Salisbury Transport Strategy

Salisbury Transport Strategy
Summary

November 2012

1 Introduction

1.1 Background to the Strategy

The Salisbury Transport Strategy, covering the Salisbury and Wilton area, has been developed to support the growth identified in the South Wiltshire Core Strategy (SWCS). This strategy updates the existing transport strategy for Salisbury that was developed as part of Wiltshire Council's first and second Local Transport Plans (LTPs).

1.2 Planned Development

The South Wiltshire Core Strategy relating to the former Salisbury district area was adopted by the council in February 2012 and its completion will enable new housing sites to be identified before the Wiltshire Core Strategy is in place and a five year housing land supply to be maintained. The South Wiltshire Core Strategy, essentially a transitional document, will in effect be replaced by the Wiltshire-wide Core Strategy when the latter document is adopted.

The Core Strategy identifies the following development sites across the South Wiltshire Community Area:

- Salisbury and Wilton — 4170 homes and 29ha of employment land
- Amesbury — 2395 homes and 17ha of employment land
- Southern Wiltshire — 555 homes
- Mere — 250 homes and 3ha of employment land
- Tisbury — 440 homes and 1.4ha of employment land

The housing and employment land allocation for the South Wiltshire Core Strategy therefore plans for an additional 9,910 dwellings and 10,900 jobs between 2006 and 2026. Between 2006 and 2011 there have been 1613 committed and delivered housing developments.

1.3 Location of Core Strategy Strategic Sites

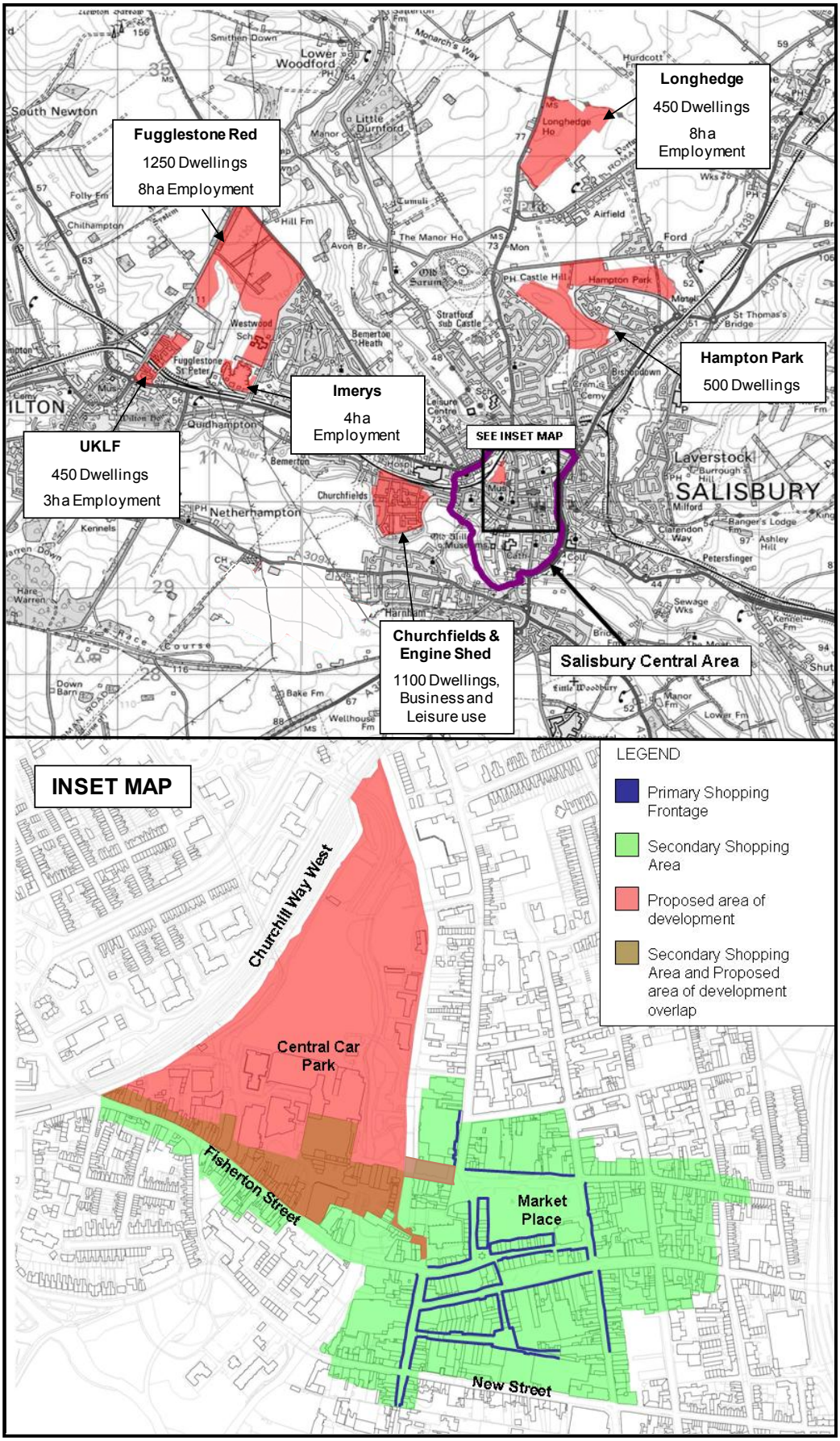
Within Salisbury the Core Strategy sites are generally located on the urban fringe. However, the redevelopment of Churchfields and the Central Car Park will provide space for 1300 homes within the existing urban area. The locations of Core Strategy sites for Salisbury and Wilton are shown in Figure 1.

