



Wiltshire 2026 Planning for Wiltshire's future

West of Swindon strategic site

Background paper

October 2009

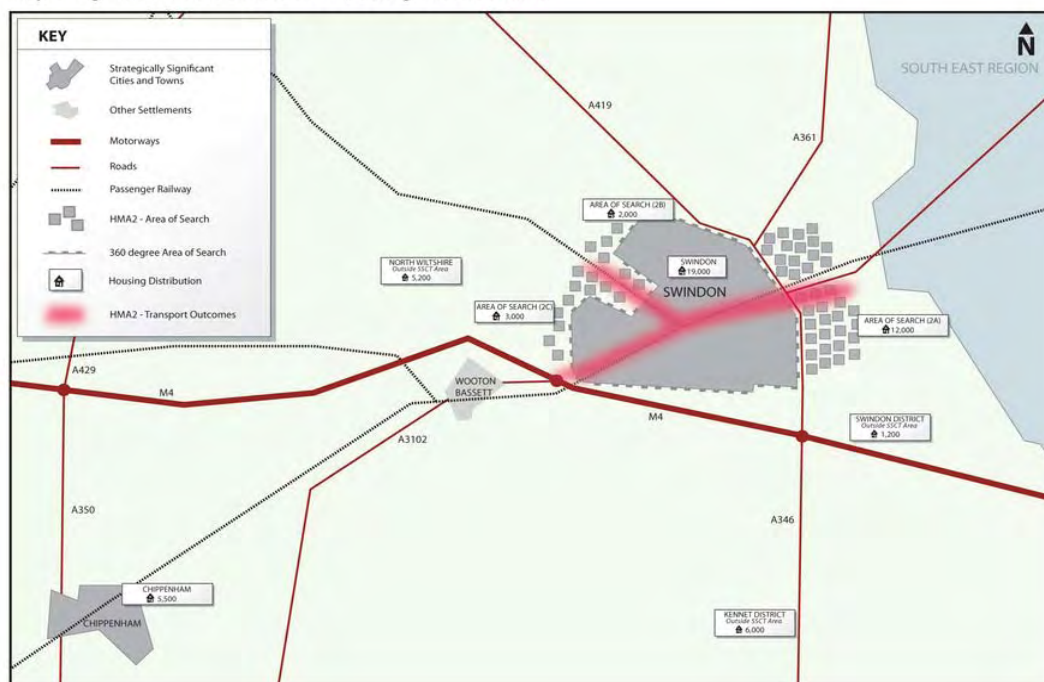
The West of Swindon Strategic Sites Background Paper

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1.0 Introduction

- 1.1 The process of identifying suitable locations at the West of Swindon is more advanced than for other areas across the County. Development scenarios have already been identified and subject to public consultation through the West of Swindon Study Update 2009.
- 1.2 The emerging South West Regional Spatial Strategy (RSS) allocates 3,000 dwellings within Area of Search 2C to the West of Swindon¹. The extent of the area is shown on RSS Key Diagram Inset 2 and is (necessarily) not site specific. It is the responsibility of Wiltshire Council, in partnership with Swindon Borough Council, to deliver the most sustainable location(s) for development.

Key Diagram Inset 2 Swindon Housing Market Area



- 1.3 The West of Swindon Study Update 2009 is the culmination of previous studies to assess the most sustainable locations within this Area of Search to deliver an urban extension or extensions to the Western edge of Swindon.
- 1.4 The methodology behind the assessment process at the West of Swindon is different to other towns in Wiltshire. This is due to the close partnership working with Swindon Borough Council throughout the process of identifying suitable location(s) for development. This assessment process is based on a clear and robust methodology. The West of Swindon Study Update, which is available to view online, provides a commentary on this methodology.²
- 1.5 This Background Paper provides a summary of the consultation process, addressing the main issues raised and providing further information on work undertaken since

¹ http://gosw.limehouse.co.uk/portal/regional_strategies/drss?pointId=1206445417954#section-1206445417954

² <http://www.wiltshire.gov.uk/environmentandplanning/planning/planningpolicy/planningpolicyevidencebase/westofswindonstudy.htm>

the end of the consultation. It concludes that the Preferred Option identified in the West of Swindon Study Update and earlier studies continues to represent the preferred development option for both councils.

2.0 Policy Context

- 2.1 The identification of sites for growth is based on the needs of the area and the demands of regional policy. Originally this was set out through the Wiltshire and Swindon Structure Plan (2016) and subsequently through the emerging RSS and its various amendments.
- 2.2 Policy DP10B of the Wiltshire and Swindon Structure Plan to 2016, adopted April 2006, initially allocated 1,000 dwellings at the West of Swindon to be located in both/either North Wiltshire or Swindon administrative areas. It also required a joint study to be carried out to ascertain the most appropriate locations for these dwellings. North Wiltshire District Council and Swindon Borough Council therefore embarked on a joint study to identify the most appropriate location for the 1,000 dwellings.
- 2.3 Policy SR8 of the draft RSS, submitted to the Secretary of State in April 2006, updated the requirement by allocating 1,000 dwellings West of Swindon specifically in the North Wiltshire administrative area and 2,000 dwellings as small scale urban extensions to Swindon within the Swindon administrative area.
- 2.4 In the light of the numbers allocated to Swindon by the draft RSS, the West of Swindon Study was abandoned in May 2007 and fed into the Swindon Small Scale Urban Extension Study (SSUES) which was carried out by Swindon Borough Council. The outputs of the SSUES provide the evidence base for the West of Swindon Study Update.
- 2.5 The Swindon SSUES concluded that 2,000 dwellings should be allocated to the West of Swindon in the Swindon Borough administrative area at Tadpole Farm and Kingsdown Lane, and that 1,000 dwellings should be allocated to the West of Swindon in the North Wiltshire administrative area, at Moredon Bridge and Ridgeway Farm.
- 2.6 The Panel Report into the South West RSS, published in December 2007, recommended that a further 2,000 dwellings are allocated West of Swindon, within the North Wiltshire administrative area. Taking the total requirement to 3,000 dwellings to be delivered within Area of Search 2C.
- 2.7 The report states that there is an 'urgent need' for Local Development Frameworks (LDF) in North Wiltshire and Swindon to bring forward this development. The Proposed Changes to the draft RSS were published in July 2008 and these agree with the recommendation for allocating these 3,000 dwellings.
- 2.8 On April 1 2009, Wiltshire Council formally replaced Wiltshire County Council and the District Councils of Kennet, North Wiltshire, West Wiltshire and Salisbury as the new unitary authority for Wiltshire. Wiltshire Council is now responsible for identifying the most suitable location(s) to meet the requirements of the emerging RSS within its administrative area.

- 2.9 The outcomes of the West of Swindon Study Update consultation as well as additional work undertaken since the Study Update will form part of the evidence base for the Wiltshire Core Strategy Development Plan Document (DPD). It will also form an important evidence base to inform the Swindon Borough Council Core Strategy, enabling infrastructure planning to take place in accordance with the objectives of the Swindon area as a whole.
- 2.10 A Sustainability Appraisal (SA) was produced to support the West of Swindon Study Update using the SA framework identified as part of the Wiltshire Core Strategy. This SA has been updated to take account the findings of the public consultation.

3.0 THE WEST OF SWINDON STUDY UPDATE 2009

- 3.1 On the 10 December 2008 the Wiltshire Implementation Executive approved the content of the West of Swindon Study Update.
- 3.2 The West of Swindon Study Update assessed the most sustainable location(s) for 3,000 dwellings within North Wiltshire to the West of Swindon. The Study Update did not consider alternative housing numbers; rather it focused on assessing the Area of Search for alternative options for the location of 3,000 dwellings.
- 3.3 The Wiltshire LDF Member Group approved the West of Swindon Study Update, including the preferred development option on 2 February 2009. A public consultation was then undertaken, in partnership with Swindon Borough Council, from 16 February 2009 until 30 March 2009.
- 3.4 The West of Swindon Study Update was not developer-led; rather the focus was on ensuring that the full urban edge of West of Swindon was taken through the assessment process. However, in order to ensure that development will come forward, a further assessment of the likely deliverability of sites was undertaken and information on this is provided later in this paper.
- 3.5 The West of Swindon Study Update identified a Preferred Option as well as alternative options for development. The Preferred Option is shown in Figure 1 and is an amalgamation of land at Pry Farm, Ridgeway Farm and Moredon Bridge. The Study Update concluded that:

This Preferred option represents a concentrated form of development in one urban extension with at least 2000 dwellings being provided on land at Pry Farm and at least 700 dwellings being provided at Ridgeway Farm and Moredon Bridge.

