facilitate **improved access to the town centre** (and other local destinations) by a variety of modes and **support local economic activity and town centre regeneration**. The removal of traffic from the town can support **more cohesive, stronger communities** and improved health and wellbeing, **ensuring that the town can continue to develop in a more sustainable manner**.

The Economic Case (Chapter 3) provides an assessment of a range of economic, social and environmental impacts (including a number of those identified above) in considering the overall value for money of the scheme.

Figure 2-57 – A350 Melksham Bypass impacts and outcomes



Economic Case

The Economic Case demonstrates the overall value for money for the A350 Melksham Bypass scheme. It considers the costs and benefits of the proposal, including both monetised and non-monetised impacts in terms of the economic, environmental and social impacts. The key conclusions are reported in the Value for Money Statement, including consideration of uncertainty around the scheme impacts.

3. Economic Case

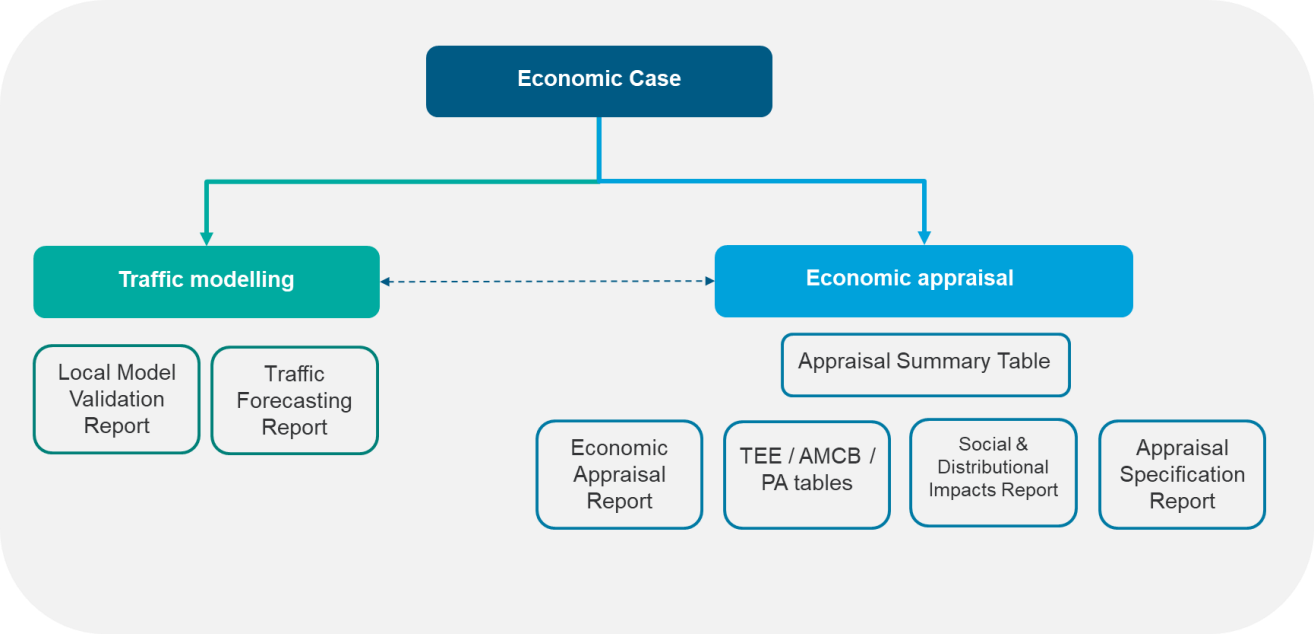
3.1. Introduction

In demonstrating the overall value for money of the A350 Melksham Bypass scheme, the Economic Case addresses the following elements:

Figure 3-1 – Structure of the Economic Case

The Economic Case is supported by a suite of related documents which provide full technical details in support of the key content and outputs contained within this chapter **(Figure 3-2)**.

Figure 3-2 – Key documents supporting the Economic Case



The Economic Case also directly relates to other parts of the OBC:

- The overall need for the scheme and the expected outcomes and benefits identified within the **Strategic Case** are evidenced through the economic appraisal (in monetary terms, or otherwise quantitatively / qualitatively);
- The scheme costs and funding information presented within the **Financial Case** are an important input to the value for money assessment; and
- The scheme delivery timescales set out in the **Management Case** define the profile of benefits and costs for the economic appraisal.

3.2. Economic Case overview

The key conclusions from the Economic Case are that:

- The scheme is assessed as having a **final Value for Money (VfM) category of 'Low-Medium'**.
- Based on the Core scenario, the scheme produces an Initial Benefit Cost Ratio (BCR) of 1.31, and an **Adjusted BCR of 1.55**.
- The Core scenario Adjusted BCR produces a 'Medium' VfM category. Potential factors such as higher traffic growth (including associated with the emerging Local Plan) and a more optimistic assessment of collision benefits would solidify a 'Medium' VfM. A 'Low' VfM is possible if greater weight is attached to the non-monetised adverse landscape and biodiversity impacts, and traffic growth is lower than expected.

A summary of other key points from the Economic Case is presented in **Table 3-1,** in relation to questions typically asked by decision-makers when considering the value for money of proposed investments[46].

[46] The typical questions are based on those presented within DfT guidance 'The Transport Business Cases' (DfT, January 2013).

Table 3-1 – Overview of the Economic Case

Key Economic Case content	Summary	Section reference
Have significant data and assumptions been presented transparently?	The sources of key data (principally traffic modelling, from the Wiltshire Transport Model) and assumptions underpinning the economic appraisal are clearly identified. More detailed information relating to data and assumptions can be found in the respective modelling and appraisal technical reports.	3.5 3.7
What is the scope for challenge about the approach undertaken, including both the appraisal and transport modelling	The overall economic appraisal and transport modelling approach is considered to be standard for a highway scheme of this nature and consistent with TAG. The WTM has been demonstrated to be a suitably robust modelling tool for the purposes of assessing the scheme (e.g. within the LMVR). There is a good degree of confidence around the appraisal techniques applied, which are well recognised and accepted.	3.5 3.7 LMVR (Appendix B1)
Have the caveats and limitations associated with the approach undertaken been appropriately described?	At a general level, the appraisal is based on TAG Databook v1.15 (current at the time), whilst the transport modelling is based on TAG Databook v1.14 (which was the prevailing version at the time of the modelling exercise). The implications of this have been considered, and are not deemed to be significant in the context of the overall scheme appraisal. The modelling has a 2018 base year. Potential implications of the Covid-19 pandemic are considered through the sensitivity testing. Key uncertainties, risks or limitations are identified for each specific impact appraised, where relevant.	3.5 3.7 3.9
Have all relevant impacts including economic, social, environmental and tax benefits and costs been included in the analysis and clearly reported?	All relevant impacts are assessed and reported, either in monetised form or as a qualitative assessment. Option values and Non-use values, dependent development and employment effects have not been assessed.	3.7 3.9 to 3.12 AST (Appendix B4)
Have impacts been quantified and monetised where possible?	All impacts typically assessed in monetary terms have been addressed for the Core scenario and the outputs of these are reflected within the BCR and value for money assessment.	3.9
Have non-monetised impacts been appropriately considered?	Separate qualitative assessments, in line with TAG, have been completed for all relevant non-monetised environmental and social impacts. The outputs have been taken into account in the overall value for money assessment.	3.11 & 3.12
To what extent have the benefits outlined in the strategic dimension been accounted for?	The Economic Case presents evidence demonstrating that the impacts of the scheme align with the rationale and logic established via the Strategic Case. It also identifies how the outcomes relate to relevant parts of the economic appraisal.	3.4 & 3.6

Key Economic Case content	Summary	Section reference
Have potential distributional impacts on key social groups been assessed?	A Distributional Impacts Appraisal has been completed, with the associated assessment scores included within the AST. All impacts have been assessed as beneficial, with the exception of personal affordability.	3.13 DI Report (Appendix B8)
Have significant political, economic, social, behavioural, and technological uncertainties been reflected in the analysis?	The Common Analytical Scenarios are not due for release until early 2022. The uncertainty and sensitivity analysis includes a qualitative consideration of these uncertainties. In terms of economic uncertainty, separate 'low growth' and 'high growth' scenarios have been considered in line with TAG M4. These result in a +/- 20% variation to the total PVB compared to the Core (i.e. the scheme is equally sensitive to higher or lower economic growth).	3.14
Have the potential impacts of other transport and non-transport investments in the local vicinity been considered?	An alternative scenario has been assessed which includes other proposed MRN improvements within the A350 corridor (at Chippenham and M4 Junction 17). The resultant value for money is shown to be similar to the Core scenario.	3.14
Has the impact of uncertainty around local housing and population growth been addressed?	Alternative scenarios have been assessed to reflect the emerging Wiltshire Local Plan (to 2036). Scenarios with and without additional transport mitigation have been considered. Compared to the Core, the Local Plan scenario with mitigation produces an enhanced BCR, comparable to the 'high growth' scenario.	3.14
Has sensitivity testing been conducted to reflect potential uncertainty around the scope and timing of the scheme?	The extent of potential variation to the scheme scope has been considered in a qualitative manner. Based on the known most likely / possible changes to scheme design these are not expected to substantially impact the overall value for money assessment conclusions (based on information available at the present time).	3.14
Have uncertainties around key appraisal and modelling assumptions been considered and, where proportionate, tested in the analysis?	Key uncertainties around assumptions have been identified and considered through 'switching values' assessment. This includes assumptions around values of time and scheme costs.	3.14
Have all monetised impacts, non-monetised impacts and sensitivities been included in the VfM assessment?	The VfM assessment considers each of these components in turn, starting with the Adjusted BCR. The associated VfM category is 'medium'. Based on other non-monetised impacts and sensitivities a final VfM category of 'low to medium' has been determined. The reasons associated with this are documented.	3.15
is the VfM statement consistent with departmental guidance?	The VfM statement is prepared in line with DfT guidance.	3.15

3.3. Options appraised

3.3.1. Options development

The Strategic Case sets out the background and history to **options development** (section 2.11) which has been **an iterative process** over a number of years. A wide range of potential solutions have been considered, including **non-road based options** such as public transport, active travel and demand management measures. Options have been assessed **in accordance with DfT guidance** and against criteria in line with the five cases, including: **fit with strategic objectives**; **cost**; **value for money** and **deliverability**. These assessments have been used to identify the most viable and better performing options which have been the subject of more detailed investigation.

The original Strategic Outline Business Case submission (2017) shortlisted **three road-based options** from a longlist: a short bypass option to the east of Melksham; an intermediate bypass option to the east of Melksham; and a long bypass option to the east of Melksham. The SOBC presented an initial appraisal of these options.

In 2019, the SOBC was updated including the appraisal of the shortlisted options. The intermediate bypass option was omitted, due to it performing less favourably in the previous appraisal. Of the two remaining options, the 2019 SOBC appraisal identified that the **long bypass option to the east of Melksham** had greater scope to provide the stronger case and better overall value for money.

For the OBC, a comprehensive review and update of the options development process has been undertaken; this is summarised within the Strategic Case and documented in full within the Options Assessment Report (OAR). This process supported the general conclusions from the 2019 SOBC and therefore more detailed development and assessment of the short and long bypass options was undertaken, including further design work, economic appraisal and environmental assessment. Based on the outcomes of this assessment, the OAR concluded that:

- the evidence suggested that **the short bypass option was unlikely to provide a viable option**, and
- the **long bypass option should be progressed** for further development – it demonstrated a strong fit with scheme and wider strategic objectives, with scope to further optimise the value for money (through scheme costs and benefits).

Options have been subject to consultation, including two public consultation exercises undertaken by Wiltshire Council during the OBC development.

3.3.2. Options appraised for the Economic Case

This Economic Case for the OBC presents the full appraisal of the A350 Melksham Bypass Preferred Option (based on the current 'emerging route') - a long bypass to the east of Melksham, as described within **section 2.7** and illustrated in **Figure 2-41**.

The scheme comprises:

- A **full eastern bypass**, single carriageway (60mph), approximately nine kilometres in length and with four junctions;
- **Modifications and enhancements to Public Rights of Way** along the bypass route;
- **Supplementary highway improvement works** to the adjacent network; and
- **Complementary walking and cycling measures** within Melksham Town and around the existing A350 route.

The scheme scope is based on an emerging alignment / route and design which has been subject to public consultation. Variations to the route are possible. Known potential variations are considered unlikely to significantly impact the economic case[47], and this is considered through the assessment of appraisal uncertainty **(section 3.14)**.

3.4. Scheme rationale and scope of impacts

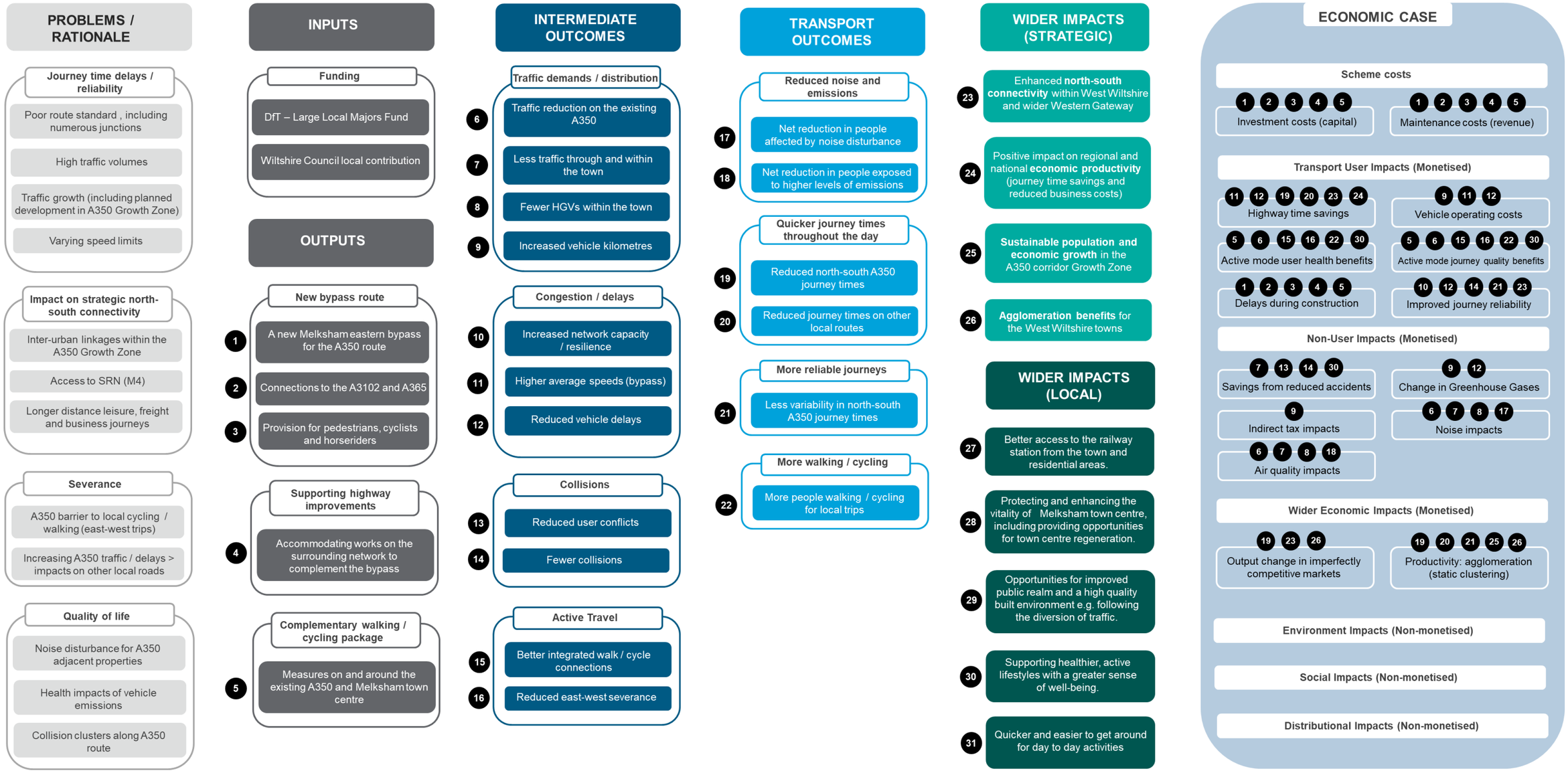
The A350 Melksham Bypass scheme represents a substantial improvement to one of Wiltshire's primary routes which links significant clusters of economic activity and housing / jobs growth sites. It addresses existing and

[47] Key potential route variants were considered through the updated OAR.

future congestion issues and contributes to both strategic and local outcomes. At the strategic scale it will enhance north-south regional connections between the M4, West Wiltshire and beyond to the south coast. At the local scale it also tackles traffic-related severance, noise and safety concerns and supports sustainable development and regeneration of Melksham town.

Figure 3-3 provides a summary of the logic flow which is covered in detail within the Strategic Case. The linkages between the scheme inputs, outcomes and impacts and the relevant parts of the economic assessment (as covered within this chapter) are identified. This ensures that the Economic Case is considered within the context of the wider business case.

Figure 3-3 – A350 Melksham Bypass logic flow and relationship to Economic Case



3.5. Transport modelling and scenarios

3.5.1. Wiltshire Transport Model

Transport modelling underpins much of the assessment and appraisal of scheme impacts reported within the Economic Case. The selection of an appropriate modelling tool has taken into account the nature of the scheme and its expected impacts. The **Wiltshire Transport Model** (WTM) is a highways-based SATURN model (full Variable Demand Model) with a base year of 2018. It has been developed from the A303 Stonehenge / South West Regional Transport model originally built by Highways England. The WTM includes improvements to the network and demand in the Wiltshire area and has been developed in accordance with TAG guidance. It is the primary strategic tool to assess and appraise infrastructure schemes and development planning within the Wiltshire region; it has been used to provide the transport evidence for Wiltshire Council's Local Plan Review and to support other business case submissions. For this OBC, the WTM has been further refined within the study area appropriate for the A350 Melksham Bypass scheme in order to further enhance its suitability.

3.5.2. Validation and calibration of base model

The model has been developed in accordance with DfT Transport Appraisal Guidance (TAG). For the purposes of this OBC, the WTM was reviewed in terms of its attributes, coverage, segmentation and level of detail with respect to the scheme study area. Full details of the model standards, development, Variable Demand Modelling (VDM) and realism testing are provided in the **WTM Local Model Validation Report** (LMVR) – Appendix B1. The LMVR demonstrates that the model provides a robust basis upon which to assess the impacts of the scheme.

A small number of refinements were made to enhance the validation and calibration of the model within the study area, including:

- Refinements to the speed flow curves for links representing rural roads / lanes;
- Refinements to signal timings for certain junctions; and
- Refinements to the zone connections at Bowerhill (south east of Melksham town).

3.5.3. Forecast modelling

Forecast models for 2026, 2036 and 2051 have been developed from the validated base model, in line with guidance from the DfT TAG units M2 (Variable Demand Modelling) & M4 (Forecasting & Uncertainty). Full details are documented in the **WTM Traffic Forecasting Report** (TFR) – Appendix B2.

- The forecast models are derived from assumptions regarding projected national and local uncertainties. These are used to scale the validated base year trip matrices (demand) to reflect a given forecast year, whilst the highway network is modified to encompass any proposed transport infrastructure schemes (supply).
- National uncertainty reflects national projections of population, employment, car ownership, GDP growth and fuel price trends. Assumptions regarding national travel cost projections (value of time and fuel costs) are based on the DfT TAG Databook v1.14 (May 2020)[48].
- Local uncertainty reflects local assumptions regarding committed / proposed developments and highway infrastructure schemes, as per the **Uncertainty Log**.
- Overall growth in forecast year demand is constrained to national projections, which is derived from the DfT National Trip End Model (NTEM) v7.2.
- Variable Demand Modelling (DIADEM) is applied to calculate changes in demand as a result of changes in travel times and costs. This can lead to car trip redistribution, trip generation, modal switch and changes in macro time period choice. The methodology is consistent with Appendix B of TAG Unit M2.

[48] Other areas of the economic appraisal are undertaken using TAG Databook v1.15, which was released in July 2021. As the transport modelling was largely complete at this point in time, it was not considered proportionate to update it with TAG Databook v1.15. Differences are considered to be minimal and not materially significant to the Economic Case.

3.5.4. Forecast years

Three forecast model years inform the assessment of scheme impacts:

- **2026** – representing the scheme opening year[49]
- **2036** – representing the planning horizon for the emerging Wiltshire Local Plan Review
- **2051** – representing the year farthest into the future which can reasonably be modelled (as per TAG unit M4)

3.5.5. Model scenarios

The use of different model scenarios allows the impacts of the scheme to be understood under alternative demand and supply assumptions. This enhances the robustness of the Economic Case. Six different scenarios are reported **(Table 3-2)**.

Table 3-2 – Transport modelling scenarios

Scenario	Description
'Core'	Including only committed or near certain developments and network changes (as per the Uncertainty Log), with overall growth constrained to TEMPro (Version 7.2)
'Core (Major Road Network)'	Including the A350 Chippenham Bypass Dualling (Phases 4 & 5) and M4 Junction 17 schemes, subject to approval of MRN funding (in both the Do Minimum and Do Something)
'Low Growth'	To reflect uncertainty around annual forecasts from the National Transport Model, tested in accordance with TAG guidance[50]
'High Growth'	
'Alternative Local Plan'	Reflecting the current land use proposals (housing and employment) of the emerging Wiltshire Local Plan Review (2016 – 2036)
'Alternative Local Plan + mitigation'	As above, plus additional transport mitigation (informed by the emerging Local Plan Review transport evidence base)

Table 3-3 provides a summary of the definition of each of the scenarios. Full details are provided within the Traffic Forecasting Report. Each scenario is tested without the A350 Melksham Bypass scheme ('Do minimum') and with the scheme ('Do something') in order to allow an assessment of the impacts attributable to the scheme.

[49] Since the modelling was undertaken the scheme opening year has changed to (early) 2028. This is not considered to have a significant impact on the Economic Case and a conservative approach has been taken to account for this within the appraisal (see section 3.7).
[50] TAG Unit M4, Section 4.2, using a p-value of 2.5%

Table 3-3 – Summary definition of model scenarios

Scenario	Core		Core (MRN)		High Growth		Low Growth		Alt Local Plan		Alt Local Plan + mitigation	
	DM	DS	DM	DS	DM	DS	DM	DS	DM	DS	DM	DS
Transport network (most relevant changes)												
A350 Farmers Rbt (Melksham) improvement scheme	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Eastern Way extension (Melksham)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
A350 Yarnbrook / West Ashton Relief Road	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
A350 Chippenham Bypass Dualling (Ph 4 & 5) - MRN	✗	✗	✓	✓	✗	✗	✗	✗	✗	✗	✓	✓
M4 Junction 17 capacity improvement - MRN	✗	✗	✓	✓	✗	✗	✗	✗	✗	✗	✓	✓
A350 Melksham Bypass	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
A350 Littleton Roundabout and dualling	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
A3102 / A342 junction signalisation	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
Transport demand												
Wiltshire Core Strategy sites	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Other ‘committed’ and ‘near certain’ developments	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wiltshire emerging Local Plan Review sites	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓
High growth (% of base demand **added to** core forecast) – 2026: +7% / 2036: +11% / 2051: +14%	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗	✗	✗
Low growth (% of base demand **subtracted from** core forecast) 2026: +7% / 2036: +11% / 2051: +14%	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

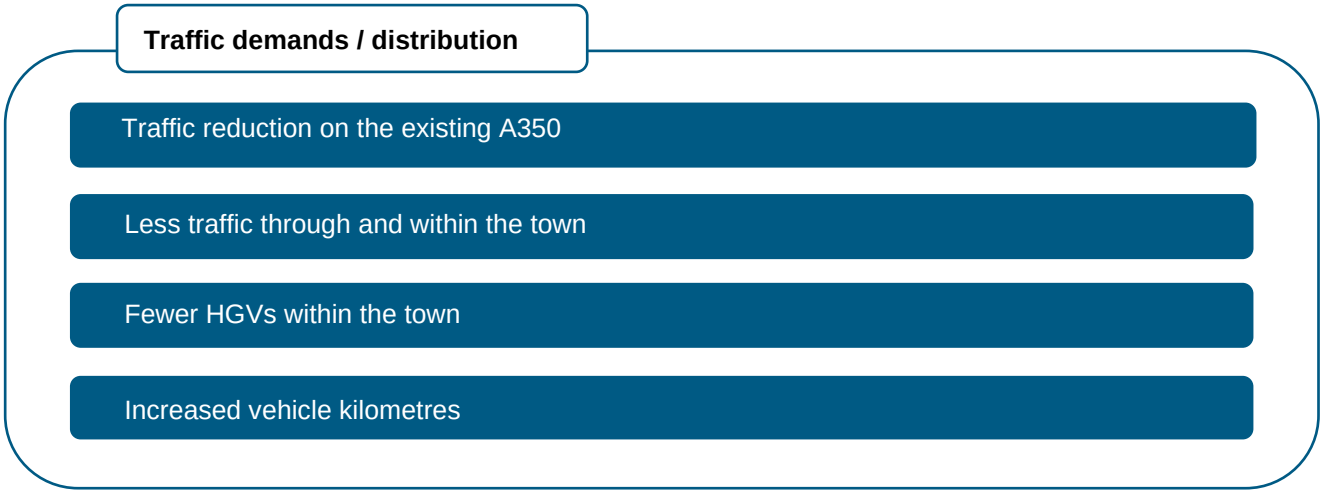
3.6. Transport impacts of the scheme

This section provides evidence around the expected transport impacts of the scheme, much of which is informed by the transport modelling (WTM). It provides a connection between the strategic rationale and logic relating to the scheme and the economic appraisal presented within this chapter. This supports the logic flow previously presented in **Figure 3-3**.

Most of the analysis presented within this section is based on the Core scenario 2036 forecast year; additional analysis (including for other scenarios[51]) can be found within the Traffic Forecasting Report and Economic Appraisal Report. It should also be noted that the WTM represents an average hour within each of the AM and PM 3-hour peak periods. Therefore, any trends and impacts would be further intensified in the true peak hours**.**

3.6.1. Impacts on traffic demands and traffic distribution

The scheme seeks to reduce the volume of traffic, including HGVs, passing along the current A350 route in northern Melksham and Beanacre to reduce severance, whilst avoiding negative impacts on other existing or potential residential areas.



Change in traffic flows

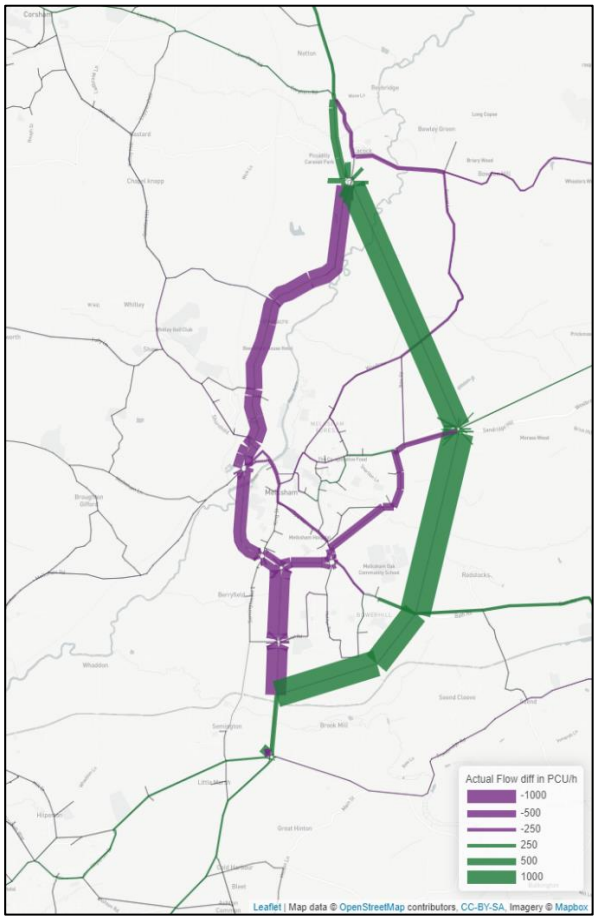
The scheme is expected **to significantly reduce traffic volumes along the existing A350 route.** At Beanacre and northern Melksham, where the severance and traffic impacts are most severe, the scheme is expected to result in a **67% reduction in AADT (all vehicles), and a 78% reduction in HGVs**.

Figure 3-4 Illustrates the predicted change in traffic flows as a result of the scheme for the AM, Inter-peak and PM peak average hours, for the 2036 forecast year. A similar pattern is evident across all time periods.

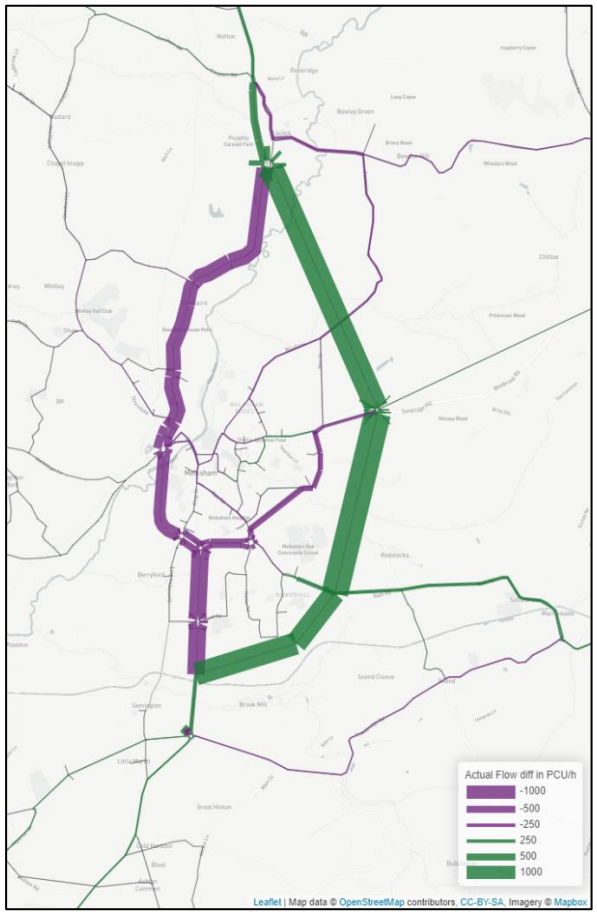
Figure 3-5 provides further details of the predicted Annual Average Daily Traffic (AADT) flow for 2036 (all vehicles and HGV only) on selected links within the study area, with and without the bypass.

[51] It should be noted that the Core scenario does not reflect the emerging Local Plan Review. The anticipated allocation of development sites is expected to further increase traffic demands on the A350 at Melksham given that the level of inter-urban movement currently observed would be expected to increase as a result of the additional housing. This is considered as an alternative scenario.

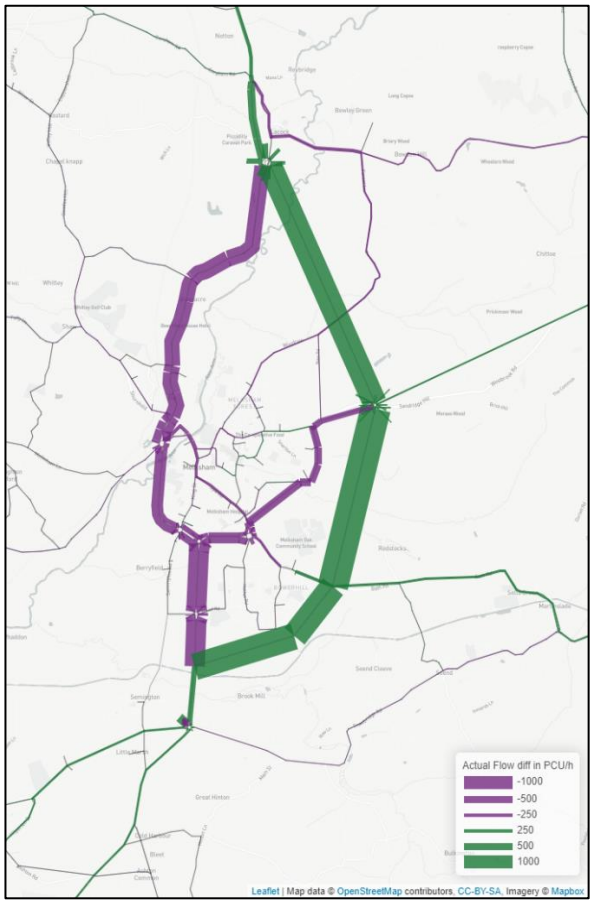
Figure 3-4 – Forecast traffic flow change (with scheme against without scheme, 2036)



AM average hour (0700 – 1000)

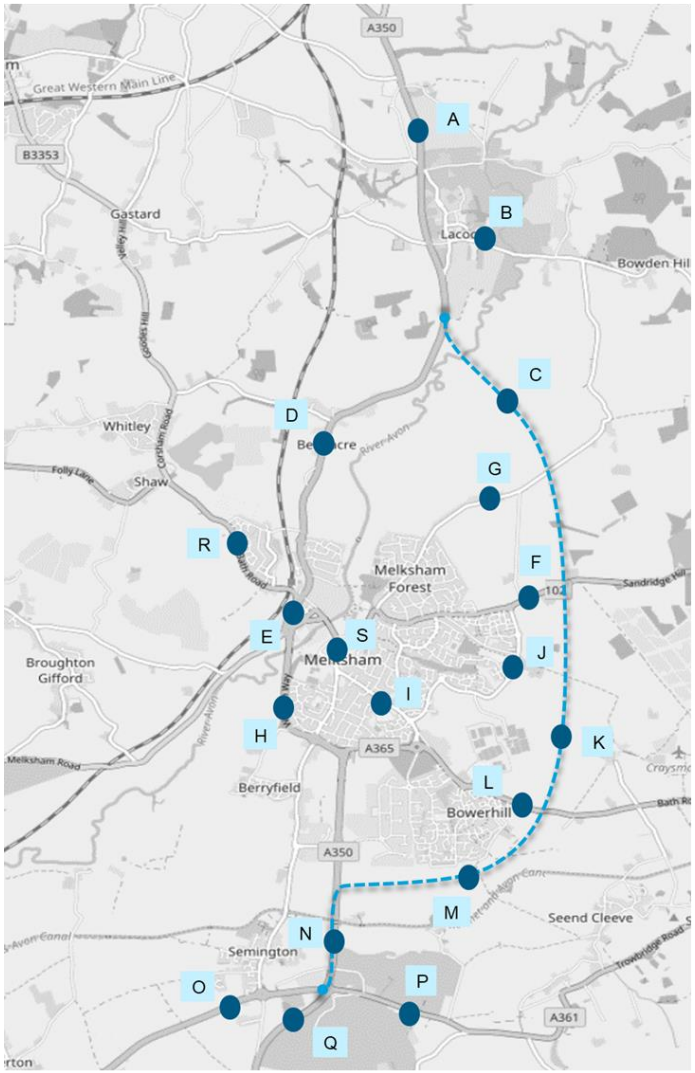


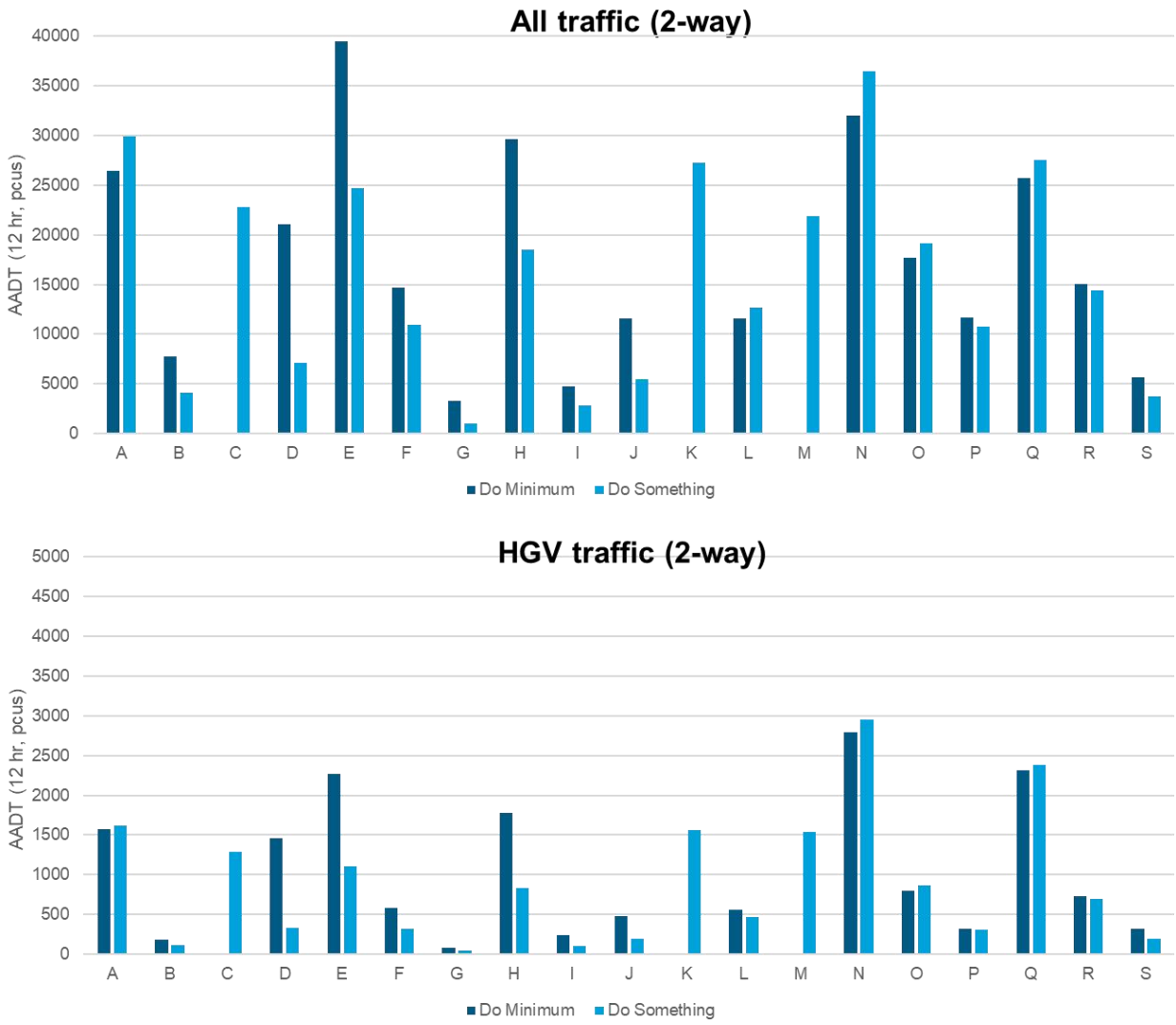
Inter-peak average hour (1000 – 1600)



PM average hour (1600 – 1900)

Figure 3-5 – 2036 forecast Annual Average Daily Traffic Flow (with and without the scheme)





Key impacts in relation to changes in traffic flow include:

- Along the existing A350 route at Melksham, the AADT is predicted to reduce by approximately 11,000 to 14,000 vehicles as **a result of north-south trips (including a large proportion of 'through-trips) diverting to the new bypass**. This equates to an approximate 40% reduction south of the A365 junction (locations E and H) and a 70% reduction north of the A365 junction (location D).
- To the north and south of the scheme (locations A, N and Q), traffic volumes increase by around 10% to 15%[52]. This is a result of some traffic predicted to re-distribute from other, more minor routes, to the bypass. The supplementary dualled section on the A350 to the south of the bypass (location N) responds to this.
- The bypass helps to reduce traffic on less suitable roads; examples include:
  - Traffic routing through central Melksham (locations I and S), including the High Street, is predicted to reduce by approximately 30% to 40%.
  - Traffic through the village of Lacock (location B), a conservation area, is predicted to reduce by almost 50% (3,650 vehicles).
  - Traffic along Woodrow Road (location G) is predicted to reduce by almost 70%.
- A significant reduction in traffic is predicted on Eastern Way (location J) and, to a lesser extent, the A3102 to the west of the bypass (location F). This reduction is associated with through traffic between the south of the town and the north east (towards Calne) re-routing onto the bypass.
- On a short section of the A365, just to the west of the bypass junction (location L), there is a predicted increase in total traffic of approximately 10% (although there is a reduction in HGV traffic of 15%). This is a result of traffic from the Bowerhill area being able to avoid travelling across the town to head north or south on the A350; instead, heading east to connect to the bypass route. The need for any additional mitigation on this section will be considered as part of further detailed scheme development.

Change in overall travel demand

Highway improvement schemes have the potential to induce additional trips as a result of a reduction in relative travel costs. This effect is forecast through the Variable Demand Model (VDM) component of the WTM. The scheme is predicted to result in a negligible change in highway trips across a 24-hour period (2036 forecast year, compared to the Do Minimum). The predicted change in public transport trips as a result of the scheme is also negligible.

In relation to overall vehicle kilometres travelled, this is also influenced by re-routing effects of the scheme and the fact that the bypass route is approximately 1.4 kilometres longer than the existing A350 route. Overall, the scheme is predicted to result in an increase of approximately 90,000 vehicle kilometres over the 12-hour period (equivalent to a 0.3% increase in total vehicle kilometres travelled)[53].

[52] At the northern end of the bypass, traffic volumes on the link immediately to the north of the bypass junction are shown to increase by approximately 40%. However, this is also a result of the model forecasting re-distribution of traffic from the parallel local route (location I) through the village of Lacock (i.e. the bypass assists with reducing 'rat-running'). For the A350 link north of Lacock the predicted increase in traffic is in line with the 10% to 15% range noted above.

[53] Based on links within the Area of Detailed Modelling.

3.6.2. Network capacity and performance

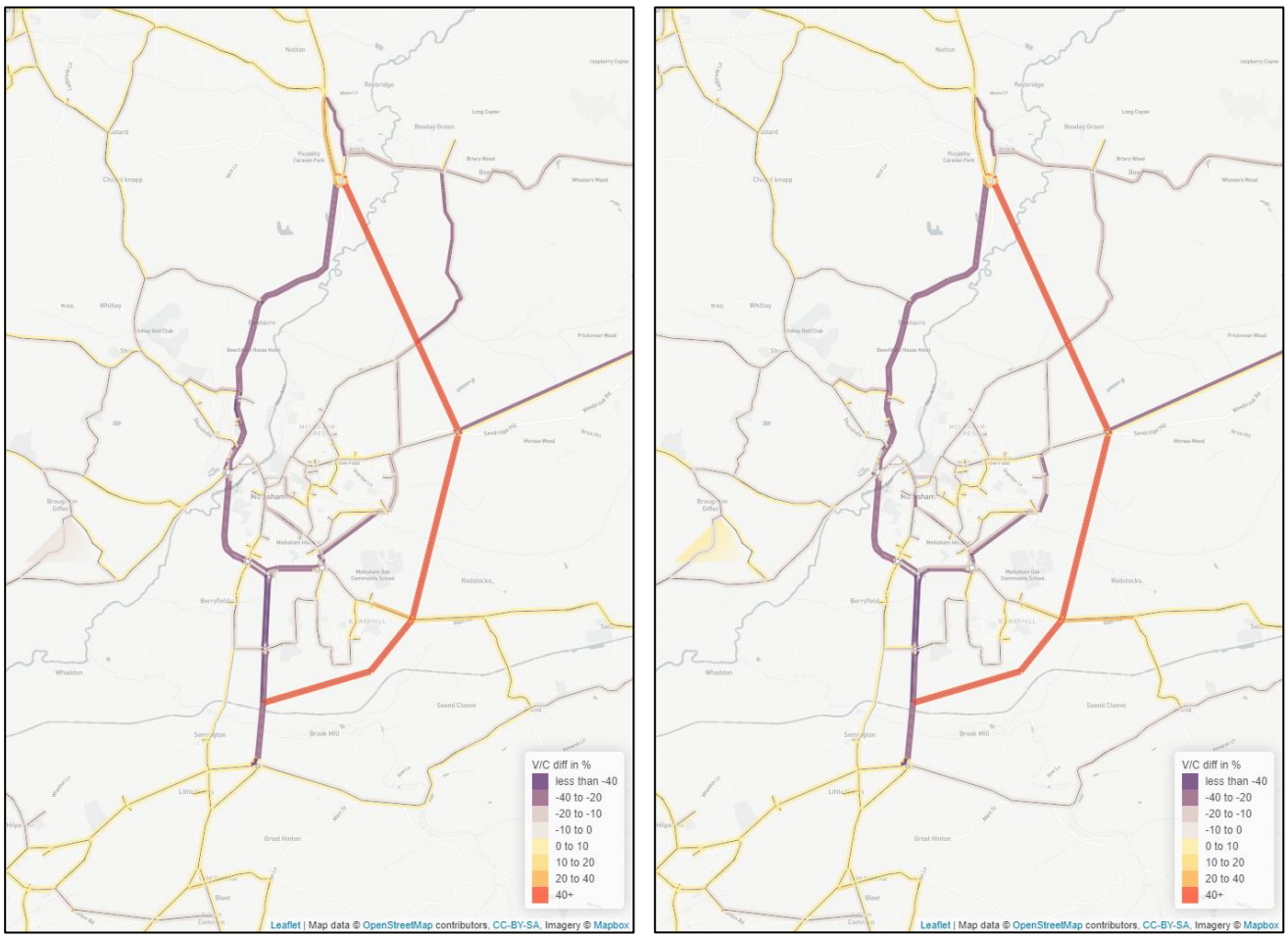
Network capacity and performance

- Increased network capacity and resilience
- Higher average speeds
- Reduced delays

Change in network capacity

The addition of the bypass serves to enhance the overall network capacity. **Figure 3-6** illustrates the predicted change in ratio of volume to capacity (V/C) in the 2036 forecast year, in the AM and PM peak periods.

Figure 3-6 – 2036 forecast change in ratio of volume to capacity, DS v's DM (left – AM, right - PM)



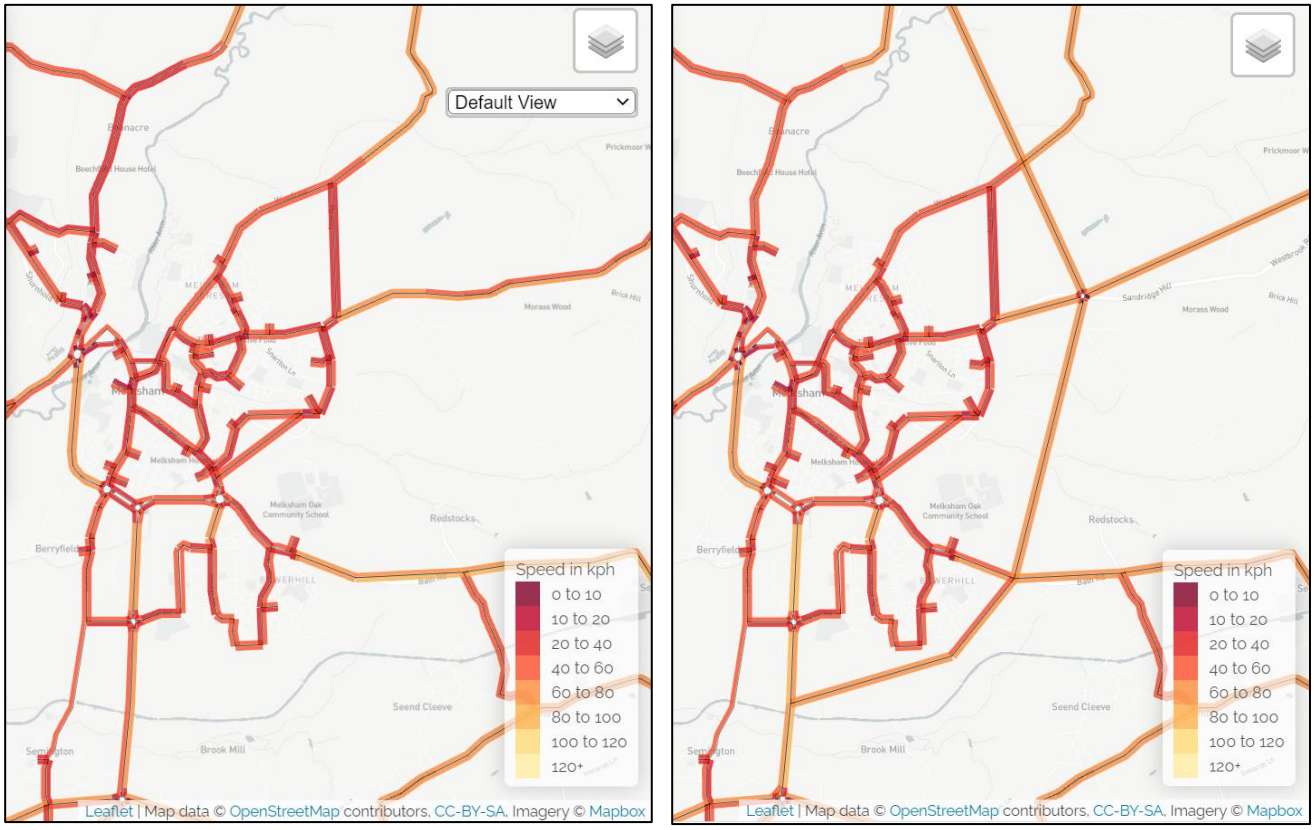
The V/C on the existing A350 route is predicted to reduce by 20 to 50 percentage points, with a maximum V/C of around 50%. In the 2036 forecast year, the bypass is predicted to operate with a V/C of up to around 70 % to 75%. The increased capacity of the network and the provision of an alternative north-south route would be

expected to generally enhance network resilience, such as in relation to incidents and disruption (planned or unplanned).

