

1.0 Introduction

- 1.1 Part One of this study has assessed options to mitigate the impacts of existing issues on the road network in and around South Marston Village. Issues have been identified from site observations, discussions with South Marston Parish Council and the Traffic Sub-group, and an assessment of the Village Strategy.
- 1.2 The identification of traffic issues, and potential options to address these, has been based on existing volumes of traffic through the village. It has not included the potential transport impact of proposed growth at the Eastern Development Area (EDA).
- 1.3 Part Two of the study has assessed the transport impact of the EDA on South Marston and is based on data available in Autumn 2010. The study area is as per Part One, and includes Thornhill Road to the Keypoint roundabout, Old Vicarage Lane to the A420 and Highworth Road.
- 1.4 This section of the report details the findings of Part Two of the study and has been undertaken at a more strategic level given current uncertainties regarding the eventual masterplan for the EDA/Eastern Villages. The nature of the extension of South Marston village, and the quantum of development at Rowborough which is to be located to the east of South Marston, will have the greatest impact on the existing village and residents.
- 1.5 This part of the report seeks to address the optioneering solutions identified in Part One to understand whether the conclusions drawn are still valid with increased traffic volumes. The land use and highway planning context for the assessment of options is based on:-
 - The Planning for Real exercise conducted by New Masterplanning in the Summer of 2010, which sought to establish some principles for the development of the village; and
 - Long standing options identified in the 2006 South Marston Village Report.
- 1.6 The key highway challenges for the village are listed in Table 1.1.

Table 1.1 – Key Transport Challenges

Description	Existing Issue	Conclusions from Part One of the Study	Key Questions for expanded village / EDA
Pedestrian and vehicular conflict around Pound Corner	Insufficient carriageway and footway available	Realignment of the carriageway at Pound Corner to provide footway on the eastern side of Old Vicarage Lane	Will the proposed options identified as Part One be sufficient to mitigate the impact of the EDA?
Gaps in footway provision	Thornhill Road close to the industrial estate. Vicinity of South Marston Hotel.	Continuous footway from Pound Corner to Keypoint roundabout and from Pound Corner to South Marston Hotel	Does the expansion of the village warrant further measures?
Accessibility improvements	Lack of Dropped Kerbs / Tactile paving	To provide dropped kerbs / tactile paving in locations where these are not provided	Does the expansion of the village warrant further measures?
High Traffic Speeds/ Through Traffic	Little evidence to support view in terms of speeds/accidents or traffic volumes.	20mph zone for village centre & 30 mph between village centre and A420 for consistency. Some additional traffic calming measures	Are the proposed and existing traffic calming suitable with increased volumes of traffic? Are further measures required?
Can the masterplanning principles set out by SBC / NEWMasterplanning be achieved in transport terms?	Not applicable	Not applicable	Function of Pound Corner? Function of Old Vicarage Lane / A420 Junction?
Are the 'southern' and 'eastern' link roads necessary?	Not applicable	Not applicable	Testing of options with and without the southern link road Testing of options with and without the eastern link road
Implications of Rowborough	Not applicable	Not applicable	What are the implications of Rowborough- Through traffic - Pound Corner - Keypoint roundabout- A420 / Old Vicarage Lane Junction

2.0 EDA Key Assumptions

2.1 Prior to the commencement of traffic modelling to test the impact of the EDA/Eastern Villages, consideration was given to the assumptions that would be used in the model. This included the following:-

- The LDA Framework and Draft EDA SPD
- The Planning For Real exercise conducted by NEW Masterplanning in the Summer of 2010
- Preparation of a Draft SPD and associated masterplan for South Marston
- Trip Rates to be used for each land use type in order to determine the trip generation from the EDA
- Changes to the road network associated with the expansion of South Marston Village
- Changes to the road network associated with the remainder of the EDA
- Forecast Years

South Marston Village – Masterplanning Assumptions

2.2 Masterplanning and land use assumptions were derived from the evidence base related to the emerging Core Strategy, and from the Planning for Real exercise conducted by NEW Masterplanning. In total, five layouts for South Marston Village were provided and these are illustrated diagrammatically in Appendix A. For the purposes of the transport study, and to be consistent with the work undertaken by NEW Masterplanning, South Marston was assumed as the area bounded by the A420 to the south, Thornhill Road to the west, Old Vicarage Lane to the east and the existing village northern boundary on Highworth Road.

2.3 Traffic demand scenarios were derived:-

- Scenario 1 – Expanded village of 955 total dwellings based on SBC; and
- Scenario 2 – Expanded village of 613 total dwellings which correlated with NEW Masterplanning Option 1b.

2.4 In demand terms, Scenario 1 represents the full complement of housing based on a higher quantum of development, with Scenario 2 representing the number of dwellings associated with a lower level of development and that preferred from the NEW Masterplanning workshops. Both scenarios included the potential development of the brownfield sites abutting Thornhill Road, although in the case of Scenario 2, it was assumed that Isotron would remain.

2.5 For modelling purposes, the worst case 'demand' has been tested for each scenario to evaluate future transport interventions.

Remainder of the EDA/Eastern Villages – Masterplanning Assumptions

2.6 Masterplanning and land use assumptions were derived from the planning department at SBC in Autumn 2010. As part of the wider EDA Transport Study, we initially assessed a development of 12,000 dwellings at the EDA. However, to reflect the lower quantum of development set out in the emerging Revised Proposed Submission Draft of the Core Strategy, the Eastern Villages masterplan assumes the delivery of c.7,000 dwellings including the development of a new community to the east of South Marston known as Rowborough. An indicative plan is shown at Appendix B. The table below provides an indication of land use

types and the quantum tested for the remainder of the Eastern Villages (excluding the residential elements associated with South Marston which are described above):-

Table 2.1 – Land Use types and quantum of development for the remainder of Eastern Villages

Land Use	Development Quantum
Residential	6299 units*
B1 Office	2,000 jobs
B1 Science Park	800 jobs
B8 Warehousing	500 jobs
Primary Schools	3 schools (2FE) and an extension to South Marston primary school
Secondary Schools	1 school (8FE)
Retail (District Centre only)	1,000 jobs

*excludes South Marston

Development Trip Rates

- 2.7 Previous work undertaken for the EDA has calculated a set of vehicular trip rates for each land use. For developments such as these, it is normal for ‘worst case’ conditions to be modelled, hence the morning and evening peak trip rates which are illustrated in Tables 2.2 and 2.3 below.