1.4 Developing the Transport Strategy

Over the forthcoming years there will be an increase in the demand for travel. This will be as result of increased prosperity, background growth and the growth identified in the Core Strategy. A transport strategy is therefore required for the Salisbury and Wilton area in order to mitigate the impacts of additional demand for transport. The strategy development process has been:

- based on a clear evidence base;
- objective-led;
- supported by stakeholders; and,
- linked to the County's wider Core Strategy development.

Figure 1.1 - Salisbury Core Strategy Strategic Sites



Source: *south-wiltshire-core-strategy-feb-2012.pdf*

2 Objectives

2.1 Study Objectives

The development of the transport strategy has been guided by the wider vision and objectives for Salisbury, South Wiltshire and for transport in Wiltshire. This enabled the following five primary objectives for transport in Salisbury and Wilton to be defined as outlined in Table 2.1 below.

Table 2.1 - Primary Objectives and Measurement

Objective	Measurement
To support and help improve the vitality, viability and resilience of Salisbury's economy.	Access to city centre by car and public transport
To support planned growth and ensure that developments provide for their transport requirements and mitigate their traffic impacts.	Network performance Air quality
To provide, support and promote a choice of sustainable transport alternatives.	Motorised mode share
To minimise traffic delays and disruption, and improve journey time reliability on key routes.	Journey time and delay analysis
To ensure that the Salisbury Transport Strategy is affordable and capable of being delivered.	Strategy implementation and ongoing operating cost

The transport strategy has been designed to help deliver these objectives.

3 Transport Challenges and Issues

3.1 Current Challenges

The development of the strategy has been informed by an understanding and assessment of current transport problems and issues. These have been identified by considering the views of local residents at consultation events and using transport data collected specifically for the development of strategy. The transport problems and issues are summarised below.

The highway network has constraints

- A36 junctions have capacity limitations.
- The highway network is constrained by the operation of Exeter Street Roundabout.
- There are delays on the roads approaching the Harnham Gyratory.
- Some through traffic between Wilton and Southampton Road routes through Harnham rather than the A36.

Air Quality

- The entire city centre is currently designated an Air Quality Management Area (AQMA). Emissions from road traffic particularly HGVs and buses, are the major contributor to this problem.

There are barriers to walking and cycling

- Heavy traffic and lack of walking and cycling facilities (safe crossings, dedicated and well signed routes etc) is viewed as a deterrent to walking and cycling.

Public transport options are limited for many types of trips

- There is currently only one high frequency, cross-city bus route (between Bemerton Heath and Salisbury Hospital) but limited, direct service provision to the railway station and to Churchfields. For most cross-city movements, an interchange is required.
- Bus provision for journeys within Salisbury presently has limited service provision early in the morning, at night and at the weekend.
- Salisbury Station does not have a bus interchange and has only a limited amount of parking space.

Parking and park and ride are not optimised to manage demand into Salisbury

- Salisbury city centre presently has a large supply of public parking, but this availability of parking may be resulting in high car levels of car use and related problems of congestion in and on the approaches to the city centre.
- At the moment Salisbury also has a park and ride service that attracts passengers despite the ready availability of city centre parking. With only an average of 47% occupancy levels during the week, park and ride and city centre parking stock has the potential to be optimised to manage demand and reduce Park and Ride operating costs.

