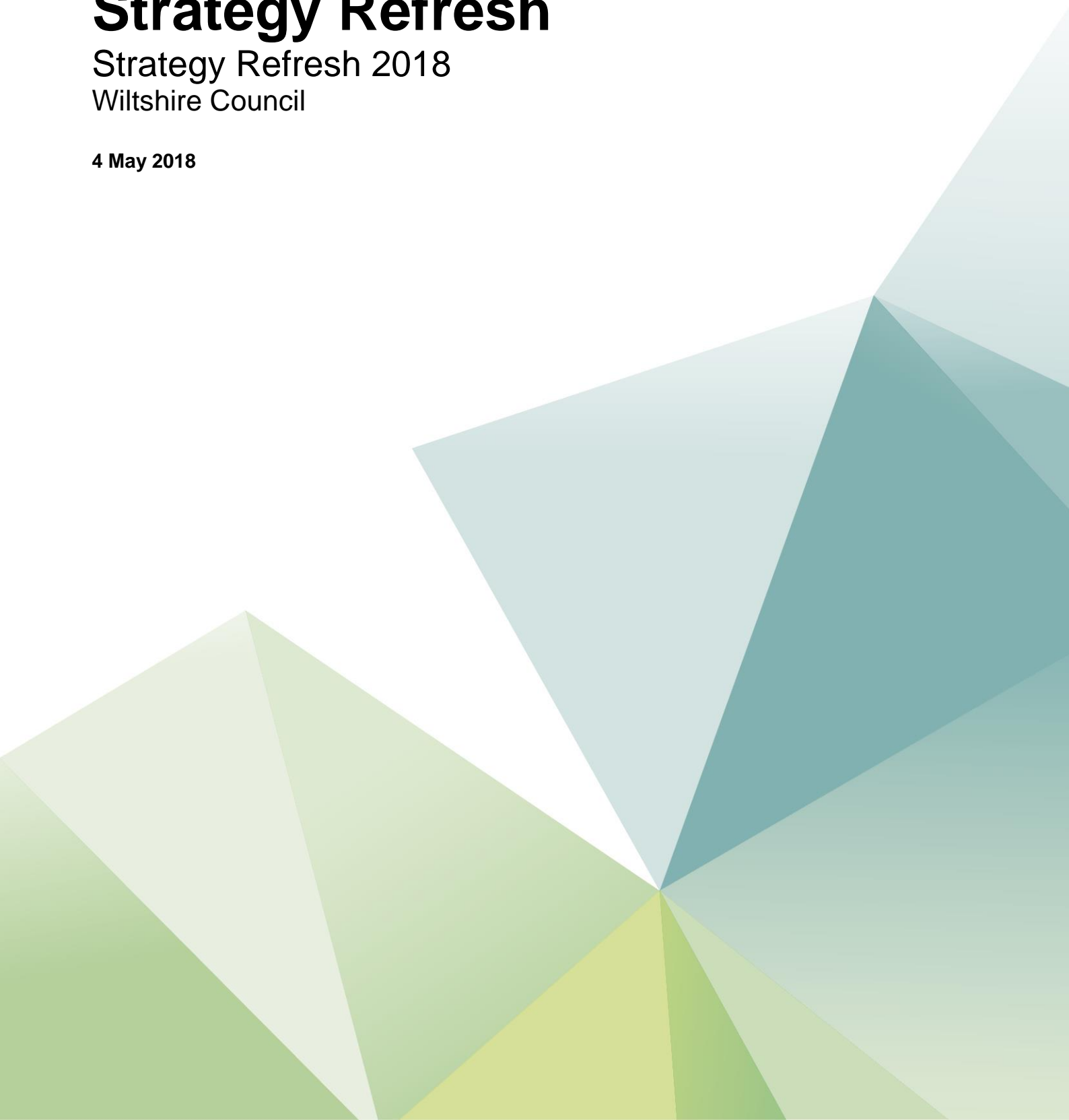


Trowbridge Transport Strategy Refresh

Strategy Refresh 2018
Wiltshire Council

4 May 2018



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Table of contents

Chapter	Pages	
Executive summary		6
1. Introduction		12
Strategy Purpose		12
Strategic Framework		16
Transport Strategy Refresh Development Method		20
2. Issues and challenges		21
Theme: Providing for Strategic Development Sites		23
Theme: Maintaining Strategic Function of the A350 around Trowbridge		33
Theme: Improving Town Centre Accessibility and Attractiveness		35
3. Objectives		48
Trowbridge Transport Strategy Refresh Objectives		48
Theme: Providing for Strategic Development Sites		49
Theme: Maintaining Strategic Function of A350 around Trowbridge		50
Theme: Improving Town Centre Accessibility and Attractiveness		51
4. Strategy Refresh Schemes		54
Overview		54
Costs		55
Smarter Choices Measures		56
Pedestrian and Cycle Network Improvements		56
Public Transport Network Improvements		58
Highway and Parking Schemes		60
All Transport Strategy Refresh Schemes		61
Developing Schemes for Strategy Refresh Testing		62
5. Scheme Categorisation		63
Categorisation Approach		63
Relationship with Objectives		63
Relationship with Development Sites		64
Cost Categorisation		71
6. Strategy Refresh Testing		72
Introduction		72
Methodology		72
Modelling Scenarios		72
Scheme Modelling		73
'With Strategy' Tests A and B: Comparison of Impacts		74
Testing the Preferred Mitigation Package		79
7. Summary		82
The Strategy Refresh		82
Strategy Context		83
Theme: Providing for Strategic Development Sites		83
Theme: Maintaining Strategic Function of the A350 around Trowbridge		83
Theme: Improving the Accessibility and Attractiveness of the Town Centre		84
Strategy Impacts		84
Appendices		85
Appendix A. Evidence of Issues		86

A.1.	Data Sources and Evidence to Identify Issues and Challenges	86
Appendix B.	Policy Links	87
B.1.	Transport Strategy Refresh Objectives and Links to Strategic Policy Framework	87
Appendix C.	Scheme Sources	91
Appendix D.	Model Outputs	92

Tables

Table 1-1	Strategic Policies and Objectives	18
Table 1-2	Strategic Policy Alignment	18
Table 2-1	Trowbridge Transport Strategy Refresh – Summary of Issues and Challenges	22
Table 2-2	Residential development sites allocated for Trowbridge Housing Site Allocations	24
Table 2-3	Summary of Accessibility Assessment for Active Modes	26
Table 2-4	Bus Access to Key Destinations from DWHSAP Site Clusters	27
Table 2-5	Network Statistics – 2026 Reference Case compared with Do-Minimum (AM and PM Peak Hours) Low Scenario: 800 homes	30
Table 2-6	Network Statistics – 2026 Reference Case compared with Do-Minimum (AM and PM Peak Hours) High Scenario: 1,118 homes	30
Table 2-7	Method of Travel to Work (Census 2011)	39
Table 2-8	Distance Travelled to Work (Census 2011)	40
Table 2-9	Place of Work for Trowbridge Residents (Census 2011)	41
Table 2-10	Place of Residence for Trowbridge Employees (Census 2011)	42
Table 2-11	Trowbridge Town Bus Services	43
Table 2-12	Trowbridge Inter-Urban Bus Services	44
Table 3-1	Issues relating to Objectives 1 and 2	49
Table 3-2	Issues relating to Objective 3	50
Table 3-3	Issues relating to Objectives 4, 5, 6, 7, 8 and 9	52
Table 4-1	Mitigation packages and summary costs	56
Table 4-2	Smarter Choices Measures	56
Table 4-3	Pedestrian and Cycle Schemes	56
Table 4-4	Public Transport Schemes	58
Table 4-5	Highway and Parking Schemes	60
Table 5-1	Relationship with Objectives	64
Table 5-2	Pedestrian and Cycle Schemes - relationship to Development Sites	66
Table 5-3	Public Transport Schemes - relationship to Development Sites	68
Table 5-4	Cost Categorisation	71
Table 6-1	Forecast Impacts of the Trowbridge Transport Strategy Refresh - 'With Strategy' Tests A and B	74
Table 6-2	Comparison of Route Journey Times – AM Peak (08:00-09:00)	75
Table 6-3	Comparison of Route Journey Times – PM Peak	76
Table 6-4	Forecast Impacts of the Trowbridge Transport Strategy – 'With Strategy' Tests A and B	77
Table 6-5	Assessment against Objectives - With Strategy Option A and With Strategy Option B	78
Table 7-1	Development Site Transport Schemes	83
Table 7-2	Transport Schemes - Maintaining Strategic Function of the A350 around Trowbridge	84
Table 7-3	Transport Schemes - Improving the Accessibility and Attractiveness of the Town Centre	84

Figures

Figure 1-1	Trowbridge Transport Strategy Refresh - Geographical Scope	14
Figure 1-2	Transport Scheme Development - Strategy to Delivery	15
Figure 1-3	Strategic Policy Framework for the Trowbridge Transport Strategy Refresh	16
Figure 1-4	Strategy Refresh Development Framework	19
Figure 1-5	Strategy Refresh Development Method	20
Figure 2-1	Planned Developments Clusters in Trowbridge - Wiltshire Core Strategy and DWHSAP	23
Figure 2-2	Proximity of DWHSAP Clusters to Schools, Town Centre, and Employment Sites	25

Figure 2-3	Accessibility Assessment of Planned Developments Clusters in Trowbridge - Wiltshire Core Strategy and DWHSAP	25
Figure 2-4	Proximity of DWHSAP Clusters to Bus Stops	28
Figure 2-5	Volume/Capacity ratio AM peak (08:00-09:00) high development scenario compared with reference and low development scenarios	31
Figure 2-6	Volume/Capacity ratio PM peak (17:00-18:00) high development scenario compared with reference and low development scenarios	32
Figure 2-7	DFT Annual Average Daily Flow (AADF) Data – Vehicles per Year	33
Figure 2-8	Number of Vehicles on the A350 around Trowbridge by Mode	34
Figure 2-9	Trafficmaster – Delay in AM Peak	35
Figure 2-10	Collision Cluster Sites	36
Figure 2-11	Method of Travel to Work (Census 2011)	39
Figure 2-12	Mode Split of Trowbridge Residents Travelling less than 2km to Work (Census 2011)	40
Figure 2-13	Car/Van Availability per Household (Census 2011)	41
Figure 2-14	Delay on Trowbridge bus corridors (Traffic Master)	44
Figure 2-15	Trowbridge Rail Station Entries and Exits 2007-08 to 2016-17	45
3.2. Figure 3-1	Trowbridge Transport Strategy Refresh Objectives	48
Figure 3-2	Outcomes for Objectives 1 and 2	50
Figure 3-3	Outcomes for Objective 3	51
Figure 3-4	Outcomes for Objectives 4, 5, 6, 7, 8 and 9	53
Figure 4-1	Pedestrian and Cycle Schemes	58
Figure 4-2	Public Transport Network Improvements	59
Figure 4-3	Highway and Parking Schemes	61
Figure 4-4	Potential Scheme Coverage - All Schemes	62
Figure 5-1	Scheme Categorisation	63
Figure 5-2	Pedestrian and Cycle Network Schemes - relationship to Development Sites	67
Figure 5-3	Public Transport Network - relationship to Development Sites	69
Figure 5-4	Direct and Cumulative Impact Highway Routes	71
Figure 6-1	Routes in Trowbridge	75
Figure 6-2	Change in Journey Time against the 'Without Strategy' Do-Minimum - AM Peak	76
Figure 6-3	Change in Journey Time against the 'Without Strategy' Do-Minimum - PM Peak (17:00-18:00)	77
Figure 6-4	AM (08:00-09:00) Flow Difference Plot - Test A against Do-Minimum	79
Figure 6-5	AM (08:00-09:00) Town Centre Flow Difference Plot - Test A against Do-Minimum	80
Figure 6-6	AM Junction Volume Capacity Plot - Test A against Do-Minimum	81
Figure 6-7	PM Junction Volume Capacity Plot - Test A against Do-Minimum	81
Figure 7-1	AM Volume / Capacity at junctions - Reference Case	92
Figure 7-2	AM Volume / Capacity at junctions – Do-Minimum Low	92
Figure 7-3	AM Volume / Capacity at junctions – Do-Minimum High	93
Figure 7-4	AM Volume / Capacity at junctions – Test A	93
Figure 7-5	PM Volume / Capacity at junctions – Test B	94
Figure 7-6	AM Flow Change - Test A v Do-Minimum	94
Figure 7-7	PM Flow Change - Test A v Do-Minimum	95
Figure 7-8	AM flow difference: Test B vs Do-Minimum	95
Figure 7-9	AM flow difference around link road: Test B vs Do-minimum	96
Figure 7-10	PM Volume / Capacity at junctions - Reference Case	96
Figure 7-11	PM Volume / Capacity at junctions - Do-Minimum Low	97
Figure 7-12	PM Volume / Capacity at junctions - Do-Minimum High	97
Figure 7-13	AM Volume / Capacity at junctions – Test A	98
Figure 7-14	PM flow difference: Test B vs Do-minimum	98
Figure 7-15	PM flow difference around link road: Test B vs Do-minimum	99
Figure 7-16	Average Network Speed (km per hour) between tests AM and PM	99
Figure 7-17	Average Network delay (minutes) between tests AM and PM	100

Executive summary

Purpose of the report

Significant levels of development are planned for Trowbridge over the next 8 years to 2026, as set out in Wiltshire Council’s Core Strategy and the Draft Wiltshire Housing Sites Allocation Plan (DWHSAP).

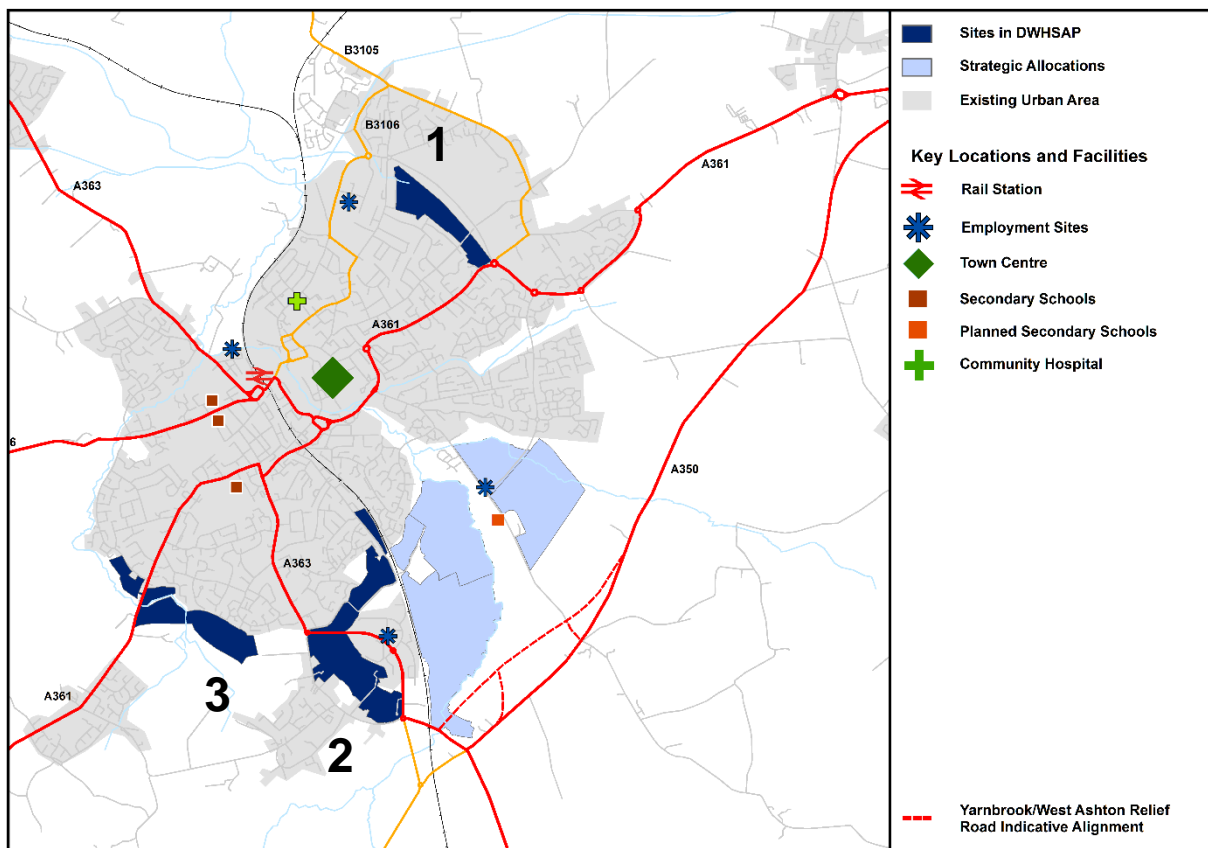
To support that growth, this Trowbridge Transport Strategy Refresh provides clear direction for the development of the town’s transport system, outlining the transport measures and investment required to tackle both the current transport-related issues and facilitate and respond to growth.

Committed allocations in the Wiltshire Core Strategy

The previous Trowbridge Transport Strategy, written in 2012, identified transport schemes to support the growth committed in the Wiltshire Core Strategy. Namely to deliver 5,860 homes in the town and 15 hectares of employment land by 2026, a large proportion of which was located to the south east of the town (Ashton Park). These sites are shown in the Figure below as Strategic Allocations.

The 2012 Trowbridge Transport Strategy identified the need for the Yarnbrook and West Ashton Relief Road (YAWARR), Trowbridge Rail Station improvements, and a package of walking, cycling and public transport measures.

Trowbridge Development Sites and Yarnbrook West Ashton Relief Road



Some of these transport schemes have been progressed since the 2012 Trowbridge Transport Strategy was produced; improvements have been delivered at the rail station through the Local Sustainable

Transport Fund; cycle schemes have been implemented on Wingfield Road and partial funding has been secured for the Yarnbrook and West Ashton Relief Road and Ashton Park Urban Extension.

Draft Wiltshire Housing Sites Allocation Plan

In July 2017, Wiltshire Council published the draft Wiltshire Housing Site Allocations Plan (DWHSAP) for formal consultation, a formal Development Plan Document prepared in accordance with the Wiltshire Core Strategy. It set out proposals that revise, where necessary, existing settlement boundaries in Wiltshire towns and villages and allocates new sites for housing to ensure delivery of homes across the plan period to maintain a 5-year land supply to 2026. The DWHSAP consultation document proposed approximately 800 additional homes for Trowbridge, over and above the Core Strategy commitment. The additional proposed housing is distributed across three sites:

1. Adjacent to Elizabeth Way (north of the town);
2. Around White Horse Business Park (south west of the town); and
3. land either side of the A363 (south of the town)

These are shown in the Figure above as ‘Sites in DWHSAP’. Since receiving responses to the consultation, options for more intensified housing numbers are being considered as an option at the three sites with a scenario for an additional 1,118 dwellings over and above the Core Strategy rather than 800.

Transport Issues and Challenges

Chapter 2 of this report draws on analysis of current available transport data such as journey to work data from the 2011 census, traffic counts and collision data; and reviews previous studies to identify the current issues and challenges in Trowbridge.

The future impact of development sites are forecast for 2026 through analysis of the Trowbridge Strategic Transport model which estimates the additional demand for travel. At the time of writing, the exact number and allocation of houses is still to be finalised so, for this report, two housing number scenarios have been tested in the model:

1. Low growth scenario with a total of 800 homes, as consulted on in the DWHSAP in July 2017; and
2. High growth scenario of 1,118 dwellings across the three cluster sites, an option identified following receipt of representations to the consultation.

Analysis of the current and future transport impacts highlight the following issues and challenges:

Current transport issues and challenges	Future issue and challenge with housing growth
<ul style="list-style-type: none"> • Trowbridge road network experiences delay in the peak period. • Poor integration and connectivity of pedestrian and cycle network, especially around the town centre and Trowbridge Rail Station. • The A350 around Trowbridge carries high volumes of traffic • Historic street layout constrains the central road network. • Trowbridge residents are drawn to larger settlements for retail and leisure opportunities. • Trowbridge residents have a high car reliance with 45% of residents travelling to work by car for journeys of less than 2km. • The town bus network has infrequent services which are subject to delays. 	<ul style="list-style-type: none"> • Further planned development is forecast to contribute to congestion at specific points in the highway network. • Growth in rail passenger numbers at Trowbridge Rail Station is forecast to continue and access to Trowbridge Rail Station will be magnified with increased passenger demand. • Access to key services and facilities by sustainable modes of transport from some development sites is limited. • Increased traffic generated by developments is likely to have an impact on air quality and noise in the town.

Current transport issues and challenges	Future issue and challenge with housing growth
<ul style="list-style-type: none"> • Inter urban bus services experience delays which can affect commercial viability. • Parking is readily available around the town. 	

The response to these issues are captured under three strategic themes which provides the framework for the Transport Strategy Refresh:

- **Providing for strategic development sites:** ensuring the transport network can accommodate the planned growth and ensuring that development sites will provide benefit to existing and future residents;
- **Maintaining the strategic function of the A350 around Trowbridge:** ensuring that the A350 remains the primary route for north-south journeys thereby reducing the number of car trips through the town; and
- **Improving the accessibility and attractiveness of the town centre:** supporting the future success of the town centre by ensuring that it is accessible by all modes of transport.

Transport Strategy Refresh Objectives

In response to the transport issues identified throughout Chapter 2, nine transport strategy objectives, which are specific to the town, have been set. These are set out in detail in Chapter 3, they are:

- Objective 1: Ensure that development sites provide necessary infrastructure and services to facilitate journeys by sustainable modes of travel.
- Objective 2: Provide a transport network which can accommodate travel demand generated from planned development sites without negatively impacting on residents.
- Objective 3: Maintain the function of the A350 around Trowbridge.
- Objective 4: Improve the town bus network in Trowbridge, making it more convenient for people to use and therefore ensure it is a viable alternative to the car for short distance journeys.
- Objective 5: Support the commercial viability of inter-urban bus services by making them more attractive and convenient for people to use and therefore make inter-urban bus services a viable alternative to the car for longer distance journeys.
- Objective 6: Facilitate and promote journeys by bike and foot to key destinations in the town by enhancing walking/cycling infrastructure and improving connectivity across the town.
- Objective 7: Improve road safety across the transport network in Trowbridge.
- Objective 8: Improve accessibility and connectivity across Trowbridge by sustainable modes of transport.
- Objective 9: Accommodate forecast growth in rail journeys from Trowbridge by improving accessibility to Trowbridge Rail Station and rail services available at the station.

Transport Strategy Refresh Schemes

Schemes have been identified (Chapter 4) and categorised (Chapter 5) to meet the objectives and address the current and forecast transport issues in Trowbridge.

The additional housing numbers proposed in the town will create additional pressure on the transport network with congestion and delay forecast. There is, however, good potential to mitigate these impacts. For example, Trowbridge residents currently rely heavily on the car with a large proportion (45%) of work trips being less than 2km. This may be due to the availability of cheap or free parking in the town. Investment in pedestrian, cycle and passenger transport facilities, supported by behaviour change

initiatives and the management of parking supply has the potential to reduce reliance on the car. At key junctions which are forecast to be at capacity, a series of highway schemes have been identified.

The strategy presents the preferred mitigation schemes under the following categories:

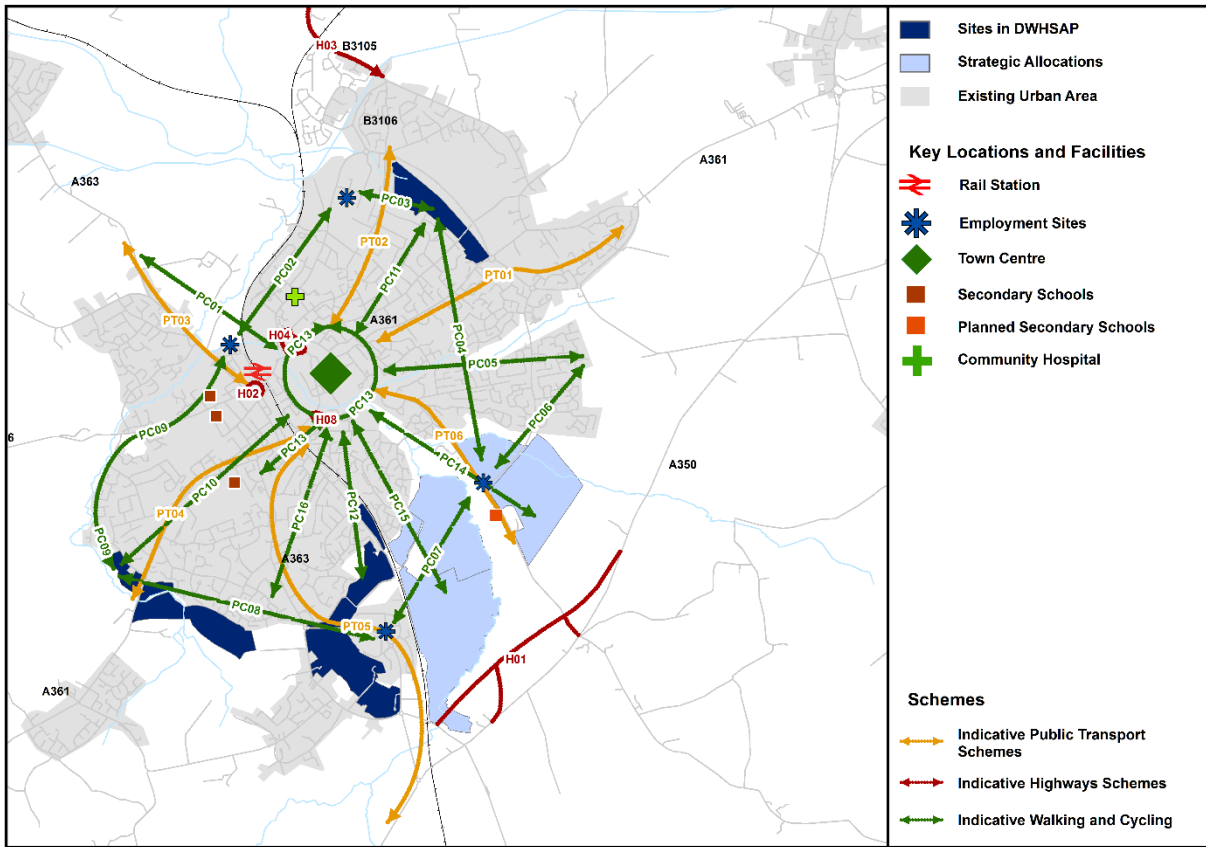
- Smarter Choices measures;
- Pedestrian/cycle improvements;
- Public Transport schemes; and
- Highway and Parking schemes.

These are outlined below with indicative costs.

Preferred Mitigation Package - Schemes

Measures	Test A cost without A361/A363 local distributor road (£)
Smarter choice measures	
Residential travel planning at development sites	£100k
Workplace travel planning at development sites	£100k
Subtotal	£200k
Pedestrian/cycle improvements	
Strategic route corridors PC01-16	£2.4m
Public Transport schemes	
Strategic route corridors PT01 -06	£1.9m
Highway and Parking schemes	
H01- A4350 Yarnbrook and West Ashton Relief Road	£26m
H02 - A361 Holy Trinity Gyratory capacity improvements for all modes	£1m
H03 - B3105 Staverton Bridge improvement	£150k
H04 - Delivery of two-way traffic on Hill Street, Upper Broad Street and Conigre	£1m
H05 - Embrace future technologies -Priority spaces in car parks to encourage electric charge points	£60k
H06 - Manage car park supply and demand (charges and time of stay) through integrated on-street and off -street parking strategy.	£50k
H08 - Longfield Gyratory improvements	£2m
Subtotal	£30m
Total cost	£35m

Transport Strategy Schemes identified for testing



As detailed, the sites and quantum of housing were added to the Trowbridge Strategic Transport model to generate a forecast for the additional demand for travel by 2026 and to identify areas impacted by increased congestion and delay. This was recorded as the ‘Do-Minimum’ scenario.

The package of transport improvements identified in this strategy were coded into the model alongside the growth scenarios as a ‘With Strategy’ scenario and the results of the scenarios were compared. The package of improvements in the ‘With Strategy’ were found to mitigate the transport effects associated with the additional housing growth.

Transport Strategy Refresh Scheme costs

For the identified schemes, high level costs were prepared. It is estimated that the total capital cost of the Trowbridge Transport Strategy Refresh is £35 million in current prices. Smarter choices measures will cost £200k, Pedestrian and cycle improvements will cost approximately £2.4 million, public transport measures will cost £1.9 million, and highway improvements £30million.

At this stage, there is no expectation that all of these schemes would be funded in full by developments at the allocated sites. A range of funding options will be considered. £14.3m has been secured to date towards the £26m costs for YAWARR, £5.5m from Local Growth Fund (LGF) grant and £8.8m from Housing Infrastructure Fund (HIF).

This transport strategy refresh does not address specific development on-site transport infrastructure issues such as access roads and junctions, these would need to be considered through the planning

process. It does, however, consider strategic transport schemes that make connections into and between development sites and key destinations.

1. Introduction

Strategy Purpose

Future Growth of Trowbridge

- 1.1. The Wiltshire Core Strategy identifies Trowbridge as having a strong industrial heritage and as the County Town of Wiltshire it should maintain an important strategic role. It is important that Trowbridge continues to grow to strengthen its role as a principal service centre in the County, and that improved infrastructure and facilities are delivered in the town to support this.
- 1.2. Sustainable growth, comprising employment development alongside new housing, is identified both within the central area and in the form of urban extensions to the town. The future growth of the town is planned for in both the Adopted Wiltshire Core Strategy and Draft Wiltshire Housing Sites Allocations Plan (the 'DWHSAP' hereafter). 25ha of new employment land¹ and approximately 5,860 homes have been identified in Trowbridge over the Core Strategy plan period (2006-2026). Most of this growth is planned at two strategic site allocations: Ashton Park Urban Extension (mixed employment and residential) and West Ashton Road employment site. In addition to the 5,860 houses planned for the town up to 2026, the DWHSAP, which was consulted on from July to September 2017, proposed a further 800 dwellings across six sites. Since receiving responses to the consultation, options as to the exact quantum of additional dwellings are being considered. A high growth scenario of an additional 1,118 dwellings over and above the Core Strategy is considered an option.
- 1.3. Employment and housing growth will help improve town centre vitality, delivering improved infrastructure which will enhance the attractiveness of Trowbridge and encourage employers to locate there. This will strengthen the town's role as a strategic employment centre for the west Wiltshire area and support the policies in both the Wiltshire Core Strategy and Trowbridge Town Council Strategy² to develop and improve the town centre.

¹ <http://www.wiltshire.gov.uk/adopted-local-plan-jan16-low-res.pdf> Page 191 -25ha of new employment land in addition to that already delivered or committed at April 2011.

² Trowbridge Town Council, Town Council Strategy 2017-2021, <http://www.trowbridge.gov.uk/your-council/?x=0&y=0>

CORE POLICY 1 SETTLEMENT STRATEGY - PRINCIPAL SETTLEMENTS

Wiltshire's Principal Settlements (Chippenham, Trowbridge and Salisbury) are strategically important centres and the primary focus for development.

They will provide significant levels of jobs and homes, together with supporting community facilities and infrastructure, meeting their economic potential in the most sustainable way to support better self-containment.

Source: Wiltshire Core Strategy 2015: Adopted January 2015, Core Policy 1.

1.1 TOWN CENTRE

Trowbridge Town Council work to ensure continued development as a sustainable town offering a full range of centrally located services and facilities which are accessible to all and closely linked.

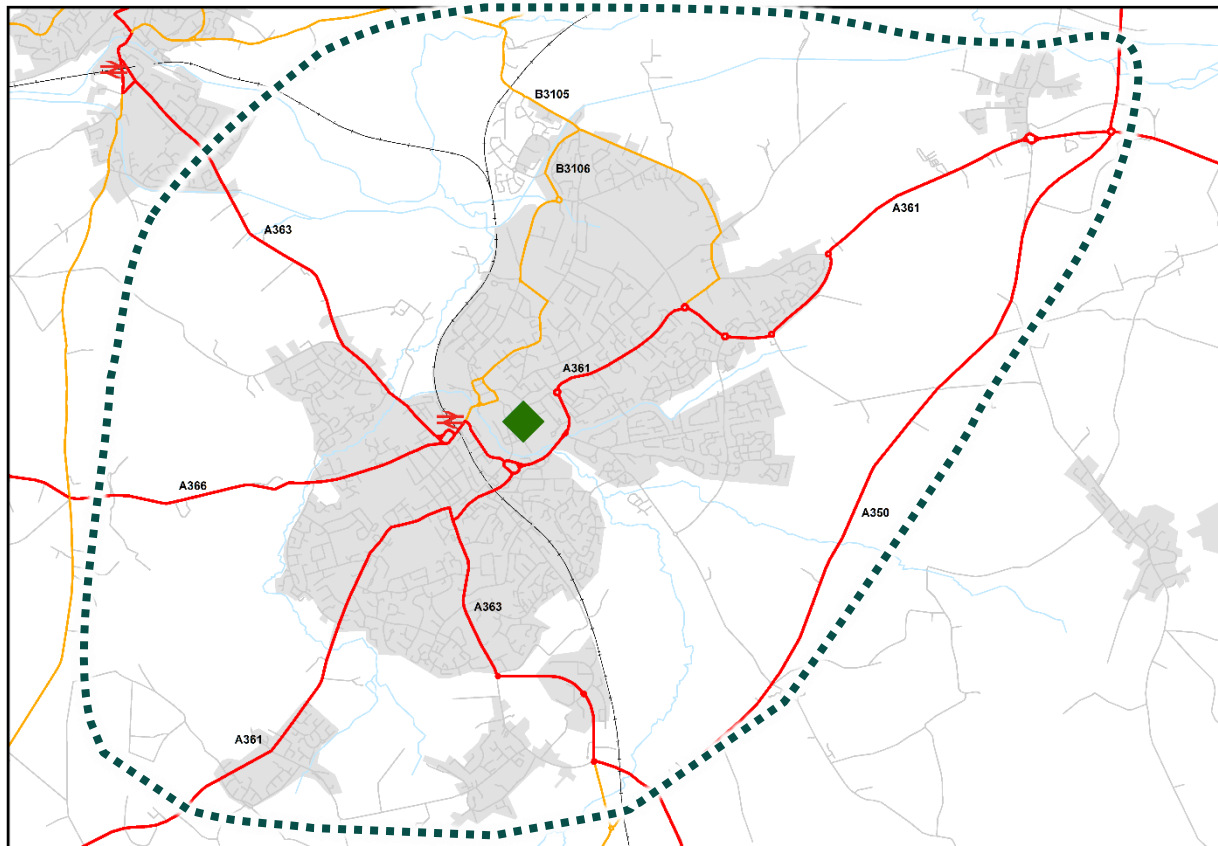
Source: Trowbridge Town Council Strategy 2017 – 2021: Section 1.

- 1.4. To support the long term economic success of Trowbridge, it is essential to ensure that infrastructure is in place. Core Policy 63 of the Core Strategy states that a package of integrated transport measures will be identified in Trowbridge to help facilitate sustainable development growth.

Strategy Remit

- 1.5. The purpose of the Transport Strategy Refresh is to outline the proposed approach to meeting strategic transport objectives for the town.
- 1.6. The Transport Strategy Refresh focusses on the urban area of Trowbridge within the geographical area shown in Figure 1-1.

