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Stafford Borough Infrastructure Strategy

July 2009

Stage 1 Final Report

TRANSPORT
TRAFFIC
DEVELOPMENT
PLANNING
URBAN DESIGN
ECONOMICS
MARKET RESEARCH

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Stafford Borough Infrastructure Strategy
Stage 1 Final Report

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1 Introduction & Context

1.1 Introduction

1.1.1 Colin Buchanan (CB), with Mott MacDonald (MM), Hewdon Consulting and Levvel, were appointed in February 2009 to advise Stafford Borough Council on the infrastructure needed to support the housing and employment growth options set out in the Local Development Framework (LDF) Core Strategy Issues and Options Paper.

1.1.2 This Draft Report presents the findings of Stage 1 of the study. It provides the evidence base to support the interim findings on the infrastructure requirements for a range of growth scenarios in the Borough, with recommendations for the preferred direction of growth.

1.1.3 Stage 2 of the study will consider in more detail the requirements of particular locations for growth once the Council has agreed its preferred options.

1.2 Planning Policy Context

National

1.2.2 PPS12 Local Spatial Planning (June 2008) states that:

'…core strategies should be supported by evidence of what physical, social and green infrastructure is needed to enable the amount of development proposed for the area, taking account of its type and distribution.' (Para. 4.8)

1.2.3 This study was commissioned by Stafford Borough Council to form part of the evidence base for the Council's LDF Core Strategy, with the interim findings being used to inform the Council's position at the Examination in Public (EiP) into the West Midlands Regional Spatial Strategy (RSS).

1.2.4 In addition, the 2008 Planning Act introduced the Community Infrastructure Levy (CIL), which is expected to come into effect once the economy strengthens. Infrastructure studies are an essential part of the evidence base to support the introduction of a CIL, should a Local Planning Authority (LPA) decide to develop such a policy to fund the provision of infrastructure.

1.2.5 In undertaking an infrastructure study, PPS12 states that:

'*..the planning process should identify, as far as possible:*

- *infrastructure needs and costs;*
- *phasing of development;*
- *funding sources; and*
- *responsibilities for delivery'* (Para. 4.9)

1.2.6 PPS12 states that infrastructure planning for a Core Strategy should also include the specific infrastructure requirements of any strategic sites which are allocated in it (Para. 4.11).

Regional

1.2.7 The Regional Spatial Strategy (RSS) Phase Two revision – draft preferred option for the West Midlands was published in December 2007 and sets out the broad development

strategy for the region. The RSS Draft Strategy sets out the distribution and development requirements for housing for the West Midlands. For Stafford Borough this identifies 10,100 dwellings across the plan period (505 dwellings per annum), the majority of which (7,000 dwellings) are to be in Stafford town.

1.2.8 The scale of housing in the RSS has been re-examined following a letter from Baroness Andrews (January 2008). A study was undertaken in 2008 by Nathaniel Lichfield and Partners (NLP), commissioned by Government Office for the West Midlands (GOWM), to consider how the housing supply range for the West Midlands identified by the National Housing and Planning Advice Unit Report (NHPAU) could be delivered in the West Midlands. Following completion of the report, GOWM made recommendations that could potentially result in an additional 1,500 to 3,000 dwellings between 2006 and 2026 for Stafford Borough. The EiP into the RSS Phase Two revision – draft preferred option is in progress at the time of writing.

Local

1.2.9 Stafford Borough's Core Strategy Issues and Options paper was issued for public consultation in February 2009. The consultation period has ended and the Council is due to agree the preferred option in the autumn of 2009. The Issues and Options Paper presents two scenarios for housing growth in the Borough for the period 2006 to 2026:

- a lower growth scenario of 10,100 homes (net)
- a higher growth scenario of 12,100 homes (net)

1.2.10 In addition, 120 hectares (ha) of employment land are to be provided. The scenarios set out in the Core Strategy Issues and Options Paper include for Stafford town a minimum of 7,000 homes and a maximum of 9,000 homes. The potential locations for future growth are set out in the Issues and Options Paper, and are listed in Appendix 1 of this report for reference.

1.2.11 The Ministry of Defence (MoD) has also announced its intention to safeguard land holdings at Stafford and has suggested a potential requirement for an extra 1,000 dwellings. The MoD has identified a location on existing MoD land to the east of Stafford where 400 dwellings can be provided. For operational reasons, the MoD has indicated that additional housing land would have to be within ten miles of the base, but ideally closer. It is likely, therefore, that the MoD will search for suitable sites located north and east of Stafford and to the east of MoD Stafford towards Hopton and Hopton Heath.

1.2.12 The MoD would provide facilities on base for service personnel but not for their families. Thus, any demand for services such as education and health care would have to be accommodated within civilian facilities in Stafford or neighbouring settlements. The additional population could also generate significant levels of additional journeys and demand for employment.

1.3 Growth Proposals for Stafford

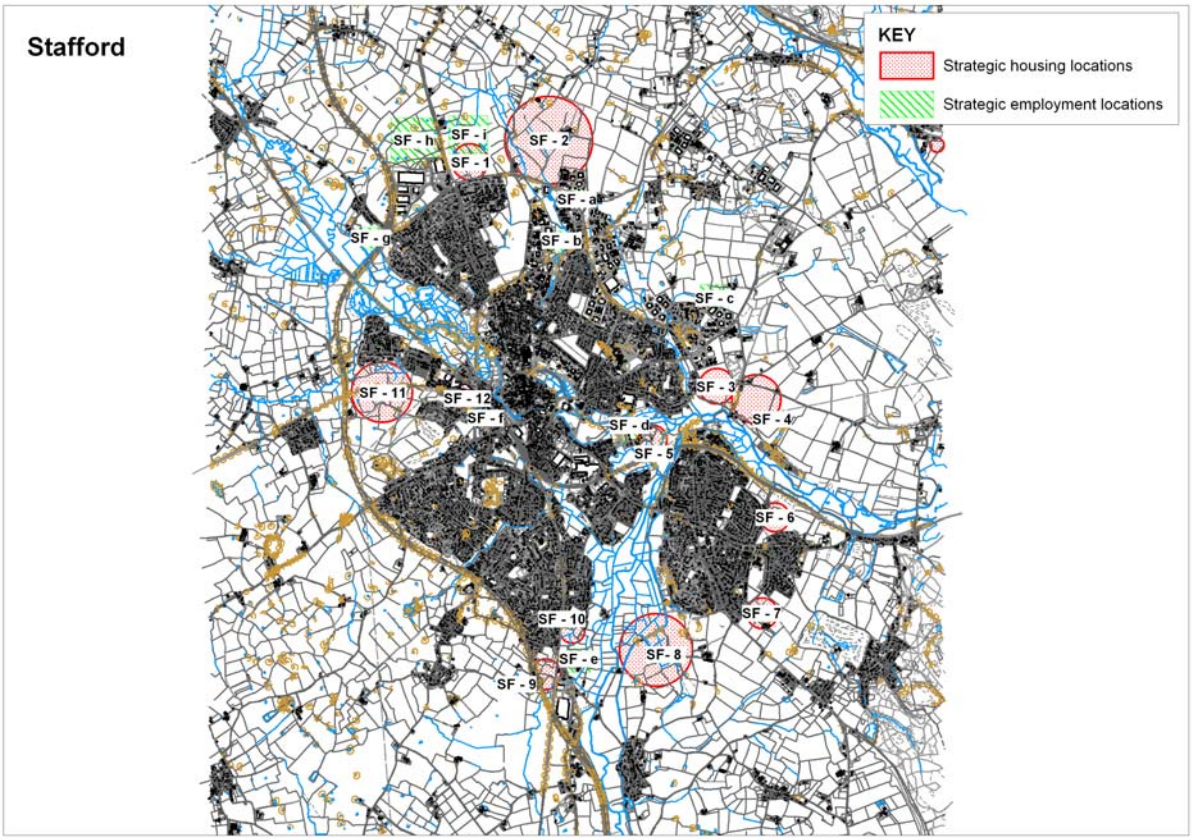
1.3.1 This report assesses the deliverability of infrastructure required to support the two potential levels of housing growth in the LDF Core Strategy Issues and Options paper (10,100 or 12,100 net additional dwellings over the period 2006-26) and the higher level of 13,100 additional dwellings set out in the GOWM submission to the RSS Panel. A fourth scenario is that included in the Programme of Development (POD). The POD submitted following Stafford's Growth Point confirmation led to a commitment to provide 900 additional dwellings to 2016-17 above the RSS draft preferred option figure of 10,100 homes. If this commitment is incorporated into the adopted RSS next year, the minimum delivery required to 2026 would therefore be 11,000 dwellings for the purposes of this

study. We have employed annual average delivery rates over the full plan period rather than apply differential rates for the two periods 2006-07 to 2016-17 and 2017-18 to 2025-26.

1.3.2 Under all four scenarios, Stafford town would be expected to accommodate at least 7,000 dwellings. The additional 1,000 dwellings that may be required in relation to the MoD's operations could be additional to RSS requirements.

1.3.3 The LDF Core Strategy Issues and Options Paper identifies potential options of land to provide up to 11,000 dwellings in and around Stafford town. About 90% of this potential supply is on green field urban extensions. These sites are shown in Fig.1.1 below.

Figure 1.1: Strategic Growth Locations in Stafford



1.3.4 In order to meet the various housing growth scenarios, the following annual delivery rates would have to be achieved (figures rounded up):

Table 1.1: Delivery rates required to meet housing targets 2006-26

Housing Growth Scenario (Net Additional Dwellings)	**Annualised** Delivery Required (Full Plan Period): 2006 To 2026	**Actual** Completions To Date: 2006/07 To 2007/08	**Residual** Requirement To End Plan Period: 2008/09 To 2025/26	**Annualised** Rate Required To End Plan Period: 2008/9 To 2025/26
10,100	505	1030	9070	503
11,000	550	1030	9970	554
12,100	605	1030	11070	615
13,100	655	1030	12070	671

1.3.5 Table 1.1. above identifies that an annualised rate of between 503 and 671 completions per annum up to 2026 is required to meet the four identified housing growth scenarios. Although this figure accounts for actual completions 2006-08, it does not account for committed sites with planning permission. These amount to a further 3,141 units (or 3,010 if permissions granted subject to a S106 being signed are discounted). This amounts to a total of 4,171 existing completions and commitments across the Borough, representing eight years supply at the rate of 503 dwellings per annum (d.p.a).

1.3.6 Table 1.2 below shows that from 1996-2008, 48% of all new dwellings in the Borough were built in Stafford (at an average of 236 dwellings per annum), 17% in Stone (87 dwellings per annum) and 35% in the rest of Stafford borough (177 dwellings per annum). The LDF Core Strategy Issues and Options Paper puts forward scenarios indicating a major uplift in the rate of development in Stafford town to around 70% of all completions, a similar rate of current delivery in Stone and a reduction in the rate for rural areas of the Borough.

Figure 1.2: Annual completions by area (1996-2008 and delivery required)

	Completions per annum: 1996 to 2008	**Average completions per annum**	**Completions required per annum to achieve 11,000 homes: 2006-26**	**Completions required per annum to achieve 12,100 homes: 2006-26**	**Completions required per annum to achieve 13,100 homes: 2006-26**
Stafford	2838	236.5	395	450	590
Stone	1045	87	155	155	155
Rest of borough	2128	177			

(Note: all additional growth above 10,100 has been allocated to Stafford town because no decisions have been made about the LDF Core Strategy's apportionment to other settlements at this stage).

1.3.7 Our analysis of SBC's "Land for new homes 2008" indicates that 49 percent (1,643) of existing housing commitments are located in Stafford (this figure rises to 52 percent (1,558) if developments granted but with unsigned s106 agreements are discounted).Commitments and completions thus equal 4,171 (or 4,040 if permissions awaiting s106 agreements are discounted). At an annual rate of 503 dwellings Stafford has between four years supply (or three if discounting permissions awaiting a s106). Only 15 percent of commitments are within Stone leaving 30% to 33% of commitments distributed across the rural parts of the borough.

1.3.8 The LDF Core Strategy Issues and Options Paper also anticipates a shift from small scale infill to strategic urban extensions at Stafford and Stone. During the 12 year period

to 2008, the largest single housing development in the borough comprised of 374 units (at Silkmore Lane). The LDF proposals will therefore prove a significant new challenge for the borough.

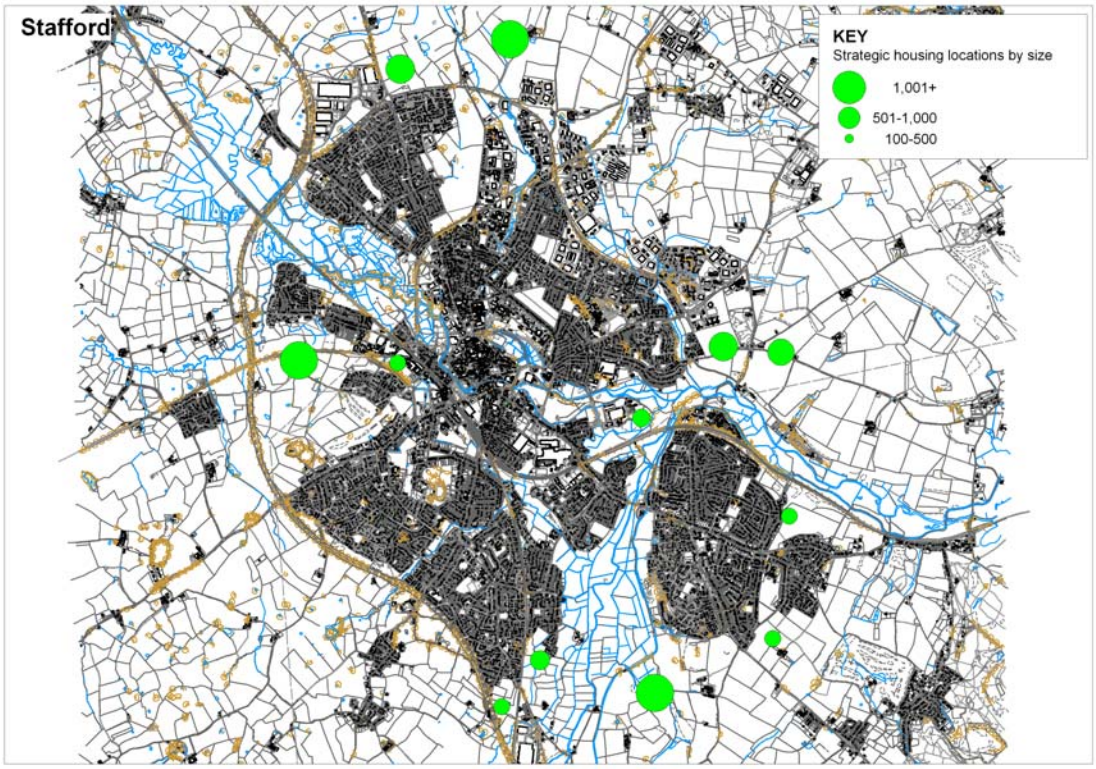
1.3.9 A key issue will be the rate of demand for housing. In Stafford Borough as a whole, completions have averaged 500 per year over the past five years (with one exception). However, in the current economic climate, and for the foreseeable future, it is highly unlikely that the market will be able to build and sell this number of units. Moreover, there is a limit to the number of sales that can be generated on any one site due to marketing infrastructure, so a move to fewer, bigger, sites will also tend to slow down the overall sales rate.

2 Deliverability of Growth Options for Stafford

2.1 Introduction

2.1.1 The achievement of the Borough's housing growth targets will be dependent largely on the successful delivery of growth in Stafford town itself. Under the provisions being considered by the RSS EiP Stafford town is required to accommodate growth of at least 7,000 new homes. The LDF Core Strategy Issues and Options Paper sets out strategic locations within Stafford town that could contribute to these growth targets. In this chapter we assess the issues and implications for infrastructure provision relating to the potential development locations in Stafford town, addressing the issues at a strategic level and separately for the four potential 'directions of growth' for urban expansion – north, east, south and west.

Figure 2.1: Strategic Housing Sites and Infrastructure Issues, Stafford



2.2 Strategic Issues

Strategic Transport Issues

2.2.2 With respect to transport, this study reviews the strategic transportation infrastructure investments that may be required to support the potential directions of growth in Stafford, as well as the site-access related infrastructure for each strategic location. A separate transport study has been commissioned by Staffordshire County Council and Stafford Borough Council from WS Atkins consultants, to provide transportation advice on the proposed growth strategy for Stafford[1]. W S Atkins has developed a transport model that will assist in the assessment of the growth strategy and to identify the preferred locations

[1]Stafford Growth Options Study – Draft Further Initial Option Assessment Technical Note (Atkins, April 2009)

for growth. Interim results of the modelling were presented in a report dated April 2009. The key findings of this report are reviewed below in relation to the directions of growth in Stafford.

2.2.3 W S Atkins assessed various land use options together with various access arrangements for each, revolving around the identified eastern, southern and western distributor roads. The options and access arrangements are indicated below:

Housing Sites Included

- Do-Minimum 2,500 dwellings
- Option 1a 7,000 dwellings (North and West areas)
- Option 2 10,000 dwellings (North, West and South areas)
- Option 3 10,000 dwellings (North, West, and East areas)
- Option 4 10,000 dwellings (West South and East areas)

Employment Sites Included

- Do-Minimum 8,653 Net Jobs (Committed Sites and Stafford Transport Assessment)
- Option 1a 17,274 Net Jobs (Employment Option Sites, Committed Sites and Stafford Transport Assessment)
- Option 2 17,274 Net Jobs (Employment Option Sites, Committed Sites and Stafford Transport Assessment)
- Option 3 17,274 Net Jobs (Employment Option Sites, Committed Sites and Stafford Transport Assessment)
- Option 4 17,274 Net Jobs (Employment Option Sites, Committed Sites and Stafford Transport Assessment)

Distributor Road Options

- Road Test 1 Western and Southern Distributor Roads
- Road Test 2 Western and Eastern Distributor Roads
- Road Test 3 Western, Southern and Eastern Distributor Roads

2.2.4 The Western Distributor Road has been included within the Regional Funding Advice (RFA2) and in terms of this assessment, is treated as a committed scheme. As part of the Atkins work, each land use option was assessed against each of the distributor road tests. Each of the modelling results were rated against agreed key performance indicators (KPIs) such that all the combinations could be ranked in line to determine the preferred strategy. It should be noted that the April 2009 W S Atkins report does not consider cost and buildability of the distributor roads and consequently these are not included as KPIs.

2.2.5 The study findings indicate that the Road Test 1 (Western and Southern Distributor roads) presented the least favourable results, against all the land use options. The completion of the Southern Distributor Road, without the Eastern Distributor Road, would deliver a disjointed solution that would not benefit the local road network, or reduce the flows on the M6 Motorway.

2.2.6 The modelling results for the assessment of Road Test 2 (Western and Eastern Distributor Road) present some of the most favourable results. The report does, however, highlight that the flow along key sections of the Eastern Distributor Road between Weeping cross and Beaconside exceed available capacity. Therefore this raises the issue that it may be necessary to consider the need to increase capacity through localised dualling throughout this section. However, this section and the available land is

constrained by the existing conurbation of Weeping Cross and the West Coast Main Line which could limit the opportunties for dualling.

2.2.7 The assessment of Road Test 3, i.e. the addition of the Southern Distributor Road to Road Test 2, presents better results in only one land use scenario - Option 3.

2.2.8 The W S Atkins report assesses Option 1a (7,000 dwellings) with only the Western distributor Roads. The result is comparable to the Do-Minimum scenario.

2.2.9 In summary, the W S Atkins report indicates that, with the committed Western Distributor Road, Option 1 (7,000 new homes in the western and northern directions of growth) can be delivered without provision of the Eastern or Southern Distributor Roads. The modelling does indicate, however, that in order to deliver 10,000 homes in Stafford, the Eastern Distributor Road would be required to avoid any further net impact on network performance.

2.2.10 This however raises the question of deliverability of the Eastern Distributor Road – an issue we explore in greater detail later in this Chapter (see Sec.2.4 Eastern Direction of Growth).

2.2.11 It is important to note that the W S Atkins report assesses each of the four directions of growth as single entities (i.e. deals with sites in aggregate) rather than on a site by site basis. It is possible, therefore, that additional sites in either the eastern or southern directions could be delivered in isolation, depending on their location, without the need for the Eastern Distributor or Southern Distributor Roads. Again, we explore this below.

2.2.12 The W S Atkins study indicates that the Southern Distributor Road only has road user benefits if the western, northern and eastern expansion areas are required and the Eastern Distributor Road is provided. Hence, it can be concluded that the Southern Distributor Road only provides significant benefits if the Eastern Distributor Road is built and 10,000 dwellings are delivered in the west, north and eastern directions. They also acknowledge that the Southern Distributor Road is the least deliverable item of transport infrastructure tested.

2.2.13 Separate discussions with the Highways Agency revealed their view that growth in Stafford will necessitate an upgrade to Junction 14 of the M6 to accommodate additional traffic using the junction. It is not evident to what extent this is triggered by background growth in traffic relative to additional trips generated by new development in and around the town. The Highways Agency will re-assess the impact of growth on Junctions 13 and 14 when Stafford Borough Council has selected the preferred options for growth.

Gas Supply

2.2.14 Gas supply is generally based on three networks:

- the high pressure system which transports gas over large distances
- the medium pressure system which provides gas to specific locations and settlements
- the low pressure system which distributes gas at a local level.

2.2.15 Stafford has a medium pressure ring main which runs around the majority of the town supplying gas to off take stations feeding small low pressure minor networks which service individual properties.

2.2.16 From our discussions with Fulcrum Infrastructure Services none of the locations considered for this study are known to have any requirement for works to the high pressure system. The ring main around Stafford is a medium pressure system, which would be extended to service sites such as SF-h on the northern edge of Stafford without the requirement any works to the high pressure system.

2.2.17 In general, there are no major gas infrastructure works required in Stafford. The gas supply network appears to be robust and has the potential capacity to accommodate all of the proposed developments. As a result, the majority of the proposed sites only require 'standard' connections into the medium pressure system. The costs of these connections would appear as a standard cost for developers.

Electricity Supply

2.2.18 For any significant development it is likely that a new local substation will be required to service specific locations. The majority of the developments proposed in Stafford town are on the outskirts of the existing urban development and as a result of this and their proposed scale it is likely that they will all require a new local substation. The cost of this (estimated at around £70,000 each) would be expected to be borne by the developer/landowner. Costs of additional infrastructure required to support a development may also require a contribution from the developer.

2.2.19 In order to deliver the proposed scale of housing developments, 11kv network improvements would be required for all of the proposed sites. Across the whole of Stafford, if all of the proposed developments were to come forward these infrastructure improvements would cost in the region of £12 million.[2] .

2.2.20 In addition to the 11kv network improvements, if proposed site SF-2 (3,000 units) is developed, a new major substation connected to the 132kv supply network would be required. This could also serve SF-1 (800 units). This infrastructure improvement would have a longer lead time than the local improvements and would cost in the region of £6 million.

Clean Water Supply

2.2.21 Clean water can be supplied from a number of sources and in Stafford Borough these include boreholes and reservoirs (to the north, south-east, and south-west of Stafford town) as well as a number of groundwater sources. Two out of the three reservoirs (south-east and south-west) are at capacity. However, the network layout does not currently allow optimum use of the capacity available at the northern reservoir at Peasley Bank.

2.2.22 The northern direction of growth could be supported without any further infrastructure improvements. However, the network has been identified as needing re-inforcement in order to meet the western growth requirements. Further re-inforcements will be needed if growth in the south and east is to be supported.

2.2.23 Severn Trent Water will not fully fund the provision of infrastructure to support development although an allowance for this infrastructure is included within their business plan. A contribution to the cost of infrastructure from a developer is calculated as a 'commuted sum' which is based on the cost of the infrastructure minus the potential income which the new connections will generate for Severn Trent over a 12 year period.

2.2.24 In general lead times for reinforcement works to the network are in the region of 18 months with a construction period of around 12 months.

Waste Water Treatment

2.2.25 New developments require separate surface water and foul water flows into the system, as excess surface water affects the capacity of the foul water system. The sewerage system transports foul water to the treatment works by gravity flow or by pumping using a

[2] Central Networks response to Stafford Borough Council's development query for Stafford

rising main. New developments resulting in an increase in foul flows of 5-10% will generally not result in any requirement for waste water infrastructure improvements.

2.2.26 Within Stafford all of the sewage is treated at Brancote sewage treatment works (STW). The majority of this sewage is pumped to the treatment works from either the Baswich or Lammascote pumping stations. The bottle-neck in the system is the Lammascote pumping station, which is currently operating at capacity.

2.2.27 Development on the northern sites would need to be assessed further by Severn Trent to identify their impact on pumping capacity. Local storage solutions would appear to be the preferred solution in most cases to address this issue through regulation of the flow to the pumping station. Alternatives would include the provision of a new local pumping station with connections to the network, or a new large pumping station and rising main. Severn Trent Water have indicated that they will conduct a feasibility study in order to assess the best solution.

2.2.28 The development of sites to the west and east of Stafford may need to be serviced by a new large pumping station and rising main. This will become clearer as firm proposals are assessed by Severn Trent. Development to the south is less likely to require major investment due to the level of existing capacity.

2.2.29 Developers would normally include the cost of local infrastructure in their schemes, while Severn Trent Water would be involved in providing more substantial infrastructure such as large new pumping stations and rising mains, and would seek developer contributions to part fund this investment. The required major infrastructure is likely to require a lead-in time of three to four years, which would be triggered by firm developer interest. Schemes are likely to be implemented in close liaison with Severn Trent to ensure construction is phased in line with infrastructure provision.

Green Infrastructure and Flooding

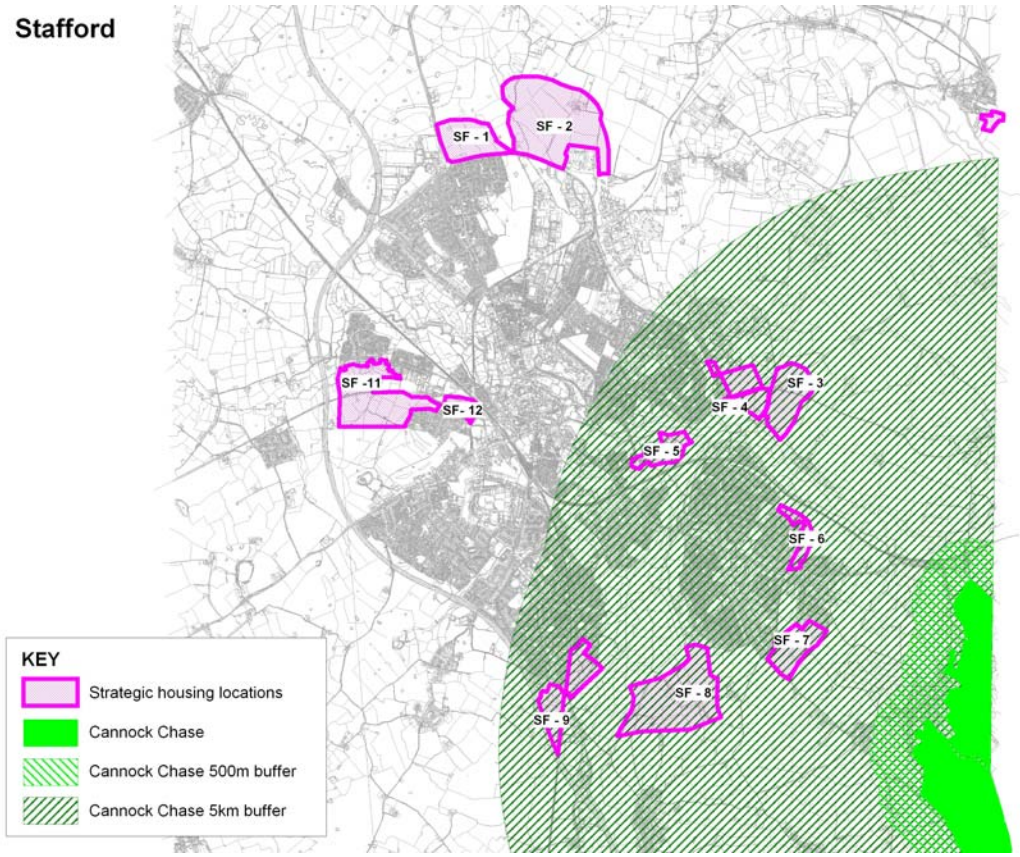
2.2.30 All of the strategic development locations will need significant green infrastructure, but the northern and southern areas have particular issues:

- North of Stafford, the provision of a Country Park as an extension to Stafford Common is critical for the provision of flood alleviation for Stafford Town (Marston and Sandyford Brooks). The capacity of the lower Marston / Sandyford Brook is only about 1 in 10 years flood risk, and so any additional run-off arising from new development may result in the downstream situation becoming notably worse – even at sub-greenfield discharge rates. Further modelling work is needed. However, flood attenuation ponds are likely to be required and these may also contribute towards surface water storage requirements highlighted above in relation to water.
- South of Stafford, any development will have to mitigate its impacts on the Cannock Chase Special Area of Conservation (SAC). Potential impacts will be identified in the Habitats Regulations Assessment (HRA) due for publication in July 2009. The need for alternative recreational provision could be one potential requirement. Air quality issues will also need to be addressed – particularly in relation to any proposed new highway infrastructure. From experience elsewhere, it is possible that the HRA may recommend a buffer zone around the SAC within which a specified level of mitigation is required – potentially in the form of accessible open space. Fig.2.2 applies a 500m and a 5km buffer around Cannock Chase to identify those housing sites to which this might apply – subject to the outcomes of the Appropriate Assessment.