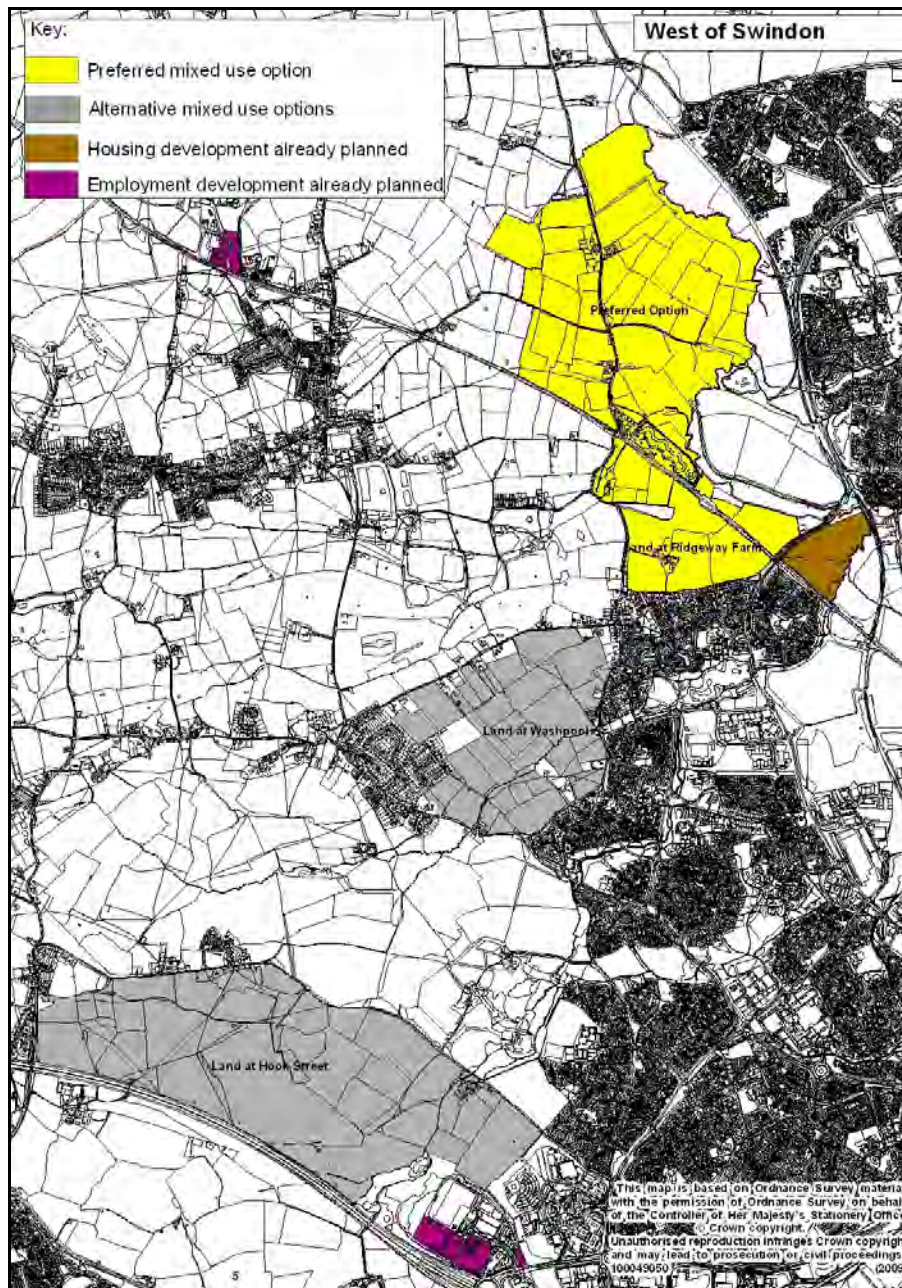


Figure 1: West of Swindon development options.

- 3.6 Moredon Bridge (shown in brown on Figure 1) has since been granted outline planning permission for 200 dwellings³, reducing the housing requirement to 2,800 within the remainder of the Preferred Option. The Pry Farm area is expected to take the bulk of this residual requirement, approximately 2,000 dwellings, with the remainder provided by Ridgeway Farm.
- 3.7 The Alternative Options shown on Figure 1 are discussed later in this paper.

³ Appeal Reference Number: APP/J3910/A/08/2082566

4.0 The West of Swindon Study Update Consultation.

- 4.1 It is not the intention of this Background Paper to repeat the analysis of development options which have already been completed through the West of Swindon Study Update and the earlier study, the Swindon SSUES.
- 4.2 The consultation raised awareness of the development options at the West of Swindon and identified the constraints to and opportunities for development. This section will review the outcome of the consultation, addressing key issues and where possible referring to new information or evidence gathered since the West of Swindon Study Update was published.
- 4.3 An immediate step has been to update the Sustainability Appraisal to reflect the findings of the consultation process. The update is included as part of the Sustainability Appraisal paper which accompanies the Wiltshire 2026 consultation document.
- 4.4 A number of comments made during the consultation process focused on the actual requirement to provide 3,000 dwellings as an urban extension to Swindon, rather than the options for development. This did not form part of the consultation as this is a matter dealt with through regional policy.
- 4.5 At the time of writing this Background Paper (October 2009), the position of the emerging RSS is unclear. Recent statements by the Government Office for the South West (GOSW) have cast doubt on the weight which should be accorded to the revised housing figures by local planning authorities in the preparation of their core strategies. Wiltshire Council has therefore had regard to the housing figures proposed for its area in the preparation of its Core Strategy. However, while the legal position of the RSS remains in question, the housing figures proposed for the West of Swindon have not yet been adopted as council policy.
- 4.6 Wiltshire Council concludes that the development options presented in the West of Swindon Study Update still represent the most suitable options. Further information has been provided by infrastructure providers, environmental groups, traffic consultants, landowners and developers as well as the general public. A summary of the consultation will be available on the LDF web pages of the Wiltshire Council website.
- 4.7 The Preferred Option represents a concentrated development delivering a single urban extension to Swindon. A development of this scale can deliver the critical mass and economies of scale required to ensure that the appropriate level of services and facilities and associated infrastructure are delivered at the appropriate stages of development. The South West Regional Assembly supports this view in their response to the West of Swindon Study Update, stating that:

We support the Preferred Option of one single urban extension as opposed to a range of smaller developments. We have noted your attention on creating a more cost effective and efficient way to deliver utilities and services through one single sustainably functioning urban extension.

- 4.8 This approach has also been supported by the Highways Agency:

We support this view point and would wish to see the urban extension come forward at a sufficient critical mass to support its own range of social and

community facilities, providing clear transport links to central Swindon and reducing the need to travel longer distances thereby ensuring that developments come forward as clear extensions to the existing urban area.

- 4.9 The Study Update provided a justification for the concentration of development, referring to paragraph 14-15 of *PPS3: Housing (2006)*, which states that:

The location of housing should facilitate the creation of communities of sufficient size and mix to justify the development of, and sustain, community facilities, infrastructure and services.

- 4.10 The individual components of the Preferred Option have their own individual issues, for example the Pry Farm area performs poorly at lower development scenarios because of its isolation. However at higher development scenarios, e.g. 2,000+ dwellings, the critical mass exists for the development to generate its own community facilities, delivering a much more sustainable option.
- 4.11 Figure 2 identifies the main development constraints within the Preferred Option. The constraints have already been identified through the West of Swindon Study Update and earlier studies and should be referred to for detailed assessment. This Background Paper looks at the main issues raised during the consultation process. It provides further information where it is available, primarily in the form of stakeholder responses to the consultation.