Average speeds and delays

The scheme is predicted to generally improve average vehicle speeds within and around the Melksham area. **Figure 3-7** illustrates average vehicle speeds in the 2036 forecast year (AM), with (right) and without (left) the scheme. Average speeds for north-south traffic without the scheme are constrained by speed limits, capacity constraints and junctions. The bypass itself would provide a modern, high standard route with a speed limit of 60mph and is predicted to operate with average vehicle speeds of around 50mph for its 10km length.

Figure 3-7 – 2036 average vehicles speeds (left – Do Minimum, right – Do Something)



3.6.3. Active travel

Active travel provision

- Better integrated, higher quality walk / cycle connections
- Reduced severance

More walking and cycling

- More people walking and cycling for local trips

As demonstrated in section 3.6.1, the bypass is expected to significantly reduce traffic levels on the existing A350 route and within Melksham town. This would contribute to reduced severance impacts. The complementary walking and cycling measures seek to lock in the benefits of this traffic reduction and provide new and enhanced walking and cycling connections. This includes links to better integrate the parts of the town situated to the east and west of the existing A350 route, with some key trip attractors (rail station, retail) lying to the west of the A350. Higher quality routes would provide improved safety and security for pedestrians and cyclists. The scheme will therefore make it easier for people to get around on foot and cycle within Melksham and encourage more local trips to be undertaken by these modes. These benefits are captured within the scheme appraisal, via use of the Active Modes Appraisal Toolkit (AMAT).

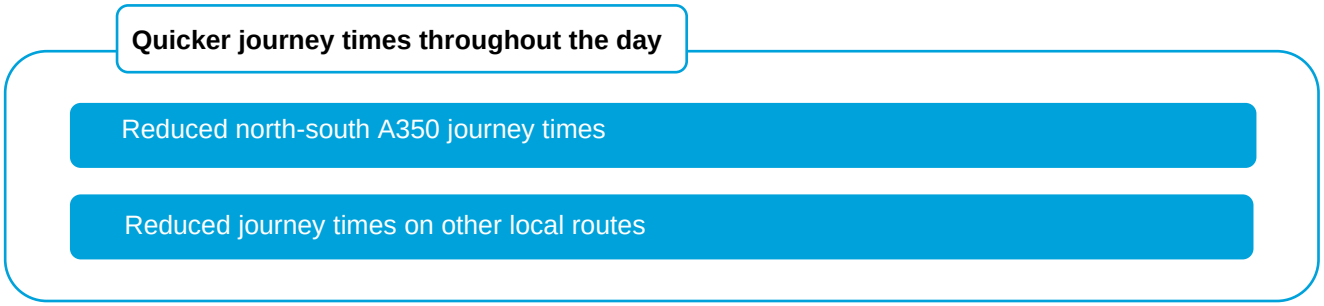
The bypass itself is designed to incorporate appropriate provision to maintain connections for pedestrians, cyclists and horse-riders.

The forecast change in walking and cycling trips from the AMAT is summarised in **Table 3-4**.

Table 3-4 – Forecast change in walking and cycling trips

	Area A (Town Centre)		Area B (Melksham Station)		Area C (Southern connections)	
	Walking	Cycling	Walking	Cycling	Walking	Cycling
Without scheme	2,120	283	566	156	1,971	355
With scheme	3,689	492	985	271	3,430	620

3.6.4. Quicker journey times throughout the day



Reduced north-south A350 journey times

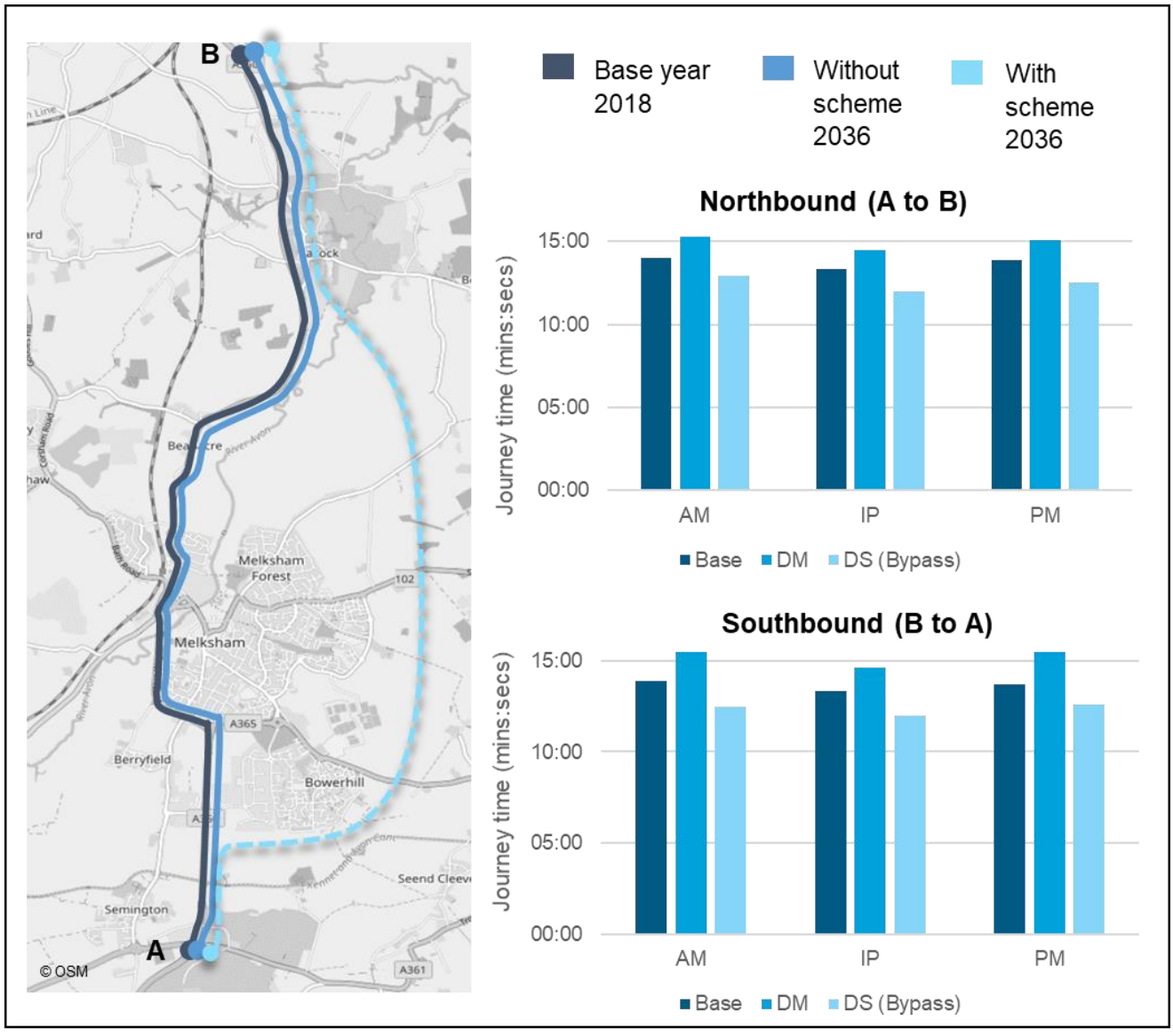
The scheme is expected to **successfully reduce journey times on the main north-south route by approximately 2.5 minutes on average** (across the three time periods and for both directions). This equates to an average journey time saving of 18% compared to without the scheme, which will benefit inter-urban and longer distance trips (including freight).

The predicted changes in journey time between the Do Minimum (DM) and Do Something (DS) scenarios for the 2036 forecast year are presented in **Table 3-5** and **Figure 3-8**.

Table 3-5 – Change in journey times for north-south trips (south of Melksham to Chippenham), 2036

		Journey time (mins:secs)					
Direction	Time Period	Base	Do Minimum	Do Something (A350)	Do Something (Bypass)	Do Something (Bypass) – Do Minimum	Difference (%)
NB	AM	14:00	15:16	13:48	12:56	-02:19	-15%
	IP	13:20	14:28	13:22	12:00	-02:27	-17%
	PM	13:51	15:04	13:38	12:30	-02:35	-17%
SB	AM	13:54	15:29	14:28	12:27	-03:02	-20%
	IP	13:20	14:37	14:11	12:00	-02:37	-18%
	PM	13:42	15:28	14:30	12:36	-02:51	-18%
Average		13:41	15:04	13:59	12:25	-02:39	-18%

Figure 3-8 – Predicted change in journey times



Other key impacts in relation to north-south journey times using the bypass include:

- Journey time savings are higher in the northbound direction.
- The highest predicted journey time saving (compared to the Do Minimum) is 3 minutes in the PM average peak hour, northbound direction.
- Journey time savings are relatively consistent across different time periods, providing benefits to users throughout the day.
- The bypass route is approximately 1.4km longer than the existing A350 route, but the higher average speeds that it provides (section 3.6.2) result in the journey time savings.
- The predicted journey time with the bypass in 2036 is approximately 10% less than the base year (2018), meaning that there is a reduction on existing journey times even with the additional development and traffic growth forecast to 2036.

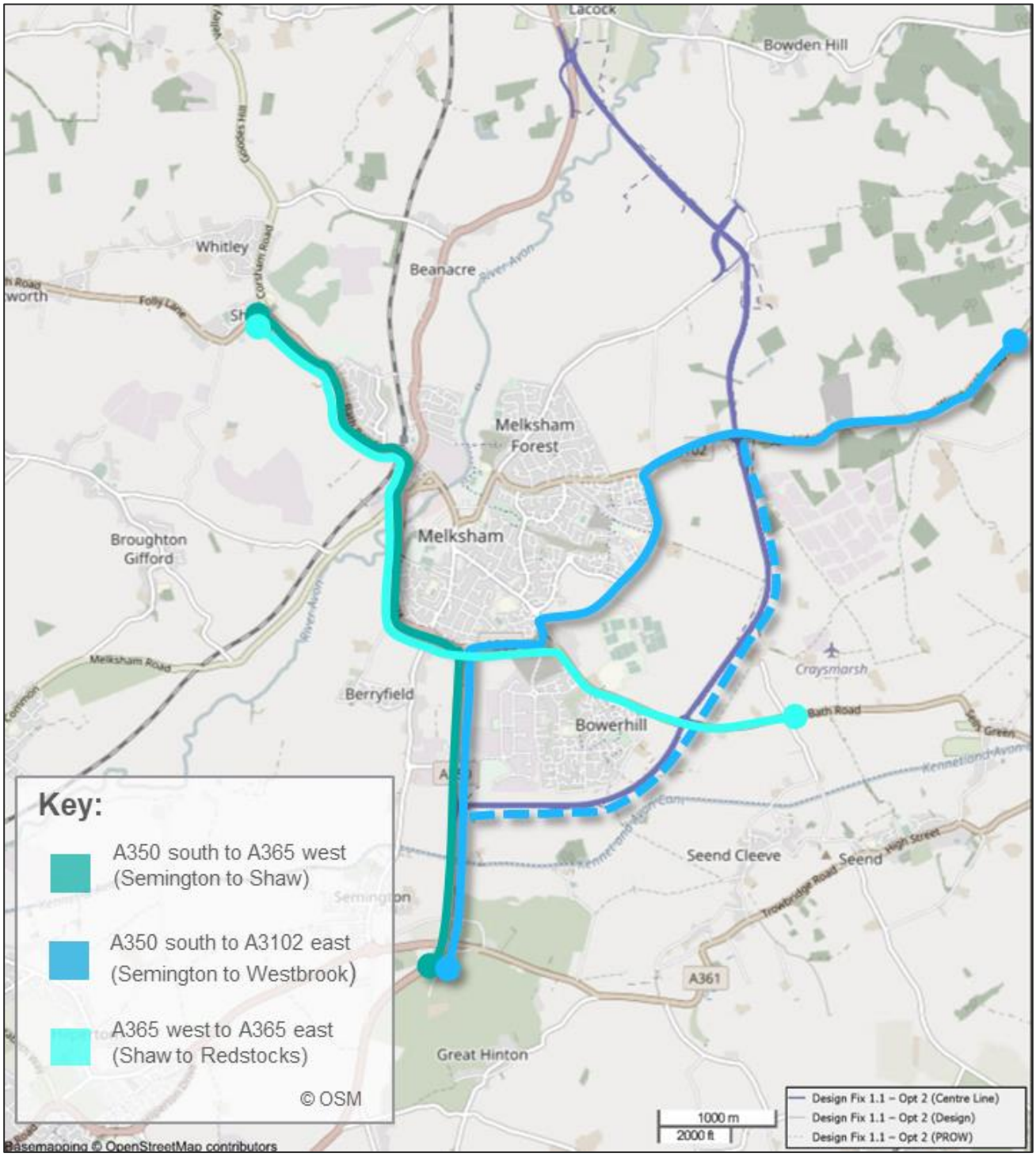
In addition to the journey time savings and higher average speeds provided by the new bypass route, the reduction in traffic volumes on the existing A350 route means that some journey time savings are also expected for traffic that continues to use that route. Compared to the Do Minimum, journey times are expected to reduce by approximately 1 minute on average (across the three time periods and for both directions). This would therefore benefit trips to / from Melksham town centre and other trip attractors on the existing A350 route such as the rail station and the retail and commercial areas.

Reduced journey times for other local routes

The scheme is also expected to **successfully reduce journey times on other local routes** through Melksham **(Figure 3-9)**:

- A350 South – A3102
- A365 West – A365 East
- A350 South – A365 West.

Figure 3-9 – Other journey time routes



The forecast changes in journey time for these routes, between the Do Minimum (DM) and Do Something (DS) scenarios for the 2036 forecast year, are presented in **Table 3-6**.

Table 3-6 – Change in journey times on other local routes with the A350 Melksham Bypass scheme

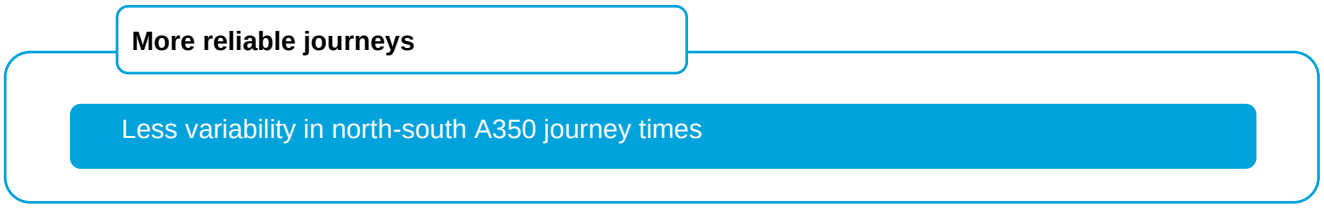
Route	Direction	Time Period	Do Minimum (mins)	Do Something (mins)	Difference (mins)	Difference (%)
A350 south of Littleton Rbt (Semington) – A3102 (Westbrook) *Note – Do Something uses the bypass route*	EB	AM	12:37	10:13	-02:24	-19%
		IP	12:20	09:57	-02:23	-19%
		PM	12:45	10:13	-02:32	-20%
	WB	AM	12:26	10:34	-01:52	-15%
		IP	12:13	10:19	-01:54	-16%
		PM	12:35	10:49	-01:46	-14%
	Average		12:29	10:20	-02:08	-17%
A365 west (Shaw) – A365 east (Bollands Hill)	EB	AM	09:29	08:33	-00:56	-10%
		IP	08:58	07:37	-01:21	-15%
		PM	09:40	08:40	-01:00	-10%
	WB	AM	08:49	08:17	-00:32	-6%
		IP	08:35	08:09	-00:26	-5%
		PM	08:53	08:15	-00:38	-7%
	Average		09:04	08:15	-00:48	-9%
A350 – south of Littleton Roundabout (Semington) to A365 west (Shaw)	NB	AM	08:12	07:08	-01:04	-13%
		IP	07:48	06:58	-00:50	-11%
		PM	08:21	07:12	-01:09	-14%
	SB	AM	09:04	07:43	-01:21	-15%
		IP	08:27	07:37	-00:50	-10%
		PM	09:23	07:52	-01:31	-16%
	Average		08:32	07:25	-01:07	-13%

Journey times on the route between the A350 south (near Semington) and the A3102 (towards Calne, Royal Wootton Bassett and Swindon) are predicted to reduce by approximately 2 minutes. This particular movement would use part of the new bypass route.

Journey time saving for the A365 west – A365 east and A350 south – A365 west routes is predicted to be approximately 1 minute. These movements would benefit from the traffic reductions on the existing A350 route as a result of the bypass.

As well as enhancing strategic north-south movements, the bypass is therefore also expected to generally support movement within and through the Melksham area.

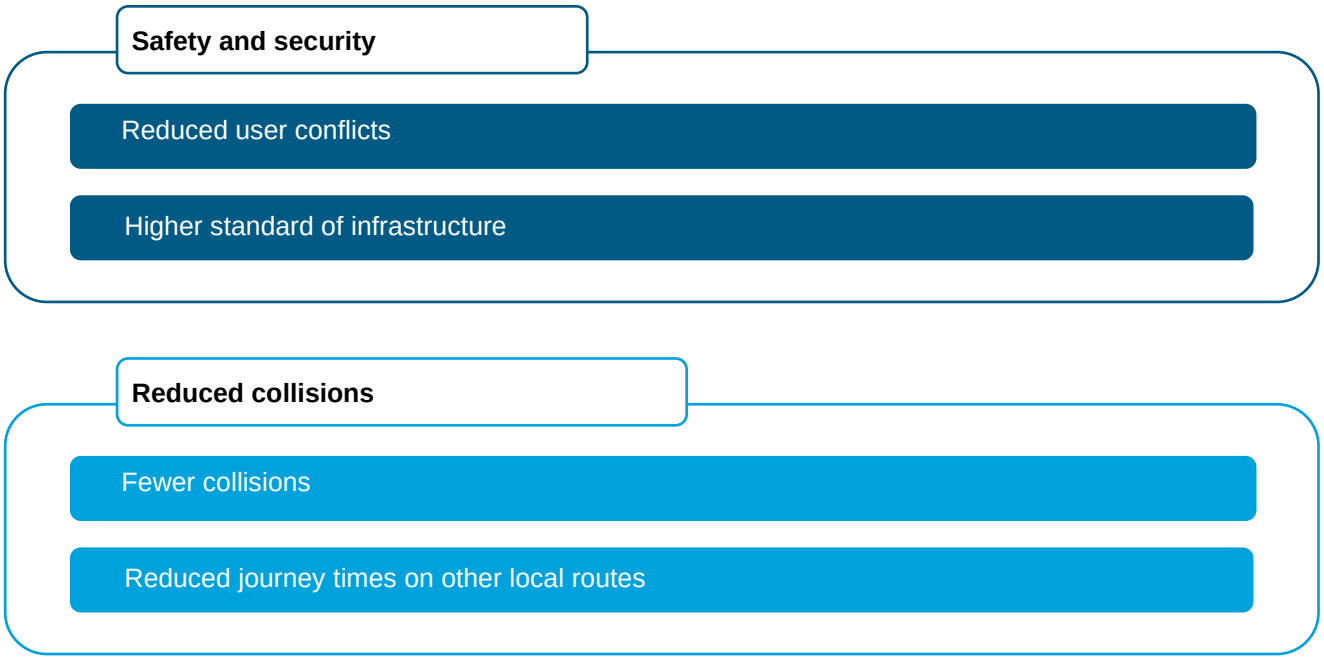
3.6.5. More reliable journeys



In line with TAG Unit A1.3, reliability can be considered in terms of how the scheme affects traffic flows in comparison to the capacity on the network. Section 3.6.2 shows that the scheme in general improves the volume over capacity ratio of the local network. Other indicators of journey time reliability, such as journey times along the strategic A350 route, are predicted to improve as a result of the scheme. As such, the journey time reliability impacts for highway users associated with the scheme are considered to be beneficial.

Section 3.9.11 covers the monetisation of these reliability impacts.

3.6.6. Safety



The existing A350 route has many junctions, accesses and various adjacent land uses, all of which contribute to increased likelihood of user conflicts (vehicle to vehicle, and vehicle to pedestrian / cyclist). The scheme is expected to have a positive impact on road safety through the transfer of traffic from the existing A350 route to the bypass, providing a modern standard carriageway away from a built-up environment. As demonstrated within section 3.6.1, the bypass also helps to reduce traffic on less suitable roads (e.g. 'rat-running'), with associated safety benefits. Furthermore, the traffic reduction facilitated by the bypass enables the delivery of the complementary walking and cycling measures within the town which will enhance the safety and security of the environment for pedestrians and cyclists.

The assessment of collisions through the use of the COBA-LT software (see also section 3.9.8) predicts **an overall reduction of approximately 250 collisions over the 60-year assessment period** as a result of the scheme (under the core assessment) – see **Table 3-7**.

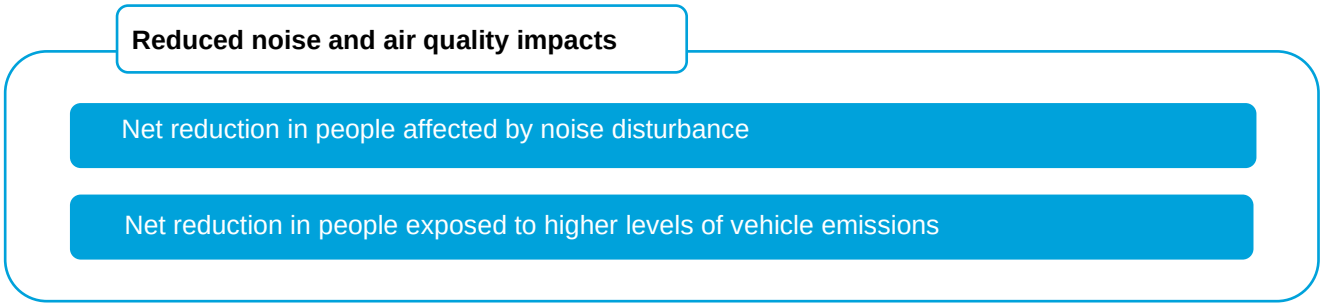
Table 3-7 – Predicted change in collisions, with and without the scheme (2036, COBA-LT)

		Core assessment	Sensitivity
Total without scheme accidents		11,622	11,622
Total with scheme accidents		11,375	11,046
Total accidents saved by the scheme		247	576
Total without scheme casualties	Fatal	130	130
	Serious	1,610	1,610
	Slight	14,120	14,120
Total with scheme casualties	Fatal	137	127
	Serious	1,607	1,541
	Slight	13,875	13,439
Total casualties saved by the scheme	Fatal	-7	3
	Serious	3	69
	Slight	245	681

When considering the severity of collisions, the assessment predicts an increase of 7 fatal casualties. It should be noted that the core assessment adopts a conservative approach through use of default accident rate values for the new bypass. **A sensitivity test using more localised values for the bypass provides a reduction of 3 fatal casualties, and an overall reduction in collisions of approximately 580.**

The COBA-LT assessment also does not reflect any safety improvements relating to the complementary walking and cycling measures. The specific assessment of these measures (using the AMAT tool) indicates a small positive safety impact (see also section 3.9.8).

3.6.7. Reduced noise and air quality impacts



The scheme results in changes to noise and air quality impacts through changes to traffic demand and composition and vehicle speeds on different routes. These impacts are therefore closely related to the predicted traffic impacts described in section 3.6.1. In particular, at an overall level the bypass transfers traffic from built-up sections to a less densely populated, more rural environment.

Noise impact

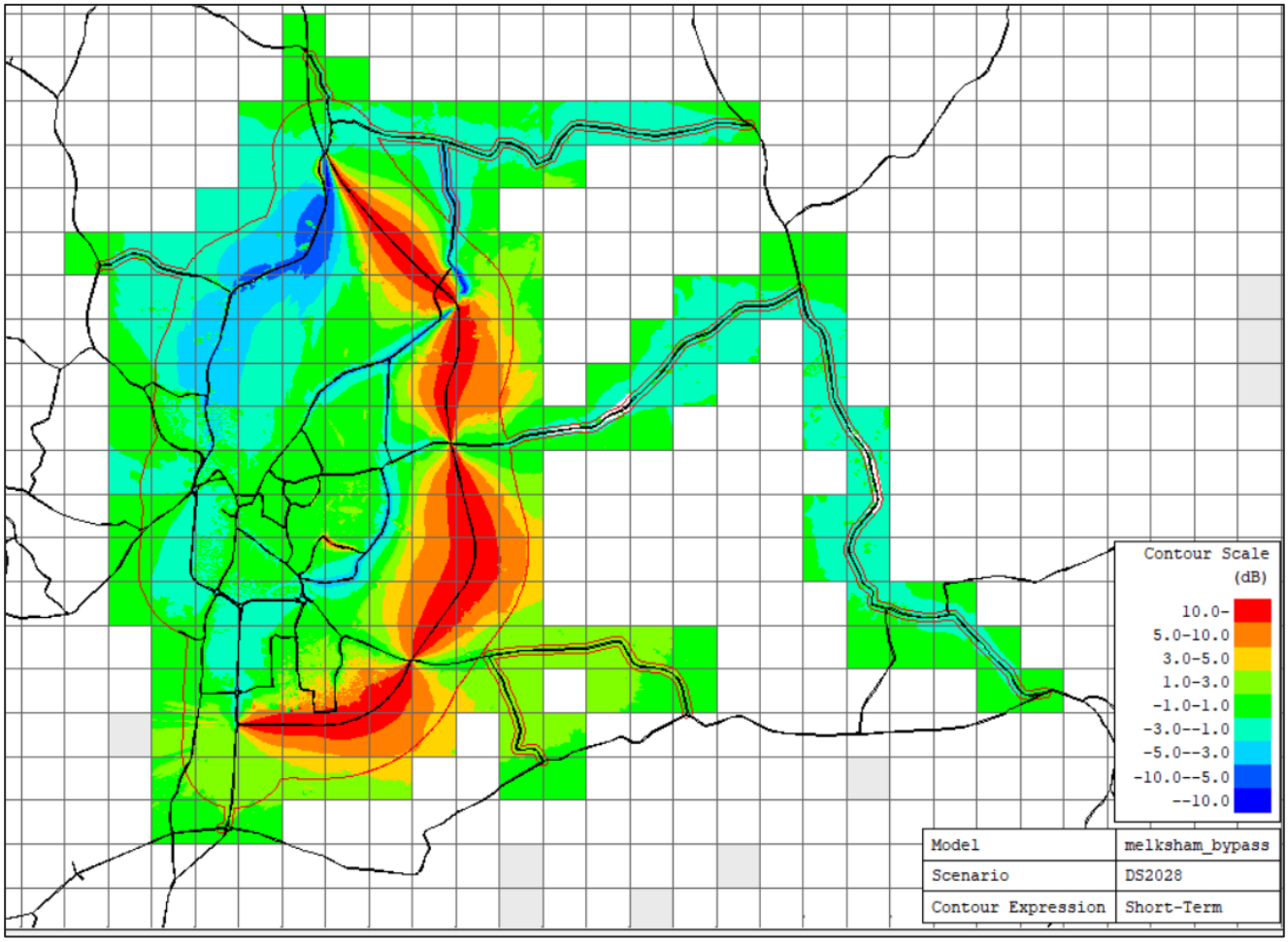
The noise assessment (see also section 3.9.9) predicts an **overall net reduction of approximately 1,300 households experiencing daytime noise impacts** as a result of the scheme (2,578 decrease, 1,240 increase) – see **Table 3-8**. A net reduction of approximately 970 households is also predicted for night time noise impacts.

Table 3-8 – Predicted change in noise levels with the scheme

Noise impact on households in forecast year	Daytime	Night time
Increase in households experiencing noise	1,240	154
Decrease in households experiencing noise	2,578	1,122

The modelled distribution of changes in noise levels as a result of the scheme is illustrated in **Figure 3-10**. The noise increases resulting from the new bypass alignment generally affect more sparsely populated areas, with the main exception being the Bowerhill area at the southern end of the alignment.

Figure 3-10 – Noise contours (NoiseMap, Do Something v's Do Minimum 2028)



Air quality impact

The air quality assessment (see also section 3.9.10) predicts an **overall net reduction in the impacts of PM2.5 and NO2 concentrations on the population.** Key measures from the air quality assessment are summarised in **Table 3-9.** A reduction in the net total assessment score[54] indicates an improvement in air quality. Approximately 70% to 75% of 'within scope' properties are predicted to experience either an improvement or no change in air quality impacts (PM2.5 and NO2).

[54] The assessment score considers the impacts on households of concentrations within different distance bands in the without scheme and with scheme scenarios.

Table 3-9 – Assessment of PM2.5 and NO2 (Core scenario, 2028 and 2043 forecast year)

Air quality assessment measure	PM2.5		NO2	
	2028	2043	2028	2043
Total properties across all routes (0-200m)	9,379	9,379	9,379	9,379
Do-minimum assessment across all routes (I)	76,880	76,942	67,863	65,349
Do-something assessment across all routes (II)	76,590	76,639	66,755	64,462
Net total assessment for all routes (II-I)	-290	-303	-927	-887
Number of properties with an improvement	4,876	4,872	6,441	6,457
Number of properties with no change	1,779	2,285	78	17
Number of properties with a deterioration	2,724	2,222	2,860	2,905

The impacts on greenhouse gas emissions are covered in section 3.9.5.

3.6.8. Wider impacts associated with the expected transport outcomes

The logic map **(Figure 3-3)** demonstrates how the key scheme outcomes are associated with resultant wider economic and social impacts, at both a strategic and local level. Only some of these impacts are directly assessed within the Economic Case.

Wider impacts - strategic

Less-well connected parts of the Western Gateway region (including Wiltshire and the Dorset / coastal areas), have lower productivity levels than other parts of the region, as well as being below the national average. **Faster and more reliable journey times** for the key A350 route resulting from the Melksham Bypass scheme will provide **improved north-south connectivity** for West Wiltshire and the wider Western Gateway region. This includes connectivity **within these areas** (e.g within the A350 Growth Zone), and connectivity **between these areas and other areas** outside the region (e.g. between the A350 Growth Zone and surrounding Functional Urban Regions[55] such as Swindon, Bristol and Bournemouth / Poole on the south coast). The scope for wider economic benefits relating to the A350 corridor as a whole has been demonstrated through connectivity studies[56].

The improved connectivity (or accessibility) resulting from the scheme (reflected through **reduced generalised travel costs**) can impact the level and location of economic activity and **increase productivity**, as households and businesses change their behaviour in response to new opportunities. These impacts include productivity gains resulting from improvements in how well businesses are connected to each other as well as potential employees, and benefits arising from structural changes as businesses and households relocate.

The Economic Case is concerned only with the additional welfare effect of these impacts. For this scheme, only impacts associated with fixed land use (or implicit land use change) are considered. The most relevant impact in the context of the scheme is considered to be **agglomeration-based productivity improvements,** reflecting 'static clustering'. The scheme would serve to effectively bring workers and employment opportunities closer together. Workers would have access to a greater range of employment opportunities, whilst employers would have greater access to a more diverse pool of labour (and a greater range of skills). As a result, higher levels of Gross Domestic Product (GDP) per worker are expected, providing a productivity uplift.

Changes in the level of economic activity as a result of the scheme are also captured within the Economic Case; assessed via the **output change in imperfectly competitive markets**. Inefficiencies mean that the value of the increased output from a reduction in generalised travel cost is not fully captured by the magnitude of the change; hence, the assessment provides means of estimating the welfare effect of this value gap.

[55] Functional Urban Regions (FUR) comprising a core and a surrounding hinterland, are defined areas of concentrated economic activity and are identified within TAG (e.g. A2.4) as areas more likely to be associated with agglomeration benefits.
[56] Western Gateway STB Economic Connectivity Study (WSP, 2019) - https://westerngatewaystb.org.uk/wp-content/uploads/2020/08/wg-reb-appendix-a-Economic-Connectivity-Study.pdf

Wider impacts - local

Based upon the expected impacts from the scheme, it is further anticipated to have an **important role in supporting local outcomes for residents, businesses and workers** within Melksham and the surrounding area. In particular, the bypass scheme can facilitate **improved access to the town centre** (and other local destinations) by a variety of modes and **support local economic activity and town centre regeneration**. The removal of traffic from the town can support **more cohesive, stronger communities** and improved health and wellbeing, **ensuring that the town can continue to develop in a more sustainable manner**.

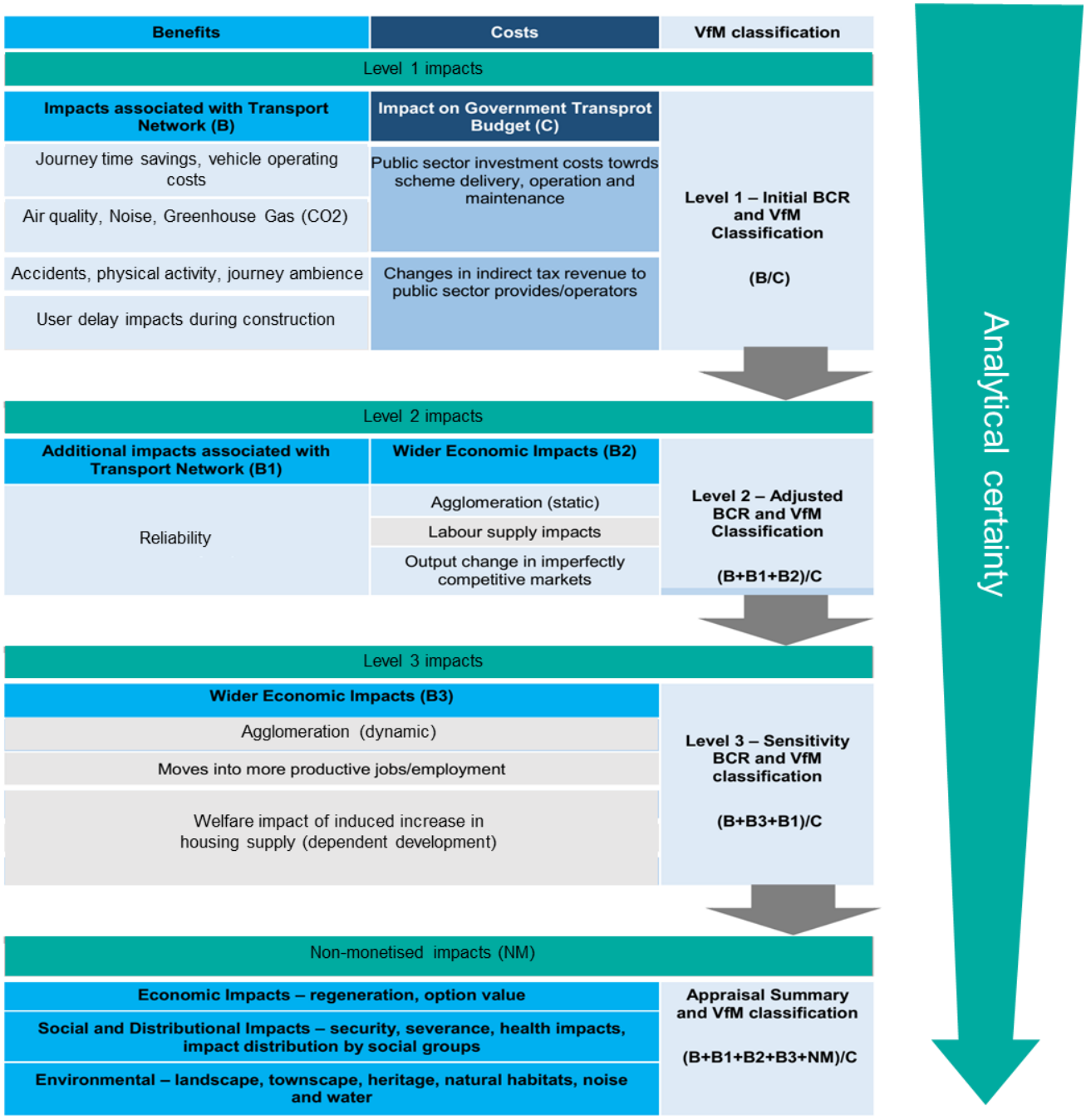
3.7. Appraisal approach

3.7.1. Overview

The economic appraisal of the scheme has been undertaken following the methodology set out in the **Appraisal Specification Report,** which is consistent with the DfT's TAG guidance.

The overall Value for Money (VfM) assessment is based on a tiered approach to considering appraised impacts, reflecting different levels of analytical certainty **(Figure 3-11)**. These are subsequently considered alongside uncertainty and other remaining factors to derive the final VfM category.

Figure 3-11 – Overview of the approach to value for money assessment



Note- includes all typical impacts. Those in grey are not considered for the A350 Melksham Bypass scheme.

3.7.2. Monetised impacts - appraisal tools and approach

The methodology for monetising impacts is summarised in **Table 3-10** and **Table 3-11**, for Level 1 and Level 2 impacts respectively. A detailed explanation of the methodology used in monetising the various impacts is presented in the Economic Appraisal Report **(Appendix B5)**.

Table 3-10 – Summary of appraisal approach and tools (Level 1 monetised impacts)

Monetised impact (Level 1)	Nature of impact	Primary tool(s)	Comments / notes on approach
Highway user impacts: Travel-time benefits Vehicle operating costs (fuel and non-fuel)	Changes in journey times, average speeds and total vehicle kilometres as a result of the bypass Business / commuting / other users	SATURN / TUBA	Transport User Benefit Analysis (TUBA)[57] software **v1.9.15** – July 2021. TUBA provides a complete set of default economic parameters in its standard economics file, including values for variables such as values of time, vehicle operating cost data, tax rates and economicgrowth rates. Annualisation factors used in the TUBA analysis are provided in section 3.7.4.
Active mode user impacts	Journey time, journey quality and health benefits associated with complementary walk/ cycle measures. Existing and new active mode users.	AMAT (Active Mode Appraisal Tool) PCT (Propensity to Cycle Tool)	PCT is used to estimate base cycle flows and the methodology set out in TAG Unit A5.1 section 2.3 is used to estimate forecast cycle flows - both of which are required as inputs to the AMAT.
Collision impacts	Change in collisions by severity and associated costs - 'with' and 'without' scheme. It is a function of traffic demand and changes in the risk or likelihood of an accident occurring.	COBA-LT (Cost and Benefit to Accidents – Light Touch)	COBA-LT, version 2020.2. Links and junctions modelled identified through changes in traffic flow. Localised accident rates used for main links within the impact area.
Impacts on indirect taxation revenue	Incurred by transport users and providers, in the form of fuel duty and other user charges. Linked to changes in traffic demand and vehicle kilometres.	SATURN / TUBA	Transport User Benefit Analysis (TUBA) software **v1.9.15** – July 2021.
Delays during construction	User delays from disruption during construction works.	SATURN / TUBA	Three traffic management phases defined and modelled in SATURN. Journey time impacts assessed through TUBA for each phase, based upon the duration.
Impacts on greenhouse gases	Change in CO2E emissions, associated with changes in vehicle kilometres and average speeds.	TUBA DEFRA Emission Factors Toolkit	TUBA v1.9.15 for main assessment, using 'high' carbon values. Alternative DEFRA EFT methodology undertaken for reference. Carbon emissions estimated using the Emissions Factor Toolkit and the impacts have been monetized using the TAG global emissions excel spreadsheet.

[57] TUBA is an industry-recognised software package, recommended by the DfT for the appraisal of highway and public transport schemes.

Monetised impact (Level 1)	Nature of impact	Primary tool(s)	Comments / notes on approach
Air quality	Changes in traffic levels / speeds / composition resulting from the bypass giving rise to changes in concentration of N02 and PM2.5	ADMS-Roads dispersion model	Impact-Pathways approach (in line with TAG Unit A3) which consists of determining pollutant concentrations at distance bands from affected road and calculating the number of receptors experiencing improvement / deterioration.
Noise	Changes in traffic levels / speeds / composition resulting from the bypass giving rise to changes in noise levels.	Noise model (NoiseMap v5.2)	Assessed in line with TAG Unit A3. Calculations undertaken based on LA111 and CRTN methodology.

Table 3-11 – Summary of appraisal approach and tools (Level 2 monetised impacts)

Monetised impact (Level 2)	Nature of impact	Primary tool(s)	Comments / notes on approach
Journey reliability	More reliable journey times and greater resilience to network incidents.	Bespoke spreadsheet tool	Assessed in line with TAG Unit A1.3, Section 6.3 (Reliability – urban roads) and based on the calculation of the standard deviation of journey times and distance for each O-D (origin-destination) pair.
Increased economic output in imperfect competitive market	Welfare effects which arise due to the presence of imperfect competition (the market structure distorts the efficient operation of the market) – considered relevant given the rural nature of Wiltshire, with imperfect competition more likely compared with urban areas.	10% of business user impacts from TUBA	Estimated using the simplified method set out in TAG Unit A2.2 section 4 by applying a 10% uplift factor to the business and freight user benefits derived from TUBA.
Agglomeration benefits	Improved north-south connectivity via A350 giving rise to productivity benefits through static clustering (e.g. A350 Growth Zone).	Spreadsheet model[58] following the approach in TAG A2.4	Utilises the methodology / assumptions set out in TAG unit A2.4. Approach assumes land-use is fixed with displacement assumed to be zero.

3.7.3. Appraisal period

Impacts and costs arising from implementation of the scheme are monetised across a **standard 60-year appraisal period** in line with TAG Unit A1.1. The planned scheme opening year is 2028, hence the **appraisal period runs from 2028 to 2087**.

[58] The spreadsheet tool adopts a similar approach to the DfT's Wider Impacts in Transport Appraisal (WITA) software, and follows the principles of wider impacts appraisals in accordance with the Department for Transport's TAG Unit A.2 Wider Economic Impacts. The approach seeks only to capture the welfare impacts of employment, investment and productivity effects that are not already included in the conventional user benefit calculations for transport schemes (as undertaken by TUBA).

The first modelled forecast year is 2026. For any benefits calculated via TUBA, a conservative approach has been taken by using the 2026 modelled year to reflect the scheme opening year for the appraisal period (2028).

3.7.4. Annualisation

Annualisation is required in order to scale-up the 'modelled hours' benefits to annual benefits. The forecast model consists of four modelled hours:

- AM peak average hour (representing 0700 – 1000)
- Inter-peak average hour (representing 1000 – 1600)
- PM peak average hour (representing 1600 – 1900)
- Off-peak average hour (representing 1900 – 0700)

The annualisation assumptions, based upon these modelled hours, are set out in **Table 3-12**.

Table 3-12 – Summary of appraisal annualisation assumptions

	Modelled time slice			
	AM peak average hour (0700-1000)	Inter-peak average hour (1000-1600)	PM peak average hour (1600-1900)	Off-peak average hour (1900-0700)
Weekday annualisation				
Hours time slice applied to (max 24hrs)	**3** 0700 – 1000	**6** 1000 – 1600	**3** 1600 – 1900	**5.5** (out of the 12 hrs 1900 – 0700)
Annualisation - hrs	**759** (3 x 253)	**1,518** (6 x 253)	**759** (3 x 253)	**1,380** (5.5 x 253)
Saturday annualisation				
Hours time slice applied to (max 24hrs)	-	**8**	-	**8**
Annualisation - hrs	-	(8 x 52) **416**	-	(8 x 52) **416**
Sunday annualisation				
Hours time slice applied to (max 24hrs)	**-**	**6.5**	**-**	**8.5**
Annualisation - hrs	**-**	(6.5 x 60) **387**	**-**	(8.5 x 60) **513**

Full details of the annualisation approach can be found in the Economic Appraisal Report **(Appendix B5)**. Key points in relation to the approach include:

- To account for **weekday benefits**, the modelled average hour for each of the AM, PM and inter-peak periods is multiplied by the number of hours within each period. The off-peak modelled average hour is multiplied by the number of hours for which the observed traffic flow is higher than the average for the 12-hour period (1900-0700). A factor of 253 (the number of weekdays in a year, less bank holidays) is then used to convert from a single weekday to annual weekday benefits.
- To account for weekend benefits, as neither Saturday nor Sunday has been modelled, local observed traffic data has been used to identify the number of weekend hours that have conditions comparable with the weekday modelled time periods. Only the weekday inter-peak and off-peak modelled time periods are used to derive the weekend benefits to ensure a more conservative approach.
- For **Saturday benefits**, the modelled weekday inter-peak average hour has been applied to eight hours of the day (which demonstrate traffic flows equivalent to, or higher than, the weekday inter-peak average

hour. The modelled off-peak average hour has been applied to eight hours of the day. A factor of 52 (the number of Saturdays in a year) has been used to convert from a single Saturday to annual Saturday benefits.

- For **Sunday benefits**, the modelled weekday inter-peak average hour has been applied to six and a half hours of the day. The modelled off-peak average hour has been applied to eight hours of the day. A factor of 60 (the number of Sundays plus bank holidays in a year) has been used to convert to annual benefits.

3.7.5. Annual Average Daily Traffic flows

24-hour AADT values are required for the COBA-LT, distributional impacts, noise and air quality assessments. These have been derived from the modelled hours using calculated expansion factors established for the WTM. Details of the relevant factors for conversion to AADT can be found within the Traffic Forecasting Report.

3.7.6. Non-monetised impacts

Where there is no established method for monetising impacts, the impact has been assessed using a seven-point scale to denote the magnitude and nature of the impacts, ranging from large adverse to large beneficial (as per TAG). This is informed by a variety of evidence sources and analytical judgement.

The non-monetised impacts are:

- Security
- Severance
- Accessibility
- Townscape
- Historic environment
- Landscape
- Biodiversity
- Water environment
- Affordability
- Access to services
- Option and non-use values

The overall consideration of the appraisal (as part of the Value for Money Statement) determines whether these impacts, either individually or collectively, are likely to materially alter the overall value for money of the scheme.

3.7.7. Reporting of appraisal outcomes

A summary of the appraisal outcomes is provided within this Economic Case chapter (sections 3.8 to 3.14). The **Value for Money Statement** (section 3.15) provides an overall summary and identifies the key impacts, risks, assumptions and uncertainties related to the analysis and their implications.