Figure 1-1 Trowbridge Transport Strategy Refresh - Geographical Scope



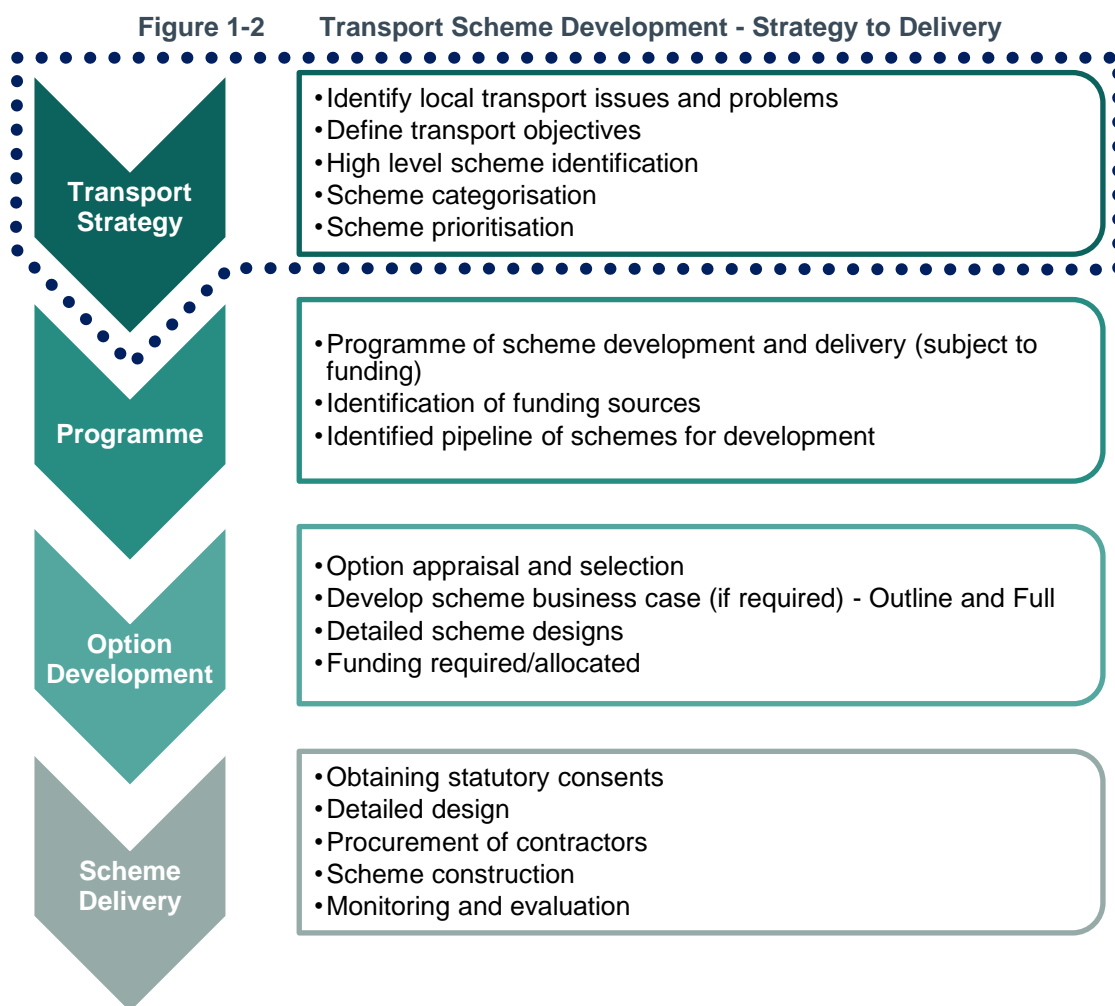
- 1.7. This transport strategy is a refresh of the 2012 Trowbridge Transport Strategy, which was developed in relation to previous development site allocations in the Adopted Wiltshire Core Strategy.
- 1.8. The key elements of the 2012 Trowbridge Transport Strategy were:
 - **A350 Yarnbrook and West Ashton Relief Road:** This has since been allocated partial funding via Local Enterprise Partnership (LEP) and Housing Infrastructure Fund (HIF).
 - **Ashton Park Urban Extension:** The planning application has since been submitted.
 - **Trowbridge Rail Station improvements:** The LSTF 2012-15 and First Great Western (FGW) funded a £1 million package of Trowbridge Rail Station improvements.
- 1.9. This Transport Strategy Refresh identifies schemes at a high level to address the additional quantum of development and would be required to meet the transport objectives set in Chapter 3. High level scheme identification is the first of a number of stages required to develop and deliver a transport scheme. The details of specific schemes will need to be supported by Transport Assessments for planning applications or business cases as appropriate.
- 1.10. The Transport Strategy Refresh does not address specific on-site transport infrastructure issues which would be addressed through the planning process. However, it does consider strategic transport links that make connections into and between development sites.
- 1.11. Additional mitigation measures could be identified at more detailed stages of assessment. This strategy is therefore not an exhaustive list of measures required to mitigate the specific transport impacts of every development.

1.12. In line with relevant legislation, the high-level schemes identified in this Transport Strategy Refresh will need to be developed in further detail, considering safety, equality, quality of life, environmental and carbon reduction needs. This is underpinned by:

- Wiltshire Local Transport Plan 2011-2026;
- Wiltshire Local Transport Plan Road Safety Strategy;
- Wiltshire and Swindon Police and Crime Plan;
- Wiltshire Health and Wellbeing Strategy;
- Wiltshire Business Plan 2017-2027;
- Wiltshire Community Plan 2017–2027.

Wiltshire wide Transport Initiatives

1.13. This Transport Strategy Refresh does not seek to overwrite existing Wiltshire wide transport initiatives which are currently being implemented or are in operation. This includes the Connecting Wiltshire programme for promoting and facilitating sustainable travel within Wiltshire which was initiated during LSTF 2012-2015³. It is assumed that these initiatives will continue alongside the Trowbridge specific measures contained within this strategy.



1.14. This Transport Strategy Refresh aligns with the first stage of Transport Scheme Development shown in Figure 1-2 and uses the following process:

³ The Connecting Wiltshire programme encompasses a number of measures designed to make travelling easier. Example measures include the TransWilts rail service Wiltshire travel portal and cycle route improvements.

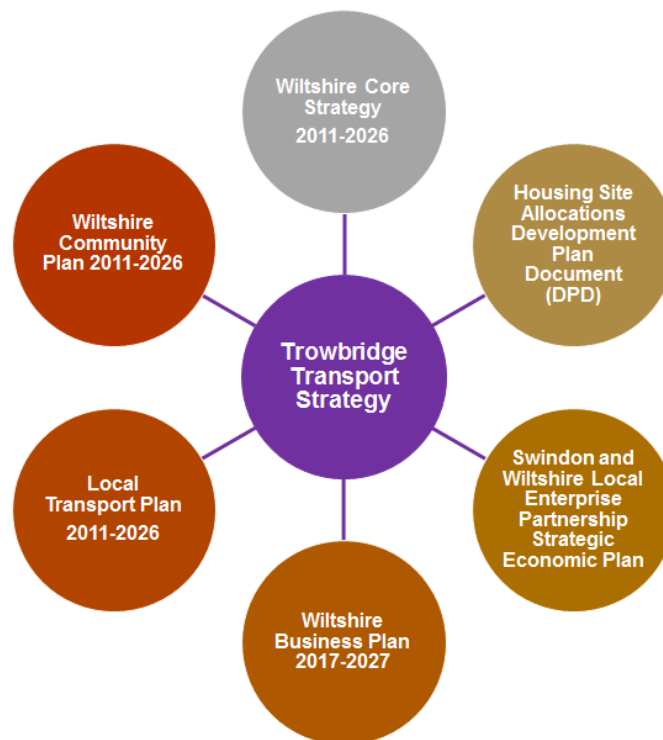
- **Identifies and defines existing and future transport issues and challenges in Trowbridge** Using evidence sources such as analysis of traffic data and forecasting the impact of growth within the Trowbridge Strategic Highway model as a 'Without Strategy' test.
- **Defines transport strategy objectives for the town** based on the identified issues and challenges were then used to;
- **Identifies Schemes as part of a mitigation strategy** to address the issues and challenges and meet the defined Transport Strategy Refresh objectives informed by high-level capital and revenue costs; and
- **Tests the performance of the identified schemes** within the Trowbridge Traffic Model to assess performance as a 'With Strategy test' compared with the Without Strategy'.

1.15. Further details on the process of undertaking this Transport Strategy Refresh are provided in at paragraph 1.28.

Strategic Framework

1.16. This Transport Strategy Refresh has been undertaken within the context of a strategic policy framework, as illustrated in Figure 1-3. These strategic policies have been produced for wide-ranging purposes and to deal with the overarching needs of Wiltshire. This Transport Strategy Refresh specifically relates to transport issues within the town and outlines an approach to addressing these issues and meeting certain objectives that are specific to the town. A further Local Plan review to 2036 commences in 2018 and further transport strategy development will need to be undertaken for that time frame.

Figure 1-3 Strategic Policy Framework for the Trowbridge Transport Strategy Refresh



Wiltshire Business Plan 2017-2027

1.17. Wiltshire Council's 10-year business plan sets out a vision for:

- Growing the economy. Transport is identified in supporting this vision by:
 - Improving existing road infrastructure, using improved asset management and technology to respond to highway improvements more efficiently;
 - Delivering new transport infrastructure to support housing and employment growth;
 - Improving strategic road and rail. It aims to improve North-South road connectivity across Wiltshire and develop and deliver a rail strategy promoting more local services; and the regeneration of rail stations;
 - Accessible public transport services through funding public transport provision through income generated from council car parks;
 - Regeneration of town centres (and specifically mentions opportunities at Innox and East Wing sites in Trowbridge).
- Creating strong communities. Transport is identified in supporting this vision by:
 - Targeting road safety campaigns at the most at-risk groups including school children;
 - Improving road conditions to improve safety;
 - Implement road safety improvement schemes to reduce casualties by 40% by 2020 (from the levels of those killed or seriously injured in 2005); and
 - Improving countryside access and good walking and cycling opportunities.

Wiltshire Community Plan 2011-2026

1.18. The Community Plan describes a Wiltshire Council vision to build strong and resilient communities in Wiltshire and outlines three main priorities for partnerships in Wiltshire to work to, these are:

- Creating an economy that is fit for the future;
- Reducing disadvantage and inequality; and
- Tackling the causes and effects of climate change.

SWLEP Strategic Economic Plan (SEP)

1.19. The Strategic Economic Plan (SEP) sets out the economic vision for Swindon and Wiltshire by delivering a programme of investment to encourage economic growth. The plan includes a number of the LEP's priorities and aims to deliver transport schemes in the SEP's priority zones, including the A350 growth corridor. This includes Local Growth Funding for the Yarnbrook and West Ashton Relief Road in Trowbridge:

Wiltshire Local Transport Plan 3

1.20. The Local Transport Plan (LTP) provides the overarching long-term strategy for transport across Wiltshire. The Trowbridge Transport Strategy Refresh supplements this wider strategy by focusing on objectives and schemes that are specific to Trowbridge.

1.21. The LTP3 Strategy includes Smarter Choices, Cycling, and Passenger Transport sub-strategies which contain measures to be implemented across Wiltshire. Whilst these measures may not be specific to Trowbridge, they will be of relevance to the town. For example, the TransWilts rail service improvements, that provide an increased service frequency between Westbury, Trowbridge, Melksham, Chippenham and Swindon.

Wiltshire Core Strategy and Wiltshire Housing Site Allocations DPD

1.22. The Wiltshire Core Strategy identifies the strategic site allocations to deliver housing and employment growth in the town, whilst it also identifies locations for development and regeneration within the town centre (Trowbridge Area Strategy Core Policy 28 and 29). DWHSAP identifies further sites for the delivery of homes across the town.

1.23. The policies and outcomes for these overarching policies and objectives are summarised in Table 1-1.

Table 1-1 Strategic Policies and Objectives

Wiltshire Business Plan 2017-2027	Wiltshire Community Plan 2011-2026	Swindon and Wiltshire LEP Strategic Economic Plan	Wiltshire Local Transport Plan 3 (LTP3) 2011-2026
<p>Priorities:</p> <ul style="list-style-type: none"> • Growing the economy. • Strong Communities. • Protecting the Vulnerable. 	<p>Priorities:</p> <ul style="list-style-type: none"> • Creating an economy that is fit for the future. • Reducing disadvantage and inequality. • Tackling the causes and effects of climate change. 	<p>Priorities and Priority Zones:</p> <ul style="list-style-type: none"> • Inward investment. • Supporting and stimulating existing business growth and facilitating new business set up. • Job creation, education and skills. • Economic infrastructure. • Priority Zone 2 A350 Corridor –focus on supporting growth around Malmesbury, Corsham, Chippenham, Melksham and Trowbridge. 	<p>18 strategic objectives for meeting the Vision:</p> <p>To develop a transport system which</p> <ul style="list-style-type: none"> • Help support economic growth across Wiltshire's communities, • Give choice and opportunity for people to safely access essential services. • Be sensitive to the built and natural environment, • Maximise the need to reduce carbon emissions.

1.24. This Transport Strategy Refresh is set within the context of the strategic policy framework and the objectives need to be aligned. This alignment is summarised in Table 1-2.

Table 1-2 Strategic Policy Alignment

Strategic Policy	Trowbridge Transport Strategy Refresh Alignment
Wiltshire Business Plan 2017-2027	To give people access to goods and services, unlock regeneration opportunities and enable the local economy to grow sustainably.
Wiltshire Community Plan 2011-2026	Develop a transport network which facilitates travel by sustainable modes of transport and provides accessibility for all people to key services and facilities.
Swindon and Wiltshire Local Enterprise Partnership - Strategic Economic Plan (SWLEP SEP)	Develop a transport network for the economy: encourage inward investment and reduce transport costs for residents and businesses.
Wiltshire Local Transport Plan 3 (LTP3) 2011-2026.	Support strategic objectives and Wiltshire-wide transport initiatives (such as the Smarter Choices Strategy).

Transport Strategy Refresh Themes

1.25. Wiltshire Council's strategic policies focus on accommodating housing and job growth in the county, while the Town Council Strategy has a vision for improving the attractiveness and vitality of the town centre. A

1.26. set of clear priorities for transport in Trowbridge emerges from this policy review, forming the key themes that provide the framework for the Trowbridge Transport Strategy Refresh:

- **Providing for strategic development sites:** ensuring the transport network can accommodate the planned growth and development sites can provide benefit to existing and future residents;
- **Maintaining the strategic function of A350 around Trowbridge:** ensuring that the A350 remains the primary route for north-south journeys to reduce the number of car trips through the town; and
- **Improving the accessibility and attractiveness of the town centre:** supporting the future success of the town centre by ensuring that it is accessible by all modes of transport.

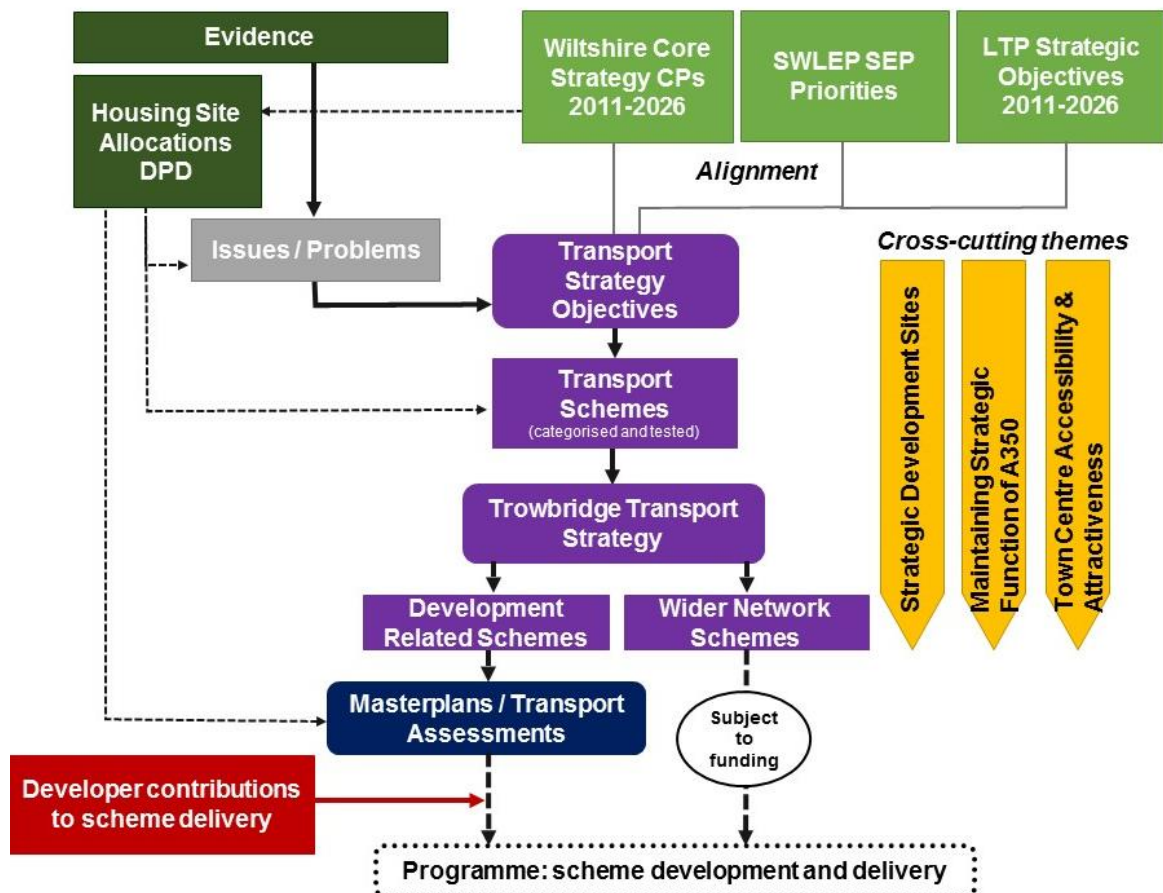
1.27. The transport issues/ challenges and strategy objectives are developed within these three themes and provide the structure for the Transport Strategy Refresh document.

Strategy Refresh Development Framework

1.28. The Trowbridge Transport Strategy Refresh outlines the approach to addressing transport issues in the town within the context of planned growth and future economic development. This means that the strategy has a strong relationship with the Core Strategy and DWHSAP which set out a road map for delivering planned growth in the town.

1.29. The relationship between the strategic policy framework, the Core Strategy, DPD and the delivery of transport schemes and planned development is outlined in Figure 1-4.

Figure 1-4 Strategy Refresh Development Framework



Transport Strategy Refresh Development Method

- 1.30. This Transport Strategy Refresh is developed using an evidence based approach to identify issues and challenges, setting the objectives and testing and categorising the transport schemes. The process for developing the strategy is illustrated in Figure 1-5
- 1.31. This process forms the structure of the remainder of this document. Supporting technical information is provided in the appropriate appendices.

Figure 1-5 Strategy Refresh Development Method



*further information about Strategy testing is found in Chapter 6. The Trowbridge Traffic Model has been used to forecast the impacts of the transport strategy in both the morning (08:00-09:00) and evening (17:00-18:00) peak hours, using a 2026 forecast year to align with the assessment of development planned in both the Wiltshire Core Strategy and Draft Wiltshire Housing Sites Allocation Plan (DWHSP).

2. Issues and challenges

2.1. This Chapter presents a summary of the transport issues and challenges that have been identified in Trowbridge. These are summarised in Table 2-1, and presented within the framework of the three Transport Strategy Refresh themes which are to:

- Provide for strategic development sites;
- Maintain the strategic function of A350 around Trowbridge; and
- Improve the accessibility and attractiveness of the town centre.

2.2. The evidence sources used to identify the transport issues and challenges include:

- 2012 Trowbridge Transport Strategy ⁴ and supporting documents:
 - Trowbridge Transport Strategy Development: Proposed Objectives, September 2011, Wiltshire Council;
 - Trowbridge Transport Strategy Development: Options Assessment Report, December 2011, Wiltshire Council;
- Trowbridge Strategic Transport SATURN Traffic Model for 2026;
- Adopted Wiltshire Core Strategy (February 2015);
- Draft Wiltshire Housing Sites Allocations Plan (July 2017);
- Census 2011 datasets;
- Wiltshire Council and Department for Transport (DfT) accident data; and
- DfT traffic flow data.

2.3. A complete list of evidence sources is provided in Appendix A.

⁴ Trowbridge Transport Strategy Development, Report on Emerging Strategy, October 2012, Wiltshire Council

Table 2-1 Trowbridge Transport Strategy Refresh – Summary of Issues and Challenges

Theme	Reference	Summary of Issue	Summary of Consequence
Providing for Strategic Development Sites	2.1.1	Access to key services and facilities by sustainable modes of transport from some development sites is limited.	Development will generate additional car trips, increasing congestion.
	2.1.2	Impact on air quality and noise as a result of traffic generated by developments.	Need for mitigation of environmental impacts of development generated traffic.
	2.1.3	Further planned development in Trowbridge is forecast to contribute to congestion at specific points on the highway network.	Negative impact on performance of the highway network.
Maintaining Strategic Function of A350 around Trowbridge	2.2.1	The A350 around Trowbridge carries high volumes of traffic.	Demand for the A350 continues to increase.
	2.2.2	Trowbridge road network experiences delay at peak periods.	Delays and increased cost of transport.
Improving the Accessibility and Attractiveness of the Town Centre	2.3.1	There are a number of road collision clusters in the town.	Perceptions and real concerns over safety on the transport network can affect the attractiveness of using sustainable transport modes as alternatives to the car.
	2.3.2	Poor integration and connectivity of pedestrian and cycle network, especially around the town centre and Trowbridge Rail Station.	Reduces the attractiveness of walking and cycling as a convenient alternative to the car.
	2.3.3	Historic street layout constrains the road network.	Reduction in access to the town centre for all modes of transport.
	2.3.4	Trowbridge residents are drawn to larger settlements which are further away for retail and leisure purposes	Reduces economic vitality of Trowbridge.
	2.3.5	High car reliance in Trowbridge.	Residents use cars for short distance commuting which has a negative impact on congestion.
	2.3.6	Trowbridge town bus network has infrequent services which are subject to delays.	There is a lack of a comprehensive, 7-day bus service.
	2.3.7	Inter-urban bus services experience delays which can affect commercial viability.	The commercial viability of inter-urban bus services is undermined by delays on the highway network.
	2.3.8	Growth in rail passenger numbers at Trowbridge Rail Station is forecast to continue.	Need for enhanced rail station accessibility to accommodate the increased demand.
	2.3.9	Parking is readily available in the town centre.	Increases the attractiveness of using cars for short distance trips and multi destination town centre linked trips.

Theme: Providing for Strategic Development Sites

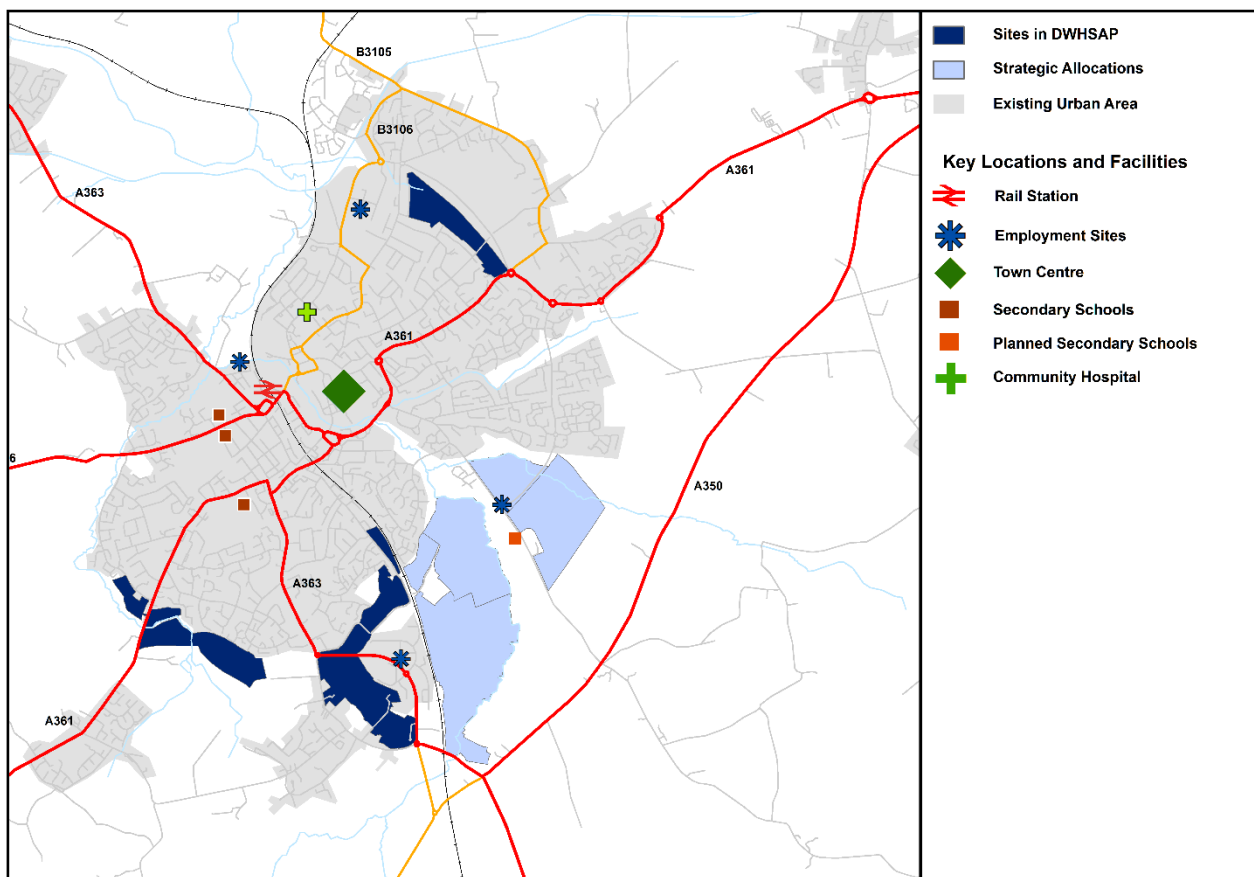
2.4. The future planned growth of Trowbridge will be provided at a number of development sites in the town. Residential and employment growth at these sites has been planned for in both the Wiltshire Core Strategy and DWHSAP. The following strategic sites in the town are planned for development within the Wiltshire Core Strategy:

- Ashton Park Urban Extension Strategic Allocation: providing 2,600 dwellings and 15ha of new employment land⁵;
- West Ashton Road: providing 10ha of employment land⁵; and
- Trowbridge Central Areas of Opportunity and the regeneration of the central area of Trowbridge to incorporate a sustainable mix of retail, leisure, business and residential uses⁶.

2.5. In addition to the growth identified for the town to 2026 in the Core Strategy, a further 800 to a potential for a scenario of 1,118 homes, have been identified following formal consultation of the DWHSAP in September 2017. The sites identified for development in both the Wiltshire Core Strategy and the DWHSAP are shown in Figure 2-1 and the numbers are broken down in Table 2-2 as two scenarios.

- Low Growth Scenario: 800 dwellings as consulted in the SWHSAP; and
- High Growth Scenario: 1118 homes considered as a high number that the sites can accommodate.

Figure 2-1 Planned Developments Clusters in Trowbridge - Wiltshire Core Strategy and DWHSAP



⁵ Adopted Wiltshire Core Strategy, 2015, Core Policy 29.

⁶ Adopted Wiltshire Core Strategy, 2015, Core Policy 28.

Table 2-2 Residential development sites allocated for Trowbridge Housing Site Allocations

Site Clusters	SHLAA Ref	Low capacity scenario (number of homes)	High capacity scenario (number of homes)
1 – North East of Trowbridge/ Elizabeth Way	#297, #263	205	355
2 – South of Trowbridge Area – Elm Grove Farm and Whitehouse Business Park	#613, #298, #248	350	488
3 – South west of Trowbridge Church Lane, Upper Studley and Southwick Court	#1021, #3260, #3565	245	275
Total		800	1,118

Issue: Access to key services and facilities by sustainable modes of transport from some development sites is limited

- 2.6. Access by walking and cycling from potential development sites to key services and facilities was assessed in the Transport & Accessibility Evidence Paper 2015⁷. At the time of that report, however, the Cluster 2 site was not considered for potential housing development. A further high-level accessibility analysis has been completed for the Cluster 2 site and the combined findings of that and the Transport & Accessibility Evidence Paper 2015 is presented in Figure 2-2, Figure 2-3 and Table 2-3.
- 2.7. The qualitative assessment highlights specific issues for access to/from strategic development sites by active modes (walking and cycling). These are:
- Walking access to/from the town centre from the western part of Cluster 1 is more than 2,400m and the central area of the cluster is over 800 metres to the nearest public transport corridors, resulting in weaker access;
 - Access to public transport corridors is weaker from the northern area of Cluster 2 because this is more than 1200m from a public transport corridor; and
 - Cluster 3 has weaker access to Trowbridge town centre. Further to this, the eastern end of the site has weaker access to the hospital, and public transport corridors. Whereas, the western part has weaker access to existing employment areas.

⁷ Wiltshire Housing Site Allocations Development Plan Document: Trowbridge, Transport & Accessibility Evidence Paper 1, Wiltshire Council, August 2015.

Figure 2-2 Proximity of DWHSAP Clusters to Schools, Town Centre, and Employment Sites

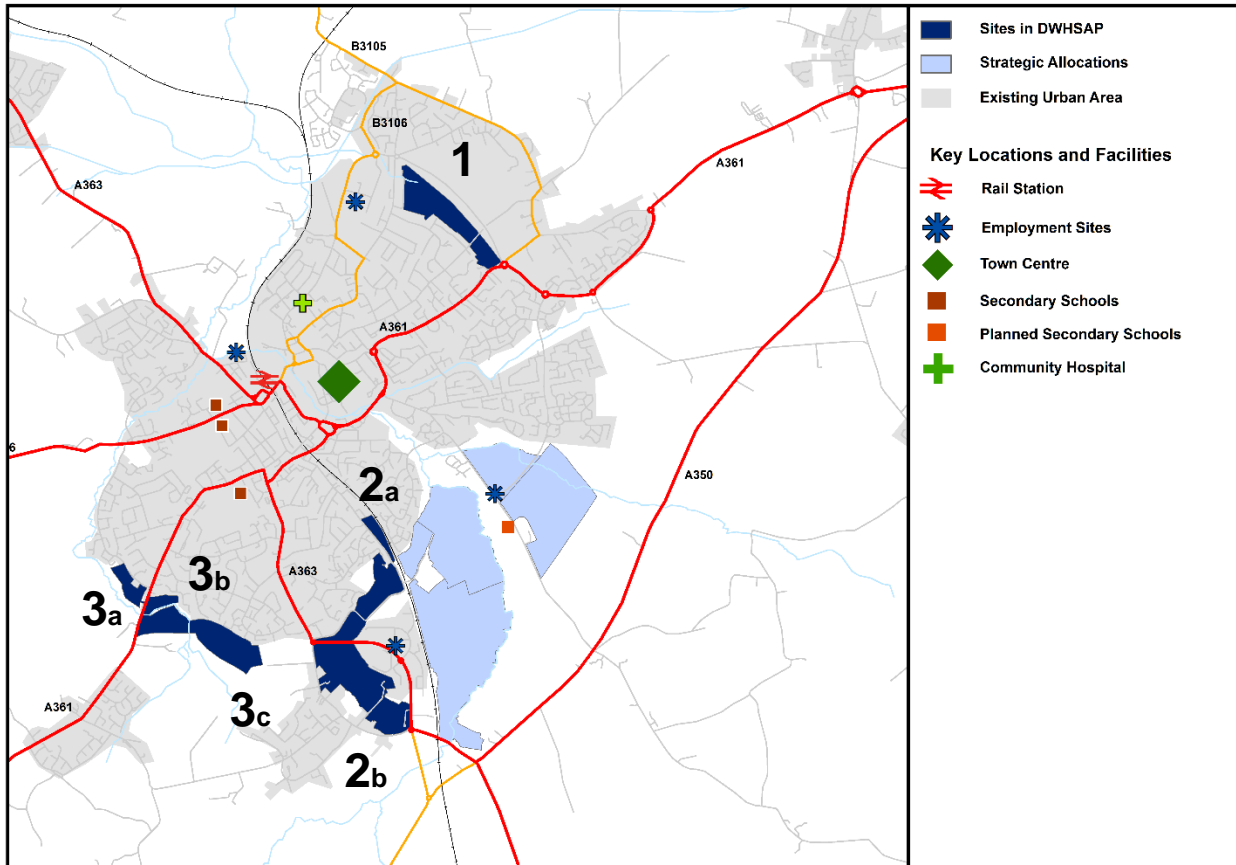


Figure 2-3 Accessibility Assessment of Planned Developments Clusters in Trowbridge - Wiltshire Core Strategy and DWHSAP

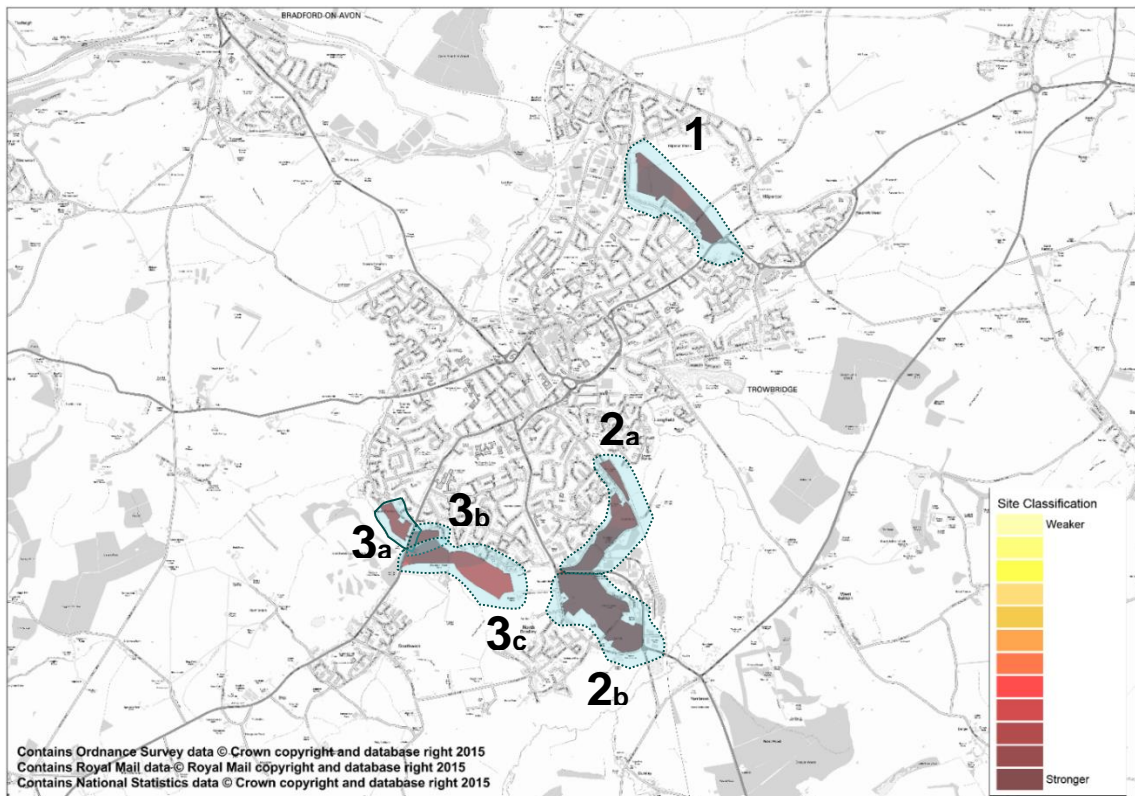


Table 2-3 Summary of Accessibility Assessment for Active Modes

	DWHSAP Site Cluster 1	DWHSAP Site Cluster 2	DWHSAP Site Cluster 3
	North East of Trowbridge / Hilperton Gap Area	South of Trowbridge Area	Sites within Development Boundary / Town Area & Other (South)
Town centre	Eastern: Strong, Western: Weaker	Strong	Weaker
Secondary schools	Strong	Strong	Strong
Hospital / healthcare	Strong	Strong	Eastern: Weaker, Western: Strong
Existing employment areas	Strong	Strong	Eastern: Strong, Western: Weaker
Public transport corridor	Eastern and Western: Strong, Central: Weaker	Northern: Weaker, Southern: Strong	Eastern: Weaker, Western: Strong

2.8. Analysis of access to key services and facilities using the existing bus network from the DWHSAP development sites is presented in Table 2-4 and Figure 2-4. Information sourced from the Trowbridge bus network map, 2017 timetables and mapping of proximity to bus stops has been used to inform this analysis.

2.9. The following issues have been identified for the DWHSAP development sites:

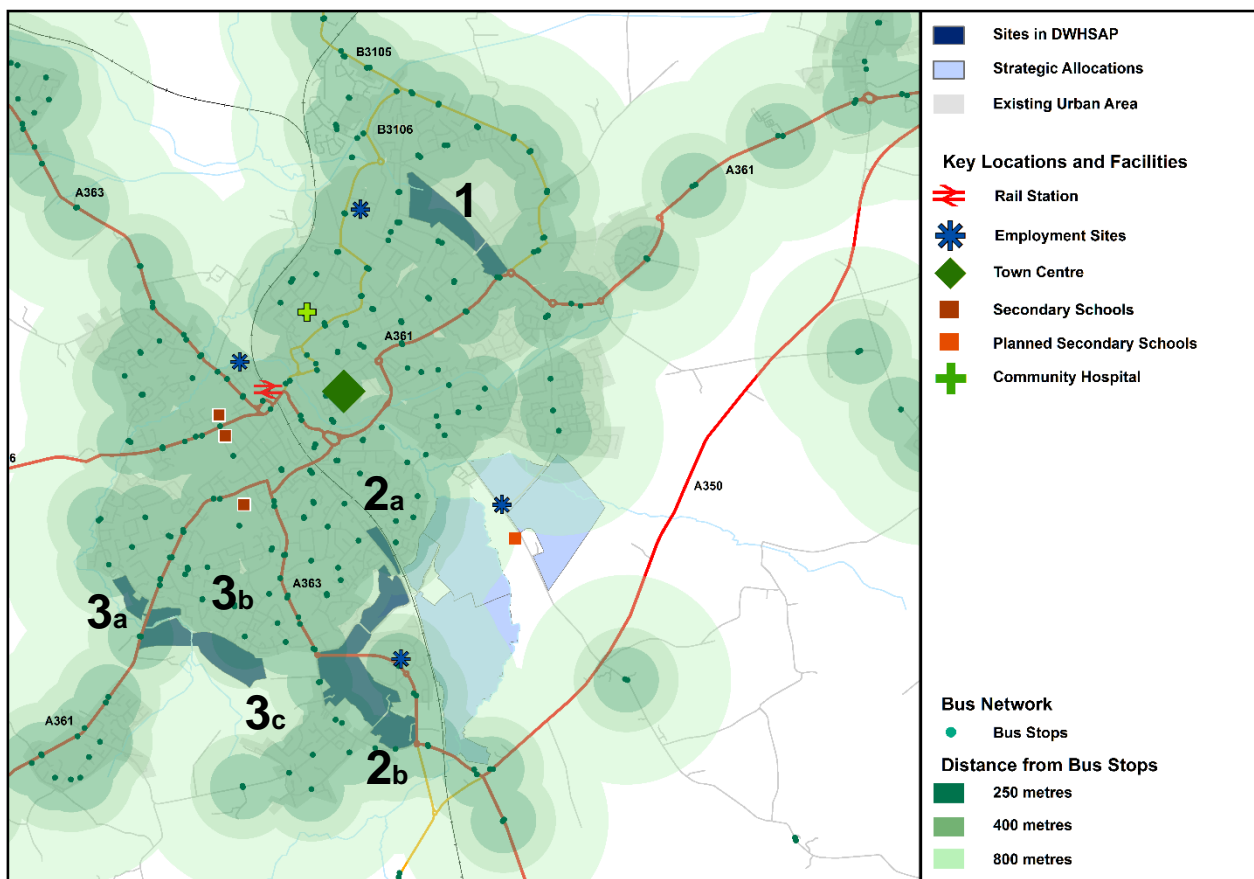
- Bus access from all site clusters to the town centre is limited due to the low service frequency;
- DWHSAP Cluster 1 has no direct bus service access to the West Ashton Road and White Horse Business Park employment areas;
- There is no direct access to West Ashton Road employment area by bus from Site Cluster 2; and
- The majority of Cluster 2a is more than 250 metres from any existing bus stop.