Table 2.2. Morning Peak Trip Rates

Land Use	Average Trip Rates	
	Arrivals	Departures
Residential Market Value Housing	0.140	0.395
Residential Affordable Housing	0.117	0.222
Residential Market Value Flats	0.047	0.202
Residential Affordable Flats	0.062	0.104
B1 Office	0.216	0.023
B1 Science Park	0.398	0.051
B8 Warehousing	0.092	0.052
Primary Schools	0.257	0.178
Secondary Schools	0.195	0.119
Retail (retail park)	0.588	0.333

Table 2.3 – Evening Peak Trip Rates

Land Use	Average Trip Rates	
	Arrivals	Departures
Residential Market Value Housing	0.402	0.233
Residential Affordable Housing	0.246	0.156
Residential Market Value Flats	0.192	0.074
Residential Affordable Flats	0.128	0.099
B1 Office	0.017	0.162
B1 Science Park	0.048	0.360
B8 Warehousing	0.020	0.087
Primary Schools	0.022	0.035
Secondary Schools	0.006	0.020
Retail (retail park)	1.030	1.266

- 2.8 The trip rates are taken from the industry standard TRICS database which provides trip rates based on surveys conducted at actual sites which exhibit similar land use, socio economic and access to public transport characteristics. The trip rates are 'average' trip rates.
- 2.9 In addition, reductions have been made on the trip generation associated with the development of a robust travel plan for the EDA site, potential enhancements to public transport and the internalisation of trips (where employment opportunities are located adjacent to the site).
- 2.10 It should be noted that the developer will need to conduct their own trip generation calculations based on the masterplan that they submit to the Council. However, the figures that are shown in this report are based on the information that JMP had available in Autumn 2010.
- 2.11 Table 2.4. shows the corresponding level of trip generation for an expanded South Marston village (higher quantum of development/'worst case' scenario). It should be noted that the table shows additional vehicular trips generated and excludes those already on the road network.

Table 2.4 – Trip Generation from an expanded South Marston Village

		Number of dwellings	AM Arrivals	AM Departures	PM Arrivals	PM Departures
Trip Generation	Greenfield	798	99	254	263	155
	Brownfield	157	19	50	52	30

- 2.12 The figures indicate that the predominant movement will be traffic leaving South Marston in the morning peak and traffic arriving in South Marston in the evening peak. This is consistent with a typical commuter travel profile.

Changes to the road network – Expansion of South Marston Village

- 2.13 As a starting point it was assumed that the village extension would be connected directly or indirectly to Old Vicarage Lane, or Thornhill Road. In addition there would no additional junctions with the A420 between Gablecross and Old Vicarage Lane.

Changes to the road network – Remainder of the EDA

- 2.14 As a starting point, the internal road network within the EDA and the blocks of development were assumed to be consistent with the masterplan shown in Appendix B of the report.

Forecast Assessment Year

- 2.15 In order, to model the impact of the Eastern Villages, JMP have tested a 2026 forecast year in consistency with the Draft Core Strategy and the third Local Transport Plan for Swindon (LTP3).

3.0 Baseline Assessments

Methodology

- 3.1 In order to establish the extent of the impact of the Eastern Villages on the strategic road network and the local highway network within Swindon, baseline assessments have been modelled.
- 3.2 Baseline conditions need to be established accurately to fully understand the context of the development proposal.
- 3.3 For the purposes of this assessment, two baseline scenarios were generated:
- i. A 2008 Base Year to replicate existing conditions. Observed queues and journey times were collected in order to validate and calibrate the model,
 - ii. A 2026 Reference Case – As per i above but with the inclusion of Eastern Villages demand and no mitigation measures in South Marston other than the provision of residential roads to serve the development from Thornhill Road and Old Vicarage Lane. This also includes the provision of links to Rowborough from Old Vicarage Lane.
- 3.4 The Reference Case Scenario incorporated a number of other network changes related to other parts of the Eastern Villages including.
- Modifications to the White Hart Junction to increase capacity and improve the public realm
 - Provision of a Green Bridge across the A419
 - Modifications on the A419 approaching M4 Junction 15
 - Flared approaches to each of the Eastern Villages accesses in both directions on the A420 and signalisation of the western and eastern access junctions. This provides more storage capacity for traffic waiting to turn into the Eastern Villages without blocking A420 traffic.
 - Capacity enhancements on the A420 westbound between the Eastern Villages western access and Gablecross roundabout to cater for the increased demand travelling from the proposed development towards White Hart Junction.
- 3.5 In order to test the Reference Case, it was also necessary to build a representation of the Eastern Villages internal network as shown in Appendix C. It should be noted that at the current stage, the network layout within the proposed development is considered conceptual and is liable to change.
- 3.6 The 2026 years were chosen because they conform to the planning trajectory of the Draft Core Strategy and LTP3. For the purposes of this assessment only, it was therefore assumed that all of the proposed Eastern Villages development would be delivered by the modelled forecast year of 2026.

Modelling Results

- 3.7 This section of the report presents and compares the journey time results for the morning and evening peak periods.

3.8 The intention was to highlight the performance of the network under baseline conditions and identify where the key issues are on the network.

Journey Times

3.9 Average journey times were calculated for the following routes:-

- Highworth Road/Supermarine Drive to the Old Vicarage Lane / A420 junction
- Old Vicarage Lane / A420 junction to Highworth Road / Supermarine Drive
- Highworth Road/Supermarine Drive to the Keypoint roundabout
- Keypoint roundabout to Highworth Road / Supermarine Drive

Figure 5.1 – Morning Peak Journey Times (in seconds)

GRAPH TO BE INSERTED

Figure 5.2 – Evening Peak Journey Times (in seconds)

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3.10 It is apparent from the graphs that in the morning peak, the Reference Case has considerably higher journey times for all routes but particularly of note is the morning peak journey time between Highworth Road and the Keypoint roundabout.

3.11 This is not only a function of traffic volumes leaving South Marston but also the higher volumes of traffic on the A420. Consequently, the amount of 'time' that can be allocated to South Marston traffic at the Gablecross junction is reduced leading to queuing and increased journey times.

3.12 Other key observations from the model are as follows:-

- The increase in traffic in the village is not just related to growth within South Marston, but also through traffic running through the village to access the Eastern Villages development south of the A420 (rather than using the A419). Improvements to White Hart Junction and in particular, the A419 southbound off slip would assist in mitigating the impact of through traffic through South Marston.
- Evening peak hour journey times do not increase as significantly as in the morning peak because there is less traffic running through the village.
- The majority of Rowborough traffic is travelling south onto the A420 and therefore the traffic impacts are mainly related to the Keypoint / Old Vicarage Lane / A420 junctions rather than in South Marston village centre.