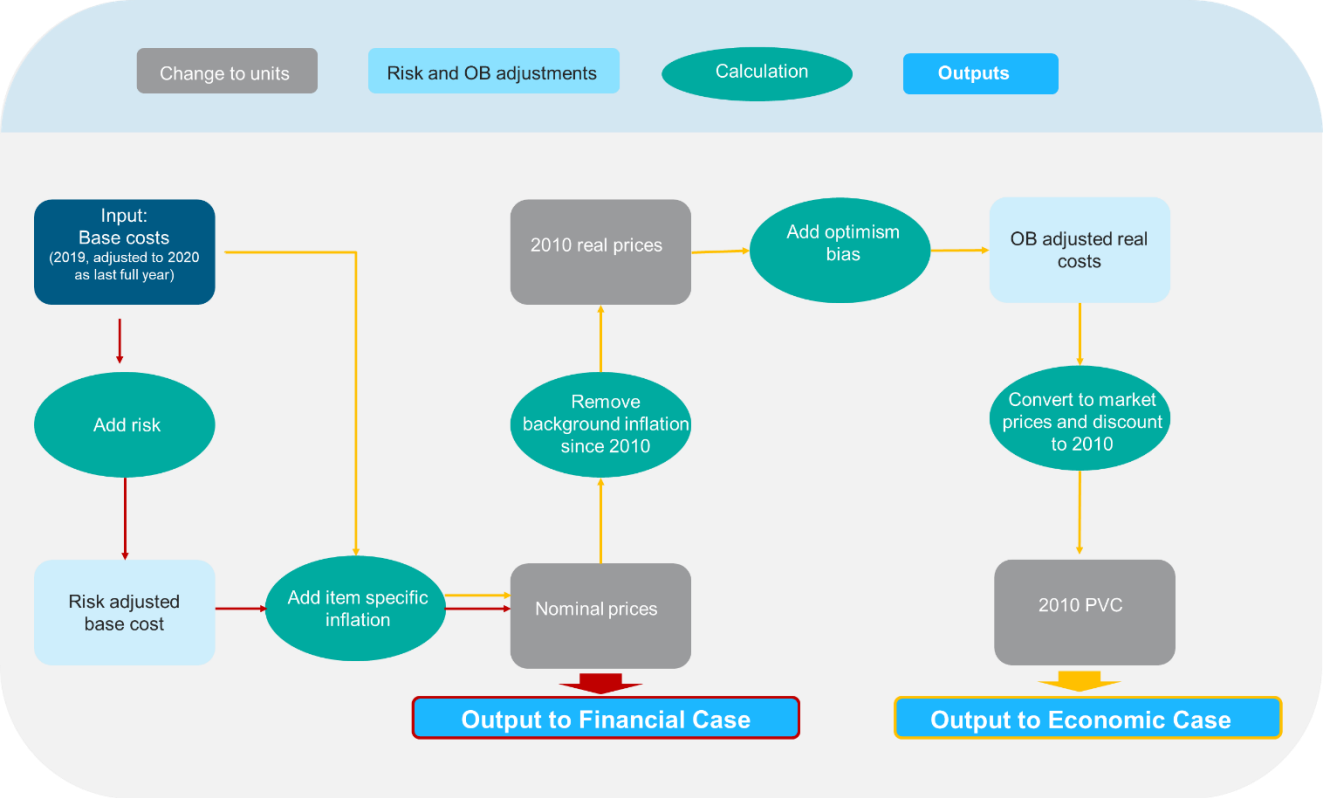
Other supporting information includes:

- The **Appraisal Summary Table** (AST) – Appendix B4
- The **Economic Appraisal Report** (EAR) – Appendix B5
- The appraisal tables – Appendix B6
  - The Transport Economic Efficiency (TEE) table
  - The Analysis of Monetised Costs and Benefits (AMCB) table
  - The Public Accounts (PA) table.
- The **cost proforma** – Appendix B7
- The **Social and Distributional Impacts** (SDI) report – Appendix B8
- **Environment TAG worksheets** – Appendix B9

3.8. Scheme cost (PVC)

Details of the scheme base costs are provided in the Financial Case (section 4.1). The derivation of the Present Value Cost (PVC) of the scheme (for use within the economic appraisal) follows TAG Unit A1.2. The process is summarised in **Figure 3-12**, including the conversion to 2010 real prices; application of optimism bias; conversion to market prices; and discounting to 2010.

Figure 3-12 – Overview of the calculation of scheme costs



3.8.1. Scheme cost (PVC) breakdown

The total PVC (inclusive of maintenance costs over a 60-year period) is **£134,507,463.** The breakdown of the PVC calculation is presented within **Table 3-13**.

Table 3-13 – A350 Melksham Bypass PVC calculation (£ millions)

£ millions	Capital cost	Maintenance cost	Total cost
Investment cost (2020 prices[59])	146.93	32.47	179.40
Real cost inflation	28.14	39.59	67.73
Base cost	**175.07**	**72.05**	**247.13**
Optimism bias contribution (@23%)	40.27	16.57	56.84
Optimism bias adjusted cost	**215.34**	**88.63**	**303.97**
Deflated	-42.25	-17.39	-59.63
Discounting to 2010 and factored to market prices	-55.97	-53.86	-109.83
PVC (scheme costs)	**117.13**	**17.38**	**134.51**

[59] Input costs in 2019 prices adjusted to 2020 prices as starting price base (as last full known year)

Total scheme costs in 2020 prices are £179.4m; comprising £146.9m investment cost and £32.5m for maintenance[60]. The addition of real cost inflation provides a base cost (total) of £247.1m. Optimism bias is applied to the base cost at a rate of 23%[61]. This provides an optimism bias adjusted cost of £304m. After converting this to 2010 prices, discounting and factoring to market prices, this results in a total Present Value of Costs (PVC) of £134.5m; comprising £117.1m for capital costs, plus £17.4m for maintenance.

Further details of derivation of the PVC are presented in the Economic Appraisal Report (Appendix B5), including the PVC cost proforma and Public Accounts table.

3.8.2. Scheme cost (PVC) profile

The PVC profile (investment cost only) used for the economic appraisal is presented in **Table 3-14**.

Table 3-14 – A350 Melksham Bypass cost profile (excluding maintenance)

COST TYPE	2022	2023	2024	2025	2026	2027	2028	SUM
Preparation expenditure profile	24.8%	24.9%	25.1%	25.3%	0.0%	0.0%	0.0%	100.0%
Construction expenditure profile	0.0%	0.0%	0.0%	0.0%	34.5%	50.2%	15.3%	100.0%
Land expenditure profile	0.0%	0.0%	0.0%	100%	0.0%	0.0%	0.0%	100.0%
Total expenditure forecast (all costs included)	3.1%	3.0%	2.9%	5.1%	30.4%	42.8%	12.6%	100.0%

3.9. Monetised impacts

This section presents the key outcomes of the appraisal of monetised impacts (Level 1 and Level 2). It presents an overall summary, and then considers each impact in turn.

3.9.1. Summary of monetised impacts

Monetised impacts assessed for the A350 Melksham Bypass scheme include ‘Level 1’ and ‘Level 2’ impacts (see section 3.7.2). Level 1 impacts are well established and researched and inform the Initial BCR. Level 2 impacts are of a more evolving nature, where some evidence exists to support the estimation of a monetary value but this is less widely-accepted, well-researched or tried-and-tested. These are added to the Level 1 impacts to inform the Adjusted BCR.

The monetised impacts assessed for the Core Scenario are summarised in **Table 3-15**.

[60] Comprising £31,058,988 for capital renewals and £1,409,746 for annual maintenance, over 60 years.
[61] As per TAG updates in July 2021, optimism bias is now applied directly to the base cost (without risk adjustment). Optimism bias of 23% is as per TAG Unit A1.2 for a road scheme at OBC stage.

Table 3-15 – Summary of PVB (Core scenario)

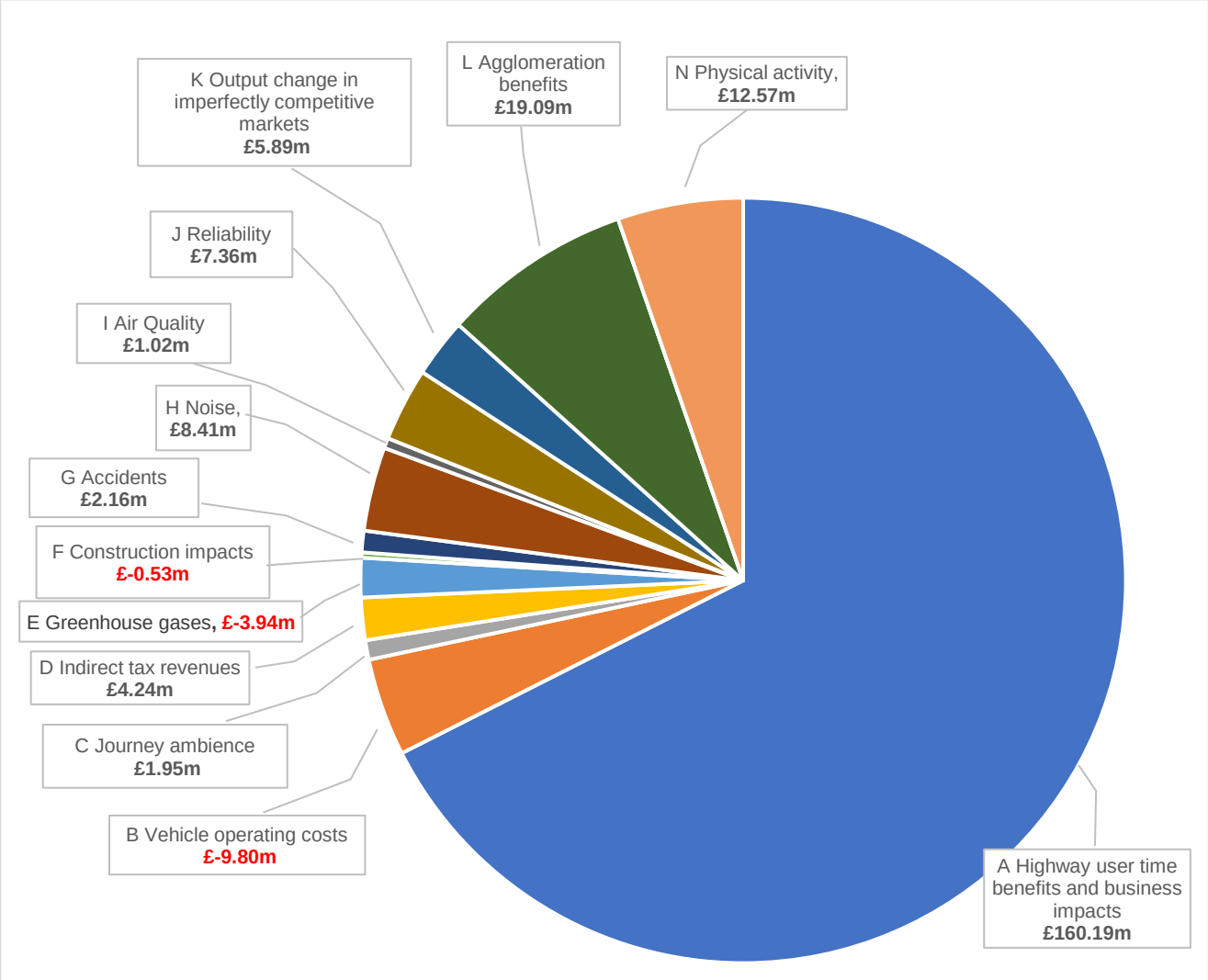
Impact / measure	Core scenario PV (£m)
Highway user time benefits	160.19
Vehicle operating costs	-9.80
Indirect tax revenues	4.24
Greenhouse gases	-3.94
Construction impacts	-0.53
Physical activity	12.57
Journey ambience	1.95
Accidents	2.16
Noise	8.41
Air Quality	1.02
Present Value of Benefits (Level 1 impacts)	**176.27**
Reliability	7.36
Output change in imperfectly competitive markets	5.69
Agglomeration benefits (static clustering)	19.09
Present Value of Benefits (Level 2 impacts)	**32.14**
Total PVB (Level 1 & Level 2)	**208.41**

All monetised values in 2010 prices discounted to 2010

The total PVB of all monetised impacts for the Core scenario is **£208.41m.** Level 1 impacts contribute **£176.27m** (85%), and Level 2 impacts contribute **£32.14m** (15%).

Figure 3-13 illustrates the breakdown of the different impacts for the Core scenario.

Figure 3-13 – Breakdown of Present Value of Benefits (Core scenario)



The assessment of monetised impacts in relation to the other scenarios considered is summarised in **Table 3-16**. Not all impacts been assessed specifically for these scenarios; hence, for some impacts the assessment is based upon factoring of the Core scenario assessment, in line with the difference in TUBA benefits between the Core scenario and each other scenario.

Table 3-16 – Summary of PVB (alternative scenarios)

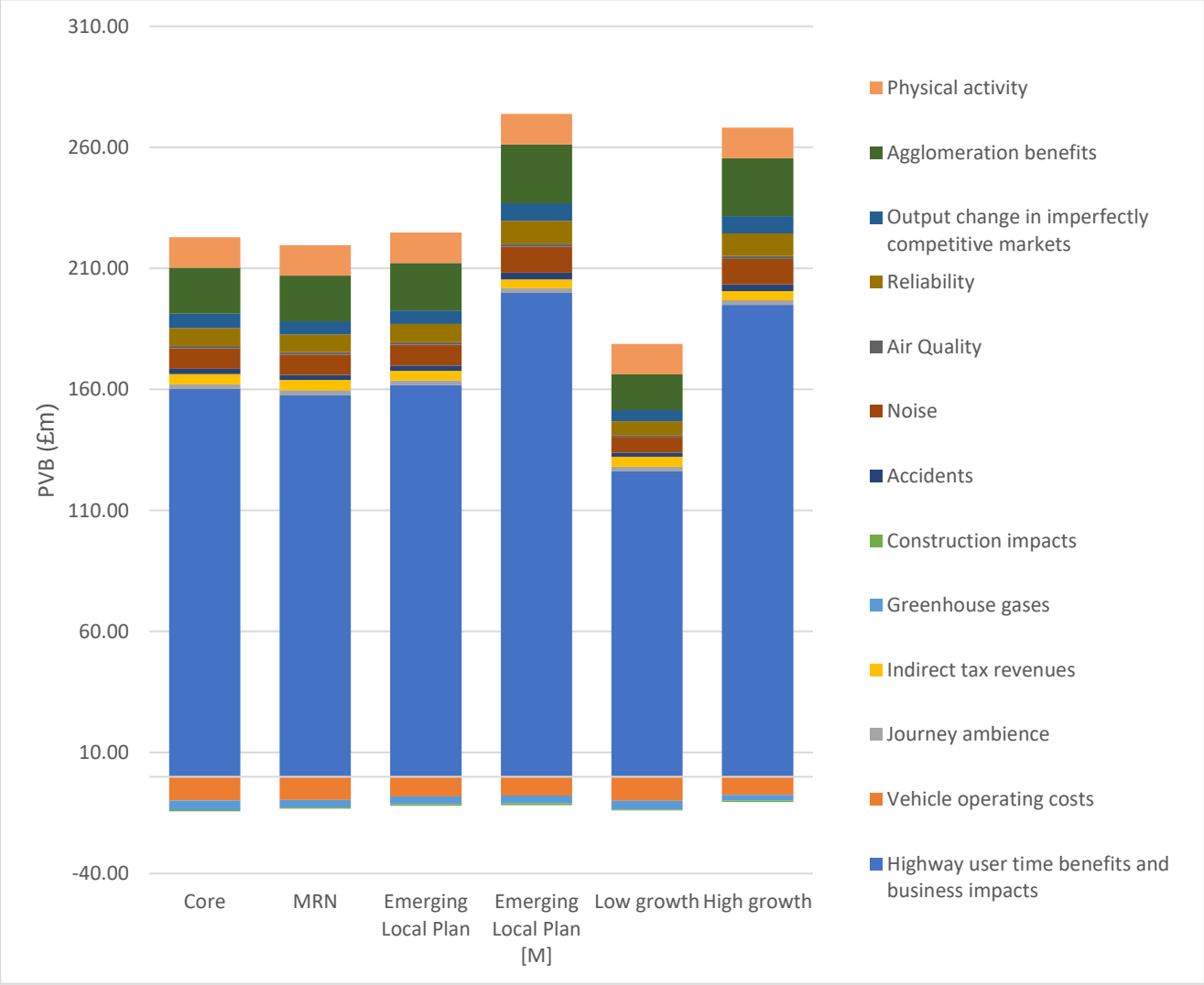
	MRN	Emerging Local Plan	Emerging Local Plan (mitigation)	Low Growth	High Growth
Impact / measure	PV (£m)				
Highway user time benefits	157.79	161.88	199.89	126.10	194.91
Vehicle operating costs	-9.51	-8.15	-7.78	-9.91	-7.54
Indirect tax revenues	4.15	3.84	3.61	4.14	3.79
Greenhouse gases	-3.22	-3.28	-3.28	-3.59	-2.23
Sub-total PVB from TUBA	149.21	154.29	192.44	116.74	188.93
Factor compared to Core Scenario	0.99	1.02	1.28	0.77	1.25
Physical activity	12.57	12.57	12.57	12.57	12.57
Journey ambience	1.95	1.95	1.95	1.95	1.95
Construction impacts*	-0.52	-0.54	-0.66	-0.42	-0.64
Accidents*	2.14	2.21	2.76	1.67	2.71
Noise*	8.33	8.62	10.75	6.52	10.55
Air Quality*	1.01	1.04	1.30	0.79	1.28
PVB (Level 1 impacts)	**174.68**	**180.15**	**221.11**	**139.82**	**217.35**
Reliability*	7.29	7.54	9.40	5.70	9.23
Output change in imperfectly competitive markets	5.51	5.59	7.23	4.52	7.18
Agglomeration benefits (static clustering)*	18.90	19.55	24.38	14.79	23.94
PVB (Level 2 impacts)	**31.70**	**32.67**	**41.01**	**25.02**	**40.34**
Total PVB (Level 1 & Level 2)	**206.38**	**212.82**	**262.11**	**164.84**	**257.69**

*Present values for construction impacts, accidents, noise, air quality, reliability, and agglomeration have not been directly calculated, but are derived from multiplying the relevant Core Scenario values by the factors calculated from the TUBA analysis.
All monetised values in 2010 prices discounted to 2010.

Compared to the Core scenario PVB of £208.61m, the alternative scenarios considered produce a total PVB of between £164.84m to £262.11m.

Figure 3-14 illustrates the comparison of the breakdown of impacts for each scenario.

Figure 3-14 – Breakdown of Present Value of Benefits (all scenarios)



The alternative scenarios are considered further in section 3.14 in relation to uncertainty and sensitivity within the appraisal.

3.9.2. Travel time benefits (Level 1)

Approach

- Generalised time and distance skimmed matrices from the WTM, for each time period, future year (2028, 2036 and 2051) and user class, have been run through TUBA (v1.9.15).
- Masking has been applied at a sector-to-sector level to account for model noise.
- Annualisation has been applied in line with section 3.7.4, covering weekdays and weekends.
- Minor decongestion benefits from the active modes assessment have been added separately to TUBA outputs.

Monetised impacts – key outputs

- Total travel time benefits for the Core scenario are calculated as £160.19m **(Table 3-17)**.

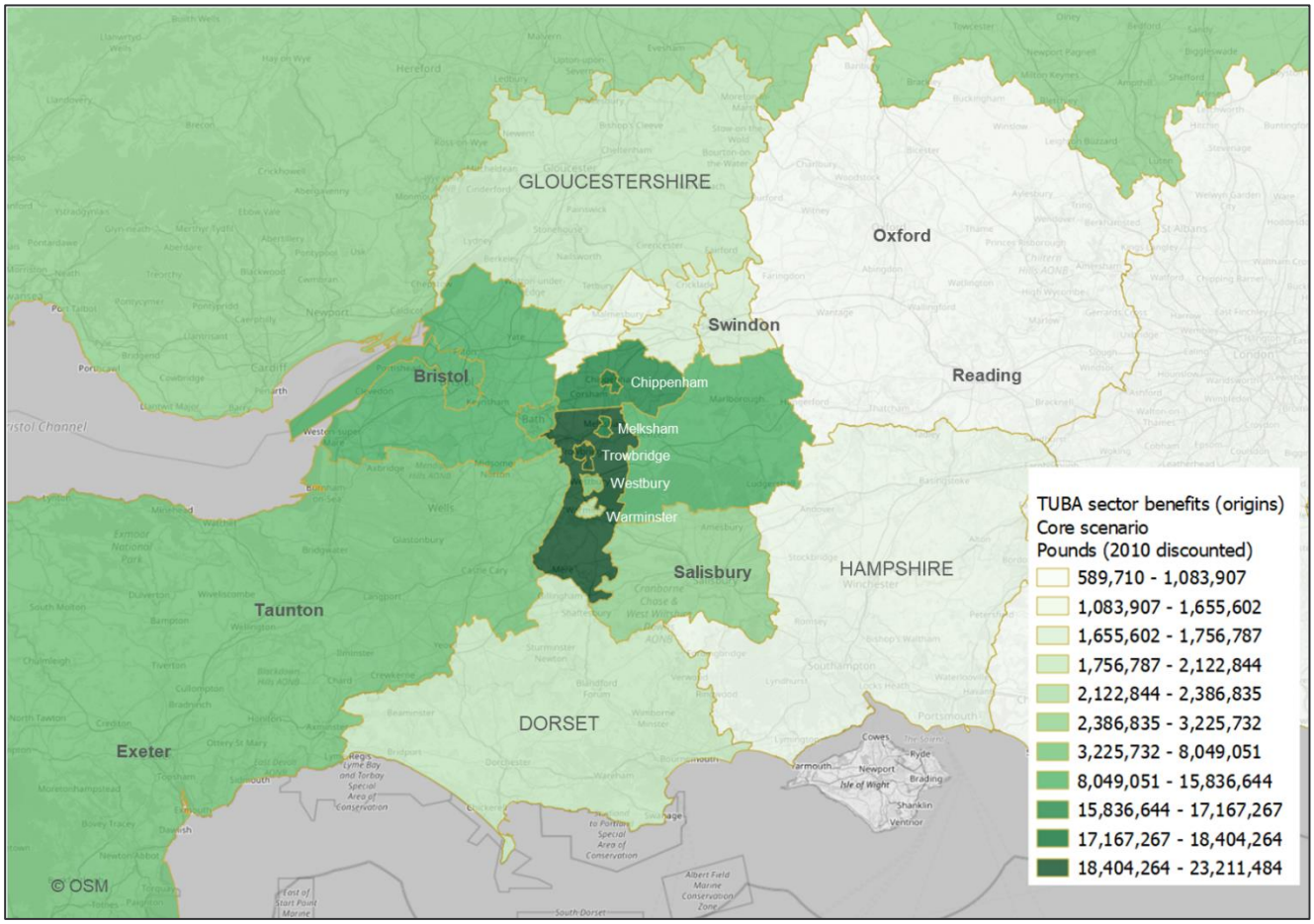
Table 3-17 – Present value of highway user travel time benefits (all scenarios)

Travel time benefits (£m)	Core	MRN	Emerging Local Plan	Emerging Local Plan (M)	Low Growth	High Growth
TUBA - business	56.92	55.10	55.87	72.31	45.24	71.78
TUBA - commuting	47.16	48.08	47.66	60.71	37.83	59.24
TUBA - other	55.74	54.24	57.98	66.49	42.67	63.52
TUBA - Total	**159.82**	**157.42**	**161.51**	**199.51**	**125.74**	**194.54**
AMAT – decongestion benefits	0.37	0.37	0.37	0.37	0.37	0.37
Total travel time benefits	**160.19**	**157.79**	**161.88**	**199.88**	**126.11**	**194.91**

All entries are discounted present values, in 2010 prices and values.

- Total travel time benefits range from £126m to £200m for all scenarios considered. This is a sensible range and suggests that there are no major sensitivities affecting the traffic modelling.
- Travel time benefits are generated by the forecast journey time savings demonstrated in section 3.6.4. This is not only in relation to the main north-south A350 movement (facilitated by the quicker bypass route), but also other local routes / journeys as a result of traffic redistribution.
- Benefits by different users do not vary significantly. This is consistent with the fact that journey time savings are similar across all time periods. Business users account for the greatest benefits (approximately 35% to 40% of total benefits).
- The pattern of benefits by origin and destination is logical **(Figure 3-15)** and reflects the expected scheme impact area, with the West Wiltshire area accounting for a high proportion of the benefits.
- Compared to the Core scenario, the 'high growth' scenario produces travel time benefits approximately 30% higher; this is predominantly due to increased traffic demands and delays on the existing A350 in the Do Minimum.
- The 'low growth' scenario produces travel time benefits approximately 20% lower than the Core, as the lower traffic demands and reduced delays mean that the scheme does not generate the same level of journey time savings.
- The difference in benefits (c.£40m) between the 'emerging Local Plan' and 'emerging Local Plan (mitigation)' is primarily due to the increased capacity on the A350 north of the bypass (which is included in the Do Minimum). This reduces the level of disbenefit on this part of the network resulting from the increased traffic levels associated with the introduction of the bypass (on top of the higher traffic levels already resulting from the Local Plan demand).

Figure 3-15 – Spatial distribution of scheme benefits (Core scenario, sectored benefits)



Appraisal certainty / risk / limitations

- Various checks of TUBA outputs have been undertaken to ensure that results are logical, including analysis of benefits by time period, journey distance and size of time saving, in addition to a review of TUBA warning messages (see Economic Appraisal Report).
- The alternative scenarios undertaken provide a good representation of the travel time benefits to changes in traffic demands
- Sensitivity in relation to values of time applied to time savings is considered in section 3.14.

Further information

- Further details and analysis in relation to travel time benefits can be found in section 5.5 of the Economic Appraisal Report.

3.9.3. Vehicle operating costs (Level 1)

Approach

- Calculated via TUBA using the same inputs and parameters as the main travel time benefits (section 3.9.2).

Monetised impacts – key outputs

- Vehicle operating costs result in an overall disbenefit for the Core scenario of -£9.8m **(Table 3-18)**.

Table 3-18 – Present Value of vehicle operating costs (all scenarios)

Vehicle operating costs (£m)	Core	MRN	Emerging Local Plan	Emerging Local Plan (M)	Low Growth	High Growth
Fuel operating costs	2.08	2.32	3.39	3.65	1.01	3.95
Non-fuel operating costs	-11.88	-11.83	-11.54	-11.43	-10.92	-11.49
Total	**-9.80**	**-9.51**	**-8.15**	**-7.78**	**-9.91**	**-7.54**

All entries are present values discounted to 2010, in 2010 prices.

- A benefit to users is calculated in terms of fuel operating costs, associated with reduced time spent in traffic queues and congested conditions (primarily related to the existing A350 route). This benefit is greater under the 'high growth' and 'emerging local plan' scenarios due to more heavily congested conditions in the Do Minimum.
- Non-fuel operating costs result in a disbenefit to users, which more than offsets the benefit from fuel operating cost savings. This is considered to be associated with longer travel distances through use of the bypass (e.g. resulting in higher levels of vehicle 'wear and tear'),

Further information

- See section 5.5 of the Economic Appraisal Report.

3.9.4. Indirect tax revenues (Level 1)

Approach

- Calculated via TUBA using the same inputs and parameters as the main travel time benefits (section 3.9.2).

Monetised impacts – key outputs

- Indirect tax revenues fall to central government and are generated through fuel duty and other charges incurred by transport users and providers. These are calculated to represent a PV of £4.24m under the Core scenario **(Table 3-19)**.

Table 3-19 – Present Value of indirect taxation revenues (all scenarios)

Indirect tax revenue (£m)	Core	MRN	Emerging Local Plan	Emerging Local Plan (M)	Low Growth	High Growth
Indirect taxation revenues	4.24	4.15	3.84	3.61	4.14	3.79
Total	**4.24**	**4.15**	**3.84**	**3.61**	**4.14**	**3.79**

All entries are present values discounted to 2010, in 2010 prices.

3.9.5. Greenhouse Gases (Level 1)

Approach

- Predicted changes in greenhouse gas emissions have been calculated directly from TUBA using the same inputs and parameters as the main travel time benefits (section 3.9.2).
- Annualisation has been adjusted to ensure that the greenhouse gas impacts account for all 8,760 hours of the year, in line with TAG Unit A3.
- 'High' carbon values are used in the monetisation to ensure a robust assessment.
- The minor greenhouse gases impact calculated from AMAT is added separately to the TUBA assessment. This reflects mode shift to active modes for local trips within Melksham) associated with the improved walking and cycling environment facilitated by the bypass (and the related complementary walk / cycle measures).

Monetised impacts – key outputs

- An increase in carbon dioxide equivalent emissions (CO2E) of approximately 63,000 tonnes is predicted over the 60-year period in the Core scenario **(Table 3-20)**. This produces a NPV of -£3.94m.

Table 3-20 – Present Value of greenhouse gas impacts (2010 prices)

Greenhouse gas impacts	Core	MRN	Emerging Local Plan	Emerging Local Plan (M)	Low Growth	High Growth
Change in CO2E: non-traded (tonnes, 60 yrs)	59,546	48,568	49,482	49,435	53,780	33,577
Change in CO2E: traded (tonnes, 60 yrs)	3,747	3,664	3,854	3,983	3,504	3,594
NPV (£m) - TUBA	-3.96	-3.24	-3.30	-3.30	-3.61	-2.24
NPV (£m) - AMAT	0.02	0.02	0.02	0.02	0.02	0.02
NPV (£m) - total	**-3.94**	**-3.22**	**-3.28**	**-3.28**	**-3.59**	**-2.22**

All entries are present values discounted to 2010, in 2010 prices

- The predicted increase in emissions is considered to be associated with an increase in total vehicle kilometres, predominantly as a result of slightly longer journeys via the bypass. This is considered to off-set benefits of a smaller scale associated with improvements to fuel efficiency linked to reduced congestion and delays on the existing A350 route in particular.
- The resultant NPV is relatively similar across all scenarios considered. The 'high growth' scenario results in a lower impact, likely due to a more congested network overall in the Do Minimum.

Appraisal certainty / risk / limitations

- The assessment does not take into account potential for carbon off-setting measures (such as tree planting as part of the scheme). Analysis suggests that this could potentially contribute to a reduction of approximately 15,000 tonnes (CO2E) over 60 years.
- An alternative assessment of greenhouse gases has been undertaken as an indicative comparator **(Table 3-21)**, based upon the DEFRA Emissions Factors Toolkit (EFT) approach[62] (version 10.1), with outputs monetised via the TAG Greenhouse Gases Workbook.

Table 3-21 – Alternative assessment of greenhouse gas impacts

Greenhouse gas impacts (DEFRA Emissions Factors Toolkit approach)	Default	Sensitivity
Change in CO2E: non-traded (tonnes, 60 yrs)	247,951	87,562
Change in CO2E: traded (tonnes, 60 yrs)	n/a	n/a
NPV (£m)	**-16.52**	**-5.73**

All entries are present values discounted to 2010, in 2010 prices

- Based on default parameters the alternative EFT approach is considered to result in an unrealistic assessment. There are a number of limitations identified with the assumptions[63]; adjusting for these factors results in an increase in carbon dioxide equivalent emissions (CO2E) of approximately 88,000 tonnes (non-traded only) over the 60-year period in the Core scenario. This produces a NPV of -£5.73m. These results are broadly comparable with the TUBA assessment.

Further information

- Economic Appraisal Report - section 5.5.
- Alternative Carbon Emissions Assessment – Appendix B10.

[62] https://laqm.defra.gov.uk/air-quality/air-quality-assessment/emissions-factors-toolkit/
[63] including that the EFT only provides emissions factors up to 2030, and does not reflect latest government policy around the sale of diesel / petrol vehicles.

3.9.6. Physical activity and journey ambience (Level 1)

Approach

- Calculated via the DfT Active Modes Appraisal Toolkit (AMAT).
- Impacts reflect the complementary walking and cycling measures in Melksham which are facilitated through the traffic relief provided by the bypass; these measures have a PVC of approximately £5m.
- The scope of the assessment covers three defined intervention areas, which have been assessed separately and aggregated.

Monetised impacts – key outputs

- The overall impact for physical activity and journey ambience based on the Core scenario is assessed as NPV £14.52m.

Table 3-22 – Present Value of physical activity and journey ambience impacts

Impact	PVB (£m)
Reduced risk of premature death	10.68
Absenteeism	1.89
Total Physical Activity	12.57
Journey ambience	1.95
Total	**14.52**

All entries are present values discounted to 2010, in 2010 prices

- Reduced risk of premature death from increased physical activity is the most significant contributor to the benefits (74%).

Appraisal certainty / risk / limitations

- At the current stage of project development, the complementary walking and cycling measures are based on initial feasibility and are likely to evolve (e.g. through ongoing stakeholder engagement). However, the measures assessed are considered to provide a reasonable representation for the purposes of the economic appraisal.
- This assessment does not include potential changes to walking facilities more directly associated with the bypass. This includes a proposed walk / cycle route parallel to sections of the bypass, in addition to modifications to the Public Rights of Way (with the overall principle to maintain connectivity).
- Active mode benefits have been assessed for the Core scenario only. Benefits are assumed to be consistent between all scenarios considered.

Further information

- Economic Appraisal Report – section 5.11.
- Other elements of active mode appraisal (marginal costs / benefits) are reflected under the relevant impacts covered within this chapter.

3.9.7. Construction impacts (Level 1)

Approach

- Construction impacts have been assessed in the WTM SATURN model, with outputs run through TUBA to generate the monetised impact.
- Construction of the bypass would be predominantly off-line, hence impacts on users from temporary traffic management are expected to be limited to the bypass connections to the existing A350 (northern and southern connections), A3102 and A365.
- Two main phases of traffic management have been identified and modelled separately **(Table 3-23)**.

Table 3-23 – Traffic management assumptions for assessment of construction impacts

Traffic management phase	Location	Details of restrictions
Phase 1 (6 months duration)	Southern A350 connection	- Speed limit reduced from 60mph to 30mph for a 1.5km section (Hampton Park roundabout to south of Littleton Roundabout) - One-way signal controlled shuttle working during off-peak hours
	A3102 connection	- Speed limit reduced from 60mph to 30mph for a 400m section (Sandridge House to Manor Farm estate) - One-way signal controlled shuttle working during off-peak hours
Phase 2 (6 months duration)	Northern A350 connection	- Speed limit reduced from 60mph to 30mph for a 750m section (Folly Lane to south of Melksham Road junction) - One-way signal controlled shuttle working during off-peak hours
	A365 connection	- Speed limit reduced from 60mph to 30mph for a 600m section (Bowerhill Lane to Carnation Lane) - One-way signal controlled shuttle working during off-peak hours

- Any lane closures (with signal controlled shuttle working) are assumed to be limited to off-peak hours. Each phase involving connection of the bypass to existing routes is assumed to last 6 months, with Phase 1 from January 2027 to June 2027, and Phase 2 from August 2027 to January 2028.

Monetised impacts – key outputs

- The overall monetised impacts of construction delays result in a modest disbenefit of -£0.53m.

Table 3-24 – Present Value of indirect construction impacts (Core scenario)

Impact	Phase 1 (£m)	Phase 2 (£m)	Total (£m)
Time benefits	-0.43	-0.05	-0.48
Fuel vehicle operating costs	-0.04	-0.01	-0.05
Non-fuel vehicle operating costs	-0.01	0.00	-0.01
Indirect taxation revenues	0.02	0.00	0.02
Greenhouse gases	-0.01	0.00	-0.01
All	**-0.47**	**-0.06**	**-0.53**

All values are in 2010 prices and values

Appraisal certainty / risk / limitations

- At this stage of scheme development there is not a detailed construction plan, hence the traffic management assumptions are high-level only in order to provide a representative basis for estimating the monetised impact.
- The construction impacts assessment would be updated at FBC stage and based on a more detailed Construction Management Plan.

Further information

- Economic Appraisal Report – section 5.7.

3.9.8. Accidents (Level 1)

Approach

- Assessed with the COBA-LT software for the Core scenario.
- Localised accident rates have been applied for key links within the defined study area.
- Default accident rates are applied to the new bypass links under the core assessment.
- A sensitivity assessment applies localised accident rates for the new bypass links (based on comparable sections of the existing A350 route).
- impacts associated with the improved walking and cycling environments delivered through the complementary measures package are captured from the AMAT assessment and added separately.

Monetised impacts – key outputs

- Overall accident benefits for the Core scenario are calculated as £2.2 million, under the core assessment approach **(Table 3-25)**.

Table 3-25 – Present Value of accident benefits (Core Scenario)

	Core assessment (£m)	Sensitivity (£m)
COBA-LT Economic Summary		
Total without-scheme collision costs (£m)	406.94	406.94
Total with-scheme collision costs (£m)	404.80	388.82
Total collision benefits: COBA-LT (£m)	2.14	18.12
Active modes (AMAT)		
Total collision benefits: AMAT (£m)	0.06	0.06
Total collision benefits	**2.20**	**18.18**

All monetised values in 2010 prices discounted to 2010

- Under the core assessment benefits are derived from a predicted reduction in total collisions with the scheme. The benefits from a reduction in slight and serious collisions more than offset a slight increase in predicted fatal collisions.
- The greatest benefits accrue on links along the existing A350 route and other surrounding routes which experience a reduction in traffic as a result of the bypass.

Appraisal certainty / risk / limitations

- The use of default accident rates on the new bypass is considered to result in a conservative approach for the core assessment. The sensitivity test results in significantly higher benefits, based on reductions in slight, serious and fatal collisions.
- The COBA-LT assessment has been undertaken on the Core scenario. For the other scenarios, the Core outputs have been factored using the ratio of TUBA benefits between each scenario and the Core scenario.

Further information

- Commentary and analysis on the expected impacts of the scheme on safety is provided in section 3.6.6.
- Further details on the approach and outputs relating to the COBA-LT assessment can be found in the Economic Appraisal Report – section 5.6.

3.9.9. Noise impacts (Level 1)

Approach

- The noise assessment follows guidance in TAG Unit A3 and considers the impacts of noise on annoyance, sleep disturbance and health impacts.
- Noise impacts have been quantified using a noise model, with inputs from the WTM in relation to changes in traffic volumes (by vehicle type) and speeds.
- This has been used to derive the number of households experiencing different noise level bands between the Do Minimum and Do Something.
- The difference in the estimated population affected by noise from alternative sources is then calculated and a monetary value derived via the TAG Noise Workbook.
- The assessment considers the opening year (2028) and a forecast year of 2043.

Monetised impacts – key outputs

- The change in noise impacts has been calculated as a net benefit of £8.41m, representing an overall reduction in noise impacts from the scheme **(Table 3-26)**.

Table 3-26 – Present Value of noise impacts (Core scenario)

Noise impact	NPV (£m)
Sleep disturbance	3.49
Amenity	3.22
Acute myocardial infarction (AMI)	0.98
Stroke	0.29
Dementia	0.43
Total	**8.41**

All monetised values in 2010 prices discounted to 2010; Numbers do not add due to rounding

- The largest benefits are due to reduced sleep disturbance and positive impacts on amenity.
- The positive noise benefits are driven by the impact of the bypass drawing traffic away from the existing A350, where parts of the route are bordered by residential properties.
- There is an overall net reduction in households experiencing noise disturbance, despite some increases associated with the proximity of some existing properties to the new bypass alignment (see section 3.6.7).

Appraisal certainty / risk / limitations

- No specific mitigation (e.g. noise barriers) is reflected within the noise modelling. Such mitigation could reduce the number of households experiencing increases in noise as a result of the bypass alignment.
- The noise assessment has been undertaken on the Core scenario. A factoring approach has been used to estimate the monetised impact for other scenarios considered.
- The bypass alignment reflects the emerging option. Changes to the alignment could affect the noise impacts.
- The active modes appraisal (AMAT) produces marginal noise benefits associated with the complementary walking and cycling measures – these have not been added to the above assessment due to their negligible impact.

Further information

- Full details of the noise assessment can be found in the Economic Appraisal Report – section 5.10.
- TAG Noise Workbook – Appendix B.9.2.
- Distributional impacts of noise are considered in section 3.13.

3.9.10. Air quality impacts (Level 1)

Approach

- Impacts from changes in nitrous oxide (NO2) and particulate matter (PM2.5) concentrations are valued.
- The assessment follows guidance in TAG Unit A3 – more specifically, the 'Impact-Pathways' approach has been used as the scheme affects people's exposure to pollutant concentrations. This approach consists of determining pollutant concentrations at distance bands from the affected roads and the number of receptors subject to improved or worsened conditions.
- Forecast changes in traffic flows and speeds have been taken from the WTM, with the assessment of changes in air quality informed by the use of an ADMS-Roads dispersion model in line with DMRB LA 105.
- The assessment considers the opening year (2028) and a forecast year of 2043.
- The TAG Air Quality Valuation Workbook[64] has been used to derive the monetised values.

Monetised impacts – key outputs

- The overall monetised air quality impact for the Core scenario is assessed as £1.01m **(Table 3-27)**.

Table 3-27 – Present Value of air quality impacts (Core scenario)

Air quality impact	Central value - NPV (£m)	Upper value - NPV (£m)	Lower value - NPV (£m)
Change in PM2.5 concentrations	**0.83**	2.61	0.16
Change in NO2 concentrations	**0.18**	0.81	-0.05
Total NPV	**1.01**	3.42	0.11

All monetised values in 2010 prices discounted to 2010

- The air quality benefits are driven by a decrease in the assessment score for NO2 and PM2.5 concentrations over the 60-year appraisal period, due to a reduction in concentrations at the majority of receptors.

Appraisal certainty / risk / limitations

- The 'central value' of air quality impacts has been incorporated into the overall VfM assessment. **Table 3-27** provides a comparison using the 'upper' and 'lower' values for reference.
- The air quality assessment has been undertaken on the Core scenario. A factoring approach has been used to estimate the monetised impact for other scenarios considered.
- The active modes appraisal (AMAT) produces marginal air quality benefits associated with the complementary walking and cycling measures – these have not been added to the above assessment due to their negligible impact.

Further information

- Full details of the air quality assessment can be found in the Economic Appraisal Report – section 5.10.
- Air Quality Valuation Workbook – Appendix B.9.1.
- Distributional impacts of air quality are considered in section 3.13.

[64] The current (at time of undertaking) July 2021 version of the TAG Air Quality Valuation Workbook has been used.

3.9.11. Reliability (Level 2)

Approach

- The reliability impacts of the scheme have been estimated using the TAG guidance on reliability for urban areas (TAG Unit A1.3).
- This provides an estimate of the change in the level of journey time variability depending on the change in average journey time for each origin/destination pair due to the scheme and the demand and distance between each pair. The process uses the same parameters and assumptions as the main TUBA assessment used as input
- A monetary value is applied to the standard deviation of travel time. Using reliability ratios for different user classes, the value of one minute of standard deviation is related to one minute of average travel time (e.g. for car travel the reliability ratio is 0.4, meaning that one minute of standard deviation has the same value as 0.4 minutes of average travel time[65] .

Monetised impacts – key outputs

- The reliability impact of the scheme is calculated as a benefit of £7.36m **(Table 3-28)**.

Table 3-28 – Present Value of reliability benefits (Core Scenario)

Journey purpose	Reliability benefit - NPV (£m)
Business	2.75
Commuting	2.60
Other	2.01
TOTAL	**7.36**

All monetised values in 2010 prices discounted to 2010.

- At a sector level, the highest reliability benefits are predicted for O-D pairs within the West Wiltshire towns which is line with expectations based upon the scheme impacts and the travel time benefits in particular.

Appraisal certainty / risk / limitations

- A minimum trip distance cap of 1km has been used within the reliability assessment to avoid over-estimation of benefits for particularly short journeys.
- The reliability assessment has been undertaken on the Core scenario. A factoring approach has been used to estimate the monetised impact for other scenarios considered.

Further information

- Economic Appraisal Report – section 5.8.

3.9.12. Induced investment: Output change in imperfectly competitive markets (Level 2)

Approach

- A reduction in generalised travel cost will induce investment and hence output. Where the market structure distorts the efficient operation of the market (imperfect competition) the value of the resulting increased output will not be fully captured by the magnitude of the change in generalised travel costs. Business user benefits will therefore fail to capture the total value of the output change.
- The welfare effects which arise due to the presence of imperfect competition is estimated by applying a 10% uplift factor to the business and freight user benefits, in line with TAG A2.2.

[65] Reliability ratios are informed by the MyRIAD v1.3 Motorway Reliability Incidents And Delays User Manual

Monetised impacts – key outputs

- The estimated benefits from output change in imperfectly competitive markets are £5.89m for the Core scenario **(Table 3-29)**.

Table 3-29 – Present Value of output change in imperfectly competitive markets (all scenarios)

	Core	MRN	Emerging Local Plan	Emerging Local Plan (M)	Low Growth	High Growth
Business and freight user benefits (NPV, £m)	56.92	55.10	55.87	72.31	45.24	71.78
Value of output change in imperfectly competitive markets (NPV, £m)	**5.69**	**5.51**	**5.59**	**7.23**	**4.52**	**7.18**

2010 prices and values

3.9.13. Productivity: Agglomeration impacts (Level 2)

Approach

- The assessment is based upon 'static clustering' and follows the principles set out in TAG A2.4.
- Data from the WTM has been used to calculate average generalised travel costs between each origin and destination zone, weighted by journey purpose.
- The study area is defined based upon the expected scheme impact, informed by the traffic modelling.
- Agglomeration impacts are calculated via a spreadsheet model which considers effective density and estimates the impact of changes in generalised travel costs and employment location on the strength of agglomeration between two zones for each industrial sector.
- The productivity changes across all industrial sectors are summed to estimate the overall static clustering impact of scheme.

Monetised impacts – key outputs

- The estimated benefits from agglomeration are £19.09m for the Core scenario **(Table 3-30)**.

Table 3-30 – Present Value of agglomeration benefits – static clustering (Core scenario)

Impact	NPV (£m)
Agglomeration benefits (static clustering)	19.09

Further information

- Economic Appraisal Report – section 5.9.

3.10. Benefit Cost Ratio

The scheme cost (in terms of PVC - section 3.8) and the monetised impacts (in terms of PVB – section 3.9) are compared to determine the Benefit Cost Ratio (BCR), as presented in **Table 3-31**.

Consideration of the PVB from Level 1 monetised impacts only, against the PVC, provides the Initial BCR. The PVB from Level 2 monetised impacts is subsequently added to provide the Adjusted BCR.

Table 3-31 – Summary of Benefit Cost Ratio (all scenarios)

Impact / measure	Core	MRN	Emerging Local Plan	Emerging Local Plan (mitigation)	Low Growth	High Growth
	PV (£m)					
Highway user time benefits	160.19	157.79	161.88	199.89	126.10	194.91
Vehicle operating costs	-9.80	-9.51	-8.15	-7.78	-9.91	-7.54
Indirect tax revenues	4.24	4.15	3.84	3.61	4.14	3.79
Greenhouse gases	-3.94	-3.22	-3.28	-3.28	-3.59	-2.23
Physical activity*	12.57	12.57	12.57	12.57	12.57	12.57
Journey ambience*	1.95	1.95	1.95	1.95	1.95	1.95
Construction impacts**	-0.53	-0.52	-0.54	-0.66	-0.42	-0.64
Accidents**	2.16	2.14	2.21	2.76	1.67	2.71
Noise**	8.41	8.33	8.62	10.75	6.52	10.55
Air Quality**	1.02	1.01	1.04	1.30	0.79	1.28
PVB (Level 1 impacts)	**176.27**	**174.68**	**180.15**	**221.11**	**139.82**	**217.35**
Present Value of Costs (PVC)	134.51	134.51	134.51	134.51	134.51	134.51
Net Present Public Value (NPPV)	41.76	40.17	45.64	86.60	5.31	82.84
Initial BCR	**1.31**	**1.30**	**1.34**	**1.64**	**1.04**	**1.62**
Reliability**	7.36	7.29	7.54	9.40	5.70	9.23
Output change in imperfectly competitive markets	5.69	5.51	5.59	7.23	4.52	7.18
Agglomeration (static clustering)**	19.09	18.90	19.55	24.38	14.79	23.94
PVB (Level 1 and 2 impacts)	**208.41**	**206.38**	**212.82**	**262.11**	**164.84**	**257.69**
Present Value of Costs (PVC)	134.51	134.51	134.51	134.51	134.51	134.51
Net Present Public Value (NPPV)	73.90	71.87	78.31	127.60	30.33	123.18
Adjusted BCR	**1.55**	**1.53**	**1.58**	**1.95**	**1.23**	**1.92**

*Physical activity and journey ambience benefits are assumed to remain constant for all scenarios

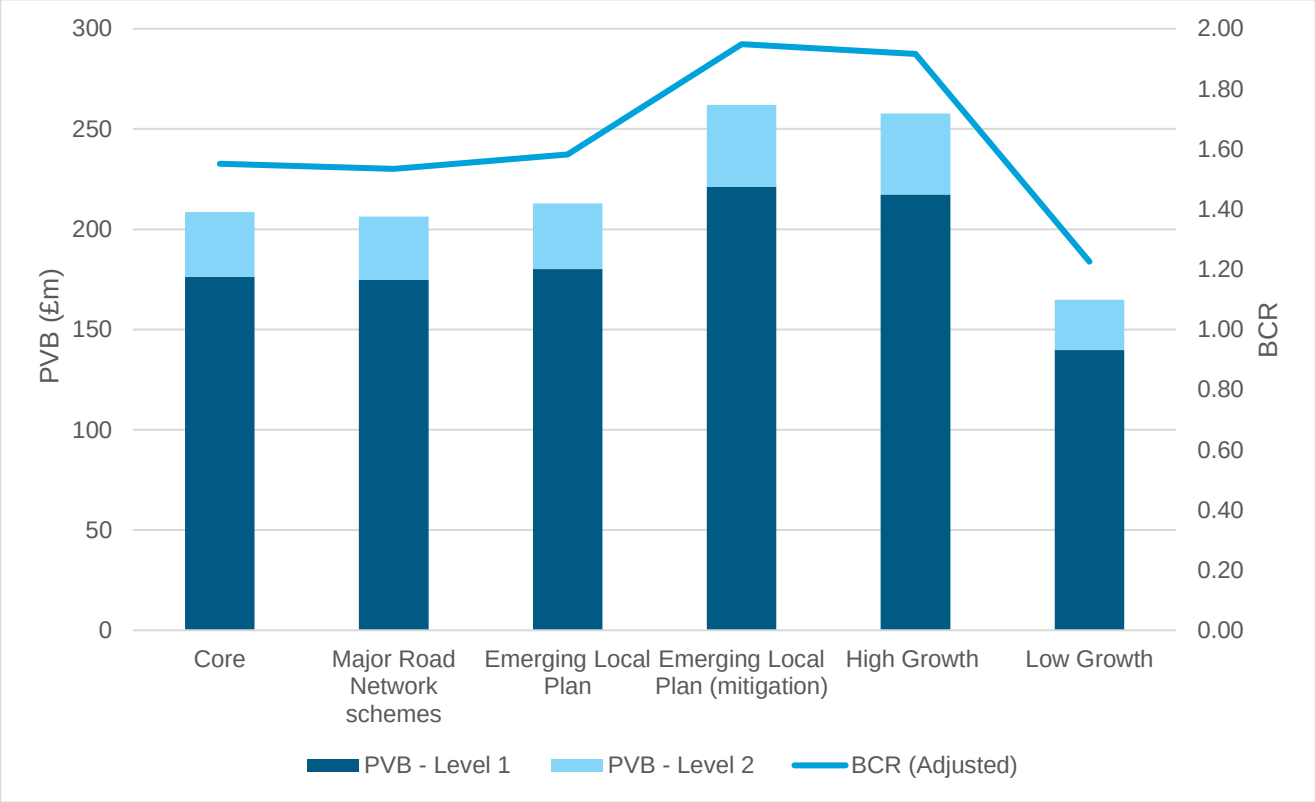
**These benefits have not been explicitly assessed for scenarios other than the Core; the Core benefits are factored for other scenarios based upon the relationship of TUBA benefits to the Core.