Table 2-4 Bus Access to Key Destinations from DWHSAP Site Clusters⁸

	DWHSAP Site Cluster 1	DWHSAP Site Cluster 2	DWHSAP Site Cluster 3
	North East of Trowbridge/ Hilperton Gap Area	South of Trowbridge Area	Sites within Development Boundary/Town Area & other (South West)
Town centre	Direct services from Hilperton Road: 49 every hour, 77 - 1 service per day. Direct services from Wyke Road: 68 - hourly frequency, X34 - hourly service.	Direct services from A363: 87 every 1 or 2 hours, 265 maximum 2 per hour frequency. From North Bradley 67, 1 per hour.	Direct services from Frome Road and Bradley Road: 265 maximum 2 per hour frequency, 87: every 1 or 2 hours, 60: every hour, 49: hourly, 77: 1 service per day, 67: afternoon every hour
Employment areas	Direct service to Canal Road Industrial Estate employment area. No direct service to West Ashton Road and White Horse employment areas.	Direct service to White Horse Business Park. No direct service West Ashton Road and Canal Road employment areas.	No direct service to West Ashton Road employment area. Town centre sites have direct services to White Horse Business Park and the Canal Road employment areas.
Secondary schools	School services: X34, 49, 68.	87 and 265 - direct bus services.	School services: 67, 265, 87, 49.

⁸ Data from Traveline website (www.travelinesw.com) Assessed December 2017]

Figure 2-4 Proximity of DWHSAP Clusters to Bus Stops



2.10. The analysis of access by active modes and public transport, identifies the need to provide transport infrastructure and services which would make travel by sustainable modes from these sites an attractive and convenient alternative to the car. Without appropriate transport infrastructure and services, future residents of planned developments are likely to be more reliant on the car, which would have an adverse impact on the performance of the highway network in Trowbridge.

Issue: Further planned development in Trowbridge is forecast to contribute to congestion at specific points on the highway network

2.11. The committed A350 Yarnbrook and West Ashton Relief Road (YAWARR) scheme was identified as a response to the forecast adverse impact on the highway network of strategic allocations planned in the Wiltshire Core Strategy, in particular, Ashton Park Urban Extension and West Ashton Road employment site. The travel demand generated by these strategic allocation sites was forecast to impact the performance of the highway network in the town, specifically at the Yarnbrook Roundabout and West Ashton Crossroads⁹.

2.12. The traffic modelling¹⁰ which underpinned the 2012 Trowbridge Transport Strategy ¹¹ confirmed the “need for off-line improvements to the A350 route as part of a comprehensive multi-modal transport strategy. Without investment in suitable intervention, there would be an increasingly detrimental impact on the safe, efficient and reliable movement of people and goods on the strategic A350 north-south route in Wiltshire. Furthermore, opportunities for providing adequate access to the Ashton Park Urban Extension would be limited and present a constraint to delivering new housing and jobs in Trowbridge”⁹. The scheme was developed by Wiltshire

⁹ A350 Yarnbrook and West Ashton Relief Road, Outline Business Case, Wiltshire Council, March 2015

¹⁰ Trowbridge Traffic Model Forecasting Problems & Issues Report, PFA, 2011

¹¹ Trowbridge Transport Strategy Development, Report on Emerging Strategy, October 2012, Wiltshire Council

Council in partnership with the developers of Ashton Park Urban Extension to Outline Business Case stage in 2015. This was submitted to the Swindon and Wiltshire Local Enterprise Partnership (SWLEP) Board in March 2015 securing £5.5m funding from the LGF Round 2

- 2.13. Since then, ecological constraints have been identified, owing to the existing population of Bechstein's bats. This has led to the need to re-design the masterplan and the road. Ecological mitigation includes providing 4 bat 'hop-overs' and raising the road's height considerably to accommodate 7 bat underpasses (each measuring 3m high x 5m deep x 5m wide).
- 2.14. Revised drawings and amendments to the planning application were deposited in October 2017 and consultations on these are currently taking place.
- 2.15. The re-design has resulted in cost increases, and the current estimated outturn cost is £25.88m which has created an additional funding viability gap. To manage the financial risks associated with the increased costs, the council has secured further funding of £8.8m through the Housing Infrastructure Fund. It is expected that a Full Business Case for the relief road will be completed in 2018 when tender prices are available¹².
- 2.16. The delivery of the YAWARR is forecast to improve the performance of the highway network in southern Trowbridge, in particular the performance of the Yarnbrook Roundabout and West Ashton Crossroads, this is with the delivery of the Core Strategy development sites. This is demonstrated in the A350 Yarnbrook and West Ashton Relief Road Outline Business Case (March 2015).
- 2.17. Further residential development is identified in the DWHSAP. This plans for providing a further increase in housing of between 800 and 1,118 homes in Trowbridge. The impact of this development in addition to the Core Strategy growth, with the inclusion of YAWARR, has been modelled using the Trowbridge Traffic Model¹³. The scenarios (without mitigation) that have been modelled using the Trowbridge Traffic Model are:
- **Reference Case**¹⁴: 2026 Core Strategy planned growth and A350 Yarnbrook and West Ashton Relief Road;
 - **Do-Minimum low scenario (Low)**: 2026 Reference Case plus additional 800 homes as proposed in the Draft Wiltshire Housing Site Allocations Plan June 2017; and
 - **Do-Minimum high scenario (High)**: 2026 Reference Case plus additional 1,118 homes as considered after receiving representations to the Draft Wiltshire Housing Site Allocations Plan June 2017.

Network-wide impacts

- 2.18. The impact of the two scenarios for additional homes on the highway network by 2026 have been compared to the Reference Case using SATURN highway modelling. The results are illustrated in Figure 2-5 and Figure 2-6, and summarised in Table 2-5 and Table 2-6. Here the Passenger Car Unit (PCU) is a standard way of accounting for the differing impacts of vehicles of different size on network performance by indexing to the effects of a single passenger car (so, for example, an HGV takes a value of more than one PCU while a motorbike would be less than one). The assessment highlights that the additional demand on the highway network generated by the two growth scenarios: (i) the addition of 800 homes ('Low'), and (ii) the addition of 1,118 homes ('High'), is forecast to:

¹² Section 6, A350 Yarnbrook and West Ashton Relief Road, Outline Business Case, Wiltshire Council, March 2015.

¹³ The Trowbridge Traffic Model is a SATURN highway assignment model. It has been used to forecast the impacts on the highway network of development planned in both the Wiltshire Core Strategy and DPD in both the morning (08:00-09:00) and evening (17:00-18:00) peak hours, using a 2026 forecast year.

¹⁴ The Reference Case includes schemes with a high level of certainty, such as schemes with funding already allocated.

- **Increase total delays** across the network;
- **Reduce average speeds;**
- **Increase the total distance travelled;** and
- **Increase total travel times** across the network.

Table 2-5 Network Statistics – 2026 Reference Case compared with Do-Minimum (AM and PM Peak Hours) Low Scenario: 800 homes

	Reference Case (‘YAWARR with Scheme’)		Do-Minimum (with Reference Case + DWHSAP sites)		% difference between Reference Case and Do- Minimum	
	AM Peak hour (08:00- 09:00)	PM Peak hour (17:00- 18:00)	AM Peak hour (08:00- 09:00)	PM Peak hour	AM peak hour (08:00- 09:00)	PM peak hour (17:00- 18:00)
Total Distance Travelled (PCUkm)	71,978	72,120	73,066	73,450	1.5%	1.8%
Total Travel Time (PCUhr)	2,437	2,339	2,502	2,405	2.7%	2.8%
Total Delay (PCUhr)	857	776	897	812	4.7%	4.6%
Average Network Speed (km/hr)	29.5	30.8	29.2	30.5	-1%	-1%

Table 2-6 Network Statistics – 2026 Reference Case compared with Do-Minimum (AM and PM Peak Hours) High Scenario: 1,118 homes

	Reference Case (‘YAWARR with Scheme’)		Do-Minimum (with Reference Case + DWHSAP sites)		% difference between Reference Case and Do- Minimum	
	AM Peak hour (08:00- 09:00)	PM Peak hour (17:00- 18:00)	AM Peak hour (08:00- 09:00)	PM Peak hour (17:00- 18:00)	AM peak hour (08:00- 09:00)	PM peak hour (17:00- 18:00)
Total Distance Travelled (PCU km)	71,978	72,120	73,535	73,997	2.2%	2.6%
Total Travel Time (PCU hr)	2,437	2,339	2,531	2,436	3.9%	4.2%
Total Delay (PCU hr)	857	776	915	830	6.8%	7.0%
Average Network Speed (km/hr)	29.5	30.8	29.1	30.4	-1.4%	-1.3%

2.19. Currently, there are no Air Quality Management Areas (AQMAs) in Trowbridge, nor are there any areas designated with noise and light management issues. However, it is expected that planned development will have an impact on the town as identified in the Wiltshire Core Strategy Sustainability Appraisal: *“issues such as noise and light pollution...and other forms of pollution are largely caused by urban development and subsequent increases in traffic”*¹⁵.

¹⁵ Wiltshire Council: Wiltshire Core Strategy Sustainability Appraisal, 2012.

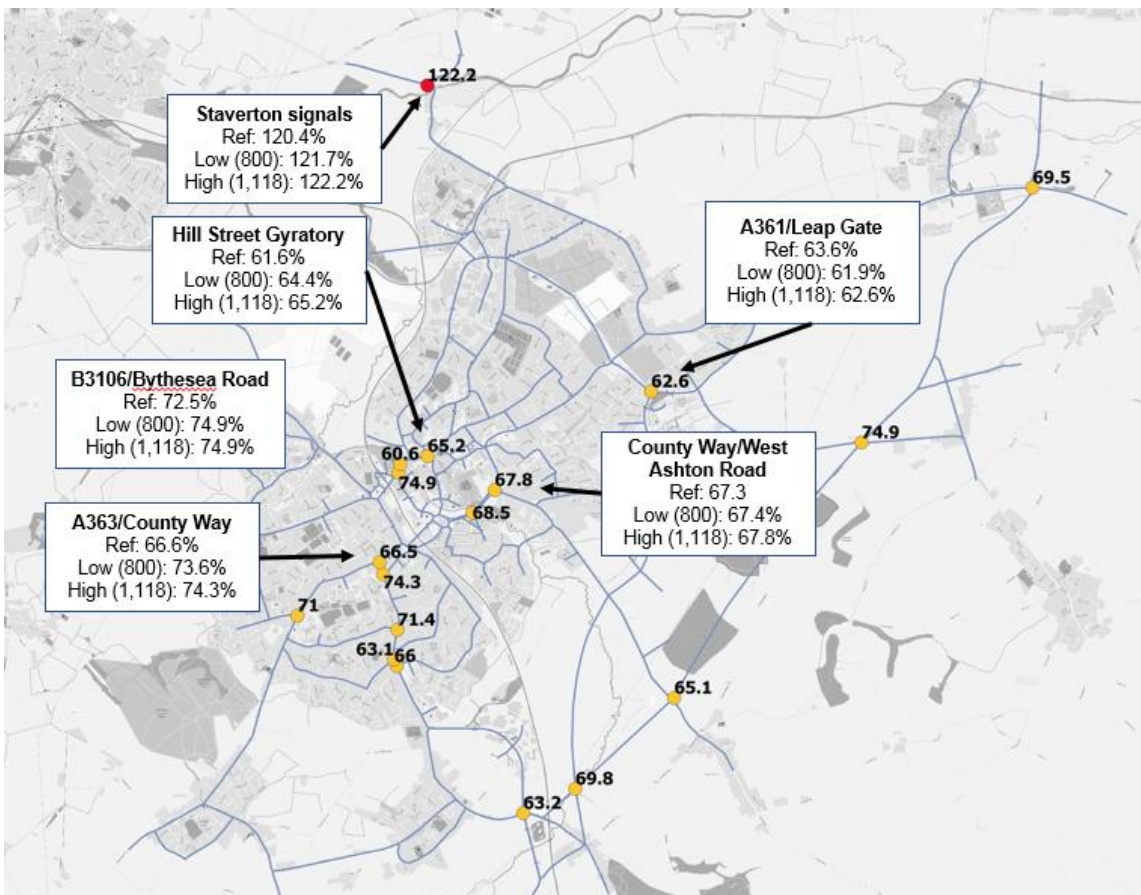
2.20. The forecast increase in car journeys resulting from development is likely to have an impact on air quality and noise in the town. Although it should be considered that vehicle technology is developing to limit the noise¹⁶ and the air quality¹⁷ impact of vehicles.

Impacts at specific locations

2.21. The Traffic Model has been used to forecast the impact of the additional development on the road network without any transport mitigation.¹⁸ The proposed housing allocations have a marginal impact on the network performance. The biggest impact is on total delays in the network (an increase of 4.7% AM and 4.6% PM for the lower housing scenario and 6.8% AM and 7.0% PM for the higher housing scenario). A small increase in demand at junctions that are already approaching or at capacity results in an exponential increase in delays.

2.22. Figures 2-5 and 2-6 highlights the forecast volume/capacity of road junctions for the high growth scenario in AM and PM periods respectively. Where the junction is forecast to be higher than 85% in volume capacity ratio the junction is shown red. The information boxes highlights the locations where capacity increases are forecast with the percentages.

Figure 2-5 Volume/Capacity ratio AM peak (08:00-09:00) high development scenario compared with reference and low development scenarios



2.23. During the AM peak, the development scenarios forecast an increase in volume/capacity ratio at the following significant locations:

¹⁶ <http://www.dft.gov.uk/vca/fcb/cars-and-noise.asp>

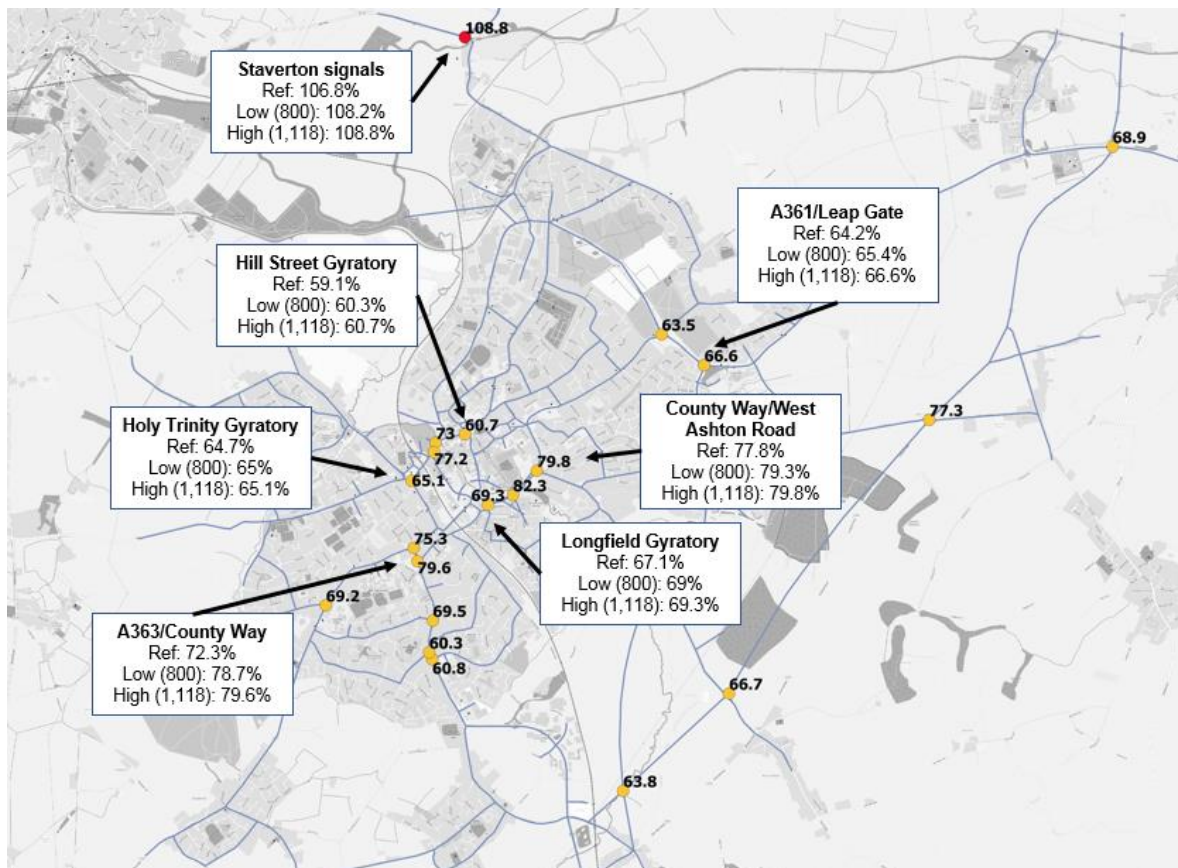
¹⁷ <http://www.dft.gov.uk/vca/fcb/cars-and-air-pollution.asp>

¹⁸ Any new schools associated with development sites have not been modelled as schools are unlikely to produce strategic-level impacts.

- Staverton signals;
- Hill Street Gyratory;
- B3106/Bythesea Road;
- A363/County Way; and
- County Way/West Ashton Road.

2.24. However, volume/capacity is forecast to decrease at the A361/Leap Gate junction from the reference case to the two development scenarios.

Figure 2-6 Volume/Capacity ratio PM peak (17:00-18:00) high development scenario compared with reference and low development scenarios



2.25. During the PM peak, the development scenarios forecast an increase in volume/capacity ratio at the following significant locations:

- Staverton signals;
- Hill Street Gyratory;
- Holy Trinity Gyratory;
- A363/County Way;
- Longfield Gyratory;
- County Way/West Ashton Road; and
- A361/Leap Gate.

2.26. The forecasts show that the increased volume/capacity ratio at the junctions are relatively modest. Staverton Signals, however, is forecast to be over capacity in the reference scenario, without the additional growth.

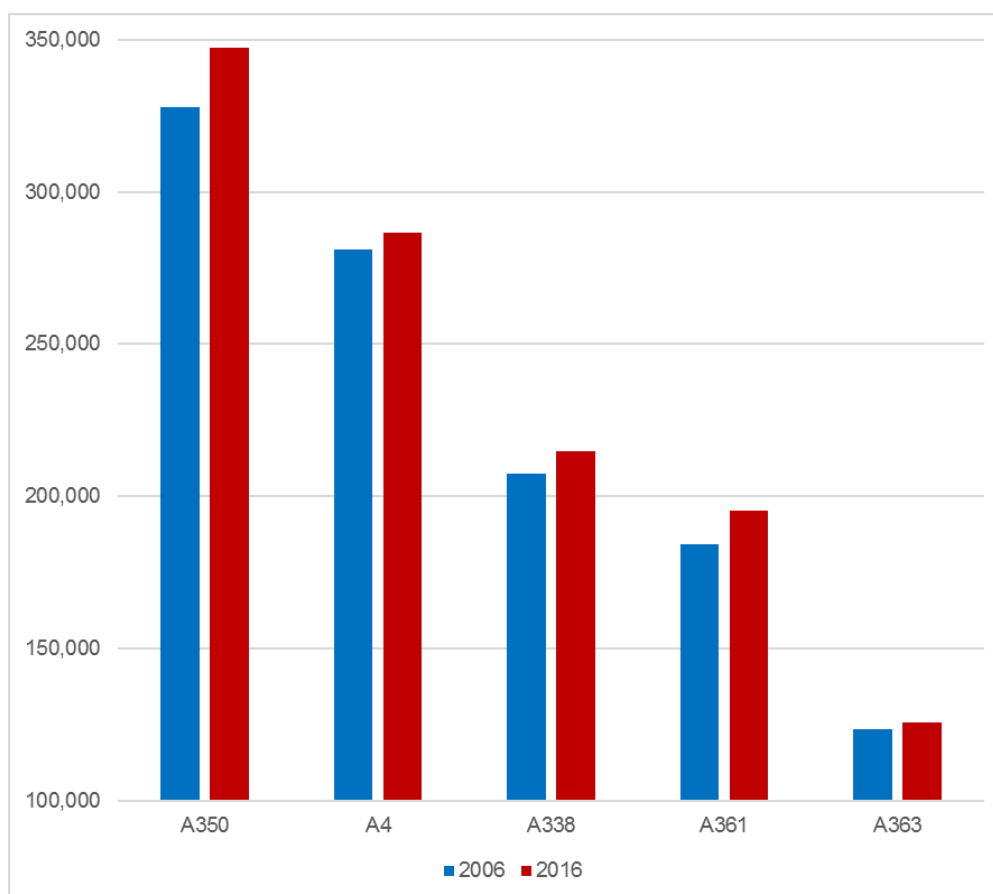
Theme: Maintaining Strategic Function of the A350 around Trowbridge

2.27. The A350 corridor to the east of Trowbridge provides a key strategic North-South transport link for both inter-urban traffic within the west Wiltshire and Swindon area, and for longer distance strategic traffic (i.e. between Dorset and the M4, and beyond). The A350 is therefore a key strategic corridor on the primary route network (PRN) in Wiltshire. The A350 Growth Zone has been identified by the SWLEP as a priority for development because there are currently large agglomerations of economic activity and there is the greatest capacity for supporting sustainable growth in the future. Maintaining north-south connectivity along the A350 corridor is essential to realising this objective and securing the future economic success of the Growth Zone.

Issue: The A350 around Trowbridge carries high volumes of traffic

2.28. The A350 carries the highest volumes of vehicles on the Wiltshire A-road network as shown in Figure 2-7 which highlights the strategic importance of the route. The high volume of traffic, however, results in delays and journey time reliability issues at specific locations. The data indicates that traffic volumes on the A350 have been increasing over the past 10 years. This means that there are greater demands on the route which is already subject to delays and disruption.

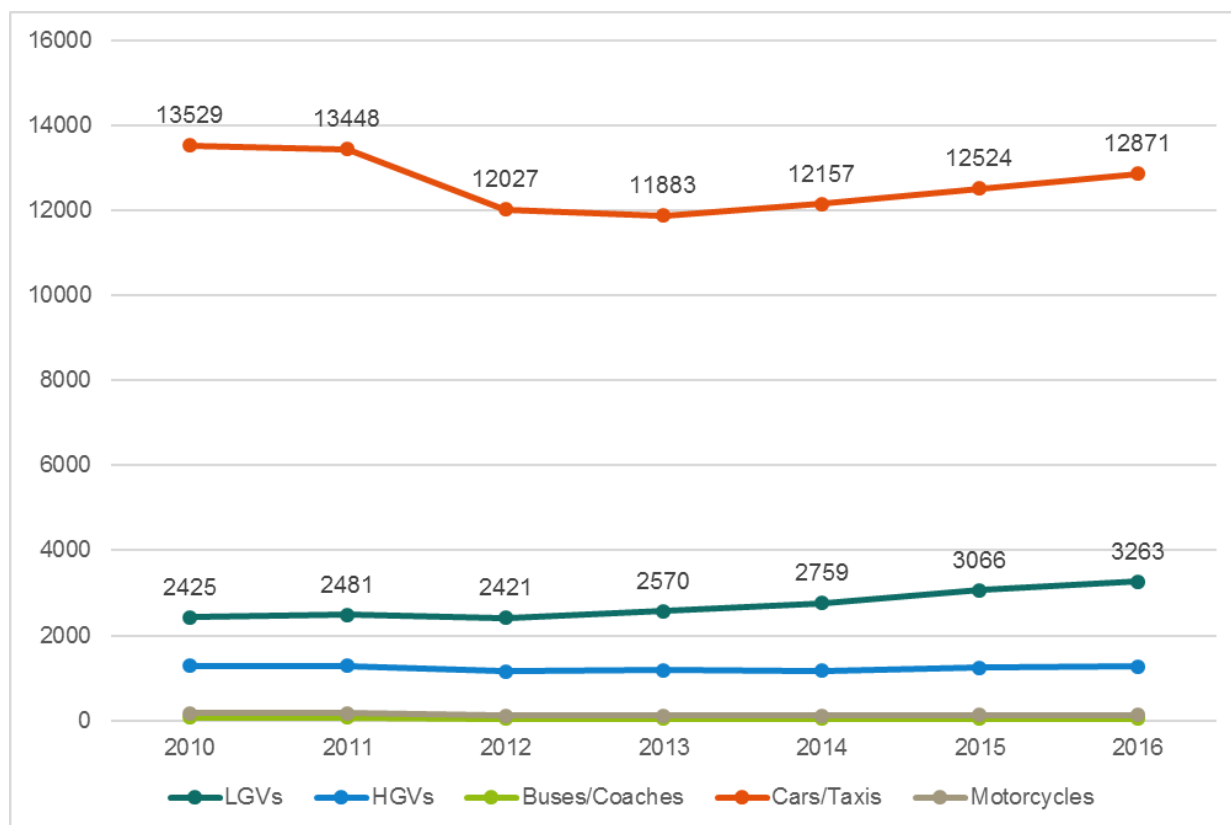
Figure 2-7 DFT Annual Average Daily Flow (AADF) Data – Vehicles per Year¹⁹



2.29. The modal split of journeys on the A350 around Trowbridge is presented in Figure 2-8 and shows an increase in the number of LGVs using the road. It is therefore of importance to ensure that the expanding network of delivery vehicles can use the key routes in/around Trowbridge with minimised delay and congestion as well as longer distance journeys in west Wiltshire.

¹⁹ Source: Department for Transport. Source: <http://www.dft.gov.uk/traffic-counts>

Figure 2-8 Number of Vehicles on the A350 around Trowbridge by Mode



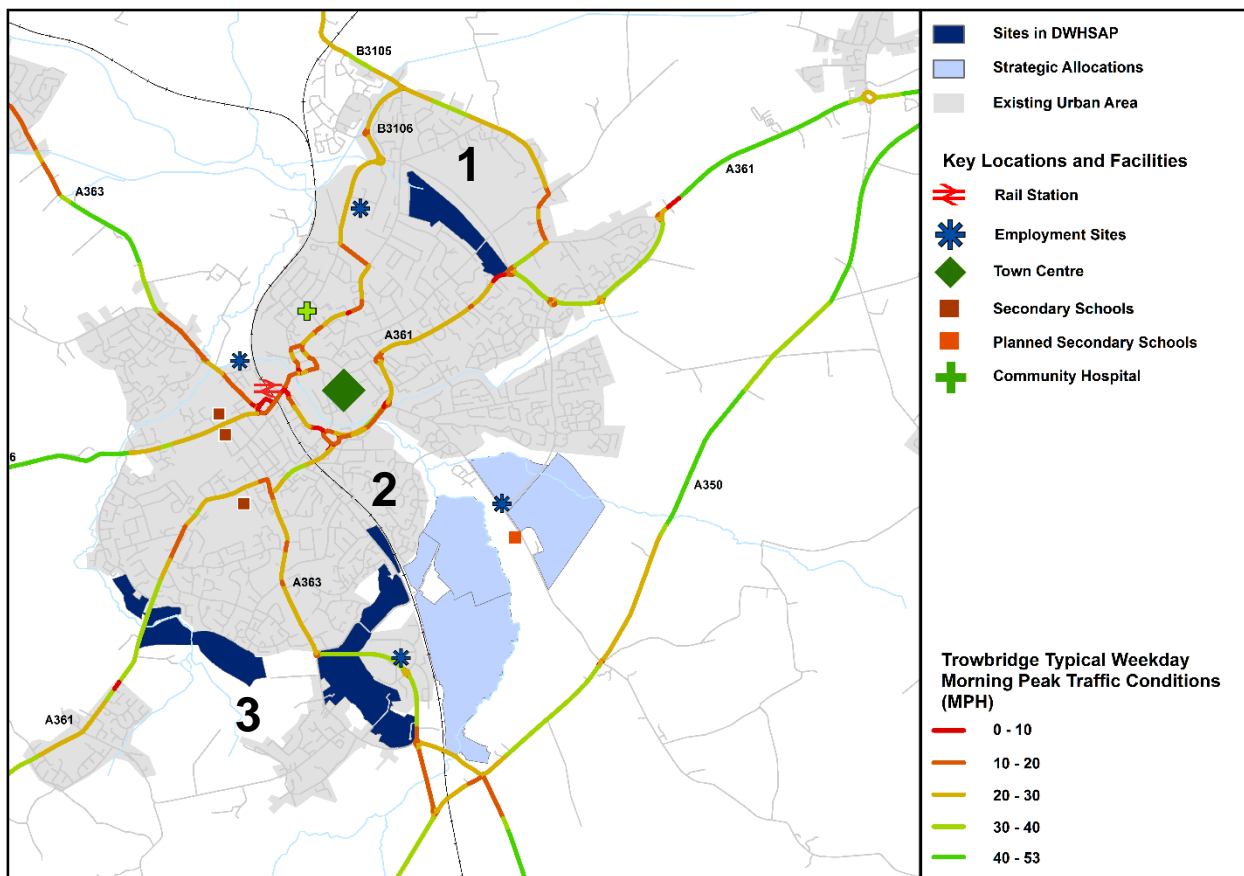
Issue: Trowbridge road network experiences delay at peak periods

2.30. There are a number of junctions on the main routes in/out of Trowbridge that are subject to delay. The routes consist of the A350, A361, A363, A363 and the B3105. Traffic Master data (Figure 2-9) summarises the delays that are typically experienced at peak times on the Trowbridge transport network, and indicates that the issues are generally network-wide. High levels of delay can reduce the attractiveness of Trowbridge as a destination, discouraging people from choosing to work and shop in the town. The increased delay can also incur additional transport cost on residents and businesses.

2.31. Key areas of delay on the Trowbridge transport network:

- A350 at Yarnbrook roundabout;
- A350 West Ashton crossroads;
- A361 Hilperton Road – east of the town centre;
- A363/Frome Road;
- B3105 at Staverton;
- County Way Gyratory;
- A363 Bradford Road;
- County Way/West Ashton Road roundabout; and
- Holy Trinity Gyratory.

Figure 2-9 Trafficmaster – Delay in AM Peak



Theme: Improving Town Centre Accessibility and Attractiveness

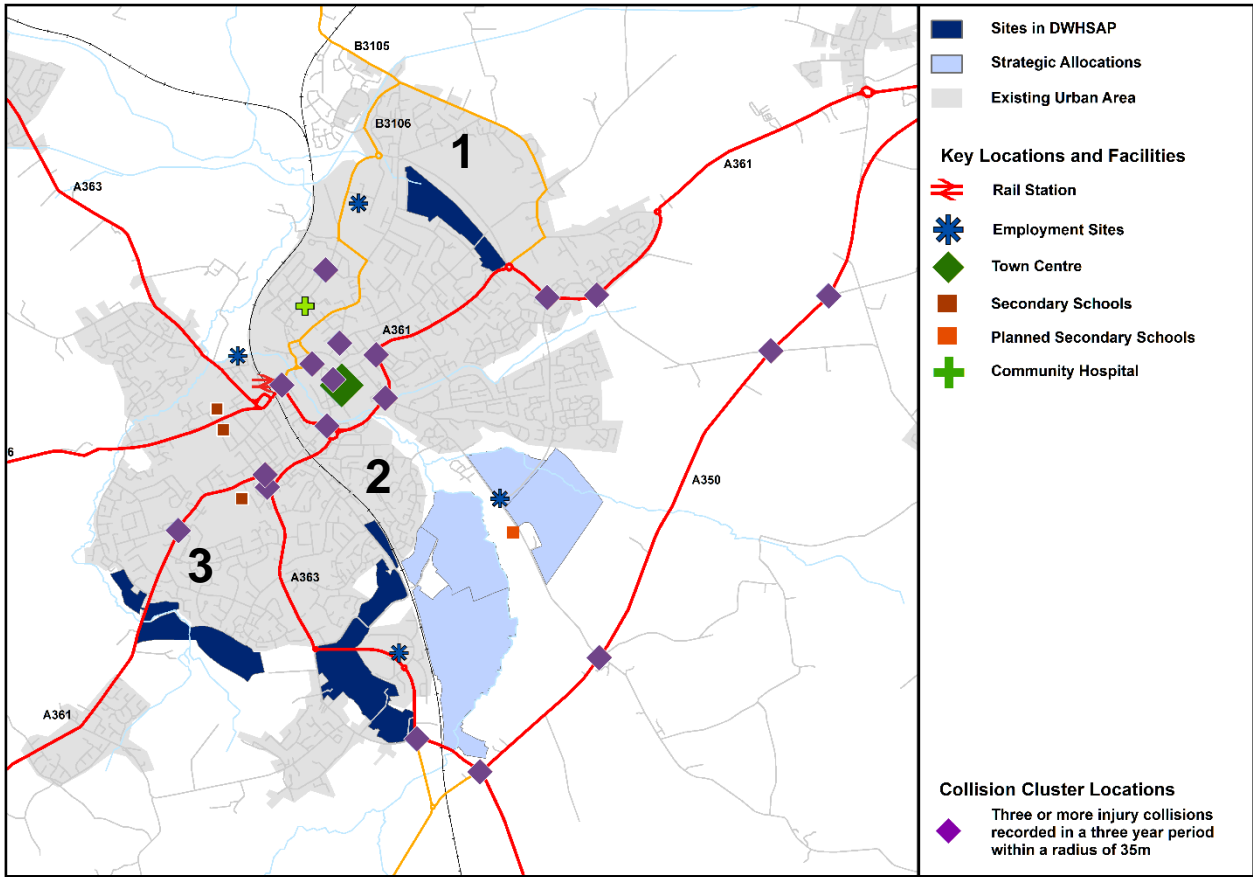
- 2.32. As one of three principal settlements outlined in the Wiltshire Core Strategy, Trowbridge is required to maintain an important strategic role. It is important that Trowbridge continues to grow to strengthen its role as a principal service centre in the County and delivering improved infrastructure and facilities.
- 2.33. A transport network which enables residents and businesses to access opportunities, services and facilities by all modes of transport, is key to delivering a successful planned development, which also works towards achieving the vision for the town centre and ensuring the long term economic success of the town.
- 2.34. Employment and housing growth will help improve town centre vitality and deliver improved infrastructure that will enhance the attractiveness of Trowbridge for employers to locate there, whilst strengthening the town's role as a strategic employment centre for the wider west Wiltshire area.

Issue: There are a number of collision clusters in the town

- 2.35. There are a number of road collision cluster locations across Trowbridge. Collision clusters are defined as a site that has recorded three or more 'injury collisions', in a three-year period, within a radius of 35 metres. Incidents on the highway network have an impact on the performance and reliability of the transport network while actual and perceived safety concerns affect the way in which people choose to travel.
- 2.36. Figure 2-10 presents the location of collision clusters, which highlights the following:

- There are seven collision clusters in and around the town centre and Trowbridge Rail Station; and
- There are four clusters on the A350 primary route network in and around Trowbridge.

Figure 2-10 Collision Cluster Sites



2.37. From analysis of collision cluster sites, the following locations are identified as specific locations of concern with regards to road safety where three or more injury collisions have been recorded in a three-year period within a radius of 35 metres:

- A350 Yarnbrook crossroads;
- A363/B307 Philips Way, North Bradley;
- A350/C218 Ashton Common;
- City Way/Ashton Road;
- Longfield Roundabout of A361 County Way & Castle Street;
- A361 Hilperton Drive roundabout;
- A363/A361 Stallard/Bythesea Road;
- A361 Roundabout Bradley Road & Frome Road;
- C372 Timbrel Street/C372 Union Street;
- A361 roundabout Hilperton Drive & C19 Ashton Road;
- Market Street/Park Road;
- B106 Fore Street outside 'Sportsbug';
- Seymour Road;
- A350/C49 West Ashton Crossroads;
- A361 junction with Bradley Road;
- A363/A361 Stallard Street/Bythesea Road;
- A361 Frome Road, Manor Lane; and
- A361 County Way/ The Half.

Issue: Poor integration and connectivity of pedestrian and cycle network, especially around the town centre and Trowbridge Rail Station

2.38. Sustrans produced the Cycling and Pedestrian Access Study Report (June 2013)²⁰ for towns and villages with rail stations in Wiltshire. Trowbridge town itself is generally flat and lends itself to travelling on foot and by bike. To enhance walking and cycling facilities in the town, targeted improvements were identified in 2014 to be delivered as part of Wiltshire's Local Sustainable Transport Fund programme (LSTF), with the remaining schemes to be delivered as part of future funding bids and the Local Transport Plan (LTP) programme. Trowbridge is 5km in diameter at its widest (from Trowbridge Rugby to Southwick Country Park), and the furthest proposed development site is 3km from the town centre. However, a number of issues were identified in the town which would be expected to reduce the attractiveness of active transport uptake, potentially resulting in higher levels of car use. The broad issues identified in Trowbridge were:

- Complex and busy road network with one-way systems in the town centre;
- limited provision for pedestrians and cyclists;
- Limited signage for wayfinding to key locations whilst legibility across the pedestrian and cycle network is poor;
- Gaps in the walking and cycling network along key routes;
- Narrow footways and cycle routes; and
- Some routes require adoptions, the removal of cycling bans and conversions to shared use paths.