- Pound Corner in its existing form and those improvements proposed under Part One of this study would be insufficient to accommodate the predicted increases in traffic volumes.
- The current Old Vicarage Lane / A420 priority junction will need to be upgraded to cater for increased traffic volumes and to allow southbound vehicles to emerge safely onto the A419.

4.0 Optioneering

- 4.1 The option testing for the Eastern Villages has centred around testing some of the key questions that were raised in Part One of the study, and also those that have been put forward in the 2006 Village Strategy. We have therefore used the issues as set out in Table 1.1 as the basis for testing different transport interventions.

Pound Corner

- 4.2 Modelling indicates that much of the increase in journey times on Old Vicarage Lane and Thornhill Road is a consequence of vehicles queuing to join the A420. The other pinch point is at Pound Corner where vehicles wishing to travel north on the Thornhill Road / Highworth Road alignment are blocked by vehicles wishing to turn right from Thornhill Road to Old Vicarage Lane. Vehicles wishing to make the sharp turn left from Highworth Road into Old Vicarage Lane have to slow down considerably to negotiate the bend safely. In the peak hours this causes following vehicles to also slow down, generating queuing on the approaches to Pound Corner. Similarly, traffic emerging from Old Vicarage Lane at Pound Corner to travel northbound on Highworth Road is the subject of extensive delays as vehicles wait to find a gap in traffic.
- 4.3 Options considered to mitigate the impact include:-
- Modifications to Pound Corner in its existing location
 - New junction to the west of Pound Corner
 - Reducing the level of through traffic by removing connections to Rowborough
 - Provision of an alternative route for Rowborough traffic such as the 'eastern' link road
 - A419 improvements

Modifications to Pound Corner in its existing location

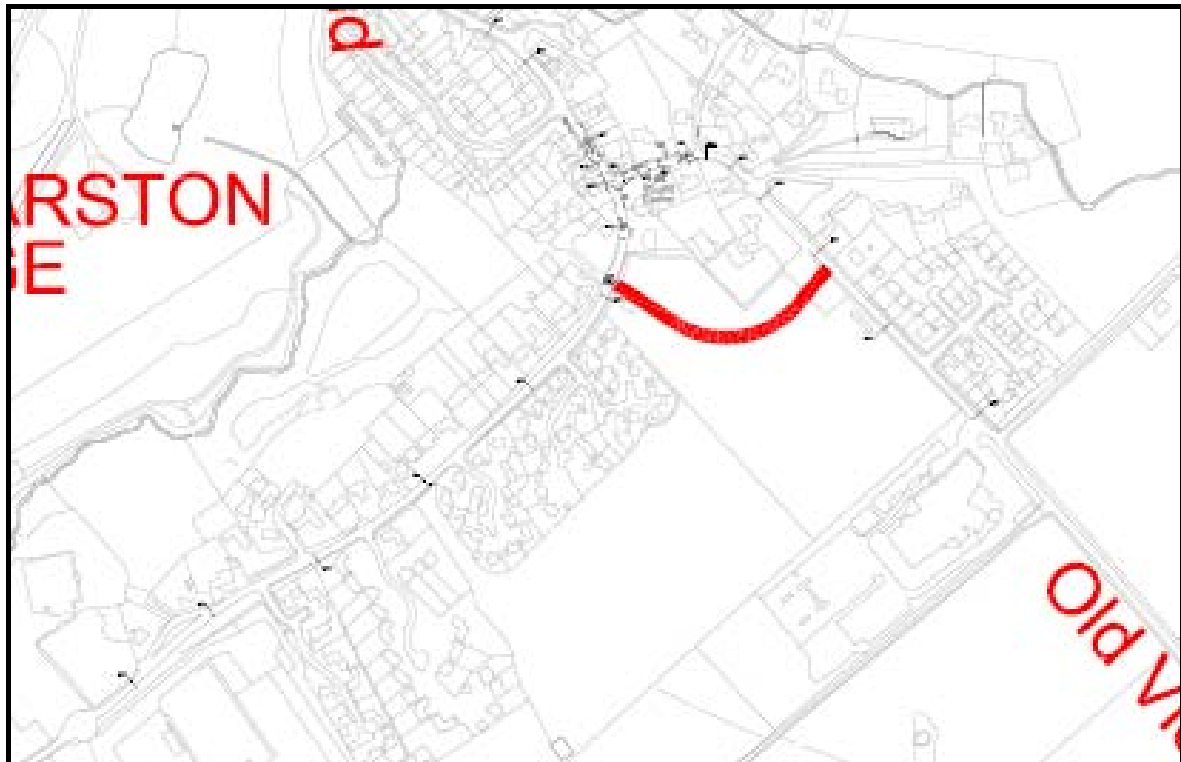
- 4.4 An engineering led solution would be to provide a right turn filter lane to enable vehicles to turn right from Thornhill Road to Old Vicarage Lane without impeding ahead traffic coupled with radii improvements to enable vehicles to turn left into Old Vicarage Lane more effectively and safely.
- 4.5 In order to allow vehicles to emerge safely from Pound Corner this would require the current priority junction to be converted to either a mini roundabout or a signalised junction. Although a signalised junction would be preferable in terms of reduced land take, Sections 4.3 to 4.13 of Part One of this report ruled out signalisation because it would require extensive third party land, reduce the attractiveness of the village centre and have amenity impacts on neighbouring properties from queuing traffic. It is also worth noting that the junction footprint required to accommodate additional traffic would be considerably larger than that shown in Appendix B of Part One of this report.
- 4.6 For this reason, it is not recommended that Pound Corner is modified in this way.

New junction to the west of Pound Corner

- 4.7 This option was not tabled in Part One of this report because of the potential cost and impacts on the playing fields to the rear of the school. However, options put forward by NEW Masterplanning at the Planning for Real forum in Summer 2010 suggested that Old Vicarage Lane could be realigned at the northern end with a new junction provided with

Thornhill Road to the west of the proposed primary school extension. This is shown indicatively in Figure 4.1 below.