The **Initial BCR for the Core scenario is 1.31,** associated with a NPPV of £41.76m. With Level 2 monetised impacts included, the **Adjusted BCR is 1.55**, associated with a NPPV of £73.90m.

Across all scenarios considered, the Adjusted BCR has a range from 1.23 to 1.95. The Core, 'MRN' and 'Emerging Local Plan' scenarios produce a relatively similar Adjusted BCR, within the middle of that range. The 'Emerging Local Plan (mitigation)' and 'High growth' scenarios produce a similar Adjusted BCR at the top of the range.

Figure 3-16 illustrates the Adjusted BCR for all scenarios considered and the PVB contribution from Level 1 and Level 2 monetised impacts.

Figure 3-16 – Present Value of Benefits and BCR (all scenarios)



3.11. Non-monetised impacts - environment

The assessment of non-monetised environmental impacts follows TAG Unit A3 and applies the qualitative environmental capital approach[66]:

- Step 1 – consider potential impacts and the area of impact
- Step 2 – identify key environmental resources with potential to be impacted by the scheme and identify their features
- Step 3 – for each resource, define the scale, significance, and value
- Step 4 – estimate the magnitude of impact and provide an assessment score for each feature.
- Step 5 – derive an overall assessment using a seven-point scale (large adverse to large beneficial)

This approach is common for each environmental topic, with specific considerations taken into account for each in line with TAG.

Table 3-32 provides a summary of the assessment scores and the subsequent sections consider each impact in turn.

[66] The environmental capital approach was developed by the statutory environmental bodies Natural England (formerly the Countryside Agency and English Nature), English Heritage and the Environment Agency in co-operation with DfT

Table 3-32 – Non-monetised impacts summary - Environment

Non-monetised impact - Environment	Qualitative assessment score
Landscape	Large adverse
Townscape	Neutral
Historic environment	Slight adverse
Biodiversity	Large adverse
Water environment	Neutral

3.11.1. Landscape

Overall assessment

The overall qualitative assessment for landscape is **large adverse**.

Certainty / risk

- There is some uncertainty given that the environmental design and mitigation strategy is still to be fully developed.
- Due to the existing nature of the Scheme area being agricultural land, the scheme is considered to have a Large Adverse effect, but reducing to Moderate Adverse post year 15 as long as mitigation and enhancement measures have been established.

Key impacts (qualitative)

- Cumulative adverse effect on landscape and visual amenity have been identified, particularly at construction and early years of operation.
- The scheme is considered to provide a notable contrast to the existing landscape conditions and will have an intrusive nature. This adverse effect is considered unlikely to be completely mitigated, and any planting will serve to minimise the adverse effect but not eradicate it. Consequently, the scheme will result in a permanent change to the face of the landscape.

Further information

- TAG Landscape Impacts Worksheet – Appendix B.9.5.
- Preliminary Environmental Assessment Report.

3.11.2. Townscape

Overall assessment

The overall qualitative assessment for landscape is **neutral**.

Certainty / risk

- A TAG worksheet has not been completed based upon limited direct impact of the scheme.

Key impacts (qualitative)

- Built-up areas are at a distance from the scheme and hence direct impacts on Townscape are considered to be of lower relevance to the scheme.
- Traffic reduction within the existing built-up area of Melksham as a result of the scheme has potential to result in some beneficial indirect impacts on townscape through increased opportunities for public realm enhancement and regeneration.
- Some positive impacts are likely to be associated with the delivery of the complementary walking and cycling measures which are expected to include some limited public realm / street scene improvements (e.g. within the High Street area).

3.11.3. Historic environment

Overall assessment

The overall qualitative assessment for historic environment is **slight adverse**.

Certainty / risk

- The potential for archaeological survival is currently unknown. However, the presence within the study area of known archaeological remains, both designated and non-designated, suggests that outside the existing development and road corridors, there is potential for surviving archaeological remains.
- Impacts to non-designated assets cannot be fully quantified at this stage; to establish the level of harm on known archaeological remains further assessment is required in the form of a desk-based assessment.
- The overall context of the study area is notable but is not rare regionally or nationally.

Key impacts (qualitative)

- There is unlikely to be any substantial impact to designated assets and listed buildings.
- There is likely to be a moderate adverse impact to the setting of the Lacock Conservation area; however, mitigation measures could be put in place to reduce this.
- There is likely to be a moderate impact on the non-designated heritage asset identified as Medieval Settlement of Redstocks (MWI3625), and the Medieval Settlement of Southeast of Snarlton Farm (MWI3621).

Further information

- TAG Historic Environment Impacts Worksheet – Appendix B.9.6.
- Preliminary Environmental Assessment Report.

3.11.4. Biodiversity

Overall assessment

The overall qualitative assessment for biodiversity is **large adverse**.

Certainty / risk

- Phase 2 surveys have not been completed and the mitigation is not yet known. Therefore, the assessment of large adverse is based on a precautionary assessment, which may be subject to change as the project progresses.
- The impacts to internationally designated sites are to be determined following the outcome of the HRA, meaning that impacts cannot be determined at this stage.
- Impacts to ancient woodland and veteran and ancient trees will be determined following detailed arboricultural surveys and air quality analysis

Key impacts (qualitative)

- Minor negative adverse are anticipated to Kennet and Avon Canal LWS, Bristol River Avon LWS, and Inwood Lacock LWS in relation to hydrological and air pollution, due to their proximity to the Proposed Scheme.
- Impacts to the other LWS within the study area are considered unlikely due to the larger distances between the design extent boundary and the LWS, however this will be determined following detailed air quality analysis.
- Moderate adverse impacts are anticipated on the priority habitats within the study area: broadleaved woodland and hedgerows, which are likely to be lost or severed as a result of the works.
- Minor adverse impacts are anticipated to the Bristol River Avon, which the Scheme directly crosses. This is due to possible pollution effects during construction, and impacts relating to the new crossing during operation.

- A slight adverse impact is anticipated to standing waterbodies, some of which will be directly lost as a result of the Proposed Scheme and will require compensatory habitat to be created.
- A precautionary large adverse impact is anticipated on bats, as bats in the study area may be associated with three internationally designated sites, and the Proposed Scheme may have habitats which support Annexe 2 bat species.

Further information

- TAG Biodiversity Impacts Worksheet – Appendix B.9.3.
- Preliminary Environmental Assessment Report.

3.11.5. Water environment

Overall assessment

The overall qualitative assessment for water environment is **neutral.**

Certainty / risk

- The significance of effects has been determined based on professional judgement, experience on similar Schemes, and the environmental data available at the time, however without further information on the Scheme design, and environmental surveys, there is a risk that unforeseen significant impacts could be present.

Key impacts (qualitative)

- There are no predicted significant adverse effects of the scheme on the water environment. Impacts have been assessed as 'Low Significance' at most. With the application of water quality, groundwater, hydromorphology mitigation and flood risk mitigation, the overall assessment is scored as neutral.
- The scheme will result in an increase in impermeable road area. This could potentially impact the water quality of a number of watercourses in the area. The scheme is assessed on the basis of the design including sustainable drainage measures that attenuate flows and remove suspended solids, dissolved copper and dissolved zinc, as well as providing spillage control.
- The scheme crosses watercourses and floodplains which could potentially affect flood flow conveyance and storage, but this is assumed to be mitigated through design and inclusion of floodplain compensation where appropriate.

Further information

- TAG Water Environment Impacts Worksheet – Appendix B.9.4.
- Preliminary Environmental Assessment Report.

3.12. Non-monetised impacts - social

3.12.1. Approach

Non-monetised social impacts have been assessed qualitatively, in line with TAG A4.1, using a seven-point scale (large beneficial to large adverse).

The indicator for option and non-use values was deemed not to be relevant to the context of the scheme and therefore excluded from the assessment.

The Social and Distributional Impacts Report **(Appendix B8)** provides full details of the methodology and outputs.

3.12.2. Key outcomes

The results of the social impacts appraisal are summarised in **Table 3-33**. The assessment scores have been included in the AST.

Table 3-33 – Non-monetised social impacts summary

Indicator	Key impacts - qualitative statements	Overall assessment
Physical activity	The scheme enhances opportunities for walking and cycling between Melksham town centre and the rail station / Bath Road, and along the existing A350 corridor within Melksham and Beanacre. The complementary walking and cycling measures, facilitated by the traffic reductions from the bypass, will result in a better-connected walking and cycling network for Melksham and encourage greater use of these travel modes. The planned walking and cycling route adjacent to the bypass itself would also serve leisure activity, creating connected 'loops'.	Slight beneficial
Security	The appraisal has resulted in neutral impacts against most security indicators, such as formal / informal surveillance, and landscaping. Lighting is to be provided at the main junctions and at the approaches to these junctions. Lighting is also proposed at all pedestrian underpasses created by the proposed bypass.	Neutral
Severance	The proposed bypass design takes account of existing Public Rights of Way (PRoW) and other facilities currently used by pedestrians, cyclists and horse-riders. Some rationalisation of these facilities is expected (including via new underpasses), but overall connectivity is expected to be maintained. Significantly more links are assessed as experiencing a reduction in traffic flow than an increase. The complementary walking and cycling measures would have a positive impact from better integrating the town to the railway station and retail facilities, currently severed by the A350 route.	Slight beneficial
Journey quality	A significant reduction in driver frustration is expected as a result of the scheme, from improvements to journey reliability and reduced delays. There are considered to be positive impacts in relation to journey ambience for active modes associated with the complementary walking and cycling measures.	Moderate beneficial
Accessibility	The scheme is considered to have little direct influence on the availability or cost of public transport services. Reliability improvements on parts of the network where buses operate (e.g. A350) could result in some benefit to service punctuality. The reduced severance and improved walk / cycle connections between the town and the rail station would provide enhanced access to rail services. An overall conservative neutral assessment has been applied.	Neutral
Personal affordability	The modelling and economic appraisal indicates that the scheme is expected to result in an overall increase in vehicle operating costs. At a personal / individual level, likely changes are expected to be small. Some users (e.g. for local trips) are expected to experience a reduction in the cost of travel, whilst other users (including inter-urban and longer distance trips) are likely to experience a slight increase in the cost of travel. The scheme is not expected to result in any other changes to user charges.	Slight adverse

3.13. Distributional impacts

3.13.1. Approach

A distributional impacts appraisal has been carried out to understand the transport impacts of the scheme and their effects in relation to individual social groups. The appraisal has been conducted in line with the three stage process defined in TAG A4.2:

- Step 1: Screening – determining the relevance of impacts in relation to the scheme;
- Step 2: Assessment – defining the social groups and amenities affected within the scheme impact area; and
- Step 3: Appraisal – core analysis of the impacts to derive appraisal scores.

Impacts on security and accessibility were screened out as part of Step 1. A full appraisal (Steps 2 and 3) has been undertaken for user benefits, air quality, noise, severance, personal affordability and accidents.

The Social and Distributional Impacts Report **(Appendix B8)** provides full details of the methodology and outputs.

3.13.2. Key outcomes

The results of the distributional impacts appraisal are summarised in **Table 3-34**. The assessment scores have been included in the AST.

Table 3-34 – Distributional impacts summary

Indicator	Key impacts - qualitative statements	Overall assessment
User Benefits	User benefits impacts are appraised as moderate beneficial for all of the income deprivation quintiles and therefore the impact is distributed evenly.	Moderate beneficial
Air Quality	Air quality impacts mostly favour residents in income quintiles 2 and 3. Those in the most deprived income quintile (quintile 1) that may be considered to be the most vulnerable experience a lower proportion of air quality benefits than may be expected from an even distribution. A slight beneficial assessment was outlined for air quality for children as there are more receptors with decreased PM2.5 and NO2 than with increased levels in areas with the 20% highest proportions of children.	Slight beneficial
Noise	Noise impacts favour most deprived income quintiles. Residents in the least income quintiles experience moderate beneficial impacts. Therefore, the impact is distributed relatively unevenly. Since there are more properties with decreased noise levels within areas with high proportions of elderly residents and children, an overall moderate benefit to noise is anticipated for these social groups	Moderate beneficial
Severance	Children, older people and people with a disability were appraised as having a slight beneficial impact in terms of severance due to improvements as a result of complimentary walking and cycling measures around Melksham and the bypass. In addition, the reduction of traffic on local roads is expected to reduce severance for non-motorised users and vulnerable groups.	Slight beneficial
Accidents	The analysis has shown that the majority of roads experience a benefit in terms of accidents, as there are more links that will experience a decrease in accident rates ('benefit') than those experiencing an increase ('disbenefit'). Detailed analysis of existing accident data demonstrates that accidents involving the vulnerable groups are more likely to occur on links experiencing a decrease in accident rates as a result of the scheme.	Slight beneficial
Personal affordability	Affordability impacts are appraised as moderate adverse for all of the income deprivation quintiles and therefore although the impact is adverse the impact is distributed evenly.	Moderate adverse

3.14. Uncertainty and sensitivity testing

3.14.1. Approach to considering uncertainty

Uncertainty is inherent within the appraisal of any transport scheme. There are many 'what ifs' in relation to how the transport system will evolve in the future, particularly with the potential for emerging trends in behaviour and technology to drive significant change over time. The use of transport models, a fundamental aspect of scheme appraisal, can also introduce uncertainty to transport analysis, through the data, assumptions and model specifications required.

In order to consider uncertainty within the appraisal of the A350 Melksham Bypass scheme, a proportionate approach has been taken reflecting key principles within TAG and the DfT Uncertainty Toolkit[67] (TAG Supplementary Guidance).

[67] It should be noted that a key component of the Uncertainty Toolkit - the Common Analytical Scenarios – is not expected to be available until March 2022. This therefore does not form part of the approach, but other key principles from the Uncertainty Toolkit are applied in a proportionate manner.

The Uncertainty Toolkit recommends consideration of the overall level / significance of uncertainty associated with the scheme. Based on the categorisation guidance provided in the Uncertainty Toolkit, the A350 Melksham Bypass scheme is considered to fall into the 'medium' category overall **(Table 3-35)**.

Table 3-35 – Uncertainty impact categorisation

	Indicative impact		
	Low	Medium	High
Impact on public finances through budget cost or revenue risk	Tier 3 e.g. < £50m	Tier 2 e.g. £50 - £500m	Tier 1 e.g. > £500m
Corporate risk	Limited / risk of minor embarrassment	Risk of minor loss in confidence	Risk of major loss in confidence
Portfolio project	Local transport schemes	DfT approved or sponsored	Investment programme / strategy
Level of uncertainty	Input assumptions low range of uncertainty. Short lifetime, e.g. <5 years	Input assumptions medium range of uncertainty. Medium lifetimes, e.g. 5 – 50 years	Input assumptions high range of uncertainty. Long lifetimes, e.g. > 50 years

3.14.2. Assessing uncertainty

The uncertainty impact categorisation helps to inform the type and proportionality of the approach to considering uncertainty. The approach adopted for the A350 Melksham Bypass scheme applies elements of the following techniques (as covered in the Uncertainty Toolkit) in a proportionate manner:

- Judgement-based;
- Scenarios;
- Sensitivity testing; and
- Switching values analysis.

Two key areas of uncertainty in transport modelling and appraisal have been considered:

- **input uncertainty** (e.g. relating to potential variance around demand and supply assumptions, at a local and national level); and
- **modelling and appraisal specification uncertainty** (e.g. relating to uncertainty around specific values or parameters which may influence model forecasting and / or appraisal calculations).

A range of uncertainties have been reviewed and those of most relevance to the scheme have been identified **(Table 3-36)**.

Uncertainties are further defined by whether they are:

- Exogenous (EX), or Endogenous (EN)
- National (N), or Local (L)
- Demand related (D), or Supply related (S)

For each uncertainty, the technique used to assess the uncertainty is recorded and the assessed impact on the BCR is presented. This should be considered in terms of the relative change to the Core Adjusted BCR (BCR of 1.55 – see section 3.10). Where available, the sensitivity BCR is presented and qualitative comments on the assessment are made where relevant.

The uncertainties are intended to be objective and balanced, with representation of both 'pessimistic' and 'optimistic' elements.

Table 3-36 – Summary of assessment of uncertainty

Uncertainty	Type	Description	Considered via	Assumptions	Impact on BCR category				Sensitivity BCR	Qualitative comments
					Poor	Low	Medium	High		
National traffic forecast uncertainty	Input EX / N / D	Reflecting uncertainty around annual forecasts from the National Transport Model (NTM), based on the macro-economic variables that influence the main drivers of travel demand.	High growth scenario	% base demand added / subtracted, in line with approach in TAG Unit M4.			■		1.92	-
			Low growth scenario			■			1.23	-
Cumulative impacts of other A350 MRN schemes	Input EN / L / S	Reflecting MRN schemes for the A350 promoted by Wiltshire Council at Chippenham and M4 Junction 17, to consider the effect of the scheme 'in combination' with these other prospective improvements.	Alternative 'MRN' scenario	Chippenham and M4 J17 MRN schemes included in DM and DS			■		1.53	Similar to Core. Change in demand from Core is not substantial.
Local development – emerging Local Plan	Input EN / L / D	Wiltshire Council is currently undertaking its Local Plan Review to 2036. This can only provide an emerging position at this stage, but there is a key focus for housing and employment sites within the A350 Growth Zone. The potential impact on the assessment of the Melksham Bypass scheme is considered, with and without additional LP transport mitigation.	Alternative 'Emerging Local Plan' scenario	No additional transport mitigation			■		1.58	Similar to Core. Additional JT benefits offset by capacity constraints on wider network result in some disbenefits arising with bypass
	Input EN / L / D / S		Alternative 'Emerging Local Plan + mitigation' scenario	Includes MRN schemes, plus A350 dualling Lacock to Chippenham.			■		1.95	Additional capacity from mitigation reduces disbenefits associated with the additional traffic attracted by the bypass.
Future classification of A350 route	Input EX / L / S	Current M4 to south coast strategic study (National Highways) may result in plans to classify the A350 as trunk road. Potential further investment in A350 route.	Judgement based	Indicatively, traffic flows may increase by 10% to 15% (higher for HGVs)			■		-	Increased demand likely to generate higher benefits (particularly for business related).
Scheme cost	Input EN / L / S	The PVC includes a 23% optimism bias uplift. Further sensitivity testing is undertaken to consider the impact of higher and lower scheme costs.	'High Cost' sensitivity test	+20% PVC increase		■			1.29	-
			'Low Cost' sensitivity test	-20% PVC decrease			■		1.94	-
Change to scheme scope / design	Input EN / L / S	Emerging bypass route identified. Some scope for variation to specific alignment	Judgement based				■		-	Options assessment demonstrated that scheme benefits were not particularly sensitive to variations to route alignment
Regional growth*	Input EX / N / D	…people leave London and the South East in search of a higher standard of living and more affordable housing. As a result, there is lower employment and population growth in these regions relative to the rest of the country. Areas outside of the South increase their relative level of competitiveness through an increase in productivity	Judgement based	Lower demand growth in London / SE. Higher demand growth elsewhere.			■		-	Low proportion of scheme benefits associated with London / south-east, so unlikely to adversely impact VfM. Potential higher traffic growth associated with improved economic performance driving increased benefits (in line with 'high growth).
Behavioural change*	Input EX / N / D	… people embrace new ways of working, shopping and travelling. Important behavioural trends which have emerged in recent years accelerate, in part because of the Covid-19 pandemic, which include: changes in the travel behaviour of young people; increased flexible working; and increased online shopping.	Judgement based	Potential peak spreading, lower levels of overall traffic growth, potential increase in delivery / goods vehicle demand			■		-	Journey time savings and benefits are quite evenly spread across time periods and journey purpose, meaning the VfM may not be as sensitive to this scenario as some other schemes.
Technology*	Input EX / N / D	.. road travel becomes far more attractive and accessible to road users because of a high take-up of connected autonomous vehicles (CAVs), which enter the fleet in the 2020s and make up to 50% of it by 2040	Judgement based	Assumed increase in traffic demand			■		-	Increased traffic demand associated with increased benefits, although some risk of benefits being eroded if demand increases to such an extent that bypass reaches capacity.

Uncertainty	Type	Description	Considered via	Assumptions	Impact on BCR category				Sensitivity BCR	Qualitative comments
					Poor	Low	Medium	High		
De-carbonisation*	Input EX / N / D	… there is a high take up of electric and zero-emission vehicles (ZEVs). This scenario allows scheme promoters to assess how falling tailpipe emissions for road vehicles may impact the business case for individual schemes.	Judgement based / alternative carbon emissions assessment	Assumed 5% year on year reduction in emissions up to 2050 (Do Minimum)			■		-	Reduced carbon emissions impact associated with the scheme. C.65% reduced CO2E tonnes estimated compared to Core scenario. Negligible impact on VfM, as the disbenefit associated with carbon emissions in the Core is only -£4m.
Values of Time (work)	Model & appraisal	Work time savings account for a significant proportion of the scheme benefits. Standard assumptions are used, but TAG recognises a degree of uncertainty around the values, and advises sensitivity testing to be undertaken.	‘High VoT’ sensitivity	+25% business user benefit			■		1.65	
			‘Low VoT’ sensitivity	-25% business user benefit		■			1.45	
Values of Time (non-work)	Model & appraisal	Non-work time savings account for a significant proportion of the scheme benefits. Standard assumptions are used, but TAG recognises a degree of uncertainty around the values, and advises sensitivity testing to be undertaken.	‘High VoT’ sensitivity	+25% commuter benefit / +60% other user benefit			■		1.89	
			‘Low VoT’ sensitivity	-25% commuter benefit / -60% other user benefit		■			1.21	
TAG Databook values (modelling)	Model & appraisal	Modelling is based on TAG Databook v1.14. Since modelling was completed, TAG Databook has been updated to v1.15 (July 2021).	Judgement based	n/a			■		-	Comparison of key values / parameters between versions suggests unlikely to materially impact the BCR.
Carbon values	Model & appraisal	Greenhouse gas impacts calculated via TUBA are based on v1.15 ‘high’ values. DfT released updated carbon values in October 2021 (v1.16).	Sensitivity test (indicative)	V1.16 ‘central’ values are approximately double v1.15 ‘high values’			■		1.52	-£4m disbenefit under the core assessment. Assume approximately -£8m disbenefit under sensitivity.
Collision benefits	Model & appraisal	Core assessment uses default values /rates for the new bypass links. Conservative approach, hence alternative considered.	Sensitivity test - COBA-LT	Alternative assessment applies localised values.			■		1.67	Localised accident rates are lower, resulting in +£16m benefit over 60 yrs.
Demand / fuel cost / PT fare elasticities	Model & appraisal	Realism testing is used to ensure that the model responds to changes in travel costs rationally, behaves realistically and with acceptable elasticities.	Model realism tests	Changes to logit parameters / cost damping			■		-	Realism tests have produced elasticities which are broadly in-line with general expectations and experience. Therefore, the VDM model is considered suitable for preparing forecasts. See LMVR.

*These areas of uncertainty reflect the Common Analytical Scenarios as defined within the Uncertainty Toolkit. The datasets to accompany these are not expected to be available until March 2022. The principles behind these scenarios and their likely impact in relation to the scheme appraisal have been considered qualitatively.

Impact on BCR category:

- ■ No change
- ■ Improvement
- ■ Worsening

3.14.3. Implications of uncertainty on Value for Money assessment

The assessment of uncertainty is used to inform whether any adjustment to the Value for Money category may be appropriate. This is one element of determining the final VfM category (section 3.15).

The assessment of different types of uncertainty **(Table 3-36)** demonstrates that in most circumstances the outcome results in no change to the VfM category (Medium), but in some cases results in a shift down one category (Low). It should also be noted that in some cases (e.g. 'low cost', 'high growth' and 'emerging Local Plan (mitigation)' the BCR is only marginally short of tipping into a High VfM category.

Based on the outcomes of the uncertainty analysis, an overall switching values assessment has been used to present the likelihood of changes to the Core VfM category resulting from increases or reductions in costs and benefits **(Table 3-37)**.

Table 3-37 – Summary of the impacts of uncertainty on the Value for Money assessment

	Cost		Benefit	
VfM category (BCR)	Change	Likelihood	Change	Likelihood
Poor (0-1)	+£74m	Very unlikely	-£74m	Very unlikely
Low (1-1.5)	+£5m	Possible	+£6m	Possible
Medium (1.5-2)	0	Likely	0	Likely
High (2-4)	-£30m	Unlikely	+£62m	Unlikely
Very high (>4)	-£82m	Very unlikely	+£327m	Very unlikely

Taking into account the consideration of uncertainty, this indicates that there is a reasonable degree of certainty around the Core Adjusted BCR (and resultant Medium VfM category), but that there is also a possibility of the scheme VfM moving into a Low VfM category. As the majority of the scheme benefits are related to travel time savings, this would particularly be the case under conditions of reduced traffic demand and / or lower values of travel time saving.

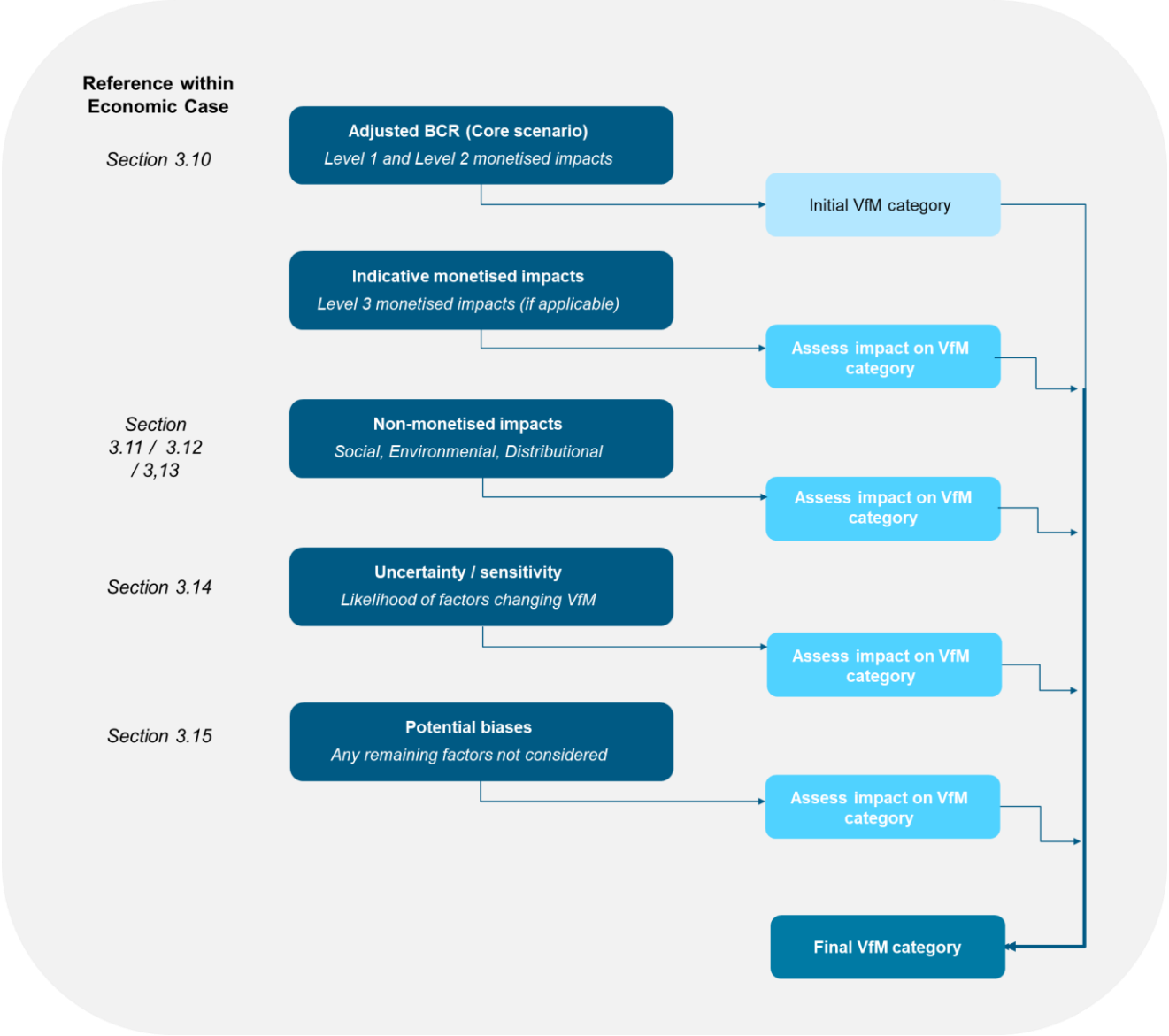
3.15. Value for Money Statement

3.15.1. Introduction

The overall value for money statement provides the key information from the economic appraisal for the A350 Melksham Bypass scheme presented within the OBC. Evidence is presented in relation to whether the expected costs of the scheme are justified by its expected benefits to the UK public as a whole, including both positive and negative impacts on the economy, society, environment, and public accounts. Monetised, quantitative and qualitative information is used in preparing the statement.

In line with DfT's 'Value for Money Framework' and 'Supplementary Guidance on Categories', the determination of the final VfM category begins with the Adjusted BCR and then considers other monetised and non-monetised impacts and risks / uncertainties, and the likelihood of these resulting in a change to the VfM category **(Figure 3-17)**. This draws upon, and should be considered alongside, relevant sections of the Economic Case, as indicated.

Figure 3-17 – Determining the final Value for Money category



3.15.2. Value for Money categorisation

The evidence and rationale for arriving at the final VfM category is summarised in **Table 3-38**.

Table 3-38 – Value for Money Statement

Impact / measure	Core Scenario	*MRN*	*Local Plan*	*Local Plan (M)*	*Low growth*	*High growth*	Notes
Adjusted BCR							
Present Value of Benefits (PVB)	£208.41m	*£206.38m*	*£212.82m*	*£262.11m*	*£164.84m*	*£257.69m*	Includes travel time benefits, vehicle operating costs, indirect tax revenues, accidents, physical activity, journey ambience, noise, air quality, greenhouse gas impacts and construction impacts. Adjusted to include reliability benefits, output change in imperfectly competitive markets, and agglomeration benefits. Benefits captured associated with the bypass and complementary walking / cycling measures. Standard 60-year appraisal period. Scheme opening in 2028. Costs (PVC) covers investment cost and maintenance, and includes 23% optimism bias.
Present Value of Costs (PVC)	£134.51m	*£134.51m*	*£134.51m*	*£134.51m*	*£134.51m*	*£134.51m*	
Net Present Public Value (NPPV)	£73.90m	*£71.87m*	*£78.31m*	*£127.60m*	*£30.33m*	*£123.18m*	
Adjusted BCR	**1.55**	***1.53***	***1.58***	***1.95***	***1.23***	***1.92***	
VfM Category	**Medium**	***Medium***	***Medium***	***Medium***	***Low***	***Medium***	
Indicative monetised impacts							
N/a	n/a	Monetised impacts associated with land use change have not been assessed.					
VfM Category adjustment	**Medium**	No adjustment					
Non-monetised impacts							
Social Impacts	Moderate beneficial to slight adverse to	Social impacts have been assessed as being mostly beneficial in nature. Personal affordability has been assessed as slight adverse.					
Environmental Impacts	Neutral to large adverse	Based on a precautionary assessment, as not all details of potential mitigation are confirmed. The most significant adverse impacts are identified in relation to Landscape and Biodiversity.					
Distributional Impacts	Moderate beneficial to moderate adverse	Distributional impacts have been assessed as being mostly beneficial. Personal affordability has been assessed as moderate adverse.					
VfM Category adjustment	**Low-Medium**	Adjustment to reflect the potential for increased weight to be given to the adverse Landscape and Biodiversity impacts.					
Uncertainty / sensitivity							
Key Risks, Sensitivities	BCR range 1.23 to 1.95	High and low growth scenarios provide the greatest variation to the Core. Uncertainty / sensitivity testing shows Medium VfM category is likely in most cases, with some potential for a move to Low VfM (e.g. under low growth, or lower Value of Time assumptions).					
VfM Category adjustment	**Low-Medium**	Low-Medium considered to remain appropriate.					
Potential bias							
Other factors	-	The scheme cost includes elements of future-proofing (provision for future dualling); these potential future cost savings are not reflected within this value for money assessment.					
VfM Category adjustment	**Low-Medium**	Low-Medium considered to remain appropriate.					

VfM category	**Poor**	**Low**	**Medium**	**High**	**Very high**
Likelihood	Very unlikely	Possible	Likely	Unlikely	Very unlikely

FINAL VFM CATEGORY	**Low-Medium**

The key factors influencing the VfM categorisation include:

- The Adjusted BCR for the Core scenario is calculated as 1.55, with a NPPV of £73.90m, resulting in a Medium VfM category. This includes monetisation of all 'established' and 'evolving' impacts, upon which the DfT places greater confidence. Travel time savings are the primary contributor to the scheme benefits. The costs (PVC) include investment costs and maintenance costs, and include an optimism bias uplift of 23% (in line with DfT guidance for a scheme at this stage of development).
- Non-monetised impacts (social and environmental) are assessed as moderate beneficial to large adverse. Impacts on landscape and biodiversity are assessed as large adverse; these are considered to be 'precautionary assessments' which do not fully account for potential mitigation at this stage – with scope for moderate adverse impacts. Moderate beneficial impacts are assessed in relation to journey quality and severance. Overall, there is potential for a shift to a Low VfM category if greater weight is placed on the landscape and biodiversity impacts.
- Assessment of uncertainty indicates a range around the Core Adjusted BCR of 1.23 to 1.95. Uncertainty / sensitivity testing generally supports a Medium VfM category. Most uncertainties considered do not change the VfM category. Sensitivity to lower traffic growth and increased costs suggests an outcome below the Medium VfM category is possible.

3.15.3. Final Value for Money assessment

The A350 Melksham Bypass scheme is judged to offer Low-Medium value for money. There is a reasonable likelihood of a Medium value for money being achieved. Greater confidence could be placed on this should the development plans within the emerging Wiltshire Local Plan be realised by 2036 (with associated network mitigation) and / or national traffic growth is higher than core assumptions. If greater weight is placed on the landscape and biodiversity impacts, or traffic growth is lower than anticipated then a Low value for money outcome is possible. The scheme cost includes elements of future-proofing (provision for future dualling); these potential future cost savings are not reflected within the value for money assessment.

Financial Case

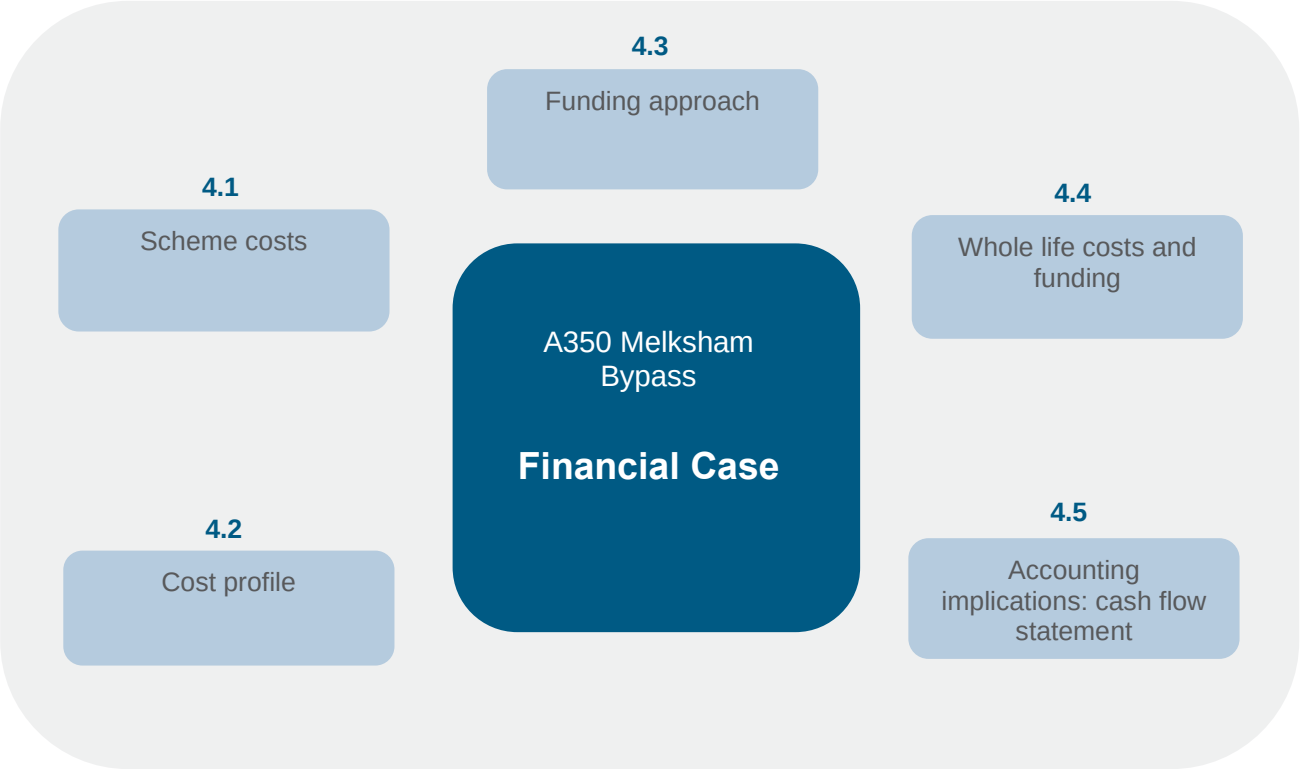
The Financial Case provides evidence on the affordability of the A350 Melksham Bypass scheme, how it is to be funded and any technical accounting issues. It includes the financial profile for the scheme and the impact of the proposed investment on budgets and accounts.

4. Financial Case

In demonstrating the financial viability of the A350 Melksham Bypass project, the Financial Case addresses the following elements:

- The expected implementation cost of the scheme, including the base cost and risk allowance in outturn prices;
- The expenditure profile showing year on year costs, and breakdown by cost type and parties on whom they fall;
- A summary of key financial risks (including any risk allowance quantification); and
- Consideration of the long-term financial implications of the scheme, including ongoing costs for operation, maintenance and capital renewals.

Figure 4-1 – Structure of the Financial Case



Financial Case overview

A summary of the key points from the Financial Case is presented in **Table 4-1,** in relation to questions typically asked by decision-makers when considering whether proposed projects are financially viable[68].

[68] The typical questions are based on those presented within DfT guidance 'The Transport Business Cases' (DfT, January 2013).

Table 4-1 – Overview of the Financial Case

Key Financial Case content	Summary	Section reference
How much does the project cost?	The total outturn capital cost estimate is £234.8m. This is based on the current delivery programme which assumes scheme opening in 2028. The outturn cost includes inflation to the value of £53.6m.	4.1.1
Who is paying for the project?	It is currently anticipated that Wiltshire Council will be seeking £199.6m from the DfT Large Local Major Fund (85% of the total cost), with local contributions funding the remainder. **This is subject to confirmation by Wiltshire Council.**	4.3
Are the various types of cost clearly identified?	Summary breakdowns of the main cost categories are provided, including preparatory, construction, land and property, site supervision and risk.	4.1.2
In what years are the costs incurred? Is funding identified year-on-year?	Expenditure is planned up to 2028/29. 88% of the costs are planned to be incurred between 2026/27 and 2028/29. The highest planned expenditure in any given year is £105m in 2027/28. An even DfT / local funding split is currently assumed year-on-year. **This is subject to confirmation by Wiltshire Council.**	4.2 4.3.1
What are the whole life cost implications and how will these be funded?	Annual maintenance and capital renewals are estimated at £32.4m (2019 prices) over 60 years. Wiltshire Council will be responsible for the maintenance of all new infrastructure created by the scheme. This will be funded through general annual maintenance budgets.	4.4
What are the key financial risks? Have these been quantified? Is there a robust risk management strategy?	The Risk Register has been used to undertake a Quantified Cost Risk Analysis. This has generated the risk cost value of £35.2m (based on P80) included within the scheme cost estimate. Further details around the risk management approach can be found in the Management Case.	4.1.3
Are there any state aid issues to address e.g. which may constrain or limit public sector support?	Wiltshire Council is not aware of any known state aid issues in relation to this project.	n/a

4.1. Scheme costs

4.1.1. Implementation cost summary

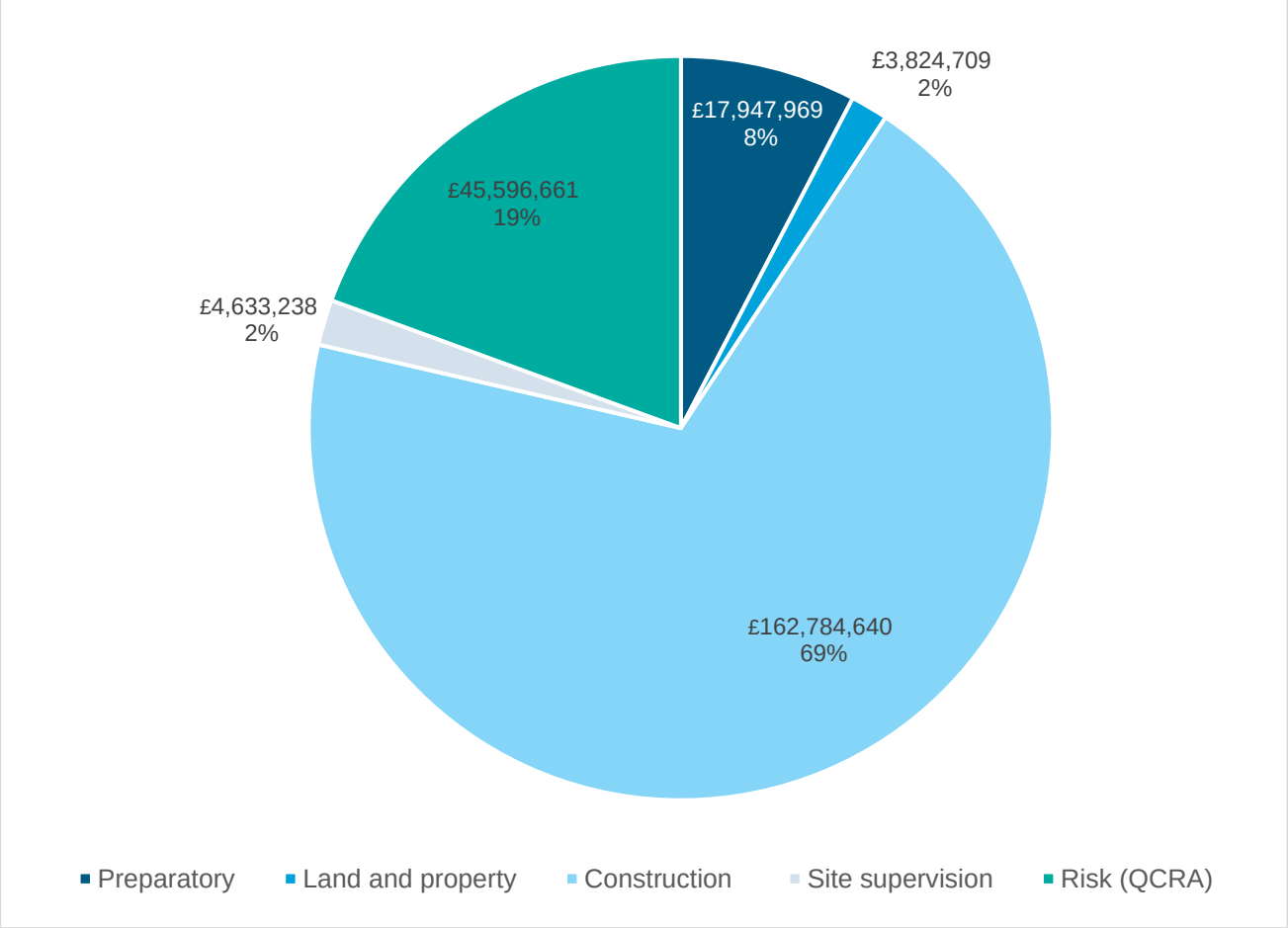
The overall scheme outturn cost estimate (allowing for inflation) is **£234,787,217.**

The scheme cost estimate has been developed by Faithful & Gould based on the latest scheme scope and design specification, as presented within the Strategic Case **(section 2.7)**. The estimate has been prepared in a 2019 (Q1) price base, with inflation applied accordingly (assuming scheme completion in 2028) to generate the final outturn cost (see also **section 4.1.4**). A summary of scheme implementation costs for the main cost categories is shown in **Table 4-2** and **Figure 4-2**.

Table 4-2 – A350 Melksham Bypass scheme cost estimate (2019 prices and outturn cost)

Cost category	Cost (£) 2019 prices	%	Cost (£) Outturn	%
Preparatory	15,999,924	8.83%	17,947,969	7.64%
Land and property	3,120,585	1.72%	3,824,709	1.63%
Construction (including preliminaries and statutory undertakings)	123,095,170	67.93%	162,784,640	69.33%
Site supervision	3,756,582	2.07%	4,633,238	1.97%
Sub-total – base cost, excluding risk	**145,972,261**	**-**	**189,190,556**	**-**
Risk (QCRA)	35,249,458	19.45%	45,596,661	19.42%
TOTAL	**181,221,719**	**100%**	**234,787,217**	**100%**

Figure 4-2 – Scheme outturn cost breakdown



4.1.2. Preparatory, land, construction and supervision costs

Preparatory costs

The **preparatory cost estimate of £15,999,924** has been developed based upon the scheme development activities and programme. Costs have been benchmarked from other similar schemes and against recent Wiltshire Council scheme delivery. This is assumed to cover:

- Scheme design and appraisal costs for preparing the Outline and Full Business Cases,
- Preparation of the planning application;
- Topographical, geotechnical, drainage and environmental surveys required to implement the scheme;
- Road Safety Audits;
- Non-statutory and statutory stakeholder consultation;
- Procurement process costs, monitoring and evaluation; and
- Principal Designer.

Table 4-3 – Preparatory costs breakdown

Preparatory cost element	Cost (£) 2019 prices
Preliminary design	£4,498,572
Environmental assessment (including surveys)	£1,897,835
Public consultation (statutory / non-statutory)	£449,855
CPO process	£140,580
Planning application	£984,063
Public inquiry	£1,827,545
Detailed design / FBC	£4,498,572
Ground investigation	£500,000
Archaeological surveys / investigations	£500,000
Other	£702,902
TOTAL	**£15,999,924**

Main construction costs

The **construction cost estimate of £123,095,170** is generated from itemised quantities produced from the design information for the scheme. These quantity measurements are based on the principals of the Highways Method of Measurement, following the series and item classification commensurate with the stage of design. A summary breakdown of construction costs is provided in **Table 4-4.**

Table 4-4 – Construction costs breakdown

Construction cost element	Cost (£) 2019 prices
Preliminaries	35,729,078
Site clearance	452,964
Fencing	626,223
Road restraint systems	394,039
Drainage	8,857,852
Drainage (ducts)	199,220
Earthworks	28,907,750
Pavements	11,880,227
Kerbs, footways and paved areas	1,374,997
Traffic signs and road markings	248,161
Road lighting columns	478,939
Electrical work for road lighting	845,613
Landscape and ecology	562,138
Structures	27,922,312
Statutory costs	4,615,654
TOTAL	**123,095,170**

The bulk earthworks quantities have been produced from a 3D design model, whilst the majority of other quantities are calculated from chainage lengths and feature widths, or from assumed spacing centres or the like. Input from the relevant design specialisms has identified the estimated scope of street lighting and other features. For structures, measurements of the indicative structure designs were produced and subsequently priced, with the resulting totals then converted into m^2 of total deck area.