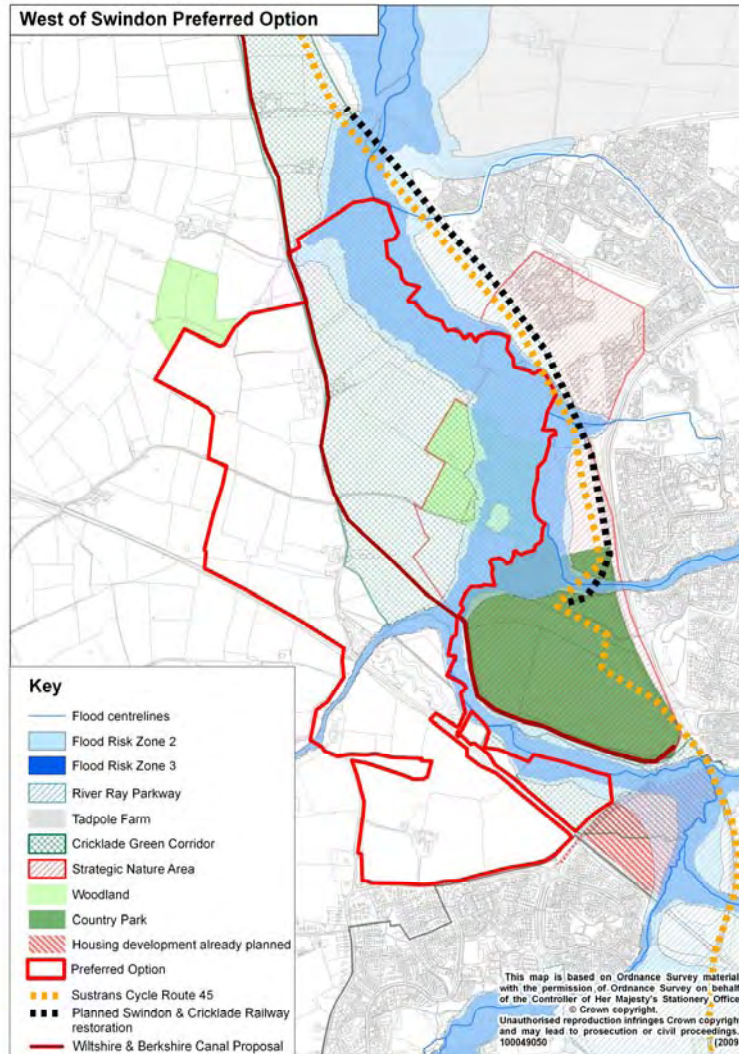


Figure 2: Constraints

4.1.0 Biodiversity

The site has the greatest biodiversity and flood plain constraints compared to the other options in the study area ... Each of the three options will potentially lead to significant adverse effects against a number of sustainability objectives, but also some significant benefits.

- Natural England.

4.1.1 The potential impact on biodiversity was raised prior to, and during the course of the consultation. The Preferred Option has a number of significant biodiversity issues that need to be considered prior to any development. The West of Swindon Study Update addresses these constraints and should be referred to for further information.

4.1.2 The nature of an urban extension(s) invariably leads to development outside the existing urban area and within areas of current green space. The Sustainability Appraisal which accompanied the Study Update recognised these constraints, and concluded:

There are significant biodiversity constraints concerning this option..... it is considered that many of these issues could be successfully mitigated through use of an effective masterplanning process that considers a wide-ranging

*Green Infrastructure policy that protects and enhances existing biodiversity features.*⁴

4.1.3 The area has several County Wildlife Sites, a Site of Special Scientific Interest and a substantial part of the eastern section of the Preferred Option, north of the railway line, is designated as a Strategic Nature Area. This designation was not noted during the West of Swindon Study Update but was subsequently identified as a result of the consultation process.

4.1.4 The RSS Policy ENV 4 requires local authorities to use the Nature Map to help identify local opportunities for biodiversity enhancement through Local Development Documents. Natural England provided the following comments:

For a development of this size (which either encompasses or surrounds the Strategic Nature Area) the development should fund most if not all of the habitat management work required to make the Strategic Nature Area reach its target status of at least 30% neutral meadow, and at least 30% other BAP habitat (though further work would need to be done to refine this generic target in the light of the specifics of this particular Strategic Nature Area).

4.1.5 The need to maintain and enhance the biodiversity value of the Strategic Nature Area (SNA) is clear. The SNA designation within the Preferred Option is of course a constraint but it does not represent a complete barrier to development in this area. Further discussions with Natural England on the implications of this designation conclude that:

The SNA would not appear to be a show stopper, but it is a significant consideration when designing the development, both as a constraint and an opportunity for delivering the SNA objectives.

4.1.6 The comments made by Natural England were also supported by the Wiltshire Wildlife Trust.

4.1.7 An opportunity exists within the Preferred Option area to deliver development that incorporates a strategy to help meet the objectives for the SNA. The SNA extends to the east of the Pry Farm area where development opportunities are already severely restricted due to flood plains, thereby reducing the impact of the SNA on the land available for development.

4.1.8 Developers will be expected to contribute to the enhancement of the SNA, and should discuss the options with Natural England at the earliest possible stage.

4.2.0 Wiltshire and Berkshire Canal

4.2.1 The proposed development will have a significant impact on the Wiltshire and Berkshire Canal Project. However, British Waterways have commented on the options for development and conclude that;

New development often acts as a catalyst for regeneration and vice versa provided that the local authority grasps the opportunity to attract new funding

⁴ Sustainability Appraisal / SEA West of Swindon Update. February 2009 Paragraph 4.3

towards the restoration project and promotes it from the outset as being beneficial to the proposed development...The presence of the canal route should not necessarily be seen as a valid reason to discount one site over another.

4.2.2 In order for the Preferred Option to successfully protect the canal corridor route, it is crucial that the masterplanning stage identifies opportunities to promote the benefits of this canal project. A successful materplan for the proposed development could see the canal at the heart of the development, providing an attractive and unique environment.

4.3.0 Rights of Way

The extensive rights of way across the area provide good links to Purton and north-west of Swindon. The integrity of the right of way networks needs to be protected and suitably enhanced.

- Great Western Community Forest.

4.3.1 A number of Public Rights of Way (PRoW) run through the Preferred Option and in most cases improve the amenity value of this area. Wiltshire Council's Rights of Way Department was consulted on the West of Swindon Study Update and has provided a detailed response. The recommendations of the Rights of Way team should be considered as part of the masterplanning process for the Preferred Option.

4.3.2 Where possible existing PRoW should be maintained and in situations where PRoW are subsumed into the development they should be maintained to a standard where they can be adopted as part of the footway network within the development.

4.4.0 Green Infrastructure

4.4.1 Establishing a solid Green Infrastructure as part of the development that complements the objectives of Swindon Borough Council will be crucial to deliver a successful urban extension. This will involve enhancing biodiversity and providing green corridors throughout the development.

4.4.2 The Cricklade Country Way forms an important part of the Green Infrastructure network for the North-West of Swindon. This network stretches through the Wiltshire administrative area and the Cotswold Water Park, as well as connecting the Hreod Burna Green Corridor into the Swindon town centre. The Cricklade County Way also links the south of the River Ray Parkway and Shaw Forest Park.

4.4.3 Preserving the integrity and functionality of these links will be critical in ensuring the delivery of a Green Infrastructure network. The Preferred Option is of sufficient scale to offer extensive Green Infrastructure opportunities. Discussion with both Swindon Borough Council and Wiltshire Council will be required to deliver a network that not only serves the development, but also the wider area, by incorporating the Green Infrastructure objectives of Swindon Borough Council.

4.4.4 Table 1 identifies a range of recommendations which will help to deliver a sustainable pattern of development.

Table 1: Environmental improvements

Issues	Requirement
Strategic Nature Area	<ul style="list-style-type: none"> Natural England suggest that the most

	<p>viable solution to the constraints identified through the Study is that at least 60% of the SNA is dedicated to wildlife habitat (i.e. the target on which is to reach BAP habitat status) as part of a larger community farm/nature reserve.</p> <ul style="list-style-type: none"> • Development should retain the net biodiversity value of the remainder of the site.
Biodiversity	<ul style="list-style-type: none"> • Development should be directed on to the area of land with the least biodiversity value or potential. • Development should avoid impacting on international, national and local sites of nature conservation importance. • Development should avoid impacting on protected species.
Public Rights of Way	<ul style="list-style-type: none"> • Formalise existing permissive access arrangements adjoining the development. • Upgrade footpath links to town centres/shopping areas and schools to cycleways and adopt such routes into Highways management. • Upgrade bridges over streams/rivers etc on PRow adjoining developments. • In coordination with Network Rail, manage the rail crossing so as to ease access and increase safety. • Increased access to the PRow network to be provided where reasonable. • Physical upgrade the PRow network to be provided where reasonable. • Physical upgrade of PRow network (structures and surfaces) within a 2 mile area to enable the network to cope with increased pressure. • Improvements to PRow to create circular recreational routes. • Improvements to the PRow network to neighbouring satellite communities to enable economic benefits of development to be spread (primarily walking routes to pubs and shops) • Improved access to recreational / amenity sites / historic sites.
Cricklade Country Way	<ul style="list-style-type: none"> • Ensure that the functionality of the Cricklade Country Way is protected.
Green linkages	<ul style="list-style-type: none"> • Establish strong links between the new development and the existing Swindon urban area by cycle and foot. • Establish safe green links between Pry Farm and Ridgeway Farm.