Figure 4.1. – Indicative representation of New Pound Corner junction



- 4.8 Whilst a priority junction would meet current forward visibility requirements, provide improved pedestrian linkages and improved safety through the use of current geometric standards, it would not resolve the issues of reducing queuing on the approaches to the Pound Corner junction.
- 4.9 Consequently, vehicles would struggle to egress from Old Vicarage Lane. In order to provide sufficient capacity for all movements a signalised junction or mini roundabout would need to be provided with flared approaches provided at the junction to cater for different movements. A mini roundabout would potentially require more land but would provide the opportunity to provide a gateway feature and would be more in keeping with the village character.
- 4.10 In order to do this, Thornhill Road would need to be realigned slightly to the south, encroaching on playing field land.
- 4.11 The northern end of Old Vicarage Lane would then become a local access road (probably in the northbound direction only given the predominant southbound movement in the morning peak), facilitating improvements to the footway between the primary school and Pound Corner.
- 4.12 Our conclusion is that this option could be investigated further, alongside other complimentary measures. However, serious consideration will need to be given to the potential future expansion of the school, and pedestrian and cyclist access to the playing

field land, as well as options around the provision of services to meet local needs, for example a small shop. The provision of a new junction to the west of Pound Corner will only partly mitigate the impact of increased traffic volumes and could potentially 'urbanise' the centre of the village. However, should this be the preferred option, it will be necessary to consider complimentary measures to reduce through traffic in South Marston village. The assessment of complimentary transport measures is described in the following paragraphs.

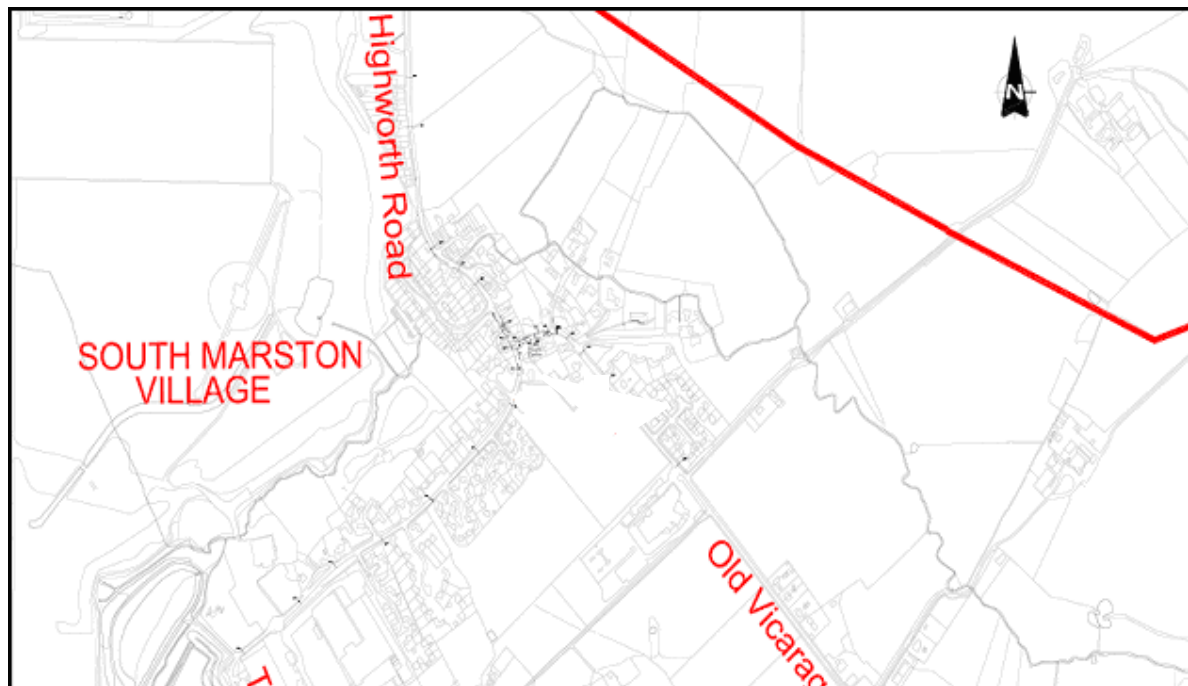
Reducing the level of through traffic by removing connections to Rowborough

- 4.13 A preliminary assessment has been undertaken to determine how traffic would reassign to Rowborough if no through connections were provided from Old Vicarage Lane. The outcome of the tests was that the removal of links to Rowborough from Old Vicarage Lane has a negligible impact on reducing traffic within South Marston. This is because most of the movements from Rowborough are southbound and therefore do not travel through the heart of the village.

Eastern Link Road - Provision of an alternative route for Rowborough and Eastern Villages traffic

- 4.14 The 2006 Village Strategy identified the provision of an 'eastern by pass' connecting Highworth Road to Rowborough. This is shown in figure 4.2 below:

Figure 4.2 – Indicative alignment of Eastern By Pass (for modelling purposes only)



- 4.15 Modelling indicates that the eastern by pass or link road would not be heavily utilised because much of the traffic running through the village is to the Eastern Villages District Centre and the employment areas south of the A420. Hence, the eastern 'by pass' would only serve to take southbound traffic further to the east and would not offer an attractive alternative route. As stated in paragraph 4.25, Rowborough traffic would also be unlikely to use this road because the predominant vehicular movements are to and

from the A420 to the south. Consequently, traffic volumes through South Marston village are unlikely to be reduced significantly by the inclusion of an eastern by pass or link road.

- 4.16 Our conclusions are that there is not a strong case in traffic terms for the inclusion of an eastern by pass to South Marston village.