2.39. Location specific issues identified in the town include:

²⁰ Improving Wiltshire's Rail Offer. Cycle and Pedestrian access study, Sustrans, June 2013.

- Poor cycling access to the Trowbridge Rail Station;
- Stallard Street/Bythesea Road mini roundabout and Holy Trinity Gyratory require walking and cycling improvements;
- Road network on the north of the town limits the opportunity for new cycle paths;
- County Way severs routes to and from the town centre;
- Inadequate pedestrian crossing facilities on Bythesea Road and Stallard Street; and
- Poor pedestrian facilities at the roundabout outside of County Gate, at Newton/Frome Road junction and at County Way/Bradley Way roundabout.

Issue: Historic street layout constrains the central road network

2.40. The following locations have been identified where the Trowbridge highway network is constrained by bridges and the historic street network. Constraints in the layout of the highway network can further compound congestion through acting as a physical obstacle to efficient traffic flow.

- B3105 Staverton: the road is constrained by a Grade II listed narrow bridge, which allows only one direction of traffic to cross the bridges at a time. This leads to queueing traffic on the approaches to the bridge;
- B3105 Marsh Road at Staverton: narrow bridge has limited capacity to be widened; and
- Holy Trinity Gyratory: road/junction capacity constrained by the Holy Trinity Church located in the centre of the junction.

Issue: Trowbridge residents are drawn to larger settlements which are further away for retail and leisure opportunities

2.41. Residents within Trowbridge's retail catchment are generally likely to stay within Trowbridge for shopping purposes. However, those that do travel out of Trowbridge, tend to travel long distances to larger settlements. Surveys conducted in 2010²¹ of visitors at retail areas in Trowbridge identified that:

- 60% of visitors cited Trowbridge as their first-choice destination for non-food shopping;
- Trowbridge is not the first-choice destination for 40% of visitors, the most popular retail destinations for those visitors are Bath (60%) and Southampton (20%); and
- Of residents shopping in Trowbridge, 78% travelled for 20 minutes or less, while 19% travelled for between 20-45 minutes. This is higher than the Wiltshire town of Chippenham.

2.42. Improving the accessibility and connectivity to the town centre for all modes of transport will be essential for the future economic success of the town centre.

2.43. Trowbridge residents are also drawn to larger settlements for employment opportunities, and Census data indicates there is a high reliance on the car for all journeys to work irrespective of distance travelled. This is further explored in below.

Issue: High car reliance in Trowbridge

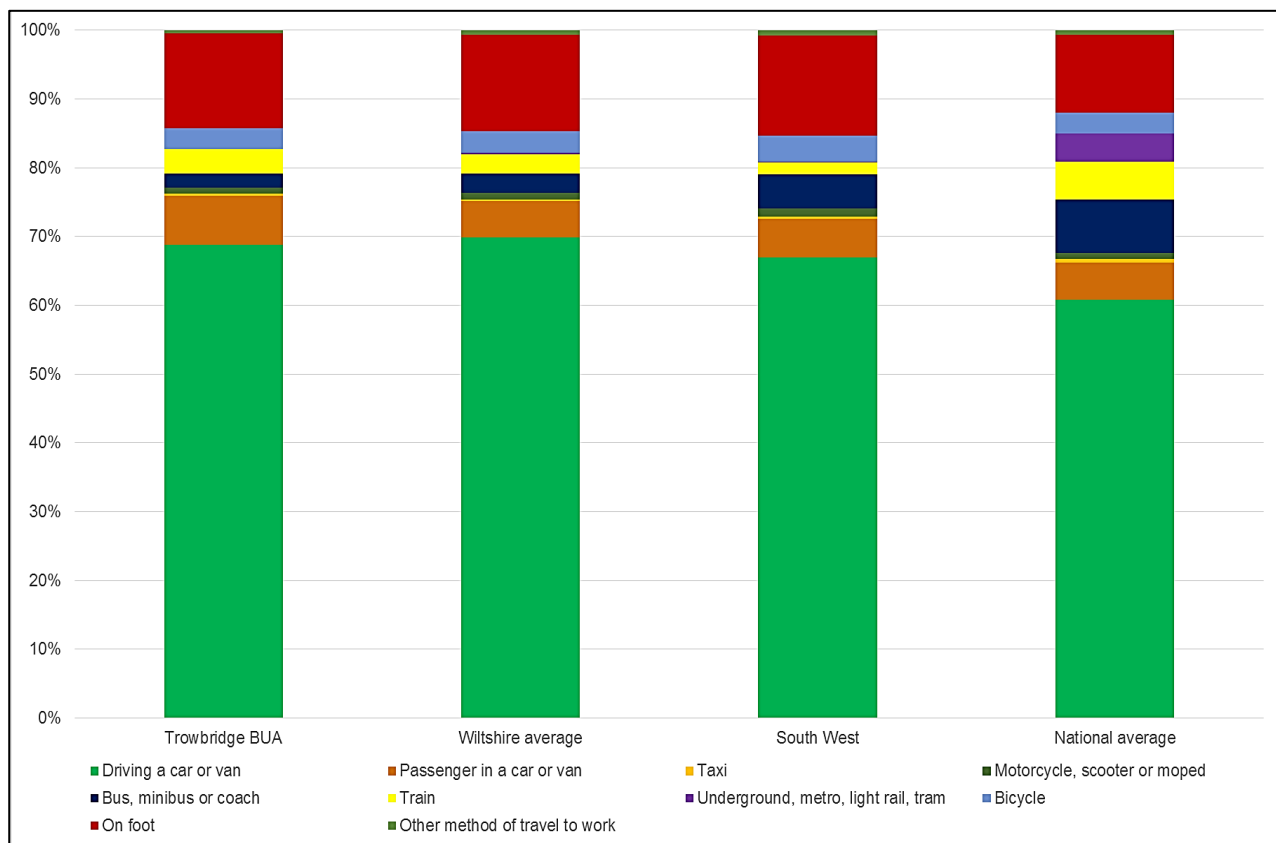
2.44. 2011 Census data indicates that there is high car reliance in Trowbridge. Table 2-7 and Figure 2-11 illustrate that 69% of residents drive a car or van to work, which is above the national average, slightly below the Wiltshire average. Levels of walking and cycling matches the Wiltshire average.

²¹ GVA, Town Centre and Retail Study, Final Report, March 2011. (<http://www.wiltshire.gov.uk/wiltshire-retail-study-march-2011-report.pdf>)

Table 2-7 Method of Travel to Work (Census 2011)²²

	Trowbridge	Wiltshire	National average
Driving a car or van	69%	70%	61%
Passenger in car/van	7%	5%	5%
Taxi	0%	0%	1%
Motorcycle	1%	1%	1%
Bus/coach	2%	3%	8%
Train	4%	3%	5%
Underground, metro, light rail, tram	0%	0%	4%
Bicycle	3%	3%	3%
On foot	14%	14%	11%
Other	0%	1%	1%

Figure 2-11 Method of Travel to Work (Census 2011)



2.45. Despite a reliance on the car for journeys to work for Trowbridge residents, Census data for distance travelled to work indicates that Trowbridge residents travel short distances to reach work, with the most common distance being under 2km (Table 2-8). Distance travelled to work is generally lower than the Wiltshire and national averages. 39% of residents live and work in Trowbridge, 40% work in wider Wiltshire and 10% work in the neighbouring Bath and North-East Somerset. This indicates relatively short commutes in terms of distance travelled.

²² QS701 – Method of travel to work (Built up Area (BUA) level). ONS Crown Copyright Reserved.

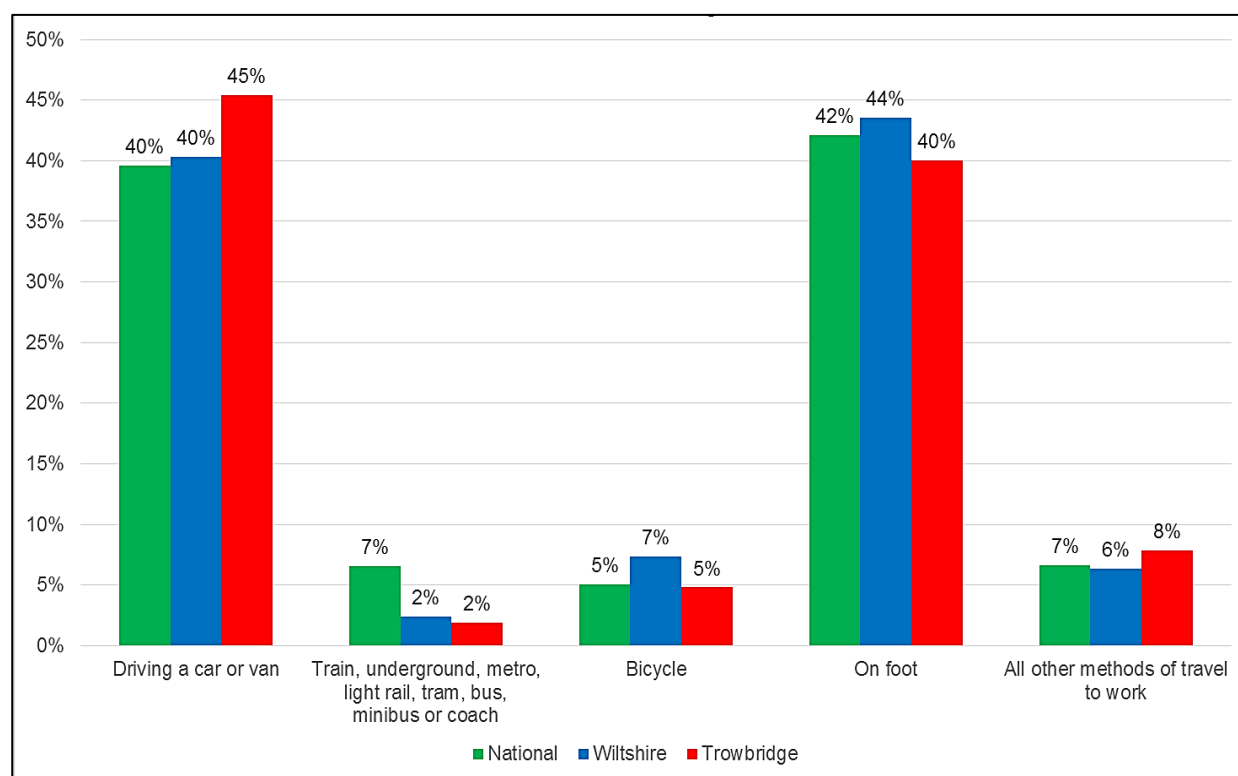
Table 2-8 Distance Travelled to Work (Census 2011)²³

	Trowbridge	Wiltshire	National average
Less than 2km	31%	25%	20%
2km to less than 5km	19%	14%	22%
5km to less than 10km	11%	17%	21%
10km to less than 20km	24%	20%	19%
20km to less than 30km	3%	9%	7%
30km to less than 40km	6%	6%	3%
40km to less than 60km	2%	4%	3%
60km and over	4%	6%	4%

Despite Trowbridge residents having short commuting distances on average, the use of sustainable modes of transport for journeys to work is low.

2.46. Figure 2-12 highlights the modal split of Trowbridge residents travelling less than 2km to work. 45% of residents travel to work by car or van, which is higher than the Wiltshire average and the national average. It is recognised that there could be some trip chaining, however there is opportunity to target these short journeys for a modal shift. 40% of Trowbridge residents travel by foot for journeys less than 2km, which is lower than the Wiltshire and national averages.

Figure 2-12 Mode Split of Trowbridge Residents Travelling less than 2km to Work (Census 2011)²⁴



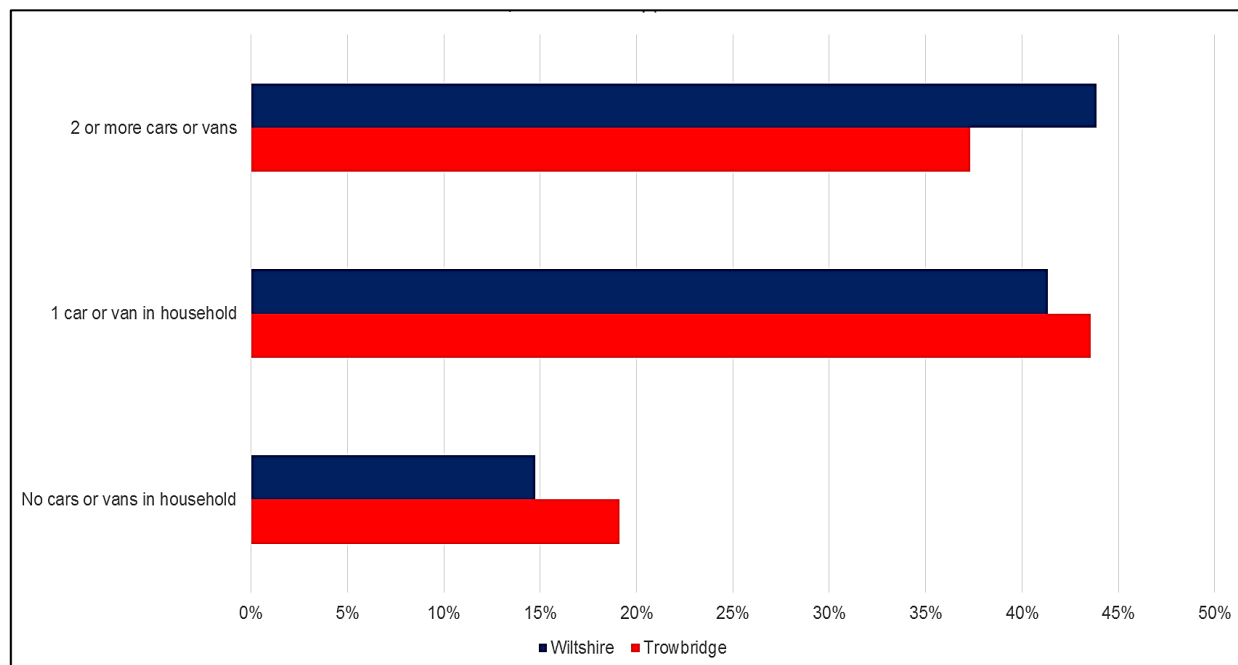
2.47. Figure 2-13 shows that there is a high car ownership in Trowbridge, with approximately 37% of households with two or more cars or vans (slightly lower than the Wiltshire average) and

²³ QS702EW – Distance travelled to work (BUA level). ONS Crown Copyright Reserved

²⁴ WP7701EW – Method of travel to work (2001 specification) by distance travelled to work (Workplace population). ONS Crown Copyright Reserved.

approximately 44% of households with one car or van (which is slightly higher than the Wiltshire average). It can be seen that 19% of households in Trowbridge do not own a car or van which is higher than the Wiltshire average.

Figure 2-13 Car/Van Availability per Household (Census 2011)²⁵



2.48. The place of work of Trowbridge residents has a large impact on the modal split. As previously illustrated in Figure 2-12, 45% of Trowbridge residents travel by car or van for journeys under 2km. Table 2-9 highlights the place of work of Trowbridge residents, with a large majority of residents (39%), working within Trowbridge itself. A further 40% work within Wiltshire and 10% in Bath and North-East Somerset. There are journeys that require a car to travel to work, however, shorter journeys to work within the Trowbridge area could be made using other sustainable modes. High reliance on cars or vans for these shorter journeys puts additional, unnecessary pressures on the local road networks.

Table 2-9 Place of Work for Trowbridge Residents (Census 2011)²⁶

Place of work	Number of Trowbridge residents	%
Wiltshire	5,444	40%
Trowbridge	5,283	39%
Bath and North-East Somerset	1,316	10%
Mendip	341	2%
South Gloucestershire	278	2%
City of Bristol	228	2%
Swindon	157	1%

²⁵ QS416EW – Car or van availability (BUA level). ONS Crown Copyright Reserved

²⁶ WU03EW – Residence and place of work by method of travel to work (MSOA level). ONS Crown Copyright Reserved

- 2.49. Table 2-10 illustrates the place of residence for Trowbridge employees, with 45% living within Wiltshire and again, 39% living in Trowbridge.

Table 2-10 Place of Residence for Trowbridge Employees (Census 2011)

Place of residence	Number of employees	%
Wiltshire (outside of Trowbridge)	6,121	45%
Trowbridge	5,283	39%
Mendip	634	5%
Bath and North-East Somerset	599	4%
City of Bristol	233	2%
South Gloucestershire	221	2%
Swindon	73	1%
Total	13,609	100%

Issue: Trowbridge town bus network has infrequent services which are subject to delays

- 2.50. Trowbridge residents have expressed their concerns with the town's bus network. The What Matters to You, Wiltshire survey²⁷ published in 2012 identified that 31% of Trowbridge residents feel that public transport needed improving. This is marginally higher than the Wiltshire average (28%). 24% of Trowbridge respondents also consider that Wiltshire Council should invest more money on transport co-ordination and bus services.
- 2.51. Trowbridge does not have a convenient, frequent and reliable network of bus services operating seven days a week. The highest frequency services are a maximum of every half an hour whilst approximately 6% of bus services were recorded as late in 2014-15 bus punctuality surveys²⁸. The bus services operating in Trowbridge are summarised in Table 2-11. The majority of the bus services in the town operate only five or six times a day, very few bus services operate on Sundays and only one service operates after 2030. Inter-urban bus services providing access to Bath, Chippenham, Devizes, Salisbury and Warminster operate throughout the week.

²⁷ 'What Matters to you Survey', 2011 Trowbridge Community Area, Wiltshire Council, May 2012

²⁸ Wiltshire Council Bus Punctuality Survey Reports, April 2014 to March 2015.

Table 2-11 Trowbridge Town Bus Services²⁹

Trowbridge Bus service	Frequency	Days of operation	Scope	Hours of operation	Start location	End location
49	1 per hour	Full week	Inter-urban	0545-2014	Swindon/Devizes	Trowbridge
60	1 per hour	Weekdays	Town only	0835-1700	Trowbridge	
65	1 per hour	Weekdays & Saturdays	Town only	0930-1645	Trowbridge	
66	1 or 2 per hour	Weekdays & Saturdays	Town only	0830-1800	Trowbridge	
67	1 per hour	Weekdays & Saturdays	Inter-urban	0930-1830	Trowbridge	North Bradley
68	1 per hour	Weekdays & Saturdays	Inter-urban	0730-1730	Melksham	Trowbridge
69	1 per 2 hours	Weekdays & Saturdays	Inter-urban	0900-1400	Trowbridge	Corsham
77	3 per day	Weekdays & Saturdays	Inter-urban	1400-1800	Trowbridge	Devizes
87	1 per 2 hours	Weekdays & Saturdays	Inter-urban	0830-1745	Trowbridge	Devizes
94	1 per 2 hours	Weekdays	Inter-urban	0900-1600	Trowbridge	Bath
96	1 per hour	Weekdays	Town only	0900-1740	Trowbridge	
234, X34	2 per hour	Weekdays & Saturdays	Inter-urban	0640-1830	Frome	Chippenham
265	2 per hour	Full week	Inter-urban	0645-0000	Bath	Salisbury
678	1 per day	Weekdays	Town only		Frome	Trowbridge
402	1 per day	Full week	Inter-urban		Frome	London
185	1 per day	Weekdays	Inter-urban		Midsomer Norton	Trowbridge

Issue: Inter-urban bus services experience delays which can affect commercial viability

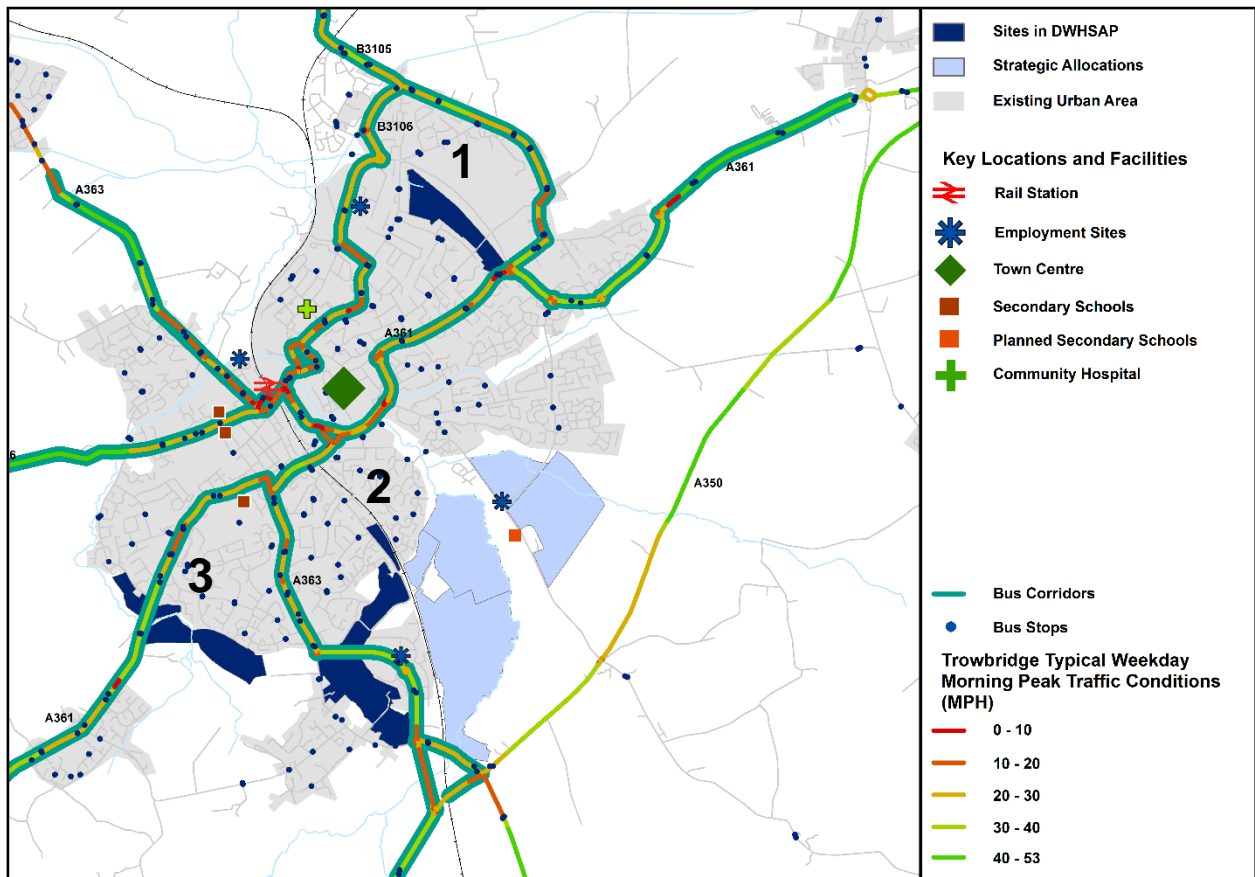
- 2.52. Inter-urban bus services operating in Trowbridge provide access to a number of nearby towns, Bath, London, Warminster, Westbury and Salisbury whilst providing a service for people travelling within Trowbridge by bus. These services predominantly operate on a commercial basis without the requirement for public subsidy.
- 2.53. The commercial viability of bus services can be affected by punctuality and reliability issues caused by delays and congestion on the highway network. Table 2-12 shows that a number of these inter-urban services experience reliability issues as identified from Wiltshire Council bus punctuality surveys between April 2014 and March 2015. Figure 2-14 displays traffic delay data in relation to Trowbridge's bus corridors. Forecast increases in congestion on the Trowbridge highway network are likely to impact on the reliability and commercial operation of these services. Maintaining the performance of the highway network is therefore key to maintaining the operation of these important inter-urban bus services.

²⁹ Data from Traveline website (www.travelinesw.com)

Table 2-12 Trowbridge Inter-Urban Bus Services³⁰

Inter-urban bus service	Start location	End location	% of late services ²⁸
49	Swindon/Devizes	Trowbridge	12%
69	Trowbridge	Chippenham	20%
77	Devizes	Trowbridge	0%
87	Westbury	Devizes	14%
94	Trowbridge	Bath	0%
234 / X34	Frome	Chippenham	20% / 10%
265	Bath	Salisbury	25%
678	Frome	Trowbridge	12%

Figure 2-14 Delay on Trowbridge bus corridors (Traffic Master)



Issue: Growth in rail passenger numbers at Trowbridge Rail Station is forecast to continue

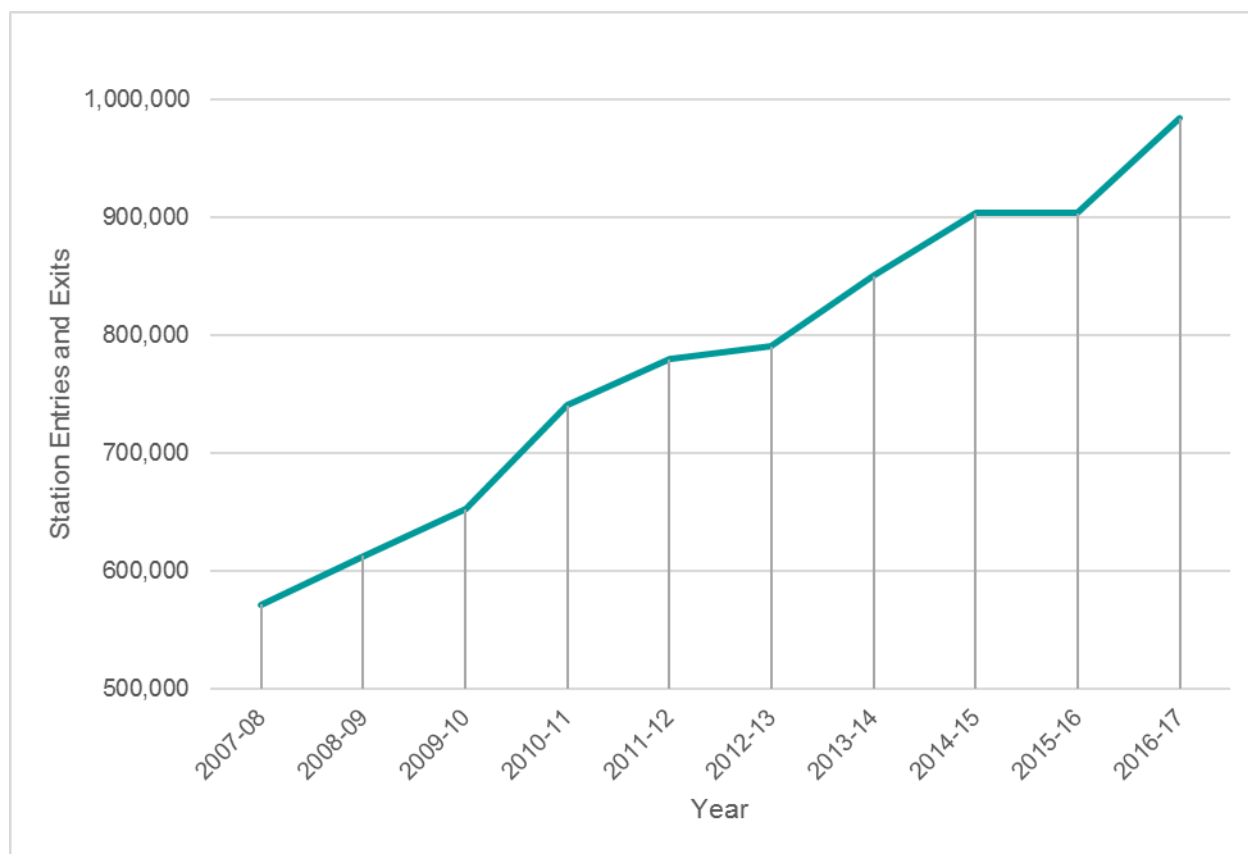
2.54. Trowbridge Rail Station provides access from Trowbridge to train services which connect Trowbridge to a variety of destinations including:

³⁰ Data from Traveline website (www.travelinesw.com)

- London Waterloo;
- Bath, Bristol and Cardiff on the Cardiff-Portsmouth line;
- Gloucester, Worcester and Great Malvern; and
- Westbury, Melksham, Chippenham and Swindon on the TransWilts line.

2.55. There has been continued growth in passenger numbers at Trowbridge Rail Station over the past 10 years as illustrated in Figure 2-15. Within the ten year-period from 2007-08 to 2016-17, Trowbridge has experienced a growth in yearly entries and exits from 571,281 to 983,704. This increase of 412,423 equates to a growth of approximately 72%³¹.

Figure 2-15 Trowbridge Rail Station Entries and Exits 2007-08 to 2016-17



2.56. The growth in entries and exits from 2012-13 is likely to be a result of enhancements to the TransWilts service. In December 2013, the TransWilts train service between Westbury and Swindon was enhanced from 2 to 8 trains each way per day. Significant improvements to Trowbridge Railway Station were also delivered as part of the LSTF and delivered as the Trowbridge Rail Station package which included:

- Improved pedestrian and cycle access;
- Provision of covered and uncovered waiting areas;
- Provision of 70 cycle parking spaces;
- Improved lighting and enhanced CCTV; and
- Improved taxi waiting area, reconfiguration of car parking and new surfacing across both concourses.

³¹ Office of Rail Regulation, Estimates of station usage 1997-98 to 2016-17

- 2.57. The enhancements to the TransWilts service and improvements to the facilities at Trowbridge Rail Station in 2015 has contributed to an increase in patronage, while the continuing growth of rail patronage.

Future growth in rail demand

- 2.58. Forecasts for future rail demand up to 2026 from the Wiltshire Rail Study Strategic Analysis Report³² indicate that demand for rail travel to and from Trowbridge Rail Station will continue to grow. The study forecasts that by 2026 daily demand would increase from 1,034 rail trips per day in 2004/05 to 2,439 in 2026 and that demand would increase by an additional 36% with the Wiltshire Core Strategy³³ development in place. This analysis was undertaken before the enhancements to the TransWilts service and improvements at the railway station, therefore excludes any further demand generated by service enhancements on this line.
- 2.59. Network Rail and the West of England Partnership have identified that lack of capacity and overcrowding is an issue which could act as a constraint on future growth: Network Rail highlighted in its Regional Urban Market Study (2013)³⁴ that although Trowbridge and Chippenham share a similar distance and generalised journey time from Bristol and have a similar population, there is only half the rail demand from Trowbridge. It was suggested that this statistic may reflect the differences in journey ambience such as rolling stock quality and crowding
- 2.60. The West of England Partnership set out their concerns regarding capacity on Cardiff to Portsmouth Line which serves Trowbridge. In its response to the Great Western Specification Consultation (June 2014) it stated that its SEP stresses the importance to the regional economy of the Cardiff - Bristol - Portsmouth route and the need for enhancements is recognised. Consideration should be given to measures for train lengthening and upgraded trains. The West of England LEP was also concerned that overcrowding caused by a lack of capacity will act as a growth constraint on the Cardiff - Portsmouth route.
- 2.61. Demand for rail travel from Trowbridge is forecast to increase, however, providing the appropriate level capacity for passengers and frequency of rail services is key to sustaining this growth. To accommodate future demand, the provision of rolling stock and services is also as important as ensuring that the Trowbridge Rail Station is accessible and well connected to the Trowbridge transport network.

Issues with access to Trowbridge Rail Station will be magnified with increased passenger demand

Bus Access

- 2.62. Although no buses stop within the Trowbridge Rail Station forecourt, there are four bus stops within a two-minute walk from the station. The majority of these buses are either infrequent, lacking weekend services or having short hours of operation. Development of the Bowyers site next to the railway station provides an opportunity for improved access and could include the provision of a new main station entrance (linking with the upgrade of Trowbridge Rail Station carried out in 2015), incorporating a bus interchange. In lieu of such an interchange it is important that high quality bus stops are provided near to the rail station with lighting, seating, cover and Real Time Passenger Information (RTPI).

Pedestrian and Cyclist Access

- 2.63. Walking and cycling is an important mode of travel for access to the Trowbridge Rail Station. Surveys of rail passengers at Trowbridge station completed in July 2013 identified that:

³² Wiltshire Rail Study Strategic Analysis Report, Wiltshire Council, May 2013.

³³ This forecast was undertaken using development assumptions from the 2012 Wiltshire Core Strategy.

³⁴ Long Term Planning Process: Regional Urban Market Study, Network Rail, October 2013.

- 60% of users walk to the station;
- 5% cycled; and
- 30% arrived by car – 14% as a driver, 15% as a passenger (kiss & ride) and 1% car share.

2.64. Walking and cycling issues have been identified by Sustrans in its study of the town centre and access to the railway station. The details of these issues have been provided in paragraphs 2.38 and 2.39. The Sustrans study highlighted that there are a number of issues on the pedestrian and cycle network which provide access to the railway station, including:

- Poor cycling access to the station;
- Stallard Street/Bythesea Road mini roundabout and Holy Trinity Gyratory require walking and cycling improvements; and
- Inadequate pedestrian crossing facilities on Bythesea Road and Stallard Street.

2.65. Providing direct, convenient and safe routes to access the railway station on foot and by bike will be key to maximising the number of people who can use rail services for short and longer distances journeys to and from the town.

Car Parking

2.66. The car park forecourt at Trowbridge Rail Station was remodelled in 2015 as part of the LSTF Trowbridge station package. The improvements were designed to improve the flow of vehicles and reduce conflict with pedestrians. The level of car parking has not been altered and generally operates in capacity, although it is expected that demand for car parking would increase as the forecast increase in demand for rail travel is realised.

Issue: Parking is readily available around the town centre

2.67. The high-level of parking available makes travelling into central Trowbridge by car an attractive and convenient option which means fewer people are likely to travel into the town centre by sustainable modes.

2.68. In central Trowbridge, there are currently 782 car parking spaces available for both long and short stay parking at off-street car parks operated by Wiltshire Council. The majority of these car parks charge for use from 08:00 to 18:00 with the exception of St Stephen's Place multi-storey car park. This is free to use and provides 446 spaces. There are also a number of privately operated car parks in the centre of Trowbridge which provide short and long stay parking charged at different rates. This includes 1,000 spaces at The Shires Shopping Centre, and 148 spaces at the Trowbridge Rail Station.

2.69. The Trowbridge Parking Study (Atkins, July 2013)³⁵ examined parking conditions on a typical Friday and Saturday in the town centre and surrounding areas. Data was collected from both on and off-street parking locations in central Trowbridge. The study found that, during the surveyed period, parking demand in Trowbridge was approximately 50% of capacity. Although this figure does not reflect peaks in demand, it illustrates that parking is very readily available in Trowbridge. The study also identified that:

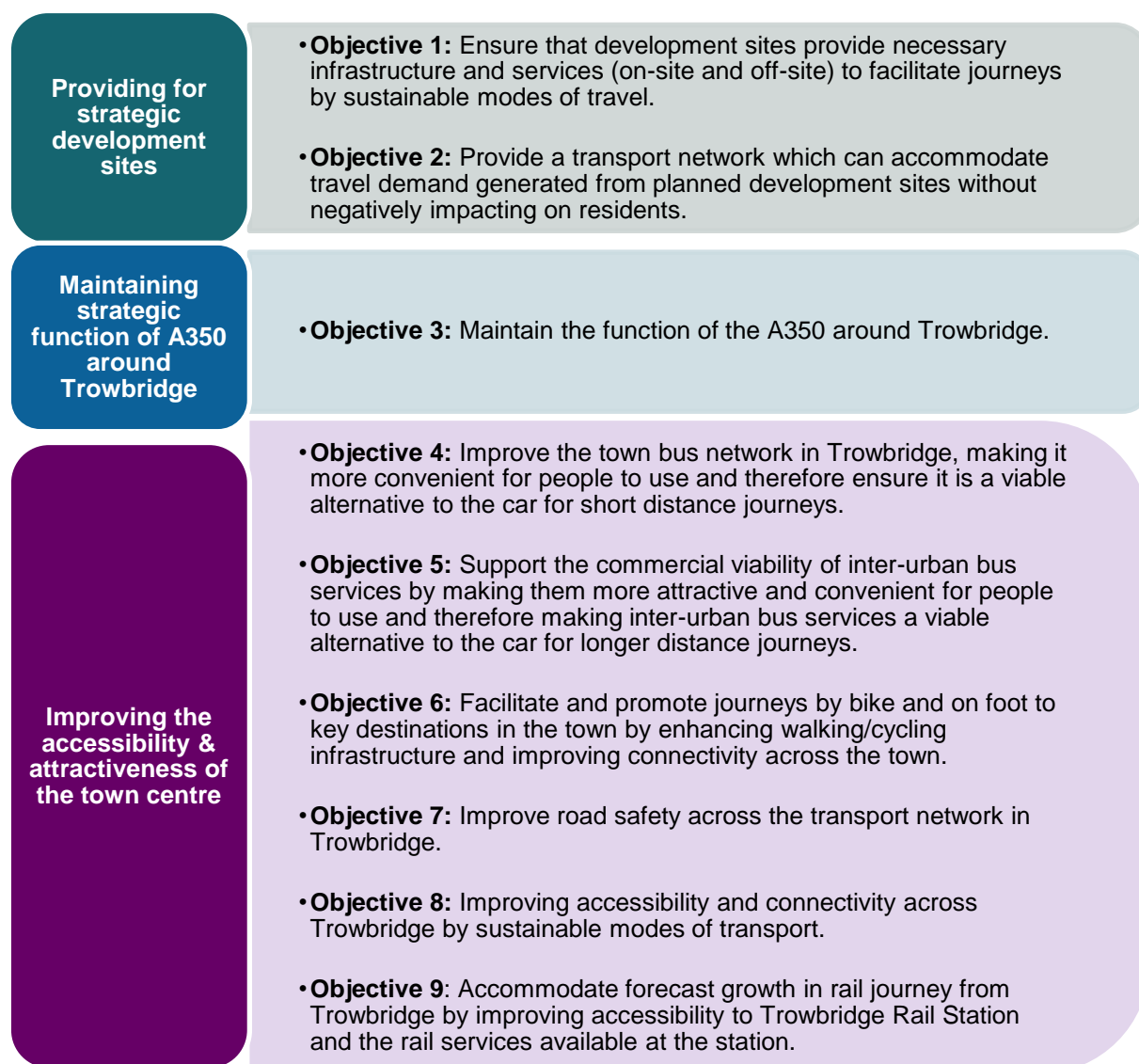
- 50% of individuals parked in the town were from Trowbridge;
- Over 80% were from Wiltshire;
- Short stay durations were the most common length of stay in the car parks; and
- Approximately 11% of parked vehicles were captured at more than one car park.

