

**JOINT STUDY INTO THE FUTURE GROWTH
IMPLICATIONS OF REDDITCH TOWN TO 2026**

**Prepared for Worcestershire County Council, Redditch
Borough Council, Bromsgrove District Council and
Stratford-on-Avon District Council**

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WHITE YOUNG GREEN PLANNING

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1 INTRODUCTION

Background

1.01 White Young Green Consulting (WYG) was commissioned in May 2007 by Worcestershire County Council, in conjunction with the planning authorities of Redditch Borough and Bromsgrove District, to carry out a strategic assessment of the implications for potential future growth within and adjoining Redditch Borough over the period to 2026. In July 2007, the commission was extended to review the implications of growth on the edge of Redditch for Stratford-on-Avon District, which abuts Redditch to the east, when Stratford-on-Avon Council joined the commission. The study is strategic in its scope and is to be used to inform the sub-regional decision making processes relating to the development of a preferred option of Phase 2 of the Partial Revision of the Regional Spatial Strategy for the West Midlands region to 2026. The purpose of the study is to give clear technical guidance to the four authorities and to the regional planning body on:

- a) The potential urban capacity of Redditch Borough to accommodate housing and employment growth to 2026;
- b) The level of additional peripheral growth required to meet the housing and employment requirements set out in the West Midlands Regional Spatial Strategy (WMRSS) Spatial Options Consultation; and
- c) The implications of accommodating those peripheral growth levels in the various locations around Redditch Borough.

1.02 The study is strategic and technical in nature and is not intended to be subject to public consultation at this stage with the exception of a limited exercise to identify potential sources of housing capacity within the urban area. However, in preparing the report there has been consultation with officers within the commissioning authorities and other organisations.

Purpose of Report

1.03 The detailed study requirements set out in the project brief supplied by Worcestershire County Council, which is attached to **Appendix A**. The purpose of this study is to respond to the various elements of the brief. The intended approach to meeting the project requirements was set out in the submitted tender proposal and a more detailed description of the methodology employed is provided in section 3 of this report.

Contents of Report

1.04 The report is structured as follows:

- Section 2 provides a brief synopsis of the strategic planning policy context, which sets the scene for the detailed technical analysis which follows.
- Section 3 describes in more detail the general methodological approach to the study and explains various assumptions adopted.
- Section 4 identifies the development requirements associated with the three potential growth scenarios referred to in the project brief.
- Section 5 summarises the assessments of constraints, setting out sources of information used to identify these.
- Section 6 provides an overview of various opportunity sites identified through the application of a constraints matrix.
- Section 7 involves the use of a Strength Weaknesses Opportunities and Threats (SWOT) analysis to narrow down the choice of strategic options for growth.
- Section 8 uses the results of the technical analysis to present views on the implications of seeking to accommodate the growth options within and adjoining the Borough. This section provides a broad overview of the optimal levels of future growth for the town over the period assessed in light of the prevailing constraints and the need to achieve a balanced and sustainable future for Redditch.
- Section 9 sets out the main conclusions reached in the report.
- Section 10 an addendum to the main report, provides a brief summary of the possible implications for growth of Redditch arising from the housing and employment land provisions set out in the preferred option of Phase Two of the Partial revision of the RSS, as approved by the Regional Planning Partnership for submission to the Secretary of State.

2 THE CURRENT STRATEGIC PLANNING CONTEXT

2.01 The West Midlands Regional Spatial Strategy was published in June 2004. A key aim of the Strategy is to make the Major Urban Areas (MUAs) attractive places in which to live and work and therefore action is heavily prioritised towards Birmingham, the Black Country, Solihull, Coventry, Stoke and Newcastle-under-Lyme. The Strategy also recognises a need for smaller scale, local regeneration areas which includes Redditch along with Biddulph, Burton-upon-Trent, Cannock, Kidderminster, Leek, Rugby, Rugeley, Stafford, Tamworth, Telford and Worcester but it is qualified in that any growth should not detract from the regeneration of the Major Urban Areas.

2.02 In the MUAs of Birmingham/Solihull, the Black Country, Coventry and the North Staffordshire conurbation more development opportunities will be created to retain and attract people and investment. In other areas new development will be focused on the Region's other large settlements and in particular the five sub-regional foci of Hereford, Rugby, Shrewsbury, Telford and Worcester.

2.03 One of the RSS's Objectives is to retain the Green Belt which encircles the conurbation and surrounds Redditch. There is an exception if it can be shown that a release of Green Belt land is necessary to bring about regeneration of an urban centre. Whilst it is the case that new residential development in the Green Belt surrounding Redditch would have a regenerative effect on the town centre of Redditch through increased spending, WYG is of the view that this alone would be insufficient to justify a release of Green Belt land.

2.04 The stated aims of the Green Belt according to Planning Policy Guidance 2: Green Belts (PPG 2) which was published in 1995 with amendments in 2001 are to:

- check the unrestricted sprawl of large built-up areas;
- prevent neighbouring towns from merging into one another;
- assist in safeguarding the countryside from encroachment;
- preserve the setting and special character of historic towns; and
- assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

2.05 The guidance explains that the most important attribute of the Green Belt is its openness - the quality of the landscape is not relevant to the inclusion of land within a Green Belt or to its continued protection. Within Green Belts there is a general presumption against inappropriate development and such development should not be approved, except in very special circumstances. Inappropriate development is regarded as being, by definition, harmful to the

Green Belt. The construction of new buildings inside a Green Belt is inappropriate unless the development is related to agriculture and forestry; essential facilities for outdoor sport and recreation; limited extension, alteration or replacement of existing dwellings; limited infilling in existing villages, limited affordable housing for local community needs, or limited infilling or redevelopment of major existing developed sites identified in adopted local plans.

- 2.06 The guidance also states that the essential characteristic of Green Belts is their permanence and that their protection must be maintained as far as can be seen ahead and boundaries should be altered only in exceptional circumstances. In order to ensure protection of Green Belts within this longer timescale, this will in some cases involve safeguarding land between the urban area and the Green Belt which may be required to meet longer-term development needs.
- 2.07 The Borough of Redditch Local Plan No.2 established three such 'Areas of Development Restraint' (ADRs) at Webheath, Brockhill and along the route of the planned but now abandoned improvements to the A435 to the east of the town. These designations were continued in Local Plan No.3 which was adopted in May 2006. There is also an ADR at Ravensbank Drive within Bromsgrove District that is intended to assist in meeting Redditch's possible long term employment land needs.
- 2.08 The RSS says that any development proposed on the edge of the MUAs or on other greenfield sites should meet the following criteria:
- there are no suitable alternatives available on previously developed land and buildings within built up areas;
 - the development should be capable of being served by rail or high quality public transport within easy access of centres and facilities; and
 - the development respects the natural environment, built environment and historic heritage.
- 2.09 In approving the RSS, the Secretary of State recommended that some issues should be investigated further and the West Midlands Regional Spatial Strategy – Phase Two Revision, Spatial Options, considers Housing, Employment, Transportation and Waste in more detail. This, therefore, amounts to a partial review of the RSS and neither the RSS's regional spatial strategy, nor spatial strategy objectives which include the regional role of individual settlements and the Green Belt, are specifically subject to re-evaluation.
- 2.10 However as the Spatial Options paper says, '*Following the Barker Review and the Government household projections (April 2006) it is clear that the Government will expect the Region to build more homes than set out in the current WMRSS*'. More recently, the Government has signalled its desire to see the provision and delivery of new housing given greater priority. It is clear that the

Region will be under pressure to accept higher targets. The Phase Two Revision considers three levels of housing growth. Option 1 is based on the continuation of existing WMRSS policies; Option 2 has been derived from 'advice and further discussions with Strategic Authorities' whilst Option 3 meets the overall levels of housing demand associated with the Government's latest household projections and the need to replace obsolete stock.

- 2.11 As will be indicated in the following chapters, of these options, Option 1 would not meet Redditch's own local needs to 2026 and would therefore not be consistent with policies underpinning the role of Redditch in the existing regional spatial strategy, where Redditch is intended to primarily meet its own needs. Option 1 could be accommodated by existing urban capacity and the development of the ADR land in the period up to 2026, but extensions of the urban area onto land currently designated as Green Belt would be required to accommodate Options 2 and 3. Consequently it may be inferred that the current RSS strategy and objectives concerning both the role of large settlements and the Green Belt may have to be reviewed in order to accommodate the levels of housing growth in either Options 2 or 3. In considering Redditch, the Spatial Options Revision specifically notes that in accommodating such levels of housing growth this implies development within neighbouring districts.
- 2.12 The position is therefore far from clear as the Phase Two Revision is clearly considering options that would be at odds with the Spatial Strategy and policies of the existing RSS which are not specifically the subject of the consultation exercise and which may otherwise be expected to be considered by the next full revision to the RSS.
- 2.13 Since the RSS was prepared, The Supplement to Planning Policy Statement No.1 (which completed its consultation in March 2007) has signalled a wider view on 'sustainable development'. Not only should strategies seek to reduce the need to travel but other initiatives such as renewable energy, carbon neutral housing and the need to plan for the effects of climate change such as the increased incidence of flooding should be taken account of through the planning process. The location of any new development would need to be in accordance with this advice particularly if sustainability were to be used to outweigh harm resulting from development in the Green Belt.
- 2.14 The Phase Two Revision also recognises that *'it is important that the right types of houses are built in the right places, where people need them, whilst respecting the character of the community and the environment where they are built'*. In order to maintain Redditch's unique structure (resulting from its planned development as a New Town) which incorporates a high proportion of greenspace, the gross land take of any peripheral development is likely to be significantly higher than would be the case in other towns in the region.

3 METHODOLOGY ADOPTED TO IDENTIFY DEVELOPMENT CAPACITY AND REQUIREMENTS

3.01 The analysis leading to the identification of development capacity and requirements can be broken down into three key stages. The basic methodology applied within those stages is described below.

Stage 1 – Assessment and Development Requirements

3.02 The first stage of methodology is to analyse the likely future development requirements for Redditch Borough for the period 2001 to 2026, arising from the partial review of the RSS.

3.03 In respect of housing, three development options for the period 2001 to 2026 are considered in this report at the request of the commissioning authorities:

- i) 4,300 new dwellings – based on a continuation of levels of housing development set out in the current WMRSS
- ii) 8,200 new dwellings – based on natural growth and reducing out migration.
- iii) 13,200 dwellings – based on natural growth in households plus allowance for in-migration (34%)

3.04 The study initially assessed the extent to which Redditch Borough can accommodate the growth associated with the three scenarios within its current built up area. An assessment of Housing Land Availability based on sites identified by Redditch Borough Council and by third parties as a result of a restricted consultation exercise has been carried out. The results of this assessment are contained in **Appendix B**.

3.05 In order to minimise a reliance on external centres for employment opportunities and the detrimental effect that this would have on the promotion of more sustainable patterns of transport, an allowance has been made for the provision of new employment land to meet the needs of the new populations. The decline in employment in the manufacturing sectors is anticipated to continue throughout the UK and most of Europe and it should be noted that this figure does not include any allowance for new employment land allocations which may be necessary as a result of any restructuring of the existing employment base.

3.06 In terms of retail and town centre needs, an assessment of quantitative need associated with the three housing growth scenarios has been undertaken along with an assessment of qualitative deficiencies in existing areas of the town. The assessment was carried out on a level of broad

goods categories (convenience and comparison) and does not seek to subdivide any of the general goods categories (e.g. bulky comparison retail goods). In considering the need for new retail floorspace in the period beyond 2011, the assumption that Redditch should accommodate growth rising from its catchment area has been adopted, incorporating retail floorspace needs arising from the various housing and employment growth scenarios. In terms of preferred locations for accommodating any assessed increases in retail floorspace, the sequential approach to site locations set out in PPS6 should be followed. However, any major peripheral expansion of Redditch through new housing developments will generate its own needs for additional retail floorspace, particularly convenience shopping. Guidance has been given on the scale and function of the additional floorspace required as well as general guidance on the most appropriate location within any identified peripheral growth areas, in order to maximise accessibility to retail facilities by a choice of modes of transport.

- 3.07 In respect of other key town centre uses, the study identifies the current levels of provision within the study area (i.e. within Redditch Borough and Bromsgrove and Stratford-on-Avon District). The likely level of future leisure provision required to support the forecast levels of housing and employment growth over the period to 2026, for a range of commercial leisure activities (such as cinemas, bowling alleys, bingo halls, commercial sports leisure complexes, family entertainment centres) is identified having regard to qualitative factors.
- 3.08 The Children's' Services Directorate of the County Council has provided details of the range of existing school facilities within and adjoining Redditch and their likely capacities to accommodate the number of children (primary, secondary and post sixteen) which could be generated by the growth scenarios considered. Where the capacities of existing schools in any area to accommodate likely growth in school age population associated with potential growth is restricted, this is identified as a weakness in the SWOT assessment. The same information was sought and received from the Children, Young People and Families Directorate at Warwickshire County Council.
- 3.09 For the provision of open space and other community facilities, a general assessment has been made and the amount of land required for such uses based on appropriate ratios of space needed per head of population or household. The scope for upgrading existing facilities as an alternative to providing new has also been considered.

Stage 2 – Analysis of Constraints to Developments

- 3.10 The second stage of the methodology, which was carried out in parallel to the first stage of assessing needs, is the preparation of a constraints matrix. The purpose of this exercise was to identify the variety and extent of a wide range of development constraints affecting the periphery

of Redditch's built up area. This approach involved an analysis of the adopted development plan documents available from the four commissioning authorities in order to identify prevailing physical and policy constraints, the extent of which is illustrated using GIS mapping techniques. The principal transport corridors have also been identified and, in particular, the main constraints to the efficiency of operation have been examined. That assessment is included at **Appendix C**. Additionally, an analysis of constraints relating to archaeology, landscape and topography has been carried out. Also, through initial consultation with statutory undertakers, the strategic constraints associated with the provision of necessary support infrastructure by public utilities (electricity, gas, telecoms and foul drainage) have been identified. While information was requested from Severn Trent Water regarding the adequacy of potable water supplies in the study area, none was received. A summary of that investigation is included at **Appendix D**. In addition, the commissioning authorities have provided up to date information on flood risk areas based on PPS25 defined Flood Zones.

- 3.11 In this way, a comprehensive appraisal of development constraints has been carried out in order to assess the implications associated with major peripheral growth at Redditch. The investigation of constraints led to the identification of potential development options which have been examined using a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis technique. A further part of the SWOT analysis was to consider each of the identified potential development sites against a range of sustainability criteria such as accessibility to existing employment areas, retail provision, public utilities and access ability by a range of modes of transport. Where locations were assessed to be relatively unsustainable when considered against the criteria, this was classed as a weakness.
- 3.12 Various broad alternative mechanisms for achieving delivery of required physical and social infrastructure support of new major developments have been considered, although due to the strategic nature of the exercise, it was not appropriate to establish detailed mechanisms for infrastructure delivery as part of this study.

Stage 3 – Preparation and Evaluation of the Implications of Directions of Peripheral Growth

- 3.13 Having investigated requirements and constraints, a range of potential development scenarios has been prepared. The benefits and drawbacks associated with each scenario have been identified.
- 3.14 The final stage of the study was to assess the implications of accommodating significant levels of additional housing and associated employment, retail and community uses, in and around the built up area of Redditch. Implications were assessed not just in terms of the effects on Redditch, but also in regard to general consequences for other settlements in the vicinity of Redditch.

- 3.15 For the purposes of this study, taking into account existing RSS policies and government policy on Green Belts and Housing, a sequential approach has been adopted to meeting any identifiable capacity with first preference being previously developed land within the existing urban area, followed by the ADRs and any other non-Green Belt land and finally land within the Green Belt. In the Green Belt, the study has sought to identify directions for growth which would cause the least harm to the purposes of the Green Belt, whilst producing sustainable forms of development which may outweigh this harm. It must be stressed that brief extends to Redditch and the land immediately surrounding the town and no assessment is made in this report as to whether or not development at Redditch would amount to a more, or less, sustainable form of development than other locations within the WMRSS area.

4 IDENTIFIED REQUIREMENTS

Redditch Strategic Land Requirements

- 4.01 The West Midlands Regional Spatial Strategy (RSS) Phase Two Revision sets out housing targets for Redditch Borough for the period 2001 -2026. There are three growth options amounting to 4,300, 8,200 and 13,200 new dwellings.

Completions and Commitments post 2001

- 4.02 Since 2001 a total of 2,632 dwellings have been built, have been granted planning permission or are regarded as outstanding commitments. These dwellings must be deducted from the RSS figures in order to identify the outstanding dwelling requirement to meet any of the above options.

Table 1: Completions and Commitments 2001 - 2006

Completions 2001 – 2006 (910 Greenfield, 576 Brown)	1,486
Under construction at 1.4.06	314
Planning Permission at 1.4.06 (Full 405, Outline 320)	725
Permissions since 1.4.06	83
Commitments Development Plan	24
TOTAL	2,632

- 4.03 This therefore reduces the amount of land that has to be identified to meet RSS growth options up to 2026 to 1,668, 5,568 and 10,568 dwellings respectively.

Existing Housing Land Capacity

- 4.04 Redditch Borough Council carried out an Urban Capacity Study (UCS) in 2004. As part of this WYG study, a partial Housing Land Availability Assessment has been carried out which re-visited some of the sites identified in the Redditch UCS which still remain undeveloped. There are two elements to the study; firstly a survey of potential sites over 0.1ha has been undertaken and secondly a desk based analysis of past trends from other sources of capacity such as from sites smaller than 0.1ha.

Surveyed Capacity

- 4.05 In order to minimise the effect of trend based capacity, sites of 0.1ha or more were assessed rather than the threshold of sites which could accommodate 10 or more dwellings which was used in the 2004 study. 244 sites were identified as being undeveloped or with potential for

development. 139 sites were surveyed but rejected as being unsuitable for residential development due to factors such as lack of adequate access, shape, topography or within employment areas. 7 sites were surveyed and considered as having some potential for residential development and a further 6 sites were the subject of development briefs where some residential capacity had been identified. The capacity of these 13 sites was calculated as 736 dwellings based on indicative layouts prepared by Joe Holyoak, Urban Designer. That assessed capacity includes land to the south of Alexandra Hospital which also has potential for alternative use for employment purposes. The remaining sites were included within the Open Space Needs Assessment undertaken for Redditch Borough Council by Scott Wilson in 2005. This Assessment and its recommendation to retain the quantity of land used for leisure and recreation uses has been approved by Redditch Borough Council and these sites are therefore considered to be safeguarded. They have been excluded from any calculation of existing capacity and were not surveyed.

Other sources of capacity

- 4.06 An analysis of past trends shows that new residential accommodation is expected to continue to be provided from other sources of capacity such as sites below the 0.1 ha threshold and the conversion or redevelopment of existing buildings. The following table is from data supplied by Redditch Borough Council and is based on recent trends. It should be noted that there is an assumption that no capacity will occur from the redevelopment of employment sites. The rationale behind this is that a high proportion of the town's employment capacity is on large industrial estates that would be unsuitable for residential use and that the Council maintains a policy of resisting the loss of employment sites to other uses.

Table 2: Trend Based Sources of Capacity

	2006-16	2016-26	Total
Net Increase From Redevelopment	30	30	60
Conversion and Subdivision	75	70	145
Employment Sites	0	0	0
Intensification	100	50	150
Other Windfall	225	225	450
Total	430	375	805

Source: Redditch Borough Council

- 4.07 Table 3 below summarises the sources of capacity and the calculation of required new allocations necessary to meet each growth option. These figures demonstrate that a high proportion of the assumed capacity is trend based rather than site specific which may raise uncertainty as to the long-term robustness of this assessment. It is also of note that the average rate of completions between 2001 and 2006 was almost 300 dwellings per annum which is significantly in excess of

the rate of 141 dwellings per annum needed to deliver Option 1, somewhat short of the rate needed to deliver Option 2 (366 per annum) well behind a rate of 586 per annum to achieve Option 3.

Table 3: Net Required Allocations

	Option		
	1	2	3
Dwellings Required 2001-26	4,300	8,200	13,200
Completions and Commitments since 2001	2,632		
Surveyed Capacity	736		
Trend Based Capacity	805		
Total Completions, Commitments and Capacity	4,173		
New Allocations required	127	4,027	9,027

Other Land Uses

- 4.08 In order to foster sustainable forms of development which will provide for adequate levels of amenity and reduce the need to travel, the new population will require additional employment opportunities and will generate demand for services such as shopping, schools and other community services.

Employment Land

- 4.09 Worcestershire County Council has commissioned a report into the employment land requirements for the County by GVA Grimley. A preliminary working draft of the report forecasts a continuing decline in demand for B2 uses, a decline in B8 with increases in B1 space. The current GVA Grimley report indicates an average employment land need across the modelled scenarios of around 54 hectares with a supply of 18 hectares.
- 4.10 WYG considers that additional B1 will not be provided on vacated B2 or B8 sites, due to the location and character of existing industrial estates in Redditch. However, WYG considers that there is a need to provide high quality B1 sites to compensate for a restructuring of the existing employment base as well as to provide employment opportunities for 'new' population, to avoid undue reliance on out-commuting. Therefore a modest standard of 1ha of employment land per 15ha of residential land has been adopted, compared with the previous Structure Plan ratio of 1ha per 70 dwellings (the equivalent of around 2ha per 15ha). This generates a requirement for 8.2, 15.6 and 25.1 ha for the three growth options respectively. This allowance is related to the 'new' population and further allocation may be required to provide modern B1 accommodation resulting

from the anticipated restructuring of the employment market up to 2026, which will more properly be dealt with as part of the LDF process.

- 4.11 WYG has disregarded any existing employment land capacity including 25ha at Ravensbank Drive, 10ha of which is included in the Bromsgrove Local Plan as an Area of Development Restraint to meet the future needs of Redditch beyond 2011. There has been some discussion with Redditch Borough Council regarding the possibility that part of the site to the rear of the Alexandra hospital in the south of the town may be required to provide employment opportunities. This site amounts to 10.73 ha and is included within the calculation of housing capacity at 277 units. However, this land could equally be used for employment purposes (as an extension of the existing employment allocation in the adopted local Plan No. 3). Therefore a maximum of 10.73 ha or 277 dwellings may need to be added to the new residential requirement if this land is allocated for employment purposes.

Retail

- 4.12 The demand for additional convenience retail floorspace has been calculated using £1,870 per head (from MapInfo Brief 04/02 2016 forecast) and assuming a store turnover of £6,000 sq.m. This generates a need for an additional net floorspace of 2,975 sq.m. for Option 1, 5,673 sq.m. for Option 2 and 9,133 sq.m. for Option 3. This would equate to a small supermarket for Option 1, a large supermarket for Option 2 and a superstore for Option 3. Assuming a site area multiplier of 6x the net area this would equate to land requirements of 1.8, 3.4 and 5.5 ha respectively.
- 4.13 The spending capacity of the new population will also lead to increased demand for additional comparison floorspace but an assumption has been made that this will be accommodated within the town centre and will be taken into account as part of the LDF process.