Unit rates have been applied utilising cost data drawn from recent comparable infrastructure projects sourced from within the region. Where it has not been possible to source comparable cost data, alternative published cost data, such as Spon's price books, have been used as reference.

The cost estimate of preliminaries (including traffic management, site mobilisation and dismantling) are calculated from estimated project resources (e.g. for staffing, plant) for the programmed duration. Additional costs are incorporated for specific task items such as haul road construction from first principles based on assumed design parameters. An assumed construction methodology envisages all sections of the scheme to proceed without any major phasing or other constraints.

Service utilities have been estimated where potential clashes occur with the proposed alignment. Services have been identified from C2 returns from the providers. The nature of the returned information does not contain detailed line and level information and as such it is not feasible to accurately predict the extent of potential diversion or protections works. Estimated values are therefore order of magnitude costing based on benchmarked service diversion or protection data.

Land and property costs

The **land and property cost estimate of £3,120,585** is calculated from the anticipated area of the final highway boundary and rated at the assessed land purchase cost of the ascribed land use. The land required is primarily agricultural (approximately 110 hectares), but also includes some residential, equestrian and industrial use. The nature of the land use and any compensatory costs is preliminary awaiting refinement with consultation from Wiltshire Council's land team.

Site supervision

The **site supervision cost estimate of £3,756,582** is calculated from estimated staff resources for supervision and design support prior to and during the construction period.

4.1.3. Risk budget

The approach to risk cost allowance has regard to relevant guidance:

- Department for Transport TAG UNIT A1.2 – Scheme Costs, July 2017; and
- HM Treasury's The Green Book – Central Government Guidance on Appraisal and Evaluation, 2018. The 'Supplementary Green Book Guidance' on Optimism bias produced by HM Treasury was also used.

The project **Risk Register** is the primary means of identifying, assessing and monitoring risks and mitigation (see the Management Case, section 6.9). The risk budget provides a cost allowance within the total estimated scheme cost to cover any increased costs that may materialise associated with the identified risks within the Risk Register. Costs may be directly associated with risks, or indirectly associated (as a result of scheme delays for instance). The risk cost allowance has been determined through **Quantitative Cost Risk Analysis**.

Quantitative Cost Risk Analysis

The QCRA uses quantitative scoring of risks as inputs, such as likelihood percentages and three point estimates for the cost and schedule impacts. The EZRisk tool[69] has been used to build and run the QCRA models. Monte Carlo simulation (based upon 2,000 iterations) has produced probability distributions (probability-cost impact S-curve).

Based on the 80th percentile of the QCRA risk cost, the **total risk cost allowance is £35,249,458.**

Table 4-5 identifies the top 10 risks in terms of cost impact (80th percentile) from the QCRA. Further details on the QCRA process can be found in **Appendix C1**. Further information on the key risks and how these risks will be managed throughout scheme development and implementation is provided in section 6.9 of the Management Case.

Table 4-5 – Top 10 risks by cost impact (P80)

Risk ID	Risk Title	Probability	Risk cost (£'s)
R27	Design development results in cost increase	25%	7,691,393
R27a	Design development results in cost increase - Material reuse	38%	2,928,616
R18	Unexpected ground conditions.	25%	2,897,042
R02	Impact of emerging potential housing site allocations to east of Melksham	50%	1,838,633
R29	Supply chain limitations	25%	1,644,053
R27b	Design development results in cost increase - Structure cost including underpass / over pass	25%	1,501,285
R27c	Design development results in cost increase - Roman Road	25%	1,013,181
R13	Impacts on built heritage and archaeology	50%	940,920
R47	Local contributions(funding) strategy - Price inflation	25%	866,574
R44	Outcome from/results of public enquiry	25%	702,695

4.1.4. Inflation assumptions

Investment, operating and maintenance costs have all been estimated in 2019 prices and subsequently inflated to the point of expenditure (in line with the current scheme delivery programme).

[69] EZRisk is a Microsoft Excel based tool developed by Faithful & Gould that lets you analyse risk using Monte Carlo simulation. A random-number generator picks a random value for each variable within the constraints set by the model. It then produces a probability distribution for all possible outcomes, indicating how likely they are to occur.

For the Financial Case, the full rate of inflation has been included in cost forecasts to present outturn costs (as opposed to the Economic Case, for which the appraisal considers only real inflation; i.e. the rate of inflation of costs above the rate of background inflation).

The inflation rates used within the outturn scheme cost estimate are summarised in **Table 4-6**.

Table 4-6 - Inflation rates used in cost calculations

Cost Category	2021	2022	2023	2024 and beyond
BACKGROUND INFLATION	-1.61%	-0.14%	2.03%	2.09%
Construction	3.92%	3.77%	4.19%	4.29%
Land	3.92%	3.77%	4.19%	4.29%
Preparatory	2.57%	2.10%	2.45%	2.84%
Supervision	2.57%	2.10%	2.45%	2.84%
Risk	3.92%	3.77%	4.19%	4.29%
Operating	2.57%	2.10%	2.45%	2.84%
Traffic related maintenance	3.92%	3.77%	4.19%	4.29%
Non-traffic related maintenance	3.92%	3.77%	4.19%	4.29%

The total scheme cost in 2019 prices is **£181,221,719.** The total outturn scheme cost (with inflation) is **£234,787,217.** Inflation therefore accounts for **£53,565,498**.

4.2. Cost profile

A cost profile has been developed from the current scheme delivery programme, as detailed within the Management Case (section 6.5). This assumes preparation (post OBC) starting in 2022 and construction from 2026 to 2028 – see **Table 4-7**.

Table 4-7 – A350 Melksham Bypass expenditure profile (£ millions)

Year	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	Total
Preparatory	4.31	4.42	4.54	4.68	-	-	-	**17.95**
Land	-	-	-	3.82	-	-	-	**3.82**
Construction	-	-	-	-	55.07	82.05	25.67	**162.78**
Site supervision	-	-	-	-	1.58	2.33	0.72	**4.63**
Risk	1.14	1.19	1.24	3.02	13.03	20.61	5.37	**45.60**
Total	**5.45**	**5.61**	**5.78**	**11.52**	**69.68**	**104.99**	**31.76**	**234.79**

Figure 4-3 and **Figure 4-4** illustrate the expenditure profile year-on-year and cumulatively.

Figure 4-3 – Expenditure profile

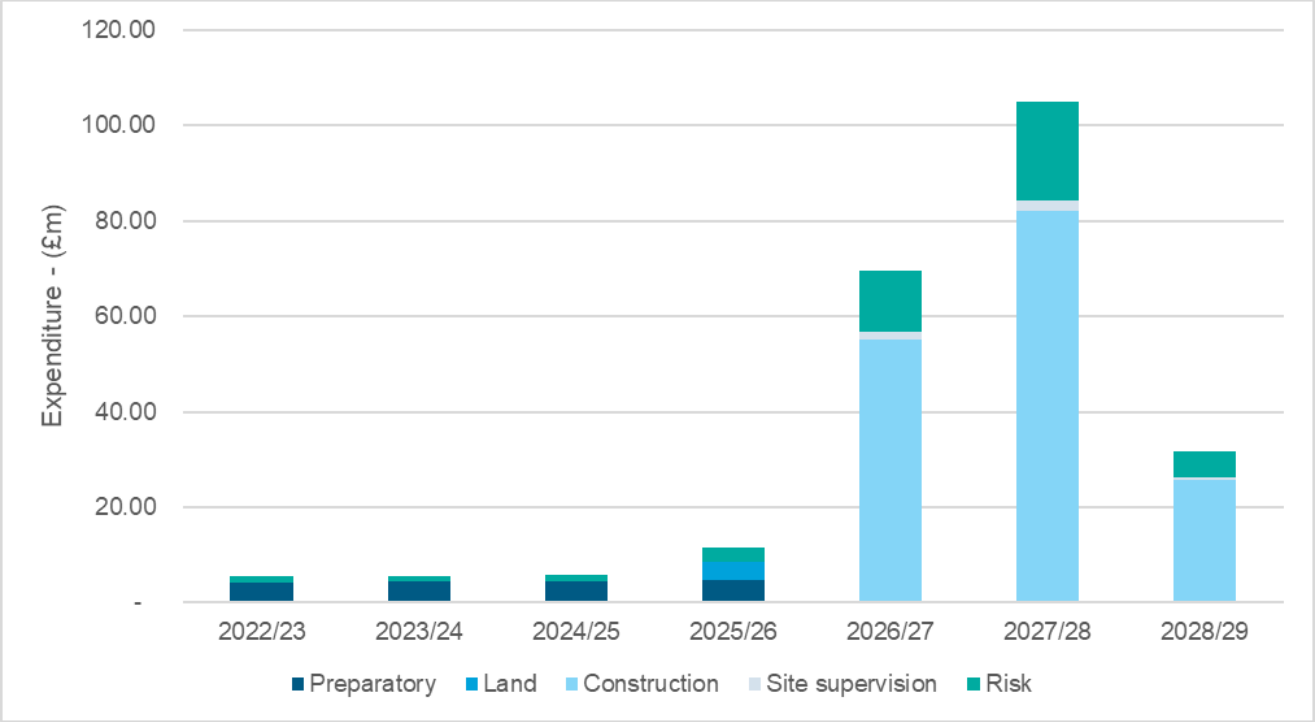
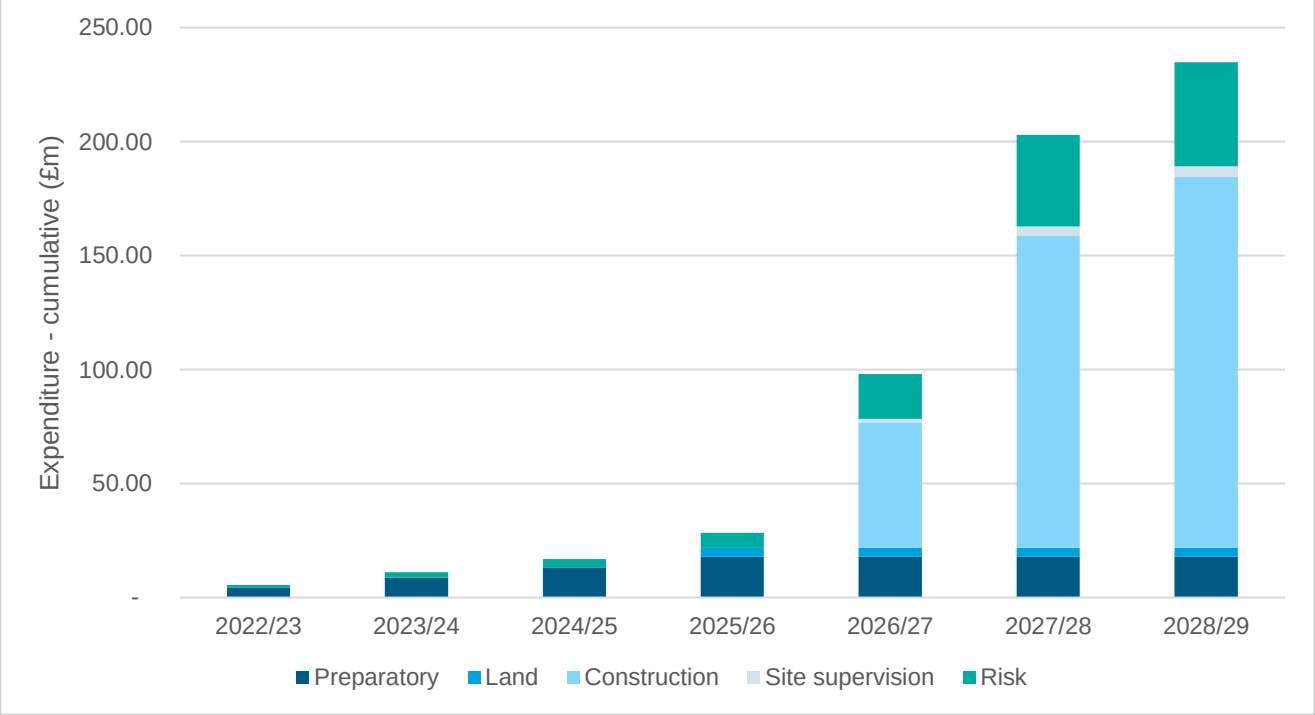


Figure 4-4 – Expenditure profile (cumulative)



4.3. Funding approach

4.3.1. Sources of funding

The proposed funding breakdown for the scheme is summarised in **Table 4-8**. £199.6m (85%) of the funding is sought from the DfT Large Local Major Fund, subject to approval of the business case process (OBC / FBC). The remaining 15% (£35.2m) will be provided through local contributions, including from Wiltshire Council.

Table 4-8 - Scheme funding sources and profile of contributions (£ millions)

Year	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	Total
DfT	4.63	4.76	4.91	9.79	59.23	89.24	27.00	**199.57**
%	*85%*	*85%*	*85%*	*85%*	*85%*	*85%*	*85%*	*85%*
Local (Wiltshire Council)	0.82	0.84	0.87	1.73	10.45	15.75	4.76	**35.22**
%	*15%*	*15%*	*15%*	*15%*	*15%*	*15%*	*15%*	*15%*
Local (Other)	-	-	-	-	-	-	-	**-**
%	-	-	-	-	-	-	-	**-**
Total	**5.45**	**5.61**	**5.78**	**11.52**	**69.68**	**104.99**	**31.76**	**234.79**

Note – local contribution is indicative only. Amount, source and profile of local funding contributions is to be confirmed by Wiltshire Council.

As part of the OBC submission to DfT, Wiltshire Council's Section 151 officer is to provide a declaration which confirms that:

- Sufficient budget has been allocated to deliver the scheme on the basis of the proposed local funding contribution;
- Wiltshire Council accepts responsibility for meeting any costs over and above the DfT contribution identified **(Table 4-8)**, including potential cost overruns; and
- Wiltshire Council accepts responsibility for meeting any ongoing revenue requirements in relation to the scheme.

4.4. Whole life costs and funding

The additional revenue liability for capital renewals and ongoing maintenance associated with the new scheme infrastructure has been estimated for a 60 year period (**Table 4-9** and **Figure 4-5**).

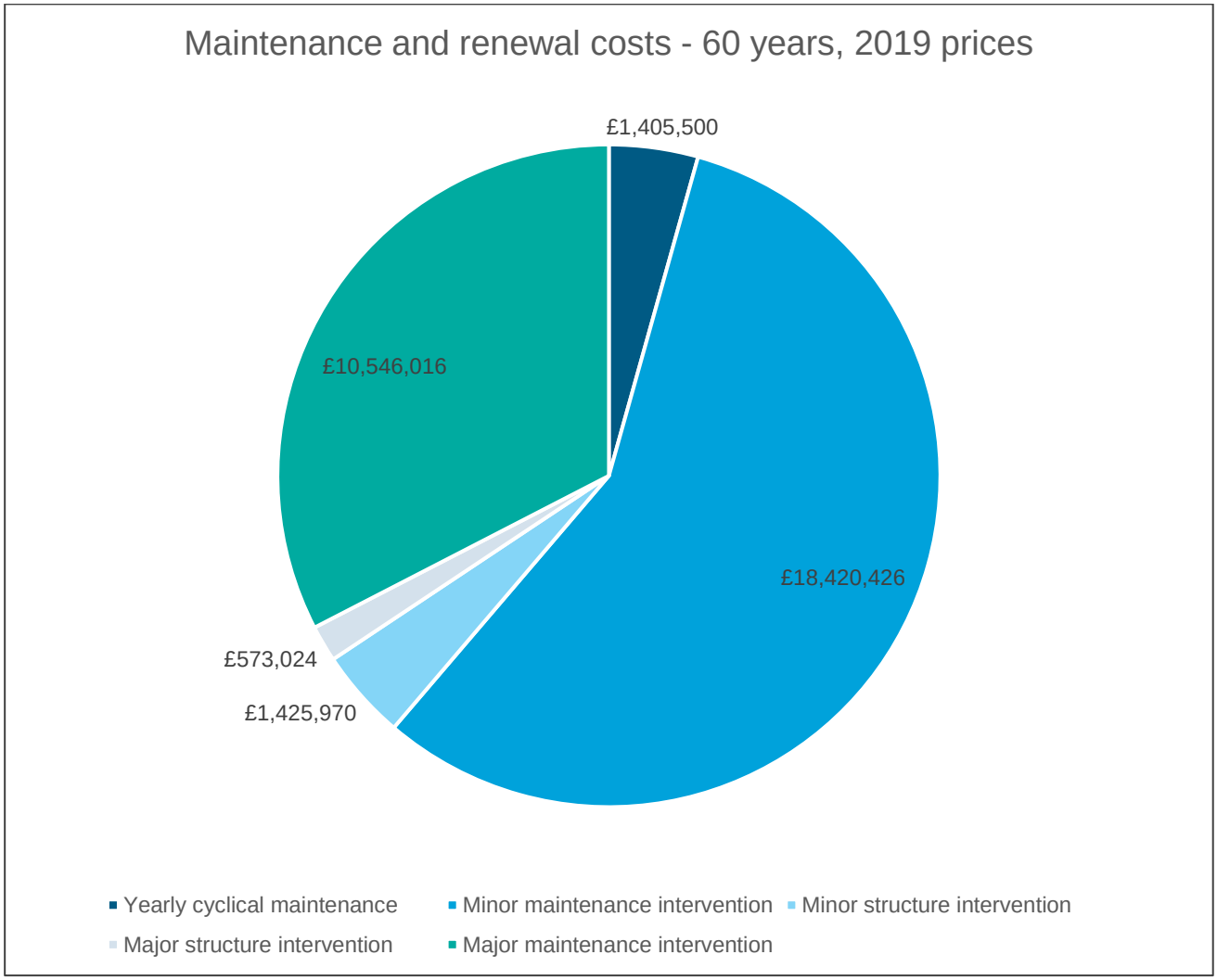
These whole life costs total **£32.4m** (2019 prices) and include:

- **Yearly cyclical / routine maintenance:** e.g. gully cleaning, street cleaning, grass cutting, winter maintenance, reactive maintenance;
- **Minor maintenance (highway and structures):** including road pavement and footway surfacing; drainage cleansing; and CCTV; and
- **Major maintenance (highway and structures):** including full depth road pavement and full depth footway surfacing; drainage cleansing; CCTV; and pipe remedials (10% of network).

Table 4-9 - Estimated maintenance and renewal costs over 60 years (2019 prices)

Maintenance type	Frequency	60 year cost
Yearly cyclical maintenance (sub-total)		**£1,405,500**
Parish Steward	Annual	£130,848
Street Lighting Energy	Annual	£804,076
Gully Emptying	Annual	£37,854
Winter Maintenance	Annual	£88,229
Reactive Maintenance	Annual	£6,540
Structural Inspection	Annual	£149,595
Highways Inspection	Annual	£74,798
Culvert clearance	Annual	£113,561
Minor maintenance intervention (sub-total)		**£18,420,426**
Moderate Carriageway Inlay	10 years	£18,293,413
CCTV Survey	10 years	£124,804
Gully Emptying	10 years	£2,209
Minor structure intervention (sub-total)		**£1,425,970**
Waterproofing Replacement (bridge only - including pavement reconstruction)	20 years	£1,425,970
Major structure intervention (sub-total)		**£573,024**
Bearing Replacements	30 years	£327,442
Joint Replacement	30 years	£163,721
Parapet painting	30 years	£81,861
Major maintenance intervention (sub-total)		**£10,546,016**
Reconstruction Carriageway	30 years	£8,926,918
Reconstruction Footway	30 years	£486,946
CCTV Survey	30 years	£29,661
Ditch Clearing	30 years	£15,678
Gully Emptying	30 years	£1,105
Drainage Pipe remedials (10% of network)	30 years	£634,383
Street Lighting	30 years	£451,325
GRAND TOTAL		**£32,370,936**

Figure 4-5 – Maintenance and renewal costs (60 years, 2019 prices)



Wiltshire Council will be responsible for the maintenance of all new infrastructure created by the scheme. This will be funded through general annual maintenance budgets.

Whole life costs are also represented within the economic appraisal (section 3.8) and are therefore reflected within the BCR and NPV.

4.5. Accounting implications: cash flow statement

The A350 Melksham Bypass Scheme is expected to have the following implications on public accounts:

- DfT Large Local Majors Fund is proposed to fund £199.6m (85%) of the total scheme implementation costs; £4.6 million in 2022/23 financial year; £4.8 million in 2023/24; £4.9 million in 2024/25; £9.8 million in 2025/26; £59.2 million in 2026/27; £89.2 million in 2027/28; and £27.0 million in 2028/29.
- Local contributions (to be confirmed by Wiltshire Council) will fund £35.2m (15%) of the total scheme implementation costs.
- Whole life maintenance and renewal costs over 60 years are expected to average approximately £0.5m per annum (2019 prices), funded from future WC highway maintenance budgets.

Commercial Case

The Commercial Case provides evidence on the commercial viability of the A350 Melksham Bypass scheme and the procurement strategy that will be used to construct the scheme. It also presents evidence on risk allocation and transfer.

5. Commercial Case

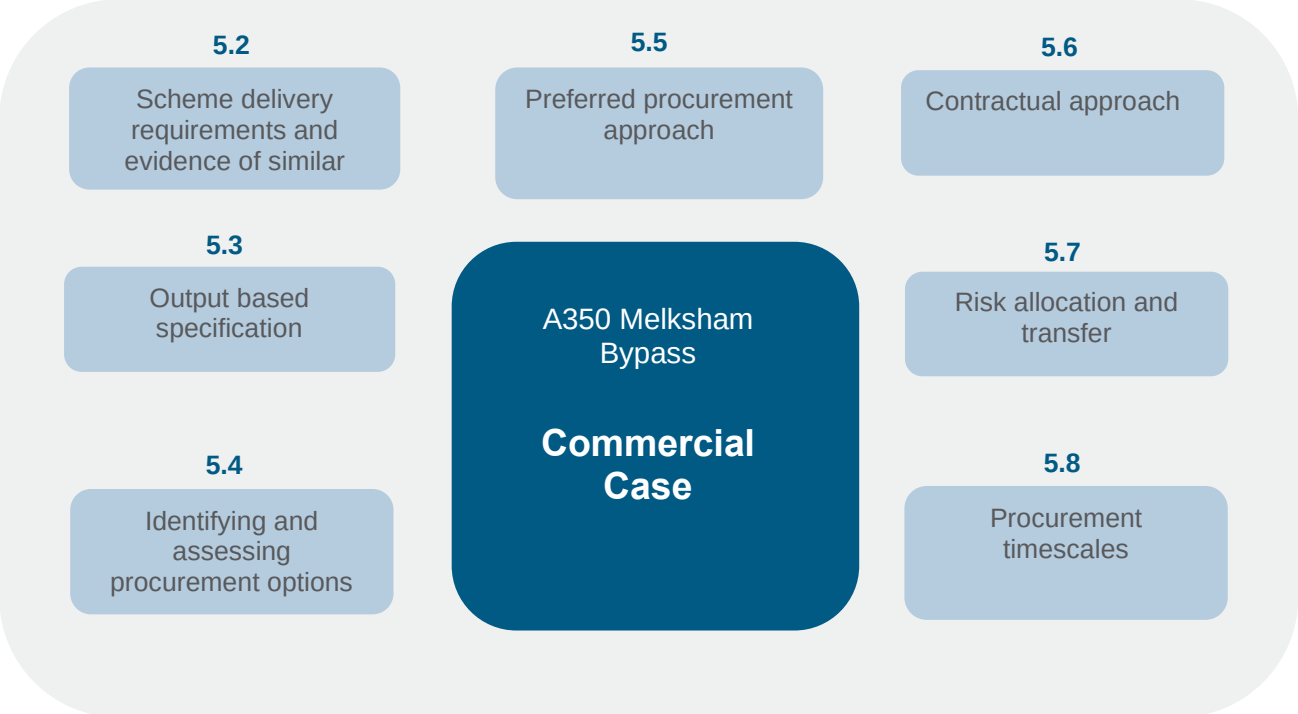
5.1. Introduction

The design and construction of the A350 Melksham Bypass scheme is considered to be a significant project requiring a robust procurement strategy to deliver the constituent parts in a timely, efficient, safe and cost-effective manner.

In demonstrating the overall commercial viability of the scheme, the Commercial Case addresses the following elements:

- The aims and objectives of the procurement process;
- The output based specification;
- A summary of the procurement strategy, including details of how different options have been assessed;
- The proposed procurement approach;
- An outline of the proposed contract type and form; and
- Details of the procurement and contracting timescales.

Figure 5-1 – Structure of the Commercial Case



The information presented within this chapter is based on initial assessments of the procurement approach, commensurate with the current stage of scheme development for the OBC. The approach will continue to evolve during further scheme development.

This chapter provides key details of the procurement approach. The full Procurement Strategy is provided in **Appendix D1**.

5.2. Scheme information & procurement requirements

The A350 Melksham Bypass scheme comprises the following key components, all of which are relevant to the procurement approach:

- A **full eastern bypass**, single carriageway, approximately nine kilometres in length and with four junctions;
- **Modifications and enhancements to Public Rights of Way** along the bypass route;
- **Supplementary highway improvement works** to the adjacent network; and
- **Complementary walking and cycling measures** within Melksham Town and around the existing A350 route.

Scheme design and construction will be procured by Wiltshire Council. The overall purpose of the procurement approach is to provide a framework to obtain both value and social capital through the delivery of the project. This includes:

- Identifying and delivering efficiencies, but not at the expense of quality; and
- Developing and embracing the principles of sustainable procurement.

The procurement approach is developed in line with best practice, making use of such tools and guidance as the Cabinet Office's Construction Playbook[70], HM Treasury Business Case guidance, and internal Wiltshire Council guidance. These tools and guidance are, importantly, utilised within the specific context of the scheme and its intended objectives and outcomes. The primary focus is the development of the right Delivery Model, and in turn the commercialisation of that Delivery Model into the right Contracting Model.

5.3. Output based specification

5.3.1. Project outputs

The specific outputs related to the scheme which the procurement approach must deliver are summarised as:

- Construction of the earthworks, structures and main carriageway for the bypass, including any associated footpaths or shared use paths, signage, traffic signals and lighting - the route is approximately nine kilometres long and has a total footprint of around 50 hectares.
- Construction of a viaduct over the River Avon and its flood zone, approximately 410 metres in length.
- Construction of four bridges over the Clackers and Forest brooks.
- Construction of four new roundabouts – from south to north, these are: at the A350 just south of Hampton Park roundabout; at the A365; at the A3102; and at the A350 between Halfway Farm and Lacock village (this would upgrade the existing junction with Melksham Road).
- Widening of the existing A350 carriageway between the bypass and the A365, to provide a dual carriageway.
- Provision of drainage attenuation ponds and other measures to reduce flood risk and avoid pollution.
- Resurfacing of the existing A350 carriageway leading to and away from the new bypass.
- Repairs to the existing kerbs and steel vehicle restraint barriers along the A350.
- Modifications to existing Public Rights of Way routes for walking, cycling and horse-riding .
- Environmental mitigation, such as vegetation planting along sections of the bypass.
- Changes to existing road layouts within Melksham town to provide improved cycle and pedestrian facilities.

5.3.2. Procurement value

The estimated procurement value of the scheme is approximately £163 million (outturn prices for construction and preliminaries elements only). However, costs which are currently included in the risk budget

[70] The Construction Playbook – December 2020 (publishing.service.gov.uk)

and uncertainty allowance may be transferred across into the construction costs as the scheme is developed, leading to an increase in the actual value to be procured.

Preparatory and site supervision aspects are assumed to be led by Wiltshire Council, either directly, or indirectly through an existing term contract. Preparatory and site supervision costs are therefore excluded from the value to be procured.

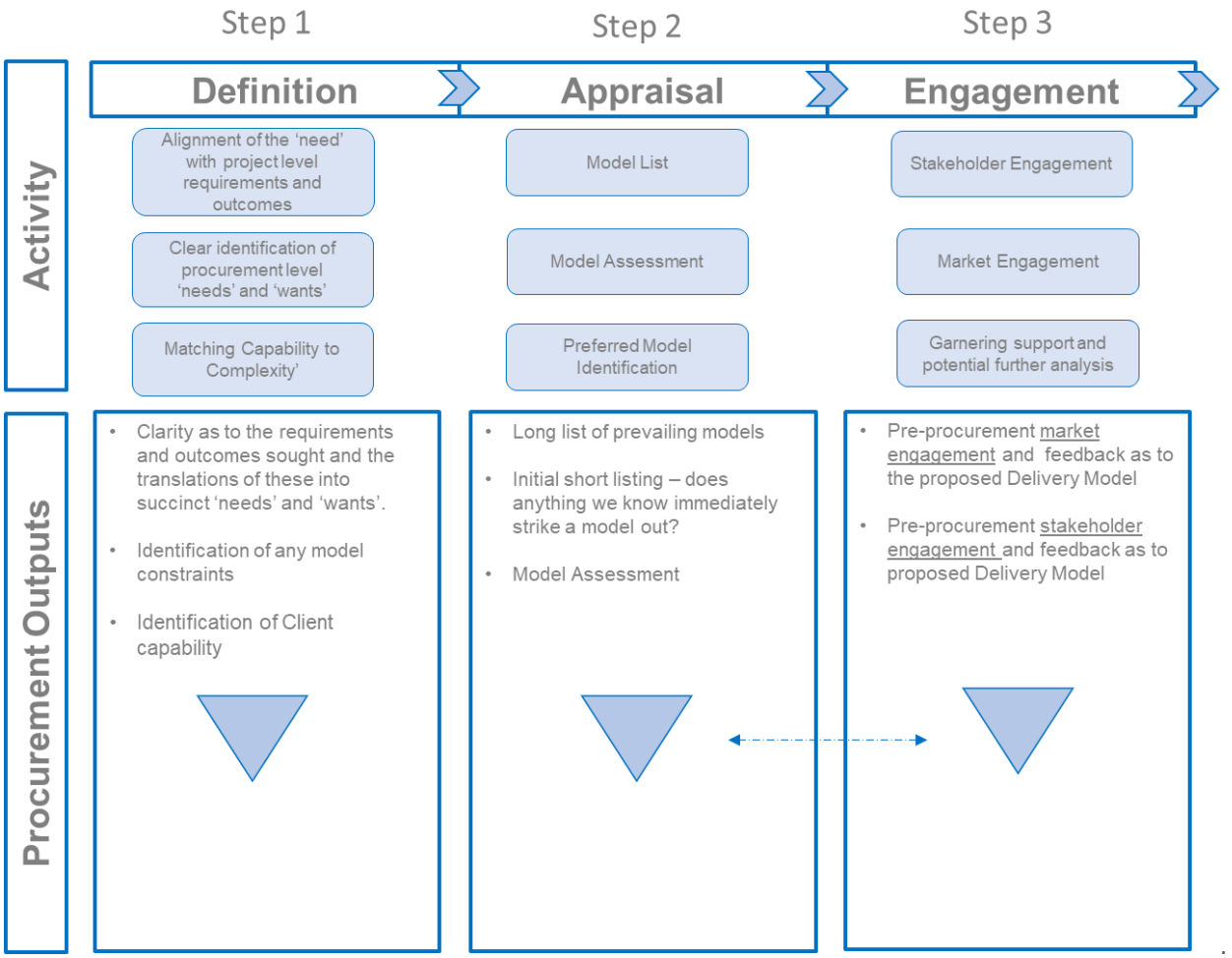
5.3.3. Key risks

At this stage of development, the risks from a procurement perspective largely reflect those of the project generally, and augmented by specific procurement risks. The overall complexity, scale and risk of the project is medium to high.

5.4. Identifying and assessing procurement options

The process of identifying the most appropriate procurement approach follows three key steps **(Figure 5-2)**. This ensures that decisions are based upon evidence and analysis specific to the project requirements.

Figure 5-2 – Identifying and assessing potential procurement / delivery models



5.4.1. Procurement objectives

The consideration of the procurement approach is based on a sound understanding of the specific 'needs' and 'wants' in relation to the scheme following consultation with Wiltshire Council. The key drivers are generally based around issues of cost, quality and time.

Key objectives for the procurement approach include that it should:

- Deliver the scheme within the available funding (cost certainty);

- Enable Wiltshire Council to commit to the project in full;
- Ensure Best Value is delivered;
- Ensure that appropriate quality is delivered;
- Offer an affordable whole life cost solution;
- Reduce risk to a level that is As Low As Reasonably Practicable (ALARP);
- Offer affordable opportunities for change throughout the project life-cycle;
- Offer the opportunity to engage contractors in the early planning stage development of the scheme;
- Provide contractor input to the design, risk assessment and delivery programme;
- Be deliverable in respect to the capacity and capability available; and
- Be attractive to the market.

5.4.2. Other considerations

The following further considerations are also relevant to the procurement of the scheme:

- The project's objectives
- The project's construction (and other) constraints
- The project's risks
- The project's likely position and attractiveness in the market; and
- The capacity and capability of Wiltshire Council to deliver the project.

Specific points of relevance include:

- Complex engineering design capabilities will be required for the design and construction of the River Avon viaduct, including provision of compensatory flood storage and environmental mitigation measures during the construction phase.
- The land assembly process is likely to form a significant component of the scheme.
- There is the possibility there will be specific time constraints on the project – e.g. due to funding requirements.
- Consideration for traffic management arrangements during construction – an important element of scheme community relations and short-term environmental impacts.
- Supplier environmental credentials.
- Evaluation of social and environmental considerations in procurement process, e.g. use of sustainable materials, disposal of waste materials, use of local sub-contractors and human resources.
- Economic considerations in terms of value for money of suppliers.

5.4.3. Identification and assessment of different delivery models

The nature of the delivery environment to be established is a key strategic decision. Different models can provide a different emphasis – for instance, a more collaborative / relationship-based environment, as opposed to a more transactional based relationship (with typically higher risk). Different approaches offer advantages and disadvantages and these have been assessed in light of the identified requirements and outcomes for the scheme.

The initial appraisal of alternative models is included within the Procurement Strategy. The models considered include:

- Traditional (Target Cost);
- Design and Build (Target Cost);
- Multiparty ECI Environment; and
- Alliance.

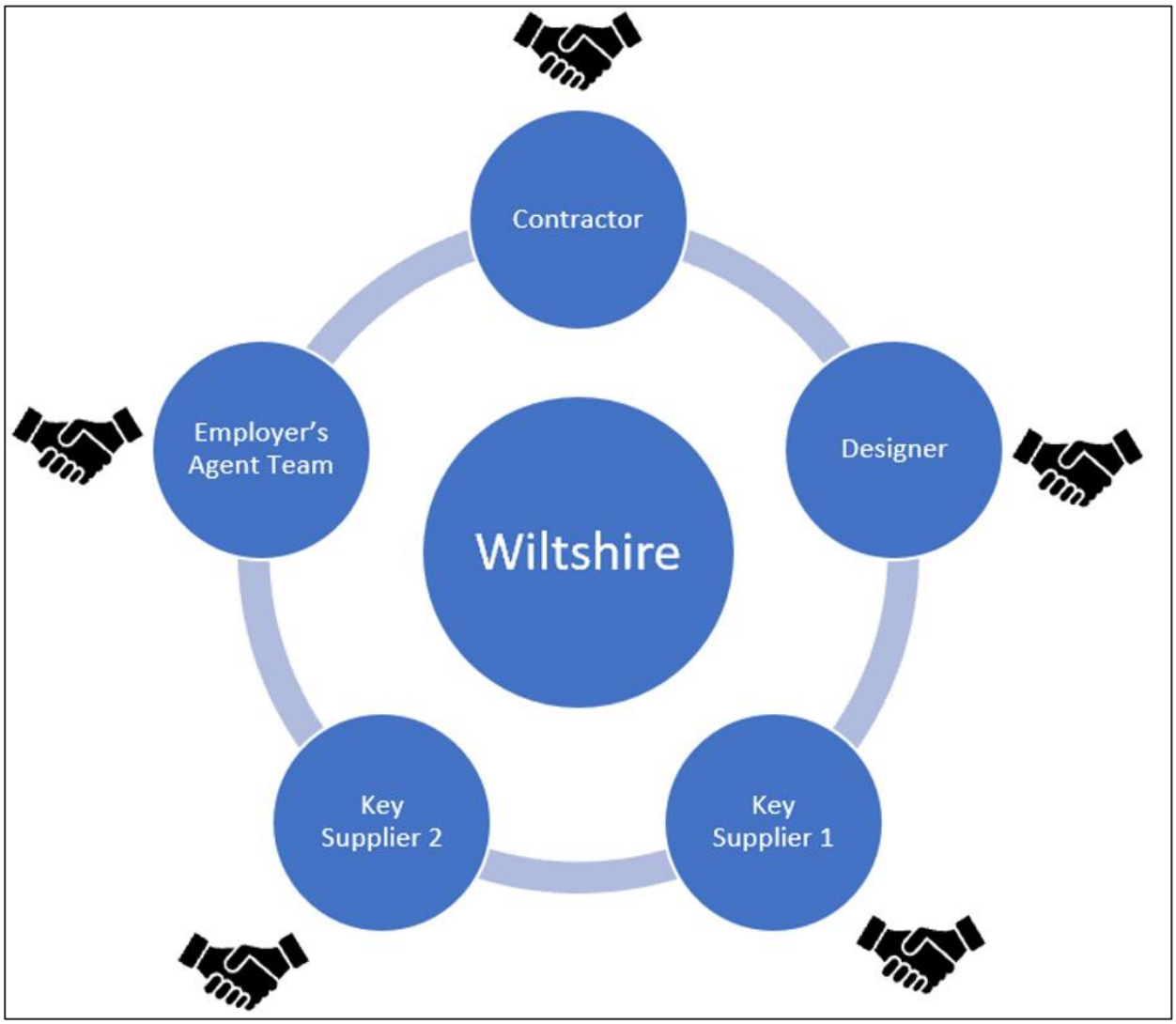
5.5. Preferred procurement approach

5.5.1. Overview of preferred approach

Based upon the assessment of alternative delivery models, it is currently proposed that the project would be delivered through a **'Multiparty ECI Environment'** approach.

This model is based around Wiltshire Council entering into a series of contractual relationships; each supplier having an important role to play **(Figure 5-3)**. All parties would operate in a collaborative environment, focused on Wiltshire Council's objectives.

Figure 5-3 – Proposed Multiparty ECI Environment



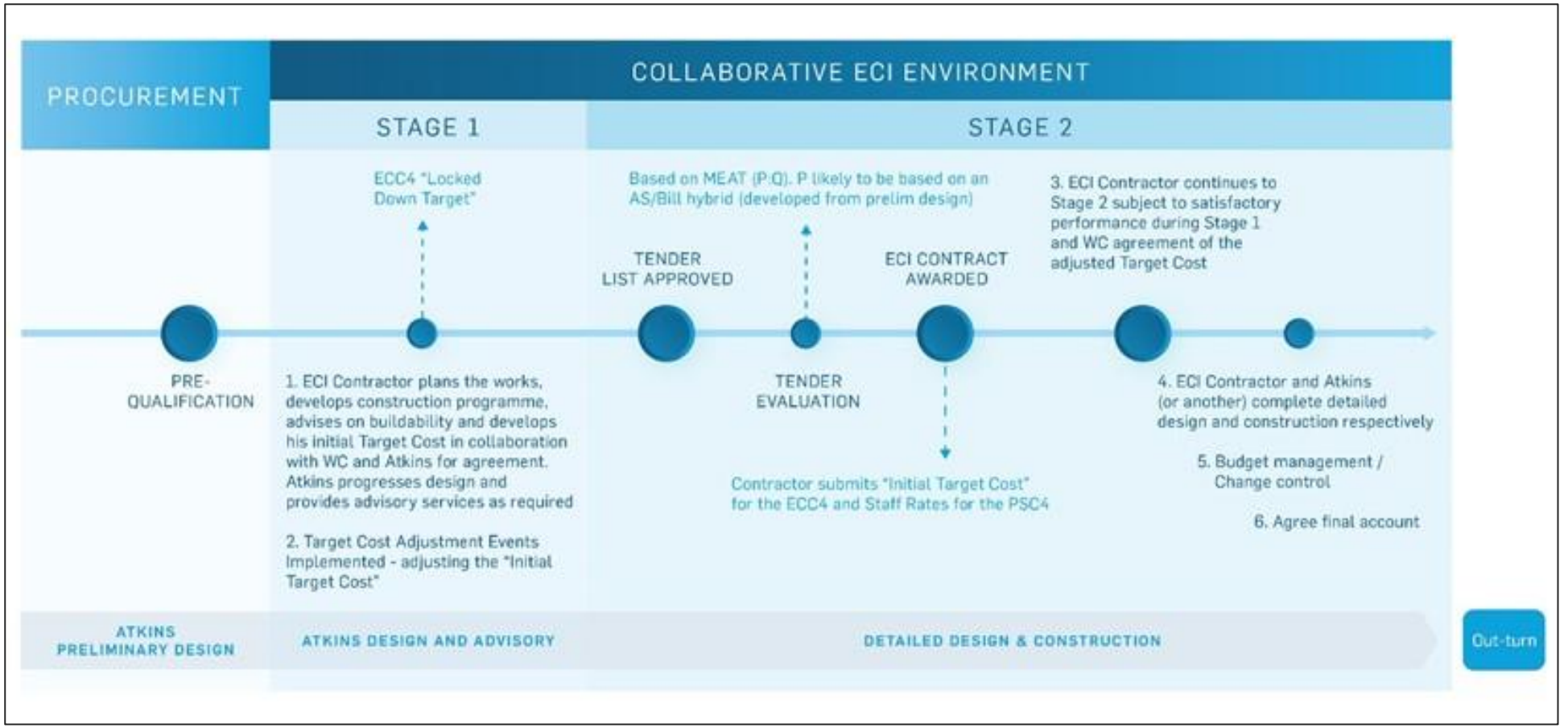
Under the 'Multiparty ECI Environment' approach:

- A series of providers (e.g. designer, contractor, consultants, ECI / constructability consultant) would be brought together to help deliver the scheme.
- A partnering or bespoke relationship clause would apply (e.g. X12 in the NEC4) setting out that everyone involved in a project is to work together towards a common goal or outcome.
- Early contractor / constructability involvement element would likely be achieved through consultancy from a contractor or specialist individual.

- Wiltshire Council would have a number of contractual relationships to bring about delivery – everyone would have their own contractual relationship with WC. In turn, all those appointed would have an arrangement between them – potentially a memorandum of understanding round a series of programme objectives or a more complex performance arrangement - where they would look to share any pain or gain when it comes to delivery.
- Dispute resolution and escalation plans would apply, but organisations would retain independence and there would be contractual remedies between WC and its providers.
- Programme level performance would need to be driven via appropriate pain gain mechanisms.
- An EA may well form part of the multiparty arrangement.

Figure 5-4 provides further details of how the approach would operate in practice.

Figure 5-4 – Multiparty ECI Environment approach in practice



The appointed ECI contractor will only be appointed to undertake the Stage 2 construction phase of the Project if instructed to do so by Wiltshire Council.

The current preferred procurement approach will be kept under review to ensure that it remains the most optimal approach as the scheme develops further.

5.5.2. Reasons for selecting the preferred approach

A full narrative for the selection of procurement approach is included within the Procurement Strategy. Key attributes leading to the recommendation of the Multiparty ECI Environment are:

- The multiparty approach retains the benefits derived from the knowledge, experience and relationship development garnered by the Designer and Client with the scheme and stakeholders to date. Approaches employing a discreet divide between design and construction could either lose or require duplication of work;
- The ability to tailor risk ownership to the most appropriate party through collaborative development as opposed a one-sided publication of the contractual framework usually employed under a traditional approach;
- It is in line with market expectations and appetite for a scheme of this scope and risk profile; lack of enthusiasm for a traditional design / construct divide could offset the value derived from full design competitive tendering;
- It offers potential to expedite overall programme by tackling construction constraints earlier than under traditional model;
- The ability to drawdown on supply chain expertise in a pro-active manner and with consideration of stakeholder's constraints. Input into buildability and construction methodology can be provided at an earlier stage and help shape the context of stakeholder interaction rather than react to the development of potentially problematic, though valid, design approaches; and
- Cost certainty can be achieved through incorporation of multi-party incentivisation rather than the setting of a 'lump sum' with a residual risk profile.

The precise benefits that could be expected to arise from the use of a Multiparty ECI Environment approach will be dependent on the precise terms of the contractual approach selected, however key benefits that could be anticipated on the project include:

- Early value adding input to the scheme from the contractor and the supply chain;
- Early development of a detailed integrated programme improving certainty of timely delivery;
- Early engagement of key specialist suppliers to add value giving improved price, programme and methodology certainty in key areas such as structural steel, archaeology, environmental, flood mitigation etc;
- Allows contractor and designer early access and liaison with key stakeholders such as the Environment Agency, National Trust and SU's. This facilitates early liaison with significant risk reduction opportunities;
- Allows detailed input into specific preconstruction requirements tailored to the contractor's specific construction methodology such as ground investigation:
- Improves the overall buildability of the scheme allowing the full integration of design and construction methodology;
- Allows timely contractor to input into the design development to maximise value engineering design savings; and
- Potential to commence targeted enabling works to allow full construction to mobilise at targeted date by removing constraints attached to ecology and the like.

5.6. Contractual approach

5.6.1. Contract form

The NEC suite of contracts is the predominant form of contract used to deliver infrastructure across the UK (National Highways, Homes England, HS2, Heathrow etc. all advocate its use). There is not considered to be any specific reason to deviate away from this approach, and as such it is proposed that the NEC4 suite of

contracts would be used to deliver the project for all suppliers. Its use will allow flexibility and agility and will stimulate good management across the project.

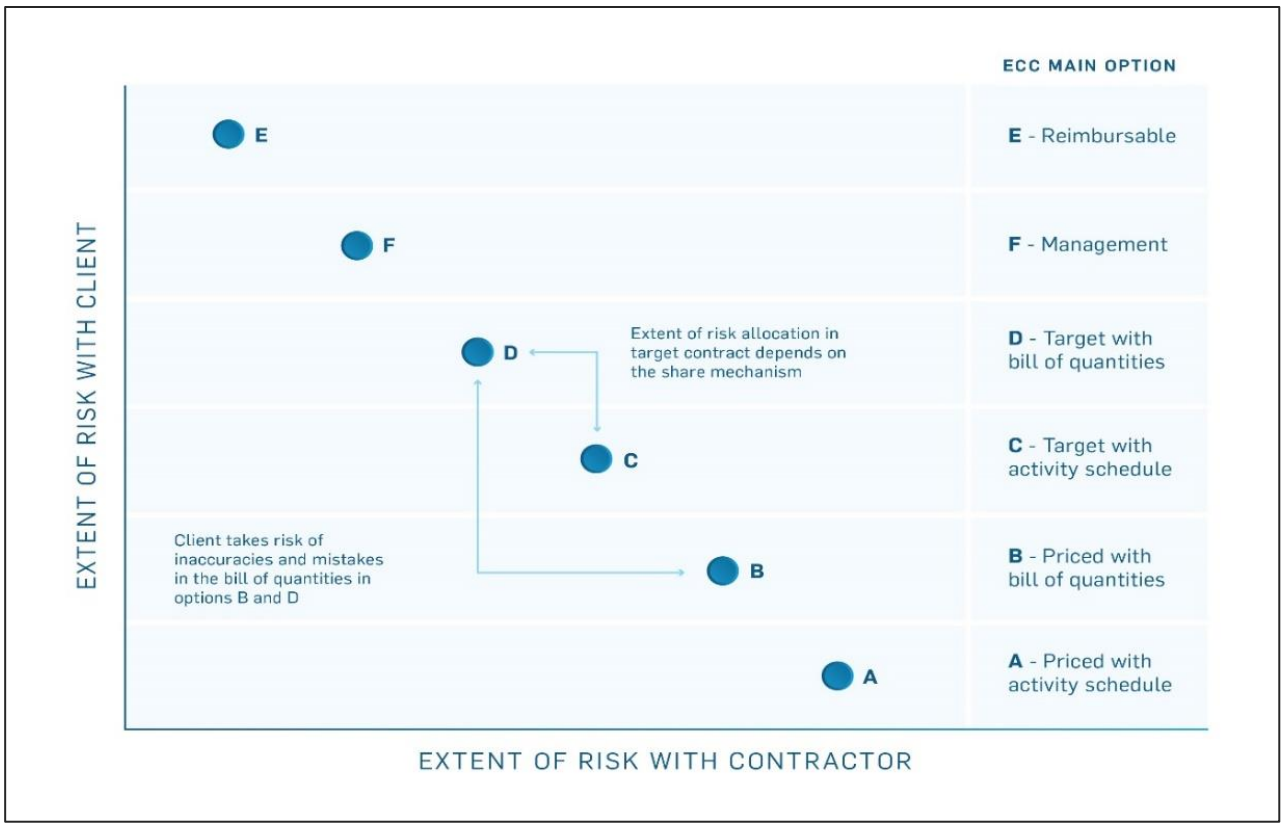
The NEC Professional Services Contract (PSC4) would be used for the provision of the ECI services being sought.