³⁵ Trowbridge Park Study Final Report, Wiltshire Council, July 2013.

3. Objectives

Trowbridge Transport Strategy Refresh Objectives

- 3.1. The transport issues and challenges identified in Chapter 2 have been used to update the objectives for the Trowbridge Transport Strategy Refresh. Again, the objectives are grouped under the three transport themes for Trowbridge. The nine objectives identified have been developed within the context set out in Chapter 1, and therefore do not include objectives that are contained within overarching policies. **All Trowbridge Transport Strategy Refresh objectives are specific to the town**, with outcomes that are expected to support overarching policies. The way in which objectives are linked to specific policies is shown in the Appendix B.
- 3.2. Objectives for the Trowbridge Transport Strategy Refresh are presented in **Figure 3-1**. The relationship between the objectives and identified issues is explored in more detail in this Chapter. Each objective may relate to more than one identified issue from across the three themes. Objectives are therefore shown as having a 'primary' and 'secondary' relationship with certain issues. The expected outcomes for each objective are also provided in this Chapter. **Figure 3-1 Trowbridge Transport Strategy Refresh Objectives**



Theme: Providing for Strategic Development Sites

Objectives 1 and 2 – Relationship with Issues and Challenges

3.3. The successful delivery, in transport terms, of planned development in Trowbridge is the focus of the first two objectives:

- **Objective 1:** Ensure that development sites provide necessary infrastructure and services (on-site and off-site) to facilitate journeys by sustainable modes of travel.
- **Objective 2:** Provide a transport network which can accommodate travel demand generated from planned development sites without negatively impacting on residents.

3.4. In Chapter 2, a number of issues and challenges are identified which relate to the planned development sites in Trowbridge. The issues listed in Table 3-1 have informed Objectives 1 and 2.

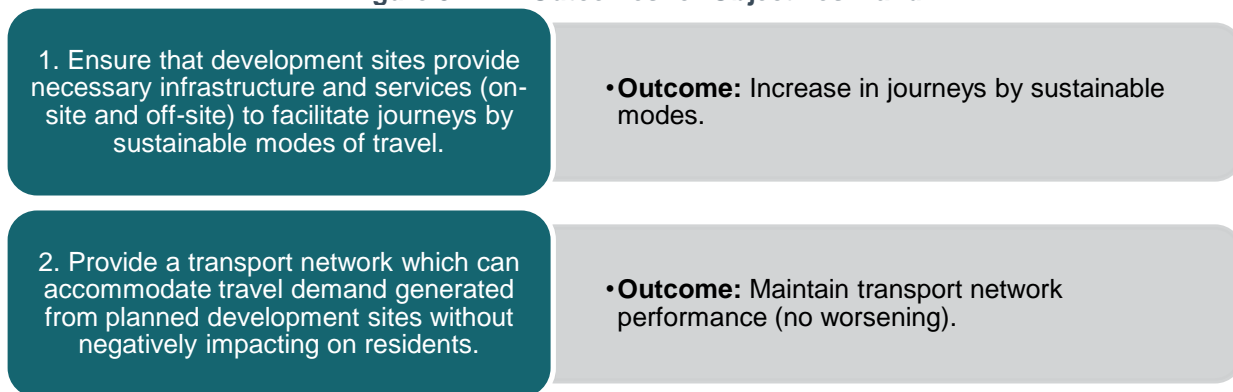
Table 3-1 Issues relating to Objectives 1 and 2

	Theme	Issue
Primary issues	Providing for strategic development sites	Access to key services and facilities by sustainable modes of transport from some development sites is limited.
		Impact on air quality and noise as a result of traffic generated by developments.
		Further planned development in Trowbridge is forecast to contribute to congestion at specific points on the highway network.
Secondary issues	Improving the Accessibility and Attractiveness of the Town Centre	Trowbridge residents are drawn to larger settlements which are further away for retail and leisure facilities.
		High car reliance in Trowbridge.
		Historic street layout constrains the central road network.
		Trowbridge town bus network has infrequent services which are subject to delays.
		Inter-urban bus services experience delays which can affect commercial viability.
		Poor integration and connectivity of pedestrian and cycle network, especially around the town centre and Trowbridge Rail Station.

Objectives 1 and 2 – Outcomes

3.5. The transport specific outcomes for each objective are shown in Figure 3-2. Achieving these outcomes would represent an indicator of success in relation to meeting the transport strategy refresh objectives.

Figure 3-2 Outcomes for Objectives 1 and 2



Theme: Maintaining Strategic Function of A350 around Trowbridge

Objective 3 – Relationship with Issues and Challenges

3.6. Objective 3 relates to the approach required to maintain the function of the A350 corridor by not only directly improving north-south connectivity on this corridor but also addressing road safety issues which can cause incidents and disruption on these routes:

- **Objective 3:** Maintain the function of the A350 Primary Route Network around Trowbridge.

3.7. A number of issues and challenges are identified that relate to safeguarding the role of the A350 and minimising delays along key corridors. The issues listed in Table 3-2 have informed Objective 3.

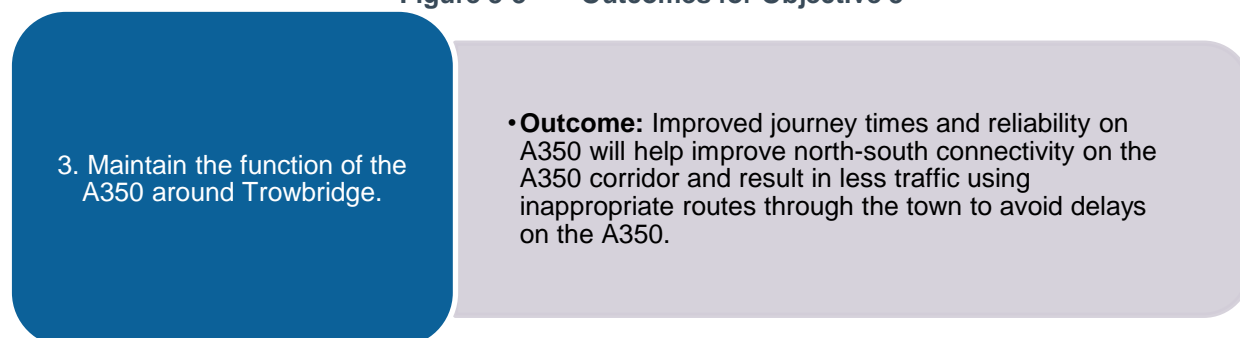
Table 3-2 Issues relating to Objective 3

	Theme	Issue
Primary Issues	Maintaining strategic function of A350	The A350 around Trowbridge carries high volumes of traffic.
		Trowbridge road network experiences delay at peak periods
	Providing for strategic development sites	Access to key services and facilities by sustainable modes of transport from some development sites is limited.
		Impact on air quality and noise as a result of traffic generated by developments.
Secondary Issues	Improving the Accessibility and Attractiveness of the Town Centre	Further planned development in Trowbridge is forecast to contribute to congestion at specific points on the highway network.
		Trowbridge residents are drawn to larger settlements which are further away for retail and leisure facilities.
		There are a number of road collision clusters in the town
		High car reliance in Trowbridge.
		Trowbridge town bus network has infrequent services which are subject to delays.
		Inter-urban bus services experience delays which can affect commercial viability.
Historic street layout constrains the central road network.		

Objective 3 – Outcome

- 3.8. The transport specific outcome for this objective is shown in Figure 3-3. Achieving this outcome would represent an indicator of success in relation to meeting the transport strategy refresh objectives.

Figure 3-3 Outcomes for Objective 3



Theme: Improving Town Centre Accessibility and Attractiveness

Objectives 4, 5, 6, 7, 8 and 9

- 3.9. A successful and attractive town centre will contribute to the future success of Trowbridge. Objectives 4, 5, 6, 7, 8 and 9 relate to making the town centre an accessible location by all modes of transport for current and future residents, while also ensuring that visitors from further afield can access facilities:

- **Objective 4:** Improve the town bus service network in Trowbridge, making it more convenient for people to use and therefore ensure it is a viable alternative to the car for short distance journeys;
- **Objective 5:** Support the commercial viability of inter-urban bus services by making them more attractive and convenient for people to use and therefore making inter-urban bus services a viable alternative to the car for longer distance journeys;
- **Objective 6:** Facilitate and promote journeys by bike and on foot to key destinations in the town by enhancing walking/cycling infrastructure and improving connectivity across the town;
- **Objective 7:** Improve road safety in across the transport network in Trowbridge;
- **Objective 8:** Improving accessibility and connectivity across Trowbridge by sustainable modes of transport; and
- **Objective 9:** Accommodate forecast growth in rail journeys from Trowbridge by improving accessibility to the Trowbridge Rail Station and the rail services available at the station.

Objectives 4, 5, 6, 7, 8 and 9 – Relationship with Issues and Challenges

- 3.10. A number of issues and challenges are identified which have an impact on the attractiveness of the town centre and which relate to access to the town centre by sustainable modes. The issues listed in Table 3-3 have informed Objectives 4, 5, 6, 7, 8 and 9.

Table 3-3 Issues relating to Objectives 4, 5, 6, 7, 8 and 9

	Theme	Issue
Primary Issues	Improving the Accessibility and Attractiveness of the Town Centre	Trowbridge residents are drawn to larger settlements which are further away for retail and leisure facilities.
		High car reliance in Trowbridge.
		Poor integration and connectivity of pedestrian and cycle network, especially around the town centre and Trowbridge Rail Station.
		Historic street layout constrains the central road network.
		There are a number of accident clusters in the town.
		Trowbridge town bus network has infrequent services which are subject to delays.
		Inter-urban bus services experience delays which can affect commercial viability.
		Growth in rail passenger numbers at Trowbridge Railway Station is forecast to continue.
		Parking is readily available in the town centre.
Secondary Issues	Providing for strategic development sites	Access to key services and facilities by sustainable modes of transport from some development sites is limited.
		Impact on air quality and noise as a result of traffic generated by developments.
		Further planned development in Trowbridge is forecast to contribute to congestion at specific points on the highway network.
Secondary Issues	Maintaining strategic function of A350 around Trowbridge	The A350 around Trowbridge carries high volumes of traffic.
		Trowbridge road network experiences delay at peak periods.

Objectives 4, 5, 6, 7, 8 and 9 – Outcomes

3.11. The transport specific outcomes for each objective are shown in Figure 3-4. Achieving these outcomes would represent an indicator of success in relation to meeting the transport strategy refresh objectives.

Figure 3-4 Outcomes for Objectives 4, 5, 6, 7, 8 and 9

<p>4. Improve the town bus service network in Trowbridge, making it more convenient for people to use and therefore ensure it is a viable alternative to the car for short distance journeys.</p>	<ul style="list-style-type: none">• Outcome: Increased number of bus users, which would help improve commercial viability of bus service operations whilst helping to encourage lower car use for short distance journeys to access the town centre.
<p>5. Support the commercial viability of inter-urban bus services by making them more attractive and convenient for people to use and therefore making inter-urban bus services a viable alternative to the car for longer distance journeys.</p>	<ul style="list-style-type: none">• Outcome: Maintain commercial viability of inter-urban bus services and help make bus a convenient alternative to the car for longer distance journeys and maintain commercial bus service operations.
<p>6. Facilitate and promote journeys by bike and on foot to key destinations in the town by enhancing walking/cycling infrastructure and improving connectivity across the town.</p>	<ul style="list-style-type: none">• Outcome: Less people driving for shorter distance journeys as people are encouraged to walk and cycle for these journeys - this will help contribute to reducing congestion in Trowbridge.
<p>7. Improve road safety in across the transport network in Trowbridge.</p>	<ul style="list-style-type: none">• Outcome: Reduce likelihood of accidents & incidents which can result in delays on the highway network whilst improving safety / perception of safety will help make walking and cycling a safer, more attractive and convenient travel option.
<p>8. Improving accessibility and connectivity across Trowbridge by sustainable modes of transport.</p>	<ul style="list-style-type: none">• Outcome: Increase accessibility to the town centre will help increase footfall, whilst encouraging more people to walk and cycle to the town centre will help reduce traffic and improve the town centre environment.
<p>9. Accommodate forecast growth in rail journeys from Trowbridge by improving accessibility to the trowbridge Rail Station and the rail services available at the station.</p>	<ul style="list-style-type: none">• Outcome: Current trends in increased rail use will continue whilst additional patronage could be captured. This will help reduce reliance on the car for medium and longer distance journeys to and from Trowbridge.

4. Strategy Refresh Schemes

Overview

- 4.1. This Chapter outlines schemes which will meet the needs of the agreed objectives, and as a result mitigate the issues and challenges experienced on Trowbridge's transport network. It must be noted that the schemes presented in this Chapter are concept designs only, and as such, will require more in-depth options and technical assessment before definitive schemes/costings can be identified. The required further detail of the schemes may be put forward as business cases or as part of a Transport Assessment where appropriate. Detailed scheme development will need to consider safety, equality, quality of life, environmental and carbon reduction implications.
- 4.2. The schemes have been established based on a review of several sources of policies, reports, and data. A full list of the sources is provided in Appendix C. Data sources include:
- 2012 Trowbridge Transport Strategy, prepared by Mott MacDonald³⁶;
 - Sustrans Cycle and Pedestrian Access Study, published in 2013; and
 - Wiltshire's Infrastructure Delivery Plan 3 (IDP3)³⁷.
- 4.3. The long list of schemes outlined all potential schemes for Trowbridge, from a review of the sources. Working with Wiltshire Council transport officers, a sifting process was undertaken. The approach for the sifting process is as follows:
- Long list of schemes from all sources:
 - Align against the issues and objectives.
 - Sifting process:
 - Filter out schemes that were duplicated across sources;
 - Filter out schemes delivered since the 2012 Trowbridge Transport Strategy;
 - Filter out schemes that would not contribute effectively to mitigating an issue/challenge or contribute to meeting an objective; and
 - Filter out schemes that would not be affordable or deliverable within the plan period.
 - Revised scheme list:
 - Quantify the status of the scheme since the 2012 Trowbridge Transport Strategy and any details;
 - Gap analysis, assess the list of issues and objectives to identify any items not covered by a scheme; and
 - Develop the appropriate level of scheme detail for strategy testing, considered against the issues and objectives.
- 4.4. Through the collaborative engagement with Wiltshire Council transport officers throughout the scheme sifting and development, a small number of schemes are not considered beyond this point for development as part of the Transport Strategy Refresh. These include:
- Park & Ride schemes – the evidence outlined in paragraphs 2.67-2.69 suggests that the readily available town centre parking capacity contributes to short trip and multi trip journeys

³⁶ Available at: <http://www.wiltshire.gov.uk/trowbridge-transport-strategy-report-on-emerging-strategy>

³⁷ Available at: <http://www.wiltshire.gov.uk/planninganddevelopment/planningpolicy/infrastructuredeliveryplan.htm>

from destinations within 2km. These short trips should be managed before additional parking facilities are considered. Any future P&R scheme would also need to consider the demand and route extent, to link the town centre to residential areas and the many key employment sites located outside of the town centre;

- All duplicate schemes – duplications both spatial and from various sources;
- Trowbridge Rail Station – the LSTF funding has delivered the improvements set out in the 2012 Trowbridge Transport Strategy;
- HGV Route Review – work has been undertaken to implement new weight limits following the opening of on Elizabeth Way;
- Stallard Street mini-roundabout – no scheme considered due to uncertainty at the Bowyers site;
- Mass Transit schemes – an initial cost assessment has been undertaken and suggests that the cost of implementing a mass transit scheme is prohibitive;
- Area-wide congestion charge or similar;
- Workplace parking levy; and
- Low emissions zone; restricting access to the road network for certain vehicle types.

4.5. The final list of schemes is presented visually in Figure 4-4 and in Tables 4-1 to 4-5. This represents the smarter choices, walking and cycling, public transport and highways schemes in Trowbridge.

Costs

4.6. The schemes outlined in this Chapter represent a high-level approach to addressing the identified transport issues in Trowbridge and to meet the transport objectives for the town. A visual summary of scheme geographical coverage is shown in Figure 4-4. Further detail is provided in the remainder of this Chapter, structured in line with the Wiltshire Core Strategy user hierarchy (as set out in Core Policy 61):

- Smarter choices – encouraging use of sustainable modes and changes in travel habits (Table 4-2);
- Pedestrian and cycle network improvements (Table 4-3 and Figure 4-1);
- Public transport network (Table 4-4 and Figure 4-2); and
- Highway and car parking schemes (Table 4-5 and Figure 4-3).

4.7. The costs emerging from the 2012 Trowbridge Transport Strategy for the Yarnbrook and West Ashton Relief Road (£25.88 million) will be implemented by the developer of Ashton Park. A successful grant of £5.5m will enable delivery the project. A re-design caused by ecological issues resulted in a funding gap. Further funding of £8.8m has been secured from the Housing Infrastructure Fund which bridges the shortfall.

4.8. Given the close proximity to each other, the site allocations south of the town (clusters 2 and 3) present a potential opportunity to deliver a road linking the two sites to serve as a local distributor road connecting the A361 with the A363. A new road would also provide a route for large goods vehicles in the south west of the town. Currently the signed route for large goods vehicles is via Wynsome Street at Southwick. A new road scheme measure (H07) was therefore developed which would be delivered in conjunction with a traffic calming on Wynsome Street. To test whether this local distributor road is required to mitigate the allocated growth, two tests were undertaken with differences in the Highway schemes:

- Test A - Highway schemes without A361 to A363 link road with a total cost of £34.64m; and
- Test B - Highway schemes which include A361 to A363 Link road with a total cost of £41.64m.

Table 4-1 Mitigation packages and summary costs

Measures	Test A cost without A361/A363 link road (£million)	Test B cost with A361/A363 link road (£million)
Smarter choice measures	£0.2	£0.2
Pedestrian cycle improvements	£2.4	£2.4
Public transport	£1.9	£1.9
Highway improvements	£30.14	£37.14
Total cost	£34.64	£41.64

4.9. At this stage, there is no expectation that these remaining schemes would be funded in full by developments at consented or strategic sites. A range of funding options will be considered. Transport scheme funding options are summarised in Chapter 5.

Smarter Choices Measures

4.10. Smarter choice measures which encourage the use of sustainable modes and changes in travel behaviour, are listed in Table 4-2.

Table 4-2 Smarter Choices Measures

Ref #	Smarter Choices Measures	Indicative costs	Issues (Refers to Table 2-1)	Objectives (Refers to Figure 3.1)
SC01	Residential travel planning at development sites	£100,000	2.1.1, 2.1.2, 2.3.5	1, 6, 8
SC02	Workplace travel planning at development sites	£100,000	2.1.1, 2.1.2, 2.3.5	1, 6, 8
Indicative Total Revenue Cost (per annum)		£0.2 million		

Pedestrian and Cycle Network Improvements

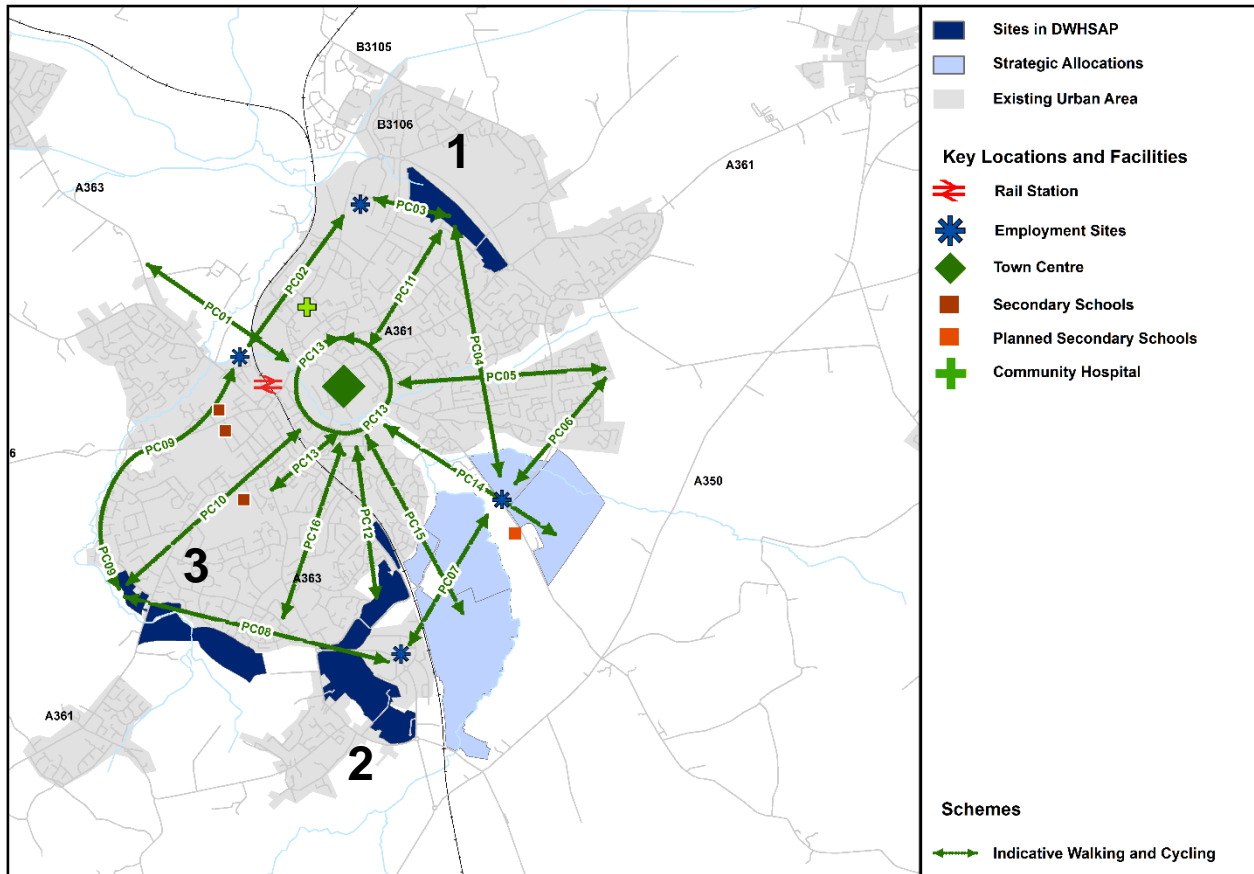
4.11. Schemes to improve the pedestrian and cycle network in Trowbridge are listed below, in Table 4-3, and are outlined in Figure 4-1. Schemes will consist of introducing and enhancing infrastructure along corridors with the aim of increasing the attractiveness of using active travel modes. Particular attention has been paid to linking the proposed DWHSAP housing sites to the town centre and also linking to employment sites. As such, schemes will need to be designed so that they are safe, direct, convenient and attractive.

Table 4-3 Pedestrian and Cycle Schemes

Ref #	Pedestrian and Cycle Schemes	Indicative costs	Issues (Refers to Table 2-1)	Objectives (Refers to Figure 3.1)
PC01	Widbrook Hill to Town Centre (via A363)	£150,000	2.3.2, 2.3.5	6, 7, 8
PC02	Hilperton Marina to Town Centre (via B3106)	£142,500	2.3.2, 2.3.5	1, 6, 7, 8

Ref #	Pedestrian and Cycle Schemes	Indicative costs	Issues (Refers to Table 2-1)	Objectives (Refers to Figure 3.1)
PC03	Hilperton Marsh to Canal Road	£63,750	2.1.1, 2.3.2, 2.3.5, 2.1.2	1, 6, 7, 8
PC04	Hilperton Marsh to West Ashton	£172,500	2.1.1, 2.3.2, 2.3.5, 2.1.2	1, 6, 7, 8
PC05	Hilperton to Town Centre	£180,000	2.1.1, 2.3.2, 2.3.5, 2.1.2	1, 6, 7, 8
PC06	Hilperton to West Ashton	£105,000	2.1.1, 2.3.2, 2.3.5, 2.1.2	1, 6, 7, 8
PC07	West Ashton to White Horse Business Park	£150,000	2.3.3, 2.3.5	1, 6, 7, 8
PC08	Studley Green to White Horse Business Park	£150,000	2.1.1, 2.3.2, 2.3.5, 2.1.2	1, 6, 7, 8
PC09	Studley Green to Bradford Road (via A366 Wingfield Road)	£172,500	2.1.1, 2.3.2, 2.3.5, 2.1.2	1, 6, 7, 8
PC10	Studley Green to Town Centre (via A361 Frome Road)	£142,500	2.1.1, 2.3.2, 2.3.5, 2.1.2	1, 6, 7, 8
PC11	Hilperton to Town Centre (via A361)	£142,500	2.1.1, 2.3.2, 2.3.5, 2.1.2	1, 6, 7, 8
PC12	North Bradley to Town Centre	£131,250	2.1.1, 2.3.2, 2.3.5, 2.1.2	1, 6, 7, 8
PC13	Town Centre improvements (including County Way and Trowbridge Rail Station)	£232,500	2.3.2, 2.3.5, 2.3.8	1, 6, 7, 8
PC14	Biss Meadows to Town Centre (via West Ashton Road)	£120,000	2.1.1, 2.3.2, 2.3.5, 2.1.2	1, 6, 7, 8
PC15	Drynham to Town Centre	£135,000	2.1.1, 2.3.2, 2.3.5, 2.1.2	1, 6, 7, 8
PC16	Southwick Court to Town Centre	£165,000	2.1.1, 2.3.2, 2.3.5, 2.1.2	1, 6, 7, 8
Total Capital Cost		£2.4 million		

Figure 4-1 Pedestrian and Cycle Schemes



Public Transport Network Improvements

- 4.12. Public transport improvement schemes are listed in Table 4-4 and outlined in Figure 4-2. Schemes will consist of measures to enhance the user experience of the public transport network. This approach will consist of corridor upgrades, which include improving bus shelters, introducing/improving real-time passenger information (RTPI), enhancing information of the bus network and raising kerbs to ensure good accessibility onto buses.
- 4.13. Due to the constricted street layouts, the schemes will not seek to implement new features, such as bus lanes. Schemes will seek to enhance existing public transport corridors in the town, integrating bus priority, where possible, into existing signalised junctions; along with providing for potential future corridors (influenced by development in Trowbridge). The upgrades are therefore focused on the main radials into Trowbridge, connecting the DPD sites or employment sites with the town centre.

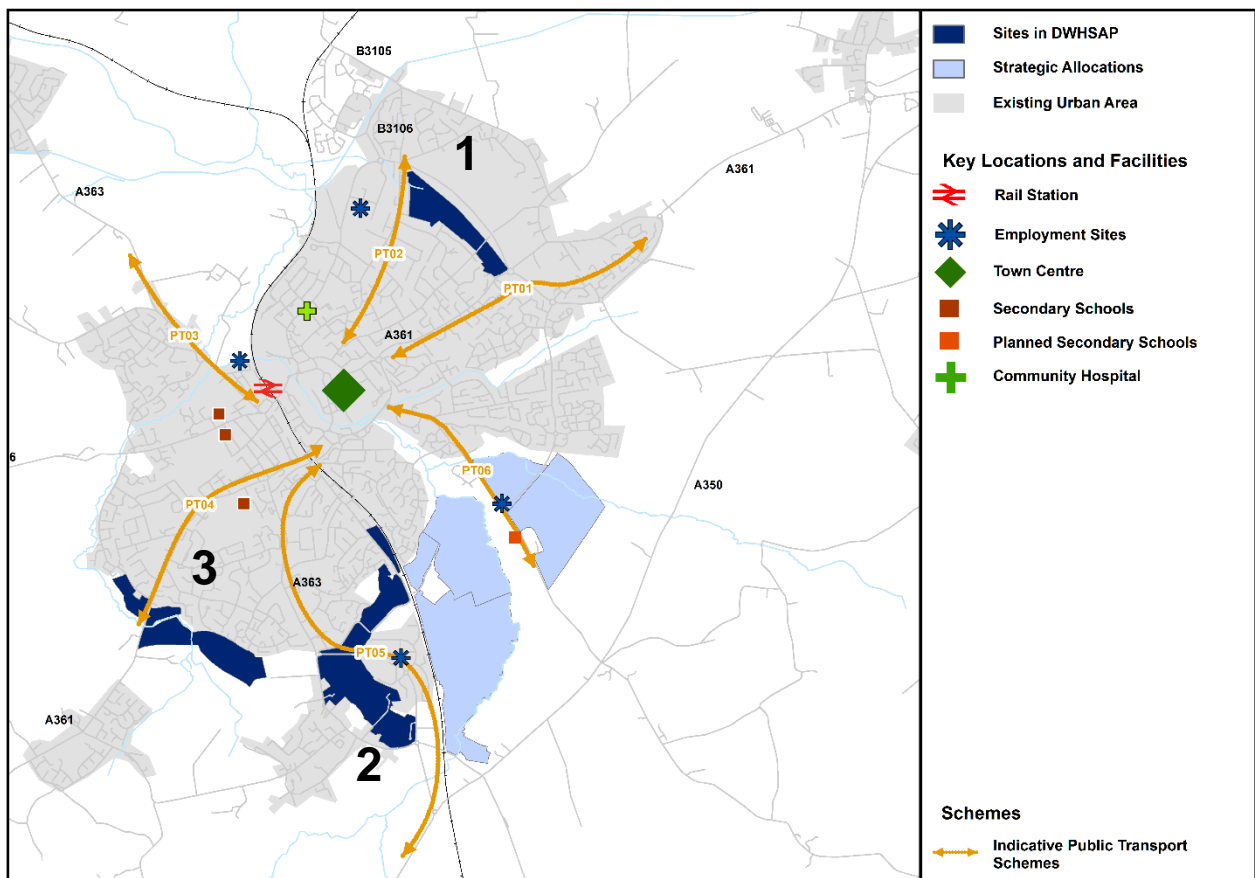
Table 4-4 Public Transport Schemes

Ref #	Public Transport Schemes	Indicative costs	Issues (Refers to Table 2-1)	Objectives (Refers to Figure 3.1)
38	Trans Wilts 'Improving Wiltshire's Rail Offer' - capacity enhancements	-	2.3.8	2, 9
	LSTF Trowbridge Rail Station package - improved station access for all modes	-	2.3.8	2, 9

³⁸ Delivered improvement since 2012 through LSTF funded station package and capacity enhancements.

Ref #	Public Transport Schemes	Indicative costs	Issues (Refers to Table 2-1)	Objectives (Refers to Figure 3.1)
PT01	A361 Hilperton Road Corridor Upgrade - Hilperton to Town Centre	£370,000	2.1.1, 2.3.6, 2.3.7	1, 2, 4, 5, 8
PT02	B3106 Corridor Upgrade - Hilperton Marsh to Town Centre	£286,000	2.1.1, 2.3.6, 2.3.7	1, 2, 4, 5, 8
PT03	Bradford Road Corridor Upgrade - Widbrook Hill to Town Centre	£286,000	2.3.6, 2.3.7	1, 2, 4, 5, 8
PT04	A361 Frome Road Corridor Upgrade - Studley Green to Town Centre	£310,000	2.1.1, 2.3.6, 2.3.7	1, 2, 4, 5, 8
PT05	A363 Bradley Road Corridor Upgrade - Yarnbrook to Town Centre	£486,000	2.1.1, 2.3.6, 2.3.7	1, 2, 4, 5, 8
PT06	West Ashton Road/A363 Corridor Upgrade - New service from Ashton Park	£250,000	2.1.1, 2.3.6, 2.3.7	1, 2, 4, 5, 8
Total Capital Cost		£1.9 million		

Figure 4-2 Public Transport Network Improvements



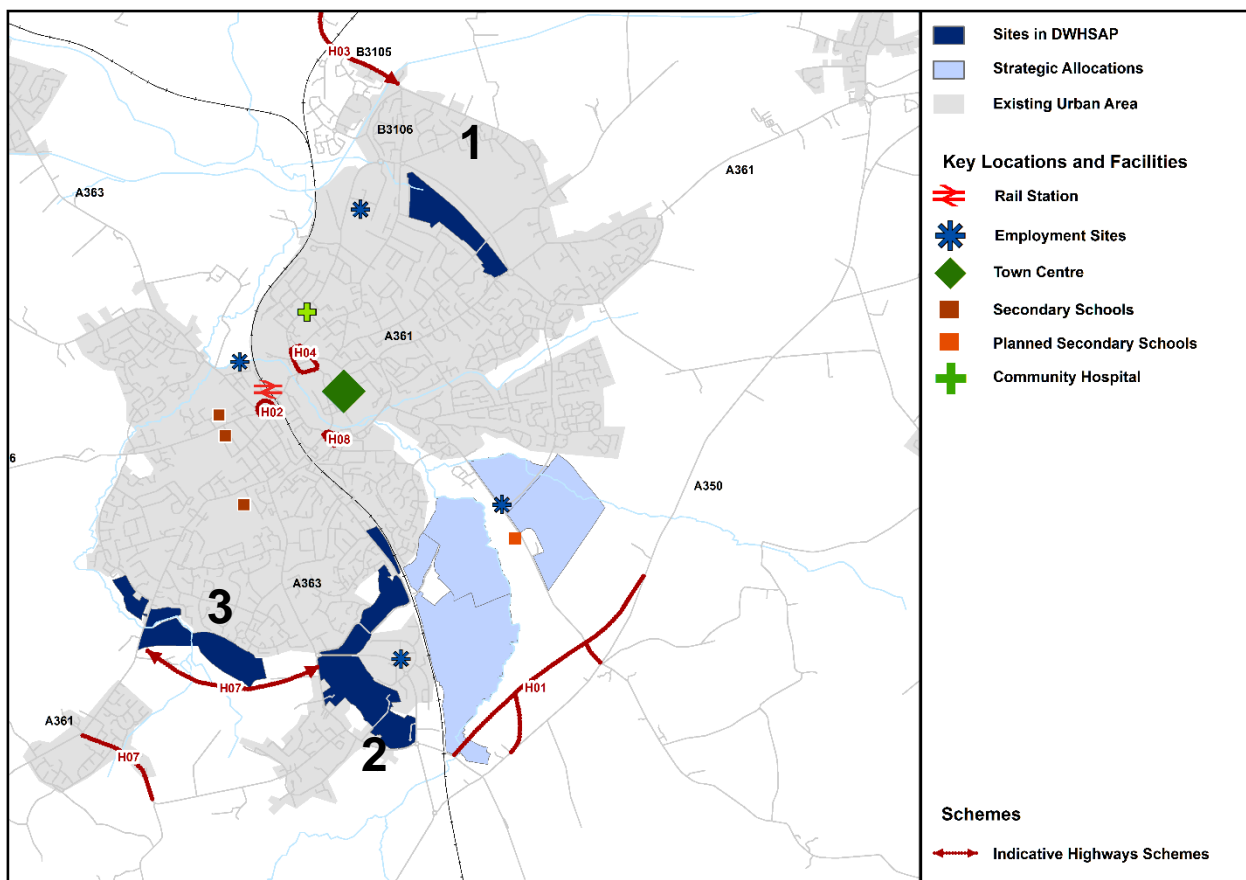
Highway and Parking Schemes

- 4.14. Highways and parking schemes, listed in Table 4-5 aim to improve the key network locations for the benefit of all road users. The Holy Trinity Gyratory improvements consist of improved/additional signals, while public realm enhancements are considered as part of the two-way working of Hill Street, along with schemes to manage parking and promote new technologies.
- 4.15. The Staverton bridge improvement seeks to ban southbound movements from Holt, to enable fewer phases on the traffic signals. The B3105 at Staverton has been identified through the Freight Assessment Prioritisation Mechanism (FAPM) as a priority for further investigation with a view to identifying appropriate freight management interventions. Scheme options for Longfield Gyratory improvements have been worked up in 2017/18 through the National Productivity Infrastructure Fund (NPIF).