Open Space

- 4.14 Redditch Borough Council has adopted the recommendations of an Open Space Needs Assessment report by Scott Wilson. This concludes that Redditch should maintain its current ratio of 7.43ha of open space per 1000 population which includes the NPFA standard of 2.7ha/1000 for Playing Fields. This is accepted as being a high ratio when compared to most other towns and stems from Redditch's planned structure as a New Town. It is considered that any major expansion of the town should continue the town's established character.
- 4.15 WYG is advised that this proportion is being met on all new developments through the development control system and has therefore assumed that this will continue to be the case for the proportion of development forecast to take place within the existing urban area. WYG has

applied the ratio to the additional 'new' allocation in order to maintain the existing overall form and character of the town. In practice, this figure should enable existing features such as woodland, flood plain, high ground and sites of landscape or ecological interest to be incorporated into any resulting masterplan exercise as well as meeting standards for playing fields, playgrounds and amenity uses.

Education and Community Uses

- 4.16 Worcestershire County Council's Children's Services Directorate confirmed that current projections would indicate that Option 1 could be accommodated within existing schools, Option 2 may need some extensions or reconfiguration but not new sites, whilst Option 3 is likely to give rise to a demand for new schools depending on the location of new housing areas. The view has been taken that demand for other community uses such as churches, health centres and the like could be accommodated within existing provision for Options 1 and 2 but would require additional space for Option 3. Accordingly, an allowance of 8ha has been made in Option 3 to meet these needs.

Summary

- 4.17 The following table summarises the total land required to meet the three growth options. Chart 1 shows this distribution for Option 2 and Chart 2 demonstrates that the proportions of land taken for a particular use vary considerably between the options.

Table 4: New Land Requirements by Land Use for each RSS Option (ha)

	OPTION		
	1	2	3
Residential	3.63*	115.06*	257.91*
Employment	8.19	15.62	25.14
Retail	1.79	3.40	5.48
Open Space	2.10	66.40	148.90
Education & Community	0.00	0.00	8.00
Total	15.71	200.48	445.43

* This figure assumes that land to the rear of Alexandra Hospital will be used for residential, rather than employment, purposes.

Chart 1: New Land Use Requirements by Land Use (Option 2)

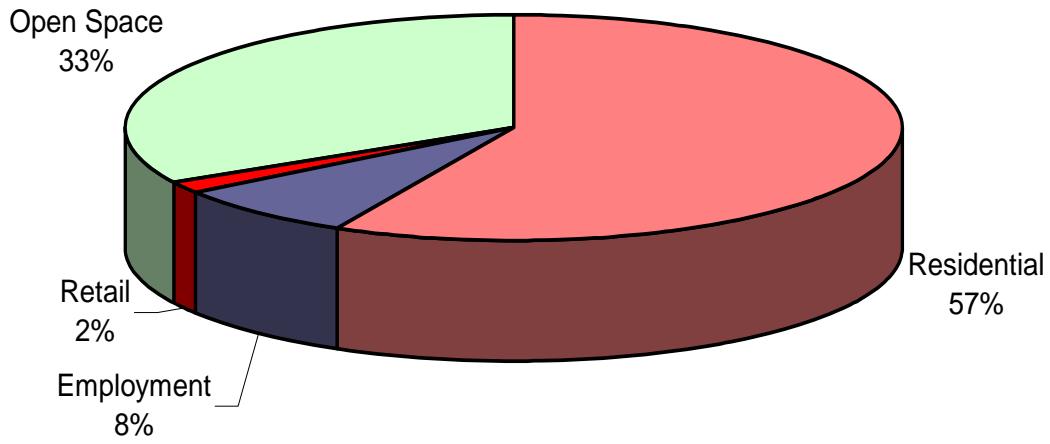
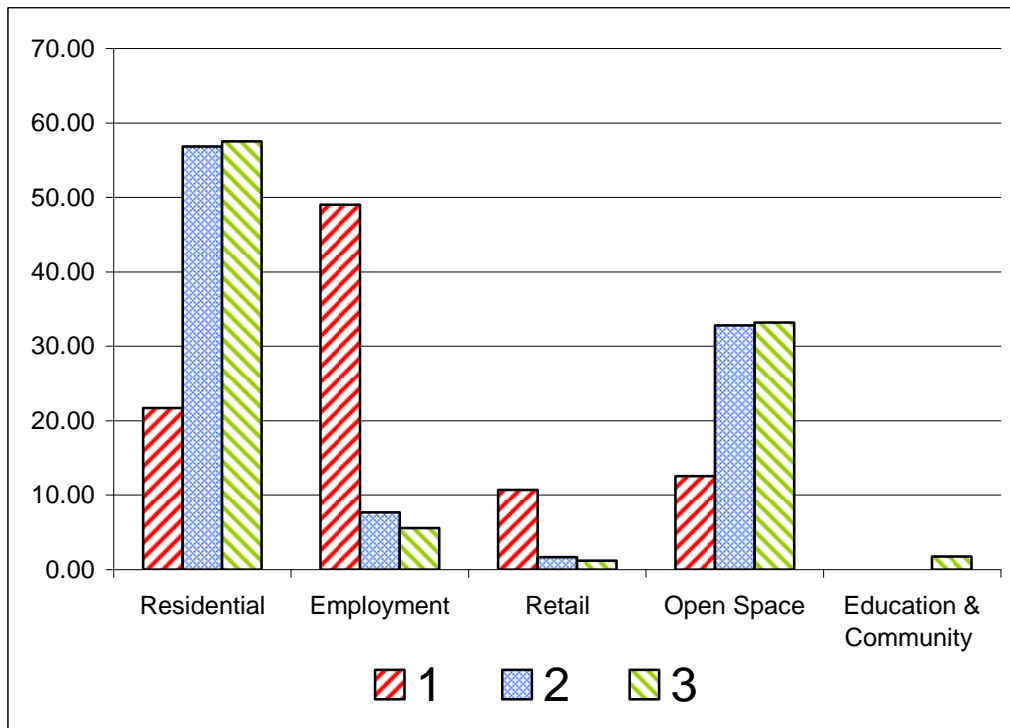


Chart 2: Land-Use Percentage by Option



5 IDENTIFIED CONSTRAINTS

- 5.01 As indicated in Section 3, the study involves an examination of the strengths and severity of a wide range of development constraints affecting the periphery of Redditch's built up area.
- 5.02 The extent and nature of the policy related development constraints and also relating to a number of physical constraints were derived from the following sources:
- i) The Borough of Redditch Local Plan No.3 – adopted May 2006
 - ii) The Bromsgrove District Local Plan – adopted January 2004
 - iii) The Stratford-on-Avon District Local Plan Review – adopted July 2006
- 5.03 The general approach adopted was to extract relevant information from the proposals maps (and other sources as described below) and to transpose the information onto Redditch Borough Council's and Stratford-on-Avon District Council's GIS databases to generate scale maps showing overlapping layers of constraints. Sieve analysis techniques were then employed using the constraints maps to identify the sites with most development potential.
- 5.04 In addition to the information derived from the above sources, Worcestershire County Council (WCC) was able to supply information on policy constraints relating to minerals deposits (land safeguarded for potential future mineral workings) derived from the adopted Minerals Local Plan; high quality agricultural land; information regarding the location, type and current capacity of schools in and around Redditch; the location and type of medical facilities and the location of designated retail centres within the study area. The County Council was also able to provide preliminary advice on the sensitivity of the landscape to development through the application of the County Landscape Character Assessment. White Young Green Transportation supplied relevant information relating to existing road transport infrastructure constraints and advised on constraints associated with the provision of new transport infrastructure to serve the levels of new development arising from the three growth scenarios.
- 5.05 There were difficulties in recording and evaluating the relative strength of various policy related constraints arising from the fact that the participating authorities in the study derive their own policies for generally protecting land from development within their respective local plans. For example, Bromsgrove District Council uses the designations of 'Landscape Protection Area' and 'Area of Great Landscape Value' and Stratford-on-Avon District Council uses the designation of "Special Landscape Area", whilst Redditch Borough Council only uses the designation of Green Belt to cover the extensive area of open countryside to the southwest of the town. Looked at objectively, the quality of the landscape in that area is similar to landscape which carries a greater array of protective policy within the other districts.

- 5.06 Another important factor which had a bearing on the amount of land which could be identified for potential development within the built up area of Redditch was the extensive provision of 'Primarily Open Space' which is generally protected by Policy R.1 of the adopted local plan. However, a substantial amount of that open space land is also protected through important ecological designations, such as Sites of Special Scientific Interest (SSSIs), Special Wildlife Sites (SWSs) or Local Nature Reserves (LNRs). The extent of potential development land examined within the built up area of Redditch has been somewhat circumscribed by Redditch Borough Council's strong desire to retain the green infrastructure available within the built up area on the basis that it is an integral part of the planned new town and is a vital component of the town's distinguishing character.
- 5.07 There is one fundamental policy constraint which has for many years affected the extent to which Redditch can expand at the periphery of the town, this being the Green Belt which wraps itself around the boundary of the built up area of Redditch. Through the process of preparing local plans for Redditch Borough, certain land parcels have been excluded from the Green Belt in order to potentially accommodate long term growth requirements for the town. Those designated 'Areas of Development Restraint' are insufficient in themselves to accommodate the scale of growth put forward in the RSS Revision Options 2 and 3 (see Section 6). Although RSS policy, which is not currently under review, is to retain the Green Belt, it is an inevitable consequence of accommodating the substantial levels of growth suggested by Options 2 or 3 that land which is currently Green Belt will have to be built upon. In identifying options that would involve incursions into the Green Belt, WYG has had regard to the purposes of Green Belts as set out in paragraph 2.04 above in order to ensure that any necessary breaches of the Green Belt boundaries are carried out sensitively so as to minimise the harm arising.
- 5.08 In respect of the physical constraints WYG gave particular emphasis to those relating to flooding and highway infrastructure. Flooding is an important development constraint within certain parts of Redditch, relating to the River Arrow and its tributaries, and to the south west, Swan's Brook. For the constraints mapping exercise WYG has concentrated on land falling within the Flood Risk Zone 3. Within such zones, according to advice in Table D.1 of PPS25 land is assessed to have a greater than 1 in 100 or greater annual probability of river flooding and there are restrictions placed on the type of development that are appropriate within Flood Risk Zone 3 Areas. Residential development will only be permitted in Zone 3 if the exceptions test can be passed. PPS25 introduces a sequential approach to development in flood zones with the first preference, when planning for new development, being Flood Zone 1.

- 5.09 With respect to transportation constraints, White Young Green Transportation carried out an initial review of existing road conditions within Redditch and has, through liaison with Worcestershire County Council as Highway Authority, assessed the parts of the highway network that present the greatest difficulties in accommodating the traffic generated by significant additional growth (Appendix C).
- 5.10 In respect of physical constraints development, in addition to highway infrastructure, key sources of information were the Environment Agency in respect of flood plain and flood risk and the various relevant statutory undertakers in terms of electricity, gas and telecommunications provision, foul drainage and sewage treatment.
- 5.11 Where sites were selected in the study for further examination as to their development potential on the basis of the desktop exercise, an initial site investigation was carried out in order to identify the extent of any site specific constraints which could not be fully appreciated from the desktop assessment, such as boundary features, topography and the potential impact of physical constraints such as noise, air quality and overhead electricity pylons.
- 5.12 One of the main difficulties of the study was to objectively review the various physical and policy constraints in order to distinguish which, if any, were effectively barriers to accommodating development on a given site and which were less onerous, or could be overcome through amelioration measures funded by the development itself. Significant physical/policy constraints which have been particularly influential in narrowing down the options for potential development are:
- i) Land which is recognised as being of international importance in terms of nature conservation, including Special Protection Areas (SPAs) and Special Areas of Conservation (SACs).
 - ii) Land recognised as being of national importance for nature conservation, including National Nature Reserves (NNRs) and Sites of Special Scientific Interest (SSSIs).
 - iii) Land recognised as being of regional/local importance for nature conservation, including Local Nature Reserves, Special Wildlife Sites and Sites of Importance for Nature Conservation.
 - iv) Land occupied by Scheduled Ancient Monuments.
 - v) Land occupied by ancient semi natural or ancient woodland.

6 IDENTIFIED DEVELOPMENT OPPORTUNITY AREAS

The Areas of Development Restraint (ADRs) and Other Related Land

- 6.01 The Borough of Redditch Local Plan No.3 contains three Areas of Development Restraint at Webheath, Brockhill and along the line of the abandoned improvements to the A435. These sites have been identified as having long-term potential to meet the needs of the town and whilst they cannot be released until the matter has been properly considered at a future review of the Development Plan they have been excluded from the Green Belt. This land has the same status as White Land and should be regarded as being sequentially preferable to areas within the Green Belt.
- 6.02 The Practice Guidance for Strategic Housing Land Availability Assessments published in July 2007 says that suitable greenfield sites as well as broad locations which would normally have been identified by the RSS should be included within the assessment of long term capacity (beyond 10 years). It is therefore necessary to consider what capacity could be provided by these sites before assessing the amount of new allocations that would be required to meet each of the three RSS growth options.
- 6.03 Redditch Borough Council has assessed the combined capacity of Webheath and Brockhill at 525 dwellings for each period 2006-16 and 2016-26, a total of 1050 dwellings. The Council has not previously attributed any capacity to the A435 ADR and this ADR differs from those at Webheath and Brockhill on the basis that it abuts the administrative boundary of Stratford-on-Avon and there is no well defined physical distinction between the designated ADR land and adjoining land within Stratford District to the west of the A435. In assessing the potential capacity of that area of land at a strategic level, within the scope of this study, the logical approach is to consider the whole strip of land encompassed by the existing build up area of Redditch and the A435, rather than the ADR in isolation. In addition, linked to the ADR designation to the north is a triangular area of land situated within the administrative boundary of Stratford-on-Avon bounded by the A435 and the A4023. That land is known as the Winyates Green Triangle site. This site is excluded from the Green Belt and is "white land" in the adopted Stratford-on-Avon Local Plan. The site was removed from the Green Belt in a previous (2000) Local Plan and allocated for housing to assist in meeting the needs of Redditch at that time. When the Stratford-on-Avon Local Plan was reviewed the Winyates Triangle site was de-allocated because there was no overriding housing requirement to be met at that time. However the Local Plan Inspector rejected the case by the Council to re-instate the site as Green Belt hence the current designation as "white land". A part of that overall area of land (i.e. site 18 on Plan 1, page 26) is potentially affected by flooding, but other than that the site is free from the range of strategic constraints

described in Section 5. However, we note that this area as a whole is characterised by large woodland plantations which may have local value as an amenity or recreational resource and some of the trees are the subject of Preservation Orders. In addition there are potential issues relating to the coalescence between Redditch and Mappleborough Green, without suitable undeveloped 'buffers' being in place. These are matters to be addressed as part of the LDF. We assess the gross area of the land free from strategic constraints within the overall site to be 45ha.

6.04 Based on a similar apportionment of land uses as shown in Chart 1 (57% of the gross area being residential) and based on an overall density of 35 dwellings per hectare we estimated that the designated A435 ADR, the adjoining land to the west of the A435 and the Winyates Triangle site could potentially accommodate some 898 dwellings. It should be noted that this approach assumes that some 43% of the gross land area will be used for employment, open space and community uses, the disposition and the configuration of which is a matter for the LDF. On that basis there is a surplus of land to meet Option 1, a requirement to allocate sufficient land to accommodate around 2,000 dwellings for Option 2 and around 7,000 dwellings for Option 3.

6.05 The following table summarises the amount of new land that would have to be found to meet the three growth scenarios, taking into account the development of the ADR sites (and other related land in the case of the A435).

Table 5: ADRs and Net Land Requirements

Growth Scenario	1	2	3
Land Required (ha)	15.71	200.48	445.43
Webheath & Brockhill ADRs (net)		30.0	
A435 ADR (net) and adjoining land (net)		25.7	
Total		55.7	
Balance	-39.99	144.78	389.73

Note: "Land Required" for each growth scenario taken from Table 4

Potential Development Options on the Urban Periphery (excluding ADRs)

6.06 It can be seen that there is more than sufficient land which can be brought forward through the development of the Webheath and Brockhill ADR sites within the Borough of Redditch Local Plan No.3, to accommodate Growth Option 1. However, the combined development of the 3 ADR sites and also Winyates Green Triangle could not meet the overall land requirements necessary to accommodate Growth Options 2 and 3. Therefore the issue of taking land out of the Green Belt to accommodate future development in Redditch applies if either Growth Option 2 or 3 is selected.

6.07 The desktop assessment identified 21 separate areas on the edge of Redditch encompassing all of the land on the urban periphery. The extent of those sites has been identified initially using OS

based plans, including proposals maps, on the basis of readily identifiable site boundary features such as roads and rivers wherever possible. The location of the sites identified for further consideration by the SWOT analysis, is shown on the plan at **Appendix E**.

- 6.08 The purpose of identifying a range of sites that collectively encompass all of the land on the urban periphery within the Bromsgrove, Redditch and Stratford's administrative boundaries was to ensure that all reasonable opportunities to achieve balanced growth within Redditch were explored and options for dispersed peripheral growth through the 'pepper potting' of sites can also be considered. In identifying the land parcels for further consideration within the SWOT analysis, it was not assumed that all of the land within any given numbered land parcel was able to accommodate, or was appropriate for development. The purpose of the initial assessment was to identify whether there was, in general terms, sufficient quantity of land on the urban periphery to potentially absorb the development requirements arising from the three growth options, whilst allowing more detailed consideration of the nature and severity of the constraints within the land parcels, to gain an understanding of the realistic and appropriate potential for accommodating development.
- 6.09 The process involved in narrowing down the various sites identified in the third stage of the investigation is described in Section 7.

7 STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS (SWOT) ANALYSIS

- 7.01 SWOT analysis is essentially a business management tool used in the strategic planning process, particularly by commercial organisations. However, it is also a useful general problem solving technique and the principles of SWOT analysis create a mechanism for assisting in the resolution of land use planning issues such as those relating to the comparative assessment of the suitability of sites to meet identified requirements. Its main advantage is that it facilitates comprehensive assessment of both positive and negative factors on a consistent basis. Its principal drawback is that it is often difficult to distinguish a clear 'winner' from the process, since weaknesses and threats will almost invariably arise from any particular option considered. The approach inevitably involves an element of value judgement through the weighing up of factors identified in each of the four elements of the analysis in order to include or exclude any particular option from further assessment.
- 7.02 When used as a business tool, the analysis is usually structured to take account of internal resources and capabilities (strengths and weaknesses) as well as factors external to the organisation (opportunities and threats). For the purposes of this study we have sought to apply the general principles of SWOT analysis to each of the sites identified in the initial search, in order to narrow down the options for accommodating substantial growth to sites with the greatest attributes (as measured generally by strengths and opportunities) and the fewest deficiencies (in terms of weaknesses and threats).
- 7.03 The results of the SWOT assessment for each of the identified sites are included at **Appendix F**. Generally, key site **strengths** include well defined development boundaries and strong physical relationship with the existing built up area. Sites that are relatively accessible to the Primary and District Distributor road network or are relatively well served by public transport and are well related to existing foci for employment and Redditch town centre are also viewed as being relatively strong. The main **weaknesses** relate to the range of constraints identified in Section 5, both physical and in terms of planning policy. WYG has not, within the scope of this study, sought to identify any potential land ownership constraints which could prevent or hinder development going forward on an individual site.
- 7.04 All of the sites identified (excluding the ADR land, Winyates Green Triangle and sites 3A & 7) lie within the Green Belt. This is flagged up in each case as a weakness. However, in order to try and distinguish between the various Green Belt sites WYG assessed in each case, the extent to which the Green Belt purposes would be harmed. It is clear that each identified site option would be contrary to the purposes relating to:

- Checking the unrestricted sprawl of large built up areas;
- Assistance of safeguarding the countryside from encroachment; and
- Assisting urban regeneration by encouraging the recycling of derelict and other urban land.

WYG does not consider the purpose of preserving the setting and special character of historic towns to be relevant in this case. This effectively leaves the purpose of preventing neighbouring towns from merging into each other. It is evident that certain options are worse than others in that respect and as such WYG distinguish them with the following designation under weaknesses in the SWOT analysis – Green Belt (+).

- 7.05 The **opportunities** arising from development within any given site generally relate to the potential to secure significant offsite benefits or the potential to create a physical link with other suitable sites which would create a more appropriate development site with greater possibilities of securing related necessary facilities or infrastructure as part of a comprehensive scheme.
- 7.06 Examples of identified **threats** are the imminent prospects of the site in question being reallocated for a different use or a commitment to development of a different kind by planning permission. Where collectively the existence of a wide range of constraints on a particular site is likely to significantly undermine the prospects of development being achieved, then this is highlighted in the threats section. Also, where there is concern that there may be a substantive objection from an important statutory body not consulted as part of the study preparation, this is flagged up under the threats section of the SWOT analysis.

8 OPTIONS FOR ACCOMMODATING GROWTH AROUND REDDITCH

Introduction

- 8.01 The results of the SWOT analysis and the separate investigation of transport and utility related constraints, have enabled a rationalisation of the potential development options and also a better understanding of the implications of achieving peripheral growth around Redditch in all directions. Each of the sites viewed individually, or in combination, exhibit important weaknesses as well as strengths and identifying the extent of growth that can be accommodated on the periphery of Redditch town and the most appropriate location for/direction of peripheral growth will involve fine judgement based on further study involving public consultation. However, taking the SWOT analysis results in the round WYG is able to provide initial advice on the implications associated with various alternative options.
- 8.02 Two sites are immediately notable, in our view, regarding the extent and severity of existing constraints, to the point that it is advised that they should effectively be ruled out of the assessment of potential future development options. These are Sites 3A (Redditch Golf Club and Morton Stanley Park) and Site 7 (Abbey Park Golf Course). Both of these sites are valuable in their own right as part of town's formal sports provision and most of the land in each of the sites is also affected by important ecological designations. In addition, Site 7 is within Flood Zone 3. While other sites also contain ecological designations (or physical constraints), the designated areas within Sites 3A and 7 cover a significantly greater proportion of the available land area.
- 8.03 The exclusion of these two sites leaves 19 sites for further consideration on the basis that they may possess some level of development potential. For each of those sites, Table 6 below gives an indication of the extent of each site that is potentially capable of accommodating development, through exclusion of land subject to topography, landscape ecology and flood risk constraints. More intensive investigation of each site would be required to precisely quantify site capacity and the mix of uses which would be appropriate.