2.2.31 Faber Maunsell have prepared green infrastructure (GI) concept statements for each of the four potential strategic directions of growth around Stafford. The Council is, at the time of writing, in the process of appointing consultants to undertake a green

infrastructure strategy for the whole of the Borough, the results of which are scheduled to be ready by late October 2009.

Figure 2.2: Buffer Zone for Special Area of Conservation mitigation measures



Community and Social Infrastructure

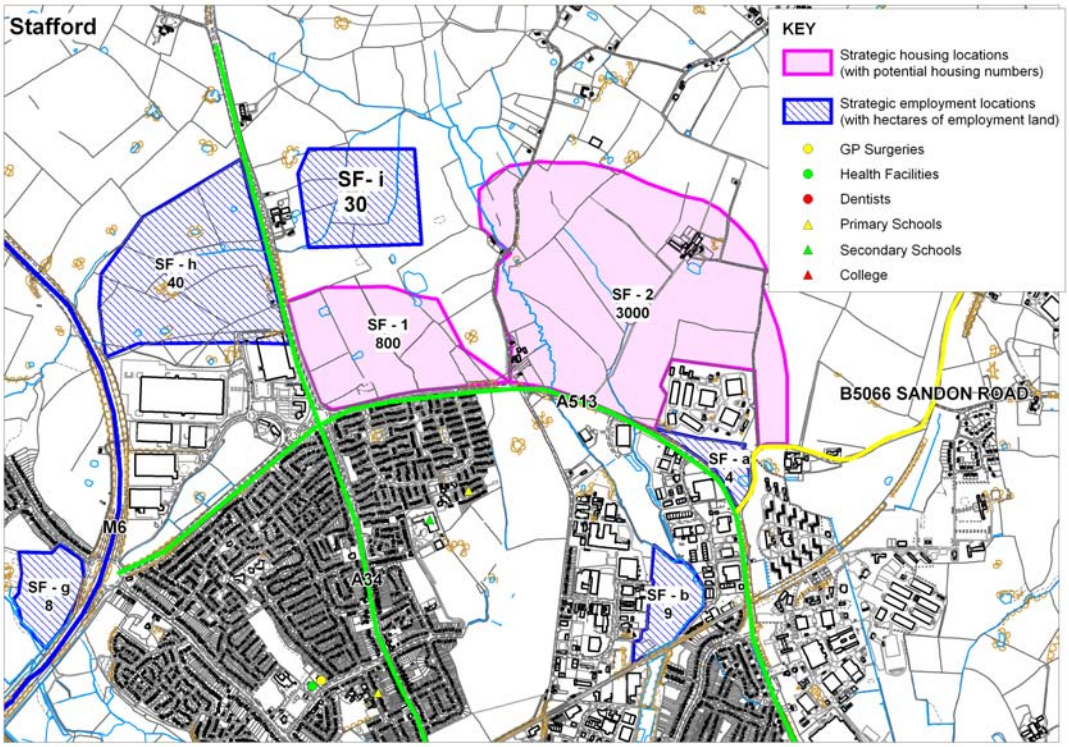
2.2.32 Staffordshire County Council School Organisational Team and Stafford Borough Council have been in dialogue about the potential impacts of growth within the Borough on education infrastructure. The School Organisational Team are not in a position to be precise about the impact because at this stage there remain uncertainties about the exact location of growth, the amount of growth at any given location, the mixture of housing types and the timing of housing delivery. At the time of writing there are no plans to expand school provision within the Borough and any expansion would be a consequence of housing growth. School provision should not in our view be regarded as a key determinant of the appropriate direction of growth around Stafford.

2.2.33 South Staffordshire Primary Care Trust (PCT) is proposing to provide three health centres within Stafford, which would take the form of expanded surgeries. This strategy reflects a national policy agenda to provide a wider range of health services closer to where people live and free up secondary health care (hospitals) to focus on acute and specialist care. Each of the three proposed centres would specialise in specific areas of treatment serving a town or district wide catchment. The PCT is prepared to look into the implications of future growth for additional provision once the growth locations have been decided. Again it is our view that primary health care is not a critical factor in determining the locations of growth. For social and community infrastructure it is more important that the service providers are in regular dialogue with the Local Planning Authority to ensure that there is a mechanism in place to proactively plan for growth once the directions of growth are known.

2.3 Northern Direction of Growth

2.3.1 The potential development sites identified in the Northern Direction of Growth are indicated in Fig.2.3 below.

Figure 2.3: Development Sites in Northern Direction of Growth



2.3.2 The key issues for infrastructure provision in the Northern Direction of Growth are as follows:

- Any significant development (over 200 units) in this direction will require investment in transport infrastructure. However, in contrast to the other three directions of growth a new distributor road is not required. Rather investment will take the form of enhancements to the existing network, most notably the A513 which could comprise junction enhancements, signalling improvements, carriageway alterations – all of which could take place alongside development.
- The A513 improvements, although essential to accommodate new development - including traffic arising from development in the east of Stafford seeking to access the M6 north - will also be required to accommodate forecast background growth in traffic under a do-minimum scenario.
- Transport investment will also need to comprise promotion of more sustainable modes of travel including a potential park and ride (within the northern development area), public transport improvements and smarter travel measures as well as junction improvements to access the individual development sites.
- No infrastructure improvements would be required in relation to clean water supply.
- Surface water run-off would require the provision of new storage ponds. The development impact of the MoD land holdings on storage capacity in this direction would be determined by its relation to catchment areas.
- Major flood attenuation measures would be required, subject to detailed modelling. This may impact on land-take, but can also contribute to managing surface water run-off.

- Gas infrastructure will not generally require upgrading, other than standard connections into the system. However, employment site SF-h will require re-inforcement.
- All the northern development sites will require improvements to the electricity supply network.
- SF-2 will require a new major electricity sub-station which could also serve SF-1.

2.3.3 In summary it would appear that the critical infrastructure factor determining the timing of release of a northern growth area (in its entirety, or as individual sites) will be the resolution of the flood defence and surface water storage constraints. We have received no information that suggests either could not be satisfactorily addressed and they would not present absolute constraints to development in this direction.

2.3.4 Table 2.1 below summarises the key infrastructure requirements associated with development to the north of the town on development locations SF1 and SF2 as identified in the LDF Core Strategy Issues and Options Paper.

Table 2.1: Northern Growth Infrastructure Requirements

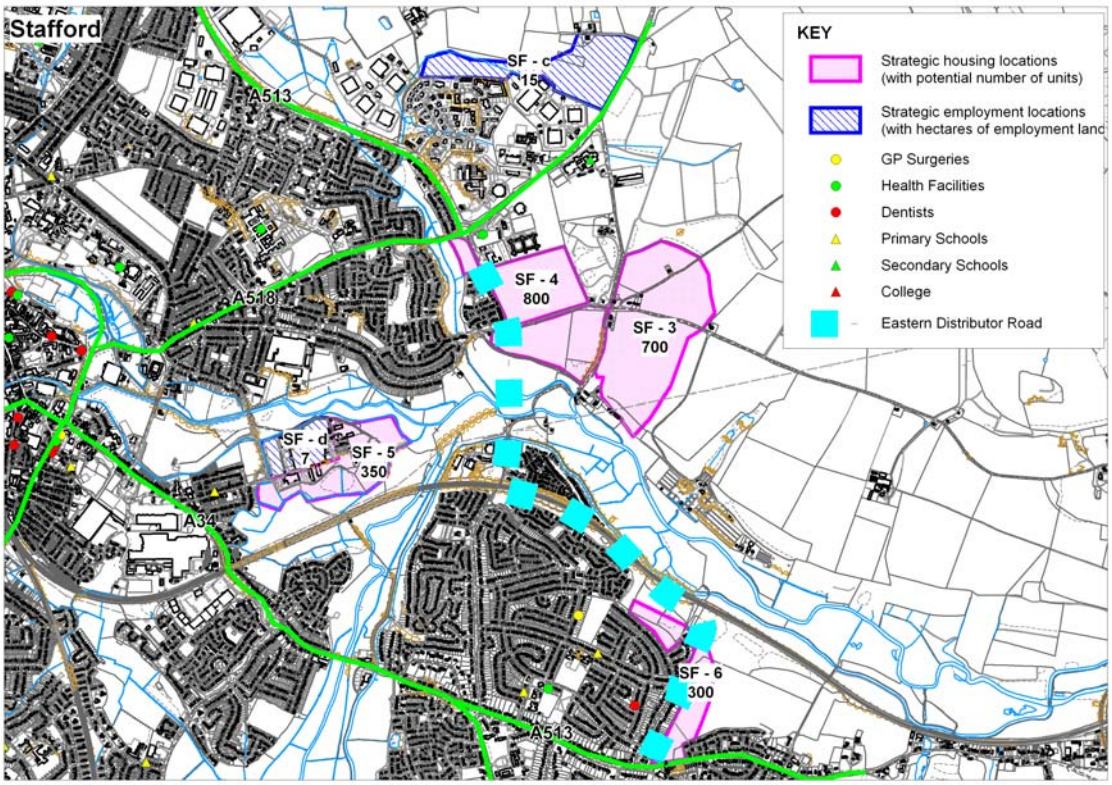
Sites	Infrastructure	Programming / Phasing	Capital Cost	Funding
SF-1 & SF-2	Improvement to the A34/A513 roundabout	In parallel with development	TBC	Developers
	Improvement to Stone Road and Common Road into Stafford Town Centre.	In parallel with development	TBC	Developers
	Improved capacity of A513 between A34 and A518	In parallel with development	TBC	Developers
	Localised widening to Marston Lane	In parallel with development	TBC	Developers
	Major electricity sub station	In advance of development?	£6m	Developer to be repaid by utility provider?
	Country Park	In parallel	Unknown	Developer
SF-1 & SF-h	Surface water storage	In parallel	£5m	Developer / Severn Trent
SF-2	Surface water storage	In advance	£15m	Developer / Severn Trent
SF-1 & SF-2	Additional secondary and primary school places. Current policy of a new primary school for 1000 additional houses would result in approx. five new primary schools (this allows for MoD housing).	Co-ordinate with rate of house building	To be determined, but current costs are approx £5m per new primary school (TBC).	Developer contributions
SF-1 & SF-2	Primary health – PCT appraising potential impact and the possibility that an additional facility might be required.	Co-ordinate with rate of house building and population characteristics	To be determined	Developer contributions and public funding.
SF-h	Gas re-inforcement works	In parallel?	TBC	Developer?

Note: TBC – To be confirmed.

2.4 Eastern Direction of Growth

2.4.1 The potential development sites identified in the Eastern Direction of Growth are indicated in Fig.2.4 below.

Figure 2.4: Development Sites in the Eastern Direction of Growth



2.4.2 The key issues for infrastructure provision in the Eastern Direction of Growth are as follows:

- A new waste water pumping station would be needed, funded by developers. The critical issue here will be the lead time required to deliver this.
- Any significant development (over 200 units in this direction) will require investment in transport infrastructure. The LDF Core Strategy Issues and Options Paper indicates the need for an Eastern Distributor Road between the junction of Beacon Side (A513) and Weston Road (A518), and Cannock Road (A34) south of Walton on the Hill (where it would connect with the proposed Southern Distributor Road).
- All sites in the Eastern and Southern Directions of Growth are within 3km of Cannock Chase Special Area of Conservation (SAC), and their development is likely to be conditional upon demonstrating that the mitigation of potential impacts on the SAC have been fully addressed in accordance with the forthcoming Appropriate Assessment.

2.4.3 We have assessed the deliverability of this road north and south of Tixall Road.. At present, the north western section of a potential Eastern Distributor Road would meet the A513 at a roundabout at its junction with the A518. South of the roundabout there is a stub for the next section of road which currently only services a small complex of commercial buildings. If the road were built it would cross a field identified as a potential housing site (SF-4, 700 units) before reaching Tixall Road. Immediately to the west is a completed housing development with a single access onto Tixall Road. This development has a spine road allowing for expansion northwards – presumably dependent on the new

section of link road being built. There is another potential development site (SF-3, 800 units) fronting the south of Tixall Road further to the east. It is possible that at least part of this site could be delivered through access onto Tixall Rd. and through SF-4 onto the A513. This would require further detailed assessment.

2.4.4 However, south of Tixall Road (to the A34) the Eastern Distributor Road would face several difficult (if not insurmountable) challenges to implementation, including:

- significant technical difficulties in terms of alignments close to residential areas;
- the need to cross the West Coast Main Line and replace a railway bridge with the time and cost that would involve;
- the absence of any allocated funding in the current Regional Funding Allocation or Local Transport Plan;
- and the fact that developer contributions are unlikely to provide for the full cost of the road (not helped by the fact that the W S Atkins study demonstrates that an Eastern Distributor Road is not required to facilitate the achievement of the 7,000 homes target for Stafford).

Similarly we do not see any reason why SF-5 (a greenfield site with agricultural use) cannot be delivered in the absence of an Eastern Access Road provided appropriate mitigation measures are put in place. It may also be possible to deliver SF-6 (in whole or in part) securing access to the A513 via existing access roads or directly, although this will require further assessment.

2.4.5 Largely due to the strategic transport issues discussed above, we consider it best to treat the Eastern Direction of Growth as a set of discrete development opportunities (allowing for the obvious relationships between SF-3 and SF-4). In this way it may be possible to view the Eastern quadrant as a resource which can be developed as needed and potentially providing between 1,200 and 1,900 dwellings (subject to access issues for SF-3).

2.4.6 Table 2.2 below summarises the key infrastructure requirements associated with development to the east of the town.

Table 2.2: Eastern Growth Infrastructure Requirements

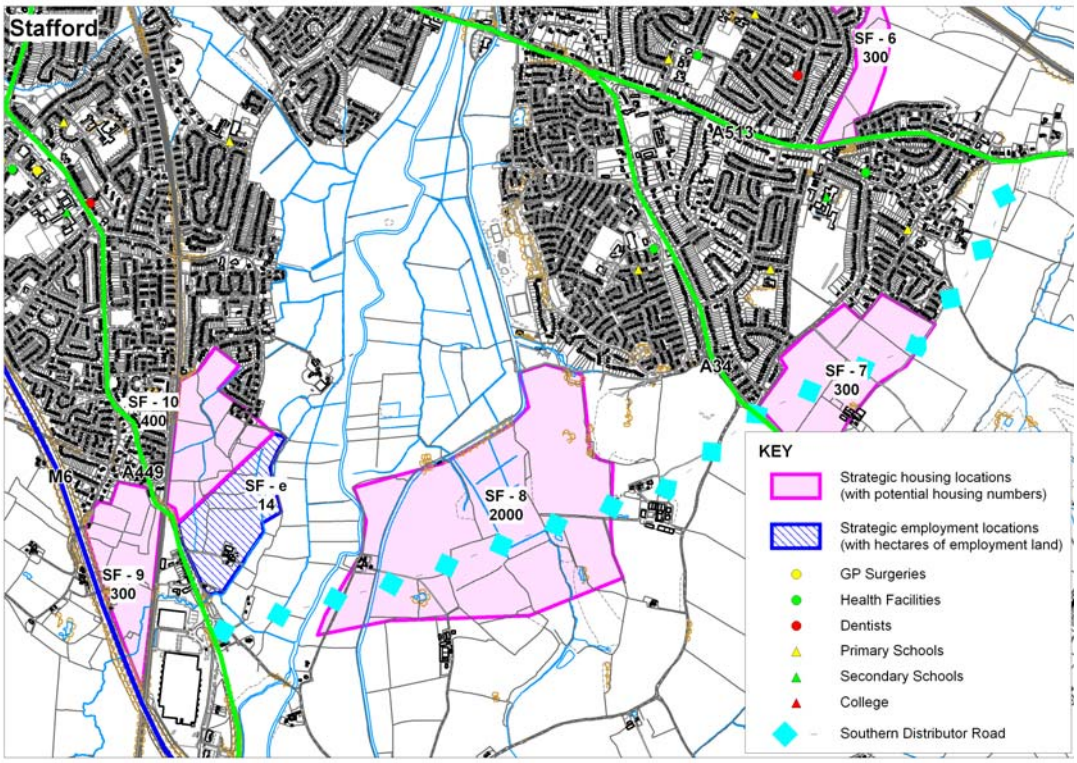
Sites	Infrastructure	Programming / Phasing	Capital Cost	Funding
SF-4- SF-5	Link Road from Roundabout at junction of A513 and A518 to SF4	In parallel	Dependent on ransom payments? (TBC)	Developer contributions
	Local electricity sub-station	In parallel	£70,000	Developer to be repaid by utility provider?
SF-3- SF-5	Green Infrastructure – flood mitigation	In parallel	Unknown	Developer contributions
SF-3, SF-4 & SF-c:	Foul flow from these sites would be pumped directly to Brancote STW via a new pumping station	3-4 years (TBC)	Not available	Developers
SF-3- SF-6	Water supply network re-inforcement	In parallel	£2.6m	Developer contributions
SF-6	Green Infrastructure – flood mitigation	In parallel	Unknown	Developer contributions
	Improvements to Radford Bank (A34) junction with Weeping Cross (A513)	In parallel	TBC	Developer contributions
	Improvements to Queensway gyratory	In parallel	TBC	Developer contributions
All	Additional secondary and primary school places. Current policy of a new primary school for 1000 additional houses would result in approx 1.5 new primary schools.	co-ordinate with rate of house building	To be determined, but current costs are approx £5m per new primary school (TBC).	Developer contributions

Note: TBC – To be confirmed.

2.5 Southern Direction of Growth

2.5.1 The potential development sites identified in the Southern Direction of Growth are indicated in Fig.2.5 below.

Figure 2.5: Development Sites in the Southern Direction of Growth



2.5.2 The key issues for infrastructure provision in the Southern Direction of Growth are as follows:

- Requires Southern Distributor Road to unlock access to the largest site (SF-8, 2000 units).
- As stated above the Southern Distributor Road does not provide wider network benefits, unless provided alongside an Eastern Distributor Road.
- Significant local transport network enhancements would be required on all routes between Sites SF-9 and SF-10 and the town centre. However the A449 is one of the busiest roads in the town and highly constrained in terms of the scope for physical capacity enhancements.
- All southern sites could potentially have an impact on Junction 13 of M6.
- A local electricity sub-station would be needed.
- Water supply network re-inforcement required.
- Significant surface water infrastructure investment needed.
- Development to the South (and the East) would be within the catchment of the Cannock Chase Special Area of Conservation (SAC), and any associated impacts would require mitigation, of a form to be identified in the forthcoming Habitats Regulation Assessment. This will also apply to the air quality impacts associated with additional traffic arising from any new Distributor Roads to the South and East of Stafford. Whilst this is not necessarily an absolute barrier to development it does present some risk (in terms of securing necessary consents) and additional cost.

2.5.3 Table 2.3 below summarises the key infrastructure requirements associated with development to the south of the town:

Table 2.3: Southern Growth Infrastructure Requirements

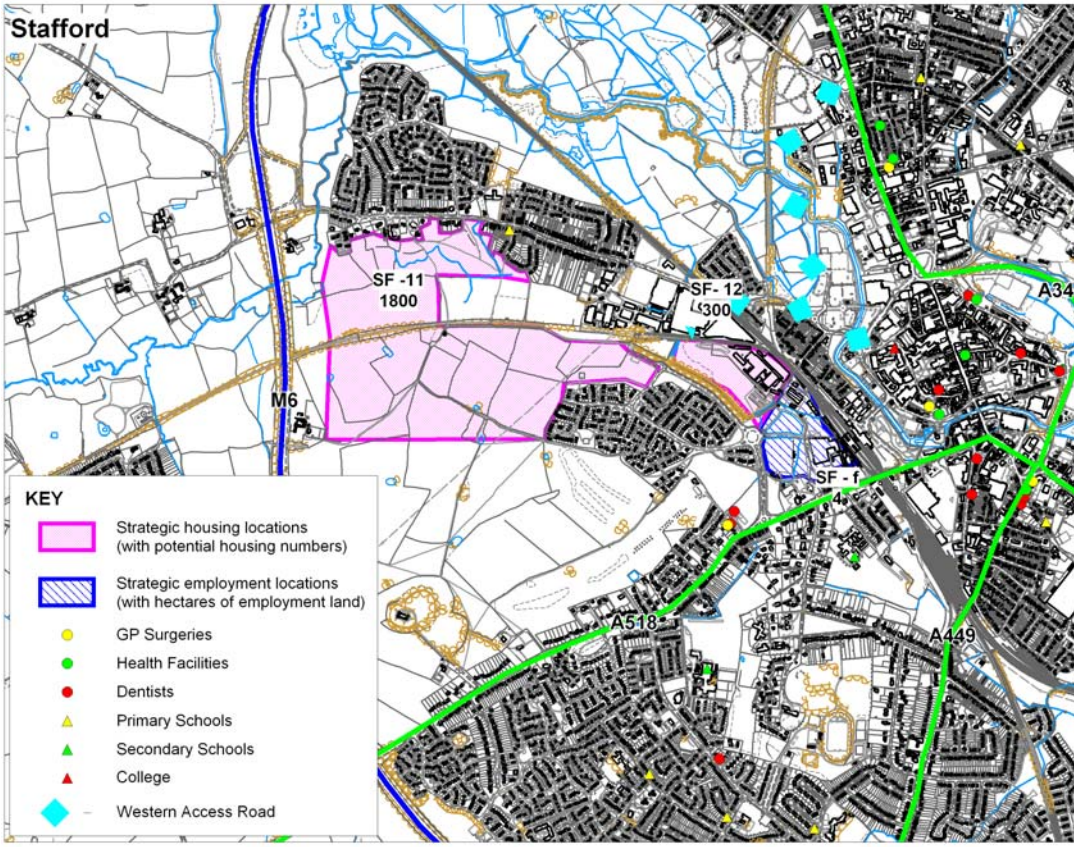
Sites	Infrastructure	Programming / Phasing	Capital Cost	Funding
SF-8 – SF-10	New access point from A449 / A34 or new distributor road	In parallel	TBC	Developer contributions
	Improvements to Junction 13 of M6	In parallel	TBC	Highways Agency / s106?
SF-7- SF-10	Localised improvements to along A449, A34, A513	In parallel	TBC	LTP3
SF-8	Southern section of Distributor Road between A449 and A34	In parallel – would require connection to either A449 or A34 before development commenced	TBC	LTP3
SF-7 – SF-10	Local electricity sub-station	In parallel	£70,000	Developer to be repaid by utility provider?
	Water supply network re-inforcement	In parallel	£1.6m	Developer contributions
SF-7 – SF-10	Additional secondary and primary school places. Current policy of a new primary school for 1000 additional houses would result in approx three new primary schools.	Co-ordinate with rate of house building	To be determined, but current costs are approx £5m per new primary school (TBC).	Developer contributions
SF-7 – SF-10	Primary health – PCT appraising potential impact but strong possibility that an additional facility required to serve the area around SF-8.	Co-ordinate with rate of house building and population characteristics	To be determined	Developer contributions? Mainstream public funding

Note: TBC – To be confirmed.

2.6 Western Direction of Growth

2.6.1 The potential development sites identified in the Western Direction of Growth are indicated in Fig.2.6 below.

Figure 2.6: Development Sites in the Western Direction of Growth



2.6.2 The key issues for infrastructure provision in the western direction of growth are as follows:

- Western Distributor Road is programmed for implementation in 2014. This has been allocated approximately £31 million to construct the road, connect it to the local network and implement appropriate junctions improvements, but does not include funding for any public transport priority works or other smarter travel choices implementation.SF-11 could commence from initiation of these works, subject to utilities constraints having been addressed.
- Stafford shire County Council have submitted a £2 million CIF2 funding bid (implementation by 2011), with a further £2 million identified from possible LTP, developer contributions and other public funds (to be implemented by 2012). This has been identified to fund schemes to support sustainable modes of travel. Included within this there is a £250,000 scheme to improve walking and cycling connections between Doxley and Castletown areas.
- Local access connections and enhancements will be needed as interim measures in advance of 2014 for SF-12 to be brought forward earlier in plan period.
- Re-inforcement to water supply network would be required.
- Significant waste water infrastructure investment is needed.
- A local electricity sub-station would be needed.

2.6.3 Table 2.4 below summarises the key infrastructure requirements associated with development to the west of the town.

Table 2.4: Western Growth Infrastructure Requirements

Sites	Infrastructure	Programming / Phasing	Capital Cost	Funding
SF-11 – SF12	Water supply network re-inforcement		£1.75m	Developer contributions
SF-11 – SF12	Western access road	Programmed to commence in 2014, subject to Department for Transport (DfT) approval	£31m	Regional Funding Allocation (RFA)
SF-11 – SF-12	Local junction improvements on western side of town centre	In parallel	TBC	Developer contributions
SF11 & SF12?	Local electricity sub-station	In parallel	£70,000	Developer to be repaid by utility provider?
SF-11 – SF12	Foul water network upgrade and additional surface storage capacity	In advance	£573,000 network upgrade and £473,000 additional surface storage	Developer contributions
SF11 & SF12	Additional secondary and primary school places. Current policy of a new primary school for 1000 additional houses would result in approx one new primary school.	Co-ordinate with rate of house building	To be determined, but current costs are approx £5m per new primary school (TBC).	Developer contributions
SF11 & SF12	Primary health - strong possibility that existing surgery at Castlefields will require expansion or replacement with more appropriate facility	Co-ordinate with rate of house building and population characteristics	To be determined	Developer contributions? Mainstream public funding

Note: TBC – To be confirmed.

2.7 Viability

2.7.1 We have assessed the viability of the development site options by carrying out proforma appraisals using current house prices and building costs. We have included the cost of any major site-related infrastructure identified thus far and assumed the provision of 15% affordable housing. For the benefit of comparison we have also appraised the sites without affordable. The methodology and outputs, indicating infrastructure costs and residual values for a selection of sites, are attached at Appendix 9.

2.7.2 With affordable housing included, all the sites we looked at showed positive land values, generally above £500,000 per hectare. Given that almost all the sites are currently in agricultural use, this should provide the owners with sufficient incentive to release the land for development and for developers to consider the sites as viable. However, the appraised values are significantly below the levels suggested by historic transactions and this may cause landowners to hold back in anticipation of better times ahead.

2.7.3 There are, of course, many caveats to our work. We have not made any allowance for abnormal development costs, including ransom payments and abnormal ground conditions and our assumptions about infrastructure costs are, of necessity, broad brush. So there is some downside risk. Conversely, if house prices were to stabilise soon and then recover over the next few years the viability of development would be improved. In the next stage of our work we will be looking at the impact of changing market conditions in more detail, using sensitivity testing.

2.7.4 The duration of development is determined largely by the rate of sale. Developers will wish to progress development at the rate that the market can absorb the new homes and this is likely to vary somewhat with the size of the scheme. For larger developments we have assumed the following rates of sale:

Table 2.5: Rate of Sale by Size of Development Site

Development Size	Rate of Sale (sales per annum)
50-200 dwellings	60
201-1,000 dwellings	100
1,001-3,000 dwellings	200

Quantified Summary of Findings

2.7.5 A quantified summary of the findings above, is set out in Table 2.6 below:

Table 2.6: Summary of Residual Values across selected sites

Site	RLV/ha unencumbered	RLV/ha 15% affordable
SF-1	£914,000	£662,000
SF-2	£787,000	£569,750
SF-3	£904,000	£646,000
SN-1	£954,000	£679,000
SN-2	£979,000	£696,000
SN-5	£1,288,000	£944,000

Site	RLV/ha unencumbered	RLV/ha 15% affordable
GN-1	£1,567,000	£1,171,000
EC-1	£1,548,000	£1,153,000
WD-2	£1,594,000	£1,224,000

2.7.6 A more detailed summary of the appraisals upon which these findings are based is included in Appendix 9.

2.7.7 At this interim stage, the purpose of this report is to give an idea of the scale of the impact that the a requirement to provide affordable housing will have on development. The intention is for these findings to be made available to the Council's development partners and others with experience of the local housing market who may be able to test and correct our assumptions.

2.7.8 We have therefore tried to keep this report simple. However, we do recognise that the Council is appraising a number of different options for affordable housing targets. Alongside the 15% target appraised above, the Council has also asked us to examine the impact of 30% and 40% affordable housing targets.

2.7.9 Rather than run appraisals for all sites at these levels, we have appraised the impact on three of the nine sites discussed above – at the instruction of the Council, we have used the three sites which produced the highest residual land values in each of the three areas of the Borough: SF-1, SM-5 and WD-2.