	<ul style="list-style-type: none"> • Protect the integrity of the Sustrans Cycle Route 45 and enhance, where appropriate, to encourage additional use.
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4.5.0 Flood Risk

We do not support the Preferred Option as we are concerned that the proposals will increase pressure on existing drainage systems, in particular the River Key which will impact on other settlements further down the flood plain which already have flooding issues. The proposals do not adequately address those concerns and we consider an extensive flood risk assessment needs to be undertaken before these are included in any plans.

- Cricklade Town Council

- 4.5.1 The issue of flood risk was raised repeatedly through the course of the public consultation. It is not the intention of this background paper to repeat the findings of earlier studies. However, the Environment Agency has made representations which should be considered along with any further guidance provided.
- 4.5.2 The conclusions on Flood Risk have not changed in the sense that the River Ray corridor dominates the eastern edge of the Preferred Option, making significant areas undevelopable, as shown in figure 3. However, even with the substantial area of flood risk approximately 150 hectares of land remain available to the West of the Preferred Option and within Flood Zone 1.
- 4.5.3 As a result of the West of Swindon Study Update consultation there should be more explicit details of how development will be affected by flooding issues. In the light of the response of the Environment Agency and in accordance with national guidance, Wiltshire Council will ensure that a Sequential Approach is undertaken. This will build on work carried out for the Strategic Flood Risk Assessments (SFRA) for both the North Wiltshire and Swindon areas.

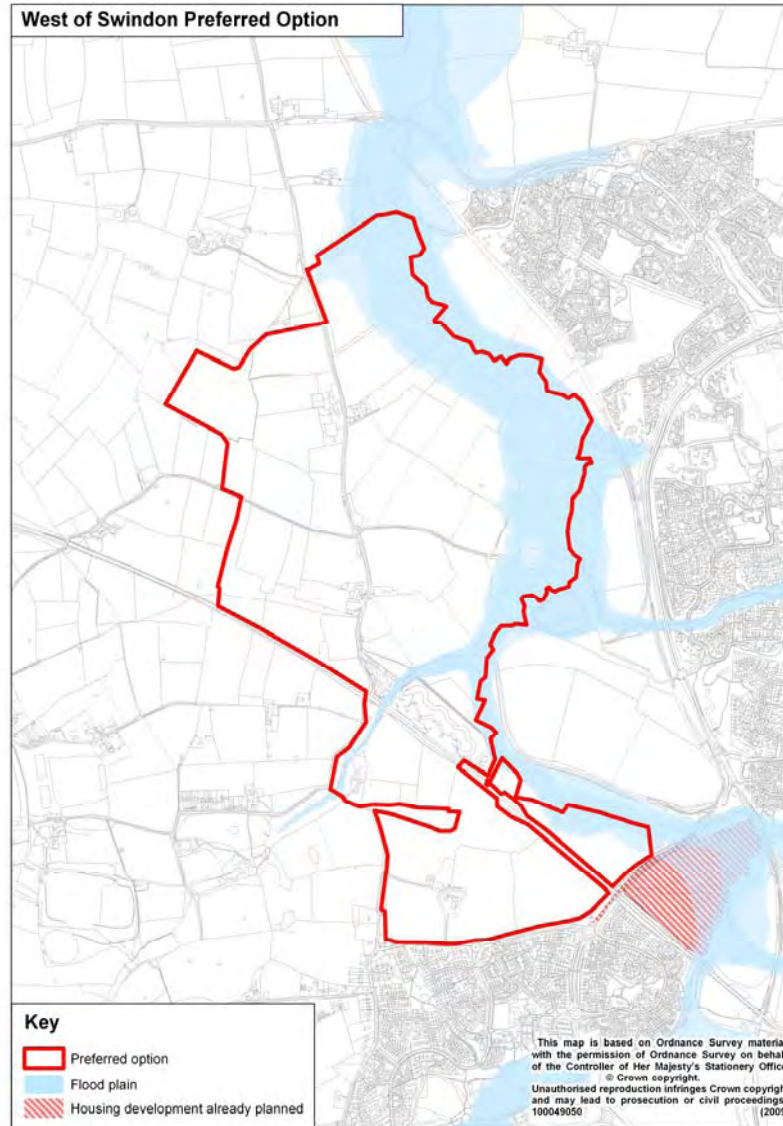


Figure 3: Flood Risk

- 4.5.4 In accordance with this approach, development should focus on land falling within Flood Zone 1, with Flood Zones 2 and 3 being used only for development with lower vulnerability to potential flooding, such as green infrastructure. Prior to any allocation of a site, the Council will require that a Level 2 SFRA is undertaken. In addition, considering the objectives of the Environment Agency, detailed hydraulic and hydrological studies will also be required.
- 4.5.5 It is also the case that a development of this size will put increased pressure on existing waste facilities. Development will be required to deliver waste management plans in line with the Planning Policy Statement 10: *Planning for Sustainable Waste Management* (2005).
- 4.5.6 Table 2 identifies what further work may be required prior to any allocation as part of Wiltshire's Core Strategy in order to ensure that matters of flood risk and waste management are identified and addressed appropriately at all stages of development.

Table 2: Flood Risk / Waste Management

Issue	Requirement
Flooding	<ul style="list-style-type: none"> • Apply a Sequential Test within the development area at all stages of the planning process to steer new development to the areas of lowest probability of flooding. • Provide suitable land for surface water drainage to incorporate Sustainable Drainage Systems (SuDS) principles. • Ensure that climate changes considerations are identified within the site layout. • Further technical work (Level 2 SFRA) to define flood risk across the site, this should include detailed hydraulic and hydrological studies. • Any further studies into these preferred sites should also consider the findings of the Swindon Water Cycle Strategy.
Waste Management	<ul style="list-style-type: none"> • Waste management should be considered at the design stage. • Ensure the development accommodates the storage and collection of waste e.g. adequate space for recycling, road size, and access to allow for collection. • Onsite management of waste where appropriate. • Waste management plans to be provided.

4.6.0 Purton Petroleum Storage Depot (PSD).

....there is the issue of the fuel storage depot. Local people are aware that the pipe line route is marked with white markers in certain hedgerows and would require a safety zone which would compromise the extent of any development
 - Ps and Qs

4.6.1 The consultation exercise highlighted the location of the Purton Petroleum Storage Depot (PSD). In order to ascertain the impact of this facility on development proposals in this area, Wiltshire Council has engaged with a number of agencies and organisations. These included the Ministry of Defence (MoD), the Oil Pipelines Agency, the Health and Safety Executive and the Wiltshire Emergency Planning Team. An initial response from the MoD concludes that:

Whilst the MoD has no formal objection to the designation of the area for housing development, for safety reasons we would discourage development in close proximity to Purton PSD.

4.6.2 Masterplanning for development must consider the health and safety requirements and appropriate safety zones associated with the Purton PSD. It is not the objective to repeat wholesale the guidance on development in such locations. However, the consultation process showed that there was considerable concern that the implications of the PSD had not been fully considered.

- 4.6.3 To re-assure both existing and future residents, a comprehensive summary of the guidance relating to development in close proximity to such installations is provided below.
- 4.6.4 The Health and Safety Executive provided information on the appropriate guidance, Planning Advice Near Hazardous Installations (PADHI). PADHI applies a '3-zone' system, the Inner (IZ), Middle (MZ) and Outer (OZ). The risks and hazard are greatest in the Inner Zone where restrictions on development are strictest. Figure 4 shows the various zones for reference.