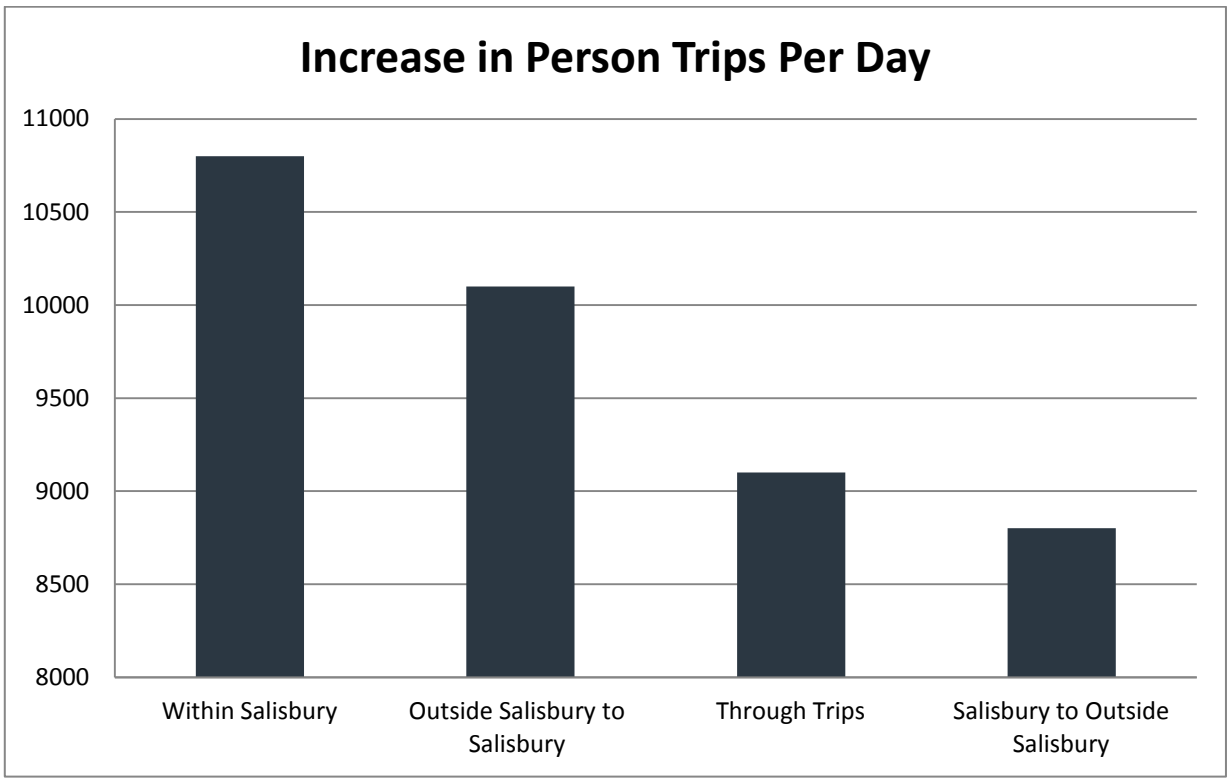
3.2 Future Challenges

An assessment of future transport challenges and issues has been made using forecasts from the Salisbury Transport Model. The model was developed to represent the travel patterns and network conditions for a 2008 'base year'. Forecasts of travel and transport network performance were estimated for a 2026 'Business as usual' scenario which assumes the level of development proposed by the Core Strategy and known changes to the transport system.

Trips

The model forecasts that there will be a 21% increase in person trip making between 2008 and 2026. In total, it is anticipated that there will be about 200,000 one-way trips within, to, from and through Salisbury per 12 hour day in 2026. Figure 3.1 shows that the biggest increase in trips are those trips that start and finish within Salisbury followed by trips that start outside of Salisbury and finish in Salisbury.

Figure 3.1 – Increase in Person Travel Demand between Base Year (2008) and Forecast (2026) Business as Usual (Motorised modes from 7am to 7pm)



Mode Share

The 'business as usual' forecasts suggest little change in mode share, with car forecast to remain the dominant (90%) mode of motorised travel for trips to, from and within Salisbury in 2026.

Highway Performance

Using the Salisbury Transport Model it is possible to compare highway performance between different modelled years. Traffic and congestion are forecast to increase between 2008 and 2026. Table 3.1 shows that the average network speed is projected to become lower in all time periods between 2008 and 2026.

Table 3.1 - Summary of Change in Base Year (2008) to Forecast (2026) Business as Usual Highway Network Performance (Salisbury Area)

	Morning Peak	Inter-Peak	Evening Peak
Traffic (vehicle km)	+24%	+25%	+28%
Congestion (vehicle hr)	+37%	+29%	+39%
Average Network Speed (km/hr)	-9%	-3%	-8%

Junction Performance

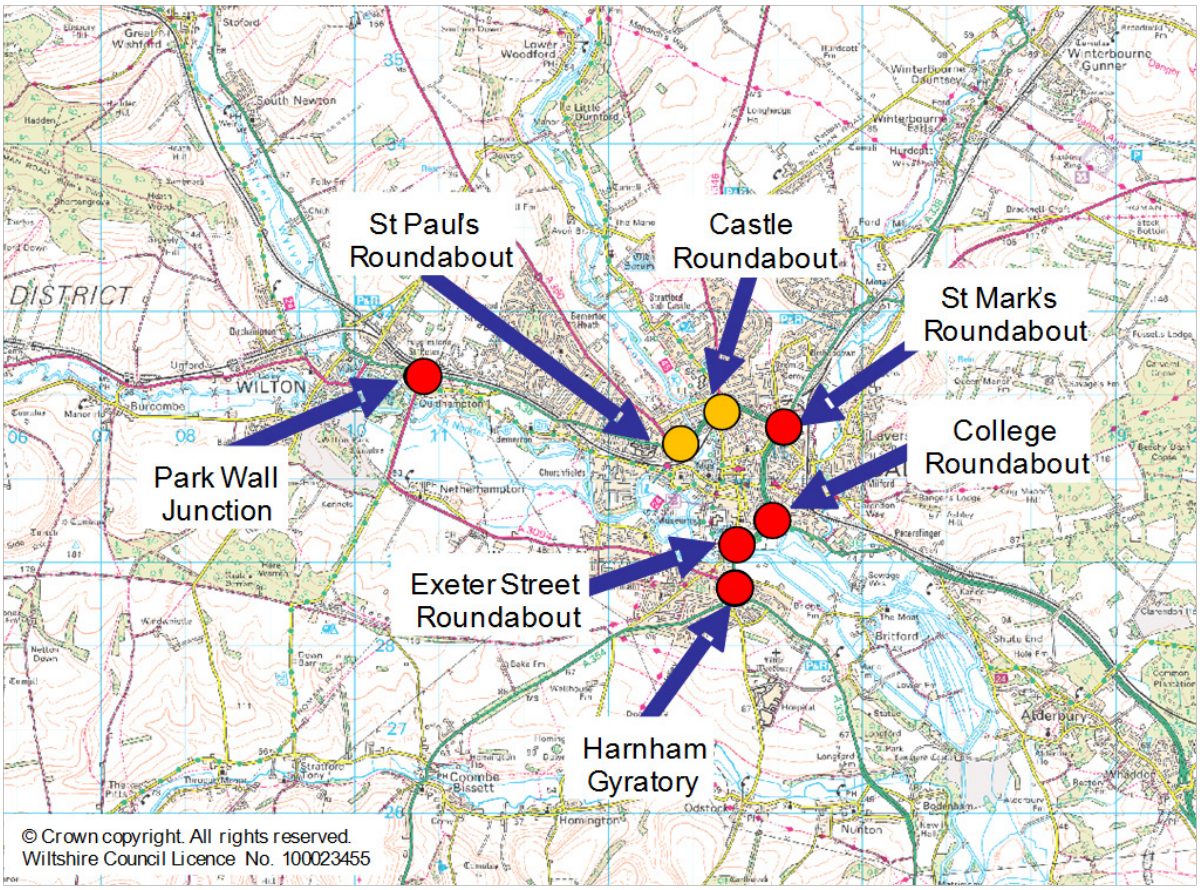
The model is able to assess expected junction performance and has been assessed using the following colour coding:

Green the junction is operating within 50% of capacity;
Amber the junction is operating between 50% and 70% of capacity; and

Red the junction is operating over 70% of capacity (or with two or more arms operating in excess of 90% of capacity).

The results of this analysis of the future year traffic forecasts are shown in Figure 3.2 for the key junctions in Salisbury and Wilton. Park Wall Junction, St Marks Roundabout, College Roundabout, Exeter Street Roundabout and Harnham Gyratory all operate close to or at capacity on a number of their approach arms. The analysis shows that there is still some capacity on all of the arms on St Paul's Roundabout and Castle Roundabout.

Figure 3.2 - Forecast (2026) Business as Usual Highway Performance of Key Junctions



It is also possible to forecast delays – defined as time spent in traffic queues - at junctions. Without intervention, delays are forecast to double (or more) at, College Roundabout, Exeter Street and at Park Wall Junction in the morning peak hour between 2008 and 2026 and evening peak delays are forecast to triple at College Roundabout and double at Exeter Street and at Park Wall Junction. The junctions highlighted as red and with capacity problems are also forecast to cause delays that at least double between 2008 and 2026.

Air Quality

Forecasts of changes in emissions of nitrous oxides (NO_X) particulates (PM_{10}) and carbon dioxide (CO_2) due to road traffic have been made for 2026. The changes shown in Table 3.2 include potential impacts of improved fuel and vehicle technology which could have a significant impact in reducing emissions.

Table 3.2 - Changes in Vehicle Emissions within the AQMA between Base Year (2008) and Forecast (2026) Business as Usual