Table 2.7: Indicative impact of different levels of affordable housing on Residual Values on selected sites

Site	RLV/ha 0% AH	RLV/ha 15% AH	RLV/ha 30% AH	RLV/ha 40% AH
SF-1	£914,000	£662,000	£398,000	£222,000
SN-5	£1,288,000	£944,000	£553,000	£318,000
WD-2	£1,594,000	£1,224,000	£795,000	£539,000

2.7.10 As is clear from these results, increasing the percentage of affordable housing has a very significant effect on the residual land values. At 40% affordable housing, the residual value of these sites is reduced to as little as a quarter of its "unencumbered" value.

2.7.11 Moreover, these sites were the highest value sites appraised, were such targets to be imposed upon SF-2, it is likely that the resulting land value would be negative.

2.7.12 It is fair to say that, even at 40% affordable housing, some of the residual values obtained are significantly in excess of agricultural land values but it should be borne in mind that such sites could incur significant costs for servicing, new transport junctions etc, which are not appraised in this exercise. Moreover, even Greenfield sites incur assembly costs and the value it is necessary to pay for the land in order to bring it forward may be very much greater than its value as agricultural land.

3 Deliverability in the rest of the Borough

3.1 Introduction

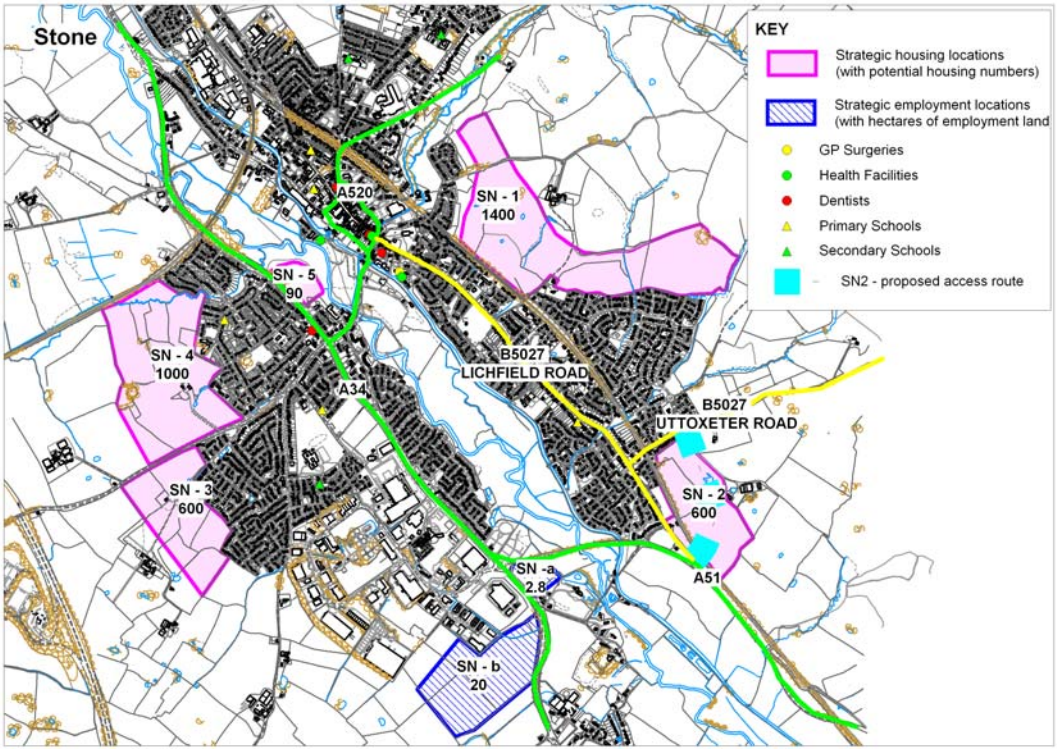
3.1.1 In this chapter we briefly address the issue of deliverability of housing and employment growth in the rest of the Borough outside Stafford town. The LDF Core Strategy Issues and Options Paper identified development options to accommodate growth of between 3,000 and 5,000 homes outside of Stafford town, as well as approximately 90 hectares (Ha) of employment land, on strategic development sites.

3.1.2 The analysis has focussed on transport issues across the Borough, and an assessment of wider infrastructure in Stone.

3.2 Stone

3.2.1 The strategic development locations identified for Stone in the LDF Core Strategy Issues and Options Paper are indicated in Fig.3.1 below. Site options accommodating 3,690 homes and 22.8Ha of employment land are identified.

Figure 3.1: Strategic Development Locations in Stone



Key infrastructure issues

3.2.2 The key issues for infrastructure provision for Stone are as follows:

- Electricity supply is a key constraint to any new development, requiring network improvements.
- Gas supply is not a significant constraint.
- Limited access to location SN-1 would make it unattractive for development.

- Pingle Lane has limited vehicle capacity but would be needed to provide access to development at SN-1 across the West Coast Main Line (WCML) railway line.
- Development at SN-1 would also require a bridge over the railway line
- SN-2 could be delivered in the long-term without the need for a new railway crossing, subject to further detailed investigation of possible local highway infrastructure improvements.
- The employment sites would also require some local highway infrastructure improvements.
- Sites to the west of Stone (SN-3, SN-4, and SN-5) are deliverable with local highways improvements.

Transport infrastructure

3.2.3 The deliverability of potential growth in Stone faces significant challenges, with only 60% of the housing target on easily deliverable sites. The western housing sites (1,690 new homes) are located around existing infrastructure and could be delivered in the short-term with phased highway improvements, e.g. at the junction of the A34 and B5026.

3.2.4 Access for the smaller of the two eastern sites SN-2 (600 homes) and the employment sites located in the south of Stone (22.8Ha of employment land) is problematic. Access for the SN-2 site could be achieved via B5027, but this may lead to problems along Lichfield Road and would require further off site improvements to existing transport infrastructure, e.g. possible enhancement to the A34/A51 roundabout.

3.2.5 The WCML crosses the A51, further to the south of Stone, such that it is possible to define an access road alignment that could link into the A51 without the need of a railway crossing. Such an alignment could be difficult to deliver and compromises the long term deliverability of the SN-2 site.

3.2.6 The major site to the east of the railway is more challenging. Site SN-1 (1,400 homes) is severely constrained by its location, suffering severe access issues on the existing highway network. Critically, it would require a new bridge over the WCML railway line, which would be technically difficult, time-consuming and costly as construction work would only be possible at holiday periods, the specification required is likely to be high and there are a limited number of appropriate contractors. Access across the railway is also likely to be subject to significant access payments to Network Rail, which may be regarded as a ransom payment.

Other infrastructure

3.2.7 With regard to other infrastructure requirements, the significant constraint identified is electricity supply. The 11kV local supply network is at capacity and will require some level of local improvements to service any new developments. The scale and cost of these improvements is currently subject to a development query by Stafford Borough Council.

3.2.8 Gas is not a major constraint. All the sites are connected to the medium pressure gas system, and hence would require ‘standard’ connections to the system which would normally be treated as a standard developer cost.

3.2.9 Waste water treatment is not considered a major constraint as sufficient capacity exists in the existing pumping station and treatment works.

3.2.10 Information on clean water supply requirements is not yet available. Severn Trent have indicated that there will be limits on the levels of development which can take place without infrastructure improvements or extensions being required. We await the outputs of their modelling for confirmation of these limits.

3.2.11 The Level 1 Strategic Flood Risk Assessment (SFRA), January 2008, identifies the Scotch Brook in Stone as one of two locations in the Borough (the other being the Sandyford Brook in Stafford) that are particularly sensitive in terms of flood risk. The catchment of the Scotch Brook is some 20 sq.km and extends from Meir Heath in the north, out to Hilderstone in the east and down through Oulton in the west. Development anywhere in this catchment has the potential to influence the flood response of the Brook and increase flood risk downstream. The Council will be required to use the findings of the SFRA to undertake a sequential test in accordance with PPS25 to identify suitable locations for development so as to minimise the risk of flooding.

3.2.12 With regard to green infrastructure provision, Stafford Borough Council has commissioned a GI study to assess requirements across the Borough.

Key Issues from Public Consultation

3.2.13 Key issues relating to infrastructure raised in the public consultation on the LDF Core Strategy Issues and Options Paper included:

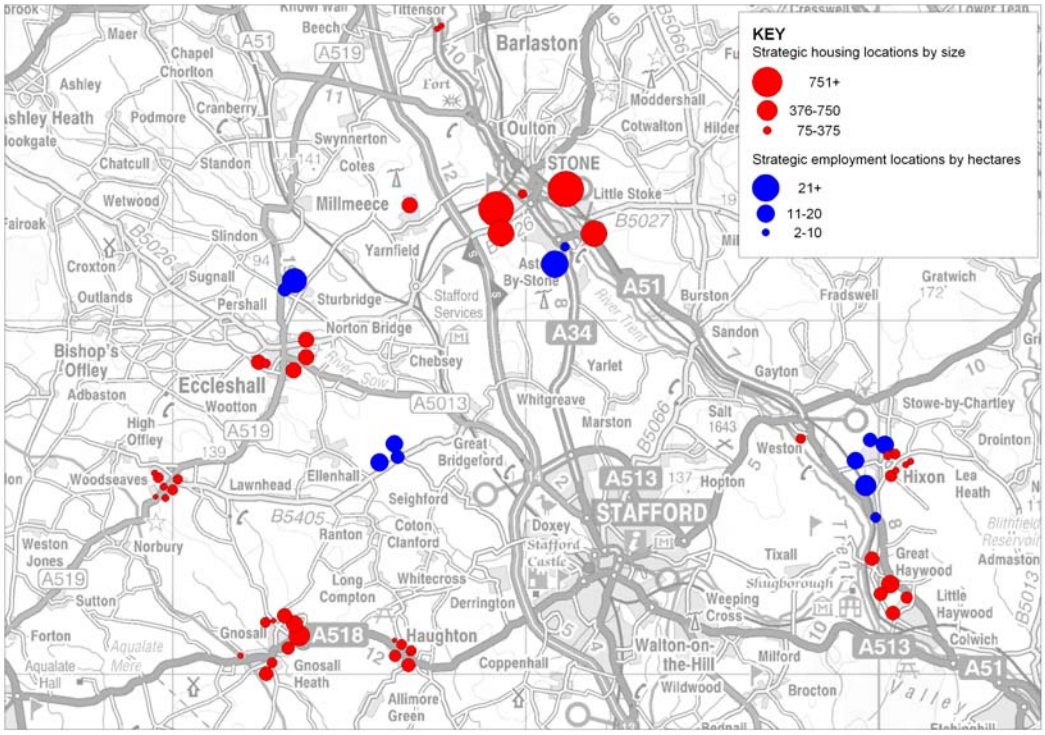
- Flooding issues with some of the identified strategic housing sites
- Congestion on narrow roads
- Problematic car parking in the town centre
- Concern at capacity of schools and medical facilities
- SN-2 considered to have potential to make improvements to the local road network.

3.3 Rest of the Borough

3.3.1 This stage of the study has investigated transport infrastructure issues in detail across the Borough, and has assessed other infrastructure issues from a review of published information and discussions with service providers. The assessments of transport infrastructure required for each settlement are attached in Appendix 2, and reference to other infrastructure requirements are included in the thematic appendices on each category of infrastructure investigated. We summarise the key issues in this section.

3.3.2 Figure 3.2 below identifies the locations of potential sites across the Borough, excluding Stafford, indicating size of site through proportionate circles at each location.

Figure 3.2: Strategic Development Locations in the Rest of the Borough



Key Infrastructure Issues

3.3.3 The key issues for infrastructure provision across the Borough, outside Stafford and Stone, are as follows:

- The majority of the sites identified for both housing and employment do not require significant new transport infrastructure provision, but may require local highways and public transport improvements to alleviate local impacts and improve accessibility.
- Most of the sites require standard connections to the gas supply network, funded by developers.
- Woodseaves is a significant distance (6,000m) from the nearest possible gas connection point.
- Borough-wide electricity requirements are not yet identified, subject to provider responses to development queries.
- Electricity supply to small developments of up to 50 units can be supported by existing sub-stations, if within a 300m radius.
- Clean water supply and waste water infrastructure requirements are currently being assessed by Severn Trent.
- The sites identified in Yarnfield and Tittensor require no infrastructure improvements, but are located within or adjacent to the green belt boundary.

Transport infrastructure

3.3.4 There are no major transport infrastructure issues that would be a major constraint to development. Issues relating to each settlement include:

Settlement	Issues
Eccleshall	A link between Stone Road and Stafford Road and improvements within Eccleshall are needed.
Gnosall	Development in the east of Gnosall could require new infrastructure connecting Audmore Ring and Stafford Road. Development in the west of Gnosall Heath could require new infrastructure connecting Monks Walk to Station Road.
Hixon	Hixon could require junction improvements along the A51 to address the impact of additional trips generated by development.
Haywoods	A new link between Main Road and the A51 may ease impact on the village centres. Development to the north of Great Haywood could require a new roundabout with the A51.
Haughton	The northern sites in Haughton may benefit from a northern access road linking into Back Lane.
Tittensor	Tittensor requires no improvements to local transport infrastructure as there is existing capacity.
Weston	Weston requires no improvements to local transport infrastructure as there is existing capacity.
Woodseaves	Development in Woodseaves will not require any significant improvements, but improved public transport linkages into Stone could provide alternatives to private car use.
Yarnfield	Public transport improvements in Yarnfield could improve links into Stone, Eccleshall and Woodseaves.
Ladfordfields	Improved access to the employment sites would be needed at Ladfordfields, with improved public transport reducing reliance on private car use.
Raleigh Hall	Raleigh Hall may require access improvement and minor improvements to junctions with the A519.

Other infrastructure

3.3.5 In relation to gas infrastructure, there are no general supply issues. Sites in six settlements would need additional gas infrastructure: Eccleshall, Great Haywood, Little Haywood, Tittensor, Woodseaves and Yarnfield. Furthermore, Woodseaves is a significant distance (6,000m) from the nearest possible gas connection point. The level of contribution of gas providers to these costs is not yet confirmed.

3.3.6 An assessment of electricity requirements is subject to a development query at present. The response will indicate the scale of any infrastructure needed together with costs. However, existing local sub-stations will have the capacity to service small sites of up to 50 dwellings where they are located within 300m of an existing sub-station.

3.3.7 Clean water supply issues are being modelled by Severn Trent to provide an indication of spare capacity at each settlement location. This will enable the estimation of trigger-points for new infrastructure provision.

3.3.8 Waste water infrastructure capacity is currently under consideration following the receipt of drainage network plans from Severn Trent.

3.3.9 Green infrastructure requirements will be identified in the green infrastructure study commissioned by Stafford Borough Council.

3.3.10 Social and community infrastructure has not been investigated in detail for the rest of the borough in this stage of the study.

Key Issues from Public Consultation

3.3.11 Key issues resulting to infrastructure in the larger settlements that were raised in the public consultation on the LDF Core Strategy Issues and Options Paper are outlined below.

Gnosall

Key issues in Gnosall related to inadequate sewerage and drainage; significant flooding issues in some parts of the village; lack of employment opportunities; traffic and pollution associated with the congestion along the A518; a lack of adequate services and facilities; and a desire to protect the wildlife value of Audmore Loop.

The Haywoods

In the Haywoods, key issues were identified around sewerage and drainage, particularly during heavy rain. The road infrastructure is inadequate and difficult to widen, with related inadequate car parking. Poor and infrequent public transport services were also highlighted. There was concern that local community infrastructure is inadequate, and that there was no employment in the village and that this would lead to out-commuting. The potential impact on Shugborough Hall and the Area of Outstanding Natural Beauty was also identified.

Haughton

Key issues in Haughton included the minimal opportunities for employment. Car parking was highlighted as an issue in the village, and congestion on the A518. Flooding issues along Station Road and Brazenhill Road were also identified.

Woodseaves

Sewerage was considered as inadequate to accommodate more development in Woodseaves. Other key issues related limited community infrastructure to address the greater population, and the lack of employment that could encourage commuting and lead to pollution. Public transport was considered poor, with high volumes of car traffic. The lack of a gas supply to the village was highlighted as a concern

Hixon

In Hixon, inadequate sewerage was considered a key issue as was community infrastructure. Public transport was considered poor, while village roads were considered to be dangerous, with large volumes of traffic from the industrial estates encouraging commuting in to the village.

Eccleshall

Key issues in Eccleshall included flooding, with the concern that development could potentially exacerbate the problem. The sewerage system was also considered inadequate. Parking was identified as a problem, with local roads needing improvement. There were also concerns that community infrastructure, e.g. schools, was inadequate.

4 Conclusions and recommendations for growth directions

4.1 Stafford

4.1.1 At Stafford the Northern, Western and Eastern (in part) directions of growth appear to be the most deliverable in planning terms. The phasing of these will critically depend upon the programming of physical infrastructure works required to be undertaken in advance of development.

4.1.2 In the north the waste water treatment infrastructure is the primary determinant, although the timing of its delivery may depend on the scope for a combined approach to the alleviation of flood risk in Sandyford Brook. This is clearly the priority for further detailed assessment by Severn Trent and the Environment Agency. The Council should encourage both parties (working alongside the landowners/developers) to seek to agree a proposed solution in advance of the LDF Core Strategy Submission, to provide greater certainty on the timing of development. We think it prudent to assume at least a 3-4 year lead time following allocation of the sites for the delivery of any advance infrastructure of this nature. Realistically this would mean development could commence from around 2015 (subject to consent).

4.1.3 In the west we consider that some limited growth (300 dwellings) could come forward in advance of the Western Access Package of highway works – subject to developers' interest. We would not expect the remaining allocation (1,800 dwellings) to commence until the highway works have commenced. This will allow sufficient time to provide the waste water infrastructure required.

4.1.4 Eastern growth will also be reliant upon a new pumping station to support new greenfield development. In the interim, early development may be possible of around 350 dwellings on brownfield site SF-5 – subject to its availability.

4.1.5 We do not think that the southern sites present a defensible proposition in terms of deliverability.

4.1.6 Table 4.1 overleaf sets out how Stafford would be able to exceed a housing target of 7,000 dwellings 2006-2026. It is not a housing trajectory but rather a fairly crude estimation of the phasing of key sites based solely on a realistic timeframe for addressing identified infrastructure constraints.

4.1.7 It can be seen that we have assumed that for the first five years of the Plan period the housing targets will be met exclusively through existing commitments and smaller Strategic Housing Land Availability Assessment (SHLAA) sites, subject to planning permission. This may well include an over provision in the rest of the Borough and an under-provision in Stafford Town. More likely is an overall under-delivery as a consequence of the current inactivity in the housing market generally. Indeed, if larger sites were relatively unconstrained at present it is unlikely that they would be delivering large numbers of units in the foreseeable future.

4.2 Stone

4.2.1 We consider the most deliverable housing sites to be located in the west of Stone. These could be delivered in the short term with local improvements to transport infrastructure. This would be capable of delivering almost 1,700 homes. The employment sites in the south of Stone could also be delivered quickly with limited transport improvements.

4.2.2 The sites in the east of Stone are more challenging, with the smaller site SN-2 being deliverable only if the site access could connect with the A51 to the south-east of where the WCML bridges the A51, such that no rail crossing would be required.

4.2.3 Site SN-1 is not considered deliverable in the short or medium-term, due to the extensive enabling works that would be required to access the site via a new bridge across the WCML, as well as significant improvements to the local highway network.

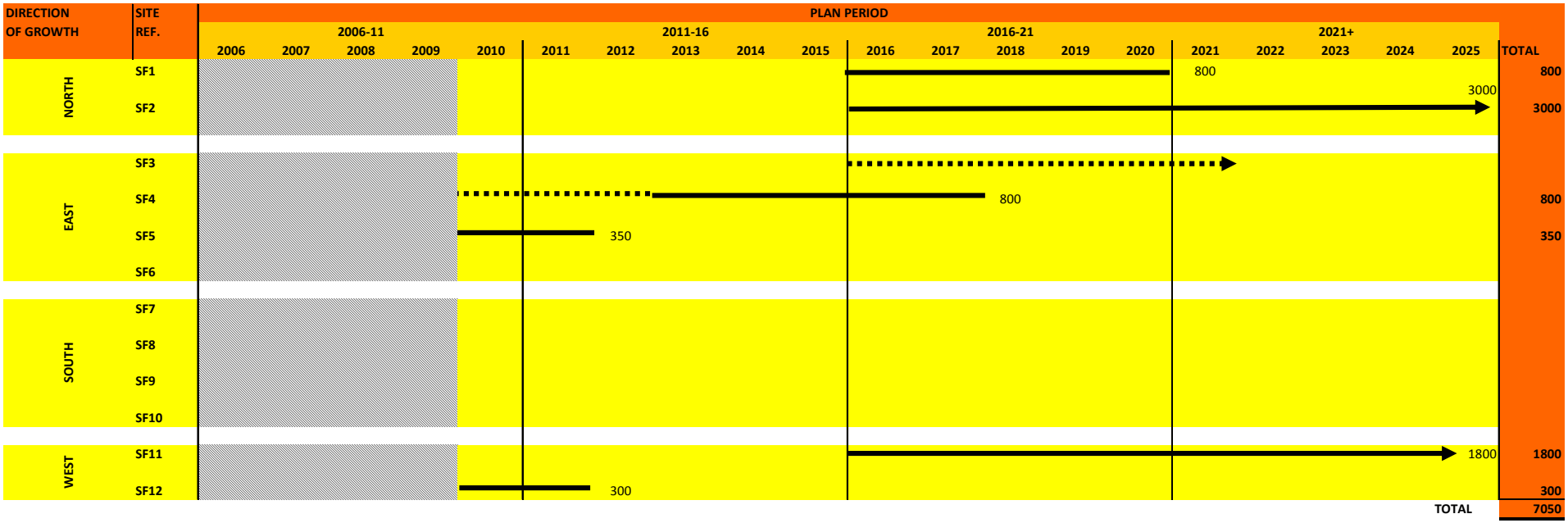
4.2.4 While it is not anticipated that utilities will be a major constraint to deliverability, further information in relation to electricity supply will be required before confirming the position.

4.3 Rest of Stafford

4.3.1 At present there appear to be no major physical constraints to delivery of the identified housing and employment locations in the rest of the Borough, although Woodseaves is a significant distance from a gas connection point. This is subject to some further investigation of infrastructure requirements relating to clean water supply and waste water treatment. The range of improvements required to facilitate development or manage its impact relate to site-related needs and local transport improvements. These will require developer contributions as well as service provider funding.

4.3.2 On this basis, the selection of appropriate growth locations could equally be driven by factors of social and environmental sustainability based on the level of social and community infrastructure available for each settlement rather than physical infrastructure or deliverability constraints.

Figure 4.1: Deliverability-based phasing of housing in Stafford town



NOTES

EAST — Site SF3: Contingency site pending provision of access infrastructure.

Site SF6: Cannot proceed without Eastern Distributor Road and all other eastern sites.

SOUTH — Sites SF7-8: Cannot proceed without Southern Distributor Road.

Sites SF9-10: Cannot proceed due to impact on M6 and local network.

Delivery through commitments and SHLAA sites.

Appendix 1: Potential Housing Sites

Location	Potential housing numbers	Potential employment allocation (Ha)	Location	Potential housing numbers	Potential employment allocation (Ha)
Stafford			**Eccleshall**		
SF-1	800		EC-1	240	
SF-2	3000		EC-2	240	
SF-3	700		EC-3	240	
SF-4	800		EC-4	90	
SF-5	350		EC-5	225	
SF-6	300		**Gnosall**		
SF-7	300		GN-1	225	
SF-8	2000		GN-2	270	
SF-9	300		GN-3	411	
SF-10	400		GN-4	165	
SF-11	1800		GN-5	120	
SF-12	300		GN-6	210	
SF-a		4	GN-7	48	
SF-b		9	GN-8	120	
SF-c		15	GN-9	36	
SF-d		7	**Hixon**		
SF-e		14	HI-1	120	
SF-f		4	HI-2	60	
SF-g		8	HI-3	60	
SF-h		40	HI-4	60	
SF-i		30	HI-5	150	
Stone			HI-6	90	
SN-1	1400		HI-a		13
SN-2	600		HI-b		4
SN-3	600		**Hixon Airfield**		
SN-4	1000		HA-a		10
SN-5	90		HA-b		6.5
SN-a		2.8	HA-c		9.4
SN-b		20	**Haughton**		
Haywoods			HN-1	30	
GH-1	210		HN-2	120	
GH-2	300		HN-3	120	
GH-3	180		HN-4	15	
LH-1	210		HN-5	180	
LH-2	150		HN-6	150	
Weston			**Yarnfield**		
WN-1	111		YN-1	250	
Woodseaves			**Tittensor**		
WO-1	108		TT-1 & TT-2	45	
WO-2	120		**Ladfordfields**		
WO-3	72		LA-a		9
WO-4	33		LA-b		6
WO-5	66		LA-c		10
WO-6	120		**Raleigh Hall**		
WO-7	54		RH-a		17.5
			RH-b		6

Appendix 2: Transport Infrastructure Requirements

Introduction

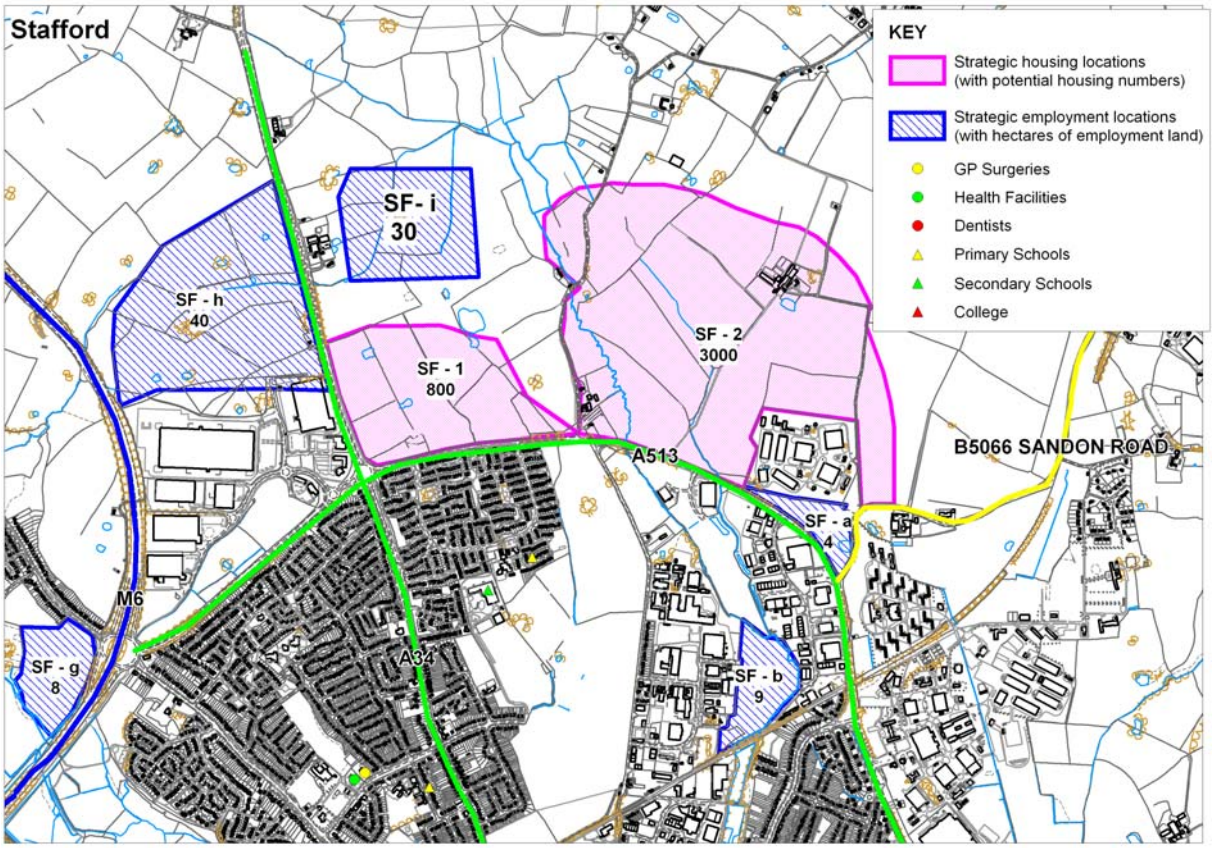
In this Appendix we review the transportation infrastructure investments that may be required to support the potential development locations identified in the LDF Core Strategy Issues and Options Paper. We have done this individually for each settlement identified as having development potential in the LDF. For Stafford town we address the issues separately for the major areas of potential urban expansion – north, east, south and west.

Stafford

The strategic development site designations and capacities are identified in the table below.

Location	potential housing numbers	potential employment allocation (ha)
SF-1	800	
SF-2	3000	
SF-3	700	
SF-4	800	
SF-5	350	
SF-6	300	
SF-7	300	
SF-8	2000	
SF-9	300	
SF-10	400	
SF-11	1800	
SF-12	300	
SF-a		4
SF-b		9
SF-c		15
SF-d		7
SF-e		14
SF-f		4
SF-g		8
SF-h		40
SF-i		30
Total	**11050**	**131**

Settlement: STAFFORD – NORTH



Location:

The northern development sites are located to the north of the A513 and east and west of A34, and are on the extreme periphery of Stafford.