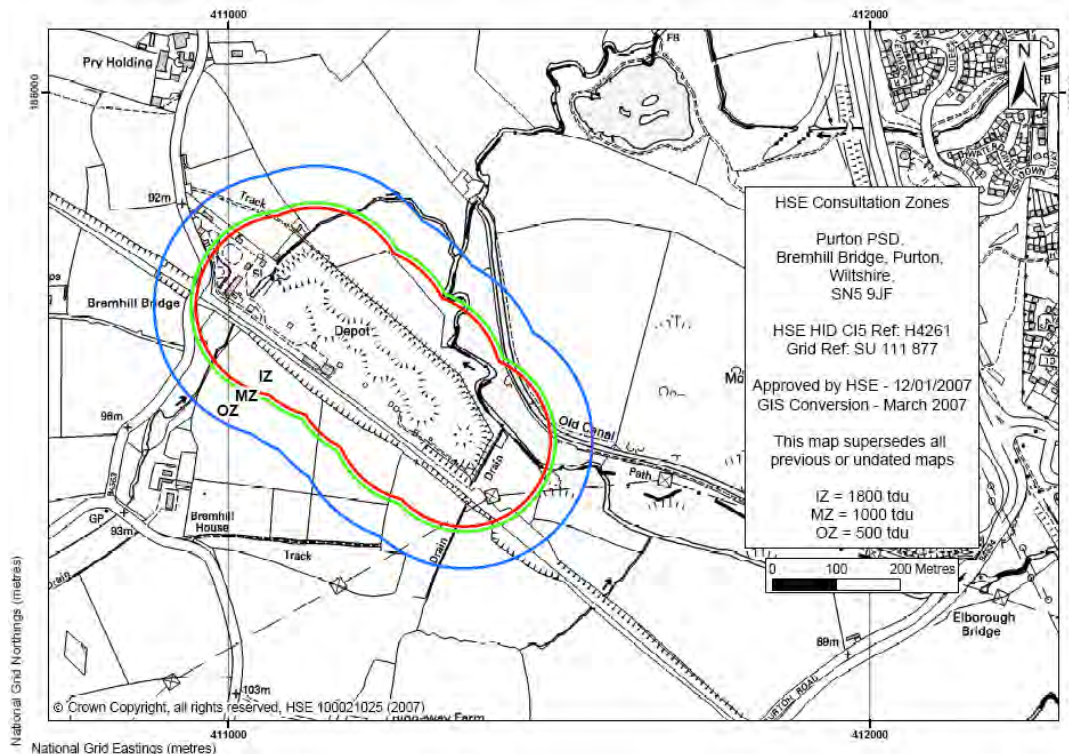


Figure 4⁵: HSE Consultation Zones

- 4.6.5 In response to the Buncefield incident in 2005, the HSE introduced an additional zone, the Development Proximity Zone at 150 metres from the boundary of the relevant storage tank bunds. The current guidance on the 'zone' system is shown in Table 3.

Table 3: HSE Zones

Development Proximity Zone (DPZ)	150 metres from tank bund
Inner Zone (IZ)	250 metres from tank bund
Middle Zone (MZ)	300 metres from tank bund
Outer Zone (OZ)	400 metres from tank bund

- 4.6.6 It is also appropriate to consider the nature of any development within these zones. Table 4 provides a summary of the guidance for the type of development which should be adhered to.

⁵ <http://www.hse.gov.uk/foi/internalops/hid/spc/spctg38.htm>

Table 4: Sensitivity Levels

Sensitivity Level 1	Example
Level 1	Based on normal working population.
Level 2	Based on the general public – at home and involved in normal activities.
Level 3	Based on Vulnerable members of the public (children, those with mobility difficulties or those unable to recognise physical danger).
Level 4	Large examples of Level 3 and large outdoor examples of Level 2.

- 4.6.7 Having determined which zone the development falls into and also the Sensitivity Level of the development, the following matrix is used to decide the type of advice.

Table 5: Assessment Matrix

Level of Sensitivity	Development in Development Proximity Zone (DPZ)	Development in Inner Zone (IZ)	Development in Middle Zone (MZ)	Development in Outer Zone (OZ)
0	DAA	DAA	DAA	DAA
1	AA	DAA	DAA	DAA
2	AA	AA	DAA	DAA
3	AA	AA	AA	DAA
4	AA	AA	AA	AA

DAA = Don't Advise Against development.

AA = Advice Against development.

- 4.6.8 In cases where the development results in **DAA** this will be the final advice from the HSE. In circumstances where the HSE advice is against development (**AA**), this can be subjected to additional checks through the HSE. If the outcome of the additional assessment is still AA, this will be the final advice of the HSE.
- 4.6.9 In addition, advice was sought from Wiltshire Council Emergency Planning Team who advised on the requirements outlined within national COMAH (Control of Major Accidents Hazards) legislation. As a top tier COMAH site, any development within this area will require an on-site plan, as well off-site emergency planning to include a Public Information Zone. The requirements identified through COMAH legislation identifies the PIZ as the fence line, however this has been increased to 500 metres by the Wiltshire Council Emergency Planning Team.

4.7.0 Pipelines

- 4.7.1 The Preferred Option has a number of pipelines crossing through the area of proposed development. Whilst this is not unusual it is important that the implications of pipelines on development are understood. Under the Land Powers Defence Act 1958 the wayleave extends 10 feet on either side of the outside of the Pipeline. Fisher German concluded that:

At the current time there are no further restrictions other than if the nature of the works outside of the wayleave could potential affect the integrity of the pipeline i.e. blasting / piling etc.

- 4.7.2 The consultation responses raised objections on the premise that development should not go ahead because of pipelines or that pipelines make development undeliverable. The Council acknowledges the concerns raised and has sought advice from the relevant agencies. It is concluded that compliance with the appropriate health and safety guidance will ensure that such facilities do not represent a complete barrier to development opportunities in this area.
- 4.7.3 Table 6 provides a summary of the main considerations in respect of the Purton PSD and pipelines within the Preferred Option.

Table 6: Purton PSD / Pipelines

Issues	Requirement
Purton Fuel Storage Depot	<ul style="list-style-type: none"> • No development within 150 metres of the PSD. • Ensure the location and type of development reflects the sensitivity levels identified in PADHI guidance. • Engagement with the HSE throughout every stage of the planning process. • Liaise with the Wiltshire Emergency Planning Team at the earliest opportunity to identify the requirements of the Public Information Zone (PIZ)
Pipelines	<ul style="list-style-type: none"> • Ensure development provides for a 10 feet wayleave either side of the pipeline.

5.0 Infrastructure:

Further work should proceed quickly to determine any critical infrastructure necessary to deliver future growth and explore how this is best delivered.

- Government Office of the South West

- 5.1 Since the West of Swindon Study Update consultation, Wiltshire Council has engaged with key infrastructure providers to understand the infrastructure requirements to deliver successful and sustainable development. These discussions are ongoing and will develop as the planning process shifts from strategic planning to site specific planning.
- 5.2 Where information has been provided by infrastructure providers this is discussed over the following pages. This is by no means the definitive list of what is required, but it does draw attention to the findings of early discussions with key stakeholders.
- 5.1.0 Education Provision
- 5.1.1 When considering the education requirements it is important to consider the development at the West of Swindon in the wider context of development in and around Swindon. The culmination of development at the Preferred Option, and a separate urban extension within the Swindon urban area of 2,000 dwellings at Tadpole Farm, will bring with it requirements for both primary and secondary school provision.

- 5.1.2 The additional demand generated by development will exceed existing local provision. Wiltshire Council has, and continues to work closely with Swindon Borough Council to identify and deliver education provision.
- 5.1.3 In respect of primary education it is agreed that the two education authorities will provide primary school provision individually for developments within their respective boundaries. Therefore, in order to serve development at the Preferred Option, Wiltshire Council will need to plan to provide at least two Primary Schools.
- 5.1.4 Primary school provision will be required as part of the development at Ridgeway Farm. Although the demand generated by development at Ridgeway Farm is not expected to fill a 2 Forms of Entry (FE) primary school, it is important to future proof this provision by ensuring that the capacity exists to expand to a full 2.FE primary school in the future. To do so the Council will require sufficient land to accommodate a 2.FE primary school, approximately 2.2 hectares at nil cost, or as an alternative, for the developer to build an appropriate sized primary school on behalf of the Wiltshire Education Authority.
- 5.1.5 A second primary school will be required within the Pry Farm area at sufficient distance from provision at Ridgeway Farm to ensure a wider catchment. It is recognised that access across the railway line, which divides the Pry Farm and Ridgeway Farm areas, will need to be improved to provide strong linkages between the sites.
- 5.1.6 In circumstances where strong and safe pedestrian and vehicle links cannot be provided between Ridgeway Farm and Pry Farm it is highly likely that an additional primary school will be required within the Pry Farm development area. This is likely to reduce the need in Ridgeway Farm to a 1.FE primary school.
- 5.1.7 As primary school provision within the Preferred Option will be the responsibility of the Wiltshire Education Authority, no contribution will be sought from Swindon Borough Council.
- 5.1.8 The need for secondary school provision is more complex and will continue to require detailed discussion between the two education authorities to deliver a secondary school that serves both Swindon and Wiltshire. Discussions between the two authorities have concluded that there are three options for future secondary school provision.
- 1) Wiltshire to provide an additional secondary school within Swindon Borough;
 - 2) Swindon Borough Council to provide an additional secondary school within Wiltshire;
 - 3) Each authority takes the responsibility for the education requirements of housing developments within their respective administrative boundaries.
- 5.1.9 Option 3 is not considered to be a suitable option. Rather the focus should be on the other two options and the need for partnership working to deliver secondary school provision for both Swindon and Wiltshire pupils.
- 5.1.10 The spatial distribution of existing facilities should help to inform the location of a new secondary school. Early discussions between the two education authorities indicate that the Pry Farm area will be a suitable location for a secondary school, if it is decided to provide secondary provision within Wiltshire.