Table 6: Net Developable Areas within Option Sites

KEY	SITE	(A) SITE AREA (HA)	(B) LAND SUBJECT TO ECOLOGICAL, TOPOGRAPHICAL, LANDSCAPE AND FLOODING CONSTRAINTS (HA)	(C) FLOOD AREA ASSUMPTION (HA)	(D) TOTAL AVAILABLE LAND AREA (HA)
1	Land North of Astwood Bank	216	76	11	129
2	Land Adjacent to Ham Green	270	31	14	226
3	Land West of Redditch Golf Course	215	20	17	178
4	Land West of A448	359	14	11	334
5	Land East of A448	193	30	23	140
6	Land at Lowan's Farm	124	0	0	124
8	Land Between A441 & Rycknield Street	390	66	59	266
9	land between Rycknield Street, M42 and A435	482	88	0	394
10	Land at Holt End	308	103	0	205
11	South of Cobley Hill	705	144	56	505
12	Rough Hill Wood and Land north of Jill Lane	251	114	0	137
13	Land to north of Sambourne and Middletown Villages	352	48	41	273
14	Land between Studley & Redditch	129	7	7	122
15	Land east and northeast of Studley	302	50	96	156
16	Land south of Hardwick Lane	486	89	145	252
17	Land east of A435 & south of A4189	334	67	0	267
18	Narrow strip of land between Redditch and A435	48	3	0	45
19	Land north of A4189 & east of A435	320	98	0	247
20	Land between A435 & Blind Lane	245	38	0	207
TOTAL		5754	1087	479	4230

Notes: D = A minus B and C

Designated ADR land within sites 3, 6 and 18 excluded.

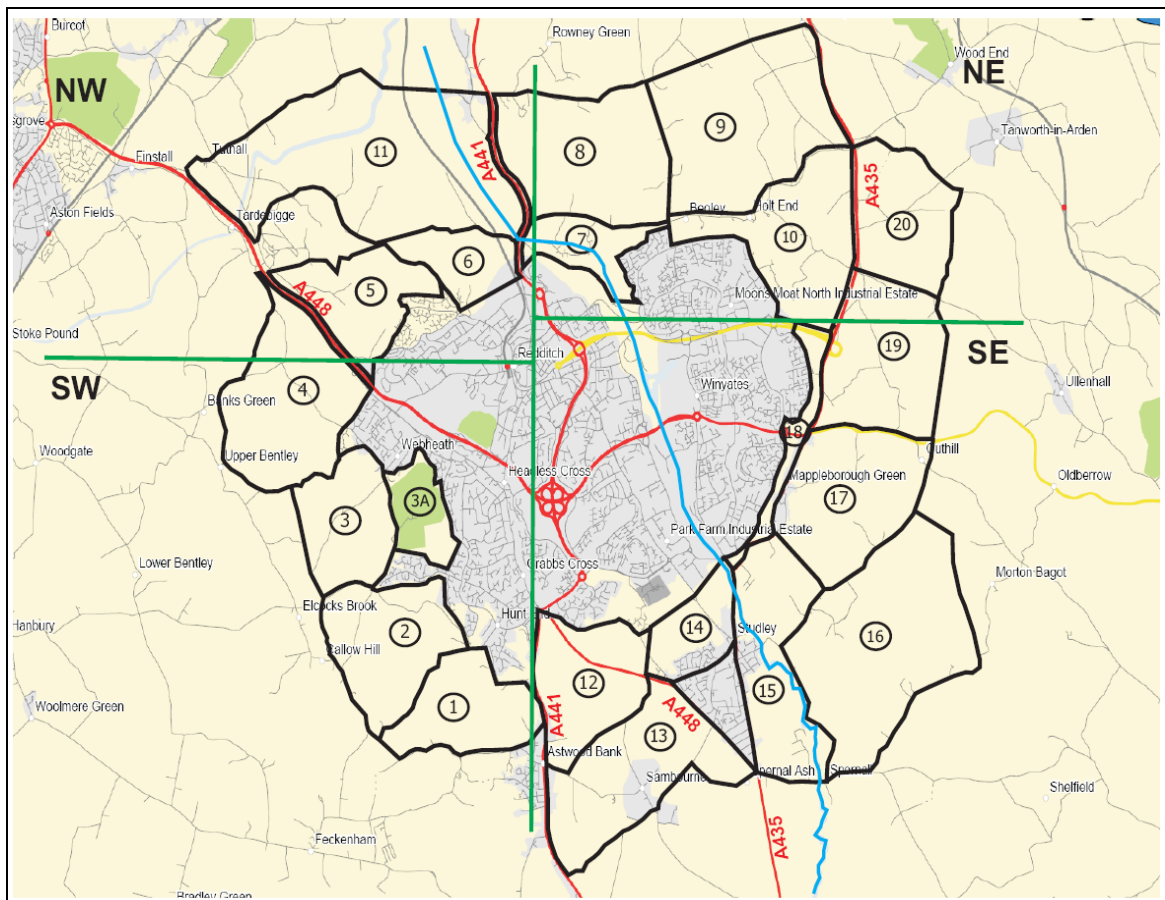
8.04 By comparing the estimates of net land available for development within the various sites identified in Table 6, with the net strategic land requirements associated with Growth Options 2 and 3 at Table 5, it can be seen that, in principle, a number of sites are large enough to accommodate Growth Option 2, while two (Sites 9 and 11) are large enough to accommodate Growth Option 3. Various combinations of sites would therefore be able to meet the identified quantum of land required to accommodate Growth Options 2 or 3.

8.05 Having established that sufficient quantum of land exists on the urban periphery to accommodate major growth in principle, it is necessary to explore the following matters which collectively determine whether it is appropriate for Redditch to meet either Growth Options 2 or 3;

- i) Is Redditch, in general terms, a sustainable location to accommodate major additional growth?
- ii) Assuming that the answer to i) is “yes”, taking into account environmental, policy and infrastructure constraints and opportunities, are there any clear, overriding benefits in seeking to concentrate major additional growth in any particular part of the urban periphery, and if so, where?

8.06 These matters are addressed below. In order to assist consideration of question ii) and to ensure that the assessment of growth options remains strategic in its scope, Plan 1 below divides Redditch into four quadrants – north west, north east, south west and south east (NB the split is not intended to create four equal sized quadrants). The text generally refers to the quadrants identified above, unless site specific details were required to illustrate particular points.

Plan 1: Showing Sites Subject to SWOT Analysis by Quadrant



Is Redditch a Sustainable Location to Accommodate Major Growth?

- 8.07 The answer to the first question is a qualified affirmative. Redditch is closely related in physical terms to the Birmingham conurbation and is well connected to it via the main highway network (A441, A435, M42 and M5) and via the train network. Redditch is large enough to have its own substantial employment base, a variety of housing, and a range of public amenities and facilities, to make an attractive place to live and work in its own right.
- 8.08 The important caveats are that the range of employment opportunities in Redditch cannot contend with that available in the Birmingham conurbation, leading to high levels of net out commuting (assisted by the excellent accessibility to the conurbation by car). Accessibility by train and bus to Birmingham is not as good as it could be (leading to further increased reliance on the car for commuting/shopping purposes).
- 8.09 Provided that additional major growth at Redditch is accommodated in a sustainable way, in terms of both location of new development and through the comprehensive provision of appropriate supporting social and physical infrastructure, together with additional employment generating development, there is no reason in principle, why Redditch should not accommodate the additional housing growth envisaged in the emerging RSS revision, on grounds of sustainability.
- 8.10 In addressing the second question, it is clear that there are certain constraints which have an important bearing on the most appropriate direction for accommodating growth and also on the scale of growth that can realistically be absorbed on Redditch's urban periphery. Two important considerations in that respect are constraints relating to highways/transportation and public utilities infrastructure. Both of these matters are addressed in some detail in the reports attached at Appendices C and D. There follows below a synopsis of the findings of those reports in relation to options for accommodating growth around Redditch.

Summary of Highway/Transportation Constraints

- 8.11 A strategic assessment of the existing road network carried out by WYG as part of the study has identified constraints in terms of the capacity of parts of the primary distributor and district distributor network, to accommodate the additional traffic likely to be generated by accommodating Growth Options 2 or 3. The report also considers, in broad terms, the relative merits of accommodating growth beyond the urban periphery of Redditch in terms of sustainability, taking into account the accessibility of potential development areas to Redditch town centre for pedestrians, cyclists and by public transport.

8.12 The main conclusions arising from the assessment of highway/transportation capacity and constraints carried out by WYG, the report of which is attached in Appendix C, are as follows:

- In terms of accessibility by non car modes, concentrating major new urban development to the north (associated with the A441 (north) link) and north-west (associated with the A448 (west) link) of the town, would be the most sustainable locations. (i.e. SWOT sites 5, 6, 8, 11 and 9).
- There are a number of link roads and junctions within Redditch that appear to be at, or nearing, operational capacity – these being the A441 (north) Bordesley link, the A435 (east) link and Crabbs Cross roundabout. All other assessed links/junctions appear to be operating within design capacity.
- Following assessment of the level of additional growth (residential and employment) needed to accommodate the three growth options and consequent improvements to the highway network required, it is considered that the primary highway network is able to accommodate the growth associated with Options 1, 2 or 3 within either the north west, north east or south east quadrants, subject to adequate infrastructure improvement measures on parts of the main road network. The potential costs associated with the provision of infrastructure improvements will vary depending on the location chosen for development and extent of physical works required. However, in general terms the report identifies that to accommodate Option 1 the highway infrastructure costs could range up to £175.25 million, to accommodate Option 2 the costs range from £7.5 million to £227.75 million and to accommodate Option 3 the costs would range from £73.75 million to £332.25 million.
- From consideration of the combination of sustainable accessibility and estimated infrastructure costs the report suggests that the most appropriate locations to accommodate major growth are as follows:
 - for Spatial Option 1, all development is accommodated by existing “committed developments”
 - for Spatial Option 2, development concentrated around the A441 (north) link, or A448 Bromsgrove Highway Link. (SWOT site numbers 6, 8 and 11)
 - for Spatial Option 3, development concentrated around the A441 (north) link, or A448 Bromsgrove Highway Link. (SWOT site numbers 5, 6, 8 and 11)

8.13 The report also recommends several areas of additional data collection and research, including investigation of the feasibility of moving the existing main railway station in Redditch to a new location associated with major developments within the A441 (north) corridor (SWOT site No 11) which could (if linked with the provision of a second rail track between Redditch and Barnt Green), potentially improve the capacity of the main rail network to accommodate trains to and from

Birmingham and reduce commuting by car, although the substantial cost of achieving this is recognised.

Summary of Utility Infrastructure Capacity and Constraints

8.14 The main conclusions arising from the assessment of utility infrastructure capacity constraints carried out by WYG, the report of which is attached in Appendix D, are as follows:

- The supply of gas should not influence either the number of new homes in Redditch or the location of new homes as all growth options can be accommodated through a connection from the existing medium pressure network. Generally, the further development is located from the existing medium pressure network, the greater the capital investment required from developers and development agencies.
- The existing data and telecommunication network in Redditch should not unduly influence housing growth or the location of housing growth. The best connections for development growth in terms of economics would be to the north of the town centre where there are ADSL and SDSL networks; telephone exchanges to the south, west and east are ADSL only.
- The supply of network electricity should not unduly affect residential growth beyond Redditch although capital investment costs might be reduced by locating new homes in certain locations beyond the east of the town. Development to the south and west of Redditch would be most expensive. (SWOT site numbers 1 to 4)
- In respect of drainage, the most sustainable and perhaps least expensive locations to construct new homes beyond Redditch are areas where the permeability of the soil is the greatest and failing this close to existing water courses, most likely to the north and east of Redditch. (SWOT site numbers 8 to 10 and 15 to 20)

8.15 The report finds that the single most pertinent utility infrastructure constraint is provision for foul water disposal and development to the west of the River Arrow would be potentially more expensive and less sustainable in that respect. The key foul water constraints governing new development within and surrounding Redditch are:

- Severn Trent Water has stated that there are no planned capital works being carried out to the Sprenal Sewage Treatment Works (STW), located to the southeast of Redditch treating most of central, northern and eastern areas of the town. Detailed modelling will be required to assess the capacity of each of the growth options against the existing effluent discharge licence but it is understood anecdotally from Redditch Borough Council that the discharge

consent into the River Arrow at Sernal STW is not too onerous; confirmation from Severn Trent Water is still outstanding.

- Foul flows from any major new development in or around Redditch would most likely be conveyed to Sernal STW either by gravity (new development to the north, south and east of Redditch) or a combination of pumping and gravity from the western perimeter of the town (see below). Providing treated effluent discharge licenses into the River Arrow are flexible at this location as suggested above then any capital investment to increase the capacity of the treatment works should be funded by the incumbent licensed Sewerage Undertaker (Severn Trent Water) provided the new development is allocated within the next Development Plan (a Sewerage Undertaker has a duty to provide capital investment for population growth allocated in a Development Plan).
- Irrespective of whether development is 'allocated' any development in or around Redditch may be significantly constrained by Severn Trent Water's feasibility, design and build programmes for the delivery of new assets. Severn Trent Water will not programme this work before their 2010 - 2015 capital investment period (AMP5).
- Severn Trent Water has stated that major planned capital work is planned to the Priest Bridge Sewage Treatment Works (south west of Redditch treating existing flows from the west of the town) within the AMP4 period (2005-2010). This capital work is based on a current design population of 15,000 and therefore does not include for any of the growth options in this study. Severn Trent Water has advised that the Sewage Treatment Works will be difficult to extend once these works have been carried out thus limiting population growth to the west of Redditch unless new foul flows are pumped over the 'ridge' into the catchment served by Sernal STW. Pumping all foul water over the 'ridge' from the west to the east of the town will not be a wholly sustainable solution.
- The existing sewerage network within and downstream of Redditch Town Centre is stressed and has a history of sewer flooding. Effectively any significant new development north or northwest of the town centre may require a complex engineering solution with likely disruption to the centre of Redditch.
- The Bow Brook River downstream of the Priest Bridge Sewage Treatment Works to the west of Redditch and the River Arrow downstream of the Sernal Sewage Treatment works to the south east of Redditch are considered unsuitable to accept significant amounts of additional treated effluent from the treatment works.

8.16 Effectively any development to the southwest of 'The Ridge' (very approximately the A448) would have to be drained to Sernal Sewage Treatment works using one or more pumps. These pumps would have to be designed such that foul water is pumped to an outfall downstream of the stressed sewerage network in the town centre.

- 8.17 Any development to the north or northwest (upstream) of the Town Centre may trigger a very convoluted scheme to convey water to Spenal Sewage Treatment Works via a new trunk sewer through the town centre, or by pumping flows into a new trunk sewer further east.
- 8.18 The most sustainable solution would be to develop close to or to the east of the River Arrow, again a new trunk sewer might be required but this could potentially be a gravity sewer.
- 8.19 The report concludes that it is *"becoming clear that large scale residential development generally to the east of the River Arrow is preferable in terms of reduced capital investment and more sustainable solutions (reduced foul water pumping costs). Both foul water and electricity solutions will be cheaper and simpler [to the east of the town] & [i.e. SWOT sites 8 to 10 and 15 to 20]"*
- 8.20 Taking into account all identified constraints (policy, physical, natural and infrastructure) WYG sets out below its view on the implications of seeking to achieve Growth Options 2 and 3 within the identified Redditch "quadrants".

North West Quadrant (Sites 5, 6 and 11)

- 8.21 Development in this area offers the following advantages:
- Sufficient land is available to accommodate Growth Options 2 and 3, taking into account physical constraints and flood risk areas.
 - The potential to link to the A448 and the A441 corridors.
 - Site 6 contains an ADR with potential to extend the development area beyond the current boundaries.
 - Potential for development along the rail/river corridor, including possibility of relocating the Redditch train station and dualling of the track between Redditch and Barnt Green, and potentially, the provision of a high quality new business park with good connections to the M42.
 - Would facilitate funding of the Bordesley bypass and related A441 (north) link improvements.
 - Site 6, the southern part of Site 11 and the eastern part of Site 5 are well located relative to Redditch town centre and existing and proposed employment areas.
- 8.22 However development in this quadrant also has a number of disadvantages including:
- The disposition of the various physical constraints is such as it would lead to a fragmented development pattern within the quadrant.

- Major development within Sites 5, 6 and 11 would probably require a new road crossing of the main railway line (if the relocation of the train station is not feasible) to create a highway link between the A448 and A441. Given the various constraints, in particular variations in topography, such a highway link would be very expensive and potentially time consuming to achieve.
- The sites are all to the west of the River Arrow, and as such the foul drainage requirements would be more difficult and costly to meet.
- Would potentially bring development close to Bordesley affecting its character (although this is not designated as a settlement in the development plan).

North East Quadrant (Sites 7, 8, 9, 10 and 20)

8.23 Major development on the urban periphery within the north east quadrant of Redditch presents a number of advantages, set out below:

- Site 8 is well related to Redditch town centre and existing and planned employment areas, via the A441 (north) link, representing a relatively sustainable location for growth. Additionally, the highway related infrastructure improvements associated with development within Site 8 are relatively cheap and quick to achieve.
- The sites in the north east quadrant are to the east of the River Arrow and therefore it is likely to be less costly to develop within this area in terms of foul drainage provision.
- It also likely to be less costly to develop within this area in terms of telecoms provision and electricity supplies.
- Development within Site 8 provides the opportunity to fund the Bordesley bypass and other associated works on the A441 (north) link.
- Development within Site 8 could link with development on the eastern part of Site 11 and also with Site 6, to form a sustainable urban extension around the A441 (north) link.
- Site 10 provides a relatively self contained opportunity to accommodate either housing or employment development through the extension of the built up area beyond the planned extension of Ravensbank Industrial Estate.

8.24 However, development within the north east quadrant also gives rise to certain disadvantages, as follows:

- Site 9 would be relatively unsustainable to develop in isolation and, if developed in association with Site 8, would probably require provision of a new link road between the A441 and the A435 to create a defensible long term northern boundary for the town. That link road is likely to be expensive and time consuming to build.

- Development within Sites 9 and 10 have the potential to “swallow up” Beoley and Holt End adversely affecting their character.
- The full development of Site 8 would bring the extent of the built up area of Redditch close to Rowney Green, affecting its character.
- Development within Site 20 in isolation would be unsustainable, being remote from the built up area of Redditch and the town centre. Extending the developed area of Redditch beyond the A435 to the east would make it difficult to establish a long term, defensible boundary for the Green Belt.
- Development of Site 20 would take the extent of the built up area of Redditch close to Tanworth in Arden, affecting the character of that settlement.

South East Quadrant (Sites 12 to 19)

8.25 With the exception of certain areas of land immediately adjacent to the built up area of Redditch, the south east quadrant effectively contains all of the study area land within Stratford-on-Avon District. Accommodating development within this quadrant would bring with it the following principal advantages:

- Site 14, the northern part of Site 15, Sites 17, 18 and 19 are reasonably well located to the principal employment areas within Redditch.
- Major development within Sites 12 and 14 could potentially fund the provision of an A441 (south) link relief road, which would assist in relieving bottle necks at the Crabbs Cross roundabout.
- Development within Sites 17, 19 and 20 could potentially fund any necessary improvements to the A435.
- The northern part of Site 15, together with Sites 16 to 19 are located to the east of the River Arrow, so that necessary foul drainage infrastructure would be relatively easy to achieve at a relatively low cost.
- Development within Site 18, both within the designated A435 ADR and also within the land designated as Green Belt located between the ADR and the A435, along with the Winyates Green Triangle would appear to be both feasible and sustainable.

8.26 However, major growth within the south east quadrant would bring with it the following the disadvantages:

- Sites within this quadrant are relatively remote from Redditch town centre and are less accessible by all modes of transport to the centre than sites within the north western north east quadrants.

- Development on sites within the south east quadrant to the east of the A435 (i.e. Sites 15, 16, 17 and 19) would create difficulties in achieving a long term, defensible boundary for the Green Belt in this direction.
- Development within Sites 12 to 15 would have the effect of submerging the settlements of Astwood Bank, Sambourne and Studley within the built up area of Redditch, affecting the character of those settlements.
- The separate development of Site 16, in isolation from Sites 17 and 15 would be unsustainable, effectively creating a new settlement within the Green Belt.

South West Quadrant (Sites 1 to 4)

8.27 The accommodation of major growth within the south west quadrant would bring with it the following principal advantages:

- A substantial proportion of the land within Sites 1 to 4 (excluding Site 3A) does not exhibit significant environmental or policy constraints.
- There is the potential for the Webheath ADR to be developed independently from the remainder of Site 3. The development of that ADR could potentially be achieved in tandem with Site 4, subject to a new link being created to the A448.

8.28 However, accommodating a major growth in the south west quadrant would involve a range of significant disadvantages, including:

- Due to the configuration of the primary road network within Redditch and constraints in terms of the capacity of the A441 (southern) link, Sites 1 to 3 are poorly connected to the main road network and, unlike other quadrants, there is significantly less prospect of being able to achieve satisfactory connection with the main road network in association with major development on Sites 1 to 3, due to the length of new roads which would have to be built and also the difficult topography existing along all potential routes.
- Sites 1 to 3 are relatively remote from either Redditch town centre or the main employment areas within Redditch, in respect of all modes of transport.
- While Sites 1 to 3 are not given any specific landscape value in the Redditch Local Plan No.3, these areas are equally, if not more attractive than certain areas designated as Special Landscape Area or Areas of Great Landscape Value, within other quadrants.
- All of the land within Sites 1 to 4 lies to the west of the River Arrow and as such the provision of foul drainage to serve new development would be relatively problematical and costly.

- Linked to the lack of potential to provide a new primary road connection between the A448 and the A441 (south) link, it would be difficult to identify defensible long term boundaries for the Green Belt, should development extend in a south westerly direction from the existing built up area.
- Development of Site 1 would effectively create the coalescence of Astwood Bank with Redditch, affecting the character of that settlement.

Phasing of Development

8.29 Virtually all of the peripheral development site options on the edge of Redditch will involve the provision of substantial investment in infrastructure, particularly on highways and drainage, to bring them forward. Even if such provision was to be substantially developer funded, the procedural requirements to secure approval for the major infrastructure works is likely to take a number of years, with construction taking several further years to complete. There is therefore a consequent threat that the delivery of developments required by Growth Options 2 and 3 could be heavily concentrated in the latter half of the strategy period.

Growth Option 1

8.30 It can be seen from Table 5 that a combination of the three designated ADRs in Redditch, and/or the Winyates Green Triangle site, have more than sufficient potential to meet the residual land requirements associated with Growth Option 1.

8.31 The road infrastructure mitigation measures needed to bring forward Growth Option 1 within such a dispersed growth distribution strategy, would be relatively limited, potentially involving some improvements to the A435 (south) link, the Bordesley bypass and improvements to Crabbs Cross roundabout. The need for such infrastructure improvements should be the subject to further scrutiny in the light of the outputs of the recommended transport model for the town/district.

8.32 The view is that there is no overriding constraint to the early release of any of the three ADRs, (or the Winyates Green Triangle site) through the LDF, subject to the outcome of the RSS review process.