Local access to services and facilities:

There are opportunities for trips to be made by walking and cycling being close to Stafford, but the A513 presents a severance issue. A Primary and Secondary Schools are within a 20-30 minute walking isochrone, but currently the GP surgery could be greater than this and as such may rely on public transport or the private motor car. Currently the development sites are more isolated from public transport routes.

Off-site infrastructure requirements:

The proposed development sites in the north are adjacent to the A34 and north of the A513. These roads intersect at the south western corner at a priority controlled roundabout.

Any development here should be delivered without the need for new significant infrastructure, however these developments may require enhancements to existing infrastructure. In the north there are two potential sites with a theoretical capacity for 3,800 dwellings and possibly five employment sites totalling 91 hectares. Indicated below is a list of possible off-site infrastructure improvements that may

be necessary:

- Improvement to the A34/A513 roundabout which could include signalisation,
- Improvement to Stone Road and Common Road into Stafford Town Centre,
- Improved capacity of A513 between A34 and A518
- Localised widening to Marston Lane

All the sites combined may have an impact on Junction 14 of the M6. The Highways Agency is likely to seek developer contributions to meet the cost of these improvements. Should these improvements include signalised junctions and minor widening of approaches the cost could be in the region of £1 million.

The A513 is currently single carriageway, and based on automatic traffic count, is reaching capacity. The Northern Expansion Area will impact on the A513 and therefore mitigation measures will need to be considered to limit any development-created impacts.

Site access requirements:

As the proposed housing areas can be accessed using existing infrastructure, a percentage of these sites could be developed with minor infrastructure improvements. The improvements to Marston Lane and the junction of Marston Lane with A513 should enable a proportion of housing to be delivered on both SF1 and SF2. The completion of these sites would require the completion of secondary access points. Local access infrastructure improvements will be required as follows:

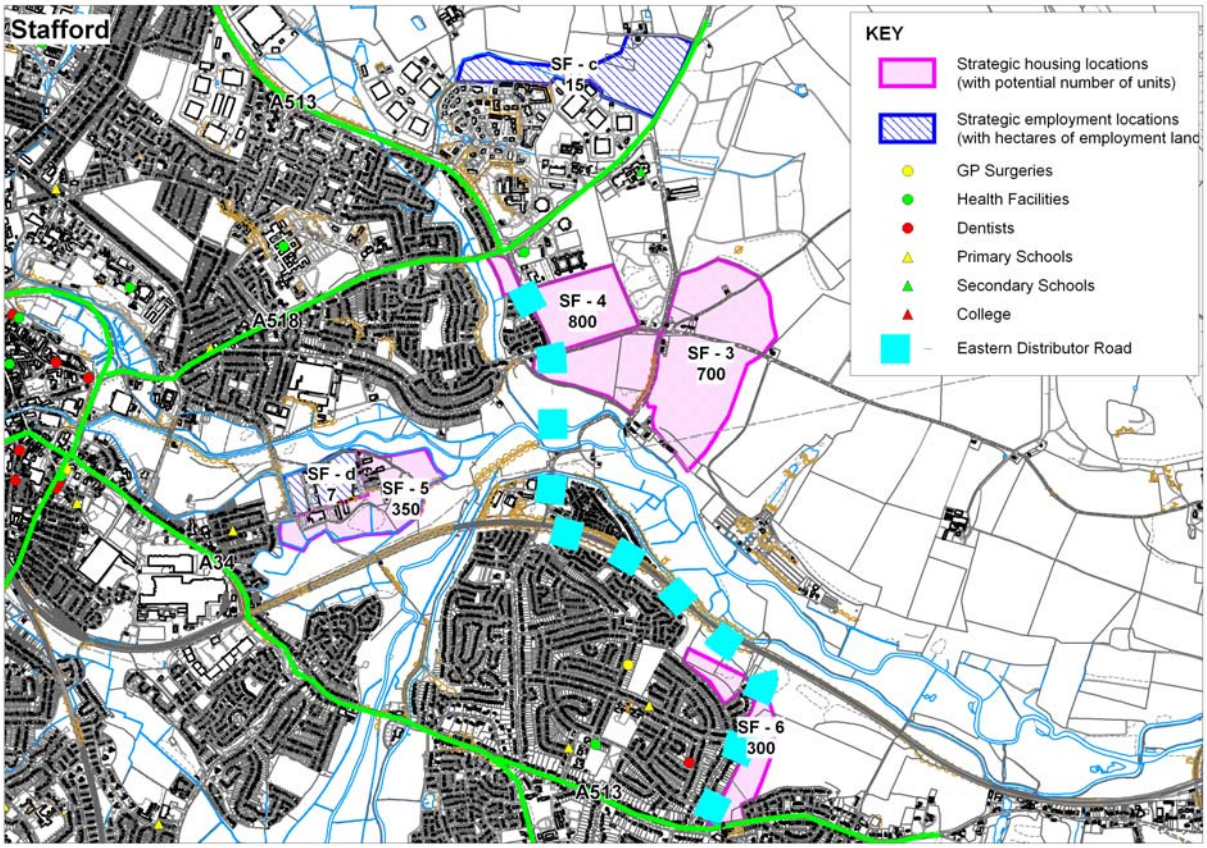
- Two access points to SF-1, from the A513 and from Marston Lane
- Three access points to SF-2 from the A513, Marston Lane and possibly to the B5066.
- Junction improvements at Marston Lane/A513 and A513/B5066 locations.

The employment sites are all adjacent to the local road network and as such no additional link roads are required, but the existing highway network will be affected and local junctions will need to be improved.

For both the residential and the employment element completion of all the distributor roads will ease the pressure within Stafford Town Centre.

These infrastructure improvements are required solely for the development sites and therefore could be paid through s106 contributions. There appears to be no barriers to these improvements and therefore these sites are a viable option for development.

Settlement: STAFFORD – EAST



Location:

The proposed development sites to the east are located between the A513 and the A518 and comprise four housing sites delivering up to 2,150 units and two employment sites totalling 22 hectares. The eastern identified development locations are covered by a limited public transport service. There are opportunities for trips to be made by walking and cycling being close to Stafford.

Local access to services and facilities:

A Primary School is within a 20-30 minute walking isochrone, but currently the secondary school and GP surgery fall outside an 800m radius and as such may rely on public transport or the private motor car. It is possible that linked trips could be made by public transport into other areas of Stafford and further afield.

Off-site infrastructure requirements:

Major large scale development of the eastern sites would require an eastern distributor road between Weston Road (A518) at its junction with A513 at Kingston Hill to the north and Milford Road (A513) to the south. The provision of this road will avoid local traffic placing further pressure on the radial and town centre road network. An indicative route for a proposed Eastern Distributor Road is safeguarded in the Stafford Local Plan, but no detailed alignment is provided.

At present, the north-western section of a potential Eastern Distributor Road would meet the A513 at a roundabout. South of the roundabout there is a stub for the next section of road which currently only

services a small complex of commercial buildings. The road stops short of the boundary of the land parcel, which usually implies that the landowner has retained a ransom strip in case of further development. If the road were built it would cross a field identified as a potential housing site (SF4-700 units) before reaching Tixall Road. Immediately to the west is a completed housing development with a single access onto Tixall Road. This development has a spine road allowing for expansion northwards – presumably dependent on the new section of link road being built. There is another potential development site (SF-3 – 800 units) fronting the south of Tixall Road further to the east.

If the planning and highway authorities were prepared to allow further development on Tixall Road without an eastern link road, then these sites would contribute nothing towards the link road costs. An early release of these sites could therefore jeopardise or delay the delivery of an eastern distributor road.

South of Tixall Road, the link road would cross the flood plain meadows before joining the existing Baswich Lane which squeezes between a housing estate and industrial estate before crossing the West Coast Main Line (WCML). There is concern whether there is sufficient road space to construct the Distributor Road between Weeping Cross and the railway line, and therefore an engineering review of the Eastern Distributor Road should be carried to determine if an alternative alignment is required.

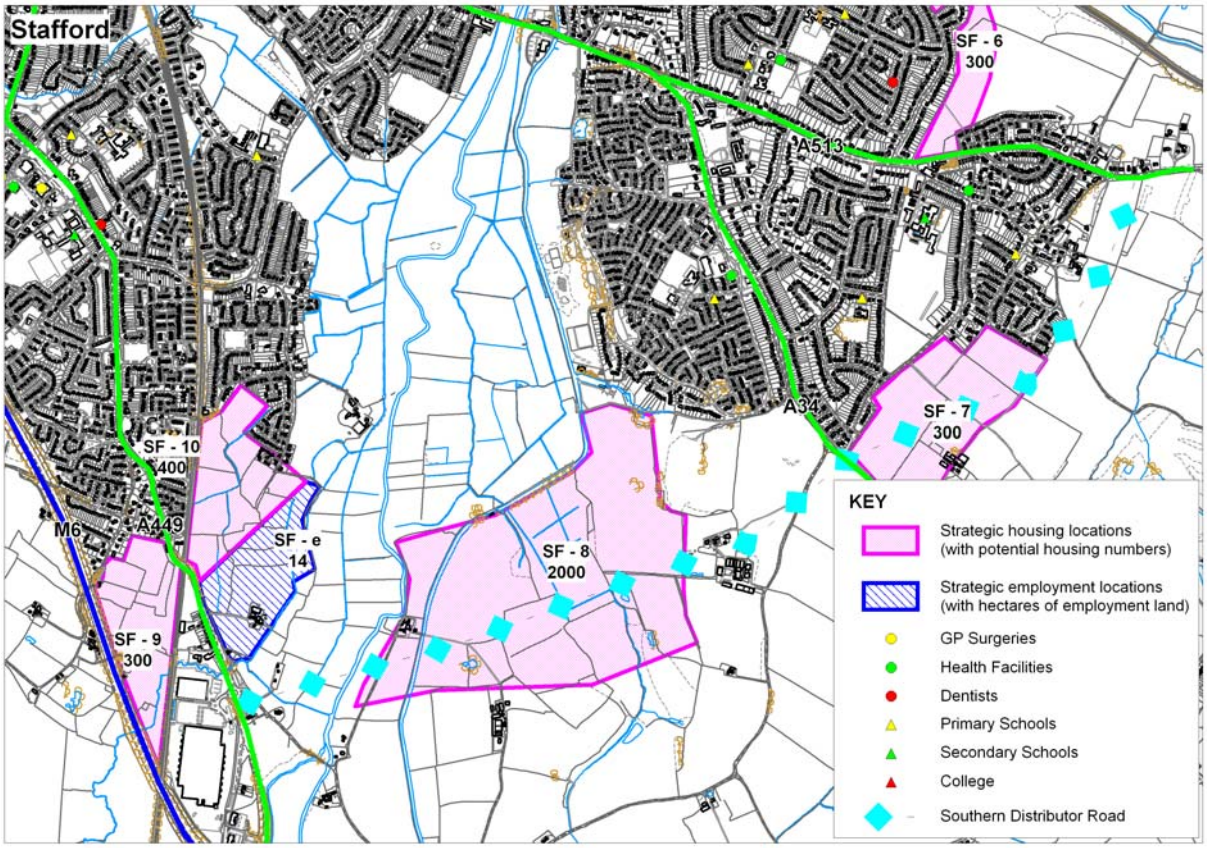
A revised alignment may need to connect Milford Road (from the south) directly into Blackheath Lane, utilising a new rail crossing. However, easy access between the Eastern Distributor Road and the SF-6 housing site may be difficult with this alternative alignment, although site access may be delivered via the existing road network through the housing estate onto Milford Road. Site SF-6 may therefore be developable in advance of an Eastern Distributor Road. However the same risks apply in terms of the loss of developer contributions towards the Distributor Road. If this alignment cannot work, the alternative seems to be a new road with a new WCML crossing.

If an alternative alignment is required for the Eastern Distributor Road, the owners of the meadows may have a ransom claim. It is possible that a detailed design exercise could show that the road through the estates and over the WCML could take the extra traffic without any change to alignment – thus preventing Network Rail and the estate owners joining the ransom party – but this would need to be proven.

The two potential employment areas identified in the LDF Core Strategy Issues and Options Paper (SF-c and SF-d) are adjacent or in close proximity to the A518 and should be able to take access from this. Although these sites will have an impact on the junctions along the A518 and into Stafford town centre, they do not require a new Distributor Road.

For all the eastern sites to be delivered as a group, the Eastern Distributor Roads will need to be completed to avoid the loading of traffic into the town centre. The combination of the Eastern and Southern Distributor roads will further mitigate the impact created by the eastern expansion areas. However the transportation benefits gained through the Southern Distributor road may not warrant the additional costs and risks associated with the Southern Distributor Road delivery.

Settlement: STAFFORD – SOUTH



Location:

The proposed development sites in the south are located adjacent to the A34 and the A449. These roads are single carriageway roads. The LDF Issues and Options Paper indicates that this strategic development location could deliver 3,000 dwellings across four sites and one employment site delivering 14 hectares.

Local access to services and facilities:

There are opportunities for trips to be made by walking and cycling being close to Stafford. A Primary and Secondary School are within a 20-30 minute walking isochrone for SF-7, SF-9 & SF-10, but currently the secondary school and GP surgery fall outside an 800m radius for some of location SF-8 and as such may rely on public transport or the private motor car.

Off-site infrastructure requirements:

The current road network A513, A34 and the A449 provide only for north-south travel and all connect up to the Queensway gyratory south of the town centre. These roads are currently heavily used and offer limited opportunities to cater for the southern expansion areas.

It is expected that the gyratory, and the junction between the A34 and the A513 will require enhancements. To ease some of the anticipated delay and congestion within the town centre and to provide for west – east travel movements, it is expected that any development here would need the Southern Distributor Road between Milford Road and Wolverhampton Road.

Site SF-7 could be accessed from the A34 and could therefore be delivered without strategic transport infrastructure, although the other southern sites would require the Southern Distributor Road.

The employment site SF-e is adjacent to the A449, and can therefore take access from this road without the need of the Southern Distributor Road, but will have an impact along the A449 from Junction 13 of the M6 to Stafford town centre.

Indicated below is a list of other possible infrastructure improvements that may be necessary:

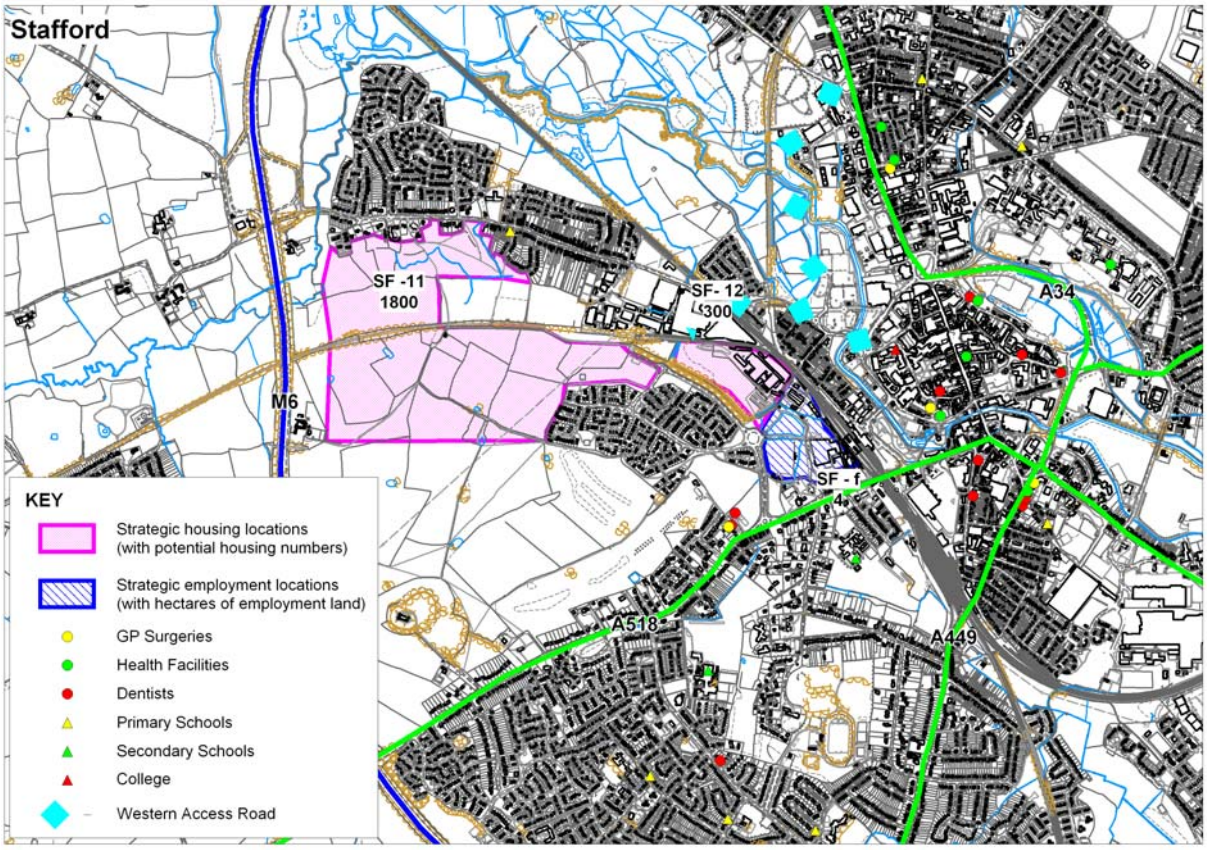
- Localised junction improvements along the A449, A34 and the A513
- Southern section of the distributor road between A449 and the A34
- Southern section of the distributor road between A34 and the A513
- Improvements to the Queensway gyratory
- Improvements to the Radford Bank (A34) junction with Weeping Cross (A513)
- Improvements to Junction 13 of M6 motorway.

The Deliverability of the Southern Distributor Road

The Southern Distributor Road crosses open country, connecting the A34 (to the east) and A449 (to the west). It is doubtful that sites SF-9 or SF-10 individually require a distributor road to justify their development since they have highway frontage However, both would be served by the A449 – one of the busiest roads in the town, and one of the most constrained in terms of scope for potential enhancements.

The Southern Distributor Road is a high cost, high impact (environmentally), high risk strategy for which no public funding has been identified. The problem of securing developer contributions is addressed in the main report.

Settlement: STAFFORD WEST



Location:

The western identified development locations are close to Stafford town centre and as such are covered by a reasonable public transport service. There are two housing sites identified in the western region that could deliver 2,100 dwellings and one employment site delivering 4 hectares. This area is within Stafford and is the closest of the potential locations to the town centre and therefore may be the most sustainable, being able to maximise on current infrastructure.

Local access to services and facilities:

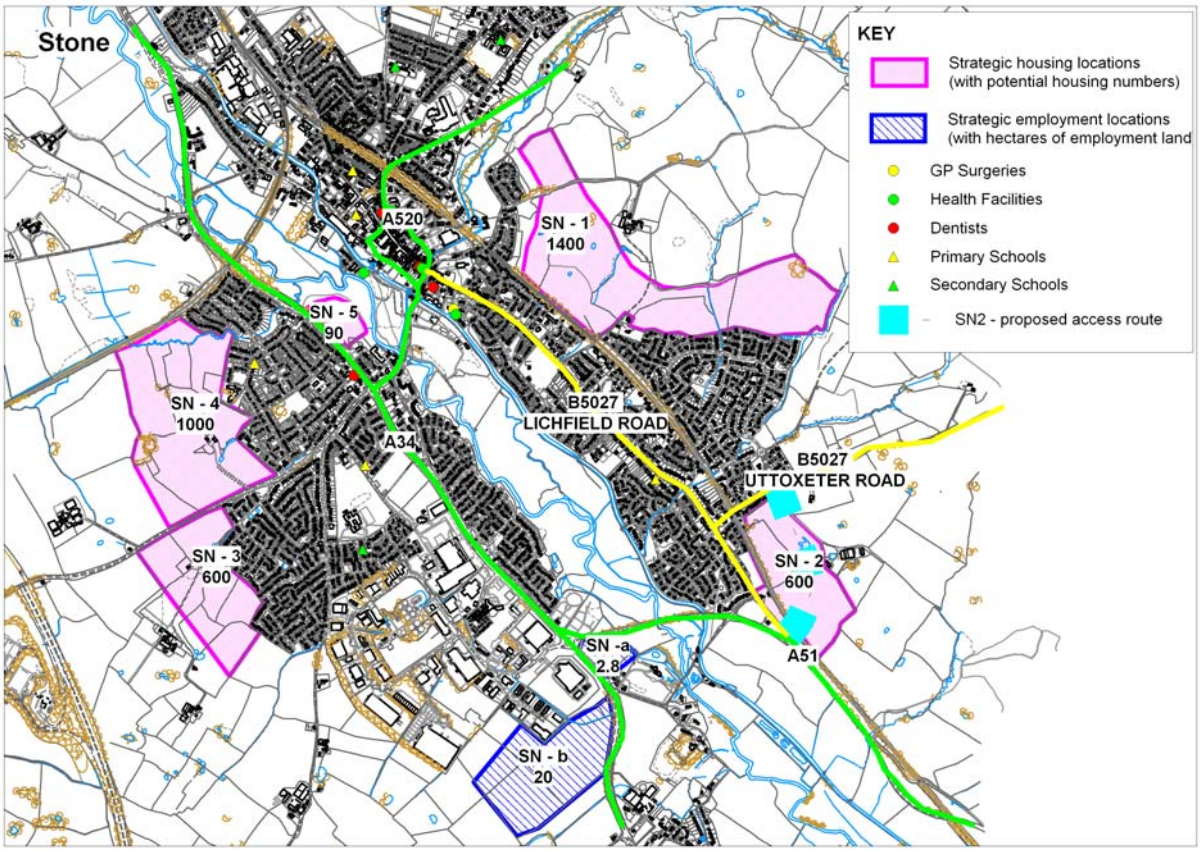
There are opportunities for trips to be made by walking and cycling being close to Stafford town centre. A Primary School is within a 20-30 minute walking isochrone, but currently the secondary school and GP surgery could be greater than this and as such may rely on public transport or the private motor car. It is possible that linked trips could be made by public transport into other areas of Stafford and further a field.

Off-site infrastructure requirements:

Any development here could need the western access road between Foregate Street and Doxey Road as there is a lack of connections into the road network, and as such this development could need the road network connections before development occurs. A Western Access Improvements package of measures totalling £31m has been prioritised in the West Midlands Regional Funding Allocations submission (February 2009) and is programmed for delivery from 2014, subject to approval by the Department for Transport (DfT). The package would comprise funding for the construction of the distributor road and associated junctions improvements, but not include any funding for measure to prioritise public transport or support other smarter travel choices. It would be expected that these

would be financed through developer contributions. The access improvements will load traffic to the west of the Town Centre that would require junction improvements along Tenterbanks and Newport Road, funded by developers.
Site access requirements: Described above.

Settlement: STONE



Location:

The LDF Core Strategy Issues & Options Paper identifies five potential housing developments that could deliver 3,690 dwellings and two potential employment sites delivering 23 hectares. The housing site options are located to the east and west of Stone town centre, with the employment area to the south of Stone. The development options for Stone consist of an eastern and western expansion, with the eastern expansion dependent on one or perhaps two new bridges crossing the West Coast Main Line (WCML).

This opens up the possibility that the landowners (or worse, the County Council) would be held to ransom by Network Rail or other parties and also raises questions about the technical difficulties in spanning the WCML.

Local access to services and facilities:

This settlement is in a rural location to the north of Stafford and is the largest outlying settlement. As such there are a number of services and facilities within the Stone area such that there are opportunities to make trips by walking and cycling. Stone has a Primary School and a GP surgery, which can be accessed via walking or cycling. There is a secondary school in Stone which reduces the need to travel to Stafford. It is unlikely that a high proportion of trips leaving Stone for other settlements can be made by either walking or cycling. Public transport offers alternatives to the car with good links to Stafford and the City of Stoke on Trent.

Off-site infrastructure requirements:

The provision of two access roads, including the use of Pingle Lane which is limited in terms of vehicle capacity, would make site SN-1 unattractive for development. Lichfield Road is a mainly residential road and is unsuitable to provide access to a further residential area. The use of Pingle Lane would be critical to gain access to the development over the WCML railway and it is likely that this would be subject to ransom by Network Rail.

The technical requirements of building a bridge are also onerous because Network Rail can insist that all the cost is met by the local authorities or developers but also insists on the most expensive design. The work can only be carried out at Christmas or Easter when the WCML is closed for longer periods and even then 24 hour working is usually required. The works usually have to be planned two to three years in advance and if a window of opportunity is missed, it can be two or three years before another opportunity arises. Only four main contractors on Network Rail framework can usually obtain the insurance cover needed, and they are usually very busy when the line is closed. So the scope for competitive tendering is much reduced.

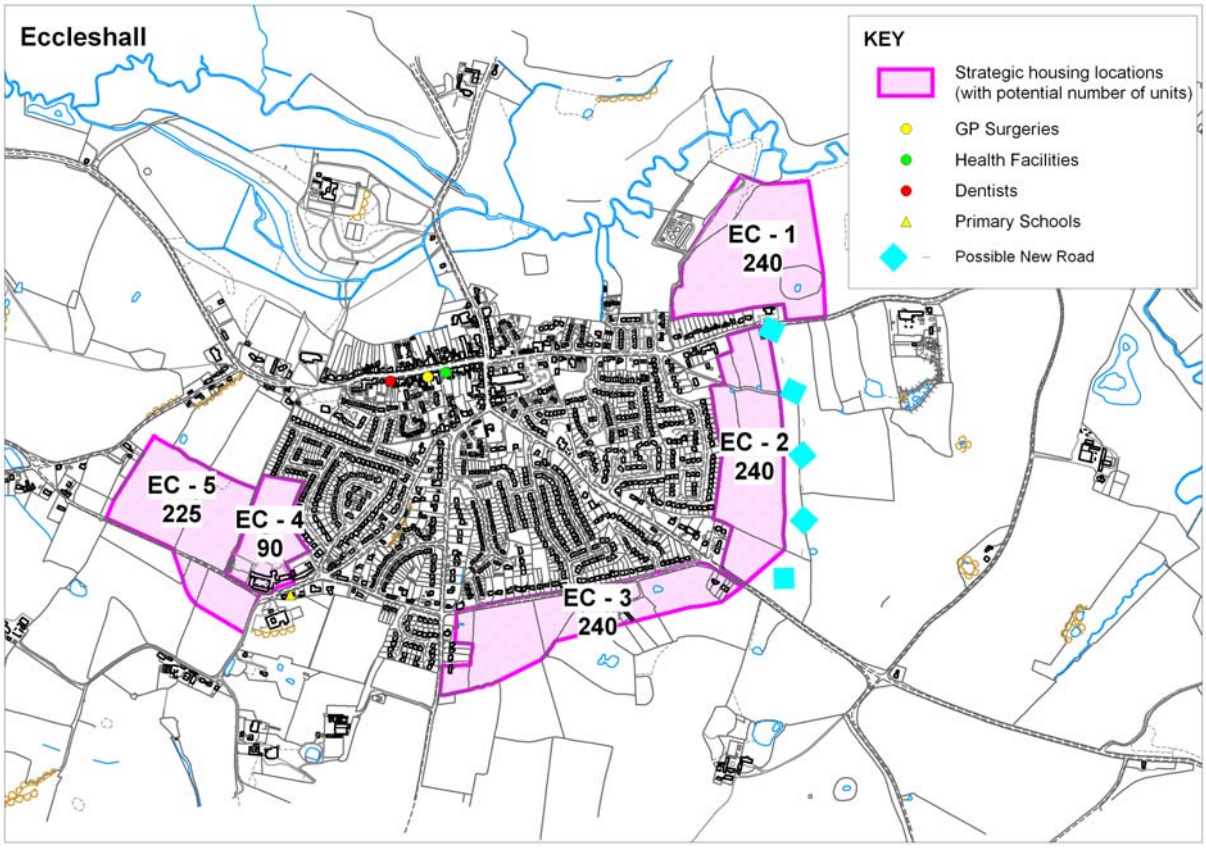
The employment sites, together with SN-2, are located to the south adjacent to the A34 and A51 corridors. These developments may occur without the need for significant infrastructure, with the exception of the A34/A51 roundabout that may need enhancement. Therefore these developments could be delivered in the short term. Trips from the north would come through Stone which may mean some localised improvements are necessary. The development of housing site SN-2, although better located being south of the Uttoxter Road, may lead to problems along Lichfield Road and would require further off-site improvements to existing transport infrastructure. An access road alignment could be defined that could link into the A51 via the B5027, without the need for a railway crossing. However, such an alignment could be difficult to deliver, and would make the delivery of this site a long-term prospect.

The residential development to the west of Stone are centred on the B5026 Eccleshall Road. This may need enhancing together with the A34 junction. As these are based around existing infrastructure these developments could be delivered in the short term, but phased in line highway improvements.

Site access requirements:

The site access to the housing site SN-1 (1,400 dwellings) is taken from Pingle Lane which passes over the railway line. This is currently unsuitable for the quantum of development proposed and would need at least one additional access point, possibility from the B5027. Development of this site would also require further infrastructure improvements along Lichfield Lane and the Uttoxeter Road.

Settlement: ECCLESHALL



Location:

This settlement is in a rural location to the north west of Stafford. There are five potential housing site options that could deliver 1,035 dwellings, and these are located around the extremity of the current settlement area.