Emission	Change between 2008 and 2026
NO_X	-22%
PM_{10}	-23%
CO_2	+12%

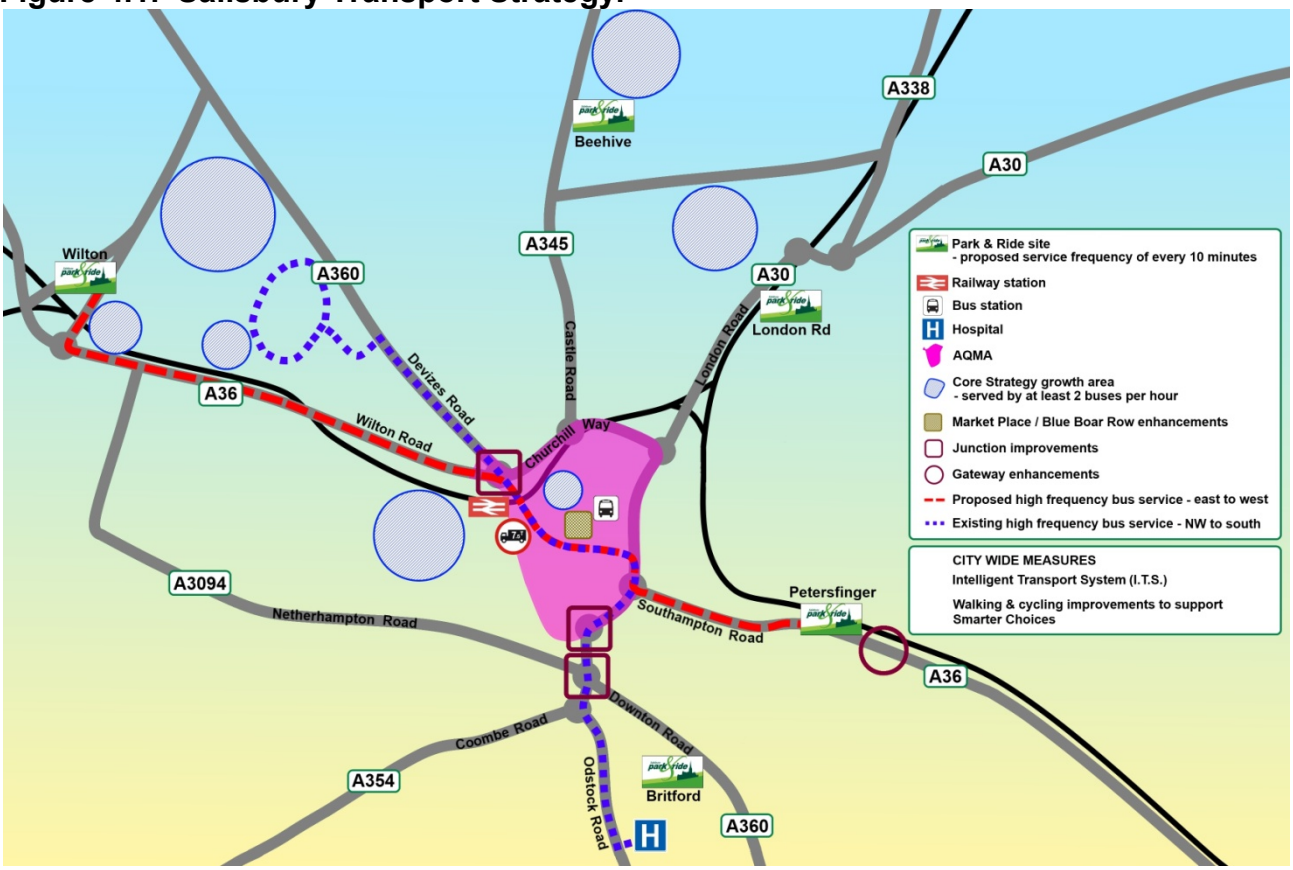
4 The Transport Strategy

4.1 Strategy Components

The proposed transport strategy comprises the following components, and is illustrated in Figure 4.1 below.

- Park and Ride
- Demand management
- Public transport
- Smarter choices
- Walking and Cycling
- Traffic management
- ITS (Intelligent Transport System)

Figure 4.1. Salisbury Transport Strategy.



The components that comprise each element of the transport strategy are described below.

4.2 Park and Ride

Modelling shows that one of the biggest increases in trips is predicted to be those that start outside of Salisbury and end in Salisbury. Park and ride services are essential elements of the strategy which intercept car journeys that would otherwise enter the city centre. Park and Ride services are available on all five major approaches to Salisbury but are not optimised. The strategy proposes enhancing park and ride with frequencies increased to every ten minutes throughout the day. Route changes can deliver a high frequency east/west bus service from Wilton to Petersfinger Park and Ride sites. The strategy also proposes that current charge levels are increased by c10% to ensure the park and ride services remain affordable. Demand management will play a vital role in ensuring that the Park and Ride services are optimised.

4.3 Demand Management

Demand management is a means of controlling the demand for travel. This can apply across the whole network, in specific places or be targeted at particular journey types or particular vehicles. No immediate changes to parking charges are proposed given recent changes implemented by the council to harmonise parking charges following unitary status. However, the Core Strategy does propose a reduction in long stay spaces of around 698 (equivalent to 50% of public long stay stock). This will reduce car trips into the city centre and provide the policy environment to maximise the Park and Ride services. The opening of Petersfinger Park and Ride mean that the net level of long stay parking would be comparable to that provided in 2008.

4.4 Buses

The largest predicted increase in trips are those that both start and end within Salisbury. This is unsurprising due to the location of the strategic housing allocations ie within Salisbury. Consequently, improving travel choice within Salisbury and from the new housing sites will be a key component of the transport strategy.

The Salisbury Transport Strategy includes increasing the frequency of the following services to ensure that all Core Strategy Strategic Sites are served by at least two buses per hour:

- Route 25 - Salisbury - Hindon – Gillingham and Route 26 - Salisbury- Hindon / Shaftesbury – Gillingham; serving the Tisbury and Mere DPD sites and
- Route 10 - Salisbury - Devizes Road extended to serve Fuggelstone Red development.

These and all other services would be able to take advantage of the ITS changes below, with traffic signals being optimised to ensure that buses run to realistic timetables and that advantages were given to buses where possible.

4.5 Smarter Choices

‘Smarter choices’ refers to marketing and promotional campaigns, and other measures (e.g. travel plans, car sharing and car clubs) that try to change ‘hearts and minds’ and encourage travel in more sustainable ways.

The Salisbury Transport Strategy includes actions that continue the effective programme of school, workplace and residential travel planning and promotion of Wiltshire Car Share whilst also creating a Social Marketing Strategy for residents in Salisbury.

4.6 Cycling and Walking

The effectiveness of smarter choices varies considerably, but the greatest rewards come from sustained participation and supporting infrastructure improvements including walking and cycling infrastructue. The strategy proposes a permanently funded team to carry out this work. Work in other cities suggest that the strategy could achieve a 10 percent reduction in peak traffic in specially targeted areas. The ITS system can be used to ensure that any benefits from this reduction in traffic could be sustained.

4.7 Traffic Management

Traffic management is a means of controlling and gaining the most equitable performance for traffic on the highway network. It can range from junction improvements to banning access for certain vehicles along certain roads. Analysis shows that the highway network will become increasing congested and network improvements are included as part of the Strategy.