Growth Option 2

8.33 Should Redditch be required to accommodate Growth Option 2, it can be seen from Tables 4 and 5 that notwithstanding the development of the three designated ADRs and also the Winyates Green Triangle site up to their maximum potential, there would still be a requirement to release additional land on the urban periphery currently within the Green Belt. Taking into account the

range of constraints and opportunities assessed in the context of various land parcels considered to have some potential to accommodate growth, it is concluded that the adverse strategic planning implications associated with accommodating growth adjacent to the town would be minimised to the north/north east with development concentrated around the A441 (north) link (SWOT site areas 6, 8 and 11). Within that general area there is a good prospect of achieving substantial levels of new development relatively early in the period assessed, since one of the pre-requisites for accommodating that growth, the Bordesley By-pass, already has planning permission, with the principal reason for non implementation being lack of committed funding. Development within Sites 6, 8 and the eastern part of Site 11 offers the opportunity to fund not only the bypass but also the related link widening and improvements to Millrace/A441 (Sainsbury's) roundabout. As can be seen from Table 6, there is sufficient land with development potential within Sites 6, 8 and 11 to accommodate the development requirements associated with Growth Option 2.

- 8.34 A further area within the north east quadrant which merits further investigation as to whether it presents an early development opportunity is land within Site 10 to the north of the Ravensbank employment allocation site within the Bromsgrove District Local Plan. While there are important constraints relating to ecological designations and topography in the central and eastern parts of Site 10, there is an area of land to the north of the existing allocation which could form a self contained extension to the built up area of Redditch and which could be accommodated on the highway network. Depending on the scale of growth, some improvements to the junction of the primary distributor and the A435 to serve the development, may be required.

Growth Option 3

- 8.35 It is evident that to achieve Growth Option 3 there would need to be more substantial allocations of development within the Green Belt on the urban periphery of Redditch.
- 8.36 Taking into account the range of constraints and opportunities assessed in the context of the various land areas considered to have some potential for growth, it is concluded that the adverse strategic planning implications associated with accommodating growth adjacent to the town would be minimised by initially concentrating development in the north/ north-east of Redditch, in a similar fashion to that suggested for Option 2. On balance it is considered that the impact of the various strategic constraints to development is relatively low to the north/north- east of the town, while this direction of growth also has the important advantage of being the most sustainable in transportation terms. Should such additional growth be accommodated in the north east quadrant, there will most likely be a requirement for a new link road between the A441 (north) link and the A435 (north) link in order to form an outer boundary to the major development contained within Sites 8, 9 and 10 and to ensure that the levels of traffic generated by that development can be

distributed in such a way that the wider network still generally functions within design capacity. The timescale for providing such a major road link could be in the region of 5 years. This could lead to pressure for very high levels of housing completions in the latter part of the period assessed, in order to meet the Growth Option 3 housing target.

- 8.37 Further consideration should also be given to accommodating development around the A448 (west) link (SWOT Sites 4 and 5) coupled with new junction connections to the A448, although the extent to which SWOT Site 5 can contribute is substantially reduced by flooding and topography. The prospects of being able to create a long term defensible Green Belt boundary formed by a major road connection between the A448 (west) link and the A441 (north), are slim, due to a combination of severe topography, flood risk, protected wildlife sites and the need to cross the main Redditch to Birmingham railway.
- 8.38 In order to assist in overcoming such bottlenecks to growth in the north east and north west quadrants, it is concluded that further detailed consideration should be given to the potential for accommodating major growth within Sites 12 and 14 in the south east sector, in association with the provision of a Crabbs Cross Relief Road (linking the A441 (south) to Woodrow Drive (District Distributor Road) which would effectively form an outer boundary to development within that urban extension area. However, it should be noted this may lead to an adverse affect on the Alvechurch Highway by loading additional traffic onto it and, due to the configuration of that road, it would be relatively expensive to achieve significant improvements to its capacity. Also this development scenario would lead to coalescence between Redditch and Studley and could add to traffic congestion on the A435.

Other Considerations which could Influence the Direction of Growth

- 8.39 From the consideration of other constraints, there are none which would override the general conclusion that there are fewer disadvantages associated with accommodating major development to the north of Redditch than trying to accommodate it to the south, east or west. For example, the response from the Worcestershire Children's Services Directorate Education Authority indicates that new school provision (primary, middle and high) is likely to be required should major development be accommodated either to the north or the south (west) of Redditch, so that this factor has no substantive influence on the preferred direction of growth. Primary schools in the south east quadrant, within Warwickshire, appear to have little capacity to accommodate substantial housing growth in that area, whereas the non-denominational schools of all tiers outside that area (ie to the east of Redditch) appear have some residual capacity. While the distribution of supermarkets and district centres within the built up area is fairly evenly spread, the south west quadrant is relatively poorly provided in that respect. By far the largest choice and range of retail and leisure uses in the town is to be found in Redditch town centre, which is toward

the northern part of the built up area. Major development at the northern periphery of Redditch raises a new potential for a major sports / leisure complex at the Abbey Stadium site, in light of the potential for substantial increases in population (such a proposal would have to be assessed against Policy R.7 of the adopted Borough of Redditch Local Plan No.3).

- 8.40 One constraint to development northwards that will require further investigation, however, is mineral deposits. According to the adopted Hereford and Worcester Minerals Plan Proposals Map there are several areas of sand and gravel deposits to the north and west of Redditch. Parts of sites 5, 8, 9 and 10 are subject to that constraint to some extent. Policy M.2 of the adopted Worcestershire County Structure Plan seeks to safeguard such known mineral deposit areas and proposals for development which would sterilise or prevent them from being worked will be resisted unless certain criteria are met. Any proposal to promote major housing and related development within sites 5, 8, 9 and 10 would need to be carefully assessed against the relevant criteria.

9 CONCLUSIONS

- 9.01 This analysis has calculated the gross land required to meet the three options set out in Phase 2 of the Partial Revision of the Regional Spatial Strategy for the West Midlands region to 2026. In addition to residential land this includes an allowance for employment, retail and community uses required to meet the needs of the new population together with sufficient land to maintain the generous proportion of green space in order to maintain the town's character.
- 9.02 WYG has calculated how many dwellings could be accommodated on sites within Redditch's existing urban area both by surveying potential development sites and by an analysis of past trends. The analysis shows that identified urban capacity alone is insufficient to meet any of the Options.
- 9.03 The Borough of Redditch Local Plan No.3 designates three Areas of Development Restraint (ADRs) which it recognised may be needed to accommodate future growth. These areas are excluded from the Green Belt but it is a matter for future revisions to the Development Plan (the LDF) to consider their actual allocation. These areas could be regarded as being sequentially preferable to other areas of open countryside that have either been considered for development (either as part of previous reviews of the Local Plan or through Section 79 Inquiry) and ruled out, or have never been considered at all. The ADRs and Winyates Green Triangle (an area of White Land within Stratford-on-Avon's administrative area) have been assessed in this study as having a capacity of 1948 dwellings.
- 9.04 The identified urban capacity plus the development of the ADRs and Winyates Triangle would be sufficient to meet Option 1 but further urban extensions which would inevitably involve land designated as Green Belt would be required to cater for either Option 2 or 3. Much of this land would fall within the neighbouring authorities of Bromsgrove and/or Stratford-on-Avon Districts.
- 9.05 Whilst calculations allow Redditch's generous levels of green space to be maintained in any expansion area which would facilitate the incorporation of major landscape and ecological features, the extent of urban extension required to meet Option 2 and more particularly Option 3 would be perceived as a major incursion in to surrounding countryside.
- 9.06 Constraints imposed by highway and drainage infrastructure are generally less to the north than to the south and west. Also expansion northwards including the development of the Brockhill ADR would be relatively close to the town centre and significant savings on vehicle mileage in comparison with the more peripheral locations could be achieved particularly if improved public transportation links are incorporated into any masterplan for the area. The improvement to rail

services could also make a significant contribution to reducing existing and future reliance on the car and the potential for relocating the rail station as part of a transportation hub to the north of the town should be further evaluated.

- 9.07 For these reasons the opinion is that development to the north of the town is more likely to result in a more sustainable pattern of development.

10 ADDENDUM

10.01 Since this report was drafted The Regional Planning Partnership has concluded that the Preferred Option for growth between 2006 and 2026 at Redditch should be 6,600 dwellings, 3,300 to be found within Redditch Borough Council's area and a further 3,300 in the neighbouring administrative areas of Bromsgrove and/or Stratford-on-Avon Districts.

10.02 In order to compare this preferred option with the three alternatives considered in the report it is necessary to adjust the initial targets of 4,300, 8,200 and 13,200 dwellings to be provided between 2001 and 2026 by taking into account the 1,486 dwellings that were constructed between 2001 and 2006 to give a 2006 base date. On this basis Option 1 would have required 2,184 dwellings, Option 2 6,714 dwellings and Option 3 11,714 dwellings. Therefore the Preferred Option at 6,600 dwellings is more than Option 1 but less than either Option 2 or Option 3.

Development within Redditch Borough Council's Area

10.03 Figures given by Redditch Borough Council to the Regional Housing Land Capacity Study 2007 and shown in Table 1 indicate that at that time there were 1,146 'committed' dwellings made up from

- 314 dwellings under construction at 1.4.06,
- 725 dwellings with outstanding Planning Permission at 1.4.06,
- 83 dwellings that have been granted Planning Permission since 1.4.06, and
- 24 dwellings committed by the Development Plan.

10.04 Taking into account these commitments and the urban capacity assessed by this report there is a need to provide 613 dwellings on urban expansion sites which, based on 35 dwellings per hectare, would require 17.5 ha. Table 7 shows that the Redditch Borough Council's assessment of the capacity of the Webheath and Brockhill ADRs and our assessment of the A435 ADR is more than sufficient to meet the revised target of 3,300 dwellings.

Table 7: Revised Land Requirement 2006 - 26

Required Within Redditch		3,300
Commitments	1,146	
Surveyed Capacity	736 ^{*1}	
Trend Based Capacity	805	
Urban Capacity	2,687	
Required Urban Extension		613
Webheath & Brockhill ADRs	1050	
A435 ADR	598 ^{*2}	
Total ADR	1648	
Surplus		1,035

***Notes:**

1. Figure assumes that Alexandra Hospital will be developed for residential, rather than employment use. This will be subject of further review as part of the Redditch LDF.
2. For the A435 capacity we have adopted a pro-rata figure based on the assessed capacity for the larger site (18) shown on Plan 1, page 26. The gross developable area of the ADR is 30ha (figure supplied by RBC). We assume 57% for housing at 35 dph.

Development outside Redditch Borough Council's Area

- 10.05 Moving on to the requirement to source 3,300 dwellings from sites outside Redditch, unless designations are amended through the forthcoming LDFs for the constituent authorities, the release of white land would be sequentially preferable to sites within the current Green Belt. Adopting the approach to assess capacity carried out at paragraph 6.04 and subtracting the above potential capacity for the A435 ADR, the residual capacity of the non ADR land to the west of the A435 and the Winyates Green Triangle combined is 300 dwellings. This would reduce the amount of new development to be built on Green Belt land to 3,000 dwellings.
- 10.06 Based on a density of 35 dwellings per hectare this would amount to 85.7 hectares and based on a similar land use mix shown on Chart 1 would be require a gross site area of 150.3 hectares to be allocated on land within the current Green Belt.

Employment Land

- 10.07 The Preferred Option includes a requirement to provide a Rolling Five-year Reservoir of Employment Land of 17 ha (8 ha of which could be provided in neighbouring authority areas) and a Long Term Commitment of 51 ha (24 ha outside Redditch Borough Council's area). Allowing for current unused allocations within Redditch at 1st April 2007 of 18.85 ha, an additional 8.15 ha of additional employment land will have to be allocated within the Redditch Borough Council area to meet this long term target.
- 10.08 With regards to identifying 24 ha of employment land to meet Redditch's needs but provided beyond the Borough Council's boundaries, there are 4.67 ha remaining at Ravensbank Industrial Estate together with a further 10.3 ha that was included as an Area of Development Restraint in the Bromsgrove Local Plan 2004. Therefore a further 9.03 ha will need to be allocated to meet Redditch's needs within the neighbouring authority areas of Bromsgrove and/or Stratford upon Avon Districts

Other Uses

- 10.09 The report notes that Redditch Borough Council have adopted a green space standard of 7.43 ha/1000 population and this ratio was used to calculate the gross land requirements whilst maintaining Redditch's established character. Assuming that this greenspace standard is being applied to the commitments and urban capacity additional greenspace must be allocated to cater for the 613 new dwellings within Redditch and the 3,300 in the adjoining districts. Based on a household size of 2.2, 3,913 dwellings would accommodate a population of 8,609 which would require 70 ha of greenspace.
- 10.10 In addition the new population would require 2.75 ha of space to accommodate new convenience retail facilities but would not be likely to require additional education or other community uses.

Total Land Requirements

10.11 The following Table summarises the overall land requirements:

Table 8: Total Land Requirements to meet Preferred Option of RSS Phase Two Revision for the growth of Redditch (ha)

	Redditch BC		Bromsgrove and/or Stratford-on-Avon District	
	Required	Capacity	Required	Capacity
Housing	94.3 ¹	123.9 ²	94.3 ¹	0
Employment	27	18.85 ⁴	24	14.97 ⁵
Green Space	16.1 ³	0	53.9	0
Community	2.75	0	0	0
Total	140.15	142.4	172.2	14.97

¹: 3,300 dwellings @ 35 dph

²: Urban Capacity + Commitments + ADR @35 dph

³: Based on 7.43 ha/1000 for ADRs, assuming that standards for commitments and urban capacity are being achieved.

⁴: From Redditch Borough Council's Employment Commitments in Redditch Borough 1 April 1996 – 31 March 2007

⁵: ADR plus remaining capacity at 1 April 2007 (Source Redditch BC)

10.12 These figures show that there is no need to allocate additional land within Redditch Borough Council's boundaries but there may be a need to redistribute uses within the allocated sites; for instance from residential to employment and green space. There is a need to identify 157.23 ha of additional land outside Redditch's boundaries to meet the targets of the RSS Preferred Option.

Distribution of Development

10.13 In addition to updating the start date from 2001 to 2006 it is now proposed policy that in meeting these targets, small adjustments (including the possibility of compensating additions) to the Green Belt may be appropriate, if necessary, to allow for the most sustainable form of development.

10.14 It is also proposed to replace the former Sub-Regional Foci with Settlements of Significant Development which will now include Redditch. However both the existing and Phase 2 revisions of the RSS require Redditch to fulfil the same role i.e. to meet its own generated growth requirements only, notwithstanding the change in the designation of the town.

10.15 If these RSS revisions are accepted by the Secretary of State then, as part of the LDF preparation, it would be necessary for the three authorities to jointly consider the most appropriate distribution for growth outside the urban area, based on the principles of sustainable development.

APPENDIX A

Project Brief Supplied by Worcestershire County Council

PROJECT BRIEF FOR TENDER PURPOSES JOINT STUDY INTO THE FUTURE GROWTH IMPLICATIONS OF REDDITCH TOWN TO 2026

PREAMBLE

1. West Midlands Regional Assembly (WMRA) as Regional Planning Body (RPB) for the West Midlands Region is currently undertaking a partial revision of the West Midlands Regional Spatial Strategy (WMRSS). The current WMRSS was approved in June 2004. As part of the revision process the WMRA undertook between January and March 2007 a consultation exercise on the Spatial Options for the Region for the period 2001-2026. The consultation exercise considered (inter alia) issues in relation to the two main drivers of the WMRSS – housing and employment. Following on from the Spatial Options consultation exercise the WMRA is now commencing the preparation of a Preferred Option which will be submitted to the Secretary of State in late 2007/early 2008.
2. In developing the Preferred Option there will be many areas where difficult and sensitive decisions will need to be made. The Spatial Options consultation exercise just completed has demonstrated that one such area relates to the implications of future growth within Redditch Borough given the projected high level of future 'local' housing need and the perceived limited capacity of the Borough and Redditch Town in particular to accommodate further growth to 2026. The Spatial Options consultation has indicated that future growth at a level indicated by two of the three options (8200 and 13200 houses and associated employment land needs to 2026) could raise significant issues, including the need for cross boundary development.
3. Against this backdrop Worcestershire County Council, as Strategic Planning Authority, has been asked by the WMRA to lead a partnership including Redditch Borough Council and Bromsgrove District Council in commissioning independent consultants to undertake a land use planning study to provide an improved evidence base to inform the preparation of the Preferred Option for the Region. This evidence base is to comprise both an assessment of the potential urban capacity of Redditch Town to 2026; and an assessment of the implications of the possible options/directions of growth for the Town.

STATUS AND PURPOSE OF THE STUDY

4. The Study is a strategic level study to inform the sub regional decision making processes as part of the development of a Preferred Option for the West Midlands Region to 2026. The purpose of the Study is to give clear technical guidance to the three authorities and to the RPB on (a) the potential urban capacity of Redditch Town to accommodate housing and employment growth to 2026; (b) the level of additional peripheral growth required to meet the housing requirements set out in the WMRSS Spatial Options consultation; and (c) the implications of accommodating those peripheral growth levels in the various locations around Redditch Town within Worcestershire.
5. The Study will not incorporate any form of public consultation but will require technical consultation with the three commissioning authorities and

relevant outside organisations. The Study will be dealing with sensitive issues and information and will be confidential between the commissioning authorities, the RPB and the consultants until such time that the authorities and RPB consider it appropriate to place its findings in the public domain.

PLANNING AND STUDY CONTEXT

6. As mentioned above the Study is to provide technical evidence to inform the regional planning process for the West Midlands and in particular the development of a Preferred Option for submission to the Secretary of State. As such the Study must be considered within the context of the current revision process leading to the development of the Preferred Options. The consultants should therefore be aware of and take into account in undertaking the Study:

- (i) the nature and detail of the current revision process of the existing WMRSS;
- (ii) the principles and objectives of the current WMRSS within which the partial revision sits; and
- (iii) the responses to date of the three commissioning authorities to the Spatial Options consultation as a contribution to the development of the technical evidence base.

7. Additionally the Study should take into account all relevant current national policy guidance, including that which may have been issued subsequent to the original adoption of the WMRSS in June 2004.

8. The Study itself will be confined to the administrative areas of Redditch and Bromsgrove Districts within Worcestershire. In relation to locations for growth it will not be required to consider possible cross boundary locations in relation to Stratford-on-Avon District or Warwickshire. However the nature of the work may dictate the consideration of the cross boundary implications of accommodating growth around Redditch in the administrative area of Worcestershire which could give rise to development needs in the administrative areas of Warwickshire and Stratford-on-Avon (see paragraph 9 (vi) below).

STUDY REQUIREMENTS

9. Within the context of National Planning Guidance and the WMRSS, the Study will:

- (i) consider and identify the urban capacity of Redditch Town to 2026. This will take into account the suitability of land for development for both housing and employment uses, including, as appropriate, mixed use development and appropriate density assumptions;
- (ii) within the context of (i) above, identify the shortfall in housing and employment land needs required to meet the three levels of growth required in the Spatial Options consultation document;
- (iii) based on the findings of (ii) above, identify the likely level of peripheral growth required to meet any housing and employment needs shortfall identified;

- (iv) in addition to and in the context of (ii) and (iii) above, identify peripheral growth requirements to enable the development of Redditch Town as a Sustainable Community (e.g. social, educational, community facilities);
- (v) within the context of (ii)-(iv) consider the implications of accommodating the levels of growth required at peripheral locations around Redditch Town within Worcestershire. These implications should take into account impacts in relation to the following:
 - (a) national policy guidance
 - (b) regional policy guidance as established by the current WMRSS
 - (c) the wider environment, historic environment, biodiversity and landscape
 - (d) infrastructure requirements, specifically transportation, water and sewerage
 - (e) flood risk
 - (f) climate change factors
 - (g) sustainable communities/town form
 - (h) cross-district boundary development needs
- (vi) within the context of (v) above identify any impacts which will give rise to cross county boundary issues with Stratford-on-Avon District in Warwickshire even though the primary development needs may be accommodated within Worcestershire (e.g. infrastructure issues).

10. With respect to the above requirements the Study should take into account, (where appropriate), the need for consistency of approach with national, regional and sub regional practice (eg urban capacity methodologies; assessment of employment land needs).

11. It should be noted that as the Study is to provide evidence at a strategic level it will not be necessary to express outcomes at a detailed ordnance survey based level. Graphic presentation should take the form only of key diagrams.

LEAD AUTHORITY

12. Worcestershire County Council will act as lead authority for the Study and will be the contact point for the appointed consultants. The project will be subject to confidential reports to an inter-authority panel of senior officers in the first instance.

WORKING ARRANGEMENTS

13. The three authorities commissioning the Study require an independent view on the potential future capacity and growth implications for Redditch Town. However, the County Council as strategic planning authority and the two District Councils as local planning authorities, clearly have between them substantial expertise and knowledge in relation to the strategic and local planning issues within Worcestershire. The authorities also hold significant detailed information at both a strategic and local scale. Whilst an independent outcome is required it is essential that this expertise, knowledge and information is fed into the process in order to assist the consultants in reaching informed and accurate conclusions. To this end it is proposed that the consultants should work closely with officers of the authorities in the assembly of base information. It is proposed that this link

should initially be through the County Council as lead authority for the project, within the details of exact working arrangements and information provision to be agreed with the appointed consultants.

14. In addition the consultants will be required to involve, (as appropriate), other organisations directly to in order to gain relevant technical information to inform the study (eg the Highways Agency; Severn Trent water); and liaise/consult as far as possible with consultants acting region-wide on behalf of the WMRA on similar issues.

TIMESCALE

15. The project is to commence before the end of April 2007 and be completed by the end of July 2007. As part of the process of appointing a consultant specific milestones will be identified within the contract. However, in order to feed into the RPB timetable for the preparation of the Preferred Option initial "draft" findings will be required by the end of June 2007.

OUTPUTS/REQUIREMENTS OF THE CONSULTANTS

- (i) Attendance at an initial joint briefing meeting with officer representatives of the three authorities to consider the detailed approach to undertaking the work. To include such as working arrangements/role and inputs of the local authorities/timescales/clarification of outputs, etc. and to establish the detailed project plan.
- (ii) Submission of a report to the authorities following the initial joint meeting detailing the discussions at the meeting and agreed outputs/approach to the work (i.e. the project plan).
- (iii) Attendance as required at a regular (monthly?) progress meeting with officer representatives of the three authorities.
- (iv) Submission and presentation of a written final report to officer representatives of the three authorities at least two weeks before the agreed end date of the project.
- (v) Submission of a written clear and logical final report to the three authorities covering all the aspects set out in the section "Project Requirements" (unless subsequently jointly agreed to be amended) by the specified end date of the project.
- (vi) All mapped information to be prepared and provided by the consultants.
- (vii) Both the draft and final reports to be provided in paper and electronic format, including key diagrams.