Local access to services and facilities:

There are a number of services and facilities within Eccleshall such that there are opportunities to make trips by walking and cycling. Eccleshall has a Primary School and a GP surgery, which can be accessed via walking or cycling. The secondary schools are in either Stone or Stafford. It is unlikely that a high proportion of trips leaving Eccleshall for other settlements can be made by either walking or cycling. Public transport offers a limited alternative to the car, with the settlement being served by only a limited bus frequency.

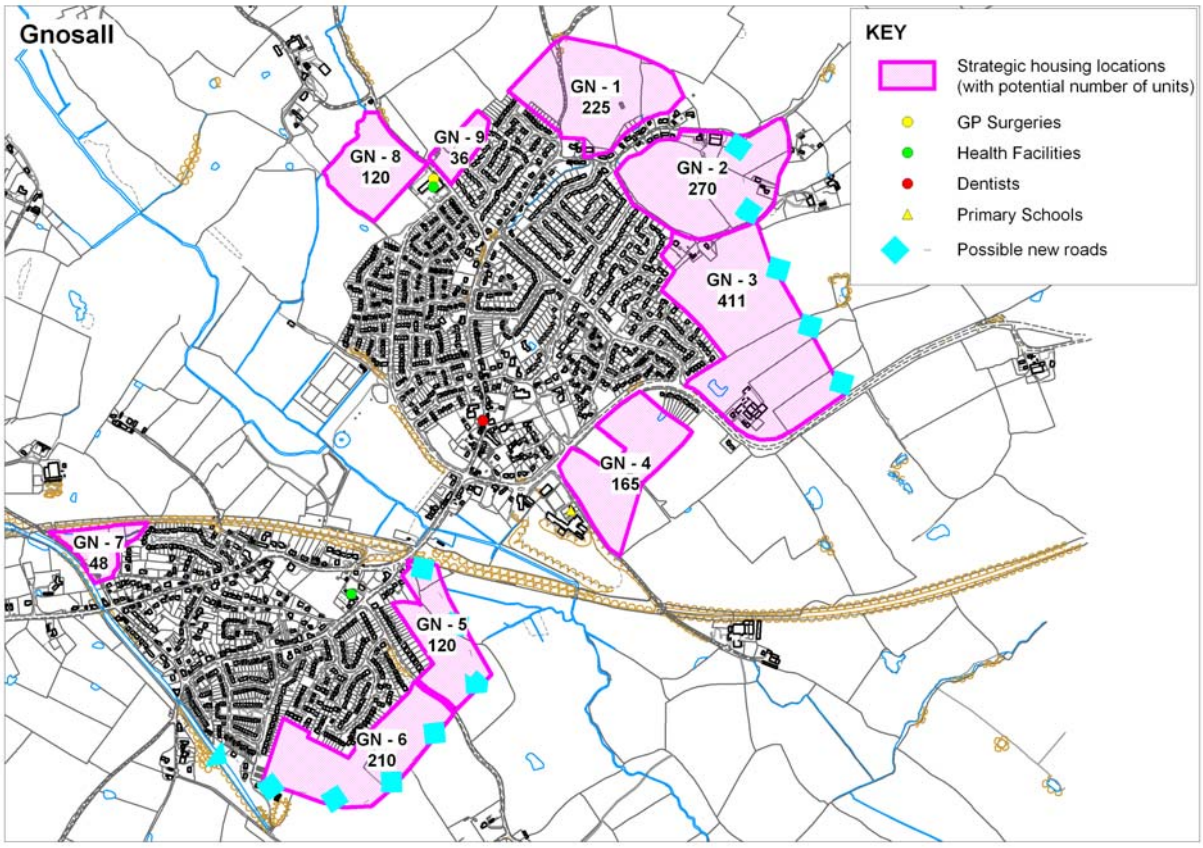
Off-site infrastructure requirements:

Any development to the east of Eccleshall would require new infrastructure connecting Stone Road and Stafford Road. Developments to the south and west may be delivered without the need for additional infrastructure. It is possible that several of these sites could be delivered in the short term with the completion of the link between Stone Road and Stafford Road.

Site access requirements:

The infrastructure within Eccleshall will need to be improved.

Settlement: GNOSALL



Location:

This settlement is in a rural location to the west of Stafford and has the largest population outside Stone and Stafford. There are nine potential housing site options identified around Gnosall that could deliver 1,605 dwellings.

Local access to services and facilities:

There are a number of services and facilities within Gnosall such that there are opportunities to make trips by walking and cycling. Gnosall has a Primary School and a GP surgery, which can be accessed via walking or cycling. The secondary schools are in either Stone or Stafford. It is unlikely that a high proportion of trips leaving Gnosall for other settlements can be made by either walking or cycling. Public transport offers a limited alternative to the car, with the settlement being served by a reasonable bus frequency.

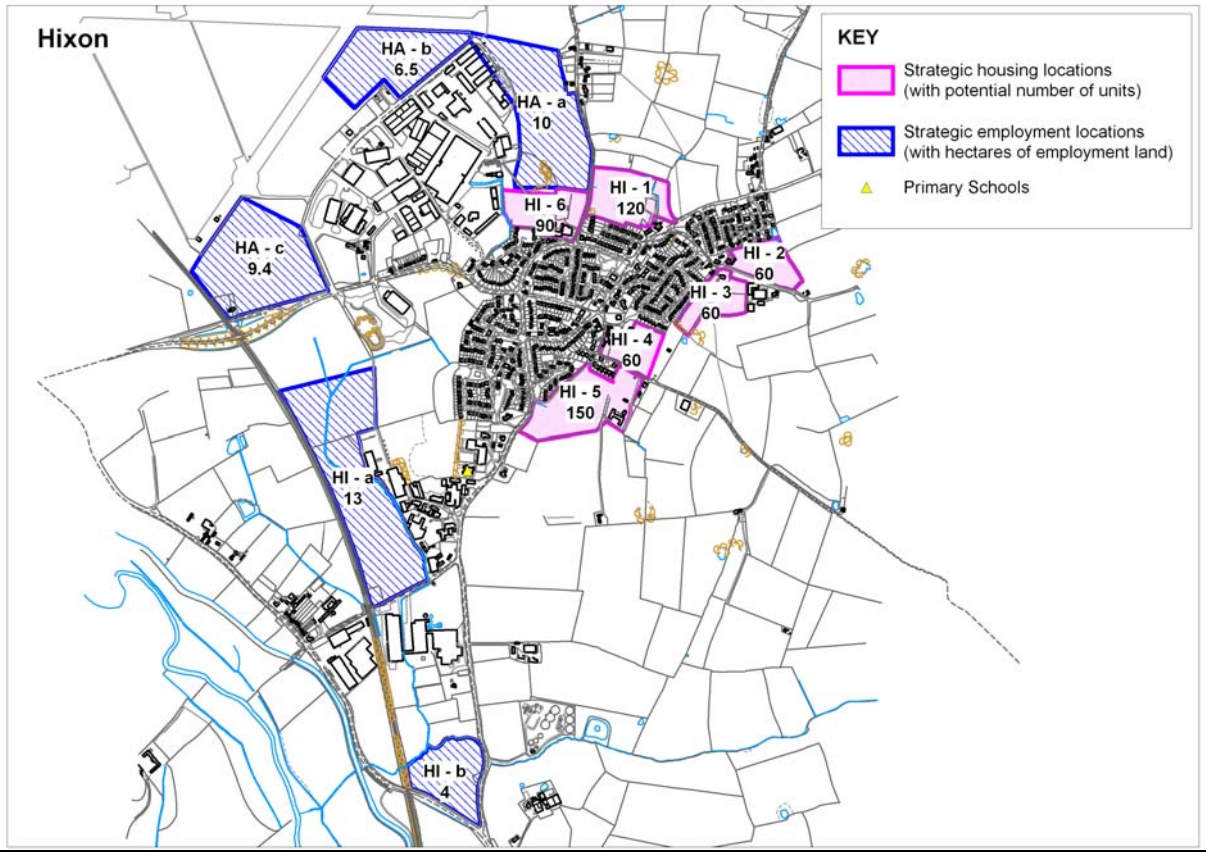
Off-site infrastructure requirements:

Any development to the east of Gnosall could require new infrastructure connecting Audmore Ring and Stafford Road. Developments to the south may require a new link between Station Road and Monks Walk. Several of the smaller sites are adjacent to Knightley Road and the A518 which do not require additional infrastructure and could be delivered in the short term.

Site access requirements:

None identified.

Settlement: HIXON



Location:

This settlement is in a rural location to the east of Stafford and has limited facilities but has a recognised employment provision and as such there are limited opportunities to make trips by walking and cycling.

Local access to services and facilities:

Hixon has a Primary School, which can be accessed via walking or cycling. Hixon does not have a GP surgery and the secondary schools are in either Stone or Stafford which will rely on public transport or the private motor car to access. It is unlikely that a high proportion of trips leaving Hixon for other settlements can be made by either walking or cycling. Public transport offers an alternative to the car, with the settlement being served by a reasonable bus frequency.

Off-site infrastructure requirements:

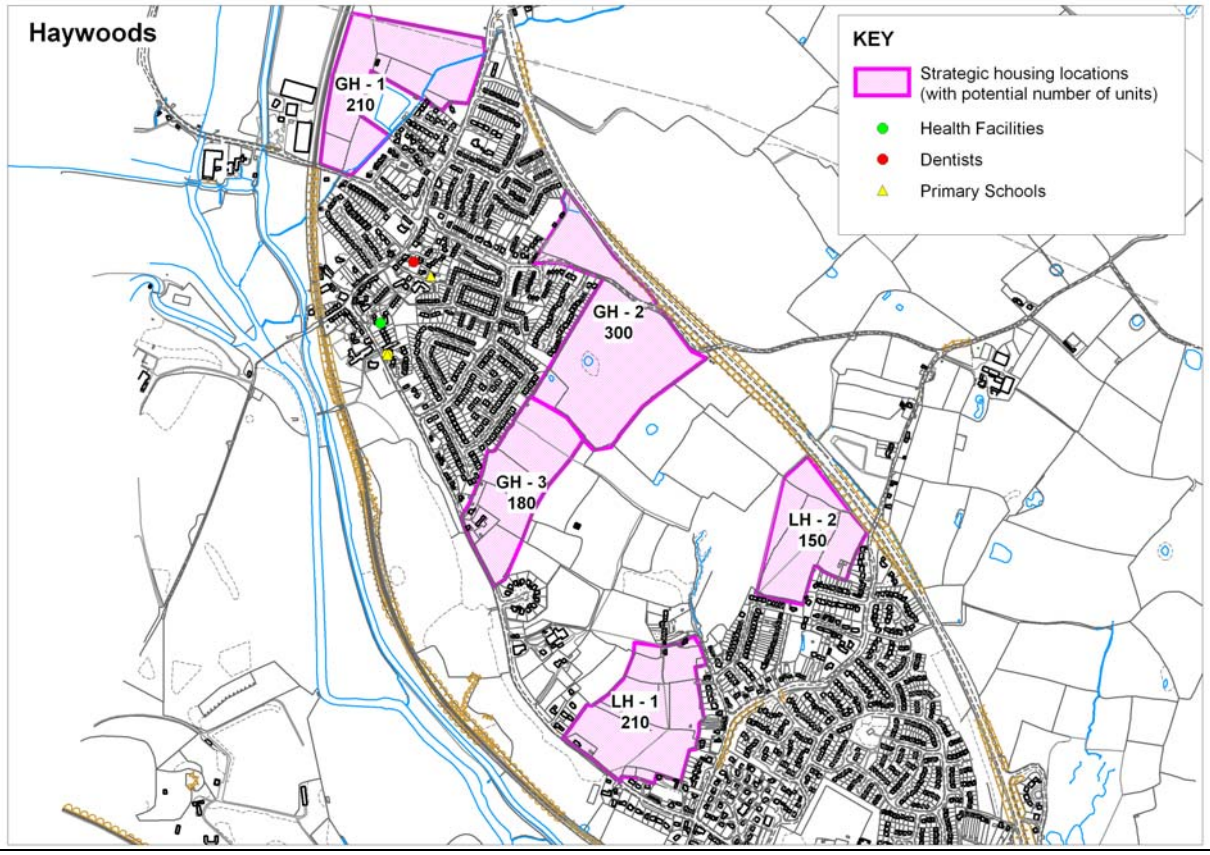
There are six potential housing sites identified that could deliver 540 dwellings, together with five potential employment sites covering 43 hectares. These are located around the existing road network such that these developments may not require new infrastructure and could be delivered in the short term.

However the extent of new trips on the road network from the potential employment and housing sites could generate a significant volume of new trips within the road network. Some would need to pass through the centre of Hixon. This could generate capacity issues within Hixon, and at the junctions along the A51 at Church Lane and New Road.

Site access requirements:

None identified.

Settlement: GREAT & LITTLE HAYWOOD



Location:

Great and Little Haywood are in a rural location to the east of Stafford and has limited facilities and as such there are limited opportunities to make trips by walking and cycling.

Local access to services and facilities:

Great Haywood has a Primary School and a GP surgery which can be accessed via walking or cycling. The secondary schools are in either Stone or Stafford which will rely on public transport or the private motor car to access. It is unlikely that a high proportion of trips leaving Great and Little Haywood for other settlements can be made by either walking or cycling. Public transport offers an alternative to the car, with the settlements being served by a reasonable bus frequency.

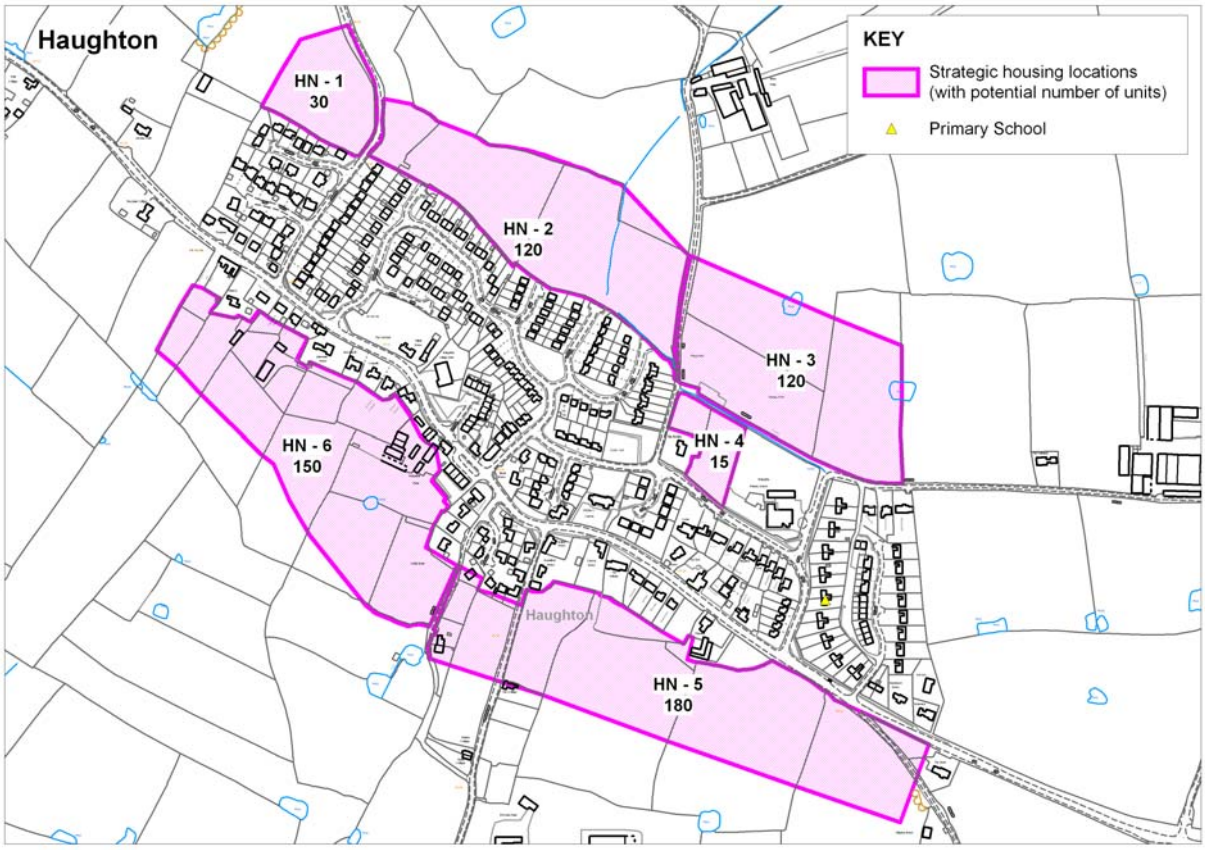
Off-site infrastructure requirements:

There are five potential housing sites that has been identified in and around Great and Little Haywood, which could deliver a total of 950 dwellings. These are located adjacent to the road network and as such may not require new infrastructure. There are two sites to the south of Great Haywood and two to the north of Little Haywood - all could be served by a new link between Main Road and the A51, which may ease the impact on the village centres. This link could be incorporated into any development plans and therefore could be delivered in the short term.

Site access requirements:

None identified.

Settlement: HAUGHTON



Location:

This settlement is in a rural location to the west of Stafford and has limited community facilities and some limited provision and as such there are opportunities to make trips by walking and cycling. There are six potential housing sites that have been identified that could deliver a total of 615 dwellings. Four sites are to the north of the village with the remaining two sites south of the A518.

Local access to services and facilities:

Haughton has a Primary School, which can be accessed via walking or cycling. Haughton does not have a GP surgery and the secondary schools are in either Stone or Stafford which will rely on public transport or the private motor car to access. It is unlikely that a high proportion of trips leaving Haughton for other settlements can be made by either walking or cycling. Public transport offers an alternative to the car, with the settlement being served by a reasonable bus frequency.

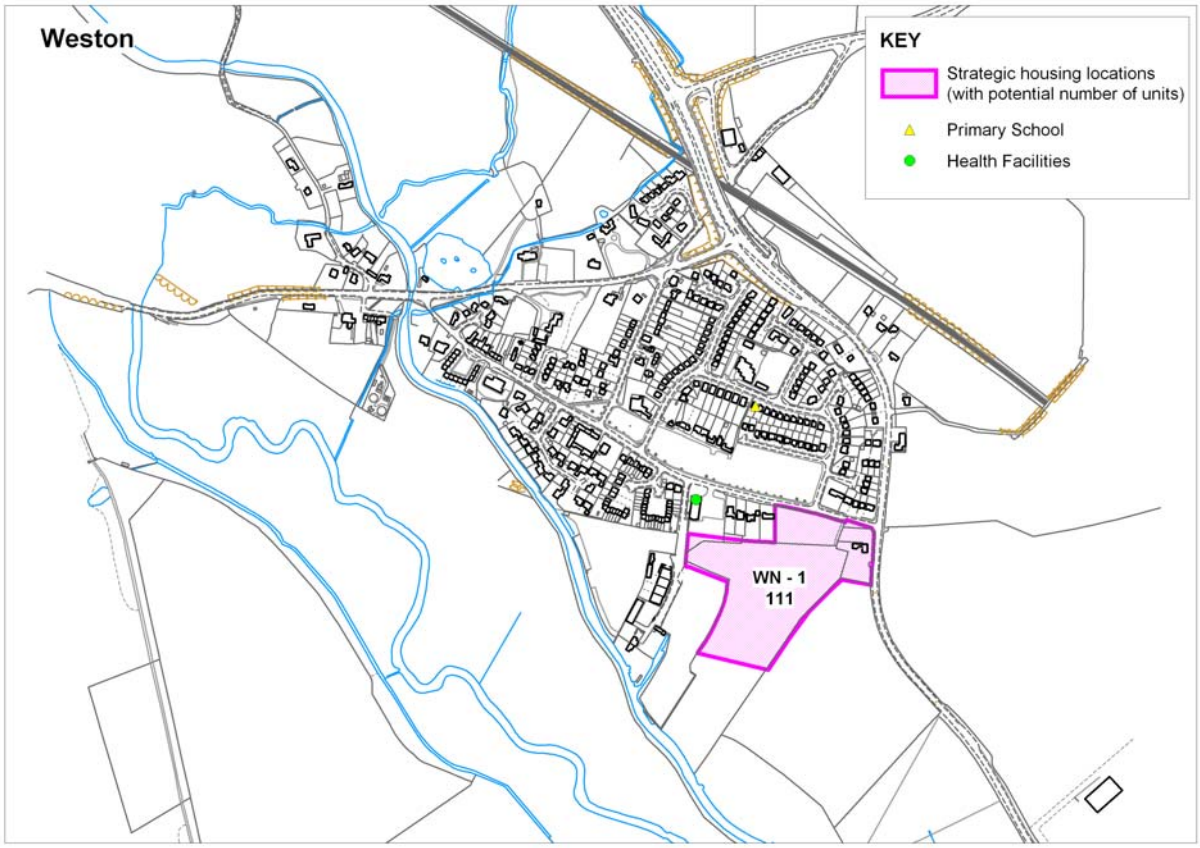
Off-site infrastructure requirements:

Development in Haughton may not require new infrastructure but the northern sites may benefit from a northern access road that could link into Back Lane and ease the pressure on the A518 through Haughton. This access road could be part of the site plan for these sites and should not delay possible site delivery.

Site access requirements:

None identified.

Settlement: WESTON



Location:

This settlement is in a rural location to the east of Stafford and has limited community facilities and good links to the employment areas of Hixon.

Local access to services and facilities:

Weston has a Primary School and other limited community facilities, which can be accessed via walking or cycling. Weston does not have a GP surgery and the secondary schools are in either Stone or Stafford which will rely on public transport or the private motor car to access. It is unlikely that a high proportion of trips leaving Weston for other settlements can be made by either walking or cycling, expect for possibly Hixon. Public transport offers an alternative to the car, with the settlement being served by a reasonable bus frequency.

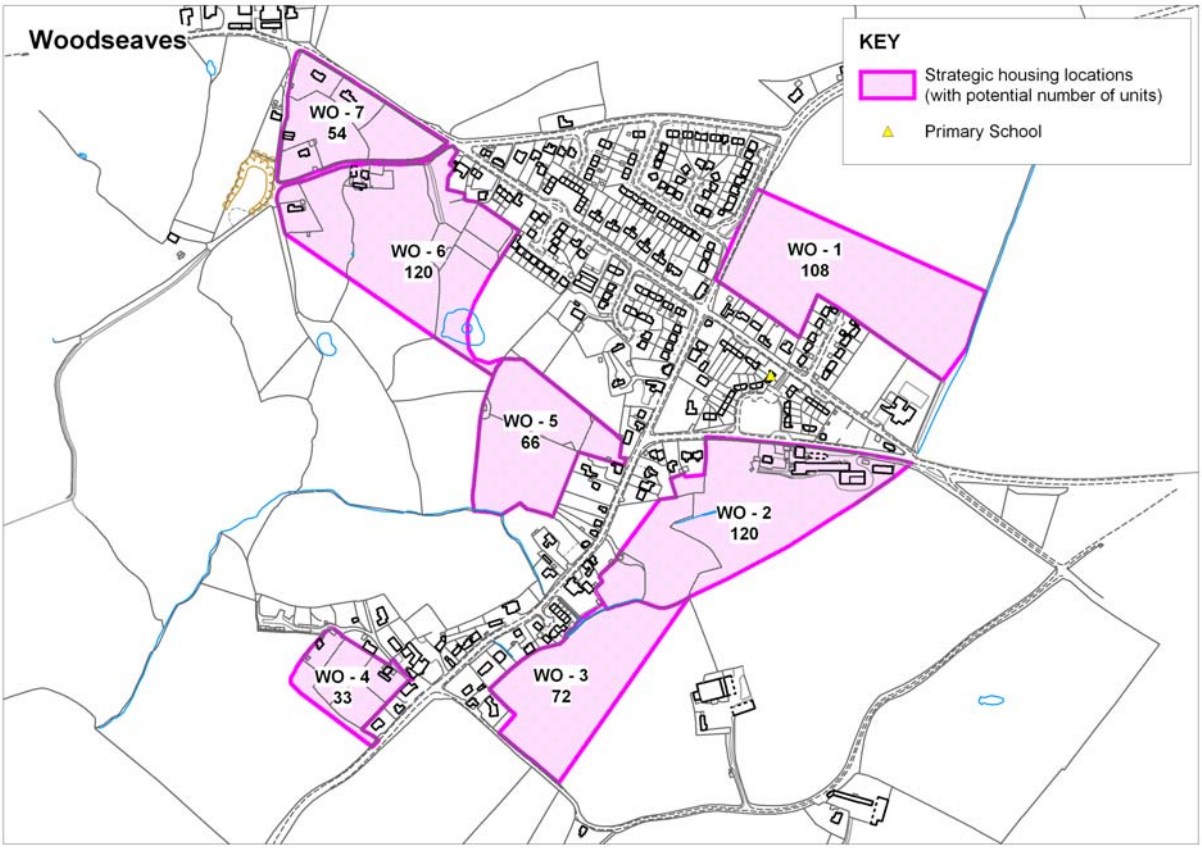
Off-site infrastructure requirements:

None identified.

Site access requirements:

One potential site has been identified that could deliver 111 dwellings and is located to the south of the village adjacent to the A51, and access can be taken from either the A51 or Green Road. 111 houses could generate in the region of 90 vehicle trips and the existing capacity of the highway and junctions should be able to cater for this increase.

Settlement: WOODSEAVES



Location:

This settlement is in a rural location to the north west of Stafford and has limited community facilities.

Local access to services and facilities:

Woodseaves has a Primary School and other limited community facilities, which can be accessed via walking or cycling, but limited employment opportunities. Woodseaves does not have a GP surgery and the secondary schools are in either Stone or Stafford which will rely on public transport or the private motor car to access. It is unlikely that a high proportion of trips leaving Woodseaves for other settlements can be made by either walking or cycling. Public transport offers a limited alternative to the car, with the settlement being served by a limited bus service.

Off-site infrastructure requirements:

There are seven potential housing sites identified that could deliver up to 573 dwellings. These are located adjacent to the A519 and High Offley Road., and as such these developments in Woodseaves may not require new infrastructure.

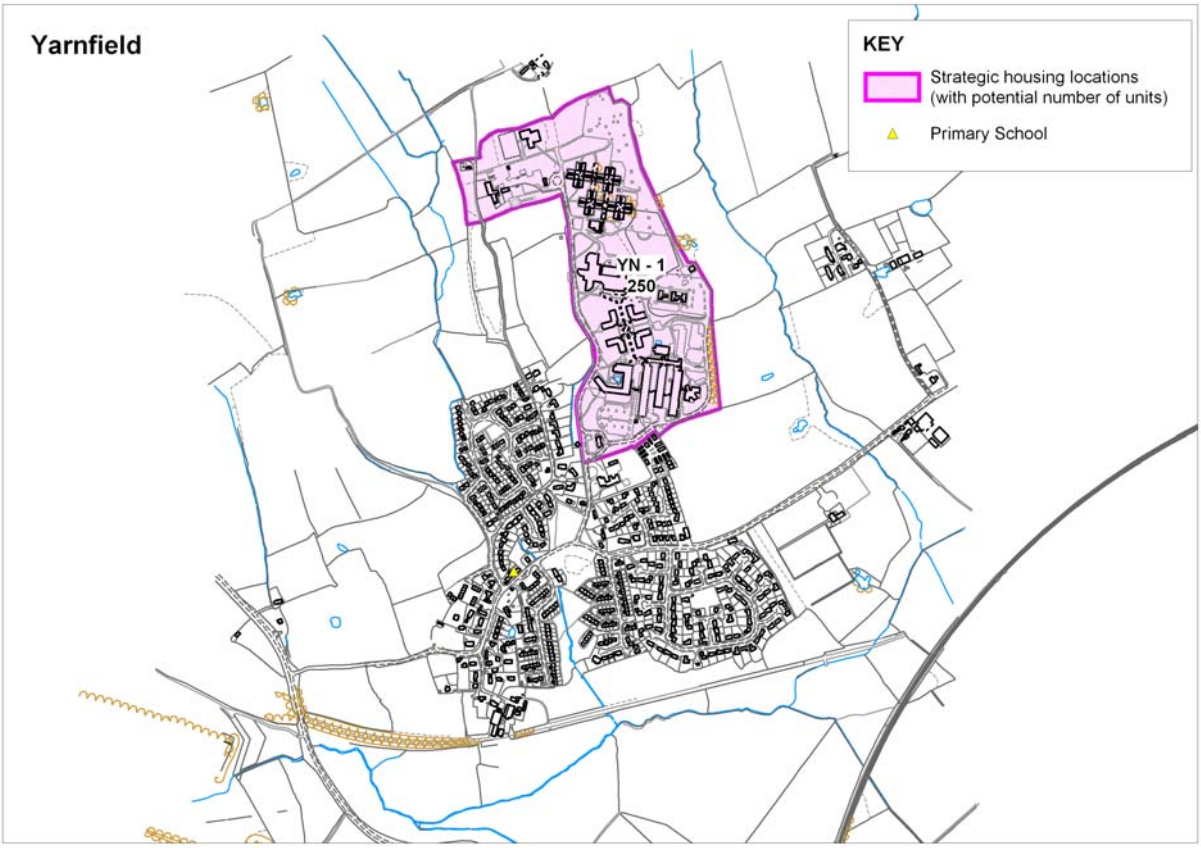
Transport linkages into Stone could be improved, with any improved services linking into Eccleshall and Yarnfield.