- 5.1.11 There are a number of challenges that emerge with the development of a new secondary school. The lead time for developing a new secondary school is generally two years once planning permission has been granted. The typical size for a secondary school is 10 hectares and this should be identified and accounted for from the outset of the masterplanning process.
- 5.1.12 The sequencing of development and delivery of a new secondary school will be crucial to avoid internal displacement from existing schools, preventing new residents from gaining access into the new school.
- 5.1.13 A new secondary school within Wiltshire, in addition to Braydon Forest, will result in a significant proportion, perhaps up to 50%, of pupils coming from the Swindon area, raising sustainability concerns.
- 5.1.14 The final strategy for the delivery of secondary school provision is yet to be confirmed. Table 7 outlines the potential education requirements.

Table 7: Education Requirements

Issue	Requirement
Primary School Provision	<ul style="list-style-type: none"> • 1 x Primary School within Ridgeway Farm and 1 x Primary School within Pry Farm, or • 1 x Primary School within Ridgeway Farm and 2 x Primary Schools within the Pry Farm area.
Secondary School	<ul style="list-style-type: none"> • Secondary School to be provided within the Pry Farm.
School Transport	<ul style="list-style-type: none"> • A new Secondary School within Wiltshire will result in greater trip generation to and from the school. Alternative travel options such as a school bus should be considered to reduce the need to travel by car.

5.2.0 Health

- 5.2.1 The Preferred Option is situated within the Wiltshire Primary Care Trust (PCT) administrative area. However, in terms of healthcare provision the proposed development will have an impact on both the Swindon and the Wiltshire PCTs.
- 5.2.2 The proposed development of 3,000 dwellings will lead to increased demand for health provision and it is important that the detailed requirements are identified at the earliest possible stage to ensure the timely delivery of health provision to serve new residents.
- 5.2.3 Wiltshire Council will liaise closely with both the Swindon and the Wiltshire PCTs in the development of community infrastructure policy to ensure the delivery of healthcare provision. The initial requirements identified by the PCT are set out in Table 8. Further consultation with the PCTs will ensure that specific requirements are identified along with an appropriate delivery plan.

Table 8: Health Care

Issue	Requirement
Health Care	<ul style="list-style-type: none"> The development will create a requirement for a range of primary health care, mainly general practitioners and dentists, but other services would be affected such as maternity and children.

5.3.0 The Ambulance Service

5.3.1 For the Ambulance Service the focus is on the need to ensure that ease and speed of access are taken into account in the layout of the proposed development. To enable the Ambulance Service to provide an effective service to new residents, the masterplanning of development should incorporate the needs of the emergency services. This could include a greater emphasis on arterial roads that feed smaller roads as well as considering the potential need to provide appropriate stand-by points for emergency vehicles.

5.3.2 Further consultation with the Ambulance Service will be required as the selection of sites for allocation progresses. Table 9 provides a summary of the initial requirements identified by the Ambulance Service.

Table 9: Ambulance Service

Issues	Requirement
Ambulance Service	<ul style="list-style-type: none"> Consider the road layout with a focus on arterial routes leading into smaller thoroughfares and then into small roads and closes. Consideration should be given to an outer ring road with roads leading off this main arterial route into the development. Discuss with the Ambulance Service the need to provide stand-by points to allow the Service to maintain an effective service.

5.4.0 **Other Infrastructure Requirements.**

5.4.1 Table 10 provides a summary of responses from key infrastructure providers. At this strategic planning stage of development it is not always possible to identify the specific site requirements, other than to provide broad aspirations. However, Wiltshire Council will continue to engage with stakeholders to ensure that the appropriate infrastructure is provided and delivered at the right time.

Table 10: General infrastructure comments.

Issues	Requirement
Wales and West Utilities.	<ul style="list-style-type: none"> All proposed development sites identified in the West of Swindon Study Update are in the vicinity of existing gas mains. This can help reduce costs as costly approach mains are already available. As a general statement there is capacity

	<p>in the existing gas supply network feeding the Swindon area to supply these development sites.</p>
Thames Water	<ul style="list-style-type: none"> • Early indications are that it is likely that capacity exists for this development. • The Water Cycle Study will not investigate clean water and waste water network requirements for the sites identified in the West. This will require further analysis/
Fire and Rescue Service	<ul style="list-style-type: none"> • Climate change has led to more flooding incidents each year. The Fire and Rescue Service strongly recommends that dwellings are not built on flood plains. If this is unavoidable appropriate measures should be implemented at the design stage to reduce risk of flooding to all buildings as low as reasonably practical
Network Rail	<ul style="list-style-type: none"> • Ensure that future development does not prejudice future Network Rail schemes to improve or upgrade the railway. • Ensure development allows continuous access to the railway and adjacent land at all times. • Early engagement with Network Rail to outline proposals for vehicle/pedestrian rights of access. • There may be future requirements for GSMR (communication) Masts. Development should not prejudice such requirements. • As part of the scheme to re-double the track between Swindon and Kemble, Network Rail is providing passive support for a new railway station at Moredon. This should be considered in the overall development at the West of Swindon.
Public Transport	<ul style="list-style-type: none"> • Consider the actual movement of vehicles to serve the majority of the development. • Development is more likely to served by existing public transport if it can be accessed by an existing route without too much time penalty and particularly if the route can become more frequent as a result • Provide sufficient clearance for vehicles typically 13 metres long and 2.6 metres wide.

6.0 Highways

6.0 There are concerns that a single concentrated development will lead to significant traffic congestion. The Homes and Communities Agency commented:

Peak time congestion is already unacceptable as most existing employment sites are in the same direction from west of Swindon (i.e. in the direction of Swindon). Large housing development in a single location will generate further surges of traffic flow to add to these problems.

6.1 The HCA also noted that Swindon is well served by the Strategic Road Network, particularly by the M4 and recognised that this:

...will turn the outskirts of the area into a commuter base for workers further afield. This is clearly against the transport vision summary that hopes to reduce travel distances.

6.2 The impact on the existing road network cannot be assessed in isolation from other developments. The separate urban extension to the north of Swindon at Tadpole Farm for 2,000 dwellings will further impact on the existing road network.

6.3 Modelling the Preferred Option development scenario shows that congestion has significantly increased and speed has decreased across the network. Travel distance has also increased, although this can be explained by traffic having to travel across Swindon to reach destinations.

6.4 The scoring of development cells through the West of Swindon Study Update reflects the outputs of traffic modelling assessing the impact of 3,000 dwellings on the existing road network. The conclusions of the West of Swindon Study Update remain, with Table 11 providing further details on potential highways infrastructure improvements.

Table 11: Potential Highways requirements.

Issues	Potential future infrastructure improvements.
Future Highways considerations	<ul style="list-style-type: none"> • The linkage between Tadpole Lane and Thamesdown Drive. • The corridors of Mead Way, Purton Road and Akers Way and the potential impact on the Purton Road Great Western Way Link. • Additional access being provided on to the B4553. • Improvements to key junctions on Thamesdown Drive. • Demonstrate how services and employment can be delivered on site to capture trip internalisation and self-containment.

6.1.0 Additional Traffic Modelling (Pry Farm)

6.1.1 At present land at Pry Farm has no suitable access or direct frontage onto a suitable point. Cooperation with a third party will be necessary to achieve a satisfactory access.

6.1.2 Immediate concerns are the ability to secure a railway crossing and the potential financial demands of Network Rail. It is unclear whether approaches have been made by potential developers to Network Rail to discuss the possibility of such development as well as identifying the financial implications. A new crossing could act as an alternative to an existing bridge near to Purton.

6.1.3 Concern has been raised about the impact of new access arrangements. Natural England noted:

3,000 new homes on the site will place additional pressure on the existing highly congested road network and increase pressure to implement the Purton-Iffley road link. Implementation of this road link would have severe negative impacts (to biodiversity, landscape, amenity and to a lesser extent sustainable transport and health) to the River Ray Parkway and environs. Such a road development would foreclose a number of far more sustainable development opportunities for the River Ray Parkway.

6.1.4 Wiltshire Council, in partnership with Swindon Borough Council, commissioned additional traffic model testing to provide more detailed assessment of potential access options to serve the Pry Farm area.

6.1.5 The additional traffic modelling studied the Pry Farm site area within the Preferred Option with three access options from which the impacts on the Swindon highway network could be analysed. For each of the options, no off-site highway improvements have been assumed; only changes associated with the site access options have been altered in the highway network.

Option 1: Thamesdown Drive – between Callington Road junction and the Queen Elizabeth Drive Junction.