Table 4-5 Highway and Parking Schemes

Ref #	Highway and Parking Schemes	Indicative costs	Issues (Refers to Table 2-1)	Objectives (Refers to Figure 3.1)
H01	A350 Yarnbrook and West Ashton Relief Road	£25.88 million	2.1.3, 2.2.1, 2.2.2	2, 3
H02	A361 Holy Trinity Gyratory capacity improvements for all modes	£1 million	2.1.3, 2.2.2, 2.3.1	2
H03	B3105 Staverton bridge improvement	£150,000	2.2.2, 2.3.3, 2.3.4.	2
H04	Delivery of two-way traffic on Hill Street, Upper Broad Street and Conigre	£1 million	2.2.2, 2.3.3, 2.3.1.	2
H05	Embrace future technologies – Priority spaces in car parks to encourage electric charge points	£60,000	2.3.9	8
H06	Manage car park supply and demand (charges and time of stay) through integrated on-street and off-street parking strategy	£50,000	2.3.5, 2.3.9	8
H07	A361 to A363 Link Road (including traffic calming on Wynsome Street). Taken forward for modelling as part of Option B	£7 million*	2.1.3, 2.2.2, 2.3.1	2
H08	Longfield Gyratory improvements	£2 million	2.1.3, 2.2.2	2
Total Capital Cost		£30.14 million (without *A361/A363 link road) £37.14 million (with *A361/A363 link road.)		

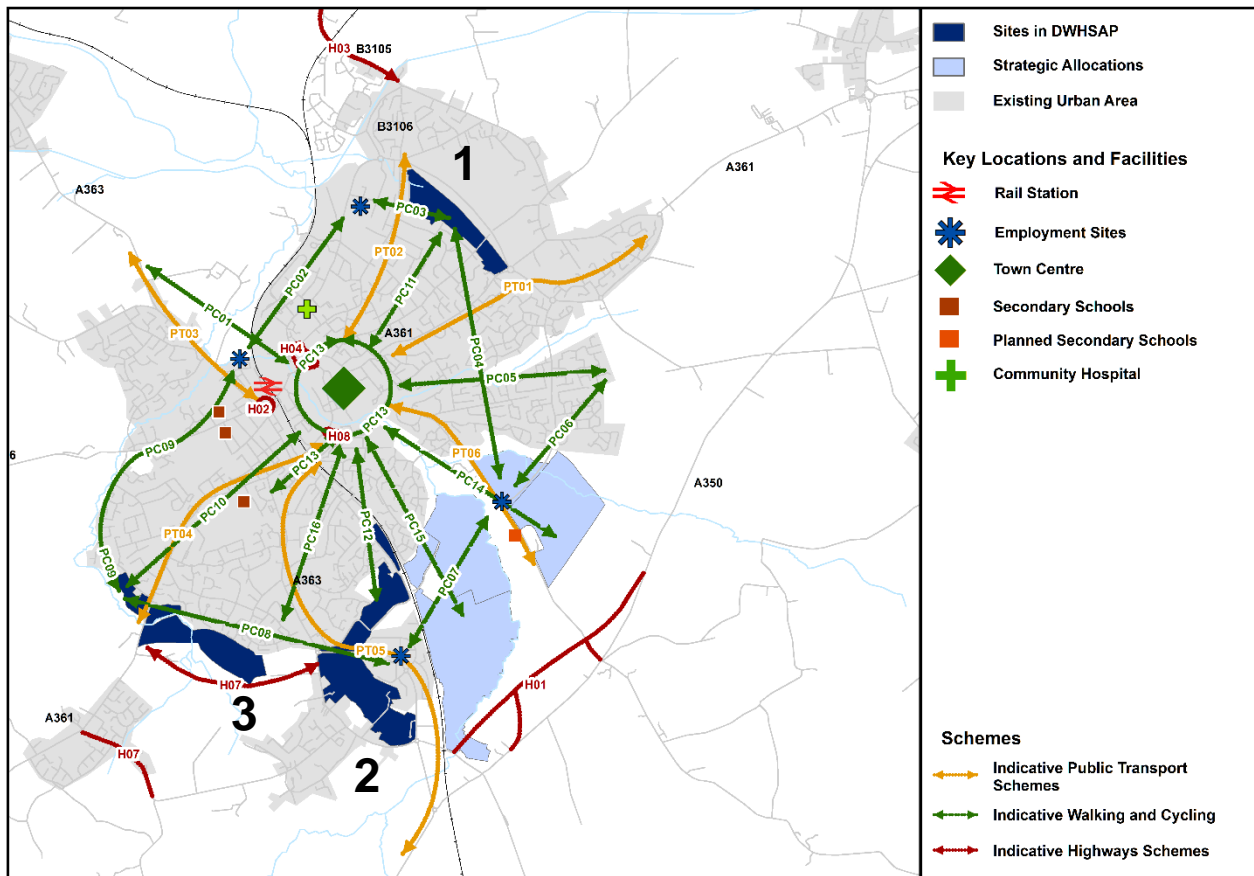
Figure 4-3 Highway and Parking Schemes



All Transport Strategy Refresh Schemes

4.16. Figure 4-4 presents highways, public transport and walking and cycling schemes together, displaying the scheme coverage across Trowbridge.

Figure 4-4 Potential Scheme Coverage - All Schemes



Developing Schemes for Strategy Refresh Testing

- 4.17. As outlined in paragraph 2.11-2.26, the **Do-Minimum** model scenario (consisting of 2026 Reference Case plus an additional 800 or 1,118 homes from the DWHSAP), is forecast to cause increased delay across the network. This highlights the need for schemes to be developed to help address future congestion issues, along with supporting the objectives in Chapter 3.
- 4.18. The schemes outlined throughout Chapter 4 will be tested in order to forecast the extent to which the proposed schemes mitigate the impacts of the DPD sites. Testing outputs can therefore provide an indication as to whether the **'With Strategy'**³⁹ package of schemes proposed is likely to benefit the town in transport terms as well as successfully deliver against the issues and schemes previously mentioned. The outputs of the modelling are presented in Chapter 6.

³⁹ 'With Strategy' package refers to the Do-Something modelling run.

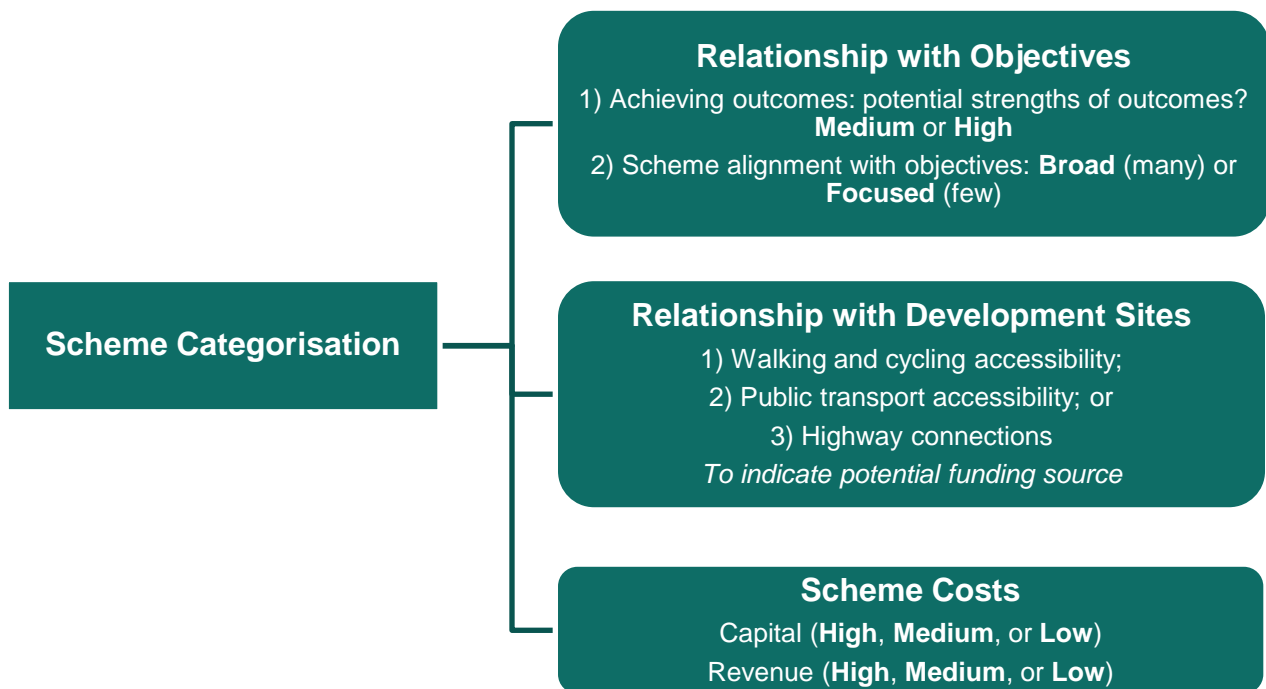
5. Scheme Categorisation

- 5.1. This Chapter provides a framework for moving from a list of concept schemes (as documented in Chapter 4) towards a prioritised scheme delivery and funding plan. It is based on information that is currently available and will be subject to change as more detailed scheme development and impact assessment work is undertaken.

Categorisation Approach

- 5.2. Categorisation provides a structure for understanding a scheme's potential impact, its relationship with development sites, costs, and potential funding sources. It also provides a basis on which schemes can be prioritised to reflect funding availability.
- 5.3. Figure 5-1 outlines the process by which schemes have been categorised. The process considers the schemes and their relationship to the strategy objectives, development sites, and (revenue and capital) costs.

Figure 5-1 Scheme Categorisation



Detail on the methodology for the categorisations are provided in the remainder of this Chapter.

Relationship with Objectives

- 5.4. Assessing schemes' relationships with objectives is important for understanding their subsequent effects on the overarching Transport Strategy Refresh. Each scheme has been scored according to:

- The potential ‘strength’ of outcomes that are expected to result from the scheme; and
- The number of objectives to which the scheme is aligned.

5.5. Each of the schemes have been assessed separately against the nine transport objectives using a straightforward scoring system which considers whether the scheme meets the objective and the potential level of contribution the scheme would make towards achieving the outcomes of that objective.

5.6. Following the scoring, schemes have been placed into a matrix to mark their ability to deliver its intended outcomes as well as its alignment: how many objectives the scheme is likely to deliver positive outcomes for. For outcomes, a scheme is either a High Outcome or Medium Outcome, with High being a scheme that will almost certainly deliver its intended outcomes and Medium having less certainty in the likelihood of delivery. For alignments, a Broad Alignment will suggest that the scheme is likely to deliver positive outcomes against 6 or more objectives, while a Focused Alignment will deliver positive outcomes for less than 6.

5.7. The outcome of this categorisation is provided in Table 5-1. The categorisation highlights the following notable results:

- All public transport schemes have the potential to deliver high outcomes and contribute to a broad range of objectives;
- Smarter choices schemes have the potential to deliver medium outcomes against a broad range of objectives; and
- Highways schemes are likely to deliver medium outcomes against focused objectives, however journey time/reliability benefits across the town are likely to be high.

Table 5-1 Relationship with Objectives

Alignment with Objectives	Broad	SC01, SC02	PT01, PT02, PT03, PT04, PT05, PT06, PC05, PC10, PC13, PC14, PC15, PC16
	Focused	H01, H02, H03, H04, H05, H06, H07, H08	PC01, PC02, PC03, PC04, PC06, PC07, PC08, PC09, PC11, PC12
		Medium	High
Transport Outcomes			

Relationship with Development Sites

5.8. Categorising transport schemes with regards to their relationship with development sites is an important process in indicating which of the proposed schemes are necessary to support planned growth in specific locations.

5.9. The overall need for each scheme can be explained with reference to the transport issues outlined in Trowbridge (Chapter 2), the objectives established for Transport Strategy Refresh (Chapter 3), and the relationships between issues, objectives and schemes (Chapter 4). The purpose of this Chapter is to take forward the schemes and map them to identify spatial

relationships between schemes and development sites. This approach is used in determining which schemes are related to the development sites. Schemes are assessed according to their characteristics:

- Type 1: Pedestrian and cycling accessibility;
- Type 2: Public transport accessibility; and
- Type 3: Highway connections.

5.10.

A range of potential funding sources for each scheme will be outlined, although it must be noted that this Transport Strategy Refresh does not seek to identify a specific funding source for each scheme. Funding sources will be largely determined by whether a scheme is:

- Directly related to a development;
- Necessary for a development;
- Fairly and reasonably related in scale and kind to a development; and
- Necessary to address the cumulative impacts of development.

5.11.

Available funding sources for schemes can include:

- Section 106 contributions secured during the planning application process;
- Community Infrastructure Levy (CIL) payments;
- Local Growth Fund (LGF) contributions secured through business case submissions to the Swindon and Wiltshire Local Enterprise Partnership; and
- Future funding possibilities opened up by Central Government.

5.12.

Schemes identified as directly related to development sites should be considered and potentially developed further as part of a transport assessment which would complement a planning application.

5.13.

Smarter choices (SC01 and SC02) will be required at all development sites and implemented in accordance with Wiltshire Council guidance.

5.14.

Schemes that provide direct access from development sites to key locations can be considered 'directly related' schemes, while 'cumulative' schemes provide access to key locations but are not directly linked to a specific development site.

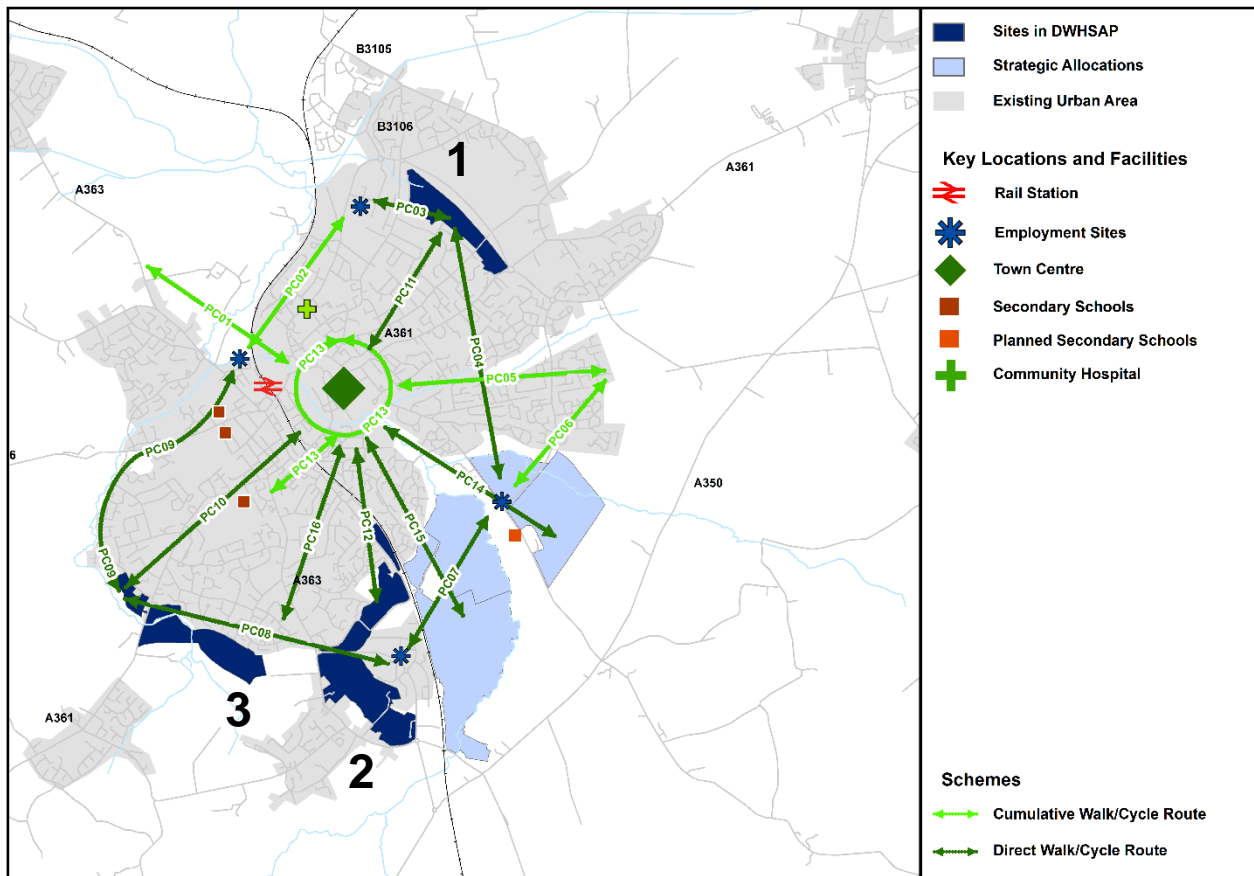
Type 1: Pedestrian and cycling accessibility

- A number of necessary pedestrian and cycle network schemes (routes / corridors) have been identified within the transport strategy. The routes have been assessed to identify the key locations they provide access to and the development sites to which they connect, both directly and indirectly.
- The schemes that provide direct access from development sites to the key locations or those which are entirely within development sites can be considered to be 'directly related' schemes. Those schemes which provide access to key locations but which are not directly linked to a development site can be considered as 'cumulative' (indirect) schemes.
- The assessment is summarised in Figure 5-2 and Table 5-2.

Table 5-2 Pedestrian and Cycle Schemes - relationship to Development Sites

	DWHSAP Cluster 1	DWHSAP Cluster 2	DWHSAP Cluster 3	Ashton Park
PC01 - Widbrook Hill to Town Centre	-	CUMULATIVE to Bradford Road	-	
PC02 - Hilperton Marina to Town Centre	CUMULATIVE to Bradford Road	-	CUMULATIVE to Canal Road	-
PC03 - Hilperton Marsh to Canal Road	DIRECT to Canal Road	-	-	-
PC04 - Hilperton Marsh to West Ashton	DIRECT to West Ashton	-	-	-
PC05 - Hilperton to Town Centre	-	-	-	-
PC06 - Hilperton to West Ashton	-	-	-	-
PC07 - West Ashton to White Horse Business Park	CUMULATIVE to White Horse	-	CUMULATIVE to West Ashton	DIRECT to Ashton Park and Bradley Road
PC08 - Studley Green to White Horse Business Park	-	DIRECT to White Horse	DIRECT to White Horse	-
PC09 - Studley Green to Bradford Road	-	CUMULATIVE to Bradford Road	DIRECT to Bradford Road	-
PC10 - Studley Green to Town Centre	-	-	DIRECT to town centre	-
PC11 - Hilperton to Town Centre	DIRECT to town centre	-	-	-
PC12 - North Bradley to Town Centre	-	DIRECT to town centre	-	-
PC13 - Town Centre improvements (including County Way and Trowbridge Rail Station)	CUMULATIVE to town centre	CUMULATIVE to town centre	CUMULATIVE to town centre	CUMULATIVE to town centre
PC14 - Biss Meadows to Town Centre	-	-	-	DIRECT to town centre
PC15 - Drynham to Town Centre	-	-	-	DIRECT to town centre
PC16 – Southwick Court to Town Centre	-	-	DIRECT to town centre	-

Figure 5-2 Pedestrian and Cycle Network Schemes - relationship to Development Sites



Type 2: Public transport accessibility

5.15. Paragraphs 2.6-2.10 outline issues regarding sustainable transport access from development sites to key destinations such as the town centre and employment sites. In particular, it summarises issues regarding the existing bus service network and bus frequencies, as well as the proximity of bus stops and the subsequent bus network, to development sites. Schemes have been developed to enhance public transport along existing and potential future corridors in Trowbridge with the aim of alleviating the outlined issues and assist in serving development sites. The public transport corridors for which improvements are planned for, are outlined in Figure 5-3.

5.16. The purpose of this Section is to determine whether a proposed public transport corridor upgrade scheme is necessary to provide direct public transport access from development sites to key destinations and thus mitigate the negative impacts associated with the current public transport offer. The assessment has been carried out by the following process:

- Identifying the bus corridors that would be used by potential employees/residents of the development site; and
- Identifying which schemes are on these bus corridors, and therefore would improve access from the development sites to key destinations.

5.17. Table 5-3 outlines the existing public transport services which would assist in serving the development sites. Development sites will require public transport schemes on the following corridors to attain good levels of accessibility for future residents/employees of the development sites:

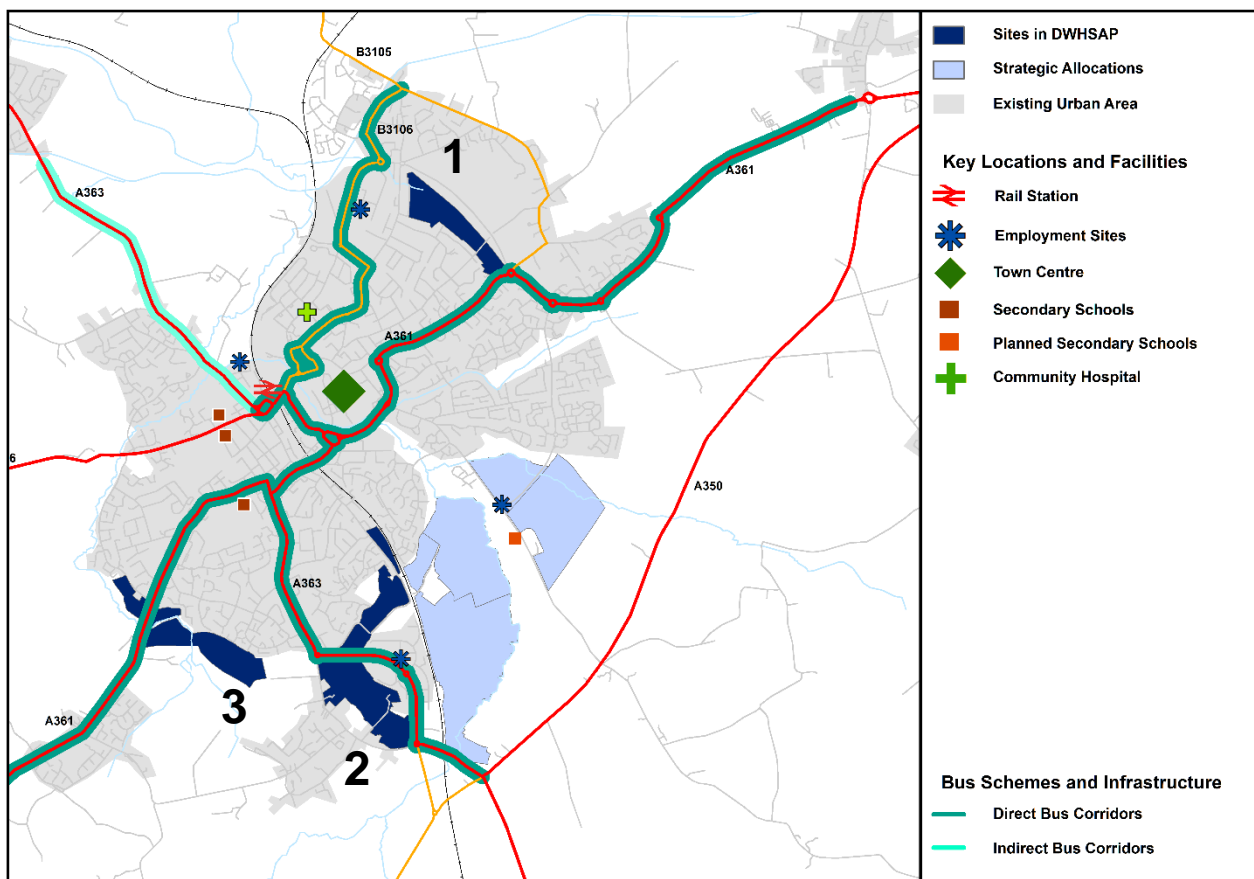
- A361 Hilperton Road (for Cluster 1);
- A363 Bradley Road (for Cluster 2 and 3);
- B3106 (for Cluster 1);
- A361 Frome Road (for Cluster 3); and
- West Ashton Road/A363 (for Ashton Park).

Table 5-3 Public Transport Schemes - relationship to Development Sites

		DWHSAP Cluster 1	DWHSAP Cluster 2	DWHSAP Cluster 3	Ashton Park
Current Bus Provision	Existing Bus Services	Direct services from Hilperton Road: 49 every hour, 77 - 1 service per day. Direct services from Wyke Road: 68 - hourly frequency, X34 - hourly service. Direct services from Canal Road: 265: maximum 2 per hour, 87: every 1 or 2 hours, 68: hourly frequency, 49: hourly, 77: 1 service per day, 67: afternoon every hour, 60: every hour.	Direct services from A363: 87 every 1 or 2 hours, 265 maximum 2 per hour frequency.	Direct services from Frome Road and Bradley Road: 265 maximum 2 per hour frequency, 87: every 1 or 2 hours, 60: every hour, 49: hourly, 77: 1 service per day, 67: afternoon every hour	-
	Bus Corridors	A361 Hilperton Road / B3106 Canal Road	A363 Bradley Road	A361 Frome Road / A363 Bradley Road	-

Public Transport Schemes	Bus Corridor Enhancement Schemes for Direct Access	PT01, PT02	PT05	PT04	-
	Bus Service Schemes for Direct Access	-	-	-	PT06
	Cumulative Impact Schemes	PT03 – Improved public transport infrastructure from the town centre/ Trowbridge Rail Station to Bradford Road			

Figure 5-3 Public Transport Network - relationship to Development Sites



Type 3: Highway connections

5.18. Highway schemes have been identified and developed on the basis of forecast highway network performance as a result of future development. Schemes are therefore necessary infrastructure measures for delivering the development sites.

5.19. Some of these schemes will be required to deliver a specific development site or group of sites (schemes located on a 'direct route' to a development site) while others will be required to address the cumulative impacts of development (schemes located on a 'cumulative route'). These routes and their relationships with the development sites are illustrated in Figure 5-4. The process for identifying direct and cumulative routes is explained below:

- Identify the main access routes for each development site;
- Identify the section of highway network that is very likely/almost certain to be used by the development site's future traffic; and
- Identify the full route that development-related traffic will likely use to access the town centre, secondary schools, employment centres and the A350.

Direct and cumulative routes are listed below, along with the justification used in their identification.

Direct Route 1 (A361 Frome Road): Route from Cluster 3 eastwards to County Way. Development traffic from Cluster 3 would use the route to access the town centre, the Trowbridge Rail Station and employment sites such as Bradford Road and Canal Road.

Direct Route 2 (A363 Bradley Road): Route linking Ashton Park development site, Bradford Road employment site, as well as Cluster 2 to County Way. Development traffic from Ashton Park and Cluster 2 would use the route to access the town centre, Trowbridge Rail Station and the Bradford Road and Canal Road employment sites.

Direct Route 3 (West Ashton Road): This route links Ashton Park and its employment site to County Way. Development traffic would use this route to access the town centre, Trowbridge Rail Station and the Bradford Road and Canal Road employment sites.

Direct Route 4 (Leap Gate): Route linking A361 Hilperton Road and West Ashton Road. This route could potentially allow movement between Ashton Park and the Ashton Park employment area.

Direct Route 5 (Elizabeth Way): This route allows access to and from Cluster 1. Development site traffic can use this route for two purposes: to access the B3106 for Canal Road/Staverton area, as well as to access the A361 Hilperton Road for town centre, Trowbridge Rail Station and Bradford Road usage.

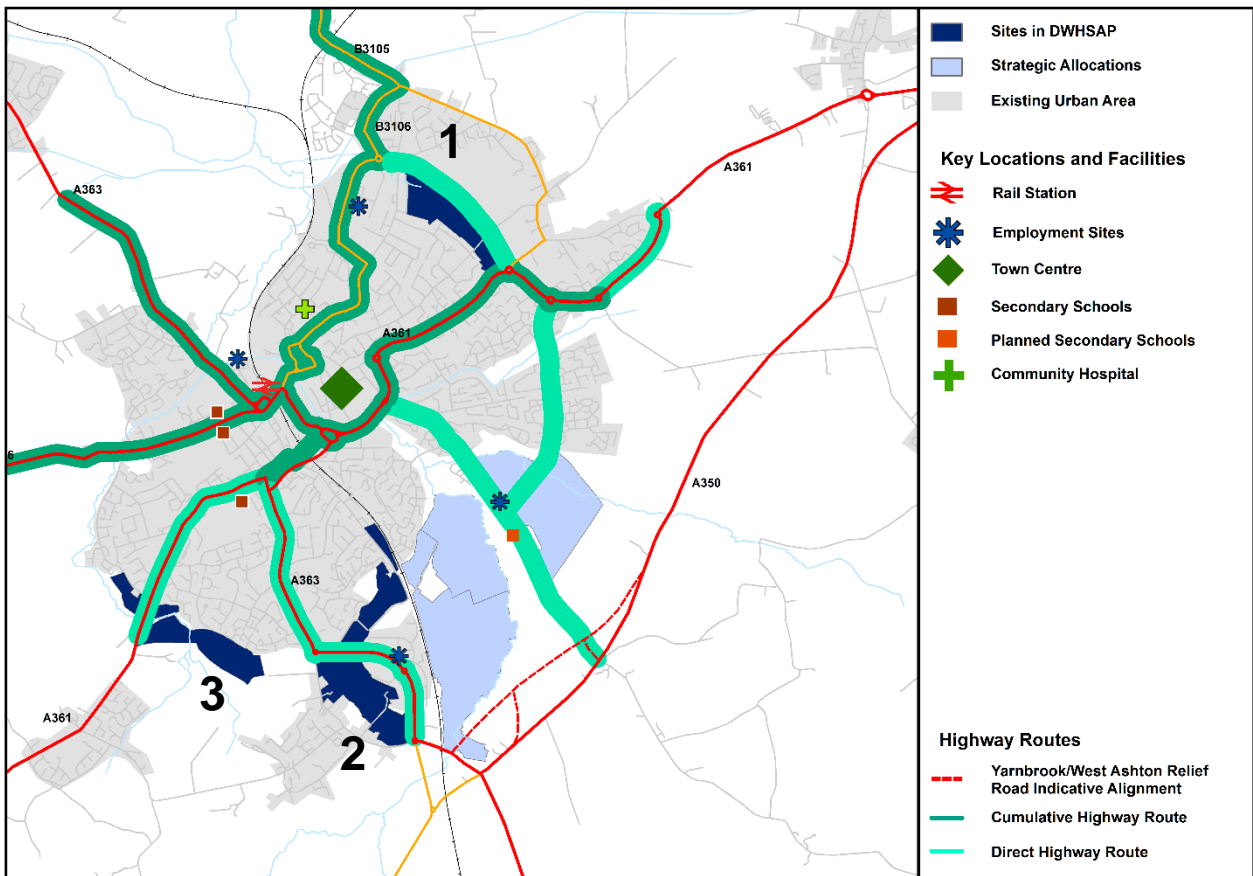
Cumulative Route 1 (Town Centre and Trowbridge Rail Station): Routes where the Cumulative Routes 2, 3, 4 and the Direct Routes 1 and 2 converge. Traffic crossing the town centre could be associated with traffic from all development sites.

Cumulative Route 2 (B3106 towards Staverton): Route linking Staverton to the town centre would be used by traffic from Cluster 1. This route also provides access to the Community Hospital.

Cumulative Route 3 (A361 Hilperton Road): Route linking Hilperton to the town centre would potentially be used by traffic from Cluster 1, and a portion of 3.

Cumulative Route 4 (A366 Wingfield Road/Bradley Road): Route links the town centre to Trowbridge Rail Station, Bradford Road employment area as well as secondary schools.

Figure 5-4 Direct and Cumulative Impact Highway Routes



Cost Categorisation

5.20. High-level costings have been produced for schemes. Schemes have been costed using reference to the costs of similar schemes which have been created and implemented across the UK.

5.21. The schemes have been assigned to the following cost categories:

Table 5-4 Cost Categorisation

Estimated capital cost	High (£5m+)		H01*, H07
	Medium (£1m - £5m)		H02, H04, H08
	Low (less than £1m)	H03, H05, H06 SC01, SC02 PC01, PC02, PC03, PC04, PC05, PC06, PC07, PC08, PC09, PC10, PC11, PC12, PC13, PC14, PC15, PC16	PT01, PT02, PT03, PT04, PT05, PT06
		Low (less than £0.1m p.a.)	High (more than £0.1m p.a.)
Estimated revenue cost			

Schemes in bold were identified as 'High Outcome' in Table 5-2
H01* YAWARR Costs based on current estimates for out turn costs.

6. Strategy Refresh Testing

Introduction

- 6.1. The use of a transport model is an effective way to forecast the likely impacts of a transport strategy across the transport network. The model can be used to compare the forecast future situation with and without the strategy measures. Although it is not possible to represent every scheme in a model, or to assess every intended strategy outcome, the model outputs can be used to provide an indication as to whether the package of measures proposed is likely to deliver the required outcomes.
- 6.2. This Chapter outlines the method used to forecast the impacts of the transport measures identified in the Transport Strategy Refresh. The forecast impacts are then presented alongside the intended strategy outcomes.
- 6.3. Model outputs have been used to assess the strategy against the following outcomes:
 - Maintain transport network performance (no worsening) (Objective 2 outcome); and
 - Improved journey times and reliability on A350 will help improve north-south connectivity on the A350 corridor” and result in less traffic using inappropriate routes through the town to avoid delays on the A350. (Objective 3 outcome).

Methodology

- 6.4. The Trowbridge Traffic Model is a strategic highway assignment model (SATURN model) which can be used for assessing strategic impact of highway schemes in Trowbridge. The model was re-validated in 2014 with new data. The model has a single vehicle user class with demand represented as passenger car units (PCUs).
- 6.5. The Trowbridge Traffic Model has been used to forecast the impacts of the Transport Strategy Refresh in both the morning (08:00-09:00) and evening (17:00-18:00) peak hours, using a 2026 forecast year to align with additional housing growth planned for in the DWHSAP.
- 6.6. Two scenarios have been developed in agreement with Wiltshire Council transport officers, which include levels of development consistent with the Wiltshire Core Strategic site allocations and planned housing growth allocated in the DWHSAP. The forecast impact is summarised in Table 6-1.
- 6.7. Given that some schemes cannot be represented in the transport model, the actual benefits of the Transport Strategy Refresh are likely to be greater than reported in this document. Similarly, many of the schemes that can be modelled are at concept stage and have not yet been optimised to achieve the best possible outcome. The forecasts contained in this Chapter are therefore only indicative of what the strategy might achieve.

Modelling Scenarios

'Without Strategy'

- 6.8. The 'Without Strategy' consists of two modelling scenarios, which are useful to compare the impacts of the 'With Strategy' scenarios and the subsequent impact of the planned highway interventions.

- **Reference Case:** is taken from the 2015 Yarnbrook and West Ashton Relief Road OBC and therefore includes the YAWARR.
- **Do-Minimum:** consists of two growth scenarios.
 - **Low:** 800 additional dwellings; and
 - **High:** 1,118 additional dwellings.

‘With Strategy’

- 6.9. The ‘With Strategy’ presents the transport strategy’s mitigation scenarios, aiming to understand the impacts of the planned highway interventions outlined in Chapter 4. The ‘With Strategy’, also referred to as the Do-Something, consists of two scenarios:
- 6.10. **Test A** includes the following highway mitigation schemes:
- Holy Trinity Gyratory- Conversion to a 4-arm signalized junction;
 - B3105 Staverton ban of southbound movements on the B3016 towards the signal junction; and
 - Changing the one-way system to two-way traffic on Hill Street, Upper Broad Street and Conigre.
- 6.11. **Test B** includes the following highway mitigation schemes:
- Holy Trinity Gyratory- Conversion to a 4-arm signalized junction;
 - B3105 Staverton ban of southbound movements on the B3016 towards the signal junction;
 - Changing the one-way system to two-way traffic on Hill Street, Upper Broad Street and Conigre; and
 - A361-A363 Local distributor road serving Cluster 2 and 3 with traffic calming on Wynsome Street in Southwick to deter use by freight traffic.

Scheme Modelling

- 6.12. Tests A and B have been analysed in the Trowbridge Strategic Highway model to compare the impact of the mitigation package ‘with strategy’ to the Do-Minimum ‘without strategy’ for low and high growth scenarios.

Highways Schemes

- 6.13. Using the Trowbridge Traffic Model, it has been possible to assess the majority of highway schemes against the (Do-Minimum) scenario presented in paragraph 0. It is not possible to test schemes specifically related to technology, road safety or parking (schemes H05 and H06).

Public Transport Schemes

- 6.14. Published evidence shows that investment in bus corridors and the door to door journey can deliver an increase in 11% in bus patronage⁴⁰.

Walking and Cycling Schemes

- 6.15. Walking and cycling schemes form a comprehensive network in the main core of Trowbridge. The potential for mode shift was therefore considered throughout the town, for journeys under 5km. Growth rates have been derived from published evidence on the impacts of Cycle Demonstration Towns which demonstrated that a sustained and well-designed programme of investment walking and cycling at about the level of £10 per head of population was sufficient, to achieve an increase in walking and cycling.⁴¹ Growth rates are estimated at 12% for cycling and 10% for walking with a reduction in car use of 2.5%.

⁴⁰ https://bristol.citizenspace.com/city-development/better-bus-area-fund-hotwell-road-a4/user_uploads/appendix-a-gbbn-monitoring-report-final.pdf

⁴¹ <https://www.cyclinguk.org/sites/default/files/document/migrated/news/analysis-and-synthesis-report.pdf>

'With Strategy' Tests A and B: Comparison of Impacts

Modelling Results

Network-Wide Impacts

- 6.16. Analysis of the modelling outputs has been undertaken to enable a comparison between the effectiveness of the low scenario against the high scenario, as well as against the 'Without Strategy' modelling scenarios. Table 6-1 outlines the network-wide impacts of the 'With Strategy' Do-Something scenarios as well as the Do-Minimum.