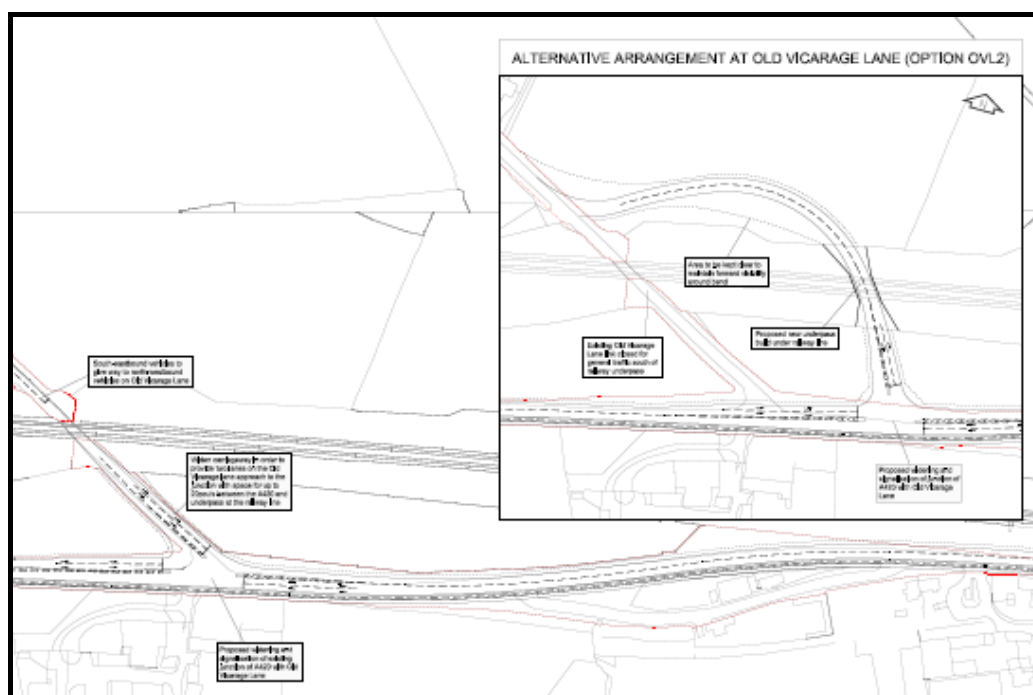
A419 improvements

- 4.17 As stated in paragraph 4.12, our modelling indicates that some traffic travelling southbound on the A419, is diverting via the Honda roundabout, Supermarine Drive and South Marston village in order to access development south of the A420. In addition, some traffic from the Highworth direction is also 'rat running' through the village in order to access the A419 southbound.
- 4.18 In order to mitigate the impact of Eastern Villages traffic at the White Hart roundabout, a number of modifications to increase capacity and improve the public realm are being considered as part of the wider EDA Transport Study. Of these, improvements to the slip road configuration particularly for the A419 southbound will provide the most benefit as this will improve journey times for drivers accessing the Eastern Villages making routes through South Marston less attractive.
- 4.19 It is recommended that the eventual design for the White Hart Junction takes full account of the impact on traffic volumes through South Marston village.

Safety and capacity of the Old Vicarage Lane / A420 junction

- 4.20 Consultation with SMPC has indicated that residents are concerned about the impact of additional traffic on the safety and capacity of the Old Vicarage Lane / A420 junction.
- 4.21 Modelling conducted suggests that a new signalised junction should be provided where Old Vicarage Lane meets the A420. Two potential options are shown in Figure 4.3 below. An 'online' improvement with the junction retained in its current position and an offline improvement where a new junction is constructed further to the east.

Figure 4.3 – Old Vicarage Lane / A420 signalised junction – Current location and new junction to the east



- 4.22 Where the junction is retained in its current position, modelling suggests that the storage capacity between the junction and the bridge underpass would be adequate to ensure no green time is lost should vehicles be queuing north of the underpass when Old Vicarage Lane is showing a green light.
- 4.23 The scheme is therefore reliant on southbound drivers on Old Vicarage Lane keeping the single lane section under the bridge clear until their exit is free. Whilst the model suggests that this can be achieved, it would be possible to signalise the shuttle running section in future, with its operation tied in to that of the main junction.
- 4.24 This option is the most cost effective option but there remains some doubt about the resilience of Old Vicarage Lane should the bridged underpass become blocked by a vehicle. Presently, this road is very lightly trafficked but an increase in traffic particularly to an expanded South Marston village and Rowborough makes the possibility of such an incident occurring more likely.
- 4.25 Consequently, consideration should also be given to providing a new signalised junction to the east of the existing junction (shown as the OVL2 scheme in the box) by providing a new underpass under the railway line. Construction of a wider underpass would ensure that no green time is lost should vehicles have to wait north of the railway to give way to opposing traffic should the existing one-way arrangement remain in place. The existing underpass could either be closed or remain open for pedestrians and cyclists to use. Both options would provide pedestrian facilities.
- 4.26 It should be noted that the provision of a 4 armed junction at this location with access to the Eastern Villages to the south would only serve to encourage through traffic along Old Vicarage Lane, within South Marston and is therefore not recommended unless the

developers can identify appropriate mitigation to reduce the level of through traffic in the village.

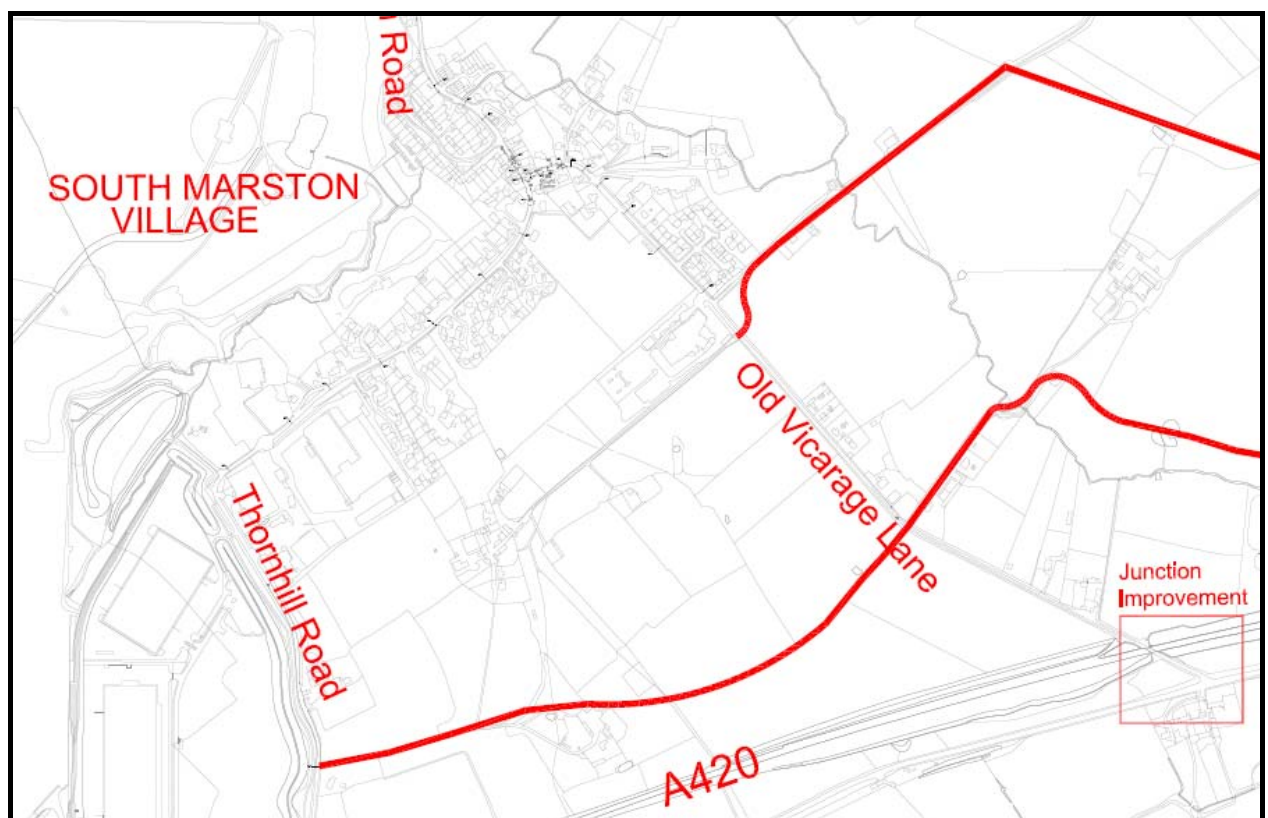
The need for a link road south of the village