Option 2: Thamesdown Drive – between Purton Road (N) and Sparcells Drive/Purton Road (S) junction; and

Option 3: Access / egress to the site to be provide by both options.

6.1.6 The modelling tests an additional 1,806 trips on to the existing network as a result of the development. The assessment indicates that the development will result in three junctions exceeding capacity. These are:

- Purton Road / Akers Way roundabout (eastbound arm);
- Mead Way/ Sparcells Drive / Pepperbox Hill Roundabout (southbound arm);
- Mead Way / Peatmoor Way Roundabout (southbound arm).

6.1.7 All three options would increase the traffic levels on Lady Lane (eastbound) with traffic from the development using this road as an alternative route to Thamesdown Drive, although impacts on Tadpole Lane and the B4553 are relatively minor.

- 6.1.8 The wider impact of the development is expected to result in increased pressures at the Blagrove roundabout Whitehill Way arm due to the additional trips to the M4 from the development, although the impact on the Great Western Way arms are not affected by the development.
- 6.1.9 There is a genuine concern held by the Wiltshire Transport Team that relying on a single point of access from the south of the Preferred Option will result in road users using the smaller Wiltshire roads to access the A419, possibly via Cricklade. Wiltshire Council will be keen to ensure the environmental protection of the area within Wiltshire surrounding the Preferred Option.
- 6.1.10 The report on access options concludes that:

The development of 3,000 residential dwellings and the associated trips would have an impact on the network although the impact is localised to the junctions close to the proposed entrance points for the new development.

- 6.1.11 The modelling assesses the impact of each option and ranks the results A to D, A being minimal impact and D being significant impact. The same scoring used in the 2008 SSUES has been used to ensure consistency in approach.

Table 12: Outputs of additional traffic modelling.

Site	Overall Simulation Statistics	Over-Capacity Links	Journey Times	Individual Site Analysis	Overall Ranking
Option 1	C	C	C	C	C
Option 2	C	B	B	C	C
Option 3	C	A	B	C	B

- 6.1.12 The best performing option is to provide two access points to access and exit the development, this will help to reduce the pressure placed on local junctions. A copy of the additional traffic modelling can be found at Appendix 1.
- 6.1.13 One way to minimise the impact of the development on the existing road network is to provide the opportunity for self-containment and trip internalisation, reducing the need to travel further afield. The Highways Agency has expressed concern that despite being strategic in scale, development at Pry Farm appears remote from the existing Swindon conurbation.
- 6.1.14 There is considerable scope within the development of the Preferred Option to deliver employment, education and retail provision. The impact of a mixed-use development will be to increase the self-containment of the development, thus reducing the trip generation of the development.
- 6.1.15 In order to deliver a sustainable development the masterplanning and design stages must demonstrate how services and employment can be delivered on site to capture trip internalisation and self-containment.

Table 13: Highways Issues at Pry Farm

Issues	Requirement
Pry Farm Highways Issues	<ul style="list-style-type: none"> Identify appropriate measures to minimise the use of Lady Lane as an alternative to Thamesdown Drive. Demonstrate how services and employment can be delivered on site to capture trip internalisation and self-containment.

7.0 Availability and Deliverability

7.1 The availability and deliverability of sites is an important aspect of the assessment process, if a site has no prospect of coming forward then it should not be considered for development. The West of Swindon Study Update concluded that development at Ridgeway Farm and Moredon Bridge could be brought forward in the short-term with Land at Pry Farm coming forward in the later stages of development.

7.2 At present the Pry Farm area is held multiple ownership. Discussions between the land agent and planning officers demonstrate that considerable progress has been made to promote the site to developers. A formal process of inviting bids concluded on 15 October 2009 with a very positive response. Short listing is expected to commence immediately. The Council is confident that the deliverability of the Pry Farm area is achievable.

7.3 To be considered deliverable, sites should:

- Be Available - the site is available now;
- Be Suitable – the site offers a suitable location for development now and would contribute to the creation of sustainable, mixed communities; and
- Be Achievable – there is a reasonable prospect that housing will be delivered within five years.

7.4 A pro-forma, which identified the likely delivery of sites, was sent to all appropriate landowners and developers to complete. From the information provided there are no concerns on the deliverability of sites. Table 14 shows the anticipated delivery of housing based on the responses provided by developers during the Summer 2009.

Table 14: Projected delivery of sites.

Site	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
Pry Farm	0	0	0	250	250	250	250	250	250	250
Hook Street	0	0	0	300	300	300	300	300	300	300
Washpool	0	0	0	75	125	125	75	-	-	-
Ridgeway Farm	0	0	50	100	150	200	150	100	50	-

7.5 Wiltshire Council will continue to engage proactively with landowners and developers to maintain a current and accurate understanding of the deliverability of sites.

8.0 The Alternative Development Options

8.1 The West of Swindon Study Update provided two alternative development options to deliver the 3,000 dwellings as an urban extension to Swindon. These alternative options are not considered to be appropriate and have therefore been rejected.

8.2 Alternative Option 1: Small-scale development along the Western edge of Swindon.

The West of Swindon Study Update identified the option to spread development adjacent to the western edge of Swindon, across all sites. This option has been rejected as it will create difficulties in land ownership, creating uncertainty about the delivery of sites. It has also been rejected because it does not form a strategic urban extension of sufficient scale to provide the critical mass and economy of scales to deliver much needed infrastructure. Making this development the least sustainable option.

8.3 Alternative Option 2: Land at Hook Street (at least 2,500 dwellings) with a separate urban extension at either Washpool or Ridgeway Farm and Moredon Bridge.

Development at Land South of Hook Street has not been identified as a preferred option due to its significant impact on the existing road network and in particular the Strategic Road Network, principally the M4. There are also serious concerns regarding the coalescence with the settlement of Hook and the nature of the development, effectively forming a separate urban extension to Swindon.

8.4 The West of Swindon Study Update (paragraph 4.14) identified the capacity of Junction 16 of the M4 as a serious constraint to development. Even with planned improvements associated with the development within the Southern Development Area of Swindon, there will be no spare capacity to serve future development to the West of Swindon. The Highways Agency has stated:

The Agency strongly endorses this position. However we would ask that the wording is clarified to explain that improvements to J16 of the M4 are not designed to accommodate traffic associated with development to the west of Swindon.

8.5 The Highways Agency continued:

We note paragraph 4.11 of the Consultation Draft (February 2009) which acknowledges that the proposed improvements to Junction 16 of the M4 to support development at the Southern Development Area, will not result in any surplus capacity to accommodate future development to the West of Swindon.

8.6 It is the position of the Highway Agency that only in cases where the safety of users of the Strategic Road Network has the potential to be compromised will the Agency consider infrastructural alterations. As a result the Highways Agency states that:

We would not support the development of this site as part of the West of Swindon proposals.

8.7 In addition to the comments received by the Highways Agency, a report was commissioned by Wiltshire County Council to audit the modifications to the M4

Junction 16 which were proposed as part of the Southern Development Area in Swindon (SDA). The Report concluded:

The effect of the SDA/M4 Junction 16 improvements result in an inflow increase of around 2170vph into the Local area. The increased inflow directly associated with the SDA is nearly 2400vph, suggesting that diversion / displacement to surrounding routes is around 200-300vph.

- 8.8 The model shows that most of the constrained inflow is locked up in over-capacity queuing around the Swindon Road / Bicknoll Lane Roundabout encouraging road users to use Hook Street as a rat-run.
- 8.9 The model also identifies future link capacity issues on A3102 Swindon Road between Wootton Bassett and Junction 16, and serious congestion/delays on the Hook Street/Whitehill Way/Blagrove area of the network. Peak spread would inevitably occur on both routes. Development at Hook Street would exacerbate serious problems on both these routes serving Swindon.
- 8.10 Development at Hook Street will effectively result in two separate urban extensions, with development at Ridgeway Farm / Moredon Bridge forming one urban extension of approximately 1,000 dwellings and development at Hook Street delivering 2,000 dwellings. This runs contrary to the single site approach promoted through the Preferred Option, the benefits of which will be the delivery of essential infrastructure to support a single urban extension. A single urban extension provides greater opportunity for self-containment, reducing trip generation by internalising trips and reducing journey lengths.
- 8.11 The issue of coalescence with Hook Street has already been identified within the West of Swindon Study Update. The concerns and objections to development in this area associated with the impact on Hook Street have not changed.