Table 6-1 Forecast Impacts of the Trowbridge Transport Strategy Refresh - 'With Strategy' Tests A and B

AM -08:00-09:00 PM 17:00-18:00		Reference	Do-Minimum		Do-Something Test A		Do-Something Test B	
			Low	High	Low	High	Low	High
Average delay (minutes)	AM	2.54	2.64	2.63	2.02	2.04	2.02	2.05
	PM	2.09	2.15	2.17	1.94	1.97	1.92	1.95
Network speed (kph)	AM	31.1	30.7	30.7	33.4	33.3	33.3	33.1
	PM	33.4	33.0	32.9	34.0	33.8	33.9	33.7

- 6.17. The global network statistics give an indication of overall network performance for each scenario. They can mask nuances between particular routes and road users but are a good early indication for the extent to which the issues created by the extra development have been mitigated.
- 6.18. The greater the average speed, the better the network performance indicated, while the lower the average delay, the better the network performance indicated. The average speed is increased even beyond the reference case with the mitigation schemes suggesting that they are successfully mitigating the impacts, while the delays are reduced beyond the reference case, suggesting again that the schemes are successfully mitigating the impacts.

Impacts by Corridor

- 6.19. Analysis has been undertaken to understand the impacts of the two tests on a corridor level. Journey times have been extracted for seven key routes into and out of Trowbridge, for the Do-Minimum 'Without Strategy' scenario and both Do-Something 'With Strategy' tests. Figure 6-1 displays the seven routes, while Table 6-2, Figure 6-2 and Table 6-3 outline the journey times along the routes for the Do-Minimum and Do-Something scenarios.

Figure 6-1 Routes in Trowbridge

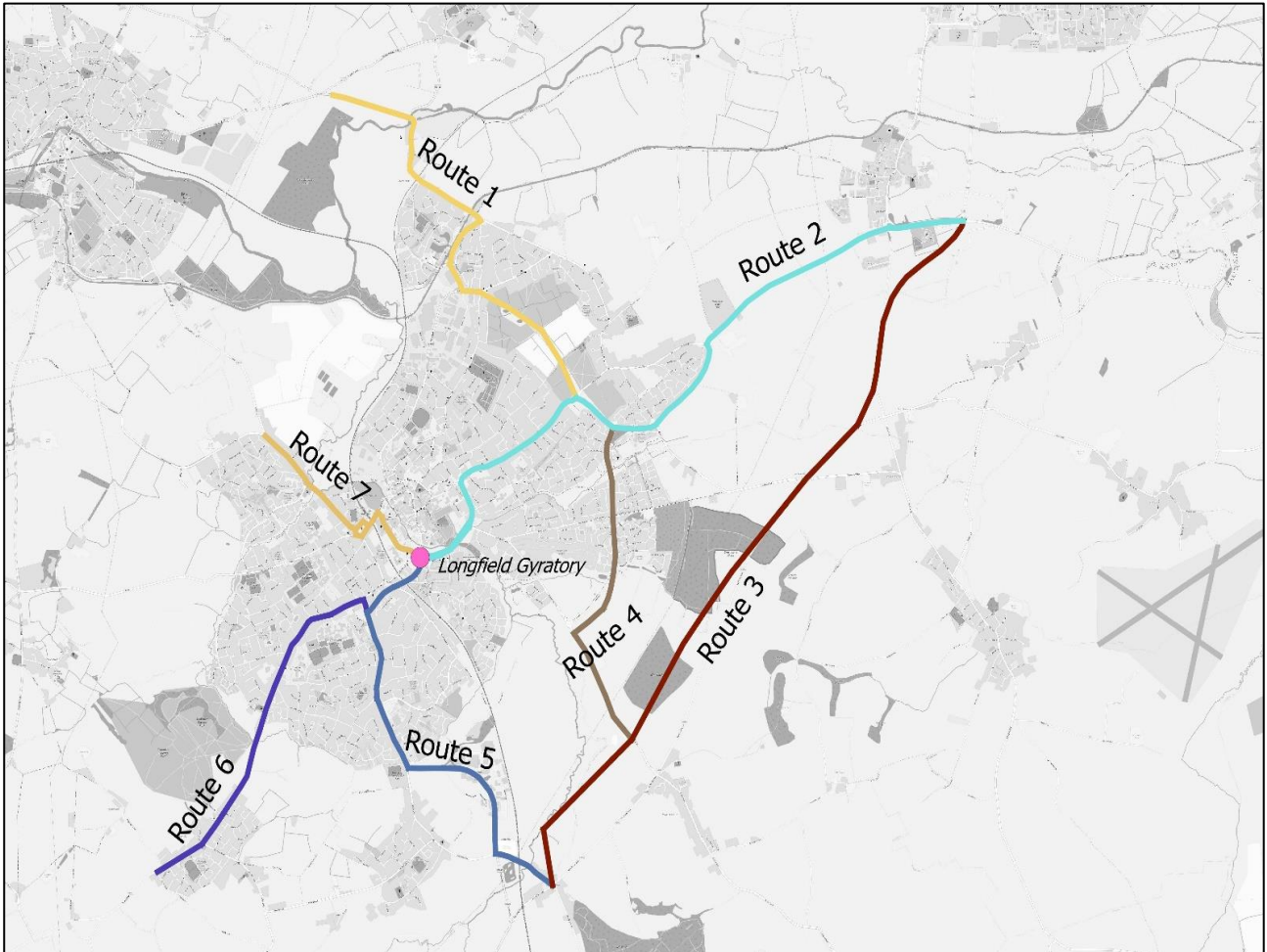


Table 6-2 Comparison of Route Journey Times – AM Peak (08:00-09:00)

Route	Direction	Journey time (minutes)		
		'Without Strategy'	'With Strategy'	
			Do-Minimum	Test A
1	Inbound	17.12	8.96	8.96
2	Inbound	10.12	10.15	9.90
3	Northbound	7.49	7.49	7.49
4	Northbound	3.64	3.64	3.63
5	Inbound	7.63	7.48	7.46
6	Inbound	5.74	5.72	5.78
7	Inbound	8.14	6.06	5.96

6.20. The modelling suggests significant changes in journey time for the following locations in the AM peak. These are highlighted visually in Figure 6-2.

- Significant decrease in journey time on route 1 for both Test A and Test B against the Do-Minimum time;
- Decrease in journey time on route 7 for both tests, with Test A performing marginally worse than Test B; and
- Minor decreases in journey time on route 5 for both tests.

Figure 6-2 Change in Journey Time against the 'Without Strategy' Do-Minimum - AM Peak



Table 6-3 Comparison of Route Journey Times – PM Peak

Route	Direction	Journey time (minutes)		
		'Without Strategy'	'With Strategy'	
		Do-Minimum	Test A	Test B
1	Outbound	6.79	6.07	6.07
2	Outbound	9.89	10.19	10.13
3	Southbound	7.05	7.00	7.00
4	Southbound	3.64	3.65	3.64
5	Outbound	6.82	6.79	6.73
6	Outbound	5.55	5.64	5.69
7	Outbound	4.85	5.55	5.37

6.21. The modelling suggests significant changes in journey time for the following locations in the PM peak. These are highlighted visually in Figure 6-3.

- Significant decrease in journey time on route 1 for both Test A and Test B against the Do-Minimum time;
- Journey time increase on route 2, with Test A performing marginally worse than Test B; and
- Significant increase in journey time on route 7, with Test A performing marginally worse than Test B.

6.22. The increase in journey times forecast on route 2 and 7 are associated with delays at the Longfield Gyratory. Although not modelled as part of the Strategic Highway model, scheme

options have been identified as part of the National Productivity Infrastructure Fund (NPIF) and are being tested in a junction model.

Figure 6-3 Change in Journey Time against the 'Without Strategy' Do-Minimum - PM Peak (17:00-18:00)



Summary

6.23. The two tests have been assessed using Objective 2’s outcome: Maintain transport network performance (no worsening) using network-wide statistics from the Trowbridge Traffic Model. The results of this assessment are provided in Table 6-4.

Table 6-4 Forecast Impacts of the Trowbridge Transport Strategy – ‘With Strategy’ Tests A and B

Desired Outcome	Forecast Outcome in 2026 (compared to ‘Without Strategy’ Do-Minimum scenario)	
	‘With Strategy’ Test A	‘With Strategy’ Test B
Maintain transport network performance (no worsening) (Objective 2 outcome)	<ul style="list-style-type: none"> Average delay forecast to reduce by 22% in the AM peak, and 9% in the PM peak. Network speed is forecast to increase by 8% in the AM peak, and 3% in the PM peak. 	<ul style="list-style-type: none"> Average delay forecast to reduce by 22% in the AM peak, and 10% in the PM peak. Network speed is forecast to increase by 8% in the AM peak, and 2% in the PM peak.

Note: This table summarises the difference between the ‘Without Strategy’ and the ‘With Strategy’ scenarios, therefore highlighting the forecast impact of the strategy itself.

Assessment against Objectives

6.24. The two tests have been assessed against other outcomes / objectives with the use of outputs from the Trowbridge Traffic Model and a qualitative assessment of each option. A summary of this assessment is provided in Table 6-5 below.

Table 6-5 Assessment against Objectives - With Strategy Option A and With Strategy Option B

Desired Outcome	Forecast Outcome in 2026 (compared to 'Without Strategy' scenario)	
	'With Strategy' Test A	'With Strategy' Test B
<i>(Objective 4) Increased number of bus users, which would help improve commercial viability of bus service operations whilst helping to encourage lower car use for short distance journeys to access the town centre.</i>	Forecast to reduce network delays will have a positive impact on operation of bus services in the town.	Forecast to reduce network delays will have a positive impact on operation of bus services in the town.
<i>(Objective 5) Maintain commercial viability of inter-urban bus services and help make bus a convenient alternative to the car for longer distance journeys and maintain commercial bus service operations.</i>		
<i>(Objective 7) Reduce likelihood of accidents & incidents which can result in delays on the highway network whilst improving safety / perception of safety will help make walking and cycling a safer, more attractive and convenient travel option.</i>	Forecast to encourage traffic to use most appropriate routes rather than using inappropriate routes (such as residential streets) and 'rat-running' to avoid delays. This will help improve the perception of safety and complement walking and cycling schemes.	Forecast to encourage traffic to use most appropriate routes rather than using inappropriate routes (such as residential streets) and 'rat-running' to avoid delays. This will help improve the perception of safety and complement walking and cycling schemes.
<i>(Objective 8) Increase accessibility to the town centre will help increase footfall, whilst encouraging more people to walk and cycle to the town centre will help reduce traffic and improve the town centre environment.</i>		
<i>(Objective 9) Current trends in increased rail use will continue whilst additional patronage could be captured. This will help reduce reliance on the car for medium and longer distance journeys to and from Trowbridge.</i>	Forecast to reduce delays on the network and will help access to the Trowbridge Rail Station.	Forecast to reduce delays on the network and will help access to the Trowbridge Rail Station.

Preferred Mitigation Package

- 6.25. The two Tests are forecast to mitigate the impacts of development and perform equally against the nine objectives. The notional road link between the A361 to A363 would deliver a reduction in traffic using Wynsome Street but it is not required to mitigate the traffic impacts of growth. Test A has therefore been assessed to be the preferred option as it provides the benefits to the Trowbridge transport network through improving journey time and reducing delay at a network-wide level, whilst being the lower cost option.

Testing the Preferred Mitigation Package

6.26. Modelling results are provided in Appendix D. As listed in Table 6-4, the preferred option is forecast to reduce delay by 22% and 9% in the AM and PM peaks respectively, while network speed will increase for the AM and PM peaks. Figure 6-4 and Figure 6-5 present the difference in flows across the town, outlining where flows will be higher or lower in the preferred option against the Do-Minimum. It highlights that there will be a reduction in flows at the northern side of the B3105 Staverton junction, due to the southbound movement restriction.

Figure 6-4 AM (08:00-09:00) Flow Difference Plot - Test A against Do-Minimum

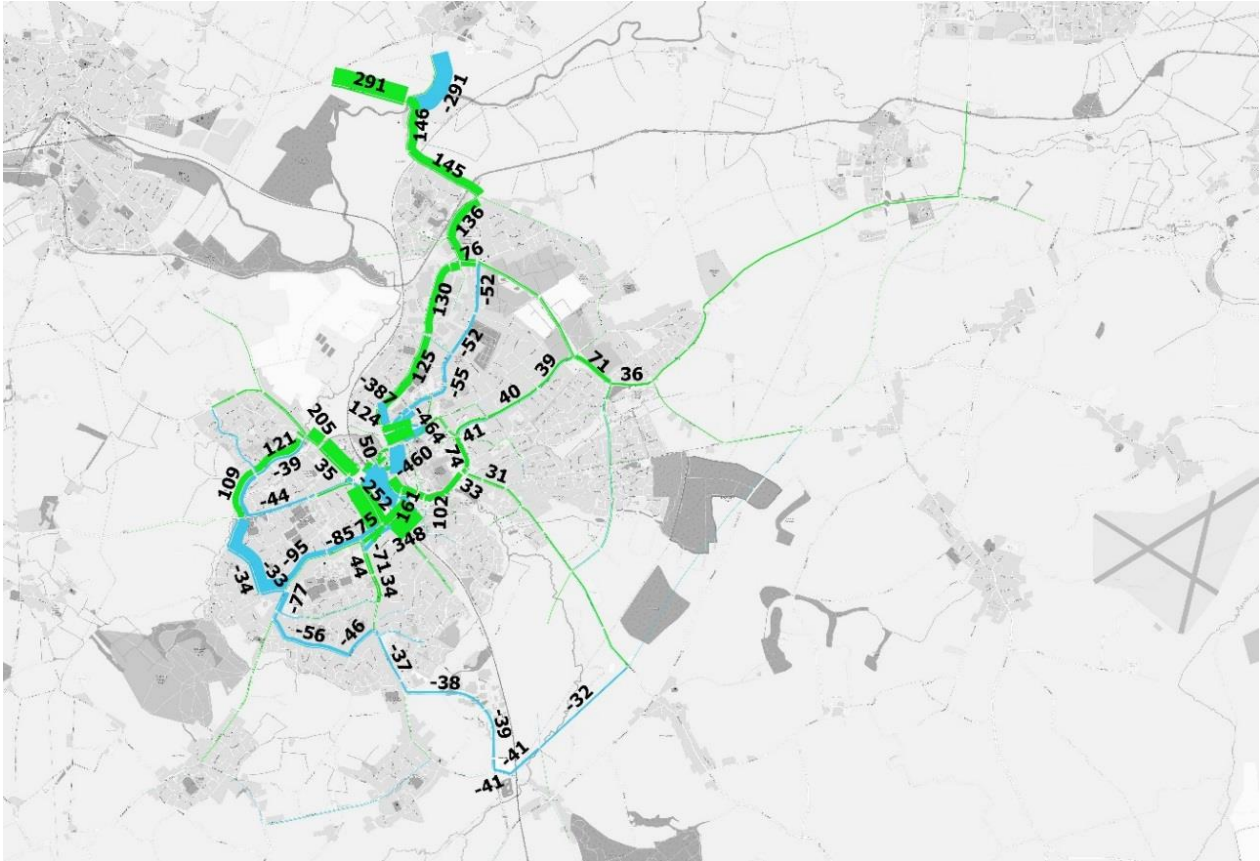
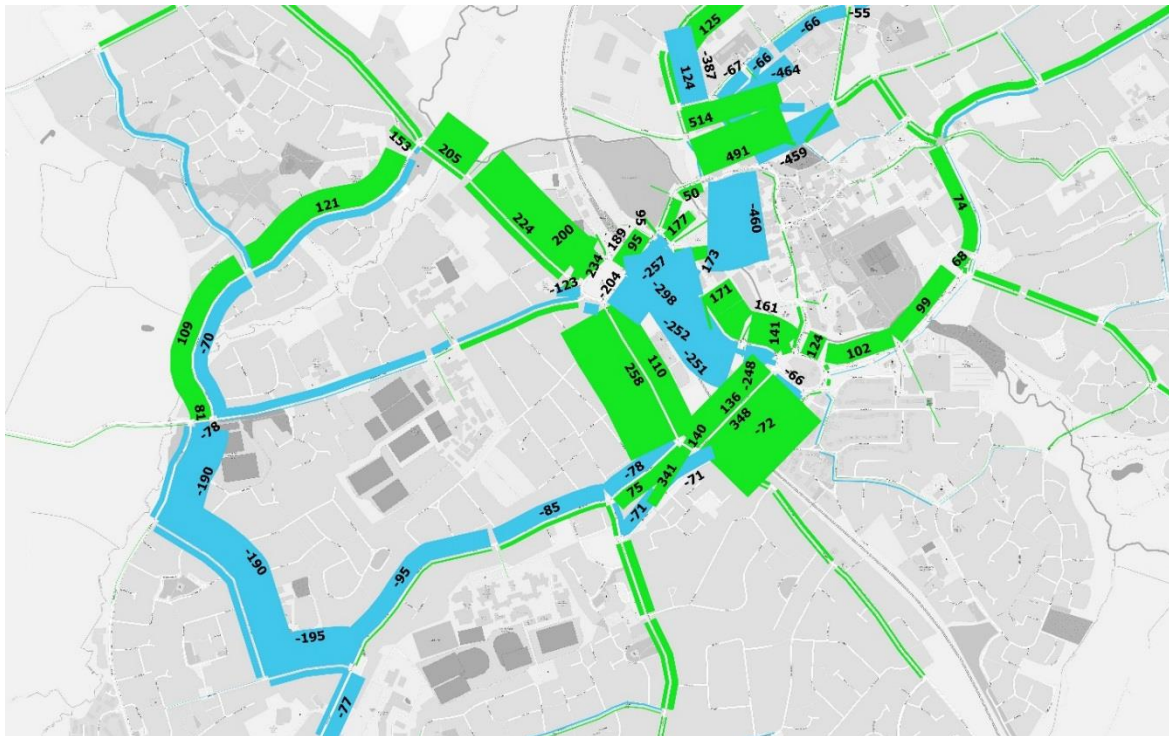


Figure 6-5 AM (08:00-09:00) Town Centre Flow Difference Plot - Test A against Do-Minimum



6.27. Figure 6-6 and Figure 6-7 display the modelled junction volume / capacity for the preferred option. The schemes have a useful impact at Staverton although it is still over capacity at 107% reduced from 122% in the low scenario. Re-routing due to making Hill Street Gyrotary two-way results in a reduction in V/C there to 33.9% from 64.4% but there is an increase on Wicker Hill B3106 from 74.9% to 84.6%

Figure 6-6 AM Junction Volume Capacity Plot - Test A against Do-Minimum

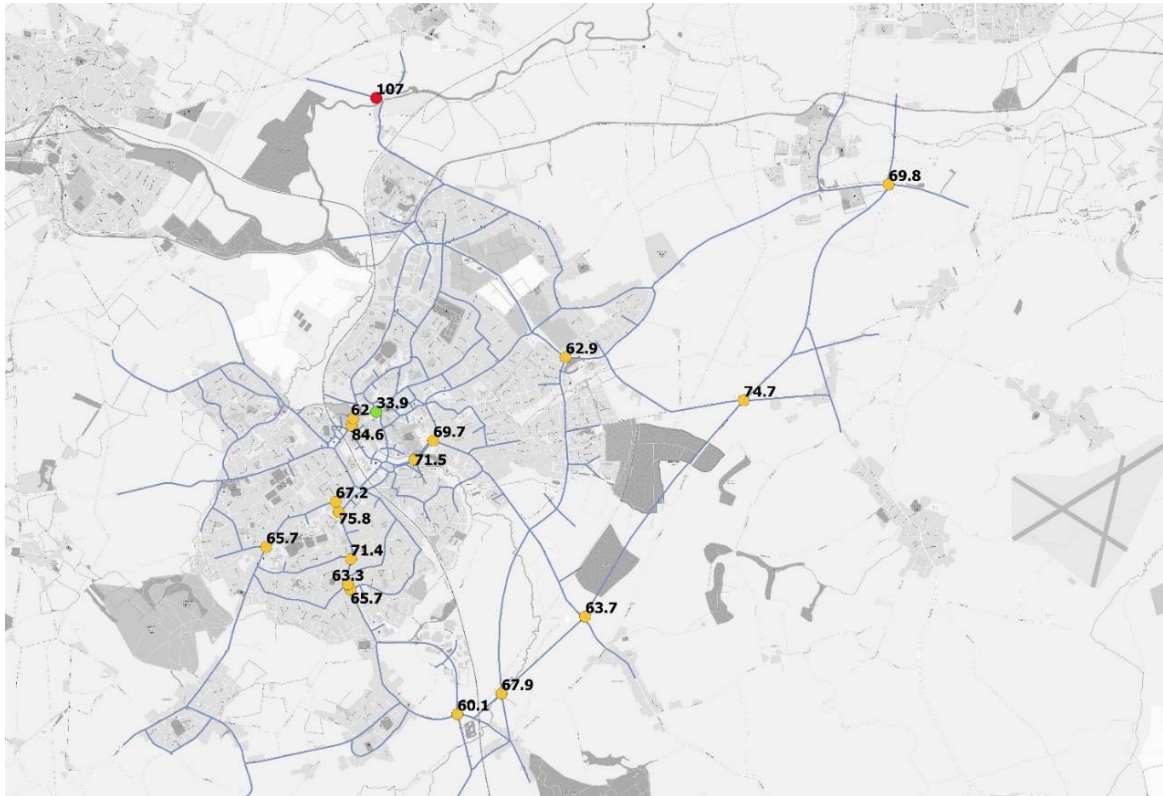
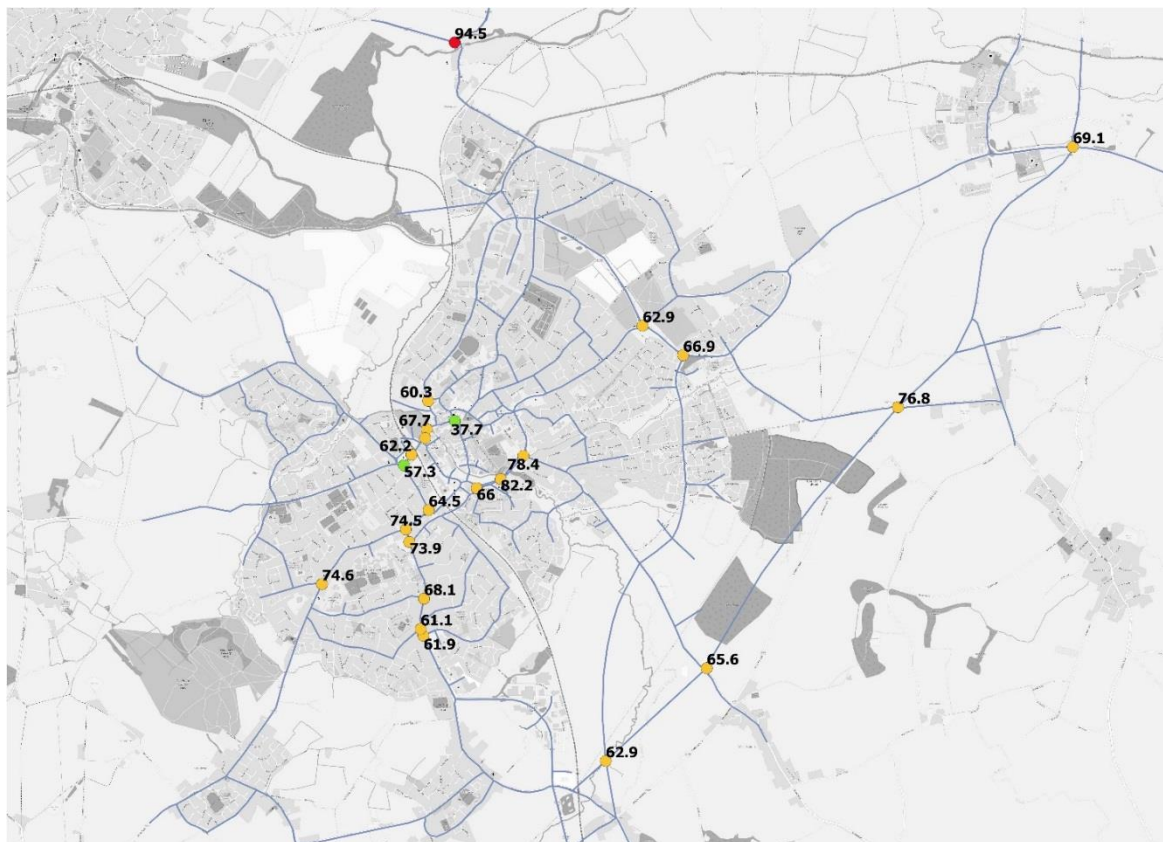


Figure 6-7 PM Junction Volume Capacity Plot - Test A against Do-Minimum



7. Summary

The Strategy Refresh

7.1. The Trowbridge Transport Strategy Refresh is Wiltshire Council's proposed long-term approach to meeting the transport needs of the town. The purpose of the Transport Strategy Refresh is to update the 2012 Trowbridge Transport Strategy, using updated evidence and policy, as well as new data sources. The Transport Strategy Refresh has been developed to confirm and address a number of current and future transport issues facing the town. The issues have been identified within the context of three transport themes which are strategically important to Trowbridge:

- Providing for strategic development sites;
- Maintaining the strategic function of the A350; and
- Improving the accessibility and attractiveness of the town centre.

7.2. Transport objectives have been established for the Strategy Refresh, and are based on the three strategic themes:

- **Providing for strategic development sites**
 - Ensure that development sites provide necessary infrastructure and service (on-site and off-site) to facilitate journeys by sustainable modes of travel.
 - Provide a transport network which can accommodate travel demand generated from planned development sites without negatively impacting on residents.
- **Maintaining the strategic function of the A350 around Trowbridge**
 - Maintain the function of the A350 around Trowbridge.
- **Improving the accessibility and attractiveness of the town centre**
 - Improve the town bus service network in Trowbridge, making it more convenient for people to use and therefore ensure it is a viable alternative to the car for short distance journeys.
 - Support the commercial viability of inter-urban bus services by making them more attractive and convenient for people to use and therefore making inter-urban bus services a viable alternative to the car for longer distance journeys.
 - Facilitate and promote journeys by bike and on foot to key destinations in the town by enhancing walking/cycling infrastructure and improving connectivity across the town.
 - Improve road safety across the transport network in Trowbridge.
 - Improving accessibility and connectivity across the town by sustainable modes of transport.
 - Accommodate forecast growth in rail passengers by improving accessibility to the Trowbridge Rail Station and the rail services available at the station.

7.3. Transport schemes have been identified and sifted (Chapter 4) to address the issues and challenges and contribute towards achieving the objectives. The schemes are costed and categorised (Chapter 5) based on their relationship with development sites and with the strategy's objectives. The purpose of the categorisation is to provide a foundation for potential prioritisation of the Transport Strategy Refresh schemes, reflecting funding availability.

Strategy Context

Strategic Policy Framework

7.4. The Trowbridge Transport Strategy Refresh is an evidence-based approach to identifying issues and challenges on the town's transport network and identifying schemes to address the issues. The Strategy Refresh:

- Outlines the approach to addressing transport issues and challenges in Trowbridge;
- Supports the economic and transport objectives of the SWLEP;
- Supports the successful delivery of planned growth in the town, set out in policy documents; and
- Contributes to achieving the aims of the wider strategic policy framework in Wiltshire, including the Wiltshire Business Plan and the Wiltshire Community Plan.

Scheme Development

7.5. The schemes outlined in the transport Strategy Refresh do not include scheme option assessment or scheme design. For the development of a scheme to progress, typical scheme development procedures will need to be followed.

7.6. Where a scheme is directly linked to a development site, more detailed assessment of the scheme options and design would need to be undertaken as part of the planning process. A transport assessment would need to be drafted in order to support the planning application.

7.7. The next section summaries how the schemes meet the three Transport Strategy Refresh Themes.

Theme: Providing for Strategic Development Sites

7.8. The issues section (Chapter 2) identifies a number of transport issues and challenges that relate to planned development sites in Trowbridge. Schemes have been identified and costed to address the challenges (Chapter 4), which have been categorized according to their relationship with the development sites (Chapter 5).

Table 7-1 Development Site Transport Schemes

Scheme Type	Housing Site Allocations DPD			Strategic Allocations
	Cluster 1	Cluster 2	Cluster 3	Ashton Park
Smarter Choices	SC01, SC02			
Pedestrian and Cycle (directly related)	PC03, PC04, PC11	PC12, PC15, PC16	PC08, PC09, PC10, PC16	PC07, PC14, PC15
Public Transport (directly related)	PT01, PT02	PT05	PT04	PT06
Highway (directly related)	H03	H07, H08	H07	H01

Theme: Maintaining Strategic Function of the A350 around Trowbridge

7.9. The issues section (Chapter 2) identifies a number of transport issues and challenges that relate to maintaining the role of the A350 through delay minimisation. The A350 is the key north to south route through Wiltshire, with the highest traffic volumes on the primary route network. Issues currently experienced on the A350 in Trowbridge surround the high volumes of traffic and

delay at peak times. Schemes have been developed to address current issues and alleviate delays on the A350.

Table 7-2 Transport Schemes - Maintaining Strategic Function of the A350 around Trowbridge

Scheme Type	Maintaining Strategic Function of the A350 around Trowbridge
Highway	H01

Theme: Improving the Accessibility and Attractiveness of the Town Centre

7.10. Reducing town centre congestion, improving access for all modes of transport, and improving the safety of all users of the Trowbridge town centre transport network is important for ensuring that the town remains an attractive location to live and work in. Schemes have been developed to address current and future issues in the town centre.

Table 7-3 Transport Schemes - Improving the Accessibility and Attractiveness of the Town Centre

Scheme Type	Improving the Accessibility and Attractiveness of the Town Centre
Pedestrian and Cycle (directly related)	All pedestrian/cycle schemes that lead into the town centre: PC01, PC05, PC10, PC11, PC12, PC13, PC14, PC15, PC16
Public Transport	PT01, PT02, PT03, PT04, PT05, PT06
Highway	H02, H04, H05, H06, H08

Strategy Impacts

7.11. The overall Transport Strategy Refresh has been assessed against the desired strategy outcomes using modelling outputs provided in Chapter 6. The methodology used to develop the schemes for strategy testing is outlined in paragraphs 6.4-6.7. The preferred option is forecast to provide the following benefits to the highway network compared to the 'without strategy':

- Average delay forecast to reduce by 22% in the AM peak, and 9% in the PM peak; and
- Network speed is forecast to increase by 8% in the AM peak, and 3% in the PM peak.

7.12. The results from the modelling indicate that at the Staverton Bridge, capacity and delay are forecast to remain an issue. Therefore, the recommendation of the Transport Strategy Refresh is that interventions are considered as part of future growth which is being considered in the Local Plan review 2036 and more detailed options are investigated with the use of micro-simulation transport modelling tools.

Appendices



Appendix A. Evidence of Issues

A.1. Data Sources and Evidence to Identify Issues and Challenges

Theme	Reference	Summary of Issue	Evidence
Providing for Strategic Development Sites	2.1.1	Access to key services and facilities by sustainable modes of transport from some development sites is limited.	Wiltshire Housing Site Allocations Development Plan Document: Trowbridge
	2.1.2	Impact on air quality and noise as a result of traffic generated by developments.	Wiltshire Core Strategy Sustainability Appraisal
	2.1.3	Further planned development in Trowbridge is forecast to contribute to congestion at specific points on the highway network.	Modelling
Maintaining Strategic Function of A350 around Trowbridge	2.2.1	The A350 around Trowbridge carries high volumes of traffic.	DfT traffic count data, Traffic Master
	2.2.2	Trowbridge road network experiences delay at peak periods.	Traffic Master
Improving the Accessibility and Attractiveness of the Town Centre	2.3.1	Trowbridge residents are drawn to larger settlements which are further away for retail and leisure opportunities.	GVA Town Centre and Retail Study, Final Report, March 2011
	2.3.2	There are a number of accident clusters in the town.	Wiltshire accident cluster database
	2.3.3	Poor integration and connectivity of pedestrian and cycle network, especially around the town centre and Trowbridge Rail Station.	Improving Wiltshire's Rail Offer. Cycle and Pedestrian Access Study, Sustrans, June 2013
	2.3.4	Historic street layout constrains the road network.	Satellite mapping review, Traffic Master
	2.3.5	High car reliance in Trowbridge.	2011 Census TtW data
	2.3.6	Trowbridge town bus network has infrequent services which are subject to delays.	Traveline, Wiltshire Council bus punctuality data
	2.3.7	Inter-urban bus services experience delays which can affect commercial viability.	Wiltshire Council bus punctuality data
	2.3.8	Growth in rail passenger numbers at Trowbridge Rail Station is forecast to continue.	Wessex Route Study, Wiltshire Council patronage data
	2.3.9	Parking is readily available in the town centre.	Trowbridge Parking Study

Appendix B. Policy Links

B.1. Transport Strategy Refresh Objectives and Links to Strategic Policy Framework

Transport Strategy Theme	Objective #	Transport Strategy Objective	Transport Strategy Outcomes	Links to Wiltshire Strategic Objectives			Links to Wiltshire Strategic Objectives		
				LTP 3	Wiltshire Core Strategy	SWLEP	LTP 3	Wiltshire Core Strategy	SWLEP
Providing for strategic development sites	1	Ensure that development sites provide necessary infrastructure and services (on-site and off-site) to facilitate journeys by sustainable modes of travel.	Increase in journeys by sustainable modes	SO12	Core Policy 60, 61, 63	P2, P3, P4, PZ2	SO12: To support planned growth in Wiltshire and ensure that new developments adequately provide for their sustainable transport requirements and mitigate their traffic impacts	CP60: The council will use its planning and transport powers to help reduce the need to travel particularly by private car, and support and encourage the sustainable, safe and efficient movement of people and goods within and through Wiltshire. CP61: New development should...encourage the use of sustainable transport alternatives CP63: Packages of integrated transport measures will be identified in Trowbridge to help facilitate sustainable development growth.	P2: Stimulating existing business growth P3: Job creation, education and skills P4: Economic infrastructure PZ2: A350 Corridor - where our Growth Deal will focus on supporting growth around Malmesbury, Corsham, Chippenham, Melksham and Trowbridge
	2	Provide a transport network which can accommodate travel demand generated from planned development sites without negatively impacting on residents.	Maintain transport network performance (no worsening)	SO12	Core Policy 60, 62	P2, P3, P4, PZ2	SO12: To support planned growth in Wiltshire and ensure that new developments adequately provide for their sustainable transport requirements and mitigate their traffic impacts	CP60: The council will use its planning and transport powers to help reduce the need to travel particularly by private car, and support and encourage the sustainable, safe and efficient movement of people and goods within and through Wiltshire	P2: Stimulating existing business growth P3: Job creation, education and skills P4: Economic infrastructure PZ2: A350 Corridor - where our Growth Deal will focus on supporting growth around Malmesbury, Corsham,

Transport Strategy Theme	Objective #	Transport Strategy Objective	Transport Strategy Outcomes	Links to Wiltshire Strategic Objectives			Links to Wiltshire Strategic Objectives		
				LTP 3	Wiltshire Core Strategy	SWLEP	LTP 3	Wiltshire Core Strategy	SWLEP
								CP62: Developments should provide appropriate mitigating measures to offset any adverse impacts on the transport network at both the construction and operational stages.	Chippenham, Melksham and Trowbridge
Maintaining the strategic function of the A350 around Trowbridge	3	Maintain the function of the A350 Primary Route Network around Trowbridge.	Improved journey times and reliability on A350 will help improve north-south connectivity on the A350 corridor and result in less traffic using inappropriate routes through the town to avoid delays on A350	SO4	Core Policy 66	P1, P2, P3, P4, PZ2	SO4: To minimise traffic delays and disruption and improve journey time reliability on key routes	CP66: The strategic transport network along the A350 corridor will be maintained, managed and selectively improved to support development growth at Trowbridge	P1: Inward investment P2: Stimulating existing business growth P3: Job creation, education and skills P4: Economic infrastructure PZ2: A350 Corridor - where our Growth Deal will focus on supporting growth around Malmesbury, Corsham, Chippenham, Melksham and Trowbridge
Improving the accessibility & attractiveness of the town centre	4	Improve the town bus service network in Trowbridge, making it more convenient for people to use and therefore ensure it is a viable alternative to the car for short distance journeys.	Increased number of bus users, which would help improve commercial viability of bus service operations whilst helping to encourage lower car use for short distance journeys to access the town centre.	SO2	Core Policy 60	P2, P3, P4, PZ2	SO2: To provide, support and promote a choice of sustainable transport alternatives	CP60: The council will use its planning and transport powers to help reduce the need to travel particularly by private car, and support and encourage the sustainable, safe and efficient movement of people and goods within and through Wiltshire	P2: Stimulating existing business growth P3: Job creation, education and skills P4: Economic infrastructure PZ2: A350 Corridor - where our Growth Deal will focus on supporting growth around Malmesbury, Corsham, Chippenham, Melksham and Trowbridge
	5	Support the commercial viability of inter-urban bus services by making them more attractive and convenient for people to use and	Maintain commercial viability of inter-urban bus services and help make bus a convenient alternative to the car for longer distance journeys and	SO2	Core Policy 60	P2, P3, P4, PZ2	SO2: To provide, support and promote a choice of sustainable transport alternatives	CP60: The council will use its planning and transport powers to help reduce the need to travel particularly by private car, and support and encourage the	P2: Stimulating existing business growth P3: Job creation, education and skills P4: Economic infrastructure PZ2: A350 Corridor -

Transport Strategy Theme	Objective #	Transport Strategy Objective	Transport Strategy Outcomes	Links to Wiltshire Strategic Objectives			Links to Wiltshire Strategic Objectives		
				LTP 3	Wiltshire Core Strategy	SWLEP	LTP 3	Wiltshire Core Strategy	SWLEP
		therefore making inter-urban bus services a viable alternative to the car for longer distance journeys.	maintain commercial bus service operations.					sustainable, safe and efficient movement of people and goods within and through Wiltshire	where our Growth Deal will focus on supporting growth around Malmesbury, Corsham, Chippenham, Melksham and Trowbridge
	6	Facilitate and promote journeys by bike and on foot to key destinations in the town by enhancing walking/cycling infrastructure and improving connectivity across the town.	Less people driving for shorter distance journeys as people are encouraged to walk and cycle for these journeys - this will help contribute to reducing congestion in Trowbridge.	SO2, SO13, SO14	Core Policy 60	P2, P3, P4, PZ2	SO2: To provide, support and promote a choice of sustainable transport alternatives. SO13: To reduce the need to travel, particularly by private car. SO14: To promote travel modes that are beneficial to health	CP60: The council will use its planning and transport powers to help reduce the need to travel particularly by private car, and support and encourage the sustainable, safe and efficient movement of people and goods within and through Wiltshire	P2: Stimulating existing business growth P3: Job creation, education and skills P4: Economic infrastructure PZ2: A350 Corridor - where our Growth Deal will focus on supporting growth around Malmesbury, Corsham, Chippenham, Melksham and Trowbridge
	7	Improve road safety in across the transport network in Trowbridge.	Reduce likelihood of accidents & incidents which can result in delays on the highway network whilst improving safety / perception of safety will help make walking and cycling a safer, more attractive and convenient travel option.	SO8	Core Policy 60	PZ2	SO8: To improve safety for all road users and to reduce the number of casualties on Wiltshire's roads	CP60: The council will use its planning and transport powers to help reduce the need to travel particularly by private car, and support and encourage the sustainable, safe and efficient movement of people and goods within and through Wiltshire	PZ2: A350 Corridor - where our Growth Deal will focus on supporting growth around Malmesbury, Corsham, Chippenham, Melksham and Trowbridge
	8	Improving accessibility and connectivity across the town by sustainable modes of transport.	Increase accessibility to the town centre will help increase footfall, whilst encouraging more people to walk and cycle to the town centre will help reduce traffic and improve the town centre environment.	SO2, SO13, SO14	Core Policy 60	P2, P3, P4, PZ2	SO2: To provide, support and promote a choice of sustainable transport alternatives. SO13: To reduce the need to travel, particularly by private car. SO14: To promote travel modes that are beneficial to health	CP60: The council will use its planning and transport powers to help reduce the need to travel particularly by private car, and support and encourage the sustainable, safe and efficient movement of people and goods within and through Wiltshire	P2: Stimulating existing business growth P3: Job creation, education and skills P4: Economic infrastructure PZ2: A350 Corridor - where our Growth Deal will focus on supporting growth around Malmesbury, Corsham,

Transport Strategy Theme	Objective #	Transport Strategy Objective	Transport Strategy Outcomes	Links to Wiltshire Strategic Objectives			Links to Wiltshire Strategic Objectives		
				LTP 3	Wiltshire Core Strategy	SWLEP	LTP 3	Wiltshire Core Strategy	SWLEP
	9	Accommodate forecast growth in rail passengers by improving accessibility to the Trowbridge Rail Station and the rail services available at the station.	Current trends in increased rail use will continue whilst additional patronage could be captured. This will help reduce reliance on the car for medium and longer distance journeys to and from Trowbridge.	SO2, SO13	Core Policy 66	P2, P3, P4, PZ2	SO2: To provide, support and promote a choice of sustainable transport alternatives. SO13: To reduce the need to travel, particularly by private car.	CP66: The strategic transport network along the A350 corridor will be maintained, managed and selectively improved to support development growth at Trowbridge	Chippenham, Melksham and Trowbridge P2: Stimulating existing business growth P3: Job creation, education and skills P4: Economic infrastructure PZ2: A350 Corridor - where our Growth Deal will focus on supporting growth around Malmesbury, Corsham, Chippenham, Melksham and Trowbridge

Appendix C. Scheme Sources

- **Wiltshire Core Strategy**, Wiltshire Council
- **Trowbridge Transport Strategy Options Assessment Report**, 2012, Mott MacDonald
- **Community Infrastructure Levy Regulation 123 List**, Wiltshire Council
- **Trowbridge Town Council Strategy 2013-2017**, Trowbridge Town Council
- **Transforming Trowbridge**, Urban Practitioners/Wiltshire Council
- **Infrastructure Delivery Plan 2: Appendix 1: Trowbridge Community Area; Appendix 1: Wiltshire Strategic, Regional and General; Appendix 2: Infrastructure Provider Profiles**, Wiltshire Council
- **Improving Wiltshire's Rail Offer. Cycle and Pedestrian Access Study**, 2013, Sustrans
- **Accident Data**, Wiltshire Council
- **Trowbridge Station Travel Plan: Action Plan**, 2014, Atkins.