4.8 Network Improvements

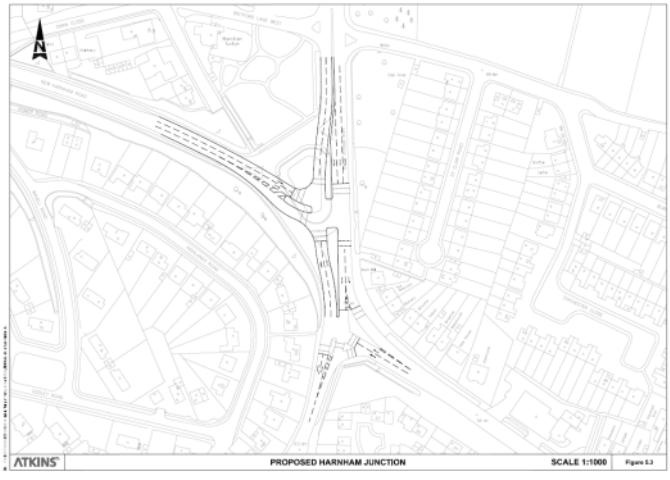
The strategy proposes the following local highway improvements:

- A36 Southampton Road gateway enhancements to this approach to the city from the east
- Shared surfaces (all users sharing the same space with no kerbs to delineate space) in the city centre around Market Square that would give pedestrians priority but allow vehicular access
- HGV ban on Mill Road as HGV demand reduces at Churchfields
- Harnham Gyratory
- Exeter Street Roundabout
- St Paul's Roundabout

An initial review of junctions revealed that there is limited scope to improve College Roundabout without considerable land take and consequent high cost. Similarly, St Mark's Roundabout and Castle Roundabout also have little scope for redesign.

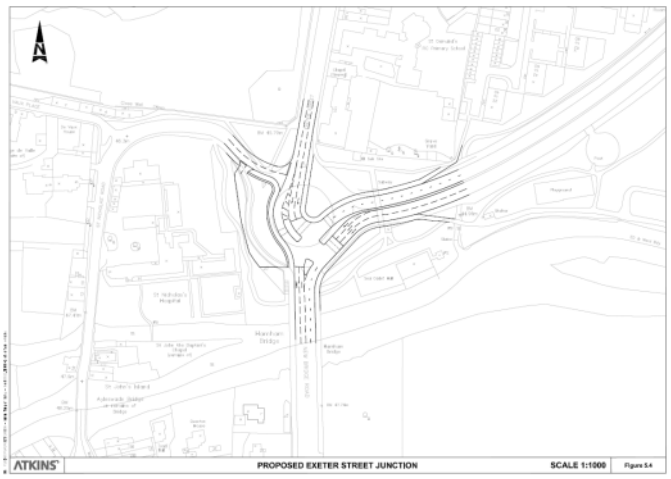
A review of options at Park Wall Junction concluded that any improvements could send more traffic through Harnham and causes problems there unless all of the traffic signals in Salisbury were controlled in such a way to prevent this. As such, no changes are proposed at Park Wall Junction other than modifying signal time settings to achieve the optimum balance of traffic through the junction.

Harnham Gyratory



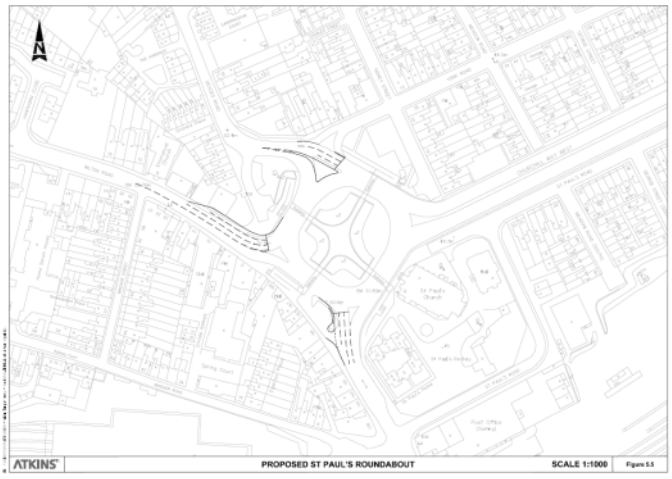
The existing Harnham Gyratory operates reasonably well once traffic reaches the gyratory. However, there are significant queues on the approaches to the gyratory. Our approach would be to convert the gyratory into a 'T Junction'. This provides extra stacking capacity whilst reducing time spent within the gyratory junction. The revised layout is shown below. This layout is indicative at this stage and requires further design work to determine land take, implications for utilities and landscaping.

Exeter Street Roundabout



The roundabout at Exeter Street presently suffers from traffic queues blocking back from Exeter Street, which in turn flows back to the Harnham Gyratory. Much of the problem is associated with stopping traffic on Exeter Street. It is proposed to create a signalised 'T Junction' with St Nicholas Road connecting to the north. This frees space for a 'drop off zone' and controls flow accessing Exeter Street. The revised layout is shown below. This layout is indicative at this stage and requires further design work to determine land take, implications for utilities and landscaping.