- 4.27 The potential for a link road south of the village connecting Thornhill Road with Old Vicarage Lane and running parallel and to the north of the railway line is an issue that was raised and documented by SMPC in their Village Strategy (2006). It is understood that this option was presented to address concerns regarding the ability of the existing village roads to accommodate additional traffic and to displace traffic over a wider area. The function of this road has also been considered within the context of providing a route to the Rowborough development

Connection with Rowborough

- 4.28 In order to test a worst case we have assessed the impact of providing a link through to the Rowborough development as shown in Figure 4.4.

Figure 4.4 – Southern By Pass with connection through to Rowborough



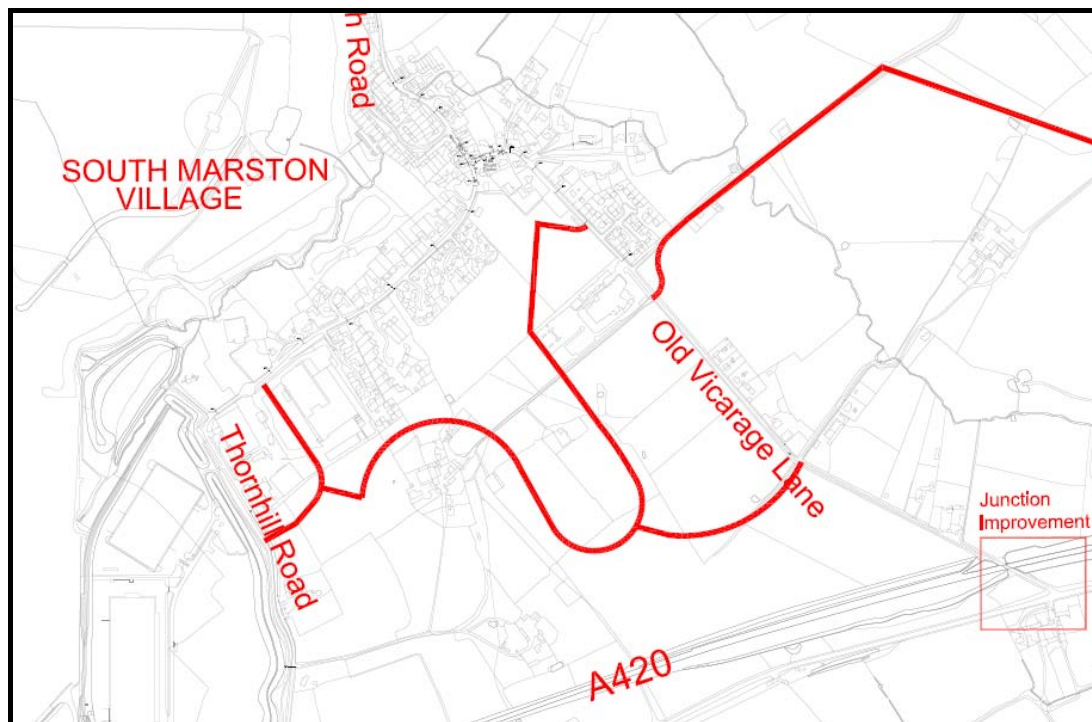
- 4.29 Modelling suggests that with a connection to Rowborough a 'link road' to the south could actually draw traffic away from the A420, particularly if a direct connection is made to via the Nightingale Lane or Rowborough Lane alignment. In addition, modelling also suggests that queues at both the Keypoint roundabout and the Old Vicarage Lane / A420 junction would lengthen with a consequential impact on journey times for South Marston

residents. On this basis, the A420 would offer a more suitable alignment for such movements.

No connection to Rowborough

- 4.30 Modelling has also been conducted with no connection between South Marston and Rowborough. Whilst it is accepted that the primary access to Rowborough must be via the A420, a single point of direct entry to the new development from the A420 is unlikely to be acceptable to SBC because of the need to displace traffic over a number of access/egress points (to relieve pressure on a single junction arrangement), provide a permeable network of roads and to increase the resilience of the network in the event of an accident or requirement to undertake essential maintenance.
- 4.31 The outputs indicate that an indirect route through the new development at South Marston, linking Old Vicarage Lane with Thornhill Road, would serve to displace South Marston traffic over a wider area and is therefore recommended in terms of reducing the level of traffic on existing village roads. An example layout is shown in Figure 4.6 below.