Appendix D. Model Outputs

Figure 7-1 AM Volume / Capacity at junctions - Reference Case

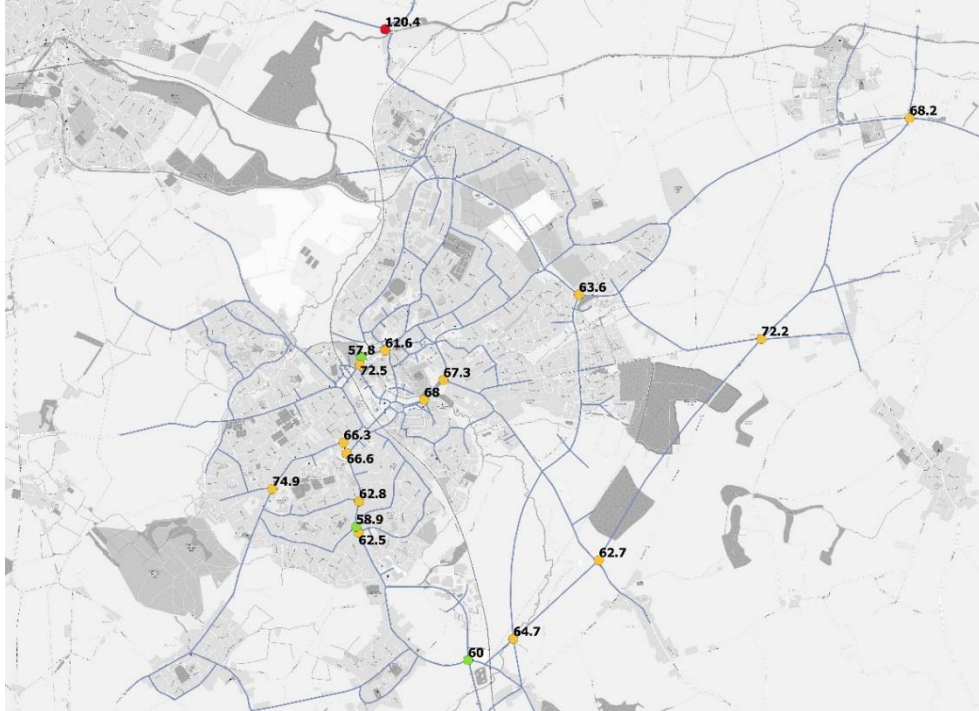


Figure 7-2 AM Volume / Capacity at junctions – Do-Minimum Low

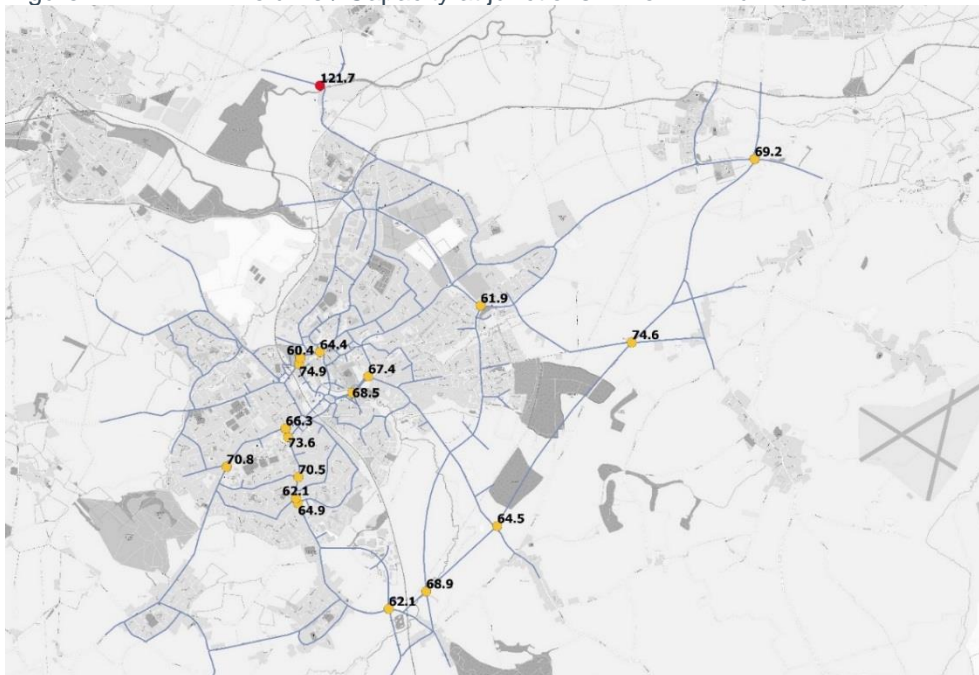


Figure 7-3 AM Volume / Capacity at junctions – Do-Minimum High

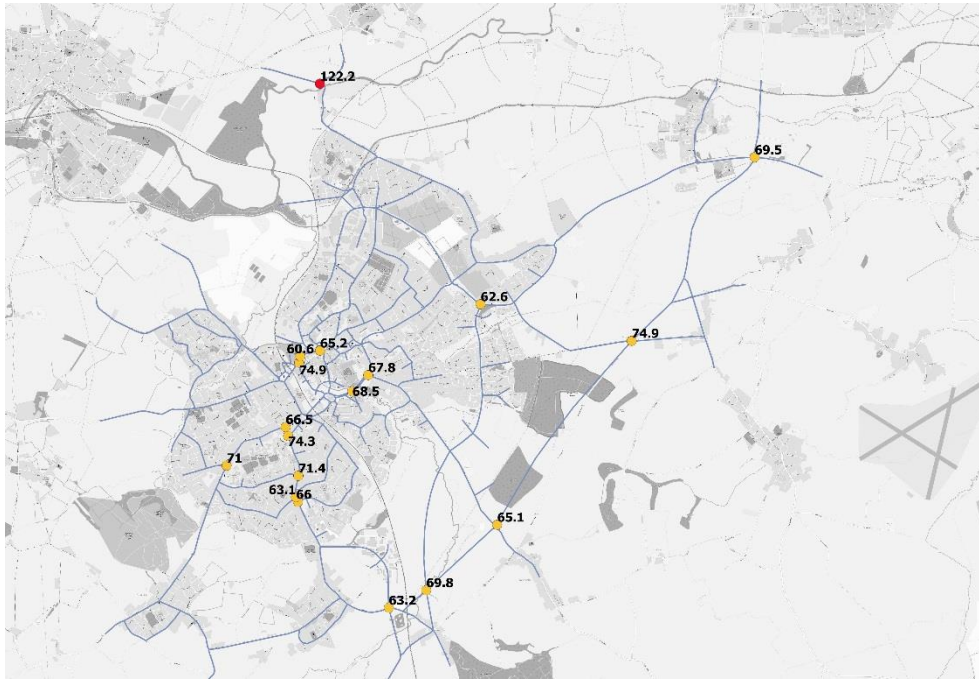


Figure 7-4 AM Volume / Capacity at junctions – Test A

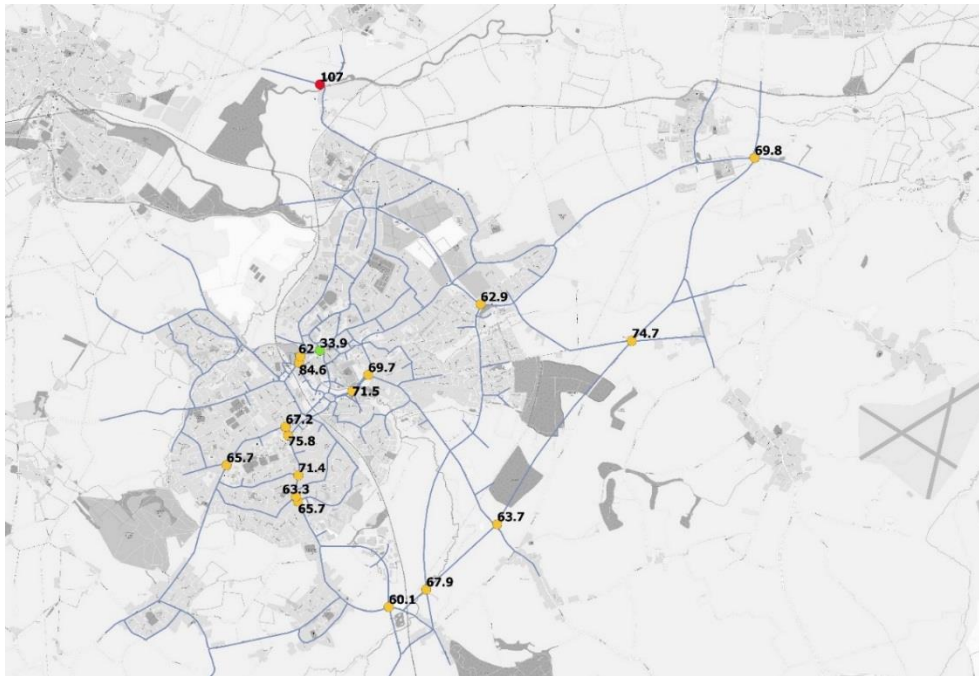


Figure 7-5 PM Volume / Capacity at junctions – Test B

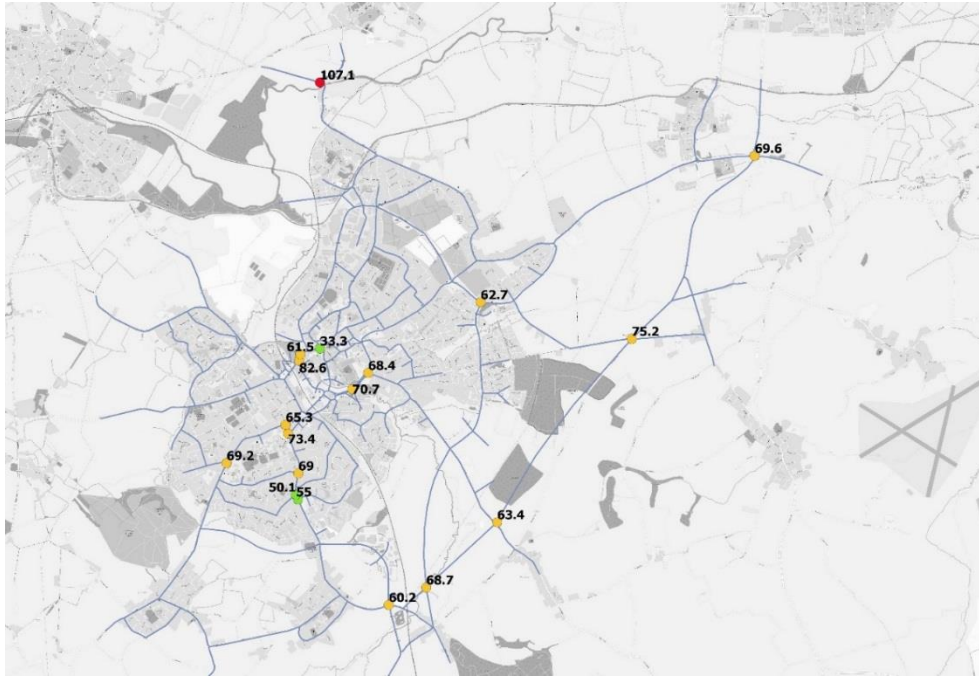


Figure 7-6 AM Flow Change - Test A v Do-Minimum

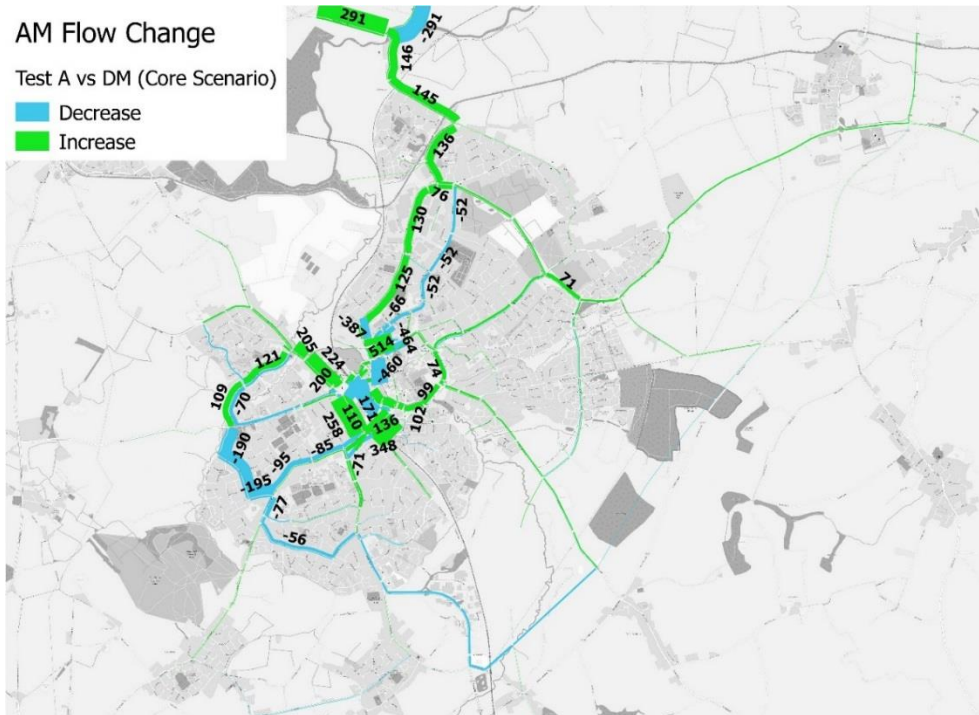


Figure 7-7 PM Flow Change - Test A v Do-Minimum



Figure 7-8 AM flow difference: Test B vs Do-Minimum

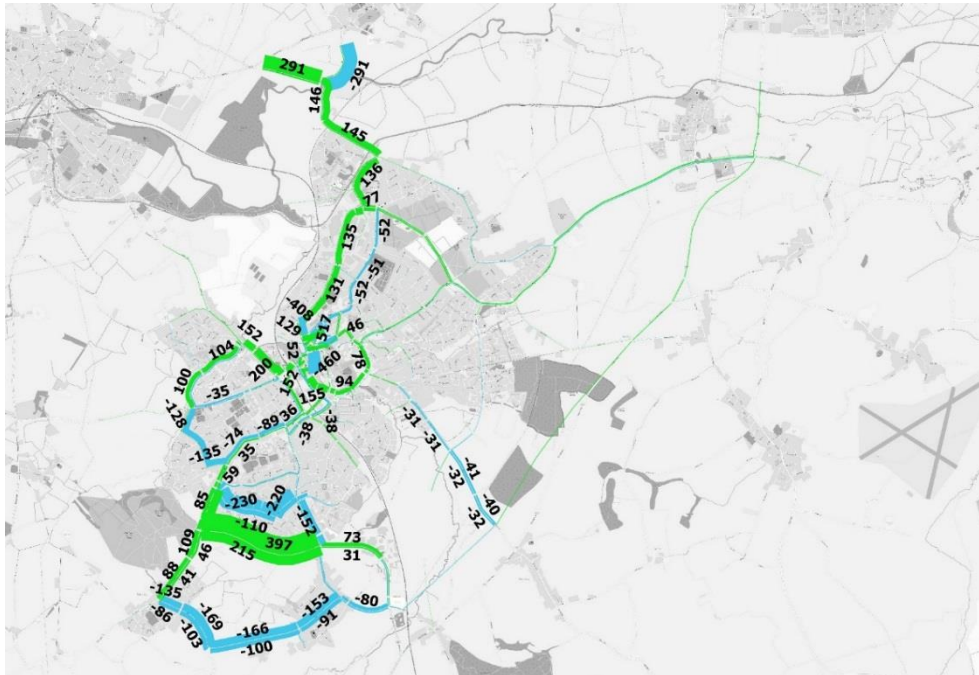


Figure 7-9 AM flow difference around link road: Test B vs Do-minimum



Figure 7-10 PM Volume / Capacity at junctions - Reference Case

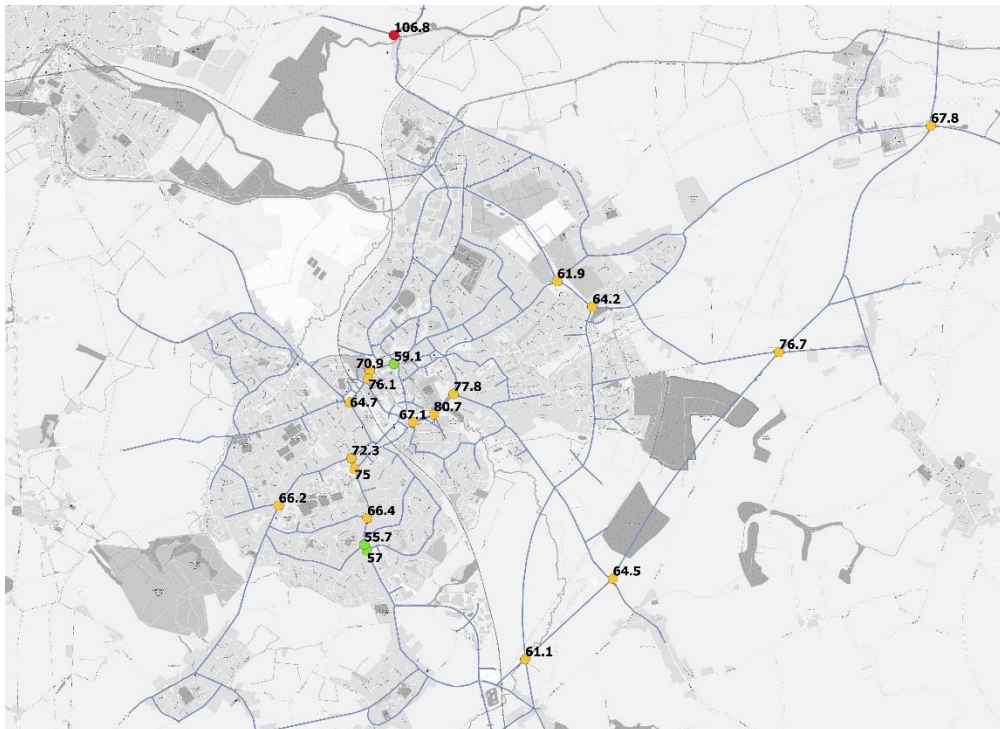


Figure 7-11 PM Volume / Capacity at junctions - Do-Minimum Low

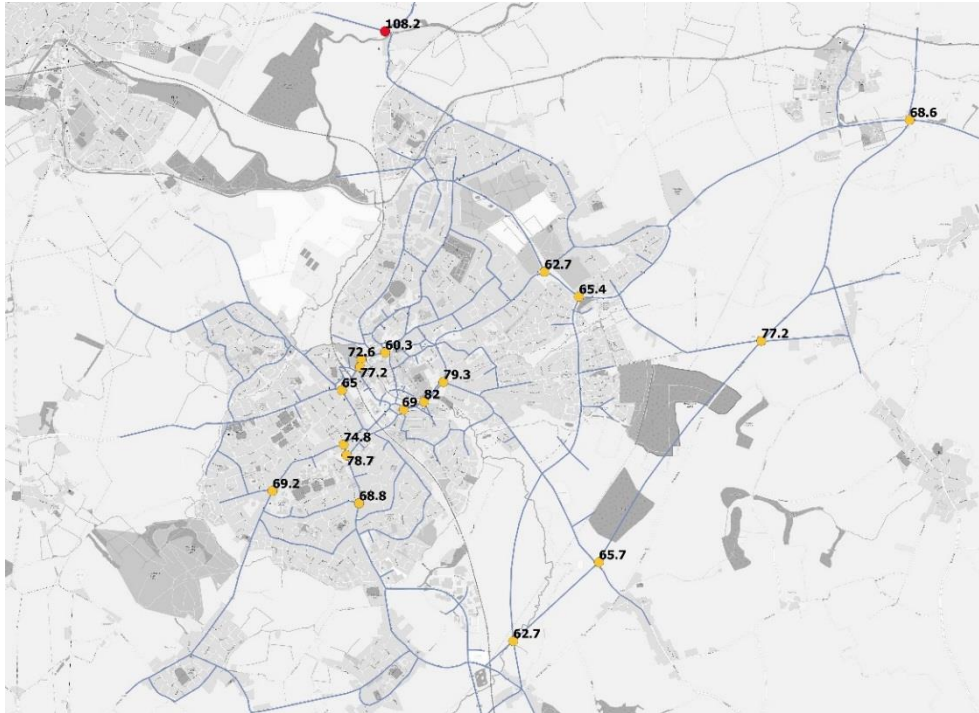


Figure 7-12 PM Volume / Capacity at junctions - Do-Minimum High

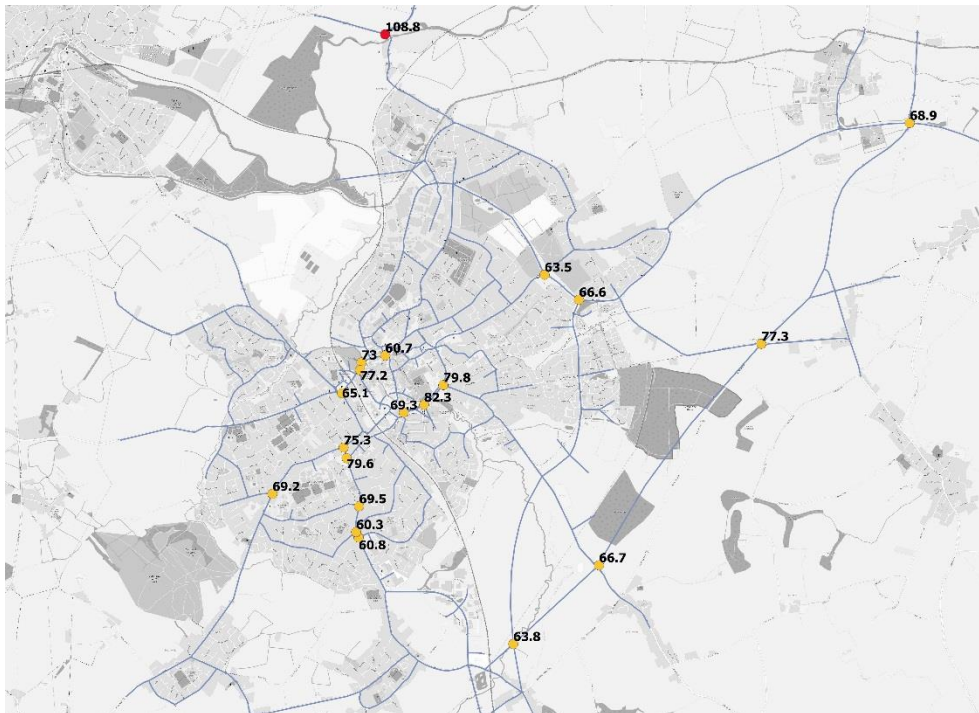


Figure 7-13 AM Volume / Capacity at junctions – Test A

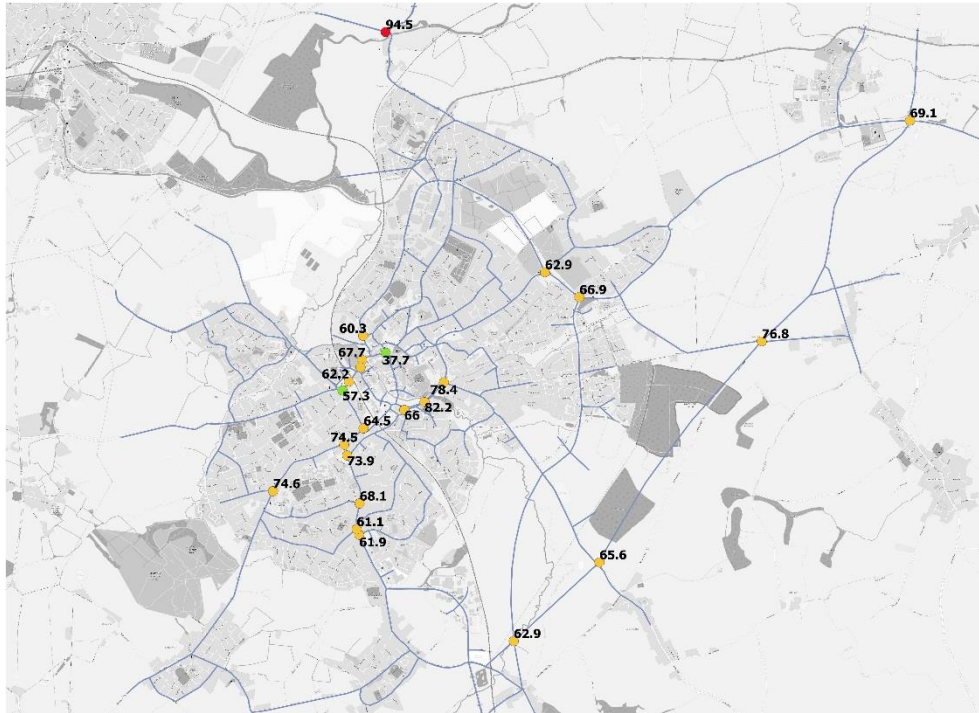


Figure 7-14 PM flow difference: Test B vs Do-minimum

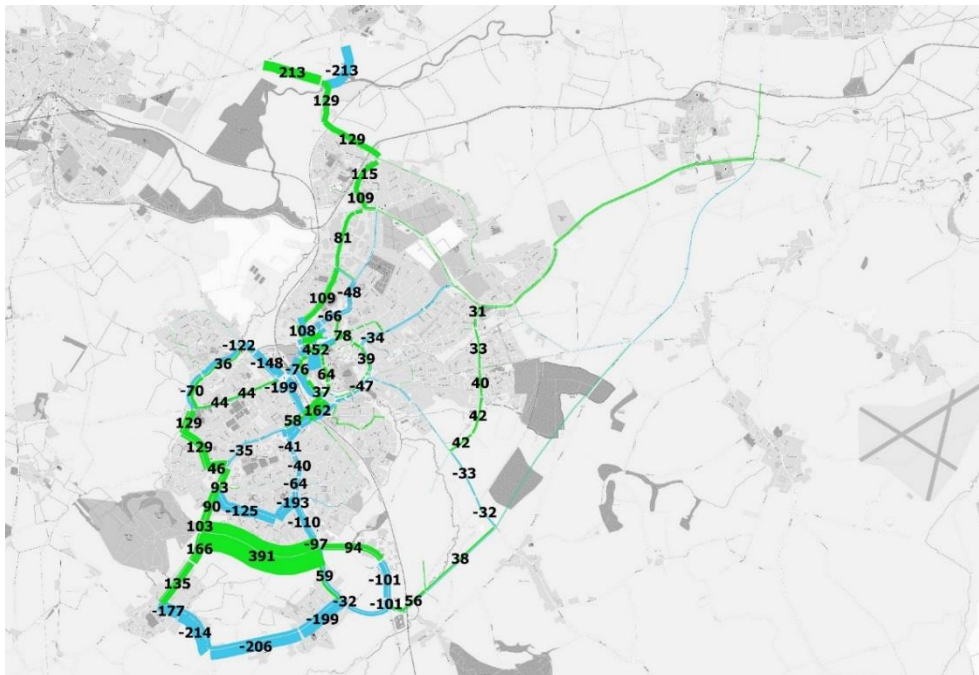


Figure 7-15 PM flow difference around link road: Test B vs Do-minimum



Figure 7-16 Average Network Speed (km per hour) between tests AM and PM

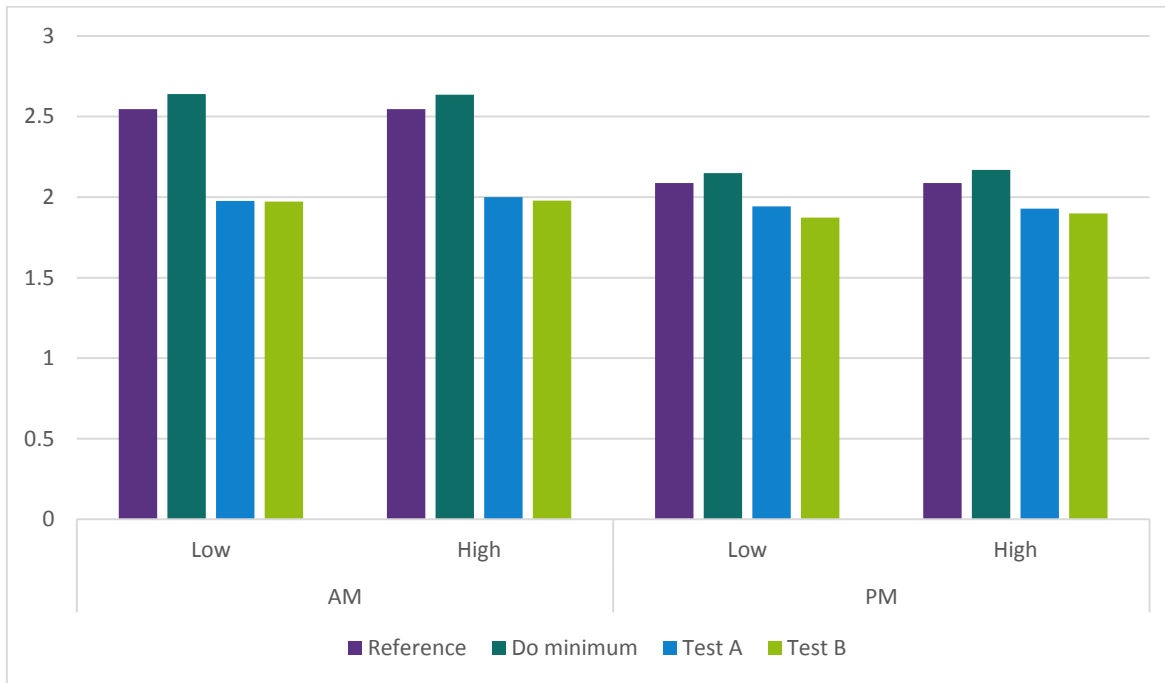
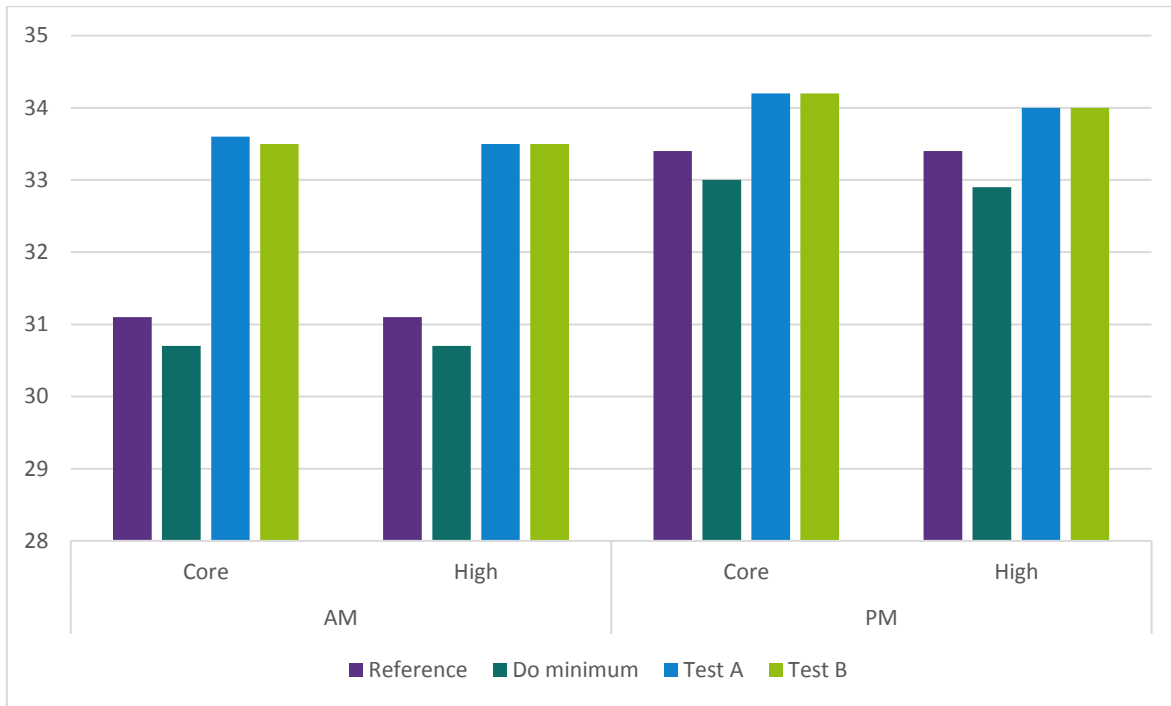


Figure 7-17 Average Network delay (minutes) between tests AM and PM



Andy Whitehead

Atkins
500 Park Avenue
Aztec West
Bristol
BS32 4RZ

andy.whitehead2@atkinsglobal.com

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