St Paul's Roundabout



St Paul's Roundabout is the start of the northern bypass of Salisbury when approaching from the west. This roundabout provides for through movements on the A36 as well as movements into and out of the city centre. The principal problem with this junction occurs at the entry of the A360 Devizes Road. Minor improvements can be made to the roundabout to provide an extra lane for some of the movements but discussions with Highways Agency would be required before pursuing this layout.

4.9 Intelligent Transport Systems (ITS)

ITS refers to utilising information and communications technology to manage factors such as traffic flows and traffic routing to improve safety and reduce transportation times and fuel consumption. It also includes real time bus passenger information and car park capacity information.

The first part of the strategy involves reviewing the systems already in place to ensure that the full benefits of the system were being achieved. The strategy would then ensure that the existing Real Time Passenger Information system was up to date regarding bus timetable and stop data and that correct information was being provided to the public.

Ultimately, the ITS would aim to bring stability and reliability to the transport network and provide travellers with information to help then to plan and execute their journeys. .

5 Summary of Strategy Performance

5.1 The Salisbury transport models have been used to assess the performance of the Salisbury Transport Strategy.

5.2 There is forecast to be an additional 5100 trips to the city centre in 2026 compared with 2008. The Salisbury Transport Strategy results in over 1300 extra trips by public transport and 900 extra trips by walking or cycling. This improves accessibility to the city centre which will contribute to enhancing the local economy.

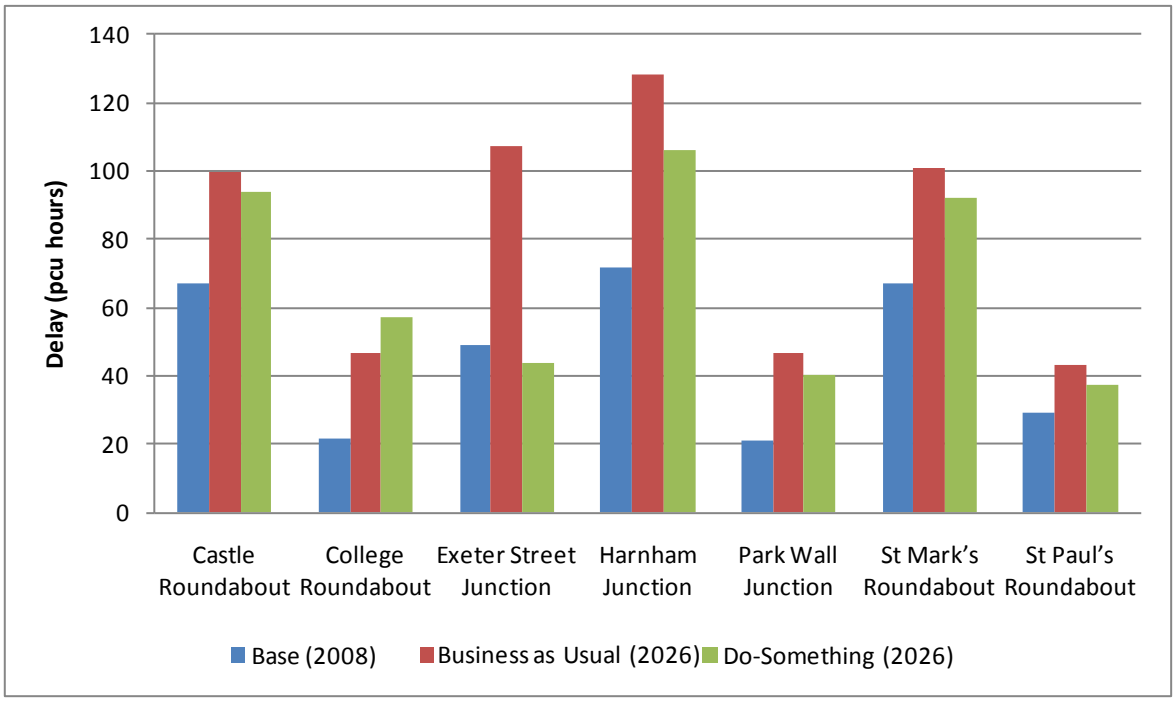
5.3 Implementing the transport strategy could ensure that 45% of these new trips to the city centre are made by sustainable modes in 2026. If the Salisbury Transport Strategy was not adopted (the business as usual approach), the forecasts show that only 20% would be by sustainable modes.

5.4 Changes in transport related emissions between 2008 and 2026 have been forecast. The results show that the adoption of the Salisbury Transport Strategy would result in a forecast increase of CO_2 by 22% compared to the base year. Without the strategy even more CO_2 would be produced.

5.6 The strategy proposes improvements to the highway network at the Exeter Street roundabout and Harnham Gyratory. Junction improvements tend to result in more traffic passing through a particular junction and thus consume any of the additionally created capacity. This is particularly so in Salisbury, where the Netherhampton Road provides an alternative route for traffic passing through Salisbury and improvement to traffic flow through the Harnham Gyratory would result in more traffic travelling along Netherhampton Road rather than along the A36. ITS will help manage this situation.

5.7 Estimated total morning peak delays experienced at each of the key junctions in Salisbury are shown in Figure 5.1 for the base year and for the strategy and business as usual scenarios. The strategy, with specific improvements at the Exeter Street and the Harnham junctions and signal timing improvements elsewhere, result in significant reductions in delay when compared against the business as usual case.