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30th March 2007**

APPENDIX B

**Housing Land Availability Assessment carried out by
White Young Green Planning**

Master Sites List

No	Adress	Selected	Greenspace	Rejected	Comments	Capacity
1.01	Bromsgrove Highway		x			
1.02	Pitcheroak Wood		x			
1.03	Sport Ground rear Poplar Drive		x			
1.04	Cricket Ground Bromsgrove Rd		x			
1.05	Valley Stadium		x			
1.06	Bordesley Lane			x	Part of Abbey Stadium	
1.08	Rear St Lukes Infant School		x			
1.09	Torrs Close			x	Too narrow	
1.10	Pool Bank		x			
1.11	Ashperton Close		x			
1.12	Foredrift Close			x	No access	
1.13	Oak Tree Ave		x			
1.15	Brockhill Drive		x			
1.16	Salters Lane		x			
1.19	Oak Tree Ave		x			
1.20	Batchley Rd			x	Undevelopable Shape/Existing Car Park to Shops	
1.21	Bromsgrove Rd		x			
1.24	Greenfields			x	Too narrow	
1.25	Greenfields				Too small	
1.26	Hollowfields Close		x			
1.28	Foxlydiate Cres			x	No access, too small	
1.31	Rowan Rd			x	Not developable - church car park	
1.32	Rowan Crescent		x			
1.33	Salters Lane			x	2 houses	
1.34	Poplar Rd			x	Insufficient depth	
1.35	Poplar Rd Shops r/o		x			
1.37	Poplar Rd			x	Insufficient Depth	
1.39	Poplar Rd Sportsground		x			
1.40	HDA Social Club		x			
1.41	Cherry Tree Walk			x	Club Car Park	
1.42	HDA Cricket		x			
1.43	Batchley First School		x			
1.44	Cherry Tree Walk		x			
1.45	Beech Tree Close		x			
1.46	Batchley Pool		x			
1.47	Batchley Rd			x	Wrong Shape	
1.51	Bentley Close			x	Active Allotments	
1.53	Batchley Rd			x	Insufficient depth	
1.54	Brockhill			x	Active Pub	
1.55	Batchley Rd			x	Undevelopable Shape	
1.56	Bromsgrove Rd (Works)		x			
1.57	Valley Stadium		x			

1.58	Edward St	x			Development Brief	25
1.60	Hewell Rd	x				17
1.65	Abbey Stadium			x	In leisure use	
1X3	Fire Station	x				18
1X8	Homer Works			x	Protected Employment Use	
1X14	Widney House	x				58
2.03	Golf Course		x			
2.05	Callow Hill Lane		x			
2.06	Callow Hill Lane		x			
2.07	Foxholes Lane			x	No access	
2.08	Foxholes Lane			x	Below threshold 0.1ha	
2.09	Morton Stanley Park		x			
2.11	Birchfield Rd		x			
2.12	Foxlydiate Hotel		x			
2.15	Springvale Road		x			
2.16	Sandygate Close			x	Insufficient developable area	
2.18	Boxnott Close		x			
2.19	South West MSP		x			
2X21	Crumpfields Lane			x	Outside Development Boundary & Green Belt	
3.03	Feckenham Rd			x	In active use - scouts and TA	
3.06	Feckenham Rd			x	No access	
3.08	Leacroft Rd			x	Overlooking to N	
3.09	Leacroft Rd			x	Car Park to Residences	
3.10	Priestfield Rd			x	Net DA too small	
3.11	Banners Lane			x	Levels, used as playground	
3.13	Banners Lane			x	Insufficient DA	
3.26	Peterbrook Close	x				6
3.33	Leacroft Rd			x	Access	
3.39	Swinburne Rd			x	Drainage/levels	
3.41	Feckenham Rd			x	Levels	
3.49	Crabbs Cross Car Park			x	Access, inadequate DA	
3X7	Evesham Rd			x	In active use - Nursing Home	
3X13	Yvonne Rd			x	Multiple ownership, no access	
3X20	The Meadway			x	Access, previous refusal pp	
4.02	Birmingham Rd			x	Greenfield outside boundary	
4.04	Dagnell End Rd			x	Insufficient Plot depth, open countryside	
4.10	Marlfield Farm School	x				29
4.15	Moons Moat Drive			x	access	
4.17	Winyates Way			x	Employment area, access	
4.30	Paper Mill Drive			x	Access, insufficient depth	
4.31	Ryknild St	x				22
4.45	Church Hill District Centre			x	Development Brief	57
4.50	Eagle Rd			x	Employment Site	
4.51	Merse Rd			x	Employment Site	
4.54	Ravensbank Drive			x	access, insufficient depth	

4X5	Church Hill District Centre			x	Development Brief (see 4.45)	
5.07	Abbey Rd			x	Access	
5.17	Fishing Line Rd			x	Employment Site	
5.18	Station Car Park			x	In use	
5.21	Church Rd			x	Development Brief (see 5X4)	
5.22	Bates Hill			x	Part NW Quadrant	
5.30	Summer St			x	Insufficient DA	
5.33	Stevenson Ave			x	Church Car Park	
5X4	Church Rd (NW Quad)			x	Development Brief	103
5X12	Prospect Hill			x	Development Brief	103
5X18	Glover Street			x	Under 0.1ha	
6.02	Brook St			x	Employment Site	
6.07	Holloway Drive			x	access	
6.15	Arthur St			x	Employment Site	
6.16	Arthur St			x	Employment Site	
6.26	Holloway Drive			x	Caravan Site	
6.28	Battens Drive			x	Health Club	
6.34	Wirehill Drive			x	Levels, Insufficient depth	
6.40	Holloway Drive			x	access	
6.45	Brook St			x	Employment area, access	
7.01	Lowlands Lane		x			
7.02	Foxcote Close		x			
7.03	Between Ipsley Alders Marsh & Otter Close		x			
7.04	Far Moor Lane			x	Access	
7.05	Far Moor Lane			x	Insufficient DA	
7.06	Far Moor Lane			x	Access	
7.07	Mordiford Close			x	Effect on surrounding properties	
7.08	Colts Lane		x			
7.09	Lowlands Lane Play Area		x			
7.10	Merse Rd			x	Employment Area	
7.12	Huntington Close		x			
7.13	Costers Lane		x			
7.15	Whitehouse Lane		x			
7.16	Barrow Close		x			
7.22	Winyates Way			x	Employment Area, No depth	
7.23	South Moons Moat		x			
7.24	South Moons Moat		x			
7.25	South Moons Moat		x			
7.26	East Moons Moat		x			
7.27	Lassington Close		x			
7.28	Lowlands Lane		x			
7.29	Berkley Close		x			
7.30	Berkley Close		x			
7.31	Furze Lane		x			
7.32	Kingham Close		x			

7.33	Winyates Way			x	Insufficient depth	
7.34	Battens Drive			x	Insufficient depth, access	
7.35	Edgmond Close			x	Insufficient DA	
7.38	Berkeley Close			x	Insufficient DA	
8.01	Kingsley College		x			
8.02	Green Lane			x	Developed site	
8.03	Rear Hospital			x		277
8.04	Wirehill		x			
8.07	Rough Hill Drive		x			
8.08	Salford Close		x			
8.09	Fladbury Close			x	Shape and DA	
8.10	Kempsford Close		x			
8.11	Greenlands Drive		x			
8.12	Wharrington Hill			x	Access, Developable Area	
8.13	Wharrington Hill		x			
8.14	Throckmorton Rd		x			
8.15	Woodrow and Greenlands		x			
8.16	Crabbs Cross Island			x	Access	
8.17	Rough Hill Drive			x	Access and depth	
8.18	Towbury Close		x			
8.19	Rockford Close		x			
8.20	Lineholt Close		x			
8.21	Wirehill		x			
8.22	Nine Days Lane		x			
8.27	Woodrow Drive			x	Access	
8.28	Woodrow Drive			x	Access, Hospital campus, planting	
8.29	Woodrow Drive			x	Access, Hospital Campus	
8.30	Pedmore Close			x	Access	
8.31	Thomas Moore School			x	Access, depth	
8.34	Greenlands Drive		x			
8.35	Throckmorton Rd			x	Access	
8.37	Greenlands Drive		x			
8.38	Dingleside Middle School PF		x			
8.40	Woodrow North		x			
8.41	Bushley Close		x			
8.44	Woodrow Centre CP		x			
8.43	Astley Close			x	Insufficient depth	
8.45	Greenlands Drive Sports Field		x			
8.47	McDonalds Island		x			
8.49	Throckmorton Road		x			
8.51	Ombersley Close			x	Proximity to houses	
9.01	Watery Lane		x			
9.02	Ipsley Church Lane		x			
9.03	Warwick Highway			x	Access	
9.04	Warwick Highway			x	Access	

9.05,b,c	Warwick Highway		x			
9.08	Matchborough Way		x			
9.09	Millhill Road		x			
9.10	Dilwyn Close			x	Depth	
9.11	Claybrook Drive		x			
9.12	Matchborough and Washford		x			
9.13	Woolaston Rd			x	Employment	
9.16	Crossgate Depot			x	Employment	
9.19	Pipers Rd			x	Employment	
9.20	Pipers Rd			x	Employment	
9.21	Watery Lane			x	Shape	
9.22a,b	Arrow Valley Park		x			
9.24	Charlecote Close			x	DA too small	
9.27	Merevale Close			x	DA too small	
9.30	Ipsley Lane			x	Grounds of Hotel	
9.29	Ipsley Lane		x			
9.31	Field Farm			x	House and Garden	
9.36	Breaches Lane		x			
9.37	Matchborough and Washford		x			
9.39	Winward Rd			x	Depth, access	
9.40	Millhill Road		x			
9.42	Hatfield Close			x	Depth, access	
9.43	Warwick Highway			x	Highway constraint	
9.44	Warwick Highway			x	Highway constraint	
9.47	Studley Rd			x	Highway constraint	
9.50	Studley Rd			x	Employment	
9.53	Claybrook Drive			x	Employment	
9.55	Heming Rd		x			
9.56	Bartleet Rd			x	Employment	
9.57	Icknield Street Drive			x	Employment, depth, access	
9.58	Matchborough Way		x			
9.59	Matchborough Way			x	Employment	
9.62	Matchborough Way			x	Employment	
9.63	Matchborough Way			x	Employment	
9.67	Ipsley Church Lane		x			
9.68	Old Forge Drive			x	Employment	
9X11	Matchborough District Centre			x	Development Brief	17
10.01	Manor House			x	Multiple ownership, no access	
10.02	Church Rd			x	Private Gardens	
10.03	Beverley Close		x			
10.04	Queen Street			x	Developed Site	
10.05	Chapel St Overdale		x			
10.08	Ridgeway School			x	Access	
10.09	Cyprus Ave			x	Multiple ownership, no access	
10.10	Beverley Close		x			

10.12	Feckenham Rd Allotments		x			
10X09	Dark Lane	x			If existing house demolished - intensification (estimated yield)	6
10X16	Astwood Bank			x	Greenfield outside dev boundary 7 Green Belt	
10X17	Evesham Rd			x	access	
10X19	Gorse Close			x	Greenfield, outside boundary	
11.01	Mill Lane			x	Redevelopment of existing houses? No real net gain	
11.04	The Saltway			x	garden to Manor House	
11.05	Coupass Cottages			x	Access	
11.06	Coupass Cottages			x	Access	
11.08	Mill Lane			x	Redevelopment of existing houses? No real net gain	
11.13	B4090			x	Access, outside dev boundary, greenfield	
12.01	Foredrift Close			x	Access, depth	
12.02	Wirehill Drive			x	Access, depth	
12.03	Oakenshaw Woods		x			
12.04	East Tesco			x	Highway constraint, depth limited	
12.05	Oakenshaw Woods E		x			
12.06	Holloway Drive			x	Highway constraint	
12.07	Greenlands Drive		x			
12.09	Greenlands Drive			x	Highway constraint	
X1	A435 ADR			x	ADR	
X2	Brockhill ADR			x	ADR	
X5	Webheath ADR			x	ADR	

TOTAL CAPACITY:

738

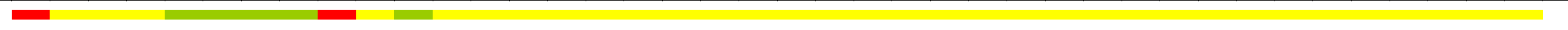
KEY

	Greenspace (safeguarded)
	Rejected sites
	Capacity
	Development Briefs

From Scott Wilson study - assumed no capacity and not surveyed
 Surveyed and rejected from capacity calculation
 Surveyed and assessed as having capacity
 Sites having Development Briefs & capacity

Redditch Housing Land Availability Assessment Survey Results		Max Score	Edward Rd	Hewell Rd	Middlehouse Lane	Bromsgrove Road	Leacroft Close	Pittbrook Close	Ryknild Street	Marfield Middle School	Church Rd	Mardons Close	Dark Lane	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40					
Site No	Old Site No.		1	2	3	4	5	6	7	8	9	10	11																																		
DEVELOPABILITY			1.58	1.60	1X3	X14	3.09	3.26	4.31	4X10	5.21	7.7	10X9																																		
Can satisfactory access be achieved to the site? (without third party land)		5	5	5	3	3	5	5	5	5	5	5	5																																		
Is the site subject to multiple or difficult land ownerships (including possible ransom strips)?		5	0	5	5	0	5	5	5	5	5	5	5																																		
Is the site capable of being redeveloped for residential development?		5	5	5	5	5	5	5	5	5	5	5	5																																		
Is the site particularly suitable for B1, B2 or B8 use		5	5	5	5	5	5	5	5	5	3	5	5																																		
Is the site at risk of flooding? (if information available)		5	5	5	5	5	5	5	5	5	5	5	5																																		
MARKET VIABILITY			25	20	25	23	18	25	25	25	23	25	25																																		
Is the site in active use?		5	3	0	0	0	5	5	5	3	0	5	5																																		
Does the site contain buildings that would require demolition?		2	0	0	0	0	2	2	0	0	0	2	0																																		
Could the site be considered underused?		5	5	0	0	5	5	5	5	5	0	5	5																																		
Is there a possibility that the site could be contaminated?		8	0	8	0	8	8	8	8	8	0	8	8																																		
Is residential development likely to be a viable alternative use.		15	15	15	15	15	15	15	15	15	15	15	15																																		
LOCAL CHARACTER			35	23	23	15	28	35	35	33	31	15	35	33																																	
Is there a more appropriate alternative use for the site (other than residential)?		6	6	6	6	6	6	6	6	6	3	0	6																																		
Could the development of residential units enhance the character or quality of the area?		2	2	0	2	2	0	0	0	0	2	0	0																																		
Would it be more appropriate to develop the land for a mix of uses?		2	0	0	2	0	0	0	0	2	2	0	0																																		
PLANNING STANDARDS			10	8	6	10	8	6	6	6	8	7	0	6																																	
Would the redevelopment of the site be contrary to policies within the Development Plan?		4	2	2	4	2	4	4	4	4	2	4	4																																		
Is the site within a Conservation Area and/or does it contain listed buildings?		3	3	3	3	3	3	3	3	3	3	3	3																																		
Is the site affected by un-neighbourly uses (heavy industry, railway lines, motorways etc)		8	4	8	8	8	8	8	8	8	8	8	8																																		
Does the site conform to the PPS3 definition of Previously Developed Land (PDL)		5	5	5	5	5	0	0	5	5	5	0	5																																		
Sustainability Criteria			20	14	18	20	18	15	15	20	20	18	15	20																																	
Is the site within 10 min. walking distance (800m) of:																																															
>Frequent public transport?		5	5	5	5	5	5	5	5	5	5	5	5																																		
>Retail and Social Facilities?		3	3	3	3	3	2	2	2	2	3	3	3																																		
> Open space		1	1	1	1	1	1	1	1	1	0	1	1																																		
> A First School		1	0	1	1	1	1	1	1	1	0	1	1																																		
# frequent is assumed as at least 15 minutes		10	9	10	10	10	9	9	9	9	8	10	10																																		
TOTAL SCORE			100	74	82	78	82	90	90	93	93	71	85	94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Average 67
Less than 76
90 and above



APPENDIX C

**Highways and Transportation Capacity Constraints Assessment
carried out by White Young Green Consulting Ltd**

JOINT STUDY INTO THE FUTURE GROWTH

IMPLICATIONS OF REDDITCH TOWN TO 2026

Highways and Transportation Capacity and Constraints

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Project No: A036294

Report No. RT036294/02

ISSUE No.	1 (v1)	2 (v2)	3 (v3)	4 (v4)	5 (v5)	6(v6)
DATE	10-07-07	01-08-07	20-08-07	27-09-07	18-10-07	05-12-07
PREPARED BY	MJC	MJC	MJC	MJC	MJC	MJC
CHECKED BY	JJ	JJ	JJ	JJ	JJ	ND
APPROVED BY	ASG	ASG	ASG	ASG	ASG	ND

JOINT STUDY INTO THE FUTURE GROWTH IMPLICATIONS OF REDDITCH TOWN TO 2026

Highways and Transportation Capacity and Constraints

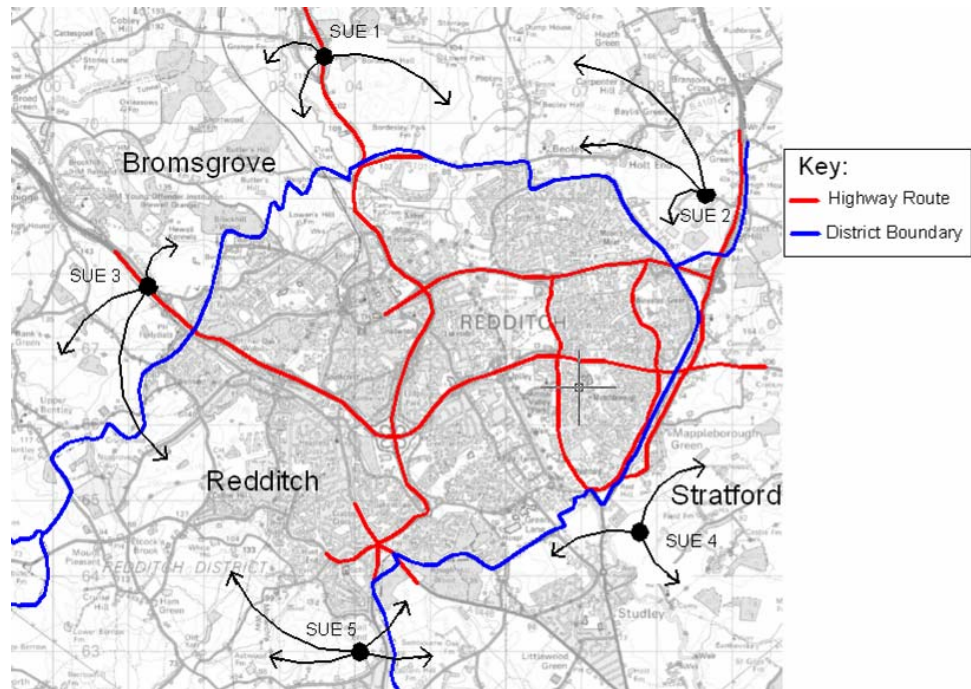
1.0 EXECUTIVE SUMMARY

Background

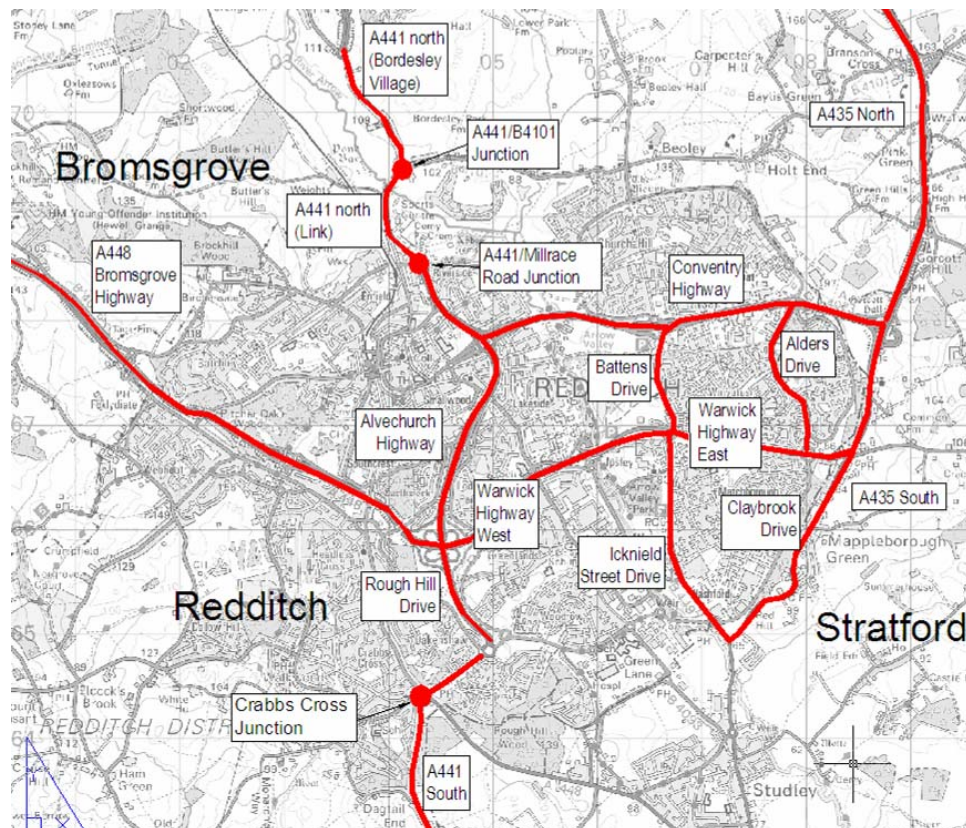
- 1.1 The West Midlands Regional Assembly is currently undertaking a consultation with key stakeholders, including Worcestershire County Council, with regard to the number of new homes to be included in the new Regional Spatial Strategy (RSS). To achieve the desired level of housing growth within the West Midlands a number of key locations are targeted; each of these locations has been allocated growth options to be considered as part of the consultation. One of the locations targeted is the Borough of Redditch in Worcestershire with a population of 78,807 in 2001 at the commencement of the RSS 25-year plan period.
- 1.2 Worcestershire County Council, in conjunction with Redditch Borough Council, Bromsgrove District Council and Stratford-on-Avon District Council, has asked White Young Green to evaluate the transport impacts of three housing growth options by identifying locations suitable to accommodate the proposed new development, identify current and anticipated growth constraints, and recommend which growth options can be accommodated in a sustainable manner. One of the key constraints to growth will be the physical capacity of the local highway network.
- 1.3 The Draft West Midlands Regional Spatial Strategy (RSS) proposes three Spatial Options for considerable new housing to be delivered by 2026. The first Spatial Option is required to accommodate 4,300 dwellings, the second 8,200 dwellings and the third 13,200 dwellings. A significant proportion of the Redditch provision is to be delivered in the form of 'Sustainable Urban Extensions' (SUEs) around the Redditch urban area in selected districts external to the Borough.

Work Undertaken

- 1.4 This report considers broad overall impacts of five SUEs in or around Redditch and determines the potential of the local highway network to accommodate the three options under consideration. The locations of the SUEs are shown on the following page:



1.5 Given the broad nature of this study capacity assessments were only undertaken for the primary highway links / junctions within Redditch Borough. The assessed network is shown below:



- 1.6 A separate WYG study was undertaken concluding that 4,173 dwellings have already been granted planning permission, is considered to be an Area of Development Restriction (ADR) or been constructed between 2001 and 2006 or identified as having available capacity for development sites within Redditch. For the purpose of this report these sites have been classified as 'Committed Developments' and resultant traffic flows have been incorporated within the existing base traffic flows.
- 1.7 The following existing links and junctions were determined to be at or nearing operational capacity: A441 (north) Bordesley Village, A441 (north) Bordesley Link, A435 (east) Link and the Crabbs Cross Roundabout. All other assessed links/junctions are considered to operate within design capacity.