The NEC4 Engineering and Construction Contract (ECC4) would be used for the construction aspect of the Project.

5.6.2. Payment mechanism

The payment mechanism can influence the extent of risk that sits with the contractor and the extent of the risk that sits with Wiltshire Council **(Figure 5-5)**.

Figure 5-5 – Risk share for different contract payment options



The project is at OBC stage with a single identified option and preparing for necessary surveys and preliminary design. As such, a combination of PSC4 Main Option E and ECC4 Main Option C is currently proposed for ECI and construction respectively.

5.6.3. Contractual model

The successful ECI contractor would be asked to enter two separate but linked agreements for delivery of the project:

- A PSC4 main Option E for the carrying out of ECI services; and
- A ECC4 main Option C for construction.

The prices submitted for the Stage 2 ECC4 at tender would represent an 'Initial Target Cost' for the construction stage of the project based on the preliminary design. This would be amended as the design develops, via 'Target Adjustment Events' (likely at the collaborative environment level[71]). The ECC4 Initial

[71] The exact position of the mechanism within the contractual structure of the Project will need to be determined with the benefit of specialist legal advice.

Target Cost may only be varied under and in accordance with the terms of the contractual arrangement set out (i.e. via a Target Adjustment Event).

Contractors would also need to submit a series of percentages at tender to cover items such as overhead, margin and insurance premium costs. These percentages would not be adjusted as the design develops and would remain consistent throughout the life of the project.

The appointed ECI contractor will only be appointed to undertake the Stage 2 construction phase of the project if instructed to do so by Wiltshire Council.

5.6.4. Route to market

Despite the UK leaving the EU on the 31st of December 2020, the historic regime as set out in the PCR 2015 should (for now) be those that are considered from a procurement perspective[72]. These regulations implement EU Directive 2014/25/EU in England and Wales.

Potential procedures under the PCR 2015 include:

- Open;
- Restricted;
- Competitive dialogue; and
- Competitive procedure with negotiation.

An initial assessment of these procedures is provided within the Procurement Strategy **(Appendix D1)**.

It is understood that Wiltshire Council in the future will hold a market engagement event. The format of this is not currently known. The market engagement exercise and definition of the ECI requirements will inform the final decision on selection of procurement procedure, but it is currently anticipated that the project is likely to be procured using the **Restricted Procedure.** This means that a prequalification exercise would apply and through this competition would be limited to shortlisted tenderers.

The Price (P): Quality (Q) ratio for any future procurement will be subject to future confirmation following final approval of the delivery model and contractual structure, and subsequent engagement with the market as regards the same.

The procurement process would be run in strict accordance with the legislative framework set out within the Wiltshire Council Corporate Procurement Strategy (2012). In addition, the process will be governed by the Council's own constitutional Contract Procedure Rules (2012) and will be subject to the Council's Procurement Gateway Process.

Under the Procurement Gateway Process, the strategy will be subject to review by the Council's Procurement Manager, senior Legal officer and senior officers from across the Council who are highly experienced in strategic procurement and contract management. Express approval must be gained from the Procurement Gateway Board in two stages, firstly to enable the tender documentation to be released and secondly to enable the procurement to move to the award procedure stage following review of the award recommendation.

5.7. Risk allocation and transfer

The procurement approach will seek to provide appropriate risk transfer at an affordable price, acknowledging that risk management and transfer come with a cost.

The cost associated with a particular risk includes the potential impact of that risk on other activities, which is particularly relevant during the construction phase.

Under the proposed delivery model, the design risk would be borne by the contractor (although Wiltshire Council would maintain the risk for the accuracy and clarity of the scope of works). The risk of obtaining highways authority approval during design development would be sought to be passed to the contractor. Allocation of other key risks would be dependent upon the share mechanism.

[72] The UK is still subject to the World Trade Organization's Government Procurement Agreement (GPA). The GPA requires the majority of contracts to be open to the EU and other trading partners, with transparent award procedures and remedies being available.

The approach to treatment of key risks within the preferred Multiparty ECI Environment will evolve over time as the project progresses through the preliminary design stage.

5.8. Procurement timescales

Key milestones for procurement and contract delivery are set out in **Table 5-1**. This sits within the context of the wider delivery programme presented within the Management Case. The timescales are considered to be sufficiently robust at this stage in order to give confidence around the overall programme.

Table 5-1 – Procurement timescales

Stage	Timescale
Procurement of ground investigation	January 2022
Ground investigation works	July 2022-November 2022
Procurement of archaeological surveys	October 2021
Archaeological surveys	December 2021-January 2023
Procurement of landscape/visual surveys	October 2022
Landscape / visual surveys	March 2023-January 2024
Procurement of ecology surveys phase 2	October 2021
Ecology surveys phase 2	December 2021-October 2022, March-July 2023
ECI procurement	January-April 2023
ECI contract	May 2023-April 2025
Tender enquires issued	December 2024
Tender invitation issued	February 2025
Tender return	May 2025
Submission of FBC	February 2026
Pre-construction environmental surveys	June 2025-April 2026
Approval of FBC	April 2026
Award of construction contract	May 2026
Mobilisation commencement	May 2026
Main construction start	July 2026
Practical completion of works	Feb 2028
Demobilisation of site	March 2028
Road Safety Audit Stage 3	May 2028
Completion of defects period	May 2029

ECI procurement is planned to commence in January 2023, with the ECI contractor planned to be in place by May 2023. Final construction costs are planned to be determined in May 2025 and will inform the Full Business Case (FBC) submission. Subject to FBC approval, the main construction contract would be expected to be awarded in May 2026, with mobilisation commencing soon after and main works commencing in July 2026.

Management Case

The Management Case sets out how the A350 Melksham Bypass scheme will be delivered. It demonstrates that timescales and phasing are realistic, that an appropriate governance structure is in place to oversee delivery, that risks have been identified and suitable risk management processes developed, and that there are robust plans for communications and stakeholder management.

The Management Case also ensures that the benefits set out in the Economic Case are realised and it includes measures to assess and evaluate these.

6. The Management Case

In demonstrating the feasibility and practicality of delivering the A350 Melksham Bypass project, the Management Case addresses the following elements:

Figure 6-1 – Structure of the Management Case

Management Case overview

A summary of the key points from the Management Case is presented in **Table 6-1,** in relation to questions typically asked by decision-makers when considering whether proposed projects are deliverable[73].

[73] The typical questions are based on those presented within DfT guidance 'The Transport Business Cases' (DfT, January 2013).

Table 6-1 – Overview of the Management Case

Key Management Case content	Summary	Section reference
Who is responsible for project delivery?	Wiltshire Council has overall responsibility for delivery of the project. There are no other formal delivery partners. Wiltshire Council has a strong track record in delivering transport infrastructure schemes, including major schemes on the A350 route. It is confident that this project can be completed within the stated timescales and milestones.	6.1
What are the key go/no go decision points? Is it clear what would happen at each stage after a go/no go decision?	Decision points are identified at key project milestones, aligning with the delivery programme. These include: at (OBC) funding approval, planning application submission, land acquisition, procurement / contract approval. Key decisions are made at Wiltshire Council Cabinet level in accordance with the Council's Constitution.	6.7.1
Who is in charge? Is there a project board or similar? Are they following best practice? And are they properly skilled?	A clear project governance structure is in place. The management team comprises the Project Manager and Project Director. Overall project progress and delivery is overseen by the A350 Melksham Bypass Project Board. The Senior Responsible Owner is Parvis Khansari (Director of Highways and Environment).	6.3 Appendix E1
What are the metrics: milestones, targets, desired outcomes and wider impacts? Is there a programme for measuring / evaluating them? Is there a clear logic model for how the outcomes will be achieved?	A Benefits Realisation, Monitoring and Evaluation Plan has been developed which identifies the key desired outcomes and wider impacts and proposed means of monitoring these. This is underpinned by the Logic Map. Key outcomes include: improved journey times; improved reliability; reduced collisions; more walking and cycling; and reduced local noise / air quality impacts.	6.10 6.11 Appendix E6
How are stakeholders involved? Are they being managed?	Stakeholders have been, and will continue to be, actively involved in the project development. Wiltshire Council has undertaken two consultation exercises to inform the development of the OBC. A Stakeholder Engagement and Communications Plan is in place which sets out who the stakeholders are and how they will be engaged throughout the lifecycle of the project.	6.8 Appendix E3
Who is advising the client? Are they credible in the context of the project? What is their track record in the field?	Wiltshire Council is developing the scheme with the support of its term consultant Atkins (Member of the SNC-Lavalin Group). Atkins is a world-leading design, engineering and project-management consultancy. It brings industry-leading expertise, strategic insight and capability in relation to the planning and delivery of local and strategic highway infrastructure	6.3.8
Who has assessed risk? Are they an expert in the field? Do we need/have an independent view	Risk management is being undertaken by Faithful & Gould (Member of the SNC-Lavalin Group), which provides leading project management consultancy within the construction sector. Risk workshops (involving all aspects of project delivery) have informed the current Risk Register, and a Risk Management Plan is in place.	6.9 Appendix E4

Key Management Case content	Summary	Section reference
What risks are left with the client (and the Department where different), what are the cost implications and how will they be managed?	Risks are considered to be generally typical for a project of this nature / scale at this stage of development. The Risk Register identifies mitigations with relevant owners and is reviewed on a regular basis in line with the project governance. A full Quantified Cost Risk Analysis (see Financial Case) has been undertaken to determine the cost implications of the risks, which are reflected within the project risk cost allowance.	6.9 Appendix E5
Does the project have independent assurance in place?	In addition to Wiltshire Council's own assurance processes, separate independent assurance of the project is being undertaken by Local Partnerships. This independent assurance function complements and enhances the overall project governance by providing an external perspective and is expected to benefit project delivery.	6.7.2

6.1. Scheme delivery requirements and evidence of similar projects

The A350 Melksham Bypass scheme is a large-scale highways project. It predominantly involves construction of a new offline carriageway (approximately 9km in length) and structures across third party owned farmed fields with watercourses and other environmental and ecological features. It further includes work on the existing highway comprising carriageway widening and junction modifications.

Wiltshire Council has a strong track record in delivering transport infrastructure schemes, including major schemes on the A350 route. It is confident that this project can be completed within the stated timescales and milestones. The types of works involved are considered to be within the capability and expertise of the delivery team (including any appointed consultants and contractors) and prior experience, best practice and lessons learnt can be applied directly to the delivery of this project.

Collaborative working

In 2020, Wiltshire Highways Service (comprising Wiltshire Council, Atkins Limited, Tarmac and Ringway) won the Institute for Collaborative Working public sector award for collaborative working sponsored by the British Standards Institute. Together, the four organisations established a Collaboration Board and co-created a Partnering Charter that set the vision and success measures for their collaborative relationship. Working together the partnership is driving efficiencies, improving quality and programme certainty to deliver better outcomes for the end customer, the Wiltshire community. This model of successful collaborative working between local authority, consultant and contractors will be applied to the delivery of future schemes and contracts, such as Melksham Bypass.

6.1.1. A350 Chippenham Bypass improvements

In recent years Wiltshire Council has successfully implemented a series of upgrades to the A350 around Chippenham, towards the northern end of the route. A key element of the delivery of these staged works has been minimising impacts on users throughout construction.

North of Chippenham

The A350 North of Chippenham **(Figure 6-2)** had a delivery budget of £2.7m, funded partly through the Government's Local Pinch Point Fund. The scheme comprised of a combination of road widening and junction improvements, consisting of:

- Widening the A350 to dual two lanes in both directions between the Badger and Malmesbury Road Roundabouts;
- Minor adjustments to the Badger Roundabout;
- Improvements to Malmesbury Road Roundabout; and
- Widening A350 to two lanes southbound between Jackson's Lane and Malmesbury Road Roundabout.

The scheme aimed to reduce congestion and increase journey time certainty and savings. The scheme also set out to help achieve Gross Value Added to the local economy of £5.9 million, through the creation of additional jobs.

The scheme was originally set to be completed in December 2014. Some design complications were encountered but these were successfully resolved, with only a small impact on timescales, and construction was completed in February 2015. The outturn construction cost was £3.82m, with additional funding being provided by Wiltshire Council. The opportunity was taken to undertake additional maintenance work on adjacent sections of the road whilst the contractor and traffic management were available in order to minimise disruption to the travelling public.

Figure 6-2 – A350 North of Chippenham construction

Bumpers Farm

The Bumpers Farm Improvements, completed in February 2016, was a £3.4 million scheme funded by the Local Growth Fund (LGF). This delivered increased capacity along the A350 Chippenham Bypass near Bumpers Farm roundabout. The scheme consisted of:

- Widening the A350 to dual two-lane between Brook and Bumpers Farm roundabouts;
- Additional widening of the A350 for approximately 250m north of Brook roundabout;
- Widening the A350 to dual two-lane for a short stretch immediately south of Bumpers Farm roundabout; and
- Minor widening of Bumpers Farm Industrial Estate entry arm to Bumpers Farm roundabout.

The scheme was programmed for a 38-week construction period. Despite minor design changes the works were completed 7 weeks ahead of schedule. The scheme quarterly spend profile matched that forecast in the Full Business Case and the project was completed to budget.

Badger-Brook & Chequers

The Badger-Brook & Chequers Improvements, completed in early 2019, was a £7.2 million scheme funded by the LGF with a small local contribution. This delivered capacity enhancements at Chequers roundabout and on the A350 between Badgers and Brook roundabouts. The scheme consisted of:

- Widening the section of the A350 between Badger and Brook roundabouts to dual two-lane;
- Widening the A350 between a point approximately 250m north of Cepen Park South roundabout and a point approximately 250m south of Chequers Roundabout; and
- Minor works to the A4 either side of Chequers roundabout.

The scheme was programmed for a 14-month construction period, due to be complete in August 2018. Minor delays, due general project over-runs, meant the operational benefits of the scheme were not being realised until October 2018 and final minor works completed in January 2019.

Figure 6-3 – A350 Badger Brook and Chequers Improvements, collaborative delivery

Figure 6-4 – A350 Badger Brook and Chequers Improvements

6.1.2. A350 Farmers Roundabout

The A350 Farmers Roundabout scheme, completed in October 2019, was a £3m scheme that was largely funded through the DfT's National Productivity Investment Funding (NPIF). This scheme delivered capacity enhancements at Farmers Roundabout on the A350 at Melksham.

The scheme consisted of:

- The installation of the new traffic signal system at Farmers Roundabout;
- Road widening works on the approaches to the roundabout, and around the circulatory carriageway;
- Repair works to the bridge joints at Challeymead Bridge;
- Drainage and ditch improvement work;
- Extension and widening works to the merge taper at Semington Road Roundabout; and
- Extensive carriageway resurfacing works extending as far as the A365 junction in the north to Semington Road Roundabout in the south.

Site operations commenced on Monday 4th February 2019, and the works were completed within the planned 9 months duration. Challenging ground conditions and the discovery of unforeseen and uncharted buried services did cause problems. But the Contractor worked alongside Wiltshire Council and the Site Supervision Team to redeploy resources and open up new work areas as necessary to mitigate delays to the overall programme whilst those issues were overcome.

During the scheme delivery, efforts were made by the Contractor and the wider site team to embark on a series of activities aimed at community liaison and involvement (see also Section 6.8.3). Furthermore, the Contractor sought to undertake the works as efficiently as possible whilst minimising the impacts on traffic flows. This entailed restricting those site operations that required lane closures to the day-time off peak period (9:30am – 3:00pm), and the use of night works where this was both practical and realistic. The traffic management aspects of the scheme were challenging, but the flexible and responsive approach taken by the Contractor to restrict traffic management durations and lift lane closures during lunch breaks, generally minimised disruption, and peak hour traffic flows were largely unaffected by the works.

Figure 6-5 – A350 Farmers Roundabout Improvement

6.2. Project dependencies

The A350 Melksham Bypass is a **stand-alone scheme** and its delivery is not directly dependent upon the implementation of other projects or programmes. As detailed within the Strategic Case, the scheme is one of three major schemes on the A350 being promoted through the MRN / LLM funds. The schemes are complementary but are not inter-dependent. The Strategic Case also explains the north-south connectivity study being undertaken by National Highways. Should the outcome of this study support the upgrading of the A350 to be part of the SRN then the A350 Melksham Bypass scheme would be considered to be a necessary element of a comprehensive programme of improvements to upgrade the route to the appropriate standard.

6.3. Governance, organisational structure and roles

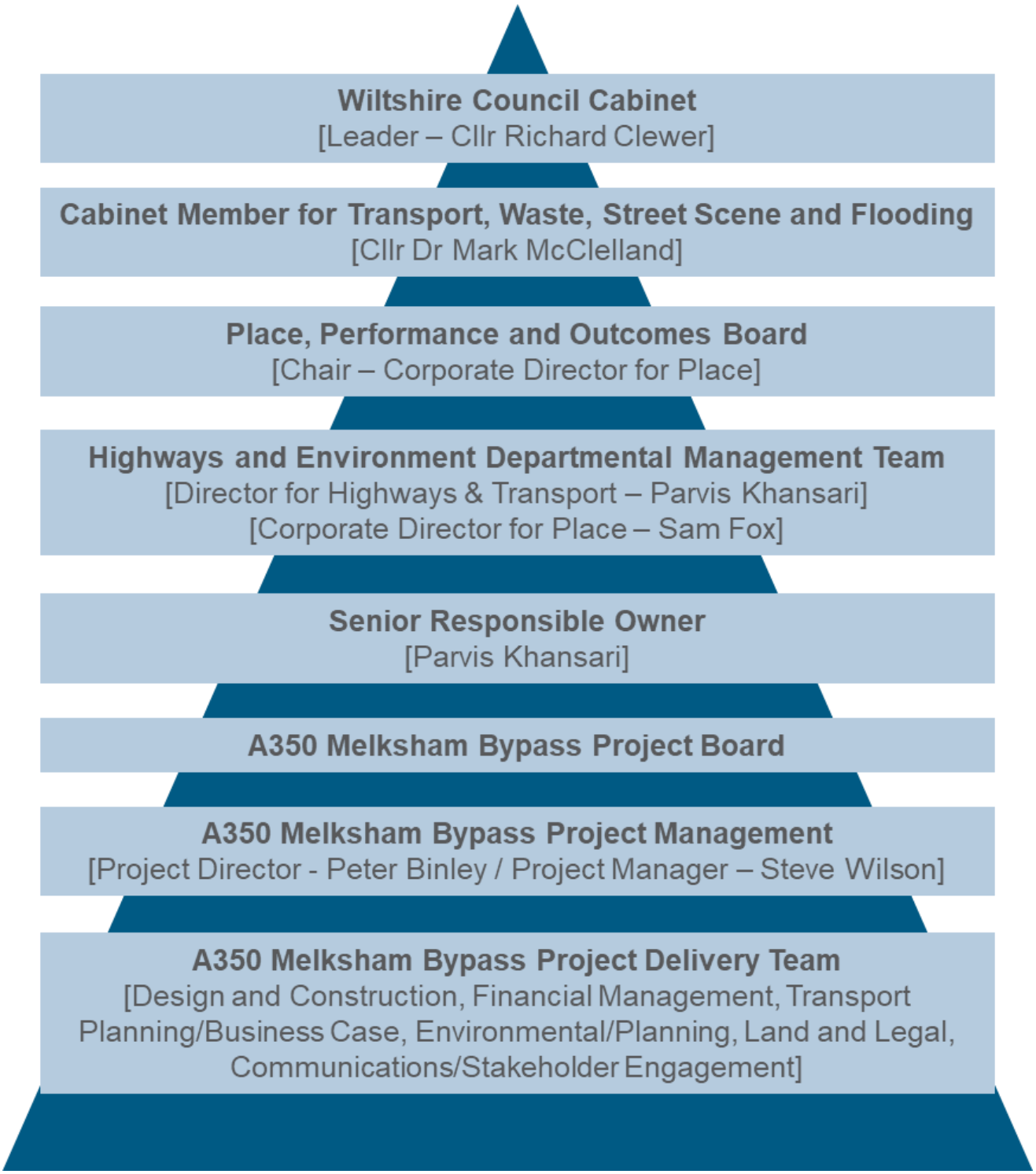
6.3.1. Governance structure

The A350 Melksham Bypass scheme **will be delivered by Wiltshire Council**. The Council has assembled a **qualified and experienced team** of individuals to steer the project which will continue to evolve as the project progresses. The alliancing contract arrangement between Wiltshire Council and its term consultant Atkins enables Wiltshire Council to augment its own skills and experience in-house with Atkins' vast expertise in delivering schemes of this nature and scale for other major clients across the UK.

The project governance builds upon arrangements successfully used in the delivery of previous major projects. It is designed to encourage **collaborative working** between all parties involved in project delivery, whilst backed by **robust contractual and management arrangements**, with the **full involvement of the Council's Cabinet in carrying out Gateway Reviews** at key stages.

An overview of the scheme governance structure is provided in **Figure 6-6**. A full organogram can be found in **Appendix E1**.

Figure 6-6 - Overview of scheme governance



Project governance is provided through a **tiered reporting and management structure** that ultimately reports to Wiltshire Council's **Lead Cabinet Member**. The team will also include the Council's (client side) Project Director and Project Manager.

Details of the key functions and roles relating to project governance are provided in the following sections.

6.3.2. Wiltshire Council Cabinet

The Cabinet is the Council's principal decision-making body. It comprises the Leader of the Council and up to nine Cabinet Members. The Leader is appointed for a four year term by Full Council, and then selects their Cabinet Members. Each Cabinet Member has responsibility for a defined service area or 'portfolio', which is set by the Leader. Collectively the Cabinet has responsibility for taking the day to day decisions within the Council. Cabinet meetings are open to the public, unless exempt or confidential information is being considered. The Cabinet usually meet every month.

6.3.3. Cabinet Member for Transport, Waste, Street Scene and Flooding

The A350 Melksham Bypass Scheme falls within the service area for Transport, Waste, Street Scene and Flooding. The Cabinet Member responsible for this service area is Cllr Dr Mark McClelland whose responsibilities include highway improvements, road maintenance, bridges, traffic management, traffic signals, street lighting, drainage, passenger transport and waste management. Individual cabinet Members have powers within the scheme of delegation determined by the Leader in accordance with the constitution. The Cabinet Member is supported by the Portfolio Holder for Passenger Transport and Streetscene - Cllr Kevin Daley.

6.3.4. Place, Performance and Outcomes Board

Following a recent reorganisation within the Council a Directorate of Place has been established. In order to manage a wide range of projects in development across the directorate a Place Performance and Outcomes Board has been established. The Board is chaired by the Corporate Director for Place or the Corporate Director for Resources.
Membership of the Board comprises:

- Corporate Director for Place
- Corporate Director of Resources
- Directors for Highways and Transport, Communities and Neighbourhoods and Housing and Commercial Development

The Place Performance and Outcomes Board has oversight of the projects to monitor and challenge performance and includes the MRN and LLM schemes within its remit, as well as the Housing Infrastructure Fund and Future High Streets Fund schemes.

6.3.5. Senior Responsible Owner

The Senior Responsible Owner (SRO) is **Parvis Khansari, Director Highways and Transport** who is a Chartered Engineer and Fellow of the Institution of Civil Engineers. He has many years' experience at a senior level in local government in connection with highways and the environment. He is currently responsible for highways asset management, highways maintenance, sustainable transport and passenger transport, as well as for implementing major highway schemes in Wiltshire. The SRO chairs the Project Board and is responsible for providing **guidance and direction** to the Project Director and Project Manager. The SRO ensures that the project team is progressing the scheme in line with the Scheme Implementation Programme and that outputs and milestones agreed by the Project Board are achieved.

6.3.6. A350 Melksham Bypass Project Board

The A350 Melksham Bypass scheme has a Project Board chaired by the Senior Responsible Owner, and attended by the Project Director and the Project Manager, plus the Section 151 Officer. The Cabinet Member for Transport, Waste, Street Scene and Flooding, Cllr Dr Mark McClelland and others would be invited to attend depending on the stage of the project and any developing issues or risks.

The Project Board provides a consistent approach to project governance and the coordination with other projects. It has a key focus on ensuring project outputs and objectives are met, ensuring that the project remains on target in terms of business, user and technical objectives. It also has overall responsibility for ensuring the scheme is delivered to the agreed budget and programme. Meetings of the Project Board take place at least monthly but will also be linked to key milestones. The Board considers progress through Highlight and Exception Reports (provided by the Project Manager), changes to the risk register, and changes to the Scheme Implementation Programme.

6.3.7. Project Director / Project Manager

The Project Director is **Peter Binley, Head of Major Highway Projects** who is a Chartered Engineer and Member of the Institution of Civil Engineers with extensive experience of highway projects with consultants and local government, both in the UK and abroad. His experience in Wiltshire includes the project management and delivery of previous substantial improvements on the A350 at Chippenham, Semington and Upton Scudamore. He currently leads a team focused primarily on the delivery of schemes on the Major Road Network with the support of Atkins as term highway consultants to the council.

The Project Manager is **Steve Wilson, Major Highways Project Engineer**, who has over 30 years post graduate experience in the fields of civil engineering construction, highway engineering, design and contract management, highway maintenance and transport planning. His wide-ranging and extensive experience includes working in the private and public sector, and within the Client, Consultancy and Contracting disciplines. This includes the initial and detailed design, procurement, planning, and the 'buildability' of major projects as well as the management and implementation of highway network maintenance activities. In recent years Steve has played a significant role in the delivery of various major capital highway schemes at Wiltshire Council, including improvement works at M4 Junction 17, the delivery of dualling projects at A350 Chippenham Bypass, and the A350 Farmers Roundabout enhancements at Melksham.

They are responsible for delivering the scheme in line with the agreed controls and procedures set out in the Project Plan. They will report to, and be accountable to, the SRO and the Project Board and provide the interface between the Service Delivery Team and the Project Board. The primary focus of the Project Manager is to ensure that the scheme is delivered on time, within budget and to specification, working under the guidance of the Project Director. The Project Manager is also responsible for preparing Highlight and Exception Reports.

6.3.8. A350 Melksham Bypass Service Delivery Team

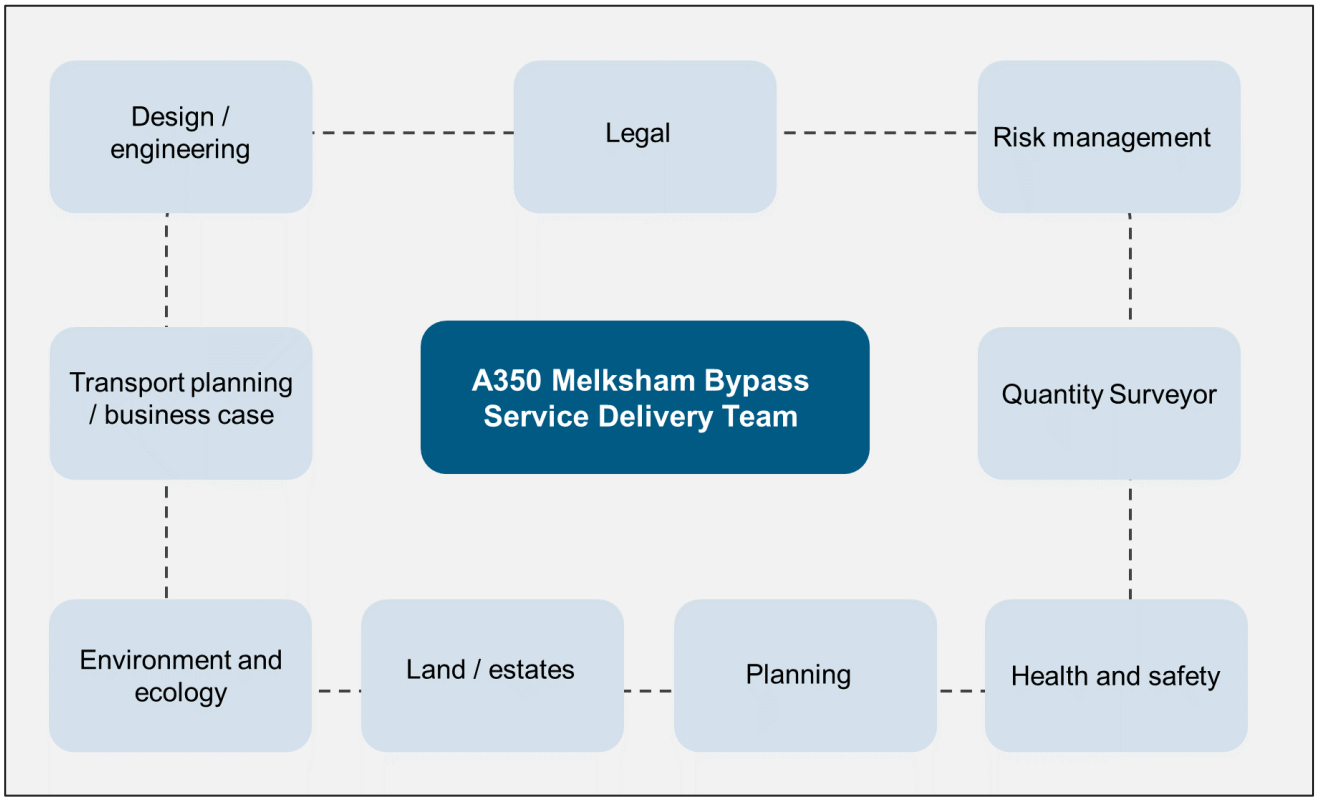
The day-to-day management of the project is by the **Service Delivery Team** (SDT) which is overseen by the Project Manager and comprises **officers from the Council and representatives of the relevant consultants and contractors**. The SDT meets monthly to review progress, monitor expenditure and quality, and plan future work and resource requirements. The meetings follow a set agenda, which includes monthly flash reports from the design team on progress, risks and issues.

The SDT responsibilities include:

- Progress monitoring against programme;
- Future actions and emerging risks and issues;
- Finances;
- Stakeholder engagement and communications;
- Decisions required by Project Board or others;
- Resources;
- Risk Management;
- Coordination with other major projects; and
- Reports to Project and Programme Boards.

The SDT covers a number of specific technical work streams associated with project development and delivery **(Figure 6-7)**. These would be expected to evolve as the project progresses.

Figure 6-7 – A350 Melksham Bypass Service Delivery Team



Each work stream has a nominated lead who is responsible for the related technical activities and reports to the Project Manager. Meetings take place as required within these work streams to discuss technical matters and specific aspects of the scheme.

The SDT is the main point of contact during most of the project for other organisations, including the local town and parish councils, public, businesses and other organisations. The SDT will be expanded to include the main contractor and any key subcontractors and suppliers, including the public utilities once procurement has been completed.

The SDTs are supported and monitored by the **Contract Management Meeting** (CMM) which reviews performance across the Council's highways contracts and is attended by the Council's Director of Highways and Environment, Heads of Service and the local Directors of the term consultant and main contractor. The meetings can be attended by the Cabinet member and other contractors and Council staff are invited to attend as required.

The **Innovation and Collaboration Forum and the Environment Forum** support the work of the CMM in connection with those aspects of the Council's highway contracts. A Contract Management Progress Meeting is held monthly with the consultant and contractor to review contract undertakings, key performance indicators, satisfaction scoring, early warning notices and contractual procedures, which are reported to CMM as necessary. This management structure has worked well for many years and has successfully delivered a wide range of service and schemes for the Council.

6.4. Project management and reporting

The Project Manager is responsible for leading the SDT and providing **accurate, timely and appropriate communications** within the project team to ensure that all parties are up-to-date with relevant information. Project management is supported by a number of tools including the Project Implementation Plan, the delivery programme Section 6.5), the Risk Register (Section 6.9), and the Stakeholder and Communications Plan (Section 6.8).

The Project Manager ensures that the Project Board is provided with sufficient information and that the Project Board clearly understands the information in order to provide the necessary guidance on programme decisions.

The preparation of regular **highlight reports** provides a clear and consistent means of serving this purpose. The highlight reports include a RAG assessment of risks and an update of the key issues impacting on:

- project programme;
- budget;
- public / political support;
- project resources;
- environment and ecology; and
- land and legal matters.

SDT meetings are held monthly, with flash reports provided to the Project Manager. Key outcomes are escalated to the Project Board through the highlight reports. Urgent matters such as non-compliances and matters with the potential to affect budget or programme are reported at these meetings or raised as an issue by the project team staff outside the meeting by exception. The project governance structure identifies the route hierarchy by which matters are escalated.

The SRO is responsible for keeping the Cabinet Members aware of the development of the scheme towards meeting the project objectives.

Ultimately, whether identified by the project team through the established project communication process or escalated to the Project Board / Leadership Team by exception, assurance on project governance will be closely monitored and opportunities for appropriate intervention maintained through the project governance process.

6.5. Programme / project plan

The current delivery programme is based on scheme completion in April 2028. Key project milestones from OBC submission to scheme completion are listed in **Table 6-2**. A full programme Gantt chart (developed in P6 Primavera) can be found in **Appendix E2**.

Table 6-2 - Project Milestones

Milestone (*=critical path date)	Milestone
Outline Business Case submission	Nov-21
DfT approval of OBC	Jan-22
Preliminary design commences	Feb-22
Pre-application (planning) submitted	Nov-23
Route corridor safeguarded through Local Plan process	Dec-23
Environmental surveys (including Phase 2 ecology surveys) and report completed	Feb-24
Preliminary design completed	Feb-24
Procurement ITT	Feb-24
Planning application submitted (including Environmental Impact Assessment)	Feb-24
Preferred bidder selected	Aug-24
Planning application determination	Sep-24
Detailed design commences	Sep-24
Landowner negotiations completed (CPO process commences if necessary)	Oct-24
CPO inquiry (if required- provision made within programme)	Apr-25
Secretary of State approval (planning)	Oct-25
Detailed design completed	Oct-25
End of judicial review period	Dec-25
Final contractor price	Dec-25
Land assembly complete	Feb-26
Full Business Case submission	Feb-26
DfT approval of FBC	Apr-26
Award of contract	May-26
Start Construction	Jun-26
Finish Construction	Apr-28

Post OBC approval, the programme provides for a period of approximately 2 years for preparation of the planning application, including the Environmental Impact Assessment. Timescales are largely dependent upon the necessary surveys. Assuming a positive determination of the planning application, the land assembly would then be progressed. A potential Compulsory Purchase Order (CPO) enquiry has been reflected in the programme, should this be required. Submission of the Full Business Case (FBC) is scheduled for February 2026, following completion of the land assembly and determination of the final contractor price. The contract award would follow FBC approval, with construction planned to commence in June 2026 with a duration of approximately 21 months.

6.6. Key considerations for scheme delivery

A scheme of the nature and scale of the A350 Melksham Bypass will involve a number of key stages and activities, including:

- Planning application / Environmental Impact Assessment;
- Land acquisition;
- Procurement (see Commercial Case);
- Environmental and other consents;

- Construction – traffic management; and
- Construction – environmental impact.

These are reflected within the delivery programme and will be carefully managed to ensure that the project is successfully delivered to the intended timescales and budget. The sections below provide further details.

6.6.1. Planning application / Environmental Impact Assessment

Pre-application

Early engagement with the local planning authority (Wiltshire Council) will be carried out through the pre-application stage to discuss the emerging proposals and key issues which the planning authority consider should be addressed as part of the design development and assessment of the scheme. This would coincide with public consultation and stakeholder engagement to present the proposed alignment of the bypass route and all associated land required for the enabling works, the construction process and mitigation measures.

An option for consideration at the pre-application stage would be the preparation of a **Planning Performance Agreement** (PPA) between Wiltshire Council (as the local highway authority and Applicant) and the local planning authority (Wiltshire Council). The PPA is intended to represent a commitment between all parties involved, to conduct open, constructive and effective dialogue in order to identify and resolve any issues during the development and consideration of the planning application for the scheme.

Environmental Impact Assessment

Based on the current understanding of the environmental baseline context, and the scale and extent of the Scheme route options, it is considered likely that Wiltshire Council will determine the scheme to be EIA development. This will be confirmed at the pre-application stage through the preparation and issue of a formal request for a **Screening Opinion** for the Scheme under Regulation 6(2) of the EIA Regulations 2017.

The EIA process will be informed by a series of environmental surveys and evaluation. In terms of the ecological impact assessment, Phase 1 Habitat Surveys of the land encompassing the short list route options have already been completed, which has identified suitable habitat for a range of protected species. An extensive programme of Phase 2 surveys will be carried out on the preferred route corridor. Tree surveys will also be carried out within the route of the alignment to provide details of the location, type and quality of the trees likely to be affected by the development.

Planning application

The planning application will be prepared in conformity with the policies in the adopted development plan and the emerging Local Plan, taking into account any other material considerations, which would include the NPPF and other relevant planning guidance.

The planning application will be supported by a suite of documents including an **Environmental Statement** (based on the EIA) and a **Transport Assessment**.

The determination period for the planning application would be 16 weeks, including a statutory consultation period of 5 weeks[74]. The culmination of the application process will be the presentation of the application at the relevant **Planning Committee** (and potentially full Cabinet, given the significance of the proposals). Draft planning conditions would be reviewed prior to their inclusion within the Committee report, to check for any potential issues or adverse programme implications (for instance, the wording of the pre-commencement conditions will be checked to ensure they can be addressed and implemented within programme).

6.6.2. Land acquisition

The scheme will require the acquisition of land. Land ownership to the east of Melksham has already been identified and mapped. Once the preferred route alignment is fixed the affected land parcels will be confirmed. This includes land affected by temporary or enabling works and access requirements.

The **assembly of the land will be achieved through negotiation and agreement with the landowners as far as possible**, but in circumstances where agreement cannot be reached this is likely to lead to compulsory purchase by Wiltshire Council. Objections may be received in response to the subsequent proposed

[74] In practice, comments are likely to be received by the Planning Case Officer throughout the determination process and can often be received very close to the target decision date. This will be mitigated by adopting a proactive approach to engaging with the local planning authority and the main consultees, in line with the procedures set out in the PPA.

Compulsory Purchase Order (CPO) from some landowners. If objections cannot be resolved, this would lead to a **CPO Inquiry** to enable the objections to be heard and considered by an independent Planning Inspector. The duration of the CPO process would be approximately 12 months, dependent on the length and complexity of the CPO Inquiry.

6.6.3. Environmental and other consents

As well as seeking planning permission and a CPO for the scheme, further environmental consents will be required. For instance, where main rivers are crossed, a **Flood Risk Activity Permit** (FRAP) will be required from the Environment Agency. Likewise, the network of Public Rights of Way along the highway alignment will require diversions or closure/stopping up. This will be covered by the planning application, but design changes and construction work will be closely monitored to ensure the further temporary or permanent stopping up or diversion notices are established well in advance of their requirements.

Consents may include:

- Natural England:
  - Protected Species Licenses (to agree the formal measures to mitigate impacts on bats, badgers, great crested newts, etc)
- Environment Agency:
  - Flood Risk Activity Permit (FRAP)
  - Water discharge permit
  - Waste exemptions and permits for storage, use, treatment and disposal
  - Waste operation permit
  - Removal of invasive species
  - Waste Carrier Licence
  - Hazardous Waste removal permit
- Local authority:
  - Ordinary Watercourse Consent from the Lead Local Flood Authority (LLFA) under Section 23 of the Land Drainage Act (1991) for the erection or alteration of any culverts or other obstructions to the flow of an ordinary watercourse.
  - Consent under Section 61 of the Control of Pollution Act 1974, for prior approval of details to manage noise on-site during the construction phase.
  - Temporary Roads Order (TRO) for the temporary diversion of PRoWs (to be renewed every 6 months, up to a maximum of 12 months).

6.6.4. Construction – traffic management

Managing traffic and other road users and maintaining access to properties is a key issue whilst enabling good progress with the work. This will be supported by careful planning and good quality, timely and up to date communications with both the wider community and local residents, businesses and landowners (see also Section 6.8).

Much of the bypass construction would be off-line, but connections to existing routes would require periods of traffic management to allow the works to proceed efficiently and safely. Given the high traffic flows, particularly on the existing A350 route, minimising travel disruption will be a key aim during the delivery stage. This will be managed through the construction contract by the provision of traffic management; in particular, the contractor will be encouraged to develop work packages that can be completed during restricted daytime hours or overnight. Should full road closures be required these will be limited to night times when traffic flows are light.

Efficient traffic management will be supported by:

- A Construction Phasing Plan;
- A Construction Method Statement (CMS); and
- A Construction Traffic Management Plan.

6.6.5. Construction – environmental impact

The planning process and the conditions that accompany the granting of the planning permission for the scheme will include the timely submission of further documentation such as the **Construction Environmental**

Management Plan (CEMP), and adherence to the specifications as agreed. The requirements of the planning permission will be communicated to the contractors and both the client and the supervisory teams will ensure the requirements of the planning permission and conditions are adhered to. For example, agreed working methods, such as lorry routing by the contractor's suppliers, will be enforced through the construction contract.

The local environment includes areas with protected species and ecological sensitivities. The project team has been suitably resourced from an early stage to ensure that environmental and ecological issues are considered throughout the development and delivery of the scheme, including the approach to construction. This will help to minimise environmental impact from construction and reduce the likelihood of unforeseen delays and disruption to programme. For example, careful planning at the early stages could enable key **advance preparation works** to be undertaken ahead of the main construction programme, including the translocation of protected species during the correct season under licence from Natural England.

6.7. Assurance and approvals plan

6.7.1. Wiltshire Council assurance and approvals

The project will be managed in accordance with the **Council's Constitution and related guidance**. The responsibility for approving progress on the scheme at key stages will be undertaken by the **Council's Cabinet**, which has various well-defined responsibilities, including controlling capital expenditure. The Cabinet is part of the Council and is responsible for most day-to-day decisions. Reports to the Cabinet act as a **Gateway Review** at key stages. This provides an audit trail and ensures relevant scrutiny and challenge, visibility and transparency, and compliance.

Key gateway decisions already undertaken and those anticipated throughout project development are summarised in **Table 6-3**.

Table 6-3 - Summary of key decisions / gateways

Stage or Gateway	Date	Link	Notes
Scheme Development Initiation Approval	19 May 2020	https://cms.wiltshire.gov.uk/ieListDocuments.aspx?CId=141&MId=13064&Ver=4	
Approval to undertake first consultation (non-statutory)	13 October 2020	https://cms.wiltshire.gov.uk/ieListDocuments.aspx?CId=141&MId=13083&Ver=4	
Approval to undertake second consultation (non-statutory)	1 June 2021	https://cms.wiltshire.gov.uk/ieListDocuments.aspx?CId=141&MId=13768&Ver=4	
Adopt Preferred Route	May 2022	n/a	Assumed 5 months after OBC approval. Report to include approval to proceed with preferred route design.
Approval to submit planning application	December 2022	n/a	Cabinet Member decision
Approval to commence land acquisition, Compulsory Purchase Orders and Side Road Orders	May 2023	n/a	Subject to successful planning application
Approval to invite tenders	Feb 2024	n/a	Assumes approval of statutory orders by SoS
Approval to award contract	March 2026	n/a	Assumed one month after FBC approval

At the key stages the Cabinet receives reports from the Council's Chief Executive outlining and confirming the background to the scheme, relevance to the Council's Business Plan, main considerations, conclusions and making recommendations. The report covers:

- Public Health,
- Procurement,
- Overview and Scrutiny
- Safeguarding implications
- Equalities,
- Environment and Climate Change,
- Risks of proceeding or not proceeding,
- Workforce implications
- Financial
- Legal implications.

The report would be **approved by relevant Directors** or their deputies and by **the Section 151 Officer** before being referred to the Cabinet for decision. Some decisions may be delegated where appropriate to the Cabinet member to consider in conjunction with the Director of Transport and Environment / SRO, having consulted the Director of Legal and Governance and the Section 151 Officer. When major decisions ("key decisions") are to be discussed or made by Cabinet, they are published in the Cabinet's forward work plan. Key decisions include those where a contract exceeds an annual value of £1 million or a total value exceeds £4 million. The contracts for this project would exceed those values and would require Cabinet approval to proceed. The contract procurement process would be approved and monitored by the Council's **Strategic Procurement Board**.

Reports considered by Cabinet are publicly available; any confidential information is included in a Part 2 report which would not normally be publicly available, but which is considered by the Cabinet.

Further assurance is provided by the Council's **Overview and Scrutiny management** who review the report before submission and can request it to be referred to the Environment Select Committee for review and comment before Cabinet consider the matter. This makes sure that decisions are taken based on sound evidence, including the views of those with an interest in the matter, and are in the best interests of the people of Wiltshire.

Overview and Scrutiny has powers to require decision-makers to attend meetings and answer questions on any matter under review and also provide written evidence. These can also be from other agencies and contractors, often referred to as partners, who are delivering public services in Wiltshire. They can also seek the advice of experts outside of the council to help it in its work. Overview and scrutiny does not make decisions itself, but publishes findings and recommendations which must receive a response. Most of its meetings are held in public.

6.7.2. Independent assurance

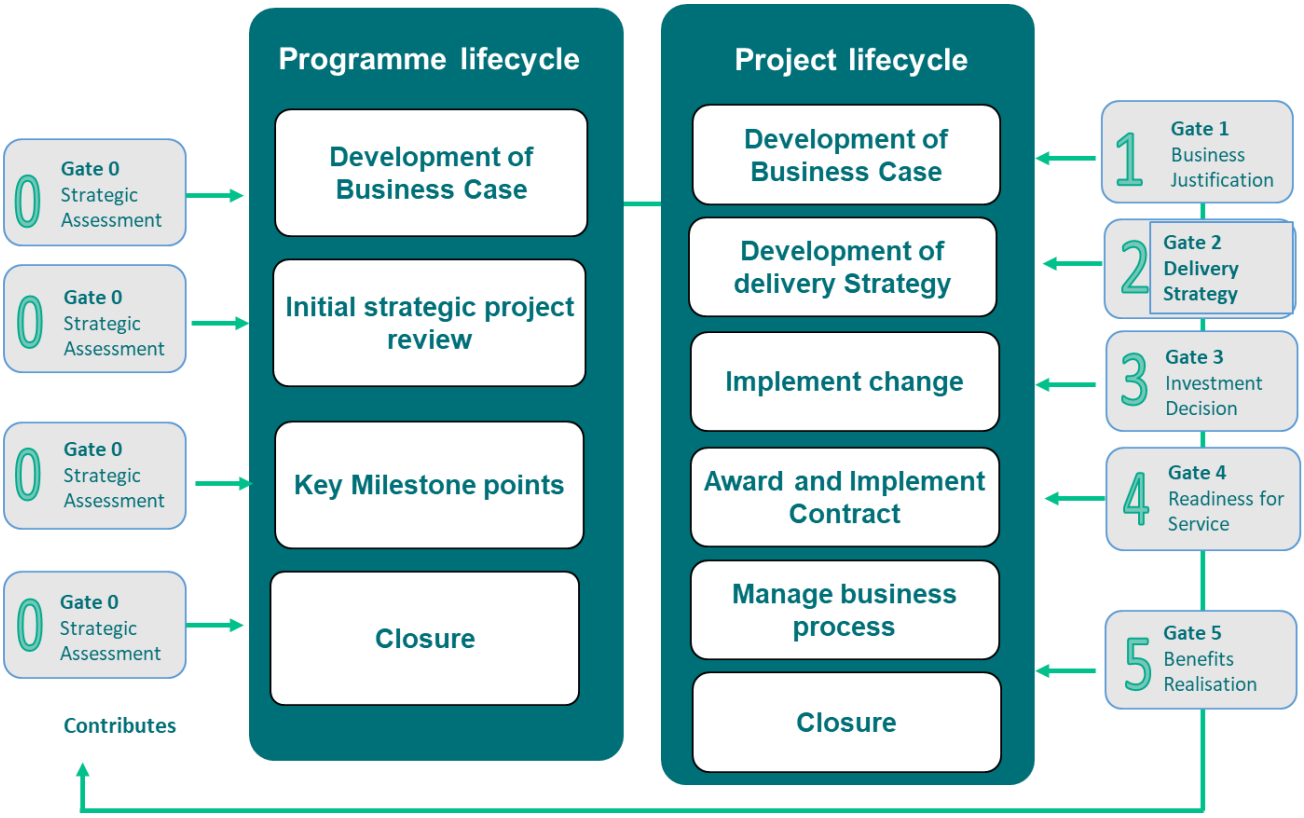
In addition to Wiltshire Council's own assurance processes, separate **independent assurance of the project is being undertaken by Local Partnerships**[75]. Local Partnerships is the only authorised provider of Gateway reviews for the Local Public sector and it liaises with Government departments on the assurance of major investment programmes. This independent assurance function complements and enhances the overall project governance by providing an external perspective and is expected to benefit project delivery, including through:

- Better scoping;
- Reducing risk;
- Harnessing best practice;
- Faster delivery of benefits;
- Appropriate structure of contracts; and
- Better value for money.