Site access requirements:

Access should be able to be gained direct from the road network, but the potential development sites may benefit from improvements to Back Lane and Moss Lane to gain direct access and relieve some pressure on Woodseaves.

These developments should be able to be delivered in the short term.

Settlement: YARNFIELD



Location:

This settlement is in a rural location to the north of Stafford and to the west of Stone. This settlement has limited community facilities.

Local access to services and facilities:

Yarnfield has a Primary School and other limited community facilities, which can be accessed via walking or cycling. Yarnfield does not have a GP surgery and the secondary schools are in either Stone or Stafford which will rely on public transport or the private motor car to access. It is unlikely that a high proportion of trips leaving Yarnfield for other settlements can be made by either walking or cycling. Public transport offers a limited alternative to the car, with the settlement being served by a limited bus service.

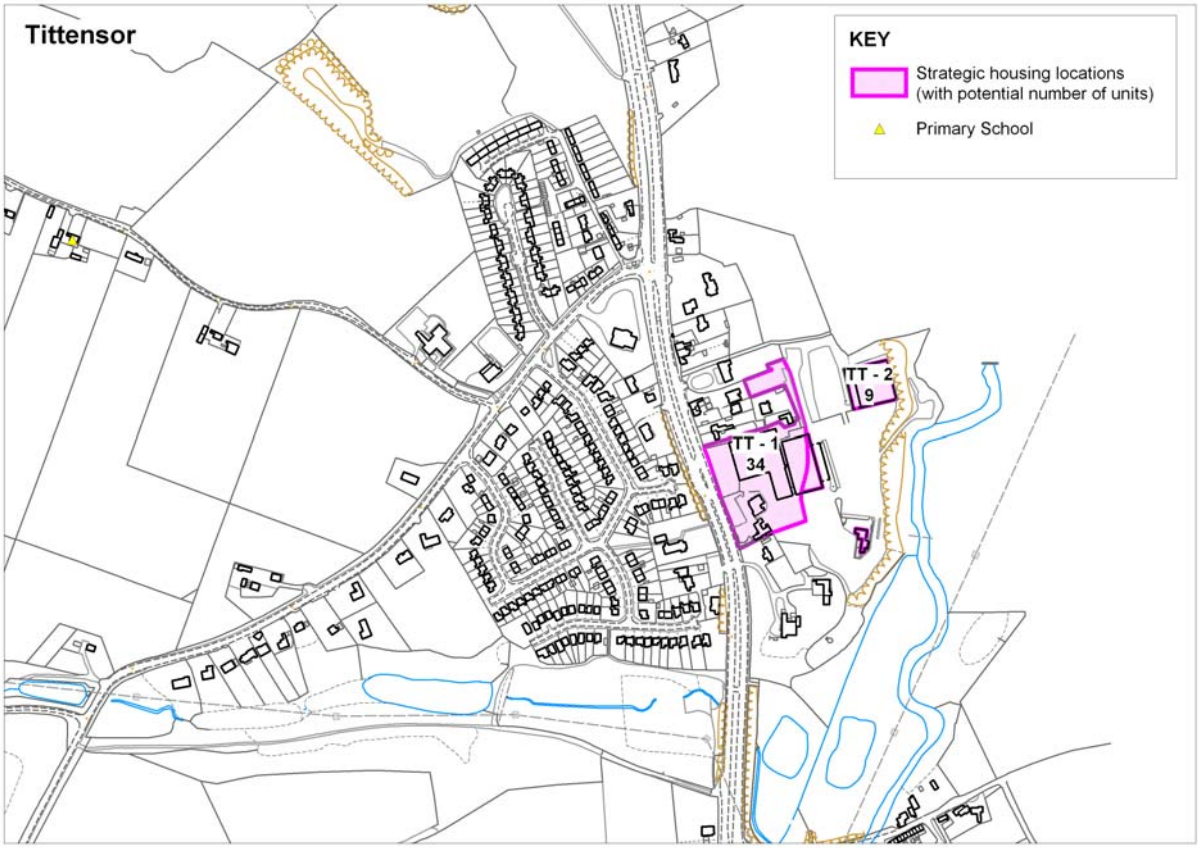
Off-site infrastructure requirements:

The potential site north of Yarnfield could deliver 250 dwellings and may not require new infrastructure. This site is within the identified Green Belt boundary. Public transport linkages into Stone could be improved, with any improved services linking into Eccleshall and Woodseaves.

Site access requirements:

None identified.

Settlement: TITTENSOR



Location:

This settlement is in a rural location to the north of Stone and has limited community facilities.

Local access to services and facilities:

Tittensor has a Primary School and other limited community facilities, which can be accessed via walking or cycling. Tittensor does not have a GP surgery and the secondary schools are in either Stone or Stafford, which will rely on public transport or the private motor car to access. It is unlikely that a high proportion of trips leaving Tittensor for other settlements can be made by either walking or cycling. Public transport offers alternatives to the car with good links to Stone, Stafford and the City of Stoke on Trent.

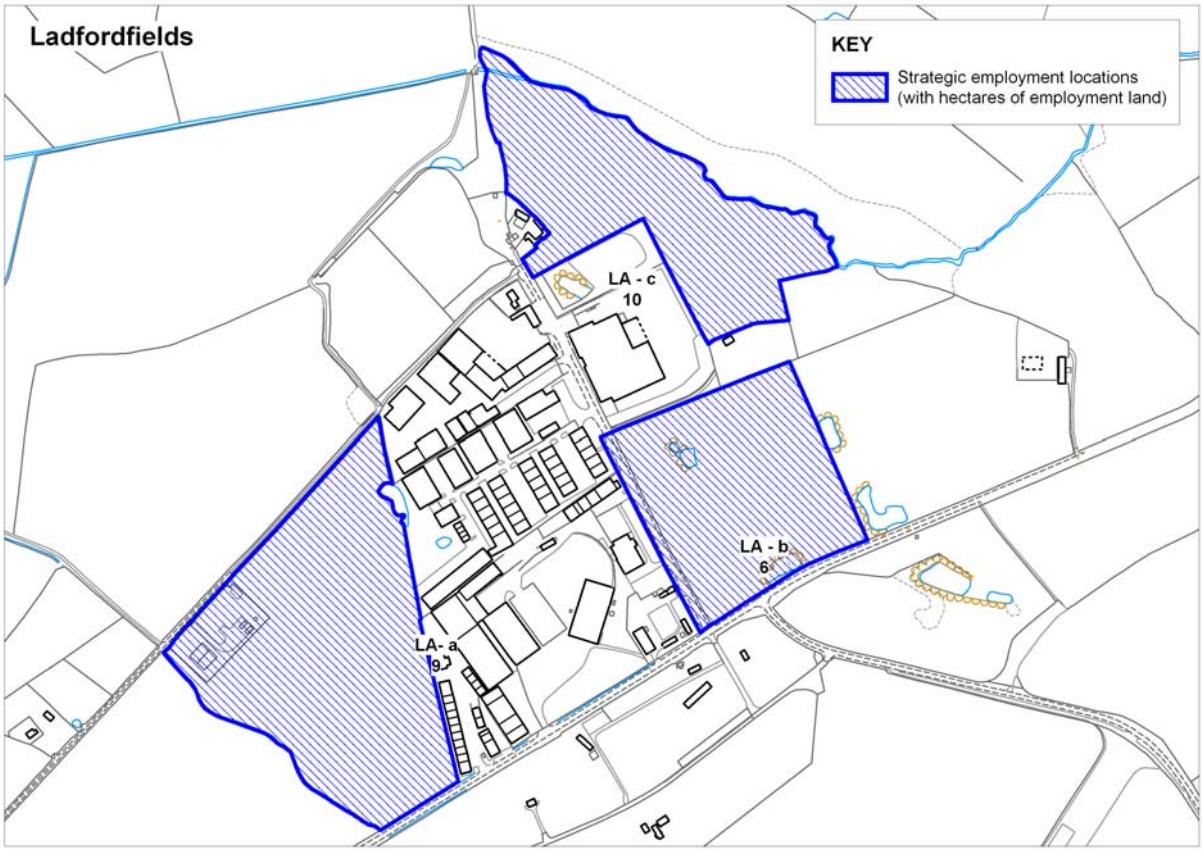
Off-site infrastructure requirements:

There are two potential housing sites identified that could deliver 43 dwellings. These are located to the east of the A34 and as such these developments may not require new infrastructure. These sites are adjacent to the Green Belt, with a proportion within the Green Belt boundary.

Site access requirements:

None identified.

Settlement: LADFORDFIELDS



Location:

This employment area is in a rural location to the west of Stafford and is adjacent to the existing Ladfordfields Recognised Industrial Estate, which is accessed from the B5405, with Great Bridgeford being the closest area of housing. As such, there will be a reliance on the private motorcar to gain access to the site.

Local access to services and facilities:

There are three potential employment sites covering 25 hectares, located around the existing road network such that these developments may not require new infrastructure and could be delivered in the short term. However the current access may need to be improved and a secondary access point on to the B5405 may need to be considered.

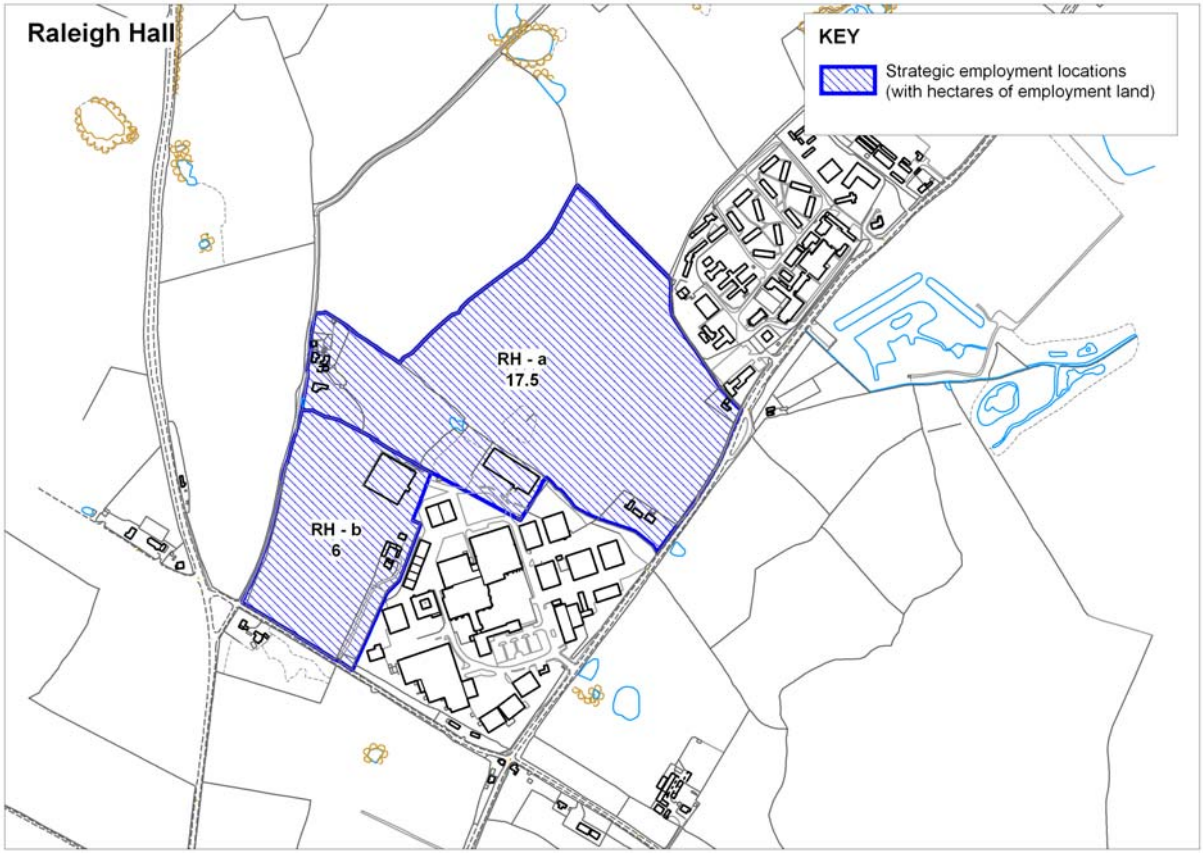
Off-site infrastructure requirements:

None identified.

Site access requirements:

At this location, public transport may be the only alternative to the motor car and support should be given to this mode of travel.

Settlement: RALEIGH HALL



Location:

This employment area is in a rural location to the north-west of Stafford and is adjacent to the existing Raleigh Hall Recognised Industrial Estate, with Eccleshall being the closest area of housing.

Local access to services and facilities:

There could be a reliance on the private motorcar to gain access to the site.

Off-site infrastructure requirements:

This site could have an impact within Eccleshall. At this location, public transport may be the only alternative to the motor car and support should be given to this mode of travel.

Site access requirements:

There are two potential employment sites covering 23.5 hectares. These are located around the existing road network such that these developments may not require new infrastructure and could be delivered in the short term. However the current access may need to be improved with the possibility of providing another access point onto the local road network, and the junctions with the A519 may need minor improvements.

Appendix 3: Gas Supply Infrastructure

Gas supply is generally based on three networks; the high pressure system which transports gas over large distances; the medium pressure system which provides gas to specific locations and settlements; and the low pressure system which distributes gas at a local level. Stafford has a medium pressure ring main which runs around the majority of the town supplying gas to “off take” stations feeding small low pressure minor networks which service individual properties.

In general works to the high pressure system are expensive since they often require special arrangements to be made and can only be carried out at specific times. Changes to the High Pressure system are subject to long lead times and these can be up to 36 months. On the medium and low pressure system it is generally possible to carry out works with shorter planning and lead in times and at much lower costs.

Any connection works into the medium pressure system requires a design study to be conducted. This typically takes 6 months and construction can then generally be programmed from 6 months later. Construction itself typically progresses at around 100m per week plus two weeks for connections to be made.

Connections into the network to supply developments must be funded by the developer. Any infrastructure improvements required will attract a developer contribution which will depend upon an estimate of the likely future revenue generated by the site. Gas Transporters such as Fulcrum Pipelines will also make a contribution towards the infrastructure costs. The amount of investment the Gas Transporter will make is based upon the likely transportation income for the site in question, typically this is £250 per domestic premise. Industrial and Commercial properties are assessed on an individual basis.

From our discussions with Fulcrum Infrastructure Services none of the locations considered for this study are known to have any requirement for works to the existing high pressure system.

Stafford

In general there are no major gas infrastructure works required in Stafford since the gas supply network appears to be robust and has the potential capacity to accommodate all of the proposed developments. As a result the majority of the proposed sites require only ‘standard’ connections into the medium pressure system. The costs of these connections would appear as a standard cost for developers.

The only site within the Stafford town area which has been identified as requiring reinforcement is the employment site SF-h due to its distance from the available gas infrastructure. The budget estimated cost of this work has been provided by Fulcrum Infrastructure Services as £350,000. As this work is required only to connect this proposed development into the network this would be funded entirely by the developer.

Stone

A network analysis undertaken by Fulcrum Infrastructure Services (Appendix A3.1) indicates that within Stone all of the proposed sites would be connected into the medium pressure system. These locations would again appear to only require ‘standard’ connections which developers would be anticipated to treat as a standard cost.

Cost estimates in Appendix A3.1 are for the ‘standard’ connection charges likely at each of the locations. These costs include an estimate of the Gas Transporters contribution towards the development.

Rest of Borough (including employment sites)

Cost estimates for the rest of the borough are included Appendix A3.1, and have been provided by Fulcrum Infrastructure Services for the 'standard' connection charges likely at each of the locations where no additional gas supply infrastructure would be required. Locations which would require additional gas supply infrastructure work to the medium pressure system, in order to support the proposed developments are identified as:

- Eccleshall (sites EC-2 and EC-5 only)
- Great Haywood (all sites)
- Little Haywood (all sites)
- Woodseaves (all sites – Woodseaves does not currently have a mains gas supply)
- Yarnfield (all sites).

The details are again included within Appendix A3.1, however it should be noted that Woodseaves in particular is 6,000m from the nearest possible network connection point.

Estimates for the Employment Sites do not include an assessment of the Gas Transporters contribution.

Fig. A3.1 Stafford Borough Gas Network Analysis

Model indicates that this load could potentially be taken on the LP pressure system without the need for reinforcement
Model indicates that this load could potentially be taken on the MP pressure system without the need for reinforcement
Model indicates that this load cannot be taken without the system being reinforced

Stafford BC Ref	Location	Domestic Properties (No.) TOTAL NUMBER OF HOUSES	Phase 1 to 2016	Phase 2 to 2021	Phase 3 to 2026	Assumed Co-ords	Indicative Cost
STONE							
SN-1	PINGLE LANE - LAND TO THE NORTH OF	1400	467	467	466	390785, 333266	1679600
SN-2	LICHFIELD ROAD - LAND TO THE NORTH OF	600	200	200	200	391127, 333094	720000
SN-3	ECCLESHALL ROAD - LAND TO THE SOUTH OF	600	200	200	200	390105, 333315	720000
SN-4	ECCLESHALL ROAD - LAND TO THE NORTH OF	1000	333	333	334	389437, 332789	1200400
SN-5	A34 THE FILLBROOKES - LAND TO THE NORTH OF	90	30	30	30	389855, 333527	108000
ECCLESHALL							
EC-1	STONE ROAD - LAND TO THE NORTH OF	240	80	80	80	383651, 329211	288000
EC-2	BETWEEN STAFFORD ROAD AND STONE ROAD	240	80	80	80	383670, 329025	
EC-3	GREEN LANE LAND TO THE SOUTH OF	240	80	80	80	383364, 328635	288000
EC-4	TRINITY ROAD LAND TO THE NORTH OF	90	30	30	30	382784, 328734	108000
EC-5	BETWEEN SHAWS LANE AND CHURCH STREET	225	75	75	75	382789, 328672	
GNOSALL							
GN-1	LAND TO THE NORTH OF GNOSALL	225	75	75	75	383097, 321478	270000
GN-2	AUDMORE LOOP EAST OF GNOSALL	270	90	90	90	383097, 321478	324000
GN-3	STAFFORD ROAD - LAND TO THE NORTH OF	411	137	137	137	383097, 321478	493200
GN-4	STAFFORD ROAD - LAND TO THE SOUTH OF	165	55	55	55	383203, 320806	198000
GN-5	COWLEY LANE - LAND TO THE EAST OF	120	40	40	40	382678, 320282	144000
GN-6	COWLEY LANE - LAND TO THE WEST OF	210	70	70	70	382625, 320214	252000
GN-7	PLARDIWICK ROAD - LAND TO THE EAST OF	48	16	16	16	382015, 320434	57600
GN-8	BROOKHOUSE ROAD - LAND TO THE NORTH WEST	120	40	40	40	382845, 321380	144000
GN-9	KNIGHTLEY ROAD - LAND TO THE NORTH EAST	36	12	12	12	382907, 321439	43200
HIXON							
HI-1	STOWE LANE - LAND TO THE EAST OF	72	24	24	24	400329, 326173	86400
HI-2	PUDDLE HILL - LAND TO THE NORTH OF	50	17	17	16	400329, 326173	59600
HI-3	PUDDLE HILL - LAND TO THE SOUTH OF	60	20	20	20	400329, 326173	72000
HI-4	EGG LANE - LAND TO THE NORTH OF	50	17	17	16	400370, 325758	59600
HI-5	CHURCH LANE - LAND TO THE EAST OF	120	40	40	40	400345, 326201	144000
HI-6	STOWE LANE - LAND TO THE WEST OF	75	25	25	25	400345, 326201	90000
GREAT HAYWOOD							
GH-1	MAIN ROAD - LAND TO THE WEST OF	210	70	70	70		
GH-2	LITTLE TIXALL LANE	300	100	100	100		
GH-3	MAIN ROAD - LAND TO THE EAST OF	180	60	60	60		
LITTLE HAYWOOD							
LH-1	COLEY LANE - LAND TO THE WEST OF	210	70	70	70		
LH-2	MAIN ROAD - LAND TO THE NORTH OF	150	50	50	50		
WESTON							
WN-1	GREEN ROAD - LAND TO THE SOUTH OF	111	37	37	37	397791, 326746	133200
HAUGHTON							
HM-1	STATION ROAD - LAND TO WEST OF	30	10	10	10	386313, 320867	36000
HM-2	STATION ROAD - LAND TO EAST OF	120	40	40	40	386359, 320851	144000
HM-3	BRAZENHILL ROAD - LAND TO EAST OF	120	40	40	40	386359, 320851	144000
HM-4	RECTORY LANE - LAND TO NORTH OF	15	5	5	5	386636, 320524	18000
HM-5	PARK LANE - LAND TO EAST OF	180	60	60	60	386359, 320851	216000
HM-6	PARK LANE - LAND TO WEST OF	160	53	53	54	386301, 320666	192400
WOODSEAVES							
WO-1	DICKY'S LANE - LAND TO NORTH OF	108	36	36	36	Potential cp of 383206, 320810	
WO-2	STAFFORD ROAD - LAND TO SOUTH OF	120	40	40	40	6000m from town to our network	
WO-3	NEWPORT ROAD - LAND TO EAST OF	72	24	24	24		
WO-4	MOSCOW LANE - LAND TO SOUTH OF	33	11	11	11		
WO-5	NEWPROT ROAD - LAND TO WEST OF	66	22	22	22		
WO-6	THE GREEN - LAND TO SOUTH OF	120	40	40	40		
WO-7	THE GREEN - LAND TO NORTH OF	54	18	18	18		
YARNFIELD							
YN-1	BT TRAINING CENTRE, NORTH OF YARNFIELD	250	83	83	83	386614, 332907	

Source – Fulcrum Infrastructure Services

Appendix 4: Electricity Supply Infrastructure

Local electrical supply infrastructure distributes electricity using 11kV networks which originate from major substations. These substations can be interconnected by under or overground cables on the 132kV or 33kV networks. From the local 11kV networks 'local substations' then provide connections to properties a maximum of 300m away.

In general works to the local 11kV network have lead times of around 12 weeks where direct connection to a substation is not required. Works to the 132kV or 33kV networks require longer lead times, often 18 months to 2 years, and can generally only be carried out during the summer months when there is a lower load requirement on the network.

A small development of less than 50 houses would not normally (although this cannot be guaranteed) require any infrastructure work to the 11kV network, provided that the proposed development is within 300m of an existing local substation. For developments further than 300m away a new 'local substation' would be required costing in the region of £70k.

The division of costs for any works required would be based on the Central Networks Connection Charging Methodology which indicates that costs would be divided as follows:

1. Any works to connect a new development to an existing substation would be funded entirely by the developer;
2. A new substation required to service a new development would be funded entirely by the developer; and
3. Upgrades or changes to existing infrastructure required as a result of the development would require a contribution from the developer. The method of calculation of this contribution is set out in the above document.

Stafford

In order to deliver the proposed scale of housing developments 11kV network improvements would be required for all of the proposed sites. Across the whole of Stafford, if all of the proposed developments were to come forward these infrastructure improvements would cost in the region of £12 million (from Central Networks response to the SBC development query for Stafford).

In addition to the 11kV network improvements if proposed site SF-2 is developed, a new major substation connected to the 132kV network would be required. This could also serve SF-1. This infrastructure improvement would have a longer lead time than the local improvements and would cost in the region of £6 million as described in Central Network's response to the SBC development query for Stafford.

A query raised with Central Networks should confirm the basis for, and breakdown of, the development of the costs presented above. This should allow the costs to be more accurately apportioned to different developments or directions of development. It is anticipated that this information will be provided by Central Networks within the next month and should therefore be available in advance of the commencement of Stage 2 of the study.

As the majority of the developments proposed in Stafford town are on the outskirts of existing urban development and as a result of their proposed scale it is likely that all developments proposed will require a local substation.

Stone

The 11kV infrastructure in Stone is at capacity and as a result any further development in the town will require some level of local (11kV) improvements. The scale and cost of these improvements will be

identified through the Central Networks response to the development query submitted by Stafford Borough Council. This response should be received prior to commencement of Stage 2.

Rest of Borough (including employment sites)

A number of the residential and employment locations have been included in the development query submitted by Stafford Borough Council. The response to this query will provide an indication of the scale and cost of these improvements.

It is understood from our engagement with Central Networks that small developments of not more than 50 dwellings would generally be supported by the existing infrastructure in the village locations provided that they were within 300m of existing substations.

Appendix 5: Clean Water Supply

Clean (Potable) water can be supplied from a number of sources and in Stafford Borough these include both groundwater sources and reservoirs.

Severn Trent will not fully fund the provision of infrastructure to support development although an allowance for infrastructure to support growth is included within their business plan. A contribution to the cost of infrastructure from a developer is calculated as a 'commuted sum' which is based on the cost of the infrastructure minus the potential income which the new connections will generate for Severn Trent over a twelve year period.

In general lead times for reinforcement works to the network are in the region of 18 months which is generally followed by a construction period of around 12 months.

Stafford

The water supply to Stafford town comes from a number of boreholes and three storage reservoirs, located to the north, south east and south west of the town. The reservoirs to the south east and south west are currently serving the maximum number of properties their capacity will allow. The current network layout does not make full use of the potential capacity of the Peasley Bank Storage Reservoir (SR) to the north of the town. The increased utilisation of Peasley Bank SR does not resolve the overall lack of resource capacity of the boreholes supplying Stafford. The predicted growth in demand will further reduce the resource headroom and Severn Trent's ability to maintain supplies at times of emergency or exceptional peak demand periods.

Development proposed to the north of the town would therefore not require any infrastructure improvement works to be carried out to supply water. For the proposed developments to the west of the town Severn Trent have identified the need for reinforcement works which will release some of the capacity potentially available at the Peasley Bank reservoir for use in the west of the town. These reinforcement works would take the form of a 7.2km, 300mm pipe with a capital cost in the region of £1.75 million.

This reinforcement would mainly be required to support the delivery of SF-11 and so it is likely that the commuted sum would be levied against this development although this will be confirmed by Severn Trent as they further interrogate the outputs of their modelling.

Further reinforcement would be required in order to deliver the proposals to the south and east of the borough. Confirmation of the developments supported by each proposed reinforcement will come from Severn Trent as they continue to interrogate the outputs of their modelling. This proposed reinforcement would take the form of a 9.3km, 300mm pipe (capital cost £2.6 million) connecting the network in the north to the eastern side of the town. Reinforcement to the south of the town would take the form of a 6.8km, 250mm pipe (capital cost £1.6 million) extending the existing southern infrastructure to supply new developments to the south of Stafford.

Stone

Confirmation of the outputs from the modelling carried out by Severn Trent will provide an indication of any infrastructure improvements required to deliver the proposed schemes. This information is not yet available.

Rest of Borough (including employment sites)

The capacity of the rest of the locations within the borough is not yet clear. Severn Trent are continuing to develop a model which will provide an indication of the spare capacity at each of the village locations. As a result of this it should be possible to estimate the level of development which can take place before additional supply infrastructure investment would be required.

Appendix 6: Waste Water Infrastructure

Foul water systems take waste water from properties to sewage treatment works for treatment. Older properties often have combined flows into the foul water system which include surface water (such as run off from roofs and paved areas) as well as household and industrial waste water. Surface water flow into the foul water system is often a major issue as it is often a significant contributor to the flows exceeding capacity and causing flooding. The sewerage system can transport this foul water to the treatment works by gravity flow, by pumping using a rising main or by a combination of both.

New developments require surface water and foul water flows to be kept separate and provided surface water is managed in a sustainable manner (and is not connected to the foul system), then the additional increases in foul flows would not usually be expected to have a significant impact on waste water infrastructure. However, for both combined and separate existing systems storage will be required for any surface water on site in order to prevent increased flows into the system as a result of the development. Storage costs are typically taken to be in the region of £1,000 per cubic metre although these can vary dramatically dependant on the site specific solution adopted, they would also be funded by the developer.

Typically provided that notice of any developments can be confirmed then Severn Trent can provide the infrastructure required within 3 to 4 years. Funding for the infrastructure requirements for any development would come from the following sources;

1. On site infrastructure requirements to connect into the existing Severn Trent infrastructure would be funded by the developer.
2. Infrastructure improvements required between the development and the Sewage Treatment Works would be part funded by the developer and part funded by Severn Trent.
3. Improvements required to the Treatment Works themselves would be funded entirely by Severn Trent. When phasing is clearer we have agreed to advise Severn Trent so that they can meet their statutory obligations.

Stafford

Within Stafford all of the sewage is treated at Brancote sewage treatment works (STW) located 3.5km to the east of Stafford town centre. All flows are pumped to the treatment works with the majority pumped from either the Baswich or Lammascote pumping stations. Severn Trent have undertaken notional assessments for each of the proposed developments and provided the following costs for notional outline solutions which would deliver the sewage to the pumping stations for subsequent transfer to the treatment works generally using the existing infrastructure.