9.0 The Swindon Core Strategy

- 9.1 As part of its Local Development Framework, Swindon Borough Council is preparing a Core Strategy for the period 2026. Once adopted, this will form part of the development plan for Swindon. The Swindon Core Strategy implements the sub-regional strategy set out in the RSS, including development as an urban extension or extensions to the West of Swindon.
- 9.2 Swindon Borough Council has recently completed a consultation on its Core Strategy Submission document. Wiltshire Council has objected to any reference within this document to a particular location for development, other than that defined by the RSS Key Insert Diagram 2C.
- 9.3 It is important that development to the west of Swindon is delivered through the Wiltshire Core Strategy and not through an adjoining authority's Core Strategy, which, if found to be sound, could prejudice Wiltshire Council's own development plan in this area.
- 9.4 Wiltshire Council has made representations on the Swindon Core Strategy. This reiterates the need for the strategic planning to the west of Swindon to be delivered through the Wiltshire Local Development Framework.

Appendix 1

Additional Traffic Modelling – Pry Farm. October 2009.

Technical note

Project	Swindon SATURN Model Testing	Date	October 2009
Note	Testing of Small Scale urban extension – Pry Farm	Ref	CTFATG113
Author	David G. Williams		

1. Introduction

1.1 This technical note has been completed on behalf of Swindon Borough Council and Wiltshire County Council to test the impact of a 3,000 residential dwelling development to the West of Swindon at Pry Farm. The study will interrogate the ‘2016 Do-minimum’ (DM) Swindon SATURN Highways Model to show the impact of three access options for the site:

- **Option 1** – Thamesdown Drive – between the Callington Road junction and the Queen Elizabeth Drive junction;
- **Option 2** – Thamesdown Drive - between Purton Road (N) and Sparcells Drive/Purton Road (S) junction; and
- **Option 3** – Access/egress to the site to be provided by both junctions.

1.2 Previous work carried out included testing the impact of 17 sites with 500 and 2,000 dwellings was completed by Halcrow in 2008; and the testing of 18 sites in Swindon with 3,000 dwellings was also undertaken in 2007. The 2007 study included the full Eastern Development Area (EDA) and it was found that this was hiding the true impact of sites to the East of Swindon. The following study will be undertaken using the Do Minimum model that does not include the EDA site. Details of the development sites included in the 2016DM model can be found in the Forecasting technical note produced by Halcrow for the 2008 study.

1.3 This technical note contains the following sections:

- Modelling methodology;
- Results; and
- Conclusion.

2. Modelling Methodology

2.1 The site and the three access options from which the impacts on the Swindon highway network have been assessed are shown on Figure 2.1. These options have been tested with 3,000 dwellings.

2.2 The trip rates used for each of the residential development sites has been derived from TRICS 2007 (b), which is consistent with the previous work carried out. Table



2.1 shows the trip rates applied to each of the development sites and Table 2.2 shows the number of trips generated for the development.

Table 2.1: Trip Rate Per Dwelling			
Time Period	Arrivals	Departures	Total
AM Peak	0.163	0.439	0.602

Table 2.2: Trip Generation AM Peak			
No. of Dwellings	Arrivals	Departures	Total
3000	489	1317	1806

2.3 The trip distribution of the sites has been taken by nearby zones within the existing 2016DM model. Table 2.3 shows the zones used for the development site.

Table 2.3: Trip Distribution			
Site	Distribution Zones Used		
Pry Farm Development Site	122	124	125
	154	159	161

2.4 The modelling work will be undertaken using the 2016 ‘Actual’ matrix, hence the model takes into account peak spreading and model shift. The trips associated with each of the scenarios were then added and then the model was run inelastically, therefore not suppressing trips associated with the new developments. Whilst this may not be truly representative, as some trips maybe suppressed if nearby junctions are over capacity, but it does give us a clear indication of the impacts of junction options.

2.5 For each of the options, no off-site highway improvements have been assumed; only changes associated with the site access options have been altered in the highway network.

Junction Design

2.6 The primary junction layout for both Option 1 and Option 2 is a three-arm signalised junction. The exit arm from the development has two lanes, one for each movement. The new junctions have been modelled in LINSIG to provide the optimum signal timings that have been included in the SATURN Model.

3. Results

- 3.1 The traffic impact of each option has been assessed in terms of junctions that reach and exceed capacity following the implementation of the scheme, in terms of overall junction impacts and nearby junction impacts. Together with an overall assessment of network delay, travel time and travel speed, and a journey time analysis base on the routes that were used for the validation of the base models.
- 3.2 The traffic impacts have been ranked in four categories ‘A’ being minimal impact, and ‘D’ being significant impact.
- 3,000 Dwellings*
- 3.3 Table 3.1 shows the overall simulation statistical output from SATURN for the Do Minimum scenario and the three junction options. The results show that Option 3 is the best performing of all three options as it has: the lowest increase in total delay in the network; the lowest increase in total travel time; and the joint lowest decrease in average speed.
- 3.4 Table 3.2 shows the journey times along the route 06/010 that was used to validate the base model. Figure 2.1 shows the route analysed. The results again show that all three options increase journey times on this route in the AM peak. Option 3 provides the best journey time in the Turnpike to Blagrove direction with Option 1 providing the best journey time in the reverse direction.
- 3.5 Table 3.3 shows the number of over capacity links throughout the whole network. The results show that all three options increase the number of junctions in the network that are over capacity compared to the Do Minimum scenario. Option 3 is the best performing of the three options, with 81 junctions over capacity compared to Option 1 (87 junctions) and Option 2 (83 junction).
- 3.6 Table 3.4 provides a more in depth look at the impact of each junction option on the surrounding network. The parameters that have been taken into consideration are the number of local links that either is taken over capacity or where the link is already over capacity, if it increases the pressure on that link. The size of the problem created in terms of volume of traffic over capacity of the link, together with the number of users affected.
- 3.7 The results show that the following three junctions are all taken over capacity by the development:
- Purton Road/Akers Way roundabout (eastbound arm);
 - Mead Way/Sparcells Drive/Pepperbox Hill Roundabout (southbound arm); and
 - Mead Way/Peatmoor Way Roundabout (southbound arm).
- 3.8 Option 1 also increases pressure on the Purton Road/Thamesdown Drive signalised junction (southbound and northbound arms), whereas both Options 2 and 3 increase the pressure on the Thamesdown Drive/Princess Elizabeth Way signalised junction (southbound arm).

3.9 Table 3.5 is a summary of the four tables discussed above, where the impact of each option is ranked from A to D, A being minimal impact and D being a significant impact. The A to D ranking has been calculated using the same scoring system used in the 2008 study to maintain consistency. The do-minimum outputs were taken to be the minimum impact and the highest value from each other the outputs in the 2008 study was taken to be a significant impact. The bands were then divided into four sections taking these lowest and highest figures as the starting point.

3.10 The four graded outputs have then been averaged to produce a final grade for each site. This average is a weighted average, where the overall simulation outputs, number of over capacity junctions and journey times have a value of one and the detailed individual site assessment has a weighting of two.

3.11 The best performing of the three options using the criteria is Option 3.

Network Impacts

3.12 Table 3.6 shows the impact of the scheme on the key routes to and from the north and west of the development: The B4553; Tadpole Lane; and Lady Lane. All three options increase the traffic levels on Lady Lane eastbound, with traffic from the development using this road as an alternative route to Thamesdown Drive. Table 3.6 also shows other fluctuations on Tadpole Lane and the B4553 but these are relatively minor. The only exception is the increase traffic eastbound on Tadpole Lane by 56 PCUs in Option 3. Although this cannot be directly attributed to trips to and from the development it may be due to re-routing to avoid the two additional junctions on Thamesdown Drive.

3.13 Table 3.7 shows the results of a select link for each of the key routes and shows that traffic from the development is using Lady Lane eastbound as an alternative route to Thamesdown Drive. Otherwise the increases in traffic on these links attributed to the new development are relatively minor.

3.14 Table 3.8 shows the Volume over Capacity (VoC) of the three arms at the Blagrove roundabout. As the table shows the Whitehill Way arm (southbound) is over capacity (103 VoC) in the do minimum scenario. This arm is put under increased pressure in all three options and rises to 107 VoC in all three due to the additional trips to the M4 from the development. The capacity of the two Great Western Way arms are not affected by the additional trips added to the network from the development.

4. Conclusions

4.1 The analysis of the network impact of the three options shows that the scheme will have an impact on the local road network in terms increasing pressure on local junctions and increasing journey times through this area of the network.

4.2 The development of 3,000 residential dwellings and the associated trips would have an impact on the network although the impact is localised to the junctions close to the proposed entrance points for the new development.

4.3 Option 3 is the best performing option as it provides two points to access and egress the development, reducing the pressure placed on local junctions caused by the

additional 1,806 trips that have been added to the network by the completion of the development.