Conclusions

- 1.8 A broad review of sustainable accessibility has been undertaken. The review has determined preferential SUE locations relative to walking, cycling, bus and rail accessibility to Redditch Town Centre and Rail Station. It has been determined that SUEs located adjacent to the A441 (north) link SUE location 1 and the A448 (west) link SUE location 3 would provide the most sustainable, from an accessibility view, location for urban development.
- 1.9 The primary highway network has been assessed to determine what additional level of residential development can be accommodated and what improvement measures may be required, if any, to accommodate the likely traffic effects of each of the spatial options under consideration.
- 1.10 The assessment has determined traffic capacities of links and junctions on the primary highway network within Redditch with a $\pm 10\%$ tolerance margin. Given this level of tolerance the assessment has considered improvement scenarios ranging from 'do nothing' to 'worst case' and this is reflected in the indicative cost estimates that have been provided.
- 1.11 The findings of this report indicate that the level of development for Spatial Option 1 is accommodated by existing committed developments within Redditch Borough. Estimated costs for accommodating the improvement measures, if required, are anticipated to be up to **£175.25m** dependent upon the actual operation of junctions / links as opposed to the theoretical assessments within this report (excluding any highway access infrastructure costs).
- 1.12 The findings of this report indicate that the primary highway network can accommodate Spatial Option 2 in all assessed SUE locations given adequate infrastructure improvement measures. Estimated costs for accommodating the improvement measures are anticipated to be between **£7.50m and £227.75m** dependent upon SUE locality and potential improvement measures and

upon actual operation of junctions / links as opposed to the theoretical assessments within this report (excluding any highway access infrastructure costs).

- 1.13 The findings of this report indicate that the primary highway network can accommodate Spatial Option 3 in all assessed SUE locations given adequate infrastructure improvement measures. Estimated costs for accommodating the improvement measures are anticipated to be between **£73.75m and £332.25m** dependent upon SUE locality, potential improvement measures and upon actual operation of junctions / links as opposed to the theoretical assessments within this report (excluding any highway access infrastructure costs).

Recommendations

- 1.14 The report concludes recommended SUE locations based on sustainable accessibility and estimated infrastructure costs for each of the Spatial Options and therefore this study recommends for:

- | | | |
|------------------|---|--|
| Spatial Option 1 | - | No additional Development Required |
| Spatial Option 2 | - | SUE 1 located adjacent to A441 (north) link; or, |
| | - | SUE 3 adjacent to A448 (west) link Bromsgrove Highway. |
| Spatial Option 3 | - | SUE 1 located adjacent to A441 (north) link; or, |
| | - | SUE 3 adjacent to A448 (west) link Bromsgrove Highway. |

2.0 PURPOSE AND LAYOUT OF REPORT

2.1 This study examines the highways and transportation implications of possible 'sustainable urban extensions (SUEs)¹ to help meet housing allocations in the draft Regional Plan 2001 – 2026. This report summarises the findings of the study and also makes recommendations on further work for the longer term. The purpose of the study is to aid Worcestershire County Council's, Redditch Borough Council's, Bromsgrove Borough Council's and Stratford Council's further comments on the draft Regional Plan, in particular in relation to the scale of SUEs.

2.2 The report does not deal with matters outside those relating to highways and transportation; it is recognised, however, that there are many other factors which may influence the final choice of locations for SUEs. Neither is it intended to prejudice district council views on the Draft Plan.

2.3 The remainder of this report is structured as follows:

	Page
Section 3: Background.....	10
Section 4: Approach and Technical Assumptions.....	11
Section 5: Existing Network.....	14
Section 6: Sustainability.....	21
Section 7: Spatial Options Impacts.....	27
Section 8: Improvement Costs.....	30
Section 9: Conclusions, Recommendations and Next Steps.....	35

¹ Including a range of housing types; access to a range of local employment schools and services; conservation of important environmental assets and natural resources; re-use and recycling of waste; in addition to enhancements to sustainable transport modes, including walking, cycling and public transport.

TABLES

Table 1	Proposed Gross Build Rate Options
Table 2	Highway Assessment Locations
Table 3	Land Take up 2001-2006
Table 4	Internal Land Capacity
Table 5	Committed ADR's
Table 6	Maximum Link CRF Capacities
Table 7	Base Junction Capacities
Table 8	Base Junction Optimum Capacities
Table 9	Sustainable Modal Ranking and Adopted Levels
Table 10	Revised Spatial Options Build Rates
Table 11	Spatial Option 2 – Improvement Measure Requirements
Table 12	Spatial Option 3 – Improvement Measure Requirements
Table 13	Improvement Measures / Costs
Table 14	Potential Improvement Costs Summary

FIGURES

Figure 1:	Redditch District Primary Highway Network
Figure 2:	Base Primary Highway Capacity
Figure 3:	SUE Locations
Figure 4:	TRICS Modal Split Percentages
Figure 5:	Walking Accessibility
Figure 6:	Cycling Accessibility
Figure 7:	Public Transport Accessibility (Bus)
Figure 8:	Rail Accessibility
Figure 9:	Proposed Improvement Work Locations

APPENDICES

Appendix A: TRICS Reports

Appendix B: Traffic Flow Data

Appendix C: Extract – Road Traffic Statistics 2005

Appendix D: AADT Assessment

Appendix E: Traffic Distribution Assessment

Appendix F: Extract from TA 46/97 Annex D/2

Appendix G: Multi Modal Split – Derived from TRICS Database

Appendix H: WYG Indicative Land Requirements Study Extract

Appendix I: NRTF Assessment

Appendix J: Capacity Assessment Model Printouts

Appendix K: Multi Modal Ranking Assessment

Appendix L: Link and Junction Capacity Assessments

Appendix M: Cost Appraisal Assumptions

3.0 BACKGROUND

3.1 The Draft West Midlands Regional Spatial Strategy (RSS) proposes three Spatial Options for considerable new housing to be delivered by 2026. A significant proportion of the Redditch provision is to be delivered in the form of SUEs around the Redditch urban area in selected districts external to the Borough. These residential forecast options are displayed in **Table 1**.

Table 1: Proposed Gross Build Rate Options

	Total Dwellings 2001-2026
Option 1	4,300
Option 2	8,200
Option 3	13,200

3.2 The main purpose of this report is to assess the highway capacity and sustainability issues associated with the options under consideration, highlighting pressure points on the primary road network, detail potential mitigation measures and sustainable linkages to the main urban centre of Redditch and its train station.

3.3 This study is a strategic level study to inform the sub-regional decision making processes as part of the development of a preferred option for the West Midlands Region. The purpose of the study is to give clear technical guidance to the three authorities on:

- a) The potential urban capacity of Redditch to accommodate housing and employment growth to 2026;
- b) The level of peripheral growth required to meet the housing requirements set out in the WMRSS Spatial Options consultation;
- c) The implications of accommodating those peripheral growth levels in the various locations around Redditch within Worcestershire and/or Warwickshire.

3.4 The study does not incorporate any form of public consultation but does draw from technical knowledge from the three commissioning bodies whilst maintaining an independent assessment.

4.0 APPROACH and TECHNICAL ASSUMPTIONS

Approach

- 4.1 This project takes as its starting point the current operation of the highway network. This has been derived from existing classified turning count data and two way flow data supplied by Worcestershire County Council.
- 4.2 Link capacities have been reviewed against Congestion Reference Flows (CRF) calculated in accordance with TA 46/97 Annex D/2 and tested with the junction capacity analysis software ARCADY, TRANSYT and LINSIG.
- 4.3 It is understood that there is currently no district transport model that provides accurate capacities of the highway network within Redditch. This study is therefore only able to review, in general terms, the broad potential traffic capacity of the highway network within Redditch based on junction and link capacity assessments. A more robust approach would be to assess the area wide network within the district via a transport model. This exercise should be undertaken at a later date; however, this is not possible at this time given the current time scales and availability of raw data.

Technical Assumptions

- 4.4 The assumptions made and parameters set when assessing the impacts of the Spatial Options are summarised as follows:

Residential trip rate: A peak hour rate of 0.6 trips per dwelling to external destinations, equating to around 7 trips per dwelling per day, has been used. Note: This trip rate has been derived from a simple analysis of the TRICS database². TRICS reports can be found in **Appendix A**.

Employment trip rate: A peak hour rate of **1.4 trips per 100 sqm GFA**³, equating to around 10 trips per 100 sqm GFA per day. This has been derived from a simple analysis of the TRICS database. TRICS reports can be found in **Appendix A**.

Assessment of local links: Links to local facilities within / around the SUEs have not been explored in this study but will need to be when the analysis reaches a more detailed stage.

Base traffic growth: It is anticipated that the development will account for the majority of future traffic growth and therefore general traffic growth on the highway network has been assumed to be 0% from 2007 to 2026.

² A national database of traffic surveys relating to various types of development. AM and PM peak totals have been averaged to provide a peak hour trip factor.

³ GFA = Gross floor area. For the purposes of this project, GFA = 30% of total site area.

Traffic Count Data: Traffic count data has been supplied by Worcestershire County Council Contained within **Appendix B**. A general Passenger Car Unit (PCU) conversion factor of 1.055 has been adopted where appropriate.

Out of Season Traffic Data: Out of Season traffic data has been adopted for the A435 dual and single carriageway links to the east of Redditch. A general factor of 3% has been added to the flows to accommodate the seasonal change in traffic volume. This factor has been taken from the DFT Transport Statistics Bulletin - Road Traffic Statistics 2005. An extract of this document is provided in **Appendix C**.

AADTs Conversion Factors: For the purposes of calculating AADTs from peak hour flows and vice versa, a simple assessment of the traffic counts supplied by WCC has been undertaken found in **Appendix D**. A peak hour conversion factor of 10.4 has been adopted.

General Distribution: A simple review of outbound AADT trips on the main arterial routes has been undertaken to determine weighting factors. The results of the assessment have been utilised to provide an indicative assignment upon the highway network and is shown in **Appendix E**.

SUE Assignments: have been broadly based on Census data and conclude that 80% of traffic leaves Redditch Borough to the north and 20% traverse into or through Redditch Borough. Traffic flow assignments for SUE locations to the south of Redditch have concluded 90% will travel north and 10% disperse southward.

Highway Assessment: Only primary highway routes and key junctions have been assessed due to the broad scale of this assessment.

Impact Assessment Area: Traffic impact has primarily been examined within Redditch Borough; however, some links to the north have also been assessed where the impact is considered to be material.

Assessment of Impact: Due to the broad scale of this study it is anticipated that any development scenarios creating impacts $\pm 10\%$ of the links theoretical design capacities may be accommodated.

Assessment of Capacity: Specific highway links and junctions have been assessed where traffic flow data is available. Assessments have been undertaken using industry standard modelling software, or against contained within TA 46/97 Annex D/2 where only two-way flows are available. A copy of TA 46/97 is contained within **Appendix F** along with details of assumptions applied.

M42 Motorway: This has not been reviewed at this early stage but will require detailed assessment to determine its overall ability to accommodate any scale of growth.

Sustainable Transport Multi-Modal Splits: In addition to the residential trip rates determined above, a simple analysis has been undertaken using the TRICS database to

determine a geographical modal split to be applied in addition to the trip rates. The TRICS report can be found in **Appendix G**.

Exploration of Mitigating Measures: Any newly identified measures have been assessed at a broad level to establish deliverability and estimated cost impacts.

Wider Benefits of Mitigating Measures: The potential measures will benefit the wider community as well as serving the Spatial Option developments, (e.g. by providing existing residents with access to better public transport or reducing current traffic levels.

Existing Studies: One existing study has been incorporated into this report being the Bordesley Bypass situated to the north of Redditch on the A441.

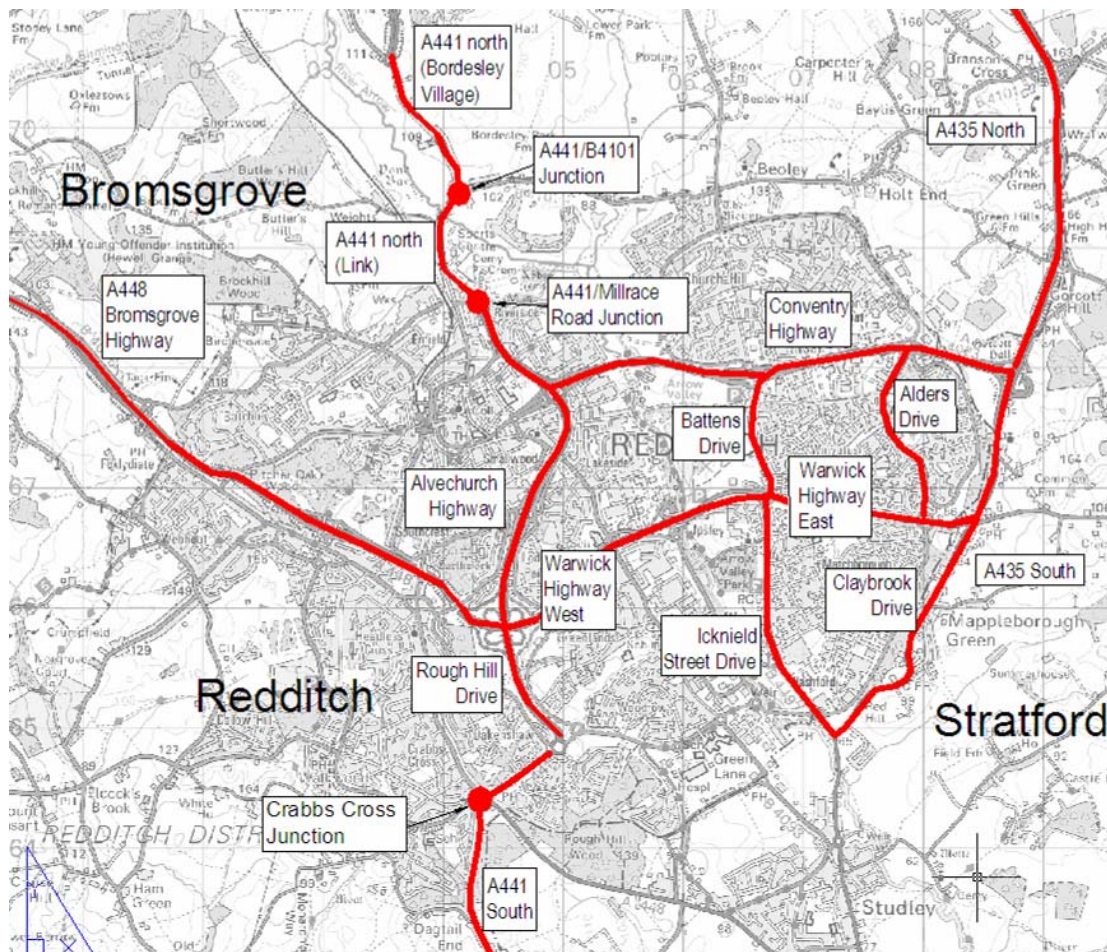
ADR's: Three ADR's being Brockhill, Webheath and A435 are considered within the report to be potentially available for development. The capacity of the Webheath and Brockhill ADR's combined are given by Redditch Borough council as 1050 dwellings. The A435 / Winyates Triangle ADR located off the A435 south (single carriageway section) comprises 29 Hectares. For the purposes of this report an appropriate housing density is taken to be 35 dwellings per hectare.

A435 / Winyates Triangle ADR: A previous study undertaken by GVA Grimley assessed the impact of the A435 ADR and Winyates Green Triangle. The assessment determined that the impacting traffic created by the ADR would disburse on Far Moor Lane and Claybrook Drive other than the A435. This has been incorporated into this assessment

5.0 EXISTING NETWORK

- 5.1 This section undertakes a broad review of the local highway network in terms of current traffic capacity. It identifies areas of constraint on the highway network and potential mitigation measures that may increase the capacity of the highway network. **Figure 1** illustrates the primary highway road network that will be assessed.

Figure 1: Redditch District Primary Highway Network



Existing Traffic Flow Data

- 5.2 Traffic flow data has been made available to undertake an assessment of the capacity and operation of the primary highway road network within Redditch Borough. From a review of this information key areas have been targeted for assessment as listed in **Table 2**. Traffic Flow data is shown in **Appendix B**.

Table 2: Highway Assessment Locations

Location	Data Type
A441 North (Bordesley)	AADTs
A441 North (Link)	AADTs
Warwick Highway East	AADTs
Warwick Highway West	AADTs
Alvechurch Highway	AADTs
Coventry Highway	AADTs
A448 Bromsgrove Highway	AADTs
Roughill Drive	AADTs
A435 North	AADTs
A441 South	Manual peak Hour Sensitivity Turning Counts undertaken by WYG
A435 South	AADTs
Icknield Street Drive	AADTs
Battens Drive	Assumption made that two way flows equal to Icknield Street Drive
Claybrook Drive	Assumption made that two way flows equal to Icknield Street Drive
Alders Drive	Assumption made that two way flows equal to Icknield Street Drive
Crabbs Cross Roundabout	Manual peak Hour Sensitivity Turning Counts undertaken by WYG
Sainsbury's roundabout	Classified Turning Counts
B4101 / A441 Signalised Junction (at Bordesley Garage)	Classified Turning Counts

Committed Growth Studies

5.3 Initial growth studies⁴ have been undertaken to determine what level of development has already been committed by the Local Authority as listed in **Table 3**.

Table 3: Land Take up 2001-2006

Take up since 2001	Number of Dwellings
Build completions between 2001 and 2006	1,486
Builds under construction at 2006	314
Planning permissions granted	725
Planning permissions granted between 2006 and current date	83
Other development plan commitments	24
Total	2,632

⁴ WYG Indicative land requirements 2001 to 2026 contained within **Appendix H**

- 5.4 In addition to the committed developments highlighted in **Table 3**, the study has determined additional capacities for development growth within Redditch's existing urban conurbation. These are listed in **Table 4**.

Table 4: Internal Land Capacity

HLAA	Number of Dwellings
Surveyed capacity	736
Small sites and other trend based sources of capacity	805
Total	1,541

Committed ADRs

- 5.5 Following discussions with Redditch Borough Council three ADRs have been identified as shown in **Table 5**. These ADRs have been incorporated within the scheme as committed developments and adopted within the existing base model.

Table 5: Committed ADR's

ADR Location	Hectares	Density	Number of Dwellings
Brockhill – West of Redditch	12.86	35	450
Webheath – West of Redditch	17.14	35	600
A435 ADR and Winyates Triangle – East of Redditch	25.7	35	899
Total			1,949

Committed Developments

- 5.6 In total the growth study has identified 6,122 “committed” dwellings from land take studies, internal land capacities and ADRs. The “committed development” impacts will be incorporated into all of the three Spatial Options and applied to the existing (2007) operation of the road highway network as a base situation.

Current Highway Link Capacities

- 5.7 Congestion Reference Flows (CRF) calculated in accordance with TA 46/97 have been applied to determine the measure of the performance of a road link between two junctions, The CRF of a link is given by the formula:

$$\text{CRF} = \text{Capacity} * \text{NL} * \text{Wf} * 100/\text{Pkf} * 100/\text{PkD} * \text{AADT}/\text{AAWT}$$

Results of the assessment provide the theoretical AADT two-way flow capacities detailed within **Table 6**. Full calculations and details are shown in **Appendix F**.

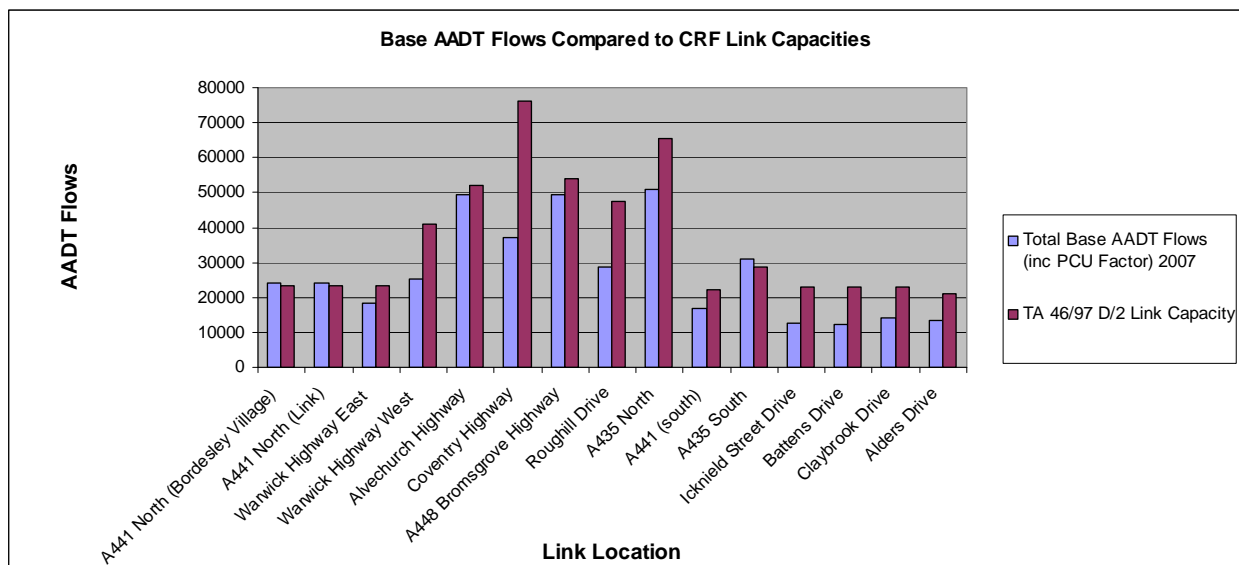
Table 6: Maximum Link CRF Capacities

Link	CRF 24h AADT
A441 North (Bordesley)	23,260
A441 North (Link)	23,260
Warwick Highway East	23,396
Warwick Highway West	41,047
Alvechurch Highway	52,170
Coventry Highway	75,990
A448 Bromsgrove Highway	53,852
Roughill Drive	47,451
A435 North	65,469
A441 South	22,385
A435 South	27,583
Icknield Street Drive	23,010
Battens Drive	23,010
Claybrook Drive	23,010
Alders Drive	21,134

Base Traffic Flows (Existing flows incorporating growth study results and ADRs) compared with current highway link capacities

5.8 Existing traffic flow data, provided by WCC, has been factored to the current base year of 2007 using NRTF⁵ central growth factors. The NRTF factor calculations are shown in **Appendix I**. The adopted base year traffic flows including the impact of the WYG growth study results (excluding completions and dwellings under construction anticipated to be catered for within traffic flow growth factors) in comparison to the road link capacities are illustrated in **Figure 2**.