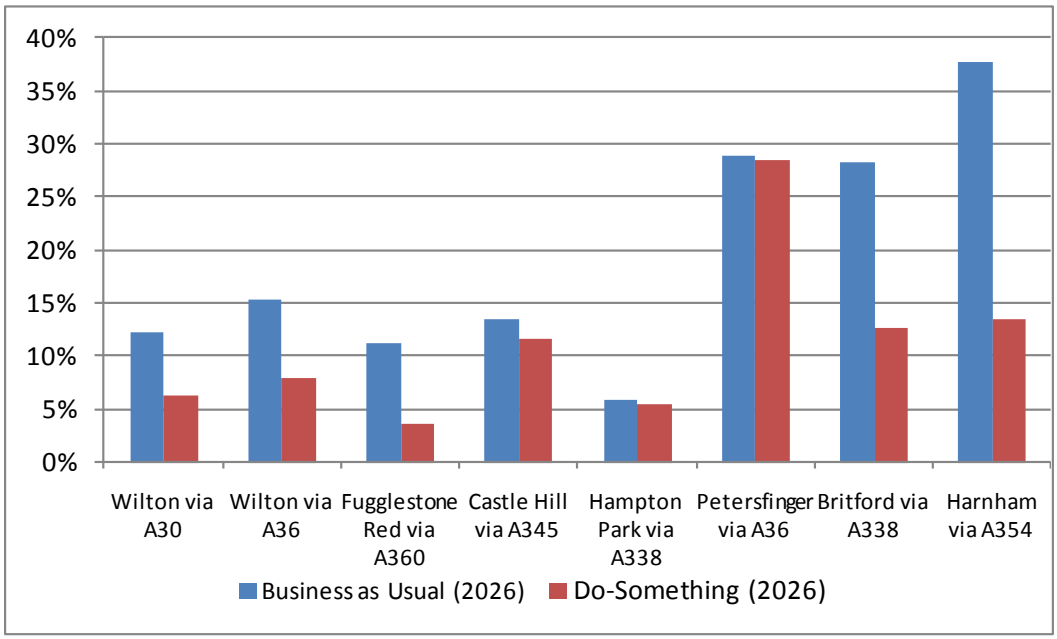
Figure 5.1 - Morning Peak Hour Junction Delays



5.8 Detailed analysis shows that most of the junctions listed above still experience congestion but these results show that, despite the high levels of traffic passing through the junctions, delays are being reduced as a result of the Salisbury Transport Strategy.

5.9 Changes in morning peak hour journey times for routes into Salisbury city centre compared with the base year are shown in Figure 5.2. Although journey times are forecast to be longer than in the base year (2008), the strategy is forecast to result in improved journey times compared against the business as usual scenario.

Figure 5.2 - Changes in Morning Peak Hour Journey Times to City Centre Compared with Base Year



5.10 The intervention measures considered for the Salisbury Transport Strategy have all been assessed by Wiltshire Council officers and have been considered capable of being delivered.

5.11 The cost of this Salisbury Transport Strategy has been estimated as shown below in Table 5.1. The costs are based upon feasibility estimates and should be considered as indicative at this stage but are considered a reasonable basis for assessing overall affordability.

Table 5.1 – Salisbury Transport Strategy - Cost Summary

Item	Cost						
Park and ride	Approximate annual cost £0.5 million Approximate annual revenue £0.2 million						
Highway measures Note that this excludes land costs, statutory undertakings (utilities etc) and design and procurement fees.		St Paul's	Harnham	Exeter	Market Sq	Walking and Cycling (and other works)	**Total**
	Road	£310K	£810K	£610K	£800K	£50K	**£2580K**
	Signals	£110K	£300K	£210K	0K	£500K	**£1120K**
	Other	£90K	£220K	£370K	£300K	£1000K	**£1980K**
	Total	£510K	£1330K	£1190K	£1100K	£1550K	**£5680K**
ITS	Approximately £0.5 million (varies greatly depending on scope and duration)						
Buses	Approximate annual cost £0.8million Approximate annual revenue £0.1 million						
Smarter choices	Approximate annual cost £0.15 million						

The Full Life Strategy Costs have been calculated by assuming that all operating costs are incurred from the start of the Salisbury Transport Strategy. It has been estimated that the cost of delivering the strategy is £25.6 millions, which equates to £3,300 per dwelling.

6 Conclusion

6.1 It is considered that the Salisbury Transport Strategy:

- enables more people to enter the city centre, of which - 45% would by sustainable modes (bus, walking and cycling) – thus supporting the vitality, viability and resilience of Salisbury's economy in a sustainable way;
- reduces congestion across the day, and it is projected to improve the performance of the most critical junctions in the highway network;
- contributes to increasing the use of more sustainable modes of travel; and
- has the least impact in terms of air quality and carbon.

6.2 The Salisbury Transport Strategy would cost money to implement and operate. An estimate of the costs of the interventions has been undertaken and it is considered affordable within the expected envelope of total funding likely to be available from local sources, providing funding is secured through an appropriate levy mechanism on new developments. Similarly, although further work is required to assess the detailed deliverability of the interventions included in the Salisbury Transport Strategy, none of the schemes require powers that are not already available or rely on untested solutions.