[75] Local Partnerships is a joint venture between the Local Government Association, HM Treasury and the Welsh Government. It facilitates change by working impartially and collaboratively across all parts of central, local and regional government, and the devolved administrations.

At key stages (or 'gates') the project will be subject to a **Peer Review**, with Local Partnerships reporting to the SRO. This provides assurance that the project can progress successfully to the next stage. The process applies throughout the project lifecycle **(Figure 6-8)**.

Figure 6-8 – Independent assurance process



The reviews comprise a top-down strategic review of the project including an examination of key documents and discussions with key people. The review assesses the rigor of project management processes, decision making and governance, and operational management and benefits realisation. Key findings, conclusions and recommendations are reported to the SRO for wider dissemination and agreement of key actions with the project team. An overall Delivery Confidence Assessment rating is provided based upon evaluation against a wide variety of delivery criteria. This provides an assessment of the level of **confidence in the project's ability to deliver its aims and objectives** within the timescales and budget, and to the quality requirements.

6.7.3. DfT assurance and approvals

The scheme is currently being progressed in line with the DfT's guidance regarding the transport business case[76]. This is a three-phase approval process, as illustrated in **Figure 6-9**.

Figure 6-9 - The three-phase decision making process

[76] https://www.gov.uk/government/publications/transport-business-case

This OBC represents Phase Two of the decision-making process. It has established the need for intervention and has assessed the strategic fit and potential economic, social and environmental impacts for a preferred option. Based on information presented in the OBC, the DfT will undertake its assurance review and present its findings to Ministers. If DfT approval is granted to proceed to Phase Three (FBC) then (subject to Wiltshire Council approval) further scheme design and statutory processes would be completed, along with acquisition of land required for the scheme and procurement of the main contractor.

The FBC (Phase Three) is planned to be submitted to DfT in February 2026. This will:

- Provide details of the project's overall balance of benefits and costs against objectives and set out plans for monitoring and evaluation these benefits when required;
- Confirm the strategic fit and the case for change;
- Provide the business and financial rationale for the project;
- Detail the proposed contract management resourcing, processes and benefit realisation plans;
- Show how the return would justify the overall investment of time and money; and
- Continue to be used to align the progress of the project towards achieving the business objectives.

FBC approval is anticipated in April 2026, when a formal agreement would be made between the DfT and Wiltshire Council regarding the terms and conditions of funding expenditure. The decision to proceed with award of the main construction contract would be considered by Wiltshire Council; if approved this would allow construction works to proceed on site following a period of mobilisation.

6.8. Communication and stakeholder management

6.8.1. Background

Effective communication and stakeholder input is key to the success of the project. Stakeholder communications and PR aspects are managed by Wiltshire Council's communications team. Wiltshire Council has undertaken two consultation exercises during the OBC development, in Winter 2020 and Summer 2021 (see Strategic Case, Section 2.10.2). Stakeholder input has therefore played an important role in the development of the scheme to date and will continue to do so in determining more detailed aspects of the scheme design. Keeping stakeholders well informed throughout the scheme development and construction process is a priority for Wiltshire Council.

A **Stakeholder Engagement and Communications Plan** is in place which provides the framework for all communications and engagement activity throughout the project lifecycle **(Appendix E3)**. This ensures that:

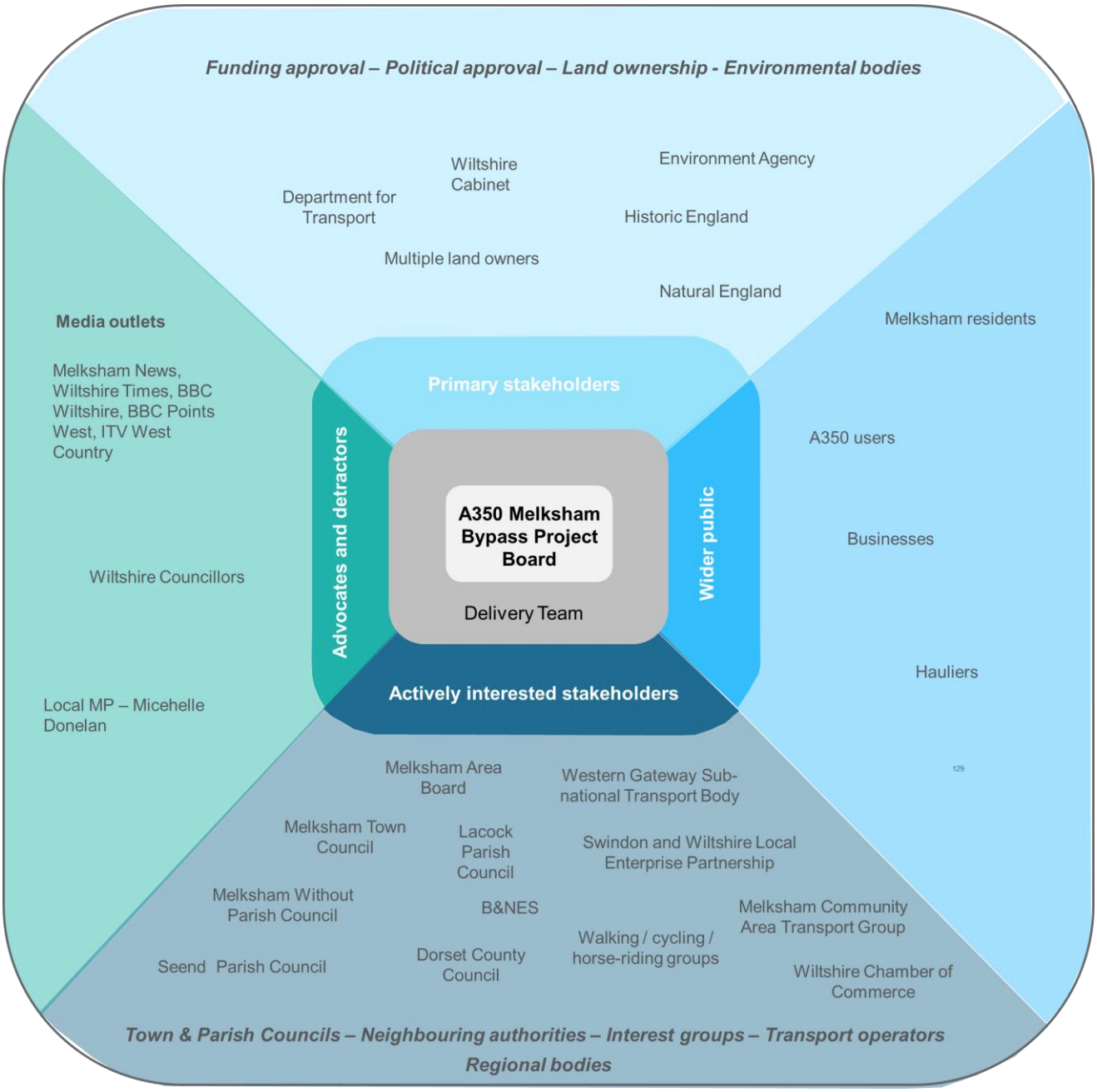
- accurate and timely messages regarding the project are given to a range of identified stakeholder groups;
- the public and key stakeholders have an opportunity to provide input and feedback to the scheme development process;
- the expected scheme benefits are clearly communicated; and
- stakeholder expectations can be managed.

This section presents key details of the approach set out within the Plan.

6.8.2. Stakeholder groups

A stakeholder mapping exercise has identified a wide range of stakeholders which have been categorised in relation to their role and type of influence on the project. A summary of the key stakeholder groups is provided in **Figure 6-10** and further details can be found in the Strategic Case **(Section 2.10.1)** and the Stakeholder Engagement and Communications Plan **(Appendix E3)**.

Figure 6-10 – Key stakeholders / stakeholder groups



6.8.3. Stakeholder management and communication objectives and approach

The A350 Melksham Bypass scheme has the potential to impact upon those living, working, using services and doing business in the area and beyond.

The communication objectives are to:

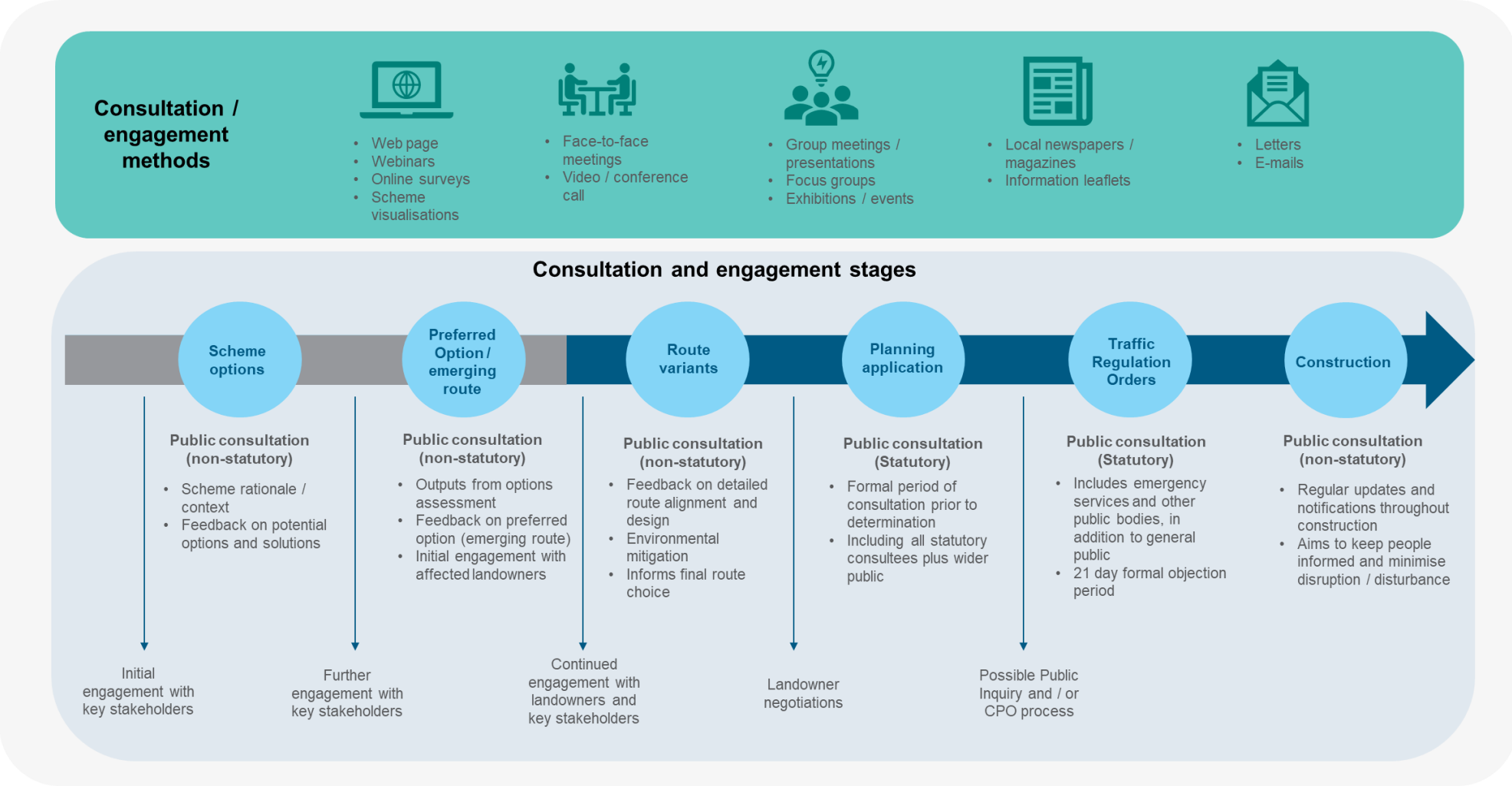
- **inform** stakeholders of the scheme progress and **enable feedback** on the detailed design, to reduce risk and aid scheme approval;
- **communicate and share** information with stakeholders in a **timely and appropriate manner**, building trust and maximising support for the scheme;
- plan and provide **appropriate channels of two-way communication** for identified audiences, to ensure they understand how the Council provides information, and receives and acts on feedback;
- **proactively pre-empt and address potential concerns** and perceptions of the scheme which are inconsistent with the objectives and forecast outcomes;

- attend to the views of stakeholders representing the protected characteristics listed under the **Equality Act 2010, and the Public-Sector Equality Duty**;
- provide **consistent, clear information to those affected by the scheme**, including the nature of scheme-related impacts and how and when it will affect people; and
- use **clear, accessible language** and deliver messages which are tailored to the requirements of specific audiences

Stakeholder management will be an ongoing activity throughout the project lifecycle. The Stakeholder Engagement and Communications Plan identifies a number of key messages for stakeholders relating to the development and delivery of the project to ensure consistent and clear communication. These would be expected to evolve as the project progresses.

Engaging with stakeholders may include informing, consulting, involving, collaborating and empowering them to understand issues, allowing them to make informed choices and feedback. At key stages in the scheme development and delivery specific consultation and engagement exercises are planned; these comprise both non-statutory and statutory consultation **(Figure 6-11)**.

Figure 6-11 - Overview of planned consultation and engagement



A **dedicated website**[77] with information on the scheme and **Frequently Asked Questions** has been created and this will be kept up to date as a key resource throughout the project. This has been a particularly useful means of providing information during the Covid-19 restrictions, as well as collating stakeholder feedback through on-line surveys. A variety of different types of information are hosted on the website, including resources such as a **video 'fly-through'** representation of the bypass route **(Figure 6-12)**.

Figure 6-12 – A350 Melksham Bypass proposed route visualisation

During Covid-19 restrictions, **on-line webinars** have played an important role in maintaining a more personal element to stakeholder interaction. As restrictions are lifted, more traditional approaches such as **exhibitions / displays** will be re-introduced, but it is likely that webinars will continue to provide an important means of communication. Wiltshire Council's communications team also engage with **local newspapers and radio**, as well as via **social media**.

The **Melksham Area Board** is one of the primary means of keeping the local community informed about the scheme and progress on its implementation. The area boards are a way of working to bring local decision making into the heart of the community and include local Wiltshire Council members, town and parish councils, voluntary and community groups, youth organisations, sports clubs and local charities. Public meetings are used to launch consultations and stakeholder engagement events as well as providing updates on projects.

The **Community Area Transport Groups** (CATGs) are sub-groups of the Area Boards which can consider transport issues in more detail, set priorities and report back to the Area Boards with recommendations for schemes and initiatives which support the transport aims of the Local Transport Plan. Working with these groups has proved very successful on other recent schemes on the A350, particularly on the NPIF scheme at A350 Farmers Roundabout, Melksham.

During the construction period, there will be inevitable delays to road users, but this will be minimised as much as possible and affected parties will be informed. The contractor will be required to prepare a communications strategy to engage with the local community, businesses and schools, which will include the preparation of regular newsletters and presentations to the Area Board. The contractor will develop a **Communications and Customer Care Plan** which includes contact details of local businesses to keep them informed of the scheme construction. The contractor will also include a project specific page on its company website and promote details of the scheme through social media, with consistent information also being provided on the Wiltshire Council website.

[77] https://www.wiltshire.gov.uk/highways-a350-melksham-bypass

Site visits would be arranged for local council members and others during the construction of the scheme to ensure they are aware of progress and able to keep their constituents informed.

Good practice in communications during construction

For the A350 Farmers Roundabout scheme, Wiltshire Council appointed a contractor with a high regard for communications. The contractor employed a public liaison officer who managed the day-to-day communication - this was a key part of the quality questions during the tendering. Regular newsletters were produced by the public liaison officer to keep the public updated on progress.

Wiltshire Council · SNC-LAVALIN · ATKINS · DYER & BUTLER

Newsletter 03 – April 2019 www.dyerandbutler.co.uk

A350 Farmers Roundabout Improvement Scheme

This is the third of our monthly newsletters aimed at keeping local residents and stakeholders fully informed of our progress throughout the construction phase of this key major local highway improvement scheme.

Councillor Site Visit

On the 3rd April 2019 we hosted a site visit for Melksham Town Councillors. The day proved very successful with positive communication and informal discussions centred around the works progress to date. Topics of conversation ranged from the necessity for carrying out trial hole excavations, to identifying and protecting utilities, to the efforts Dyer & Butler are making in minimising disruption to the travelling public whilst ensuring site safety for the workforce. The visiting party were able to see some areas of works which are not readily evident to traffic passing through the site.

Scheme Works Completed Last Month

Construction work has been completed on an embankment at the southern end of Farmers Roundabout, allowing the footway to be realigned and the accommodation of a new vehicle maintenance bay. New traffic signal ducting and chambers will be installed in the area leading to the implementation of a new signalised junction.

The adjacent new splitter island has been completed which will support the widening of the carriageway of Bradford Road as well as new footway construction.

New electrical installations and associated traffic signal ducting has also been installed in preparation for the signalised junction.

To the east of Farmers Roundabout, Dyer & Butler have been laying new kerb lines and constructing new footways alongside the A350 southbound carriageways.

In advance of a pre-planned three-week phase of overnight working, Dyer & Butler carried out tree and vegetation clearance work on all verges adjacent to Farmers Roundabout. This was undertaken to allow the

Safe by choice... not by chance

6.9. Risk management strategy

6.9.1. Risk management approach

Effective risk management is fundamental to successful project delivery and the management of uncertainty. It applies at all stages of project execution and is an essential part of project management.

A full **Risk Management Plan** can be found in **Appendix E4**.

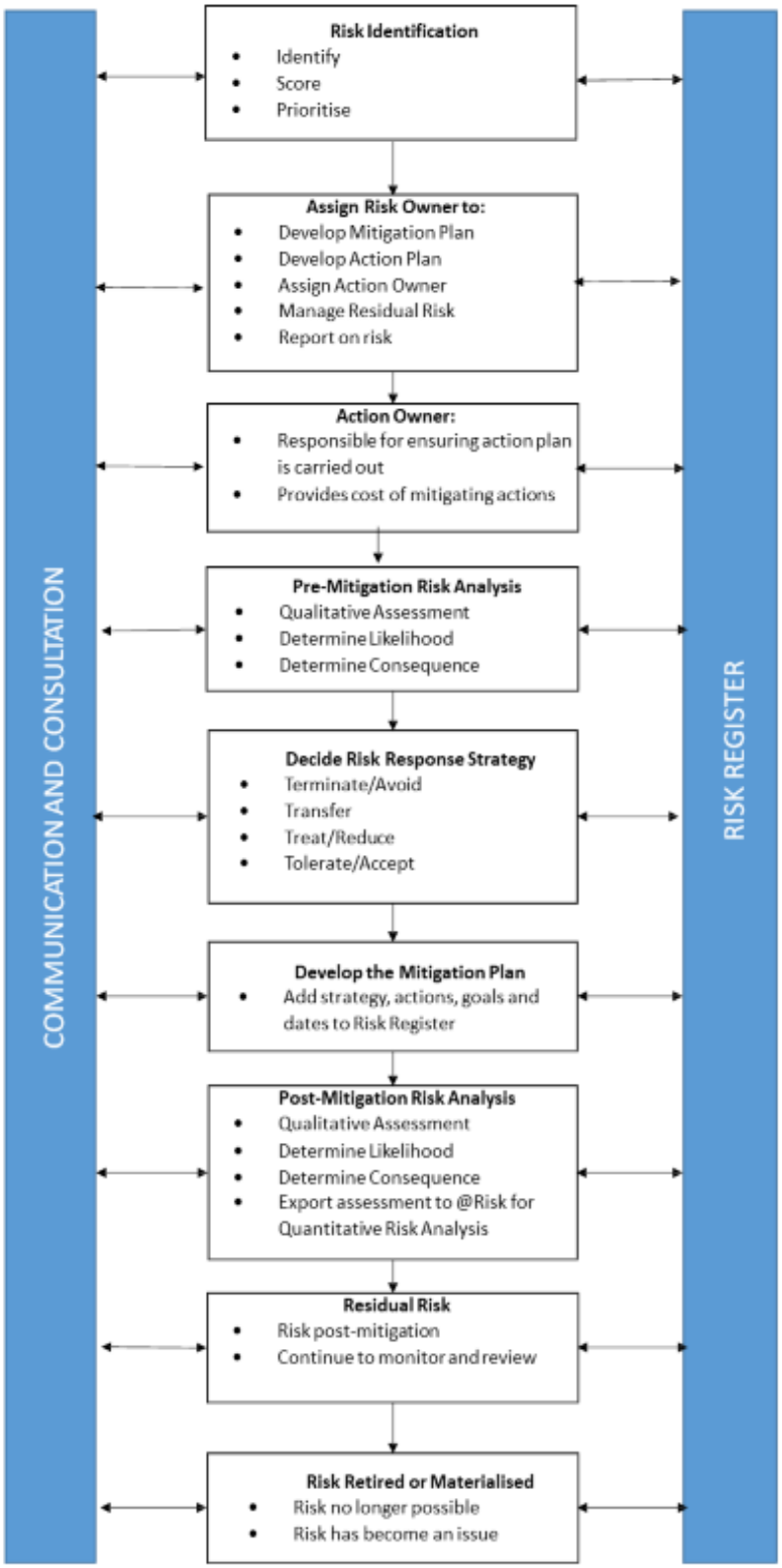
The Risk Management Plan provides a management framework to ensure that levels of risk and uncertainty impacting the A350 Melksham Bypass scheme are properly identified, reviewed and managed throughout the project lifecycle. This creates an environment and a context for **pro-actively identifying and dealing with risks** and issues. This includes **prioritising and assessing risk** so that the right resources can be applied in a timely manner for **implementing mitigation plans** to minimise risks or increase opportunities. This applies to recording and communicating these risks, as well as the eventual close-out of specific risks and the project itself.

The aims of the Risk Management Plan include:

- Assignment of **clear roles and responsibilities** within the project team for risk management.
- Enhanced team communication and **commonality of approach**.
- Assisting the Project Manager to **understand the potential risk exposure**, to develop a **focused treatment plan** to reduce the likelihood of risks occurring or to mitigate the impacts, and to **understand confidence in achieving project targets**.
- Understanding the **resource constraints and time dependencies**.
- Support the **allocation of project contingency funds** and sufficiency of management reserve.
- Increasing the value of the project investment through **identification and exploitation of opportunities**.

The overall risk management approach is summarised in **Figure 6-13**.

Figure 6-13 - Overview of the risk management process



Risks will be mitigated by a combination of impact reduction and / or probability reduction:

- Risk Avoidance
- Risk Transfer
- Risk Reduction
- Risk Acceptance

6.9.2. Risk identification / Risk Register

The Risk Register **(Appendix E5)** covers identified risk across all scheme components. It has been developed through several **risk workshops** undertaken throughout preparation of the OBC. The workshops, led by the Risk Manager, included client and consultant teams representing all aspects of the project delivery, including design, environment, economics, modelling and finance teams. For each risk, a clear understanding of the cause, event and impact has been determined to enable an assessment regarding the rating levels of probability and impact.

Regular risk workshops will continue throughout the project development in order to review / update existing risks and to identify any new risks.

6.9.3. Risk analysis and evaluation

The Risk Register uses automatic scoring once the risk probabilities and impacts are assessed and quantified, using the relevant banding levels (risk parameters). The only exceptions are performance or quality impacts, where a suitable description of the impact is used for the Risk Owner to determine the qualitative score which is then input directly into the performance / quality impact level field (e.g. a '3' for medium level performance would indicate a significant criterion is not met).

The risk parameters set for qualitative analysis with the Risk Register scoring are shown in **Table 6-4**.

Table 6-4 – Risk parameter scoring

				Impact Criteria					
Score Ref	Rank	Probability (%)		Cost Range (£)		Schedule Range (days)		Reputation	Project Performance
		Min	Max	Min	Max	Min	Max		
5	Very High	75	90	>1M		>90		Major national adverse media coverage.	Unable to deliver critical criteria.
4	High	50	75	500k	1M	60	90	Major local/minor national adverse media coverage.	Major impact on delivery of criteria.
3	Medium	25	50	250k	500k	30	60	Minor local adverse media coverage.	Partial delivery of criteria.
2	Low	10	25	100k	250k	14	30	Complaint trends.	Late or inconsistent delivery of criteria.
1	Very Low	1	10		100k		14	One off, limited complaints.	Negligible impact on criteria.

Risks are further evaluated using a scoring matrix or Probability Impact Diagram (PID), as illustrated in **Figure 6-14**. The highest risk impact score and the probability score is used to obtain a single value Risk Score for each risk. The risks, when reordered from high to low risk scores, ranks them in order of importance, or significance to the project

Figure 6-14 – Risk Probability Impact Diagram

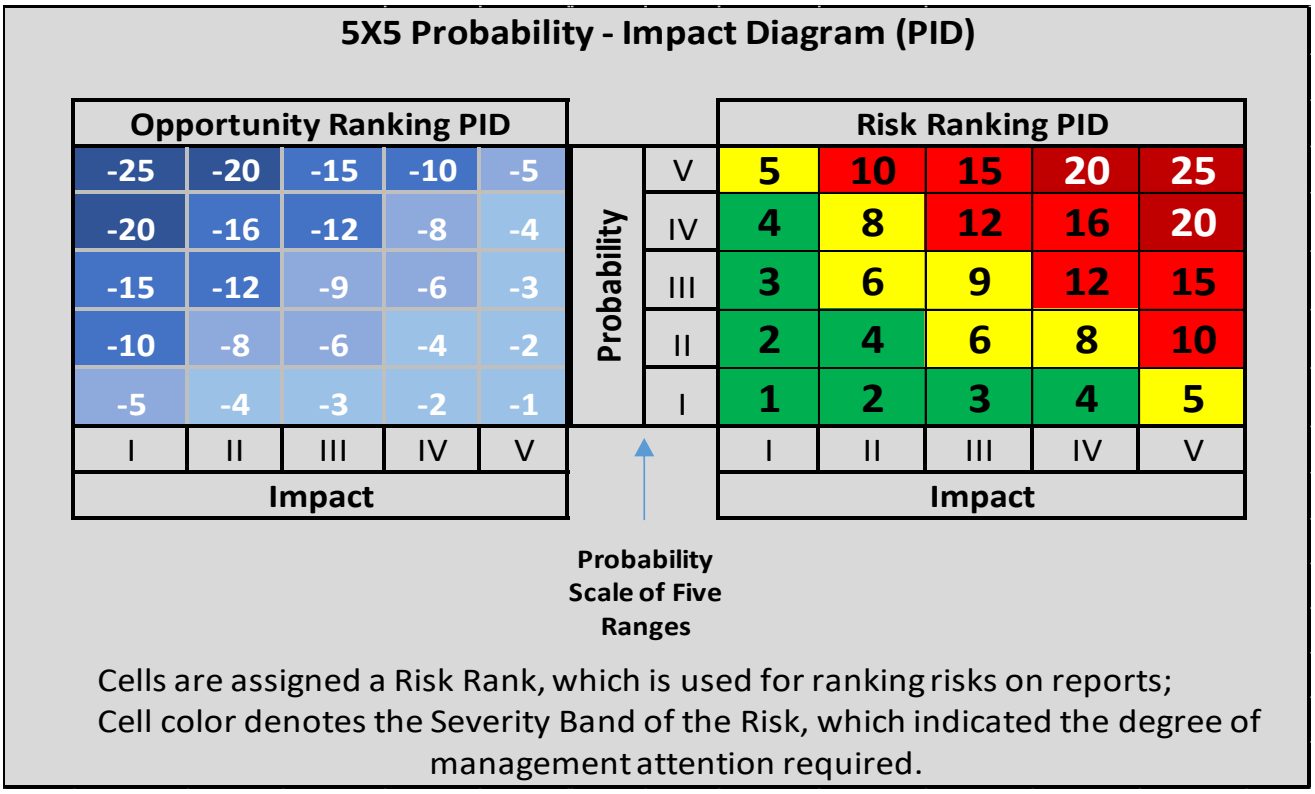


Table 6-5 provides an outline of the minimum actions required of the Project Manager based on the severity score derived from qualitative assessment. These actions include appropriate reporting and escalation of risks within both Wiltshire Council and Atkins.

Table 6-5 – Actions by risk severity level

Severity	Action
Very High	Escalate to Wiltshire Council Organisational Level.
	Escalate to Atkins Business Unit and agree on appropriate management with Business Head.
High	Escalate to Wiltshire Council Programme Level and agree on appropriate management with Wiltshire Council Project Manager.
	Report to Atkins Business Unit.
Moderate	Manage at Project Level and report at Wiltshire Council Level.
Low	Manage and report at Project Level.

6.9.4. Main risks

Some of the most significant risks (as identified within the Risk Register) and the mitigation measures that are being adopted are summarised in **Table 6-6**.

Table 6-6 – Key risks

Risk	Impact	Mitigation
New developments Potential impact of current planned and future emerging developments on bypass route. Planned development (allocated sites, sites with planning permission, current planning applications) and new applications may be located across or adjacent to the route.	Potential to delay or undermine the route selection process; potential to amend routes to avoid/reduce the impacts resulting in a suboptimal scheme solution.	Mapping current plans and constraints - closed. Monitor applications against proposed route - ongoing. Safeguarding of route through the Local Plan process.
Land acquisition Agreement cannot be reached with the landowners for the scheme to obtain the land identified for the scheme.	Lack of adequate stakeholder engagement could result in refusal or elevated price for land acquisition. Resulting in an impact on the design and cost increase.	Early engagement with landowners. Minimise land take through design development. CPO process if necessary – factored into programme.
Built heritage / archaeology Potential impacts of the route on built heritage (i.e. existing buildings, plus buried and unknown archaeology). Potential opposition from Historic England.	Delay to project whilst mitigation or alternative designs developed which would avoid area of built heritage/ archaeology.	Early engagement with consultees - Historic England contacted and County Archaeologist engaged. Desk study constraints mapping exercise has informed route design. Current route designed to avoid most significant suspected buried archaeology.
National Trust land National Trust Land required at northern end of the bypass route (Lacock) is declared inalienable. It cannot be compulsorily purchased against the Trust's wishes without special parliamentary procedure.	Cost of re-design to re-route or address concerns of the Trust.	Engagement with National Trust - ongoing consultation - and Lacock Parish Council. Alternative alignments at the northern end have been developed should National Trust land not be obtainable.
Unexpected ground conditions Due to a lack of existing ground and groundwater data throughout the study area there is a risk of unexpected ground conditions If unexpected ground conditions are identified during ground investigation or construction there is a risk of the need for re-design or uncertainty in design parameters.	Cost increase and delay due to re-design.	Targeted GI to confirm the ground model, groundwater regime (including seasonal monitoring) and geotechnical parameters to be used in design.

6.9.5. Risk treatment

The treatment of threats will aim to prevent or reduce project overspend, delayed deliverables or reduced performance levels. It will promote activities that will help to avoid or reduce adverse impacts or the chance of these events happening. In contrast, treatment of an opportunity will aim to improve the chances of realising the opportunity and maximising the cost saving, accelerated timescales or improved quality of the project output.

There are three types of treatment or mitigation actions:

- ACTION - A physical task with a defined deliverable or outcome.
- CONTROL - On-going monitoring, stakeholder engage or procedure changes.
- FALLBACK ACTIONS - A set of actions which will be taken only if the risk happens.

The Risk Register **(Appendix E5)** sets out the mitigation measures for all current risks and their Risk Owners. Each identified treatment action is assigned an Action Owner responsible for ensuring that the actions are executed to plan within the timescales or costs. The Action Owner reports progress of these actions to the Risk Owner.

The success of the actions taken will be monitored on a regular basis to check effectiveness. If the actions are not improving towards achieving the post-mitigated values, then alternative actions or strategies will be considered.

6.9.6. Risk monitoring and reporting

The identification, definition, analysis, and mitigation plans for risks are captured in the Risk Register, which is managed by the Risk Manager. It is the responsibility of all those on the project to identify risks and notify the Risk Manager so that risks can be properly captured.

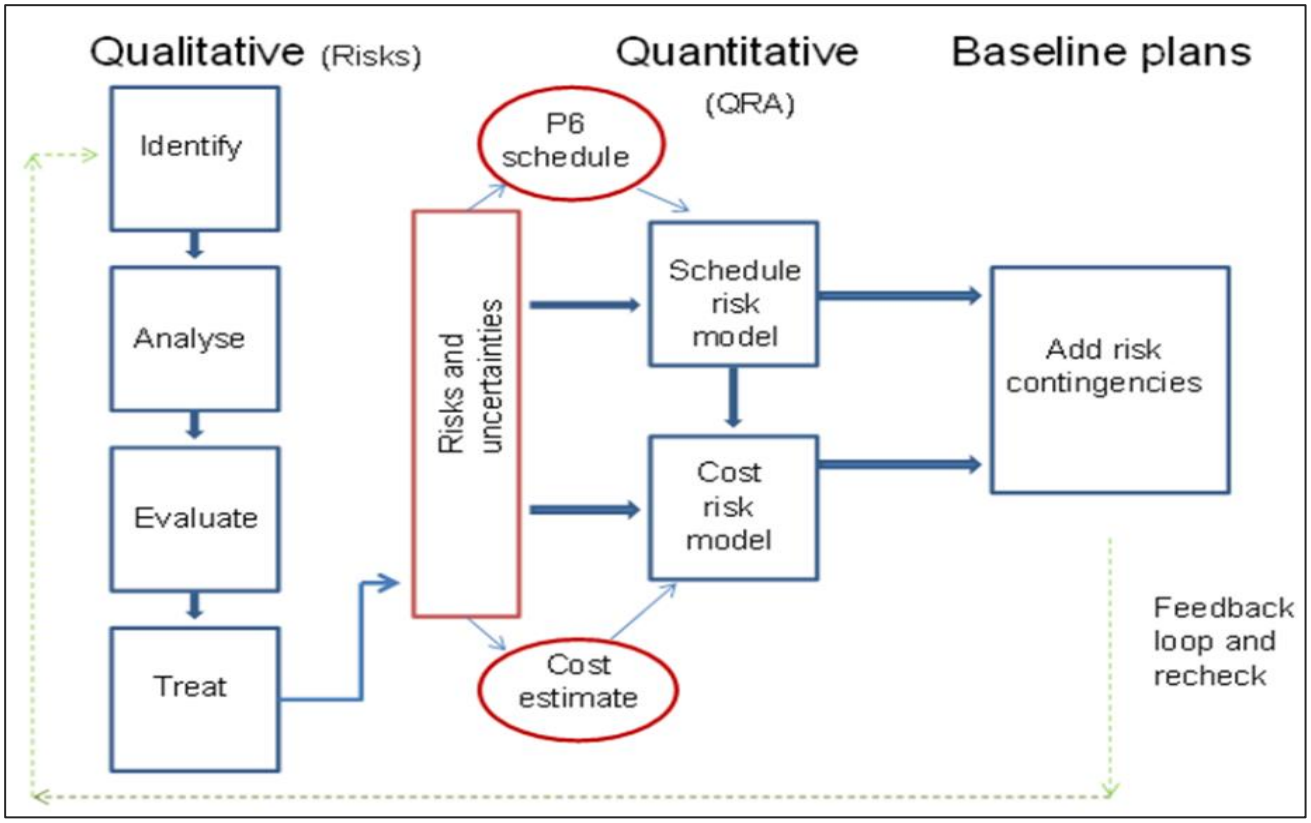
The Risk Register is discussed and updated on a monthly basis between the Project Manager and the Risk Manager in order to ensure it is effectively maintained, reflects the current risk profile of the project, and that actions are being tracked and carried out. Changes to the Risk Register are reported to the monthly Project Board meetings.

Risk Review Workshops are carried out with the wider project team to review and update the Risk Register as appropriate. These workshops take place on at least a quarterly basis and will continue throughout scheme development and delivery.

6.9.7. Quantified Risk Analysis

Quantified Risk Analysis **(Figure 6-15)** entails the Quantitative Cost Risk Analysis (QCRA) and Quantitative Schedule Risk Analysis (QSRA). Outputs inform the Project Manager of the current level of confidence in achieving the budget, key dates, cost range and earliest and latest achievable dates.

Figure 6-15 - Overview of the Quantified Risk Analysis process



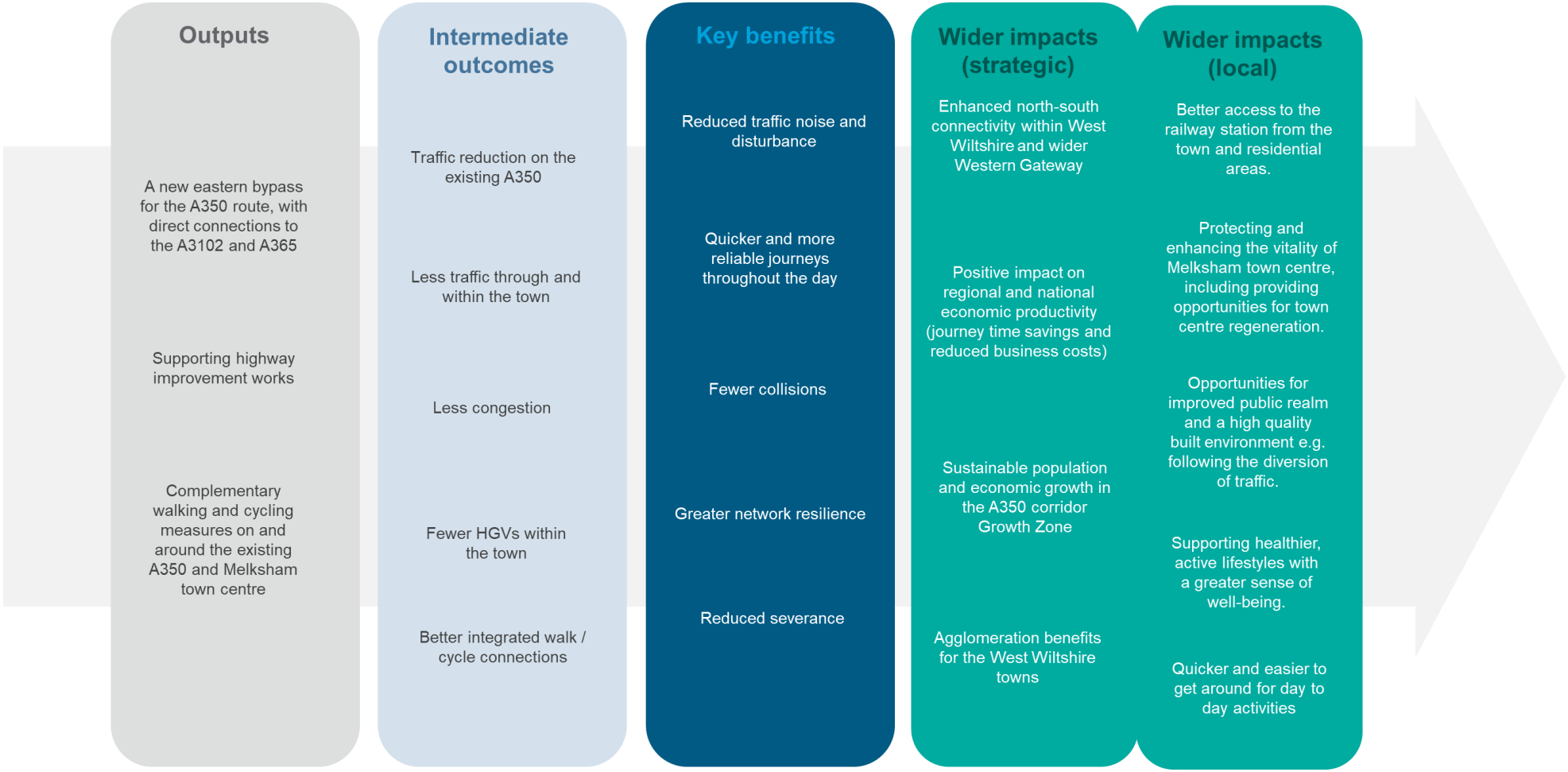
The QCRA is updated at key stages to inform the risk cost allowance (see also the Financial Case).

6.10. Benefits realisation

The benefits and success indicators for the A350 Melksham Bypass scheme are set out in the Strategic Case and include the primary benefits of journey time reductions, reliability improvements, reduced queue lengths, collision reductions, local noise and air quality improvements and reduced severance. Ensuring that these benefits are realised will be central to the success of the overall scheme. Delivery of these benefits is also associated with positive contributions towards wider economic, social and environmental impacts.

Figure 6-16 illustrates the relationship between the delivery of the primary scheme outputs (what will be delivered 'on the ground', intermediate outcomes, the key benefits and associated wider impacts (at both a strategic and local scale).

Figure 6-16 – Benefits realisation



The Benefits Realisation, Monitoring and Evaluation Plan **(Appendix E6)** sets out the processes for ensuring that the scheme is fully aligned with the key benefits and that there are appropriate means of monitoring, and reporting on, the delivery of each of the benefits. Responsibilities for benefit delivery will be clearly assigned within the project team. **Section 6.11** outlines the approach to monitoring (against key performance indicators) following scheme implementation, which will be a primary source of data / evidence for assessing the extent to which benefits are realised.

Wiltshire Council will continue to work closely with stakeholders, at a local and regional level, to ensure that the opportunities for the scheme to contribute towards wider impacts and outcomes are maximised. This includes:

- Working closely with the Town and Parish councils in relation to regeneration opportunities within Melksham and supporting sustainable local housing development.
- Working with TransWilts Railway in relation to improving access to Melksham station.
- Working with the Western Gateway Sub-national Transport Body in relation to strategic priorities and plans around strategic north-south connectivity; this includes engaging with National Highways as part of the M4 to south coast strategic study.
- Working with the Swindon and Wiltshire Local Enterprise Partnership in relation to the delivery of housing and employment growth within the A350 Growth Zone.

6.11. Monitoring and evaluation

6.11.1. Monitoring and evaluation approach

It is important to demonstrate and measure how the A350 Melksham Bypass scheme delivers on its objectives, and to assess and evaluate the overall scheme delivery. This is of particular importance to the main scheme delivery and funding bodies; in particular, the Department for Transport (DfT) and Wiltshire Council (WC), as well as wider stakeholders. This ensures **transparency and accountability** in relation to the project outcomes, delivery process (including construction), budget and timescales.

The **Benefits Realisation, Monitoring and Evaluation Plan** demonstrates clearly how the scheme's progress will be monitored and evaluated. To ensure that the Plan captures the key benefits to be realised, the methodology adopted is based on the best practice and current guidance from Monitoring and Evaluation Framework for Local Authority Major Schemes (DfT, September 2012).

The monitoring and evaluation framework for the scheme includes assessment of the:

- **scheme inputs and outputs** (e.g. outturn cost, delivery timescales and scope);
- **outcomes** (e.g. changes in travel demand, journey time and network performance); and
- **wider outcomes and impacts** (e.g. local walking / cycling activity, local accessibility, economic performance within the A350 Growth Zone).

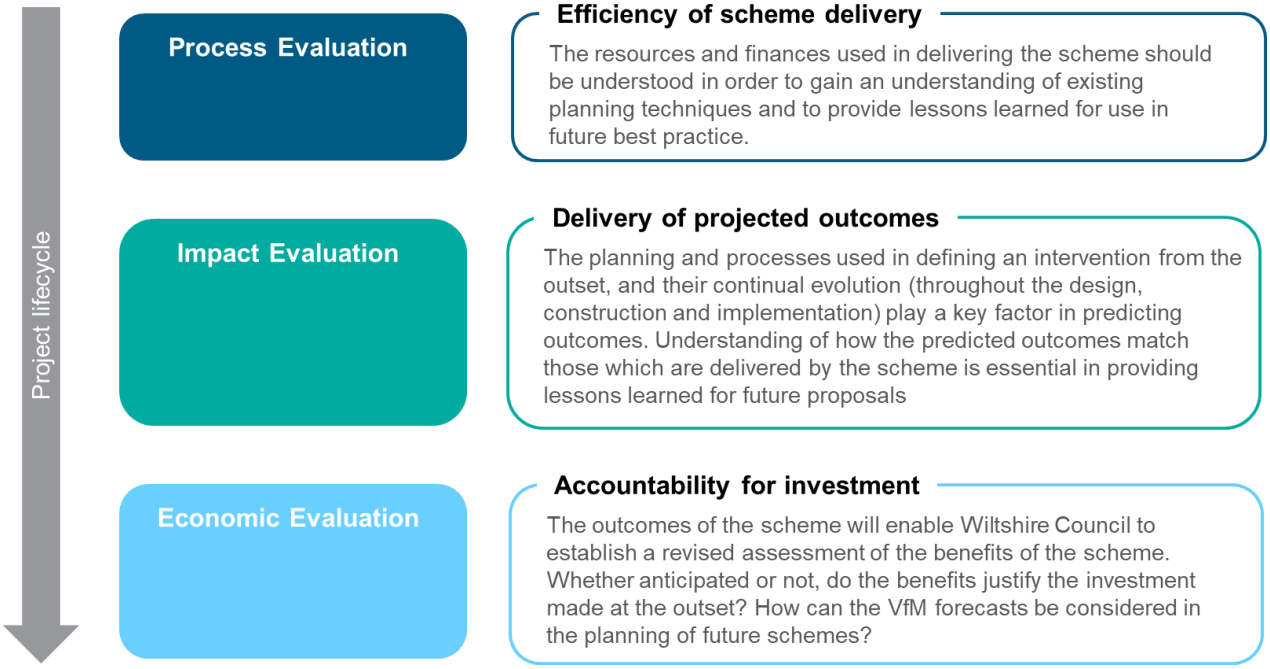
6.11.2. Overview of the monitoring and evaluation framework

Table 6-7 and **Figure 6-17** provide a summary of the proposed monitoring and evaluation to be undertaken for the A350 Melksham Bypass scheme (full details can be found in **Appendix E6**). A number of measures have been chosen in order to assess how the scheme performs in relation to its objectives, as well as evaluating scheme build and delivery. Data will be collected at a number of different stages of the scheme in order to undertake this evaluation, and then the findings reported as outlined.

Table 6-7 - Monitoring and evaluation summary

Benefit type	Types of indicators	Types / sources of data	Frequency of data collection	Reporting
Scheme outputs	Delivery of key scheme components against planned scope	Final scheme design / specification	During / shortly after construction completion	One Year Post Opening Study
	Delivery against planned budget	Budget cost estimate Final outturn costs	Within 3 months of completion of main works / following completion of all works	One Year Post Opening Study
	Delivery against programme	Construction / delivery programme	Shortly after construction completion	One Year Post Opening Study
Desired outcomes	Changes in vehicle journey times (A350 and other routes)	TomTom data	Prior to construction (baseline)	One Year Post Opening Study
	Impacts on journey time reliability	TomTom data	1, 3 and 5 years following completion (as a minimum)	Five Year Post Opening Study
	Changes in traffic flows on different routes	Annual Average Daily Traffic Flows (e.g Automatic Traffic Counters)		
	Number and severity of collisions	STATS19 data		
	Local walking and cycling activity	Manual / automated pedestrian and cyclist counts		
	Changes in noise and air quality levels	Noise / air quality monitoring		
Wider impacts	Economic performance / business confidence / inward investment	Wider economic / social performance monitoring	Broadly 1, 3 and 5 years following completion	Five Year Post Opening Study
	Network resilience	Focus groups		
	Local development and regeneration			
	Local quality of life (public perception)			

Figure 6-17 – Components of monitoring and evaluation



Some benefits will be realised immediately or shortly after the scheme opens; these typically reflect the primary benefits or outcomes. Wider outcomes and impacts are less direct and tangible effects of the scheme and are expected to take effect over a longer period.

The monitoring and evaluation process will generally comprise three key stages:

- Stage 1 - Pre-Construction Study (baseline) - 2025
- Stage 2 - One Year Post Opening Study (benefits and process evaluation) - 2029; and
- Stage 3 - Five Year Post Opening Study (benefits and wider impacts evaluation) - 2033.

In addition to quantified and measurable data and indicators, the monitoring and evaluation will make use of more qualitative approaches. This can be particularly useful for evaluating some of the less tangible wider impacts, such as economic performance within the A350 Growth Zone or supporting local regeneration and sustainable development within Melksham. Gaining feedback through focus groups will therefore be an important means of informing the evaluation; this is likely to include local and regional businesses, Town and Parish councils and other interest groups.

6.11.3. Monitoring and evaluation reporting

The general principles around reporting of the scheme evaluation will follow the overall communication principles for the scheme (e.g. see Section 6.8). In particular, reporting will be clear, specific and accessible to different audiences. It is anticipated that key information would be generally accessible through the project website, with a more comprehensive report also available and likely to be issued directly to key stakeholders, including DfT. Information will be disseminated in the interests of transparency, knowledge sharing and best practice.