Table A 6.1: Waste Water Infrastructure Improvement Costs

Site	Potential Solutions and Costs
SF-1 & SF-h	£211,000 plus 5,000m³ of surface water storage at a cost of around £5 million.
SF-2	£96,000 plus 15,000m³ of surface water storage at a cost of around £15 million
SF-3, SF4 & SF-c	The foul flow from these sites would be pumped directly to Brancote STW via a new pumping station which would be funded by the developers, cost estimates are not available at this time.
SF-5 & SF-d	No improvements expected
SF-6	No improvements expected
SF-7:	No improvements expected but downstream flooding resolved by SF-8 solution
SF-8	£671,000
SF-9, SF-10 & SF-e	Additional surface water storage of 637m³ is required at a cost of around £637,000
SF-11 & SF-12	£573,000 plus additional surface water storage of 473m³ is required at a cost of around £473,000.
SF-a & SF-b	Additional surface water storage of 227m³ required at a cost of around £227,000.
SF-g	Additional surface water storage of 22m³ is required at a cost of around £22,000

Sites SF-1 and SF-2 have the highest developer investment requirements although these are based on the current proposed solution which would use storage to attenuate flows into the foul system. In addition Severn Trent has also raised concerns regarding how these developments would impact on Lammascote pumping station. This pumping station is currently operating close to capacity but due to its location (i.e. land locked immediately adjacent Asda superstore) there is limited scope to increase its pumping capacity. Whilst it may be possible to carry out improvement works to Lammascote, an alternative solution could be to drain the new developments and/or part of the existing sewerage catchment to a new pumping station with a new rising main to Brancote STW. This option would then free up capacity at Lammascote pumping station to accept additional flows from the proposed developments to the west of Stafford (SF-11 and SF-12). Severn Trent water has indicated that they intend to conduct further feasibility work in order to assess the best solution to address the capacity concerns at Lammascote.

The development of sites to the west are also likely to require improvements to existing local pumping stations or provision of a new pumping station and rising main to transfer foul flows to the treatment works depending on detailed site location and local drainage arrangements.

Development proposals to the south of Stafford would drain through Baswich pumping station where the notional assessments indicate there should be sufficient spare capacity.

Stone

Pumping station and treatment works capacity at Stone are not believed to be a constraint on development. Development to the east of Stone would drain by gravity to the pumping station which would then pump to the existing treatment works. Subject to detailed assessment Severn Trent have indicated that they do not envisage any significant investment required to cater for the development proposed to the east of Stone.

Rest of Borough (including employment sites)

Severn Trent have recently provided drainage network plans of the rest of the borough which have been reviewed by an experienced drainage engineer. Based on this review, which was informed by the drainage plans provided as well as further information from Severn Trent, the following suggestions focus on the development proposals at each location which are believed to be the least likely to require infrastructure works. These recommendations do not allow for the actual available capacity at any of the Sewage Treatment (STW) or Wastewater Reclamation Works (WRW) as this is not currently known. No modelling has been undertaken to support this review.

Table A 6.2: Summary of Preferred Development Locations (Mott MacDonald)

Eccleshall	EC-1 and EC-4 would be the preferred locations due to their proximity to the STW and size respectively. EC-2 could potentially also be developed dependant on the capacity of the treatment works although this would be likely to require additional infrastructure. EC-5 would be the least desirable and most costly site.
Gnosall	GN-5 is the preferred location due to its proximity to the Terminal Pumping Station (TPS). In addition GN-7 may also be deliverable due to its size. A small part of GN-6 may also be supported by the existing infrastructure. It is unlikely that the existing infrastructure will support any development North of the A518 with the possible exception of GN-9.
Haughton	The preferred positions for development in Haughton would be HN-4 and HN-1 as they are both relatively small developments and HN-4 is also adjacent to a TPS. HN-3 and HN-2 could also potentially be delivered although they would require connections to the WRW which would also be likely to require expansion to support this.
Great Haywood and Little Haywood	LH-1 is the preferred site in Little Haywood as a result of its proximity to the TPS. GH-1 would be the preferred site in Greater Haywood for the same reason.
Hixon	Proposed housing areas HI-5 and HI-4 and proposed employment areas HI-a and HI-b would be the preferred locations for developments in Hixon as a result of their proximity to the WRW.
Tittensor	The proposed developments in Tittensor are both believed to be deliverable without requiring further infrastructure developments.
Weston	It is likely that any development of the site would require a foul water pumping station and short rising main to pump flows to the head of the existing sewer system. If any development were to take place a smaller scale development would be recommended.

Woodseaves	The existing infrastructure would be unlikely to support the scales of development proposed. The 1.1 Ha site to the south may be deliverable with minimal infrastructure investment.
Yarnfield	Based on the information available the proposed development of Yarnfield seems to be much too large for the existing infrastructure to support.
Raleigh Hall Industrial Estate	Development at a smaller scale (perhaps around 12 Ha) than that proposed may be supported by the immediate infrastructure.
Ladfordfields Industrial Estate	The proposed development appears to be larger than that which the infrastructure could support. A smaller development (perhaps around 12 Ha) could be supported with the provision of additional treatment capacity.

It should be noted that some of the proposed development locations would drain to the same Wastewater Reclamation Works (WRW). As a result development of the proposed sites where this is the case would have to be considered in the whole rather than individually.

Eccleshall, Yarnfield and the Raleigh Hall industrial estate are all serviced by the Eccleshall and Sturbridge WRW.

Hixon, Little Haywood and Great Haywood are all serviced by the Hixon WRW.

Sites SF-1 and SF-2 have the highest developer investment requirements although these are based on the current proposed solution which would use storage to attenuate flows into the foul system. This solution has been proposed since Lammascote pumping station is currently operating at capacity. An alternative solution may be to carry out improvement works to Lammascote or to use an alternative (new) pumping station with a new rising main. Severn Trent water have indicated that they will conduct a feasibility study in order to assess the best solution.

The development of sites to the west would need to be serviced by a new pumping station and rising main.

Appendix 7: Green Infrastructure & Flooding

Stafford

Faber Maunsell have prepared green infrastructure (GI) concept statements for the four potential directions of growth around Stafford. The main points for each area are set out below. The Council is, at the time of writing, in the process of appointing consultants to undertake a GI strategy for the whole of the Borough, the results of which are scheduled to be ready by late October 2009.

Strategic issues

Stafford Town – Flood Alleviation Requirements

The first relates to development expanding to the north of Stafford. Stafford Common forms a finger of open space from the south side of the A513 extending southwards and currently creates a buffer between the residential area of Parkside and the industrial estates to the east. The extension of the Common as a strategic open space into the northern expansion area would maintain a link for wildlife between the town and surrounding countryside and provide a large recreational area for local residents. A strategic open space at this location would serve local needs and assist in reducing the increase in usage of Cannock Chase to the south of the town.

Burley Fields (western Stafford)

Key assets to be accounted for in a GI strategy for the area:

- Biodiversity and Geodiversity
  - Grassland and wetland areas to north of site
  - Treed hedgerows associated with old lanes
  - Small field corner spinneys
- Recreation and Access
  - Strong footpath and bridleway network linking to Stafford and surrounding countryside
  - National cycle route 55
  - Public football pitch
- Cultural Heritage
  - Archaeological sites including Roman villa to west, Burley fields Model Farm and post medieval lodge
  - Stafford Castle directly to south
  - Dismantled railway line
- Landscape and Visual
  - Strong east to west ridge lines providing visual separation
  - View to Stafford Castle
  - Characteristic red brick farmstead (Hill farm)

Although the M6 acts as something of a barrier, there are apertures under the motorway which would provide access to open countryside to the west.

The key assets of the area are such that they can be incorporated into a green infrastructure / landscaping and open space strategy for the area and would not impose undue cost on development, nor act as a constraint to development.

Marstongate (northern Stafford)

The Marstongate area requires a more sophisticated GI strategy than Burley Fields. As well as providing for residents recreational needs, the GI strategy needs to address the issue of down stream flooding, link into the existing Stafford Common to the south of the A513 and provide habitat to support existing populations of protected and notable species.

Key assets to be accounted for in a GI strategy for the area:

- Biodiversity and Geodiversity
  - Marston Brook Valley and associated wet grassland
  - New plantation / Little gorse woodland complex
  - Common land linking to Stafford town centre
  - Protected and notable species including great crested newts, bats, badgers and barn owls
- Access and Recreation
  - Areas of common land
  - Accessible routes across M6 to footpath network west of Stafford
  - Existing footpath / bridleway network north and east towards Trent Valley corridor
- Cultural Heritage
  - Common land and historic field systems around Marston including remnant piece meal enclosure
  - Frequent Marl pits identified through associated tree and shrub growth
  - Marston Lane ancient winding route
- Landscape and Visual
  - Existing landscape features and topography
  - Visual network comprising sight lines between characteristic high points, including views to Beacon Hill and Stafford Castle
  - Remnant historic field systems and red brick farmsteads

A key element of the GI concept statement is the provision of a country park, which it is proposed to be managed as an agricultural tenancy.

The GI within Marstongate is likely to be a significant component of the development, although no cost details are available at this stage. A significant element of GI is required in this location because of the scale of development proposed in order to create the high quality of living environment to meet residents' aspirations, to prevent development exacerbating flood problems downstream and to act as an alternative to Cannock Chase.

Hanyards (eastern Stafford)

There is a significant area of flood plain through the Hanyards and any GI strategy will have to ensure that downstream flooding is not exacerbated by development.

A number of key GI assets have been identified within the area. These have been used to highlight the importance of green space within the development of the concept statements.

- Biodiversity and Geodiversity
  - Baswich Meadows SSSI
  - Kingston Pool Covert LNR
  - River Sow and Worcester Canal
- Recreation & Access
  - River Sow and Worcestershire Canal towpaths
  - Public footpath linking Stafford and Cannock Chase
  - Tixall Country Park
- Cultural Heritage
  - Tixall Country Park – part of historic medieval Planned Enclosure network.
  - St Thomas' Priory – Scheduled Ancient Monument

    - Hopton Heath – historic battlefield
- Landscape & Visual
    - Lowland river valleys and canal networks (Worcestershire Canal and River Penk)
    - Sandstone estatelands (rural woodlands and parklands)
    - Arable land

GI will form a significant aspect of development to the east of Stafford and an important function of GI in this area will be to relieve pressure on nearby Cannock Chase. A detailed strategy with costings is required, but there are not any GI issues that would prevent development from being realised. As with Marstongate, GI in this areas would form an integral part of a flood mitigation strategy.

Lower Walton (southern Stafford)

This area of Stafford is the closest to Cannock Chase and thus a high quality of GI is required to mitigate the impact of development on the Chase (see section below). The area abuts and is bisected by floodplain.

A number of key green infrastructure assets have been identified within the area. These have been used to highlight the importance of green space within the development of the concept statements.

- Biodiversity and Geodiversity
    - River Penk and Staffordshire and Worcestershire Canal corridor
    - Parkland with associated mature trees
    - The Larchery
- Access and Recreation
    - Staffordshire and Worcestershire Canal
    - Footpath bridleway network to east of site linking to Cannock Chase
    - Nearby Cannock Chase Country Park and Forestry Commission woodland
- Cultural Heritage
    - Historic parkland and buildings at Acton Hill
    - Staffordshire and Worcestershire Canal
    - Adjacent Walton-on-the-Hill conservation area
- Landscape and Visual
    - Views over Cannock Chase
    - Prominent radial ridge lines and wooded stream corridor
    - Transition from river corridor landscape to geometric field pattern

No costings are available at this stage but GI is likely to represent a significant input to development to the south of Stafford. Development proposals will have to ensure that flooding within the area is not exacerbated and, equally important, the GI strategy will need to be designed to minimise the pressure on Cannock Chase which will be a kilometre away from parts of the development area. Conversely, GI / landscaping of the Lower Walton area will be required to minimise the visual impact of new development on views from Cannock Chase. The GI concept statement also proposes that the southern link road be incorporated into the landscaping structure to reduce its visual impact and to prevent it from becoming a barrier between new residential areas and the surrounding open countryside.

Cannock Chase

Cannock Chase Area of Outstanding Natural Beauty (AONB) and Cannock Chase Special Area of Conservation (SAC) are located to the south east of Stafford town and south of Little Haywood. Cannock Chase is also a Site of Special Scientific Interest (SSSI) and an important and popular recreational facility. (A survey undertaken in 2000 revealed that 1.27 million visits were made to the site during the year with 70 percent of visitors travelling from within ten miles.) Activities on the Chase include dog walking, horse riding and mountain biking.

The SAC, in particular is important because it is the most extensive area of lowland heath in the West Midlands and contains important colonies of grasses and fauna populations. Natural England

undertook a survey of the SSSI in February 2009 which revealed that 95 percent of the SSSI was classified as “unfavourable recovering” which means that past damage is in the process of recovering and that in time the site will reach what is considered to be its broadly natural state. However, appropriate management of the site is required to prevent further damage and to enable the SSSI to recover.

A survey undertaken by Cannock Chase Council in 2007 revealed that along the edges of footpaths the vegetation structure is changing because of dog fouling and similarly, there is vegetation change resulting from nutrient enrichment around car parks and access points. Further concerns about the future health of the Chase relate to air pollution from increased traffic, increased nitrogen in the atmosphere from Rugeley power station and potential damaged caused because there are two water extraction points within the Chase.

Cannock Chase SAC is a Natura 2000 site and as such an appropriate assessment (AA) under the Habitats Directive of the core strategies of Stafford Borough, Cannock Chase, Lichfield and South Staffordshire District Council’s and the County Council’s Waste and Minerals Core Strategies. Tenders to undertake the Appropriate Assessment (AA) have been submitted to Stafford Borough Council and a final report is expected by the end of July 2009. The AA will identify likely impacts of the various plans and proposed mitigation measures. However, at this stage SBC has already identified that the two primary issues of concern are increased visitor numbers and increased air pollution. So far as this relates to development around Stafford, the southern and eastern extension areas and development at the Haywoods pose the greatest impact on the Chase. These development areas are the closest to the Chase and likely to generate significant numbers of visits. They would generate significant levels of traffic, and the proposed southern and eastern link roads would possibly attract trips from elsewhere within the town, thus generating air pollution.

It will not be possible to comment on the potential impact on development around Stafford (particularly to the east and south) until the AA has been completed, however, the AA will be required to identify the potential measures that could be implemented.

Stone

No information at this time but the Council has commissioned a GI study to assess requirements across the Borough. Stone has generally easy access to open countryside and future development will have to incorporate GI that enables residents of the existing urban area to maintain that access.

Rest of Borough (including employment sites)

No information at this time but the Council has commissioned a GI study to assess requirements across the Borough. The majority of other settlements in the Borough are small with easy access to open countryside and it will be important that new development is designed in such a way to maintain easy access.

Appendix 8: Strategic Community & Social Infrastructure

Education (primary, secondary, further education)

Staffordshire County Council (SCC) School Organisational Team and Stafford Borough Council have been in dialogue about the potential impacts of growth within the Borough on education infrastructure. The School Organisational Team are not in a position to be precise about the impact because at this stage there remain uncertainties about the exact location of growth, the amount of growth at any given location, the mixture of housing types and the timing of housing delivery. At the time of writing there are no plans to expand school provision within the Borough and any expansion would be a consequence of housing growth. The section below summaries the latest position of SCC.

Stafford

Secondary education provision

The current High Schools which serve Stafford and its surrounding areas could not accommodate the likely number of additional pupils generated from the proposed housing requirements for the town. A more detailed assessment will be necessary once the preferred spatial option and housing allocations have been agreed, but it will be necessary to consider the possibility of an additional school, enlargement of existing schools and potential for relocating, and expanding, existing schools.

The School Organisational Team would require education contributions to be collected from all developers to ensure the sufficient supply of school places and potentially require a secondary school site, within a safeguarded area.

Primary and nursery education provision

SCC's current policy is to seek provision of a new primary school in an area where new development exceeds 1,000 houses. The preference, where there is a large development or a number of nearby smaller sites, is for the provision of a single, large primary school, rather than a number of smaller schools. For some proposed sites it may be necessary to enlarge current primary schools. However, if enlargements or new schools are not practicable some local reorganisation of current schools may be necessary; this may include relocation of current primary schools. There are various scenarios that need to be considered dependent on the final number of homes proposed for Stafford. For all developments, SCC state that they will require education contributions from all developers to ensure the sufficient supply of nursery and primary school places.

Stone

Secondary education provision

A three-tier system of first, middle and high schools operates in Stone and the likely number of pupils generated from the proposed housing identified would require additional accommodation to ensure the sufficient supply of school places. Whilst the High School could be suitably enlarged, it would be difficult to increase the size of either middle school sufficiently for the likely increase in demand. Further assessment is required, but, if enlargements or new schools are not practicable some local reorganisation of current schools may be necessary, this may include relocation of current schools, dependent on the final number of homes proposed for Stone.

Primary and nursery education provision

An assessment of need will be undertaken when the final number of homes and spatial distribution for Stone are agreed. The CC will require education contributions from all developers to ensure the sufficient supply of nursery and primary school places.

Building schools for the future (BSF)

The eight districts in Staffordshire have been placed in three phases for BSF, with priority determined by deprivation and education standards. Staffordshire's priorities in Phase 1 are Cannock Chase, Newcastle-under-Lyme and Tamworth; Phase 2 is Stafford Borough and East Staffordshire. Proposals have been approved for a reorganisation of Tamworth secondary schools and building work is expected to start in 2010 and completed in 2013. There is no indication when any other districts can be brought forward; the Government anticipates all secondary schools to be transformed by 2021. Re-development of schools through BSF would potentially enable additional capacity to be provided in existing schools.

Primary health care

There has been an ongoing dialogue between the South Staffordshire Primary Care Trust (PCT) and Stafford Borough Council on primary care requirements in the Borough. The PCT is not in a position to provide detailed information regarding the implications of development in particular locations. The PCT does not plan over a 20 year period in the same way that the planning authority is required to do, in part because of the short term character of its funding regime, but also because the way that medical care is provided is an evolutionary process that changes to meet advances in medical technology, changes in policy and in response to epidemiological factors. A further complicating factor is the introduction of the "any willing provider" procurement process for primary health services. Clarification will be sought during Stage 2 of this study from the PCT, about the impact of "any willing provider" on services in Stafford borough.

The PCT is cautious about identifying locations for facilities in advance of there being a proven need. This is because developers often seek to lock the PCT into long term contracts through providing sites and buildings as part of a development proposal. Although the PCT no longer considers its role to be that of a land owner, it does need to retain operational flexibility, in terms of moving services around, through medium-term or flexible leases.

South Staffordshire PCT is moving towards providing primary care services from large health centres rather than the traditional GP surgery and hospital model of care. This is in part to achieve economies of scale but also to move non-acute services closer to where people live.

The PCT has stated that, broadly, they aim to meet the national average GP:patient ratio of 1:1,700, although there is a mismatch between the crudeness of this calculation and the complex process for providing services. In addition, the move towards health centres and larger surgeries providing a greater range of services is distorting the geographical link between patients and GP. The PCT have stated that for Stafford town there is capacity to accommodate additional patients, but this has not been quantified. A review of Stafford Borough based surgeries on the PCT website showed that all of them are registering new patients.

Stafford issues

There are currently nine GP surgeries within Stafford town plus one branch surgery. The PCT is proposing to provide three health centres within Stafford which would expand existing surgeries. The three health centres are proposed at Holmcroft Road surgery, Weeping Cross and Rising Brook. Each health centre would be circa 25,000sq ft floor area and each will be assigned a specialist activity which will serve a town or possibly district wide catchment. The three specialist areas are: a renal unit with

12 dialysis stations; a musculo-skeletal centre; and a community based out patients centre. At this stage there is no information on which speciality will be located within which centre.

The Holmcroft surgery is owned by the GPs who are proposing to merge with the surgery located at Browning Street. The PCT currently consider that this health centre would be able to serve the needs of development to the north of the town. However, the scale of development currently proposed (3,800 dwellings) brings into question the ability of the centre to meet the health demands of the northern area, both in terms of the number of new patients and the geographical location of the centre. If the Ministry of Defence locates the new housing it requires to the north east of the town the ability of the Holmcroft centre to meet the needs arising from development to the north would be even more questionable.

Weeping Cross surgery is owned by the PCT which is exploring the potential to purchase a neighbouring site. The PCT is aware that Staffordshire Police are planning to dispose of their headquarters site once the property market picks up and that development of that site would result in a sizable number of additional dwellings in the area. The Weeping Cross health centre would be geographically located to serve the potential eastern and southern expansion areas, but the level of development proposed would almost certainly require additional facilities.

Rising Brook surgery is also owned by the PCT and discussions are taking place with the Regeneration section of Stafford Borough Council (SBC) exploring the potential for a land swap between the PCT and SBC to provide for the health centre. The Rising Brook location is not suited to serve the day to day needs of any of the expansion locations.

In addition to the above, the Regeneration team at SBC has raised concerns with the PCT about the provision of primary health care in the Castletown area given the proposed level of development. The PCT are exploring the implications of growth in this area and will also look in more detail are the implications of growth elsewhere once SBC has decided on the future directions of growth.

Stone

Within Stone there are two GPs' surgeries, Mansion House (which also has a branch surgery in the Walton area of the town) and Cumberland House. The GPs in Stone have put in a proposal to the PCT to combine their services into a single centrally located health centre that would provide a wide range of services including a minor injuries unit and an MRI scanner. Part of the rationale for the health centre is to reduce the need for residents to travel to Stoke or Stafford hospitals for minor treatment. The branch surgery at Walton is proposed to be closed but if a sizeable amount of development is located the east of Stone at Walton, there would be a case for retaining the branch surgery. This situation would have to be kept under review.

Rest of Borough

Within the rural part of the Borough, there are health centres at Gnosall and Penkridge while GPs at Brewood have submitted a proposal for a health centre. The surgery at Eccleshall is housed in a former public house and has recently had an extension added to expand capacity and internal works to meet Disability Discrimination Act (DDA) requirements. Similarly, the surgery at Wheaton Aston is relocating during 2009 to premises that meet the DDA.

The Gnosall health centre was paid for by a developer but the site has been "over proofed" and only 60% approx is used. Dental surgeries within the centre are not used and the pharmacy is too large.

The PCT are still considering the possible implications for primary care provision of the different directions for growth and will be a position to undertake a more detailed analysis once the Council has agreed its preferred option. Once the directions of growth have been agreed the PCT will assess the potential requirement for additional facilities in any of the growth areas or expansion to existing facilities.

Appendix 9: Viability of Strategic Locations for Housing Delivery

Objectives

PPS3 requires that, in drawing up policies relating to the provision of affordable housing, policy makers should have regard to the economics of delivery. That is to say that they should consider whether it would be financially worthwhile for a developer to undertake development in the proposed policy environment.

PPS12 requires that, in order to be considered sound, policies included in Core Strategies must be founded on a robust and credible evidence base. Recent decisions at public inquiries – notably that into the Blyth Valley Core Strategy – have made clear that such an evidence base must include an assessment of financial viability for delivering affordable housing.

The purpose of this section of the report is to summarise our interim findings about the absolute and relative viability of housing development in Stafford, Stone and in the other settlements. Before defining what we mean by these terms, it may be useful to explain the methodology we will use in this study.

Methodology

The mechanism generally used to assess viability is a residual land appraisal. In such an appraisal, the revenue anticipated from a development is estimated. From that revenue, an estimate of the costs of the development, including a reasonable allowance for developer profit, is deducted. A cashflow analysis is then used to calculate the cost of financing the project over its likely duration.

This process produces a residual, which is the surplus of revenue over costs. This residual is, in effect, the amount of money that the developer might be expected to pay the landowner to acquire the land or, potentially, the amount that another developer would have to pay him to buy the land and the development opportunity from him. However, this residual is produced at the end of the development process, whereas the viability of the project must be assessed (and the land acquired) at the beginning. The residual which is the product of the cashflow must therefore be discounted to its net present value – the value today of an asset whose value will not be realised until several years from now.

The net present value of the residual is the amount available to the developer to acquire the land for the development and this is the output of the appraisal process. But this does not, in itself, tell us whether a development is likely to be viable or not. We must then ask whether a developer is likely to be able to acquire the land at this price – or, if the land is already in his control, whether he is likely to find it more profitable to put it to other uses.

Identifying an appropriate land value may be considered to be a subjective process and very far from being an exact science but it should be obvious that, if the land value which may be achieved by residential development is less than its value in its current use then it will not come forward for residential development. Moreover, if the landowner has a realistic prospect of receiving planning permission for a different, more profitable form of development than residential, it is again unlikely that he will bring it forward for housing development.

Moreover, when assembling sites, recent inquiries have found [citation] that, even where there is no alternative use, developers may need to pay landowners a premium of as much as 25% over and above the existing use value in order to encourage the landowner to sell. This is perfectly reasonable;

if a developer were to seek to buy an individual's home or business for development, that individual would certainly wish to be paid significantly more than the home's current market value.

Finally, the amount that it is necessary to pay in order to acquire land will depend on its "hope value" the potential that the site may have a higher value for residential development, or any other use, in the future.

Therefore, when we speak of a site being viable in absolute terms, what we mean is that the net present value of the residual is sufficient for the developer to acquire it, in the light of all of the above considerations.

However, this study is also intended to look at the relative viability of sites currently under consideration through the site allocation process. One aspect of this is to identify which sites generate the highest residual land values. However, this is only half the answer. Sites which have higher residuals for residential development may appear to be more viable than sites with lower residuals but these more valuable sites may also have higher alternative use values and developers may therefore need to pay more in order to bring them forward.

A detailed analysis of relative viability would therefore have to include consideration of the status of sites under review. This is an immensely difficult task, nonetheless, it is possible to say that sites that are clearly identified, are under unified control and which are being actively promoted for residential development can more easily be subjected to this form of detailed consideration than sites which are currently owned by a variety of different people and who may not all have the same objectives. Sites in this latter category are likely not only to be subject to delays associated with assembly but also to ransom payments as owners with small parcels of land critical to development seek to exploit their position in order to maximise their receipts.

Current Market Conditions

Any attempt to appraise the financial circumstances of residential developments faces a dilemma when it comes to the values and costs they assume in the future. Current conditions in the housing market are certainly difficult with property values falling sharply. This has led lenders to ascribe greater risk to residential development than they did perhaps two years ago. The result is that they are reluctant to lend to developers unless the developers are able to give greater comfort than previously about levels of profit.

The consequence of both reduced values, more expensive credit and the requirement to make larger profits has substantially reduced the viability of development. From the point of view of housing delivery, it is certainly to be hoped that credit conditions will improve and that property values will stabilise before resuming growth, albeit at a slower rate than in the years of the boom. Rising values would certainly result in higher residuals and thus, potentially, greater viability and improved capacity to deliver both infrastructure and affordable housing but there is no certainty about the level at which values will bottom out or the rate at which they may rebound.

Moreover, values are far from being the only source of uncertainty encountered when projecting development appraisals into the future. Build costs, sales rates and the cost of finance may also change. Any assumption about changes in these factors will have an impact on the net present value of the residual and the impact of assuming changes in several of these factors at once could be very significant.

It is impossible for any individual or organisation to say, with any degree of certainty, what will happen to these factors in the future and yet, it is necessary to make some assumptions – both because Core Strategies are required to consider a 15 year time horizon but also because many of the major sites identified in the Council's selection process are very large and would take at least that long to build out.

There is no correct way to resolve this dilemma: on the one hand, some have argued that because of the impossibility of seeing into the future, all appraisals should be a carried out on the basis of current values and costs. On the other, it has been pointed out that this is, itself, a projection of sorts and not even an especially realistic one (since the likelihood of values, build costs and all other factors remaining static over the next 15 years is low).

In our view, the best approach is to present the evidence in terms of a baseline using static costs and values. In our final report, as well as refining the baseline studies, we will also carry out a series of sensitivities based on assumptions about possible future directions of values and costs.

Assumptions

At this, interim stage, we have carried out a series of appraisals of sites in each of the areas identified in the brief. Whilst we have not appraised each of the 59 sites to which references numbers have been ascribed in the Council's Issues and Options paper, we have sought to ensure that the sites appraised do contain a representative sample of both large and small sites in all of the different areas of the Borough. The results are attached at the end of this Appendix.

What follows is a summary of the more important inputs to our appraisal:

Timescale

At this stage, it is difficult to determine which sites are likely to come forward first. Indeed, since these baseline studies assume that costs and values remain static, it would make little difference. However, it is still important to recognise that the duration of development will have an important effect on viability. If it were possible to develop over a very short timescale and sell the completed dwellings quickly then the cost of finance would be minimised as the debts would be repaid very quickly. If, on the other hand, the timescale was longer, the effect would be to increase the impact of finance costs as more interest charges would be incurred.

The duration of development is determined largely by the rate of sale. Developers will wish to progress development at the rate that the market can absorb the new homes and this is likely to vary somewhat with the size of the scheme. This becomes complicated in smaller developments and, particularly flatted developments. This is because, where development is to consist of a single block of flatted accommodation, all the units will need to be completed before and of the units can be occupied. However, for larger developments we have assumed the following rates of sale:

Development Size	Rate of Sale (sales/annum)
50-200 dwellings	60
201-1,000 dwellings	100
1,001-3,000 dwellings	200

We recognise that these rates of sale represent considerable generalisations and may adjust them in light of further evidence gathered as we move towards the final report, either for all sites or for specific sites.