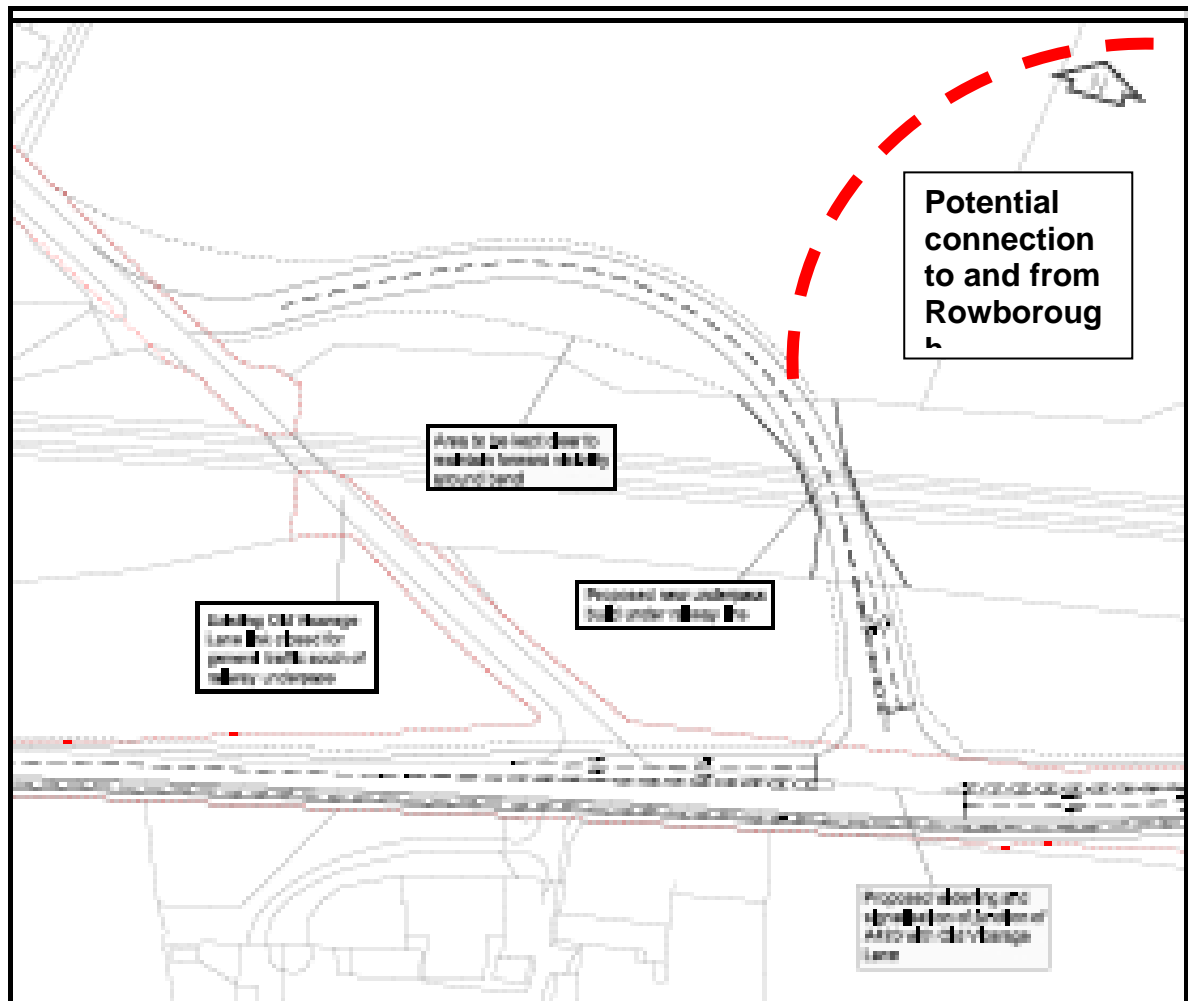
Figure 4.6 – Potential layout of a link road to the south of the village with no connection to Rowborough



Alternative Option

- 4.32 Following discussions with the Village Working Party, an option of linking the A420 to Rowborough via a relocated Old Vicarage Lane / A420 junction has been explored in more detail. This is shown indicatively as Figure 4.5.
- 4.33 Key engineering challenges will be to determine the form of such a junction taking into account the constraints imposed by the Great Western railway line and a robust viability assessment would be required to ensure a design could be delivered. Operationally, the key consideration will be to maintain the safety and efficiency of the A420.

Figure 4.5 – Potential connection from Rowborough to a realigned Old Vicarage Lane / A420 Junction



Traffic Speeds

- 4.34 Part One of the study revealed that there was little evidence to support the view that traffic speeds through the village were excessive. However, it was acknowledged that narrow footways contribute to the perception that vehicles are travelling quicker than they actually are. Furthermore, the Traffic Sub-group expressed a desire to see traffic speeds reduced to levels that were more in keeping with the village character.
- 4.35 Consequently, options for a 20mph zone for the village (refer to paragraph xx) with a 30mph zone extending from the village limits to the A420 in the south and Supermarine Drive in the north were developed. It was further recommended that existing traffic calming measures be enhanced to assist in enforcing these measures and achieving high levels of compliance.
- 4.36 Modelling with increased traffic volumes arising from the proposed Eastern Villages development and an expanded village at South Marston, suggests that road narrowings in the form of chicanes would impede vehicular movement through the village particularly in the morning and evening peaks. For example, those traffic streams not having vehicular priority would have to give way to vehicles travelling in the opposing direction

for much long periods of time. The inevitable consequence of this will be an increase in journey times.

- 4.37 Consideration should be given to replacing some of the existing chicanes with either vertical devices or psychological traffic measures in order to support the proposed changes to speed limits. Concerns has been expressed by some residents about the noise disturbance caused by vertical deflection and therefore psychological traffic calming measures may be the preferred option and more in keeping with the character of the village, Appendix D of Part One of this report outlines some of the measures that could be considered further once the masterplanning proposals for the village are developed in more detail.

Footway Provision and Carriageway Lengths

- 4.38 Part One of the report identified gaps in footway provision based on the built form of the existing village. With an expanded village, new footways will need to be provided on Old Vicarage Lane to the south of Nightingale Lane in order to provide a continuous pedestrian route to the new housing and also the A420.
- 4.39 Some selective carriageway widening of Old Vicarage Lane, south of Nightingale Lane to between 5.5m and 6m will also be required in order to facilitate the movement of vehicles to and from the A420.
- 4.40 Due to land ownership constraints the provision of footways and widening will need to be considered from the western side of Old Vicarage Lane.
- 4.41 More detailed work will need to be undertaken once a preferred masterplan for the village has been determined. Whilst the casual surveillance of footpaths is required for safety reasons, the preservation of hedgerows by providing footpaths to the rear should be actively pursued. For example, the new bridleway which is located on Thornhill Road between the Keypoint development bund and the road. This approach will retain the character of the village and avoid over-urbanisation.

5.0 Conclusions and Recommendations

5.1 In conjunction with an examination of existing traffic issues in South Marston Village (Part One of this report), JMP have conducted a high level assessment of the impacts associated with the growth of the village and development of the proposed Eastern Villages (Part Two). The findings and recommendations from Part One have been assessed against the anticipated increases in traffic volumes arising from the Eastern Villages development in order to determine whether they are still valid. The conclusions presented here relate to the Part Two findings.