Figure 2: Base Primary Highway Capacity



⁵ NRTF – National Road Traffic Forecast

5.9 The results above indicate three links on the primary highway network that are reaching / beyond their CRF capacities, these being the A441 north (Bordesley), A441 north (Link) and the A435 South. All other assessed links are considered to be operating within capacity.

Current Junction Capacities

5.10 In addition to the assessed links above, three junctions have been identified as bottlenecks within the operation of the highway network being:

- Crabbs Cross Roundabout
- Sainsbury's Roundabout
- B4101 / A441 Signalised Junction

5.11 Operational analysis has been undertaken for the junctions outlined in **Para 5.9** and existing spare capacities are illustrated in **Table 7**.

Table 7: Base Junction Capacities

Location	Maximum Design Operating Capacity	AM Peak Operating Capacity	PM Peak Operating Capacity	Comments
Crabbs Cross Roundabout	0.90% RFC	0.942% RFC	1.234% RFC	AM peak operating above capacity and PM peak operating above capacity.
Sainsbury's Roundabout	0.90% RFC	0.648% RFC	0.816% RFC	AM peak operating well within capacity, pm peak operating close to but below capacity.
B4101 / A441 Signalised Junction (at Bordesley Garage)	0% PRC	26.4% PRC	3.6% PRC	The junction is operating within capacity levels. (90s cycle time)

*Capacity models contained within **Appendix J**

5.12 Further to **Table 7**, operational analysis has been undertaken for the junctions identified in **Para 5.9** using the industry standard software, ARCADY, LINSIG and TRANSYT to determine optimum flow capacities; these results are shown in **Table 8**.

Table 8: Base Junction Optimum Capacities

Location	Potential Additional Flows (PCU) during peak hours
Crabbs Cross Roundabout	0 PCU
Sainsbury's Roundabout	250 PCU
B4101 / A441 Signalised Junction (at Bordesley Garage)	100 PCU (120s cycle time)

*Capacity models contained within **Appendix J**

Existing Network conclusions

- 5.13 **Section 5** has identified the current operational capacity of the primary highway network in Redditch Borough (including the committed growth identified within **Para 5.5** and ADRs identified in **Para 5.6**).
- 5.14 It can be concluded that of those links / junctions that were assessed, three links and one junction providing access into the Borough are currently at or nearing capacity, these being the A441 (north) link, the A435 (east) link and the Crabbs Cross Roundabout.
- 5.15 All other assessed links operate satisfactorily with spare capacity to accommodate some additional residential / employment growth.

Potential Improvements to Links/Junctions relating to Base Scenario

- 5.16 This section identifies potential measures to improve existing base capacity issues on the assessed highway network
- 5.17 Previous studies have identified the need for a bypass north of Bordesley. This bypass would form a dual 2 lane carriageway around the existing development and increase the capacity at this location to approximately 75,000 PCU's per day.
- 5.18 A review of the Crabbs Cross roundabout junction has been undertaken to determine whether additional capacity can be created through improvement measures. Firstly, by reviewing the topography of the land surrounding the junction, the scope for increasing the size of the junction may be limited without the acquisition of third party land. If it is possible then an additional throughput of approximately 365 PCUs could be accommodated.
- 5.19 Unless acquisition of third party land is an option it is considered that a single carriageway bypass would alleviate the congestion at the junction, linking the A441 north of Astwood Bank to the Woodrow Drive link east of the Alvechurch Highway / Roughill Drive roundabout junction.
- 5.20 A review has been undertaken regarding the potential signalisation of the Crabbs Cross Roundabout; however, given the existing layout and potential land constraints it is anticipated that only a marginal increase in capacity could be achieved. This is due to the relatively even dispersion of traffic flows impacting each entry / exit arm.

5.21 In addition a review of the Sainsbury's Roundabout has been undertaken. Given substantial gyratory widening works, entry and exit arm widening along with part signalisation an additional peak hour throughput of 850 PCU's could be accommodated.

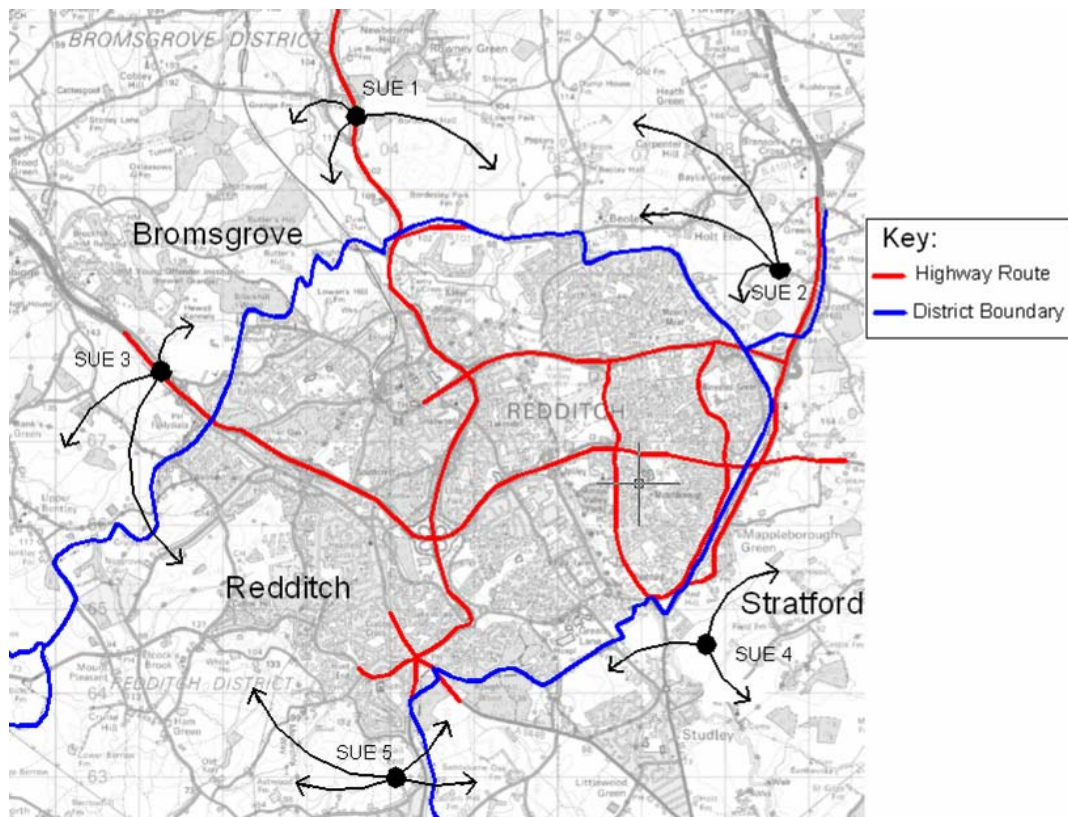
Potential Sustainable Urban Extension Locations

5.22 Further to the constraints identified above, excluding the already identified committed growth (**Para 5.5**), six broad locations have been identified to accommodate the spatial options dependant upon the outcome of this report. These locations are to form the basis of this study and comprise:

- 1) **To the North of Redditch Adjacent to the A441**
- 2) **To the North East of Redditch Adjacent to the A435**
- 3) **To the West of Redditch Adjacent to the A448**
- 4) **To the South East of Redditch Adjacent to the A435**
- 5) **To the south of Redditch Above Astwood Bank Adjacent to the A441**
- 6) **Equal Split of Locations 1 to 5 Above.**

5.23 Potential location of the SUEs and direction of growth are illustrated in **Figure 3**.

Figure 3: SUE Locations



6.0 SUSTAINABILITY

6.1 This section considers the existing level of sustainable transport, in the form of pedestrian, cycle and public transport access, within the vicinity of the proposed SUEs.

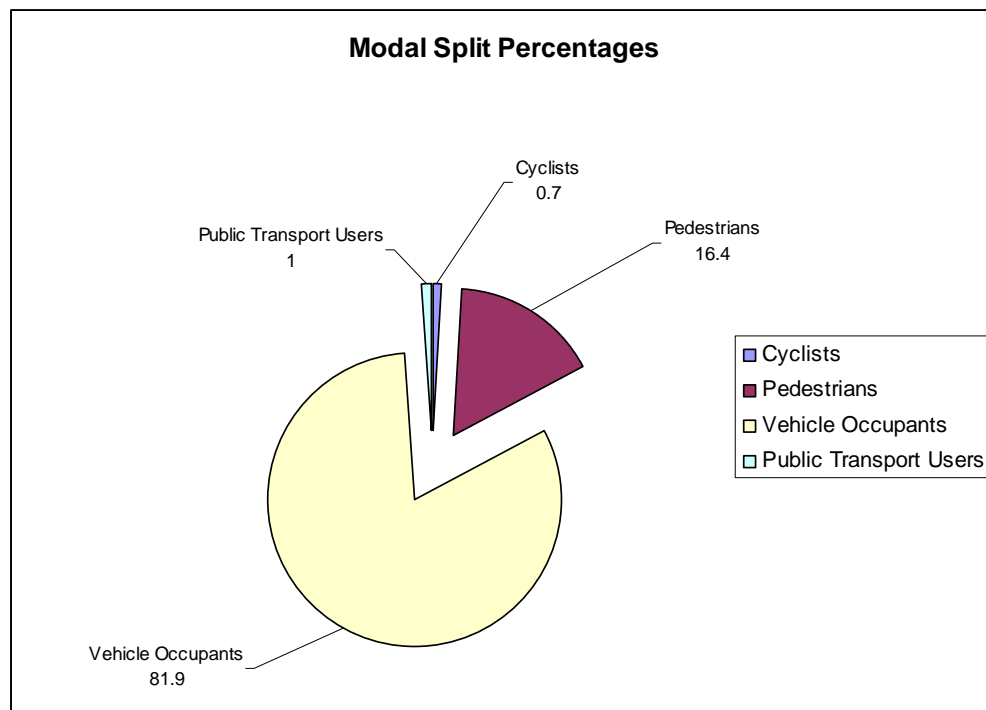
6.2 It will determine modal use patterns for each of the proposed SUEs by comparing existing pedestrian, cyclist and public transport facilities along with modal split percentages derived from the TRICS (Trip Rate Information Computer System) Database v2007(b).

Multi Modal Assessment

6.3 An assessment of the TRICS database has been undertaken to obtain an understanding of the general proportion of trips being undertaken by sustainable modes of transport to provide a median point for the SUE developments modal patterns to be formed around.

6.4 The assessment was undertaken for mixed private housing land use within Worcestershire to provide a robust assessment (no suitable data is available from TRICS for Warwickshire). The findings are illustrated in **Figure 4**.

Figure 4: TRICS Modal Split Percentages



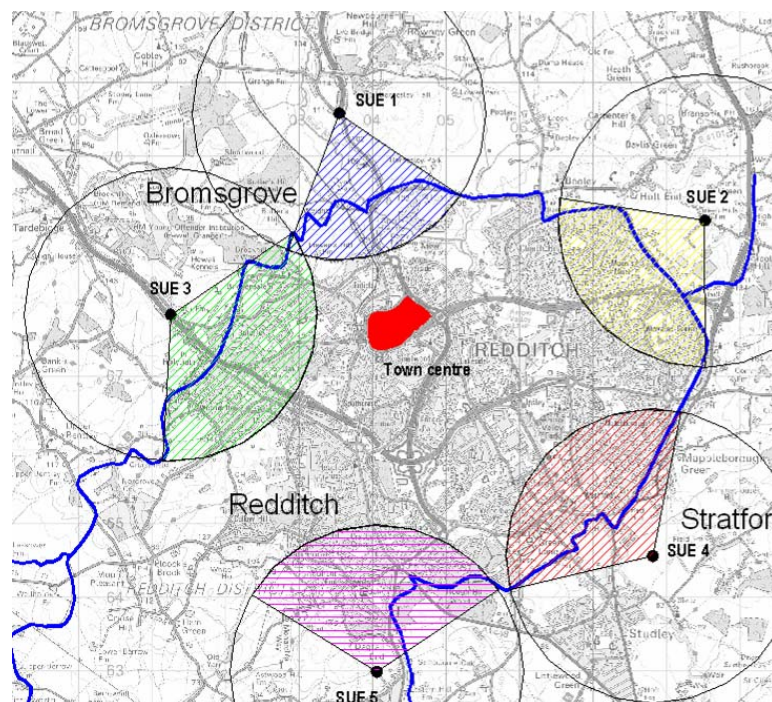
6.5 **Figure 4** indicates that Worcestershire, in general, has a modal split of 81.9% private car users. The figures derived from the TRICS database do not split the vehicle occupants down into

separate categories. It is considered that the modal splits identified accurately reflect the 'base' situation for travel within Redditch.

Walking Accessibility

- 6.6 In terms of pedestrian movement, accessibility is governed by available/proposed routes and trip length. In terms of distance, it is necessary to consider what is realistic for a walk trip. The Institution of Highways and Transportation in their document "Guidelines for Providing for Journeys on Foot" state that "walking accounts for over a quarter of all journeys and over four fifths of journeys less than one mile". Manual for Streets (2007), states that walking "is the principal form of travel for trips under one mile". The PPG13 A Guide to Better Practice document (2001) identifies that people are prepared to walk up to 2 km. PPG13 also identifies walking as the most important mode of travel at the local level and that walking offers the greatest opportunity to replace short car trips of up to 2 km. The DfT in their Transport Statistics on walking in Great Britain state that the average length of a walk journey is 0.6 miles (965m).
- 6.7 It can be concluded therefore that distances up to 2 km can generally be undertaken on foot and that walking is an effective mode for trip making at this distance. A 2 km isochrone from the individual SUE locations are illustrated in **Figure 5** in relation to Redditch town centre and general conurbations.

Figure 5: Walking Accessibility

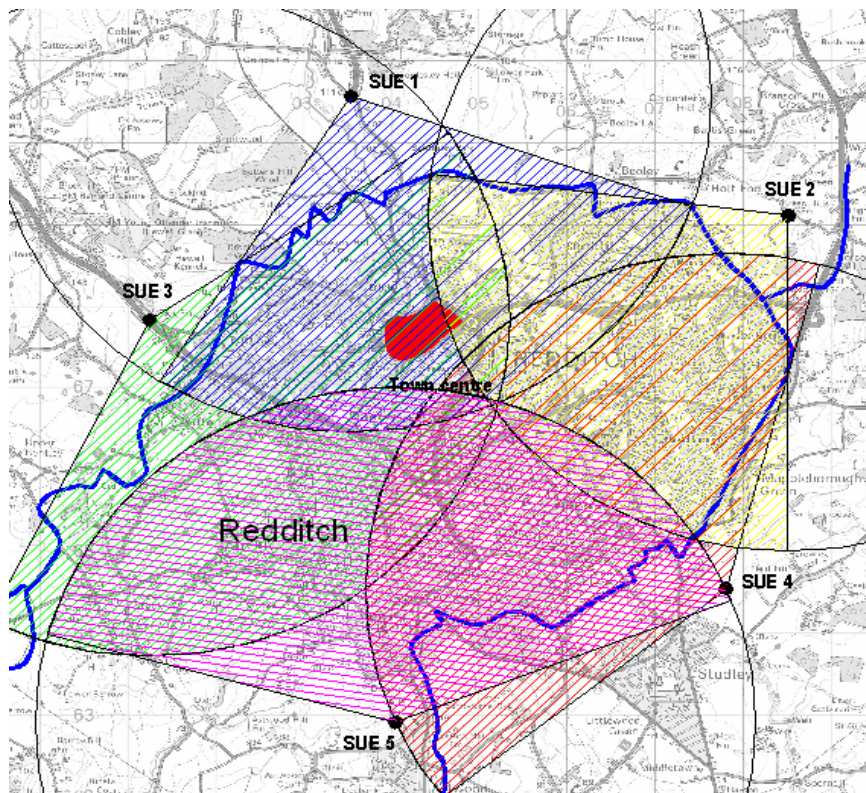


- 6.8 The assessment illustrates that SUE location 1 (3.0 km) is closest to Redditch Town Centre followed by SUE locations 3 (3.1 km), 2 (4.5 km), 4 (4.7 km) and 5 (4.7 km). All SUE centroids are over 2km from Redditch Town Centre.

Cycling Accessibility

- 6.9 In terms of cycling movements, accessibility will be governed by available/proposed routes and trip length. The DfT in their Transport Statistics on Cycling in Great Britain state that the average length of a cycle journey is 2.4 miles (3.84 km). The PPG13 “A Guide to Better Practice document” (2001) identifies that people are prepared to cycle up to 8 km.
- 6.10 It can be concluded that approximately 4 km represents a reasonable cycling distance and that 8 km is a maximum realistic range for worthwhile numbers of cycle trips. A 4 km isochrone is displayed within **Figure 6** in relation to Redditch town Centre and general conurbations.

Figure 6: Cycling Accessibility



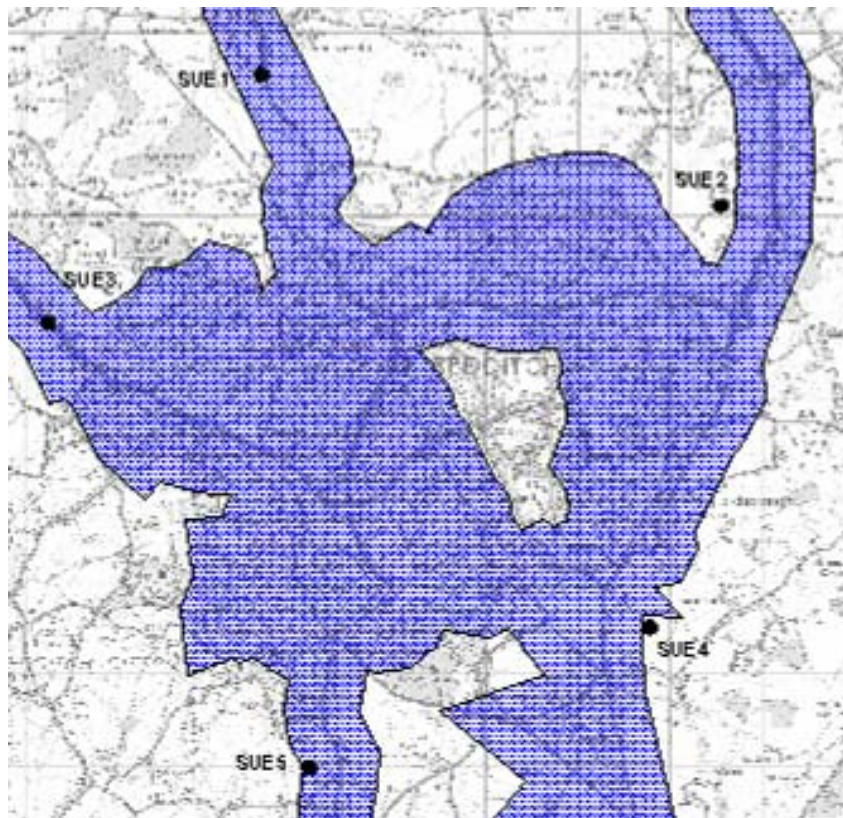
- 6.11 The assessment concludes that the most suited SUE location by means of cycle passage is either locations of SUE 1 or SUE 3, each having centroids within 4 km of Redditch Town Centre. Accessibility from SUE location 3 is limited to the East of Redditch Town Centre given the

maximum average cycling distance adopted of 4 km, whereas SUE locations 4 and 5 are approximately 4.7 km from Redditch Town Centre and therefore may not be accessible by cycle modes.

Public Transport Accessibility

- 6.12 The Institute of Highways and Transportation's (IHT) 'Planning for Public Transport in Developments' that 'new developments should be located so that public transport trips involve a walking distance of less than 400m from the nearest bus stop'
- 6.13 A review of the existing bus routes has been undertaken to determine the existing catchment areas and potential to extend routes by means of assessing their existing length from Redditch Town Centre compared to Journey Times. **Figure 7** identifies the current bus routes with 400m Isochrones.

Figure 7: Public Transport Accessibility (Bus)

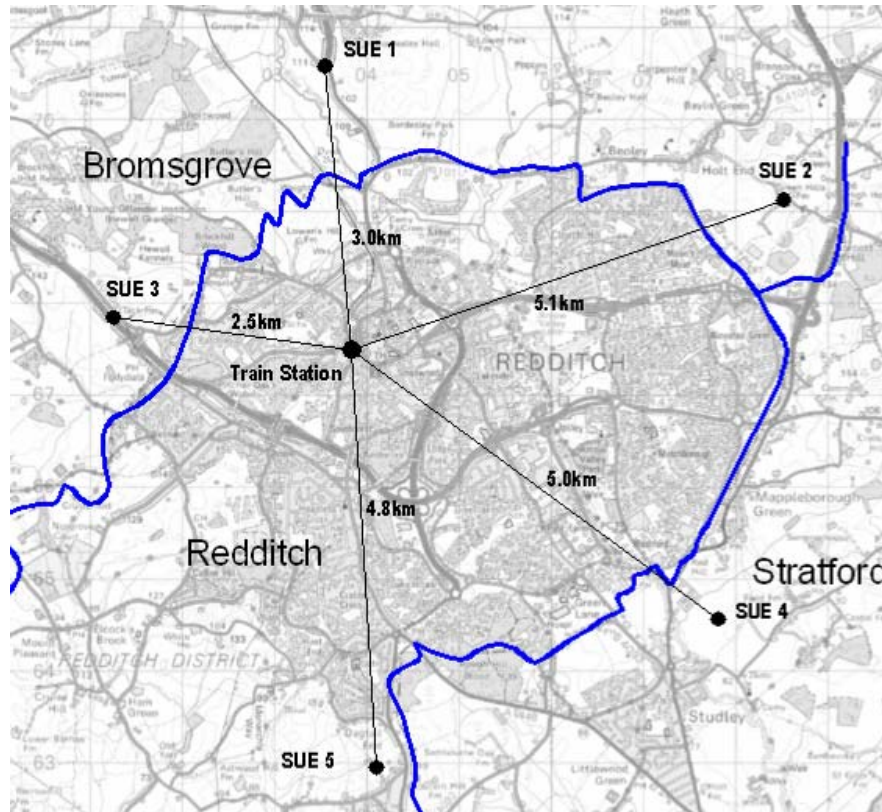


- 6.14 The assessment illustrates that all of the proposed SUE locations are on or adjacent to existing bus routes.

Rail Accessibility

- 6.15 It is considered given the accessibility distances determined for foot passage in **Para 6.6**, a distance of 2km would suit accessibility to rail stations. SUE distances from Redditch rail station (direct line distances) are illustrated in **Figure 8**.

Figure 8: Rail Accessibility



- 6.16 The assessment illustrates that SUE location 3 (2.5 km) is closest to Redditch rail station followed by SUE locations 1 (3.0 km), 5 (4.8 km), 4 (5.0 km) and 2 (5.1 km). All SUE centroids are over 2km from Redditch's rail station.
- 6.17 The current rail line terminates at Redditch and is accommodated by a single track. It is understood that the rail infrastructure is currently at / above capacity levels and would require mass improvement works to increase its existing capabilities.