Mix

Some of the sites identified in the Council's consultation documents are at considerably more advanced stages than others. In some cases, information may be known about the mix of residential types and sizes that will be provided. However, this is not so in all cases and it is therefore necessary to make assumptions about the mix of units to be provided on at least some site. However, it would

also be helpful to have a common basis of assessment in order to make comparisons between the circumstances of different developments. For this reason, we have assumed that all sites will be developed with the following mixture of homes.

%	Bedrooms	Size (m^2)	Type	Efficiency
12.5	1	50	Flat	85%
12.5	2	66	Flat	85%
30	2	76	House	100%
35	3	86	House	100%
10	4	101	House	100%

These units sizes are large enough to meet the requirements of the HQI (Housing Quality Inspection) system used to assess the quality of affordable housing. In the private sector, where occupancy rates tend to be lower, smaller sizes may be appropriate. However, at this stage, we felt it appropriate to err on the side of caution.

Values

Quite wide ranges of values are to be found in Stafford Borough and even within specific settlements. Because new housing has traditionally achieved a significant premium over equivalent properties available in the second hand market, it would have been normal to have used the top end of the range as a guide to the values on new developments. However, in the current market, where housebuilders with unsold stock on their hands are offering significant discounts and incentives, this assumption is no longer quite so robust.

We started out by considering the three Housing Market Areas in the Borough for which the Find a Property website provides a three month average of advertised prices. Obviously, because these figures are based on advertised figures rather than completed transactions, they will be slightly higher than completion prices but they form an interesting starting point.

It is important to note that the Stafford area also includes the settlements of Eccleshall, Gnosall, Penkridge, Woodseaves and Hixon and that the Stone area also includes Moddershall and Yarnfield.

Comparison of advertised property prices

Type	Stafford	Stone	Barlaston
1 bed flat	£110,000	£115,000	n/a
2 bed flat	£150,000	£135,000	£140,000
2 bed house	£160,000	£150,000	£160,000
3 bed house	£215,000	£195,000	£180,000
4 bed house	£365,000	£295,000	£375,000

We then sought to clarify these figures through contact with a number of local agents. Their experience suggested values well below these levels – agents at John German, Nicholsons and Clarks reported values for one bedroom flats in Stafford of between £71,000 and £103,000 although one did note that much of the flatted stock in the area was quite old.

Among smaller houses, in Stafford, the agents again reported values well below the 3 month average although these views were based upon sales of older houses and Victorian terraces in particular which may not provide a very good comparator. One agent did specifically mention his view that the premium for new build properties was not very great in Stafford at present but this does not appear to be borne out by the asking prices of new properties currently listed for sale at Rightmove

New properties currently available in Stafford

Type	Lowest price	Highest Price
1 bed flat	£95,000	£135,000
2 bed flat	£139,950	£155,000
2 bed house	N/A	N/A
3 bed house	£189,995	£199,995
4 bed house	£350,000	£385,000

Source: Rightmove

These figures appear broadly consistent with the averages reported by Find-a-Property.

We also asked agents about values in Stone. There was broad agreement that Stone as a whole was viewed as a more sought after area than Stafford and that demand in Stone was holding up. Agents reported values that were broadly consistent with the averages detailed above. Nonetheless, we once again checked the spread of asking prices for new build.

New Properties currently available in Stone

Type	Lowest price	Highest Price
1 bed flat	£103,995	£104,995
2 bed flat	N/A	N/A
2 bed house	N/A	N/A
3 bed house	£174,950	£229,950
4 bed house	N/A	N/A

Source: Rightmove

In view of the importance of value information to assessment of this type, we are concerned about the difficulty of obtaining robust price data for the different settlements. In particular, we are concerned that local agents' views seem to jar so sharply with the values that we have been able to obtain through aggregator websites. Also, despite the widespread perception that Stone is a higher value market than Stafford, the weighted average of values for the mix that we have assumed produces a higher figure for Stafford than for Stone. The principle sources of this anomaly are likely to be that new developments in Stafford are not perhaps typical of the housing market more generally.

The value that runs most conspicuously counter to expectation is that for four bedroom houses in Stafford and Stone. This is likely to be the consequence of the relatively small sample size. Despite our slight misgivings, we have carried out our initial assessments on the basis of the 3 month average values reported by Find A Property although we will review these with a view to providing greater refinement at a settlement level in the next phase of work.

Build Costs

We have based our estimate of build costs on figures from the Build Cost Information Service. Starting with the median rate for Housing (mixed developments, BCIS ref. 810), Forecast for Q2 2009. This has been adjusted to reflect costs in Stafford.

To this figure, we have added an allowance of 10% to allow for the cost of external works and a further allowance of £50/m^2 to allow for the cost of meeting level 3 of the Code for Sustainable Homes (CfSH3). As follows:

Base Rate	Adjustment factor for Stafford @94%	Plus Externals Allowance @10%	Plus CfSH3 @ £50/m^2
£800	£752	£827	£877

Infrastructure Costs

A key objective of this study is to ensure that infrastructure costs are considered when assessing the viability of sites under consideration. However, at this interim stage, where infrastructure costs are still in the process of being identified, refined and apportioned, it has not been possible to make full allowance for all of these costs in our appraisals.

However, where costs are available, we have included them. As a baseline we have apportioned the costs on the basis of the figures set out by Colin Buchanan in its research data – by settlement area. The transport costs identified for Stafford North are therefore apportioned to Site SF-1 and SF-2 and so on. Other Section 106 costs – which might be expected to include contributions towards education, health, community facilities or public open space have not been included in the appraisals.

We have also allowed for the cost of new utilities infrastructure – electrical installation, clean and waste water – where the companies have been able to provide it. In practice, this means that we have some figures for Stafford although costs in Stone and the Rest of the Borough are unquantified.

It is important to note we have ascribed to residential development, the cost of all the infrastructure identified to date whereas, in practice, employment land should, and will, make a significant contribution towards meeting these costs. We do not, at present, have sufficient information to be able to apportion these infrastructure costs in any other manner without the use of very broad assumptions.

In later work, we may consider the consequences of apportioning the costs in different ways (as a flat levy across the Borough for example) but, based on our work to date, the impact of such differences in apportionment seem unlikely to be decisive.

Abnormal and remediation costs

In addition to the cost of infrastructure and servicing, a development appraisal of a specific site would include an allowance for any abnormal costs that may relate to the site in question. Unusual ground conditions, decontamination costs, archaeological or environmental works or even the cost of compliance with local design guidelines can all add significantly to the development costs of a particular scheme and will scarcely add value in compensation.

Any developer would therefore allow for such costs when carrying out an appraisal of a proposed development. We have not done this – not only because it would be impossible to obtain accurate estimates of such costs when many of the schemes are currently ill-defined – but also because this study is not intended to constitute a full development appraisal.

A word of further explanation may be helpful on this point. Where a developer is carrying out an appraisal in order to determine whether to proceed with development, he must factor in abnormal costs in order to tell him how much he should pay for the land. However, this study is not concerned with the precise details of specific land deals, it is concerned with the general viability of the Council's approach.

The key to assessing viability is the relationship between the residual value of land for residential use and its value for some other use. Although the value of a site will be substantially decreased if it is heavily contaminated, this will not necessarily compromise its viability because the value of the land for any other use will also be affected (since they will face the same clean-up costs)

Initial Results

For each site, we have carried out a scheme appraisal both with and without affordable housing. The purpose of appraising the sites unencumbered by affordable housing is by way of control. If the sites

are not viable even without affordable housing then we may conclude that it is not affordable housing but the overall relationship between values and costs that is limiting the delivery of housing in Stafford.

Based on our assumptions, all the sites appraised in the Borough produced positive Residual Land Values both with and without affordable housing. However, this is not to say that all sites would be financially viable, it is not possible to say what level of receipt is required in order to bring the sites forward for development.

We stress, once again, that we have not appraised all the sites so far identified through the site allocation process. We have therefore selected nine sites – three each from Stafford, Stone and the Rest of the Borough. They have been selected as being representative of a range of sizes and areas but it may transpire that there are other sites upon which attention could more usefully be focussed. If the Council is keen for us to focus on sites not currently appraised, we will happily do so as we move towards the final version of our report.

Stafford

For Stafford North and East, we have looked at three sites – SF-1 SF-2 and SF-3. Two of these sites, SF1 and 3 are, according to the schedule, very similar – having the same capacity and being almost exactly the same size. The difference between the two schemes (insofar as the viability analysis is concerned) is therefore principally caused by the difference in the level of infrastructure costs.

With or without affordable housing, SF-1 which is in Stafford North would generate somewhat higher land values than SF-3. However, this comparison allows us to concentrate on the effect of the differential in the burden of the infrastructure costs only. As we can see, the differential is very small – just £20,000/ha in this appraisal. Whilst this figure is not so small as to be ignored completely, it should be said that only a very small difference in the values achievable on the two sites or the sales rate would more than off-set this difference.

The third site we have appraised in Stafford is SF-2. This site, like SF-1 is in North Stafford and we have therefore applied the same level (pro rata) of costs for transport infrastructure as our appraisal of SF-1. Although very significant costs have also been allowed for waste water management, the main difference here is the size of the site and the time taken to develop the scheme.

According to our modelling, the residual generated by a development on this scale is, again, comparable to but slightly less than that generated by SF-1. It might therefore appear that the effects of scheme duration are relatively small. However, two things should be borne in mind. First: because larger schemes will take longer to build out, they will be more affected by future fluctuations in costs and values. Second, in recognition of the strategic scale of the SF-2, we have assumed a substantially higher sales rate here than at SF-1 – in fact double the rate of sale. This is intended to reflect the fact that, on such a large development, the site would most likely be parcelled out to smaller developers who would commence work simultaneously and might therefore achieve a faster rate of sale.

That this much increased rate of sale still results in a lower value per hectare than at the smaller site, shows how significant the effect of the longer development period is. In practice, this is likely to be off-set by phasing the development. Rather than acquiring all the land at the beginning of the development, options will be obtained by the developer who will then exercise those options as the development goes forward. This would have the effect of reducing the land finance costs identified in the appraisal and would therefore return higher values to the land owners. Viability would then be determined by considering whether the increased value was greater than the value of the site for other uses at the time of acquisition. However, it is neither the role nor the intention of this study to look at the assembly arrangements for specific sites. We have therefore brought all the land values back to net present values in order to facilitate overall comparison.

Initial Findings – Stone

We have carried out appraisals of Site SN-1, SN-2 and SN-5: one site in each of the three sub-areas of Stone.

Residual values for sites SN-1 and SN-2 are remarkably consistent with those for Stafford despite the slightly lower values overall (see above). But this result should be treated with some caution, principally because we have been unable to include servicing and infrastructure costs for sites in Stone which may be off-setting the lower values. When these costs are quantified and added to the mix, the residuals calculated for Stone may fall somewhat.

The residual calculated for SN-5, a site of only 90 units - is substantially higher than that for the other, larger sites. This is partially due to the lower level of infrastructure costs on this site but also to the shorter development period which means that less money is diverted to financing the acquisition of land and more is therefore available for the acquisition of land. By way of illustration, in our appraisal, the cost of land financing on SN-5 is just 4.5% of GDV, which compares to 8.9% on SN-1.

As noted above, the developers of larger sites will, in practice, seek to phase the acquisition of their sites in order to support land values and this will erode the differential. Moreover, it is important to note that smaller sites often need to pay a higher value for land (per hectare) because the sites are more likely to be brownfield and to have existing or alternative uses.

Initial Findings – Rest of Borough

The three sites appraised outside Stafford and Stone were, GN-1, EC-1 and WO-2 in Gnosall, Eccleshall and Woodseaves respectively.

Because of the difficulty of finding reliable price data for these smaller settlements, we have been compelled to rely, at this stage on the values we have obtained for Stafford. The other settlements therefore benefit from higher values and, also, the fact that the infrastructure costs associated are, at present unidentified and therefore omitted from these appraisals.

With this in mind it is, perhaps, unsurprising that they produce substantially higher residuals than sites in either of the major settlements. We would therefore give limited weight to these findings at this stage.

Quantified summary of findings

A quantified summary of the findings above, is set out in the following table:

Site	RLV/ha unencumbered	RLV/ha 15% affordable
SF-1	£914,000	£662,000
SF-2	£787,000	£569,750
SF-3	£904,000	£646,000
SN-1	£954,000	£679,000
SN-2	£979,000	£696,000
SN-5	£1,288,000	£944,000
GN-1	£1,567,000	£1,171,000
EC-1	£1,548,000	£1,153,000
WD-2	£1,594,000	£1,224,000

A more detailed summary of the appraisals upon which these findings are based is appraised to this report.

Sensitivity analysis of different affordable housing targets

The purpose of this report is to give an idea of the scale of the impact that the a requirement to provide affordable housing will have on development. The intention is for these findings to be made available to the Council's development partners and others with experience of the local housing market who may be able to test and correct our assumptions, prior to more detailed viability testing being undertaken.

We have therefore tried to keep this report simple. However, we do recognise that the Council is appraising a number of different options for affordable housing targets. Alongside the 15% target appraised above, the Council has also asked us to examine the impact of 30% and 40% affordable housing targets.

Rather than run appraisals for all sites at these levels, we have appraised the impact on three of the nine sites discussed above – at the instruction of the Council, we have used the three sites which produced the highest residual land values in each of the three areas of the Borough - SF-1, SM-5 and WO-2:

Residual Land Value at different levels of Affordable Housing

Site	RLV/ha 0% AH	RLV/ha 15% AH	RLV/ha 30% AH	RLV/ha 40% AH
SF-1	£914,000	£662,000	£398,000	£222,000
SN-5	£1,288,000	£944,000	£553,000	£318,000
WO-2	£1,594,000	£1,224,000	£795,000	£539,000

As is clear from these results, increasing the percentage of affordable housing has a very significant effect on the residual land values. At 40% affordable housing, the residual value of these sites is reduced to as little as a quarter of its "unencumbered" value.

Moreover, these sites were the highest value sites appraised, were such targets to be imposed upon SF-2, it is likely that the resulting land value would be negative.

It is fair to say that, even at 40% affordable housing, some of the residual values obtained are significantly in excess of agricultural land values but it should be borne in mind that such sites could incur significant costs for servicing, new transport junctions etc, which are not appraised in this exercise. Moreover, even Greenfield sites incur assembly costs and the value it is necessary to pay for the land in order to bring it forward may be very much greater than its value as agricultural land.

Conclusions and further work

This is an interim report. And, in consequence, we have had to make a large number of assumptions. Some of these assumptions we know to be false (the exclusion of infrastructure costs in all cases where they have not yet been quantified) and in other cases, we have made estimates which we hope will turn out to be robust as better data becomes available (for example on values).

As we progress from here to the next stage, we will further refine our assumptions and, where this is not possible, to carry out sensitivity testing. With this in mind, our conclusions are tentative at this stage.

However, it is certainly good news that all the appraisals we have carried out to date produce positive residual values. This is not the case everywhere – especially where very high percentages of affordable housing are being sought. However, whilst it is good news that residuals remain in positive territory, they are well below identified values in the area. The following table is an extract from the

Valuation Office Agency's report on residential land in two of Stafford's neighbouring Boroughs as at the end of Quarter 1 2009.

	£/ha		
	Small Sites	**Bulk Land**	**Flats / Maisonettes**
Stoke on Trent	1,750,000	1,650,000	1,500,000
Lichfield	2,000,000	1,900,000	2,100,000
Average	1,875,000	1,775,000	1,800,000

These figures also take into account the substantial drops in residential land values across the West Midlands in the previous two quarters.

This is of some concern in light of the fact that there are still some further costs to be added into the appraisals but, conversely there is also the possibility of identifying greater value in the schemes as we move forward.

First of all, we have carried out our modelling on the basis of the densities identified in the site allocations. These average around 30 dwellings per hectare – the very lowest density that accords with government guidance. A slight increase in the assumed density of development would increase per hectare land values accordingly.

Second, at this stage we have assumed that both costs and values remain constant over the entire span of the appraisals. As noted above, we have done this because any projection into the future is by nature uncertain and we wished to have a baseline to work from. In the next round of work we will carry out sensitivity testing in order to consider the impact of a number of scenarios. These will include both "upside" and "downside" options, for example:

- An immediate and steady recovery in both costs and revenues;
- A short term fall in values and costs followed by a longer term recovery.

The effect of the former is likely to be an improvement in viability across the board. The latter is likely to advantage larger, longer term schemes which would receive a disproportionate benefit from the rise in values towards the end of the programme.

Once the Council has agreed its preferred spatial strategy we will also be able to consider the effect of moving particular developments forward and back in the development programme in order to see what effect that had on viability. We will co-ordinate these options within the consultant team and with the Council in order to ensure that the scenarios reflect the phasing of infrastructure necessary for the on-going development of Stafford and Stone. This will enable us to recommend options for the phasing of developments within the Core Strategy.

Finally, in the next stage of our work, we will consider the impact of social housing grant on overall viability. Whilst the availability of grant cannot be guaranteed except in respect of particular developments and, even then, only over the very short term, the impact that it has on development viability can be very significant. If a development were to provide 40% affordable housing at 30 dwellings/ha, the receipt of £40,000/unit in grant would add £480,000/ha to the gross development value – which should flow through to the land value. In the context of the residual land values reported above, there is scope for grant to make a big impact on the level of affordable housing that can be delivered.

We will also look at the possible effects of different economic scenarios based upon projected outcomes over the development framework period. We will take upside, middle and downside assumptions on the performance of the property market in order to assess the effect that these may have upon viability over the short, medium and longer terms.

Appraisal Results

Tables showing the results of the initial appraisals with different levels of affordable housing for sites SF-1, SF-2 and SF-3 in Stafford; SN-1, SN-2, and SN-5 in Stone; and GN-1, EC-1 and WO-1 in Gnosall, Eccleshall and Woodseaves respectively. For comparison of the impact of 30% and 40% affordable housing on residual land values, a comparison of sites SF-1, SN-5 and WO-2 has been made.

	Stafford SF-1		Stafford SF-2		Stafford SF-3	
Site Area (ha)	30		100		32	
Units	800		3000		800	
	100% Market	15% Affordable	100% Market	15% Affordable	100% Market	15% Affordable
Revenue						
Private	£153,756,213	£130,730,000	£576,662,493	£490,410,000	£153,756,213	£130,730,000
Affordable		£5,318,841		£19,902,394		£5,318,841
Total	£153,756,213	£136,048,841	£576,662,493	£510,312,394	£153,756,213	£136,048,841
Costs						
Sales Costs	£5,226,118	£4,329,440	£19,599,682	£16,238,802	£4,087,872	£4,329,440
Build Costs inc. Contingerncy	£58,977,734	£58,977,734	£221,166,503	£221,166,503	£58,977,734	£58,977,734
Total Fees	£6,044,523	£6,044,523	£22,421,650	£22,421,650	£6,044,523	£6,044,523
Electric	£869,000	£869,000	9258000	£9,258,000	£867,000	£867,000
Gas		£0				£0
Clean Water		£0		£0	£967,000	£967,000
Waste Water	£5,211,000	£5,211,000	£15,096,000	£15,096,000		£0
Health		£0		£0		£0
Education		£0		£0		£0
Community		£0		£0		£0
Transport	£2,770,526	£2,770,526	£10,389,472	£10,389,472	£5,600,000	£5,600,000
Profit	£26,138,556	£22,543,230	£98,032,624	£84,563,844	£26,138,556	£2,253,230
Interest + finance	£1,007,281	£1,279,441	£3,058,511	£4,670,748	£991,306	£1,267,410
Total Costs	£106,244,738	£102,024,894	£399,022,442	£383,805,019	£103,673,991	£80,306,337
Residual	£47,511,475	£34,023,947	£177,640,051	£126,507,375	£50,082,222	£55,742,504
Interest on Land	£17,790,972	£12,876,397	£90,335,896	£65,422,417	£18,765,671	£13,420,420
Gross Residual Land Value	£29,066,258	£21,037,001	£83,386,981	£60,389,923	£30,658,687	£21,925,805
Acquisition costs	£1,643,652	£1,189,610	£4,715,406	£3,414,957	£1,733,702	£1,239,871
Residual Land Value	£27,422,606	£19,847,391	£78,671,575	£56,974,966	£28,924,985	£20,685,934
Residual Land Value / ha	£914,087	£661,580	£786,716	£569,750	£903,906	£646,435

	Stone SN-1		Stone SN-2		Stone SN-5	
Site Area (ha)	47		20		3	
Units	1400		600		90	
	100% Market	15% Affordable	100% Market	15% Affordable	100% Market	15% Affordable
Revenue						
Private	£244,200,941	£207,105,000	£104,701,687	£88,785,000	£15,736,350	£13,460,000
Affordable		£9,314,860		£4,002,927		£535,634
Total	£244,200,941	£216,419,860	£104,701,687	£92,787,927	£15,736,350	£13,995,634
Costs						
Sales Costs	£7,461,770	£6,927,414	£3,396,376	£2,970,689	£508,779	£446,620
Build Costs inc. Contingerncy	£103,236,060	£103,236,060	£45,166,707	£45,166,707	£6,660,508	£6,660,508
Total Fees	£10,530,356	£10,530,356	£4,643,421	£4,643,421	£739,301	£739,301
Electric		£0		£0		£0
Gas		£0		£0		£0
Clean Water		£0		£0		£0
Waste Water		£0		£0		£0
Health		£0		£0		£0
Education		£0		£0		£0
Community		£0		£0		£0
Transport	£5,230,000	£5,230,000	£1,780,000	£1,780,000	£78,816	£78,816
Profit	£41,514,160	£35,766,742	£17,799,287	£15,333,626	£2,675,180	£2,320,338
Interest + finance			£791,852	£930,235	£125,060	£137,921
Total Costs	£167,972,346	£161,690,572	£73,577,643	£70,824,678	£10,787,644	£10,383,504
Residual	£76,228,595	£54,729,288	£31,124,044	£21,963,249	£4,948,706	£3,612,130
Interest on Land	£26,000,949	£18,523,897	£10,006,596	£7,116,700	£820,540	£601,674
Gross Residual Land Value	£47,526,486	£33,859,369	£20,756,983	£14,762,385	£4,094,172	£3,002,115
Acquisition costs	£2,687,550	£1,914,695	£1,173,775	£834,790	£231,519	£169,765
Residual Land Value	£44,838,936	£31,944,674	£19,583,208	£13,927,595	£3,862,653	£2,832,350
Residual Land Value / ha	£954,020	£679,674	£979,160	£696,380	£1,287,551	£944,117

	Gnosall GN-1		Eccleshall EC-1		Woodseaves WO-2	
Site Area (ha)	7.5		8		4	
Units	225		240		120	
	100% Market	15% Affordable	100% Market	15% Affordable	100% Market	15% Affordable
Revenue						
Private	£43,198,718	£36,700,000	£46,019,644	£38,975,000	£22,952,293	£19,730,000
Affordable		£1,375,576		£1,531,995		£729,620
Total	£43,198,718	£38,075,576	£46,019,644	£40,506,995	£22,952,293	£20,459,620
Costs						
Sales Costs	£1,387,301	£1,207,254	£1,479,669	£1,286,352	£738,455	£651,190
Build Costs inc. Contingerncy	£16,603,088	£16,603,088	£17,710,654	£17,710,654	£8,846,660	£8,846,660
Total Fees	£1,749,059	£1,749,059	£1,861,315	£1,861,315	£961,916	£961,916
Infrastructure		£0		£0		£0
Primary Healthcare		£0		£0		£0
Secondary Education		£0		£0		£0
Post 16/further Education		£0		£0		£0
Indoor Sports		£0		£0		£0
Flood Defense		£0		£0		£0
Waste Water		£0		£0		£0
Transport	£298,600	£298,600	£331,600	£331,600	£173,820	£173,820
Profit	£7,343,782	£6,321,535	£7,823,339	£6,717,670	£3,901,890	£3,397,877
Interest + finance	£312,773	£343,153	£335,000	£366,790	£162,902	£181,270
Total Costs	£27,694,603	£26,522,689	£29,541,577	£28,274,381	£14,785,643	£14,212,733
Residual	£15,504,115	£11,552,887	£16,478,067	£12,232,614	£8,166,650	£6,246,887
Interest on Land	£2,968,023	£2,219,217	£3,269,700	£2,435,519	£1,354,698	£1,040,301
Gross Residual Land Value	£12,453,242	£9,311,399	£13,122,541	£9,774,657	£6,759,406	£5,190,690
Acquisition costs	£704,212	£526,545	£742,060	£552,742	£382,234	£293,526
Residual Land Value	£11,749,030	£8,784,854	£12,380,481	£9,221,915	£6,377,172	£4,897,164
Residual Land Value / ha	£1,566,537	£1,171,314	£1,547,560	£1,152,739	£1,594,293	£1,224,291

	Stafford SF-1		Stone SN-5		Woodseaves WO-2	
Site Area (ha)	30		3		4	
Units	800		90		120	
	100% Market	30% Affordable	100% Market	30% Affordable	100% Market	30% Affordable
Revenue						
Private	£153,756,213	£107,660,000	£15,736,350	£10,795,000	£22,952,293	£15,865,000
Affordable		£10,683,879		£1,231,254		£1,718,250
Total	£153,756,213	£118,343,879	£15,736,350	£12,026,254	£22,952,293	£17,583,250
Costs						
Sales Costs	£5,226,118	£3,767,735	£508,779	£384,021	£738,455	£562,831
Build Costs inc. Contingency	£58,977,734	£58,977,734	£6,660,508	£6,660,508	£8,846,660	£8,846,660
Total Fees	£6,044,523	£6,044,523	£739,301	£739,301	£961,916	£961,916
Electric	£869,000	£869,000		£0		£0
Gas		£0		£0		£0
Clean Water		£0		£0		£0
Waste Water	£5,211,000	£5,211,000		£0		£0
Health		£0		£0		£0
Education		£0		£0		£0
Community		£0		£0		£0
Transport	£2,770,526	£2,770,526	£78,816	£78,816	£173,820	£173,820
Profit	£26,138,556	£18,943,233	£2,675,180	£1,909,025	£3,901,890	£2,800,145
Interest + finance	£1,007,281	£1,328,048	£125,060	£140,413	£162,902	£184,941
Total Costs	£106,244,738	£97,911,799	£10,787,644	£9,912,084	£14,785,643	£13,530,313
Residual	£47,511,475	£20,432,080	£4,948,706	£2,114,170	£8,166,650	£4,052,937
Interest on Land	£17,790,972	£7,752,448	£820,540	£352,399	£1,354,698	£675,216
Gross Residual Land Value	£29,066,258	£12,665,674	£4,094,172	£1,758,334	£6,759,406	£3,369,063
Acquisition costs	£1,643,652	£716,224	£231,519	£99,431	£382,234	£190,515
Residual Land Value	£27,422,606	£11,949,450	£3,862,653	£1,658,903	£6,377,172	£3,178,548
Residual Land Value / ha	£914,087	£398,315	£1,287,551	£552,968	£1,594,293	£794,637

	Stafford SF-1		Stone SN-5		Woodseaves WO-2	
Site Area (ha)	30		3		4	
Units	800		90		120	
	100% Market	40% Affordable	100% Market	40% Affordable	100% Market	40% Affordable
Revenue						
Private	£153,756,213	£92,280,000	£15,736,350	£9,215,000	£22,952,293	£13,790,000
Affordable		£14,189,844		£1,631,297		£2,104,412
Total	£153,756,213	£106,469,844	£15,736,350	£10,846,297	£22,952,293	£15,894,412
Costs						
Sales Costs	£5,226,118	£3,388,752	£508,779	£347,176	£738,455	£504,868
Build Costs inc. Contingerncy	£58,977,734	£58,977,734	£6,660,508	£6,660,508	£8,846,660	£8,846,660
Total Fees	£6,044,523	£6,044,523	£739,301	£739,301	£961,916	£961,916
Electric	£869,000	£869,000		£0		£0
Gas		£0		£0		£0
Clean Water		£0		£0		£0
Waste Water	£5,211,000	£5,211,000		£0		£0
Health		£0		£0		£0
Education		£0		£0		£0
Community		£0		£0		£0
Transport	£2,770,526	£2,770,526	£78,816	£78,816	£173,820	£173,820
Profit	£26,138,556	£16,538,991	£2,675,180	£1,664,428	£3,901,890	£2,470,565
Interest + finance	£1,007,281	£1,363,620	£125,060	£143,338	£162,902	£187,173
Total Costs	£106,244,738	£95,164,146	£10,787,644	£9,633,567	£14,785,643	£13,145,002
Residual	£47,511,475	£11,305,698	£4,948,706	£1,212,730	£8,166,650	£2,749,410
Interest on Land	£17,790,972	£4,314,155	£820,540	£202,868	£1,354,698	£458,320
Gross Residual Land Value	£29,066,258	£7,048,313	£4,094,172	£1,012,232	£6,759,406	£2,286,835
Acquisition costs	£1,643,652	£398,571	£231,519	£57,240	£382,234	£129,317
Residual Land Value	£27,422,606	£6,649,742	£3,862,653	£954,992	£6,377,172	£2,157,518
Residual Land Value / ha	£914,087	£221,658	£1,287,551	£318,331	£1,594,293	£539,380