5.2 Part two has identified the following traffic issues:-

- Without mitigation, there will be a significant increase in journey times through the village particularly in the morning peak and in the southbound direction. The approaches to the Keypoint roundabout and the Old Vicarage Lane / A420 junction will experience the most significant delays;
- Evening peak hour congestion will be less pronounced than in the morning peak;
- Traffic increases in South Marston will comprise of trips generated by an expanded village and Rowborough, as well as through traffic travelling to other parts of the Eastern Villages development south of the A420 and into Swindon (i.e, those wishing to avoid the A419 and the White Hart Junction);
- The majority of Rowborough traffic will be accessing destinations to the south and via the A420 and will not be travelling through South Marston village centre;
- Pound Corner in its current form (priority junction) will not have sufficient capacity to cater for the anticipated increase in traffic volumes;
- Existing traffic calming measures which reduce the width of the available carriageway (chicanes) will generate queues and delays for vehicle streams which do not have priority;
- Footway provision on Old Vicarage Lane, south of Nightingale Lane will need to be extended to link the new development to the rest of the village and also to the remainder of the Eastern Villages Development;
- Carriageway widths on Old Vicarage Lane, south of Nightingale Lane will need to be widened.
- .Traffic modelling has been based on data that was available in Autumn 2010 and relates to the development of c.7,000 houses in the Eastern villages.

5.3 In order to be robust, modelling has been based on a 'worst case' assessment.

Pound Corner

5.4 A number of options were considered to address the traffic problems identified at Pound Corner.

5.5 Retaining the existing priority junction is not recommended because there would be insufficient capacity to accommodate all movements. Right turning traffic from Thornhill Road to Old Vicarage Lane would impede ahead movements in particular.

5.6 Modifying the existing junction to accommodate the aforementioned right turning movement, and a relaxation of radii to better accommodate left turning movements from

Highworth Road, would involve third party land take from neighbouring properties. Signalisation would also be needed requiring extensive visibility splays which would again, increase land take and this is considered to be a barrier to implementation. This option is not recommended.

- 5.7 Relocating the junction to the west of the potential school extension as identified in NEW Masterplanning options 1b and 2a could be considered further because of the safety and capacity benefits that it would offer. A signalised crossroads or a mini roundabout could be implemented without land take from neighbouring properties. However, some of the playing fields would be lost to accommodate the diversion of the northern end of Old Vicarage Lane and this must option must be considered in the context of preserving the character of the village, the future provision of services to meet local needs and the proximity of the road to the school and neighbouring residential properties. If this option were to be delivered Pound Corner would revert to a minor junction with Old Vicarage Lane operating as a local access road only from the primary school northwards.
- 5.8 Other complimentary measures should be considered to reduce traffic flows at Pound Corner.

Provision of an Eastern 'By Pass'

- 5.9 Modelling suggests that with the bypass or link road constructed, improvements to journey times through the village will be marginal at best. Coupled with low forecast traffic volumes using this road, and the cost and environmental impact of providing such a route, there would appear to be no justification for its inclusion in any future masterplanning exercise for the village.

Provision of a link road to the south of the village

- 5.10 The provision of a link road to the south of the village connecting Thornhill Road with Old Vicarage Lane is identified in a number of options put forward by NEW Masterplanning, SMPC and SBC. Modelling has indicated that if this link road was extended to Rowborough then the resultant delays and queues experienced at the Keypoint roundabout would increase significantly.
- 5.11 Similarly, the queues and delays experienced on Old Vicarage Lane would also increase because of the increase in opposing flows where Old Vicarage Lane meets the new road. From a road hierarchy point of view, the A420 is the more suitable route for Rowborough movements to and from the west rather than the provision of a new link road skirting the southern edge of the expanded village.
- 5.12 A link road to the south of the existing village will assist in reducing traffic on Thornhill Road as traffic from the expanded part of South Marston village would be displaced over a wider area.
- 5.13 A link road to the south of the new development would create a physical barrier to the wider area for pedestrians and cyclists, and result in single-sided development along an artificially lit highway edge. This would adversely impact on the rural character to the south of the village and could potentially make the village more vulnerable to further encroachment to the south, In place-making terms, a link road running within the development is preferable as this will directly serve the expanded community and would be designed to minimise through-traffic. The new roads would be designed according to best practice to create the appropriate road hierarchy. The alignment of the road should

be considered in further masterplanning exercises and through the preparation of the South Marston SPD.

- 5.14 Finally, providing a link road to Rowborough in an alternative location should be explored. This is described in more detail in the following section.

Safety and Capacity of Old Vicarage Lane / A420 junction

- 5.15 In order to accommodate traffic flows from the Eastern Villages development, the existing junction at Old Vicarage Lane/A420 would need to be upgraded. This report has explored online and offline improvements. Online improvements would require the provision of a signalised T-junction with flared approaches on all arms. Offline improvements would require the provision of a new junction and underpass underneath the railway line and to the east of the current location.
- 5.16 More detailed assessments will be required as a masterplan progresses. Key to this will be the level of development proposed north of the A420 - this will influence the type and size of junction to be provided. It is important to note that whilst offline improvements would be significantly more costly (because of the need for a further underpass under the railway line), there could be an opportunity for a new link from Rowborough to connect to this new junction.
- 5.17 Highway improvements external to South Marston Village, particularly in relation to capacity and public realm enhancements at the White Hart Junction are essential to the successful delivery of the Eastern Villages development.
- 5.18 The preferred solution for the White Hart Junction must take full account of the impact on traffic volumes through South Marston village.

Other complimentary measures

- 5.19 Other complimentary measures in South Marston that this report has assessed, and which are recommended for further consideration are:-
- **Introduction of a 20mph zone** as identified by **Option 6A – 20mph Zone in Part 1 of this report** and in order to further control vehicle speeds within the village and deter through traffic
 - **Footway Improvements** to reduce gaps in provision on Old Vicarage Lane, south of Nightingale Lane
 - **Selective Carriageway widening** on Old Vicarage Lane to the south of Nightingale Lane in order to remove areas of sub standard width and accommodate additional movements
 - **Removal and replacement of chicanes with alternative traffic calming measures** in order to aid traffic flows through the village
 - **Accessibility Improvements** for the mobility impaired (**Option 8**) which was identified in Part One of this report