Appendices

Appendix A. Strategic Case Appendices

Appendix reference	Title
A.1.	Current transport provision
A.2.	Options Assessment Report
A.3.	Scheme drawings
A.4.	M4 to Dorset Coast Connectivity (Highways England RIS2 Strategic Study)

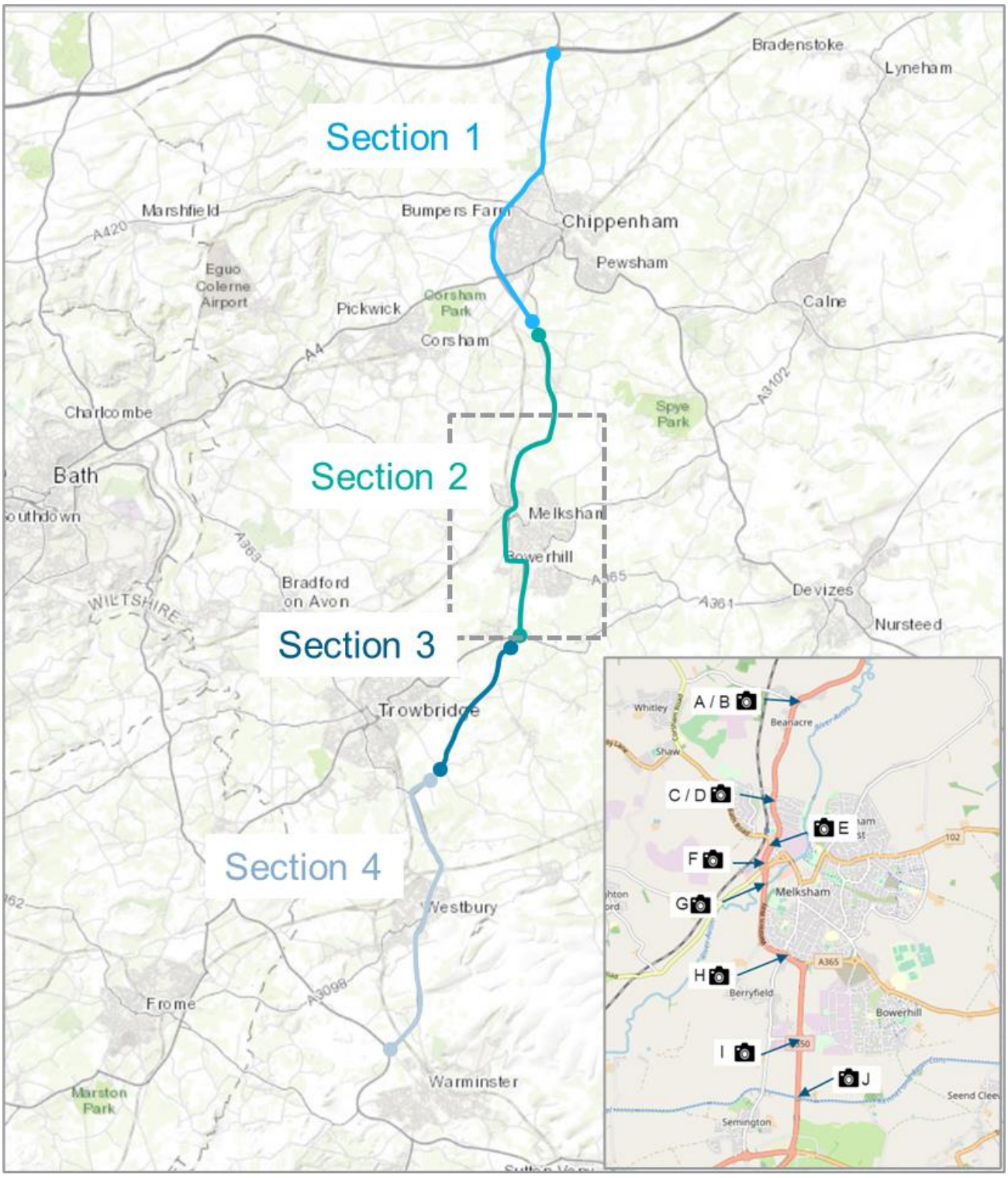
A.1. Current transport provision

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 1** illustrates the route sections and the locations of the photographs.

Figure 1 - 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 the 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 planned phases (through the MRN fund, if successful) would see the sections between Bumpers Farm and Cepen Park South roundabouts and Chequers and Lackham roundabouts also upgraded to dual-carriageway (see also Section 2.4.5).

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)**. For around one kilometre through Beanacre the speed limit is reduced to 30mph, before increasing to 40mph between Beanacre and Melksham.

Figure 2 - 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 3)**. 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 3 - 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 4)**. 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[78].

Figure 4 - 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 5)**. 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.

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

Figure 5 - 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 6).** 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 6).** The A350 then crosses the A361 at Semington, which provides the main route north from Trowbridge towards Melksham, Chippenham and the M4.

Figure 6 – 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.

Traffic flows on the A350

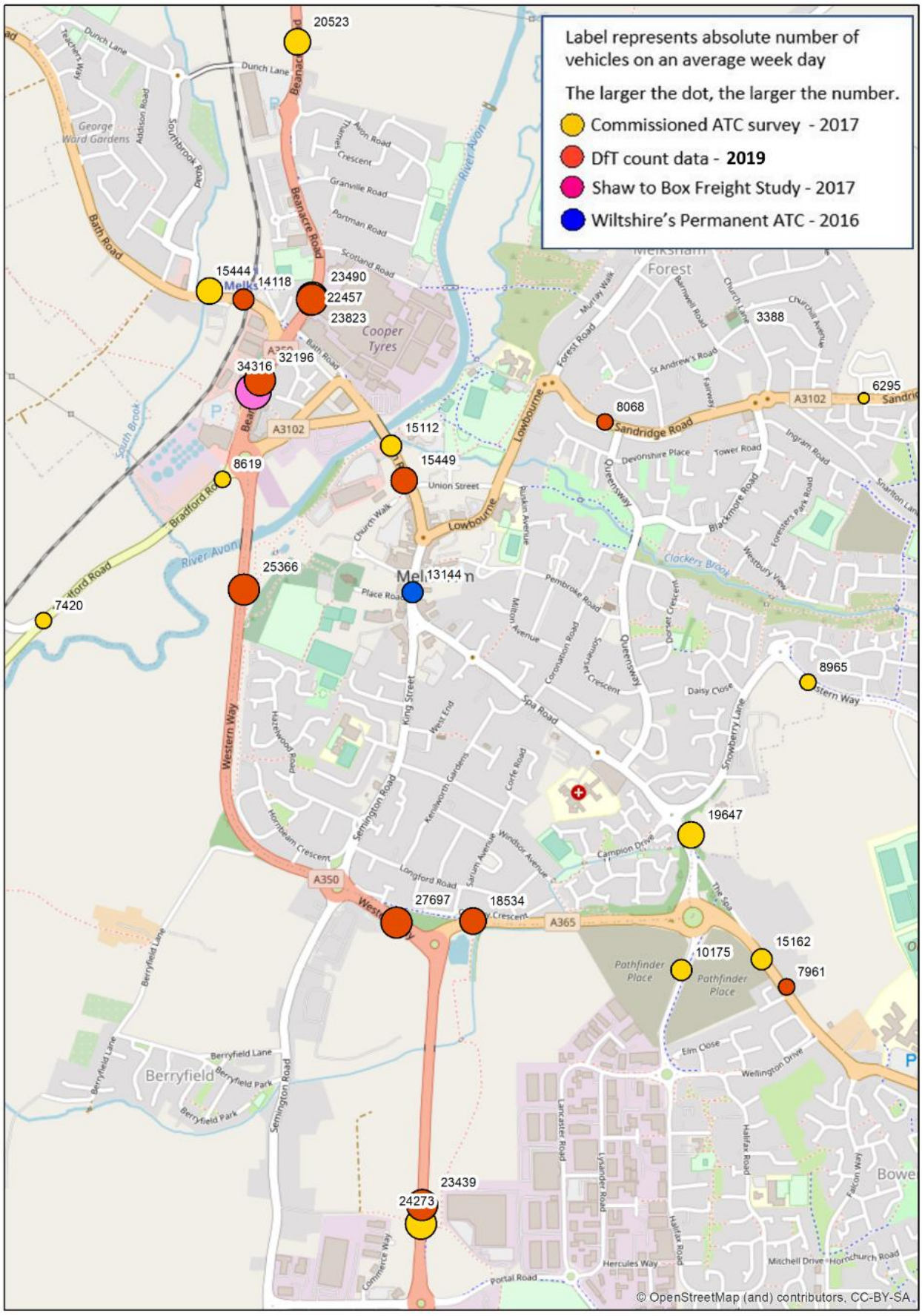
Automatic Traffic Count (ATC) surveys were undertaken in June 2017 at many locations around Melksham. Other data sets have also been referred to where available, such as:

- 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 7)**, 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.

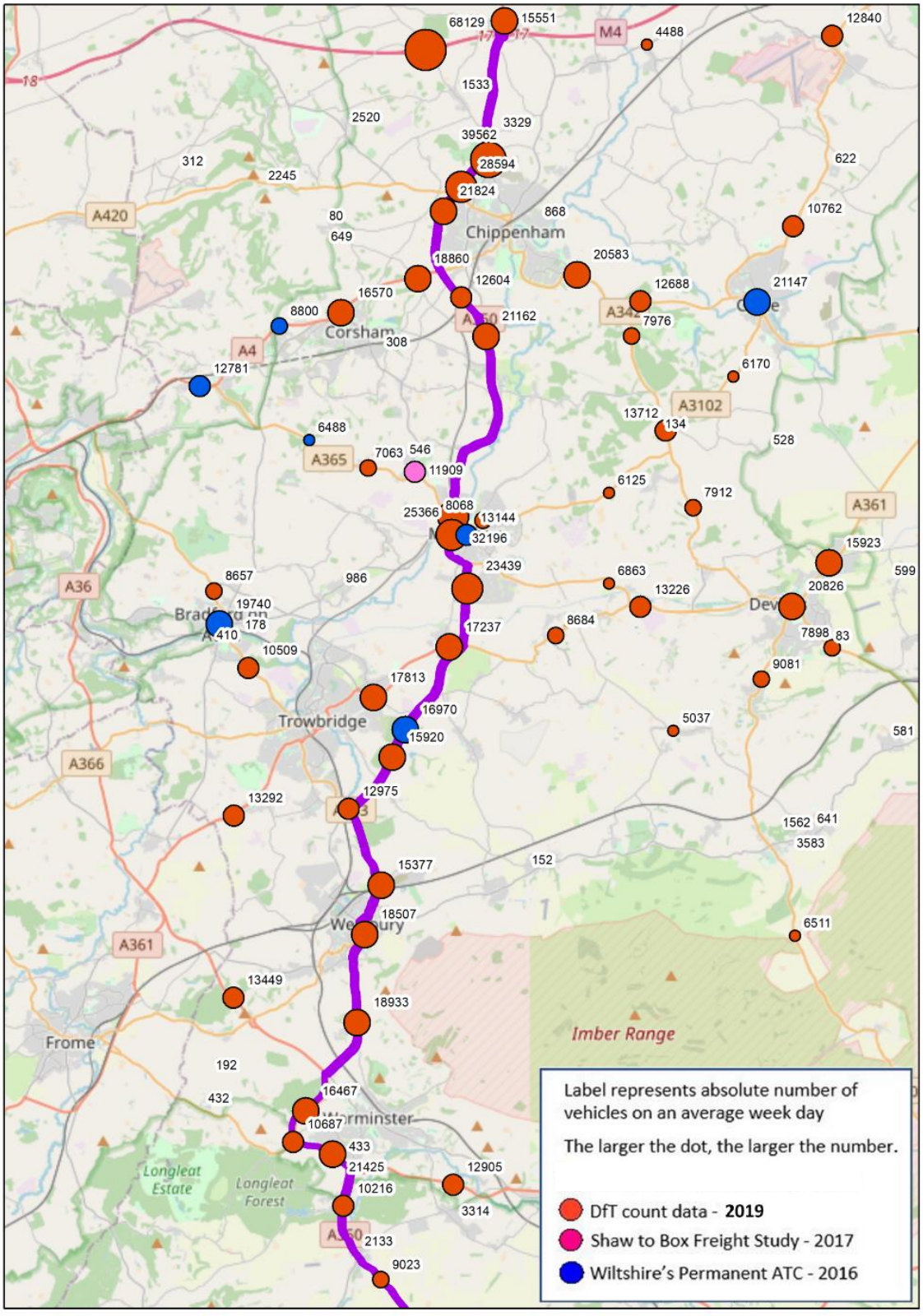
Figure 7 - Total Daily Traffic Flows in immediate Melksham area (both directions)



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 8)**. 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 8 - Total daily traffic flows in the A350 corridor area (both directions)

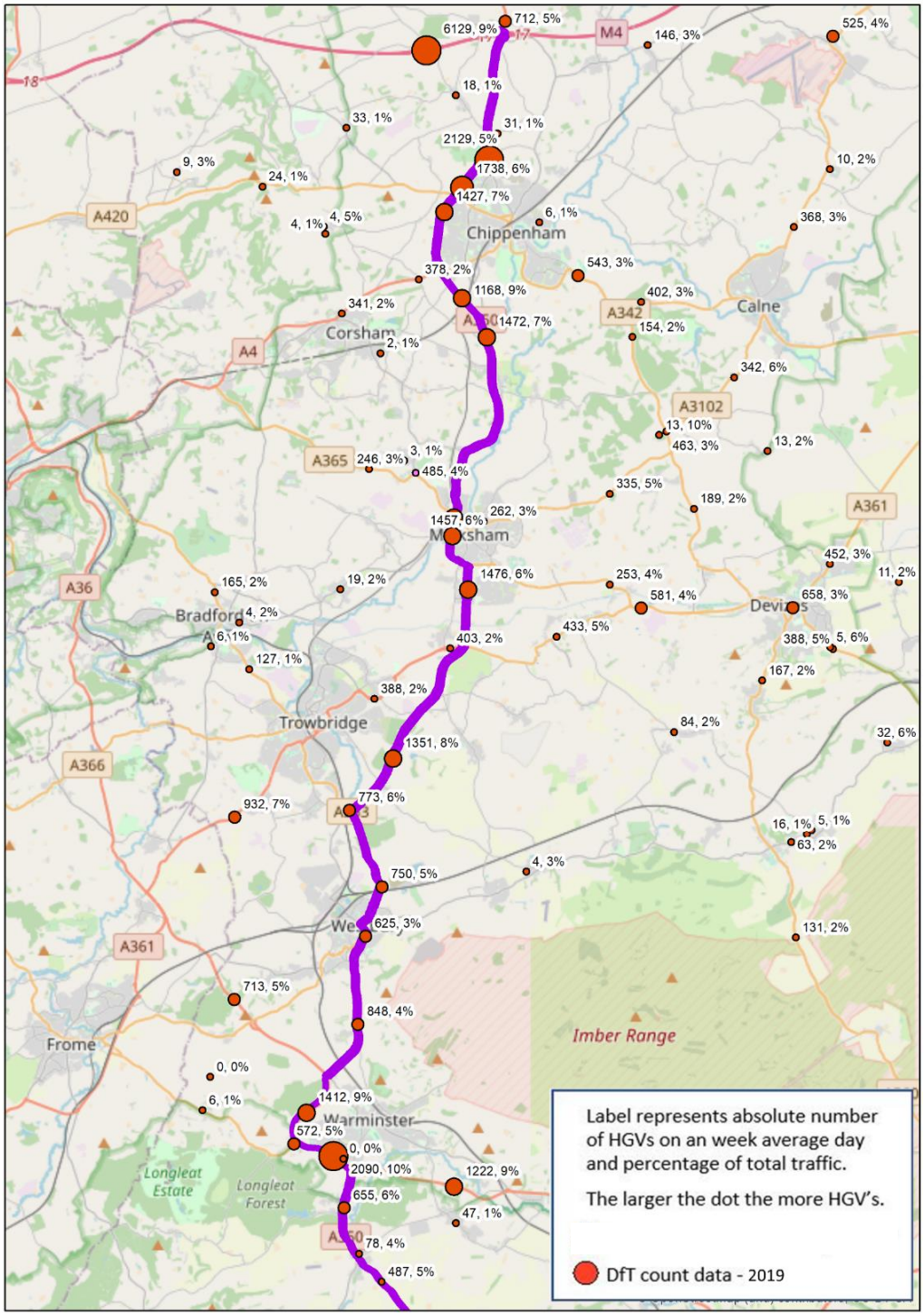


Heavy Goods Vehicles

Figure 9 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 to 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.

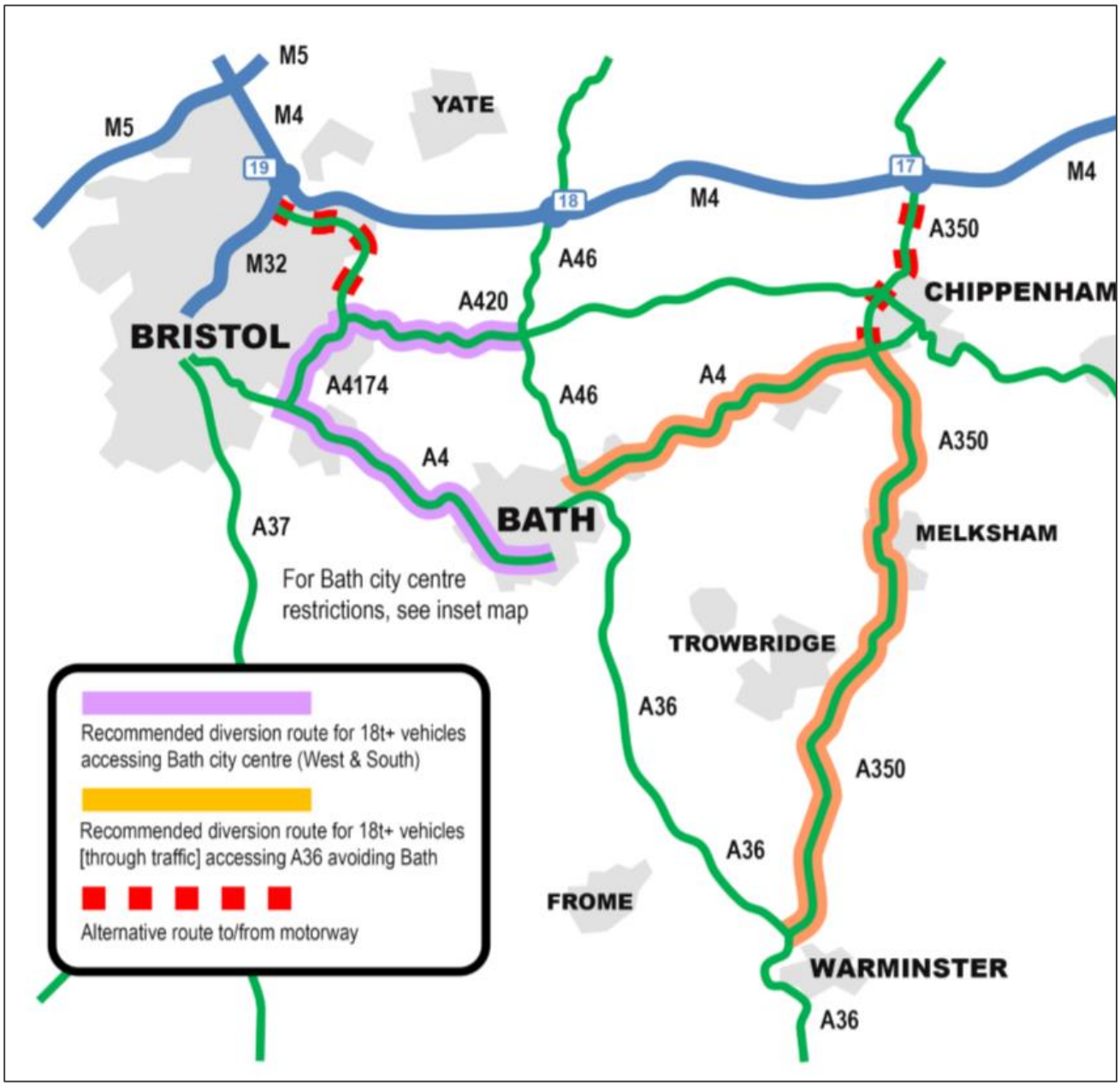
Locally, around Melksham, other roads have much lower HGV flows with Western Way having the highest volumes at approximately 750 vehicles per day.

Figure 9 – 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 10)**. 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%[79]. 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 10 – A36 Bath 18 tonnes weight restriction

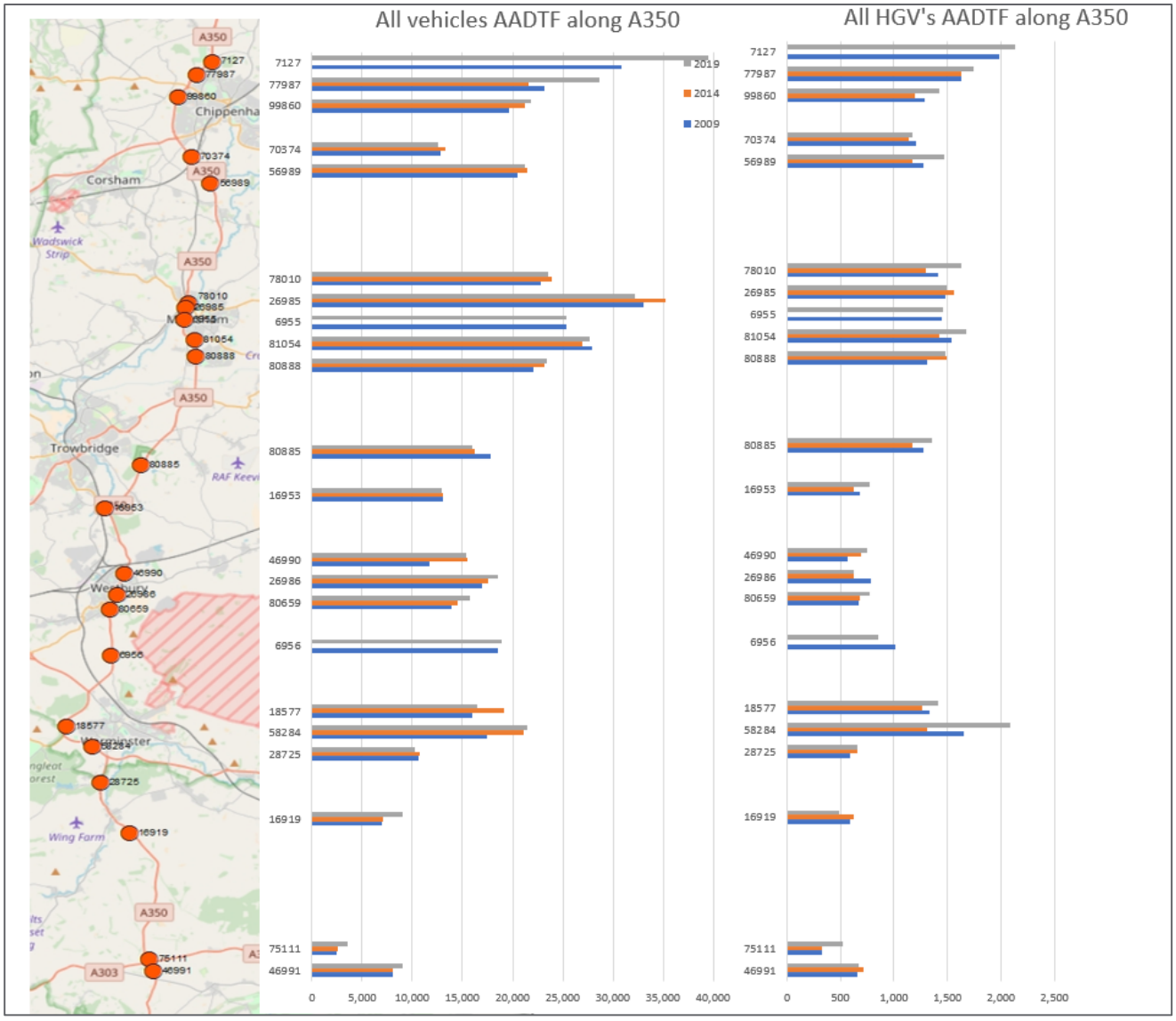


[79] Wiltshire Council briefing note (Jan '20)

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 11)**. 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.

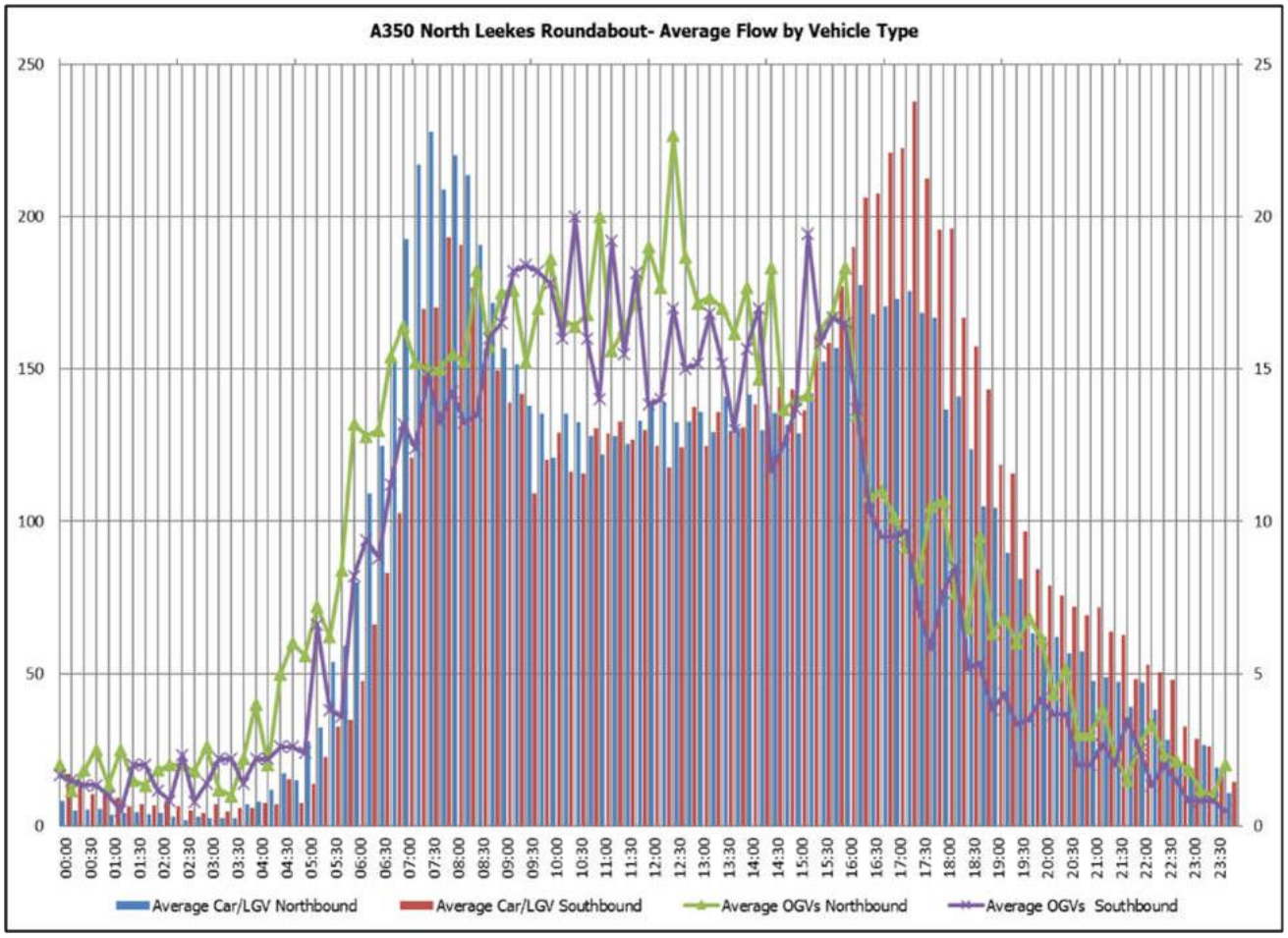
Figure 11 – Average Annual Daily Traffic Flows along the A350, 2009-2019 (DfT count data)



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 12).**

Figure 12 - Distribution of traffic throughout weekday on A350 immediately north of Melksham



The busiest single hour in the AM is 0700 to 0800 and in the PM 1700 to 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.

Public transport provision and demand

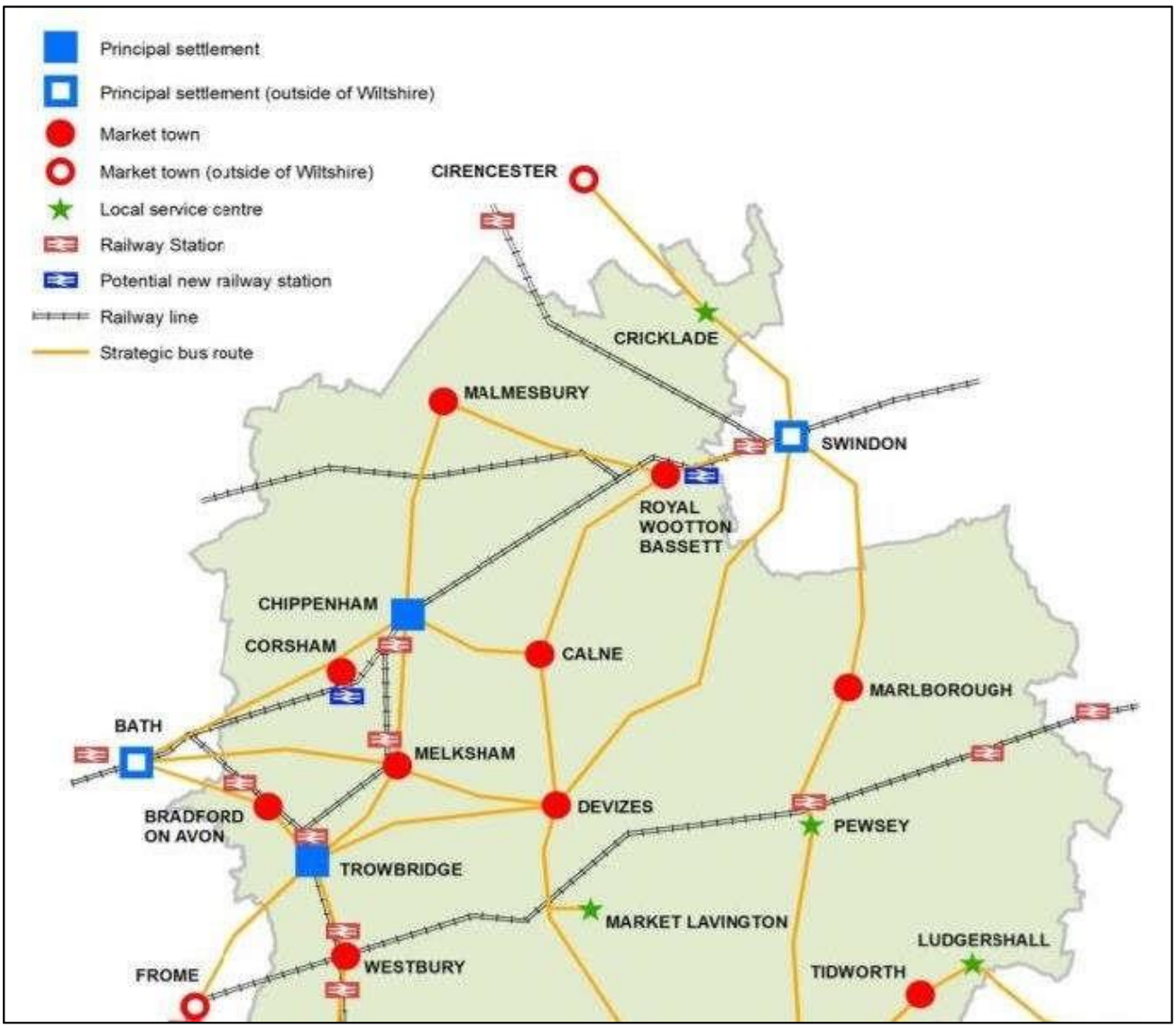
Rail services

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 13)**. 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 13 - 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 14).**

Figure 14 - 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

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.

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 1)**.

Table 1 - 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[80].

Bus services

Figure 15 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**.

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

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

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.

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 Error! Reference source not found.. 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 15 - Bus routes serving Melksham and A350 corridor by frequency (Monday AM)

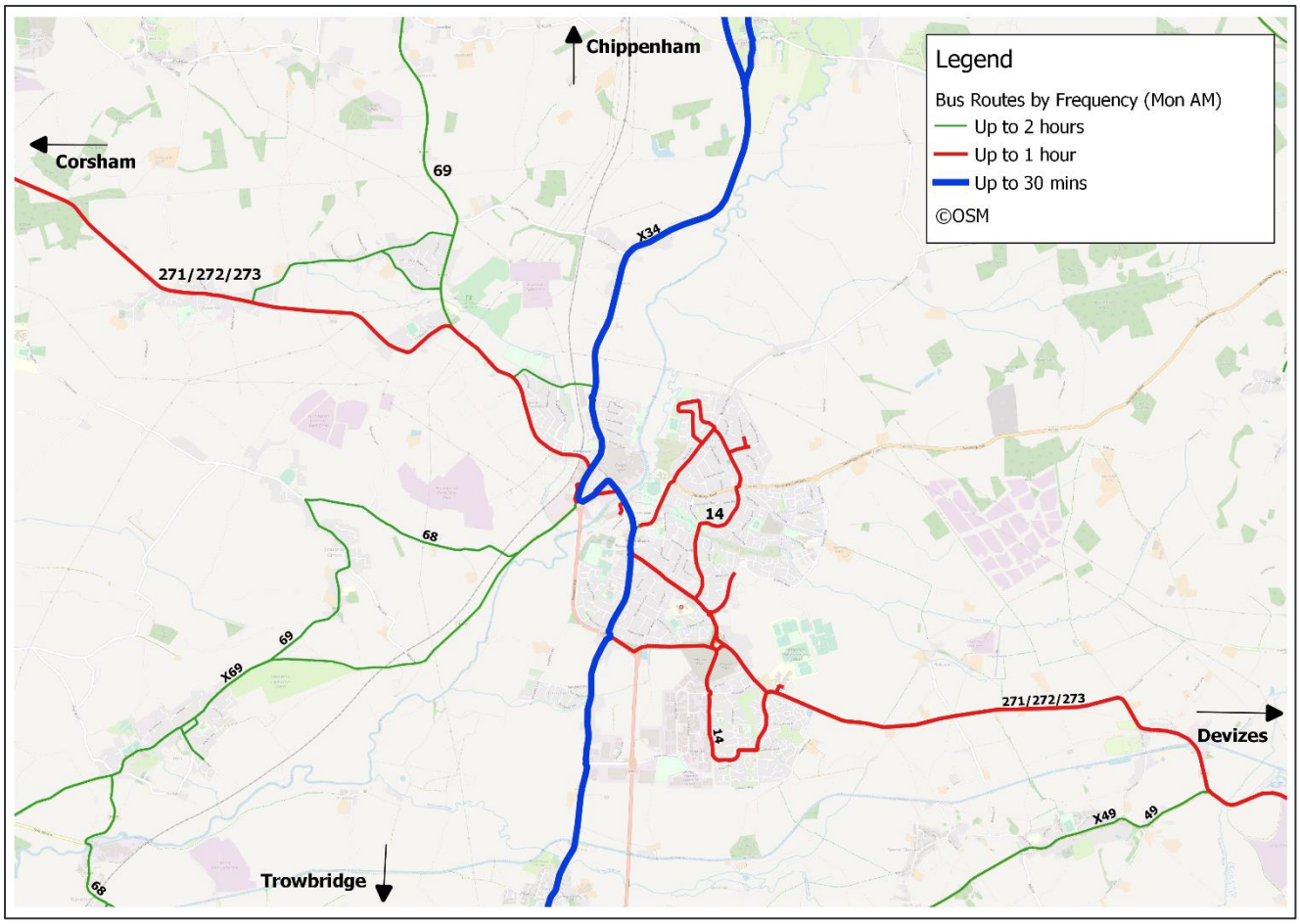


Table 2 - Bus routes serving Melksham and A350 corridor

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 & Granville Rd	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.	

Walking and cycling

Key active travel routes have been identified within the Melksham Joint Neighbourhood Plan **(Figure 16).**

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.

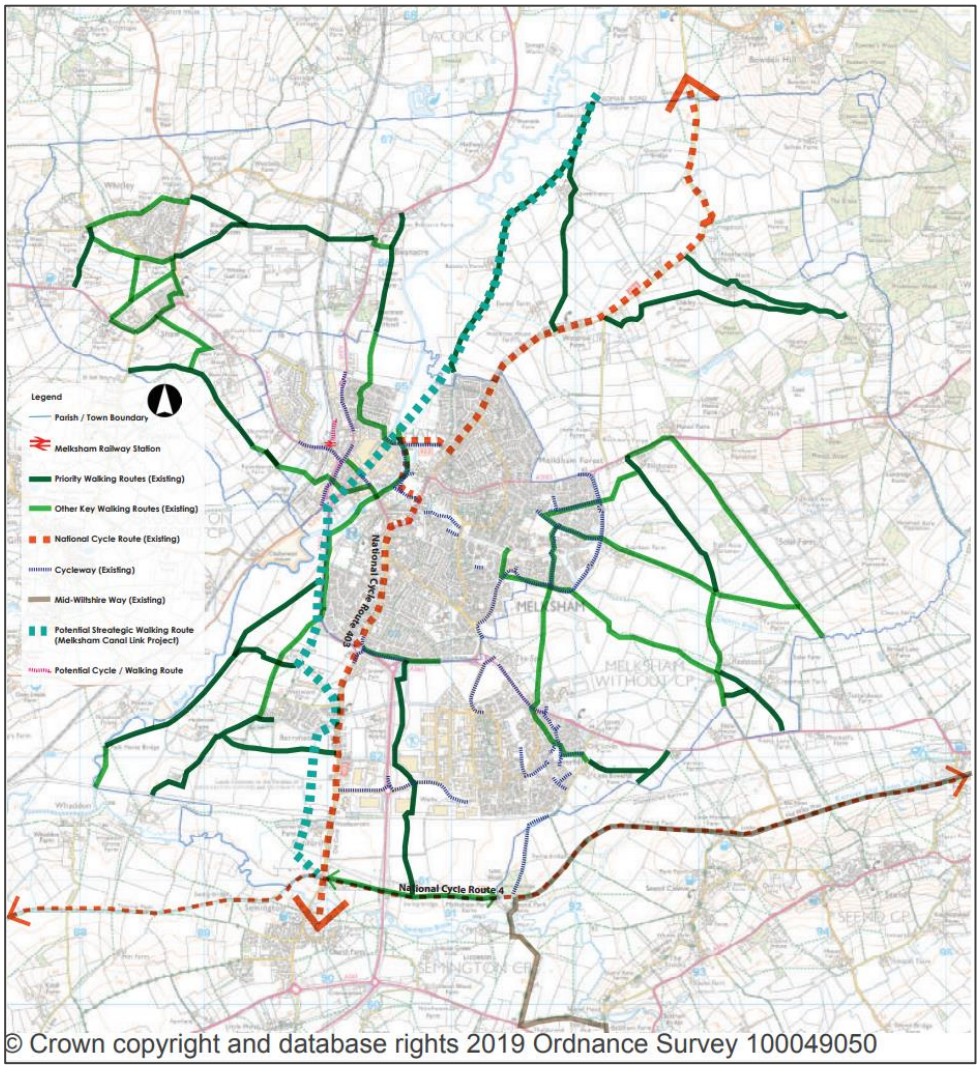
There are sections of cycleway spread throughout the town. These are generally disconnected and therefore do not form a comprehensive and cohesive network for cyclists to access the different areas of Melksham.

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 16)**. 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 16 – Active travel routes within the Melksham area (Melksham Joint Neighbourhood Plan)



A.2. Options Assessment Report

The Options Assessment Report (OAR) documents the process of generating, sifting and assessing a range of options to address the scheme objectives. It is prepared in line with DfT (TAG) guidance.

This report is provided as a separate file.

Please refer to:

A2_WC_MBP-ATK-GEN-XX-RP-TB-000001_C02.pdf

A.3. Scheme drawings

The following drawings are provided as separate files:

A.3.1. Location Plan

A3-1_WC_MBP-ATK-GEN-OP2_XX-DR-CH-000002_C02.pdf

A.3.2. General Arrangement

A3-2_WC_MBP-ATK-GEN-OP2_XX-DR-CH-000003_C02.pdf

A.3.3. Profile

A3-3_WC_MBP-ATK-HML-OP2_XX_ML-DR-CH-000008_C02.pdf

A.3.4. Public Rights of Way

A3-4_WC_MBP-ATK-HML-OP2_XX_ML-DR-CH-000009_C03.pdf

A.3.5. Potential Variants

A3-5_Emerging Route & Alternative Route Option_Without constraint plan.pdf

A.4. M4 to Dorset Coast Connectivity: Strategic Study (National Highways)

This document sets out National Highways (formerly Highways England) plans for a strategic study into routes between the M4 and south coast as part of its RIS2 programme.

This document is provided as a separate file.

Please refer to:

A4_M4 to Dorset Coast Connectivity Study- Executive Summary.pdf

Appendix B. Economic Case Appendices

Appendix reference	Title
B.1.	Local Model Validation Report
B.2.	Traffic Forecasting Report
B.3.	Appraisal Specification Report
B.4.	Appraisal Summary Table
B.5.	Economic Appraisal Report
B.6.	Appraisal tables (TEE / AMCB / PA)
B.7.	Cost proforma
B.8.	Social and Distributional Impacts Report
B.9.	Environment TAG worksheets
B10	Alternative carbon emissions assessment

B.1. Local Model Validation Report

This report documents the development, calibration and validation of the Wiltshire Transport Model (base model) for use with the A350 Melksham Bypass Outline Business Case.

This report is provided as a separate file.

Please refer to:

B1_WC_MBP-ATK-GEN-XX-RP-TB-000007_C01.pdf

B.2. Traffic Forecasting Report

This report documents the development of forecast traffic demands for the Wiltshire Transport Model and its application for forecasting traffic conditions with and without the scheme.

This report is provided as a separate file.

Please refer to:

B2_WC_MBP-ATK-GEN-XX-RP-TB-000008_C01.pdf

B.3. Appraisal Specification Report

This report documents the proposed approach to undertaking economic appraisal for the scheme, in line with DfT (TAG) requirements.

This report is provided as a separate file.

Please refer to:

B3_WC_MBP-ATK-GEN-XX-RP-TB-000002_C02 Alt.pdf

B.4. Appraisal Summary Table

The Appraisal Summary Table (AST) provides a summary of the key outcomes of the economic appraisal across all economic, environmental and social impacts.

This is provided as a separate Excel file.

Please refer to:

B4_WC_MBP-ATK-GEN-XX-SH-TB-000001.xlsx

B.5. Economic Appraisal Report

The Economic Appraisal Report (EAR) provides supporting technical details in relation to the economic appraisal.

This is provided as a separate file.

Please refer to:

B5_WC_MBP-ATK-GEB-XX-RP-TB-000001_C01.pdf

B.6. Appraisal Tables

These appraisal table present key outputs from the economic appraisal in the prescribed format by DfT.

These are provided as separate Excel files.

Please refer to:

B.6.1. Transport Economic Efficiency table

B6-1_WC_MBP-ATK-GEN-XX-SH-TB-000002.xlsx

B.6.2. Analysis of Monetised Costs and Benefits table

B6-2_WC_MBP-ATK-GEN-XX-SH-TB-000004.xlsx

B.6.3. Public Accounts table

B6-3_WC_MBP-ATK-GEN-XX-SH-TB-000003.xlsx

B.7. Cost proforma

The cost proforma presents the costing information for the purposes of the economic appraisal (PVC) in the prescribed format by DfT.

This is provided as a separate Excel file.

Please refer to:

B7_WC_MBP-ATK-GEN-XX-SH-TB-000005.xlsx

B.8. Social and Distributional Impacts Report

The SDI report provides details of the assessment of social impacts and also relevant distributional impacts, in line with DfT guidance.

This is provided as a separate file.

Please refer to:

B8_WC_MBP-ATK-GEN-XX-RP-TB-000009_C01.pdf

B.9. Environment TAG Worksheets

Standard format TAG worksheets have been completed for each relevant environmental impact.

These are provided as separate files.

Please refer to:

B.9.1. Air quality

B9-1_WC_MBP-ATK-EAQ-XX-RP-LA-000001.xlsx

B.9.2. Noise

B9-2_WC_MBP-ATK-ENV-XX-RP-LN-000001.xlsx

B.9.3. Biodiversity

B9-3_WC_MBP-ATK-EBD-XX-RP-LE-000003.xlsx

B.9.4. Water

B9-4_WC_MBP-ATK-ENV-XX-RP-LN-000002.xlsx

B.9.5. Landscape

B9-5_WC_MBP-ATK-ELS-XX-RP-LL-000001.xlsx

B.9.6. Heritage

B9-6_WC_MBP-ATK-EHR-XX-RP-LH-000002.xlsx

B.10. Alternative Carbon Emissions Assessment

This note documents an alternative approach to carbon emissions assessment using the DEFRA Emissions Factor Toolkit approach.

This is provided as a separate file.

Please refer to:

B10_WC_MBP-ATK-EGN-XX-RP-LM-000007_C01.pdf

Appendix C. Financial Case Appendices

Appendix reference	Title
C.1.	Quantified Cost Risk Analysis

C.1. Quantified Cost Risk Analysis

This technical note provides supporting information with regards to the QCRA undertaken to support the derivation of the project risk cost included in the overall cost estimate.

This is provided as a separate file.

Please refer to:

C1_QCRA Technical Note 8.10.21.docx

Appendix D. Commercial Case Appendices

Appendix reference	Title
D.1.	Procurement Strategy

D.1. Procurement Strategy

This report documents the consideration of the procurement needs of the project and the identification of the preferred procurement approach and delivery model.

This is provided as a separate file.

Please refer to:

D1_WC_MBP-ATK-GEN-XX-RP-QS-000001_C01.pdf

Appendix E. Management Case Appendices

Appendix reference	Title
E.1.	Project governance
E.2.	Delivery programme
E.3.	Stakeholder Engagement and Communications Plan
E.4.	Risk Management Plan
E.5.	Risk Register
E.6.	Benefits Realisation, Monitoring and Evaluation Plan
E.7.	Planning Strategy
E.8.	Carbon Management Plan

E.1. Project governance

This provides an organogram of the governance of the arrangements for the project.

This is provided as a separate file.

Please refer to:

E1_WC_MBP-ATK-GEN-XX-RP-TB-000013_C01.pdf

E.2. Delivery programme

This provides a detailed programme for project delivery in Gantt chart form.

This is provided as a separate file.

Please refer to:

E2_20210903 - Full Melksham Programme.pdf

E.3. Stakeholder Engagement and Communications Plan

This report presents the objectives and planned approach for stakeholder management throughout the project lifecycle.

This is provided as a separate file.

Please refer to:

E3_WC_MBP-ATK-GEN-XX-CP-ZH-000001_C01.pdf

E.4. Risk Management Plan

This report details the processes and protocols established to manage risk related to the project.

This is provided as a separate file.

Please refer to:

E4_WC_MBP-ATK-GEN-XX-DP-ZX-000007_C01.pdf

E.5. Risk Register

This provides the record of the current set of risks, including details of each risk, risk owners and identified mitigation.

This is provided as a separate file.

Please refer to:

E5_WC_MBP-ATK-GEN-XX-RK-ZM-000001.pdf

E.6. Benefits Realisation, Monitoring and Evaluation Plan

This report sets out the key benefits expected to arise from the scheme and how these will be measured to enable the overall success of the project to be evaluated.

This is provided as a separate file.

Please refer to:

E6_WC_MBP-ATK-GEN-XX-RP-TB-000012_C01.pdf

E.7. Planning Strategy

This report sets out the proposed approach to taking the scheme through the planning process, identifying key requirements and milestones.

This is provided as a separate file.

Please refer to:

E7_WC_MBP-ATK-GEN-XX-RP-TB-000005_C02.pdf

E.8. Carbon Management Plan

This report considers the carbon implications of the project and the key steps identified to minimise the carbon impacts.

This is provided as a separate file.

Please refer to:

E8_WC_MBP-ATK-GEB-XX-RP-TB-000003_C01.pdf

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County Way, Trowbridge BA14 7FJ