Modal Split Conclusions

6.18 By reviewing the results above a simple scoring assessment has been undertaken to determine the rankings of sustainability for each of the SUE locations. The results of which are shown in **Table 9**.

Table 9: Sustainable Modal Ranking and adopted Levels

SUE Location	Walking (ranked 1-5)	Cycling (ranked 1-5)	Public Transport (Bus & Rail) (ranked 1-5)	Total Score	Target Modal Split
SUE 1 – A441 North	6	6	5	17	71.9%
SUE 2 – A435 North East	3	3	1	7	83.9%
SUE 3 – A448 West	5	6	6	17	71.9%
SUE 4 – A435 South East	1	1	2	4	91.9%
SUE 5 – A441 South	1	1	3	5	87.9%
SUE Combination (equal development split)	4	4	4	12	79.9%

Ranking Assessment contained in **Appendix K**

6.19 The general modal split for Redditch was determined to be 81.9% in **Para 6.4**. It has been assumed that locations most benefiting from current access to the town centre and rail station will benefit by up to +10%, where as SUE locations ranked lower will have lesser anticipated modal splits by up to -10%. These modal splits estimates will be utilised in **Section 7** when calculating the traffic generation impact for each of the SUE locations.

6.20 It may be beneficial, dependent upon the outcome of this report regarding the optimum location for SUE(s), to relocate the existing rail station to the north of Redditch Town Centre off the A441. The scenario could have the following benefits:

- Provide excellent rail accessibility to SUE 1 and moderate accessibility to SUE location 2 and 3 given adequate infrastructure provision.
- Shorten rail journeys between Redditch and Birmingham
- Increase Rail Capacity on the Rail Line.

7.0 SPATIAL OPTIONS IMPACT

- 7.1 This section reviews the Borough's ability to accommodate each of the Spatial Options upon its primary highway network. It incorporates the committed growth developments identified in **Para. 5.5**, and the capacity restraints identified in **Section 5.0**. Due to the time period to which the residential growth is targeted phasing of the development has been applied.
- 7.2 By taking into account the "committed developments", identified in **Para 5.6**, the required level of residential provision is shown in **Table 10**.

Table 10: Revised Spatial Options Build Rates

	Spatial Option 1 (Dwellings)	Spatial Option 2 (Dwellings)	Spatial Option 3 (Dwellings)
Total	-1822 (already accommodated within committed developments)	2,078	7,078

- 7.3 The conclusions in **Table 9** indicate that Spatial Option 1 is accommodated by the identified "committed developments". Subsequently this assessment will only focus on Spatial Options 2 and 3 regarding highway impact and capacity constraint.

SUE Location Impact Assessment

- 7.4 Individual assessments, to determine improvement requirements, have been undertaken for each Link / Junction relating to individual SUE locations and Spatial Options. The assessments are contained in **Appendix L** and conclusions summarised in **Tables 11** and **12**.

Table 11: Spatial Option 2 - Improvement Requirements

SUE Location	SUE Location 1	SUE Location 2	SUE Location 3	SUE Location 4	SUE Location 5	SUE Location Equal Combination
A441 (Bordesley)	Yes	Possible	Possible	Yes	Yes	Yes
A441 Bordesley Link	Yes	Possible	Possible	Yes	Yes	Possible
Warwick Highway East	No	No	No	No	No	No
Warwick Highway West	No	No	No	No	No	No
Alvechurch Highway	Possible	Possible	Possible	Possible	Possible	Possible
Coventry Highway	No	No	No	No	No	No
Bromsgrove Highway	Possible	Possible	Possible	Possible	Possible	Possible
Roughill Drive	No	No	No	No	No	No
A435 North	No	Possible	No	Possible	No	No
A441 South	No	No	No	No	Yes	Possible
A435 South	Possible	Yes	Possible	Yes	Possible	Possible
Icknield Street Drive	No	No	No	No	No	No
Battens Drive	No	No	No	No	No	No
Claybrook Drive	No	No	No	No	No	No
Alders Drive	No	No	No	No	No	No
Crabbs Cross Roundabout	Possible (junction improvements)	Yes (junction improvements)	Yes (junction improvements)	Not assessed due to anticipated minimal impact	Yes (Bypass)	Yes (junction improvements)
Sainabury's Roundabout	No	Not assessed due to anticipated minimal impact	No	Yes (junction improvements)	No	No
B4101 / A441 Signalised Junction (at Bordesley Garage)	Not assessed due to bypass	No	No	Not assessed due to bypass	Not assessed due to bypass	Not assessed due to bypass

Table 12: Spatial Option 3 - Improvement Requirements

SUE Location	SUE Location 1	SUE Location 2	SUE Location 3	SUE Location 4	SUE Location 5	SUE Location Equal Combination
A441 (Bordesley)	Yes	Possible	Yes	Yes	Yes	Yes
A441 Bordesley Link	Yes	Possible	Yes	Yes	Yes	Yes
Warwick Highway East	No	Possible	No	Possible	No	No
Warwick Highway West	No	No	No	No	No	No
Alvechurch Highway	Possible	Possible	Possible	Yes	Yes	Possible
Coventry Highway	No	No	No	No	No	No
Bromsgrove Highway	Possible	Possible	Yes	Possible	Possible	Possible
Roughill Drive	No	No	No	No	Yes	No
A435 North	No	Yes	No	Possible	Possible	Possible
A441 South	No	No	No	No	Yes	Possible
A435 South	Yes	Yes	Possible	Yes	Yes	Yes
Icknield Street Drive	No	No	No	No	No	No
Battens Drive	No	No	No	No	No	No
Claybrook Drive	No	No	No	No	No	No
Alders Drive	No	No	No	No	No	No
Crabbs Cross Roundabout	Possible (junction improvements)	Yes (junction improvements)	Yes (junction improvements)	Not assessed due to anticipated minimal impact	Yes (Bypass)	Yes (Bypass)
Sainsbury's Roundabout	Yes ⁶	Not assessed due to anticipated minimal impact	Potential (junction improvements)	Yes ⁶	Yes (junction improvements)	Yes (junction improvements)
B4101 / A441 Signalised Junction (at Bordesley Garage)	Not assessed due to bypass	No	Not assessed due to bypass	Not assessed due to bypass	Not assessed due to bypass	Not assessed due to bypass

⁶ Junction improvements & re-routing of traffic – potential northern bypasses

8.0 IMPROVEMENT COSTS

- 8.1 This section identifies anticipated cost approximations for construction of improvement measures identified within this report. Broad assumptions have been identified for each of the improvement works specified. All cost estimates should only be considered as indicative. Broad assumptions for each cost appraisal measure are contained within **Appendix M**.
- 8.2 **Table 13** identifies the relevant estimated upper and lower range of costs associated with each of the Spatial Options and SUE locations whilst locations of anticipated works are shown on **Figure 9**.

Table 13: Improvement Measures / Costs

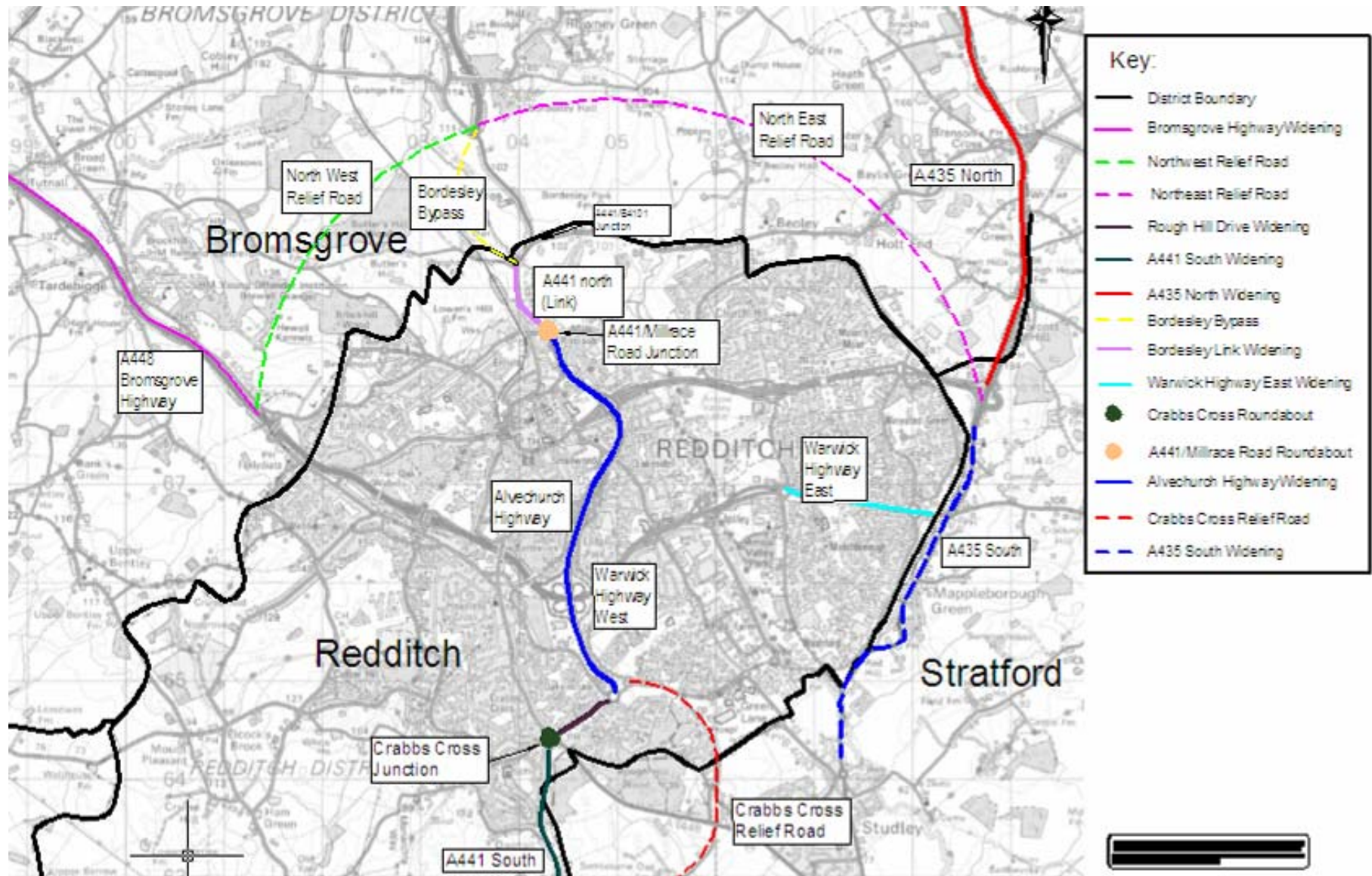
Development Location	Mitigation Requirements		
	Spatial Option 1 (committed Developments)	Spatial Option 2	Spatial Option 3
SUE1 – Off A441 (North)	1) Potential Bordesley Bypass 2) Potential Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) A435 Widening (south) 6) Potential Crabbs Cross Junction Improvements	1) Bordesley Bypass 2) Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) Potential A435 Widening (south) 6) Potential Crabbs Cross junction improvements	1) Bordesley Bypass 2) Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) A435 Widening (south) 6) Crabbs Cross junction improvements 7) Sainsbury’s Roundabout improvement Works 8) North East Relief Road.
Anticipated Cost (million)	£0m - £175.25m (Ave = £87.625m)	£20.25m - £175.25m (Ave = £97.75m)	£73.75m - £205.25m (Ave = £139.50m)
SUE2 – Off A435 (North East)	1) Potential Bordesley Bypass 2) Potential Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) A435 Widening (south) 6) Potential Crabbs Cross Junction Improvements	1) Potential Bordesley Bypass 2) Potential Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) Potential A435 Widening (north) 6) A435 Widening (south) 7) Crabbs Cross junction improvements	1) Potential Bordesley Bypass 2) Potential Bordesley Link Widening 3) Potential Warwick Highway Widening (east) 4) Potential Alvechurch Highway Widening 5) Potential Bromsgrove Highway Widening 6) A435 Widening (north) 7) A435 Widening (south) 8) Crabbs Cross junction improvements
Anticipated Cost (million)	£0m - £175.25m (Ave = £87.625m)	£23.50m - £229.25m (Ave = £126.375m)	£77.50m - £234.25m (Ave = £155.875m)

Development Location	Mitigation Requirements		
	Spatial Option 1 (committed Developments)	Spatial Option 2	Spatial Option 3
SUE3 – Off A448 (West)	1) Potential Bordesley Bypass 2) Potential Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) Potential A435 Widening (south) 6) Potential Crabbs Cross Junction Improvements	1) Potential Bordesley Bypass 2) Potential Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) Potential A435 Widening (south) 6) Crabbs Cross junction improvements	1) Bordesley Bypass 2) Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Bromsgrove Highway Widening 5) Potential A435 Widening (south) 6) Crabbs Cross junction improvements 7) Sainsbury's Roundabout improvement works
Anticipated Cost (million)	£0m - £175.25m (Ave = £87.625m)	£7.50m - £175.25m (Ave = £91.375m)	£85.50m - £176.25m (Ave = £130.875m)
SUE4 – Off A435 (South)	1) Potential Bordesley Bypass 2) Potential Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) A435 Widening (south)	1) Bordesley Bypass 2) Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) Potential A435 Widening (north) 6) A435 Widening (south) 7) Sainsbury's Roundabout improvement works	1) Bordesley Bypass 2) Bordesley Link Widening 3) Potential Warwick Highway Widening (east) 4) Alvechurch Highway Widening 5) Potential Bromsgrove Highway Widening 6) Potential A435 widening (north) 7) A435 Widening (south) 8) Sainsbury's Roundabout improvement works 9) North East Relief Road ⁷ 10) Potential North West Relief Road
Anticipated Cost (million)	£0m - £175.25m (Ave = £87.625m)	£37.25m - £227.75m (Ave = £132.50m)	£140.00m - £306.25m (Ave = £223.125m)

Development Location	Mitigation Requirements		
	Spatial Option 1 (committed Developments)	Spatial Option 2	Spatial Option 3
SUE5 – Off A441 (South)	1) Potential Bordesley Bypass 2) Potential Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) Potential A435 Widening (south) 6) Potential Crabbs Cross Junction Improvements	1) Bordesley Bypass 2) Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) A441 Widening (south) 6) Potential A435 Widening (south) 7) Crabbs Cross Relief Road / Bypass	1) Bordesley Bypass 2) Bordesley Link Widening 3) Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) Roughill Drive Widening 6) Potential Widening to A435 (north) 7) A441 Widening (south) 8) A435 Widening (south) 9) Crabbs Cross Relief Road / Bypass 10) Sainsbury's Roundabout improvement works 11) North East Relief Road ⁷ 12) Potential North West Relief Road
Anticipated Cost (million)	£0m - £175.25m (Ave = £87.625m)	£42.00m - £189.50m (Ave = £115.75m)	£171.00m - £332.25m (Ave = £251.675m)
Equal Combination of Sues	1) Potential Bordesley Bypass 2) Potential Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) Potential A435 Widening (south) 6) Potential Crabbs Cross Junction Improvements	1) Bordesley Bypass 2) Potential Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Potential Bromsgrove Highway Widening 5) Potential A441 Widening (south) 6) Potential A435 Widening (south) 7) Crabbs Cross Junction Improvements	1) Bordesley Bypass 2) Bordesley Link Widening 3) Potential Alvechurch Highway Widening 4) Bromsgrove Highway Widening 5) Potential North West Relief Road ⁷ 6) Potential Widening to A435 (north) 7) North East Relief Road 8) A441 Widening (south) 9) A435 Widening (south) 10) Crabbs Cross Relief Road / Bypass 11) Sainsbury's Roundabout improvement works
Anticipated Cost (million)	£0m - £175.25m (Ave = £87.625m)	£23.0m - £186.50m (Ave = £104.75m)	£73.75m - £320.00m (Ave = £196.875m)

Broad assumptions for each cost appraisal are contained within **Appendix M**.

Figure 9: Proposed Improvement Work locations



9.0 CONCLUSIONS, RECOMMENDATIONS AND FURTHER WORK

Conclusions

- 9.1 This study has examined the highways and transportation implications of possible 'sustainable urban extensions' to help meet housing allocations in the draft Regional Plan 2001 – 2026. This report summarises the findings of the study and also makes recommendations on further work for the longer term. The purpose of the study is to aid the joint⁷ Council's further comments on the draft Regional Plan, in particular in relation to the scale of SUEs.
- 9.2 The Housing allocations for Redditch Borough have been set as 4,300 dwellings for Spatial Option 1, 8,200 dwellings for Spatial Option 2 and 13,200 dwellings for Spatial Option 3.
- 9.3 The primary highway network within Redditch Borough has been assessed. This study has determined physical constraints that limit possible locations for SUEs in terms of capacity and economic cost. In broad terms, it is possible to serve new major developments within / adjacent to Redditch Borough, however new infrastructure will be required and fluctuations in cost dependent upon development locality.
- 9.4 A separate WYG study has been undertaken that concludes 6,122 dwellings have already been granted planning permission are areas of Development Restriction (ADR's) or been constructed between 2001 and 2006 or identified as available capacity for development sites within Redditch. For the purpose of this report these sites have been classified as 'Committed Developments' and resultant traffic flows have been incorporated within the existing base traffic flows.
- 9.5 The assessment identified several existing links / junctions that will be nearing or beyond their theoretical operational capacity, being:
- A441 (north) Bordesley Link;
 - A441 North (Bordesley)
 - A435 (south);
 - Crabbs Cross Roundabout Junction;

⁷ Joint council includes: Worcestershire county Council, Redditch Borough council, Bromsgrove Borough council, Stratford Council

9.6 Five location options (and a sixth option comprising a fifth of each of the five locations) for SUEs have been assessed within this study, being:

- A441 (North) Adjacent to Bordesley (SUE Location 1);
- A435 (North) North of Holt End (SUE Location 2);
- A448 (West) Adjacent to Bromsgrove Highway / A4184 junction (SUE Location 3);
- A435 (East) Adjacent to Studley (SUE Location 4);
- A441 (south) North of Astwood Bank (SUE location 5);
- Equal combination of SUEs 1 to 5;

9.7 A review into the sustainable accessibility has been undertaken regarding all SUE locations relating to Foot, Cycle, Bus and Rail Accessibility to Redditch Town Centre and rail station. The review has determined that SUEs located at the A441 (north) Link (SUE location 1) and A448 (west) Link (SUE location 3) provide the best linkages to Redditch Town Centre and Rail Station.

9.8 The study has determined worst and best case cost estimations for infrastructure provision relating to each SUE locality and Spatial Option.

Table 14: Potential Improvement Costs Summary

Development Location	Mitigation Requirements Cost Bands		
	Spatial Option 1	Spatial Option 2	Spatial Option 3
A441 (north) SUE 1	£0m - £175.25m (Ave = £87.625m)	£20.25m - £175.25m (Ave = £97.75m)	£73.75m - £205.25m (Ave = £139.50m)
A435 (north) SUE 2	£0m - £175.25m (Ave = £87.625m)	£23.50m - £229.25m (Ave = £126.375m)	£77.50m - £234.25m (Ave = £155.875m)
A448 (West) SUE 3	£0m - £175.25m (Ave = £87.625m)	£7.50m - £175.25m (Ave = £91.375m)	£85.50m - £176.25m (Ave = £130.875m)
A435 (East) SUE 4	£0m - £175.25m (Ave = £87.625m)	£37.25m - £227.75m (Ave = £132.50m)	£140.00m - £306.25m (Ave = £223.125m)
A441 (south) SUE 5	£0m - £175.25m (Ave = £87.625m)	£42.00m - £189.50m (Ave = £115.75m)	£171.00m - £332.25m (Ave = £251.675m)
SUE Combined	£0m - £175.25m (Ave = £87.625m)	£23.0 - £186.50m (Ave = £104.75m)	£73.75m - £320.00m (Ave = £196.875m)

9.9 It is difficult to anticipate the actual operation of links / junctions when they have reached their theoretical capacity levels. The lower costs, identified in **Table 14**, illustrate a based case scenario of required improvement costs, whereas the higher figures provides a worst case scenario (based on requirements highlighted within **Tables 11 and 12**).

- 9.10 The study has identified that for Spatial Option 1 no additional development is required given existing committed developments.
- 9.11 The study has identified that for Spatial Option 2 the preferred development locality would be (based on an average between cost estimates) either a SUE located adjacent to the A448 Bromsgrove highway (SUE location 3), a SUE located adjacent to the A441 north link (SUE location 1) or an equal split between all SUE locations. Given the sustainable accessibility, determined within **Section 6**, the combination of SUEs option may provide limited sustainable accessibility; however, from an economic spatial view, the combination of SUEs could provide a robust expansion across the whole of Redditch and not concentrate development growth to one direction, thus benefiting all of Redditch District.
- 9.12 In terms of traffic and highways constraint the favoured locations for sustainable urban developments for Spatial Option 2 would be a SUE located adjacent to the A448 Bromsgrove highway (SUE location 3) or a SUE located adjacent to the A441 (north) link (SUE location 1).
- 9.13 The study has identified that for Spatial Option 3 the preferred development locality, in terms of transportation and highway constraints, would be (based on an average between cost estimates) either a SUE located adjacent to the A441 north link (SUE location 1) or a SUE located adjacent to the A448 Bromsgrove Highway Link (SUE location 3).

Recommendations and Next Steps

- 9.14 Further to the broad findings in this study, it is recommended that Redditch and its environs can accommodate all of the Spatial Options given adequate Infrastructure improvement measures. In general the study has identified, in terms of Highways and Transportation, the most appropriate locations for sustainable urban development, dependent upon the Spatial Option, would be either SUE located adjacent to the A441 north link (SUE location 1), A448 west link (SUE location 3) or an equal combination of SUE locations.
- 9.15 It is recommended that a further detailed review of the highway network within the Borough of Redditch is undertaken by means of a Redditch Borough, if not Worcestershire County (and including parts of Warwickshire County) wide transport model. This will more precisely indicate areas for potential future growth and capacity concerns (at a local level). Such a model would require the collection of substantial traffic survey data.

- 9.16 To equally disperse the traffic impact of the proposed SUEs leaving the Borough in a northern direction, it may be beneficial to construct a northern relief road linking the A448 via the A441 to the A435.
- 9.17 A detailed sustainability study should be undertaken to examine existing pedestrian cycle and public transport linkages and the potential to improve sustainable transport links to the proposed SUE locations.
- 9.18 Future work should review the existing use of the Railway Station and limited Town Centre parking provision. A potential solution to improve journey times (between Redditch and Birmingham) and assist in physically linking northern SUEs, would be to either relocate the existing Railway Station to the north of Redditch off the A441 and provide a shuttle service to the Town Centre utilising the old railway lines land take; or construct a new off line station adjacent to the propose SUE location 1. However to improve the capacity of the rail network between Birmingham and Redditch will requires the provision of a second track between Redditch and Barnt Green, the cost of which would be substantial. Nevertheless we would recommend that initial discussions regarding feasibility should be undertaken with the DfT and Network Rail.