Gosport Borough Council Affordable Housing Viability Assessment

Non Technical Report

Final Report

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Gosport Viability Assessment: Non Technical Report

Executive Summary

This report provides a synthesis of the analysis, findings and implications of the Gosport Viability Assessment. The purpose of the assessment is to test the Borough Council's proposed affordable housing policies and ensure that they are consistent with securing the delivery of new homes within the Borough. The key questions that this viability assessment addresses are:

- Can 40% affordable housing be achieved through new housing development within Gosport on sites of 15 or more homes?
- Is it viable to seek affordable housing on sites which deliver 10 or more new homes – thus reducing the affordable housing threshold to 10 units from 15?
- How do different conditions, including house price changes, the removal of grant and increases in Section 106 contributions affect viability?

DTZ has appraised a number of typical but hypothetical development schemes within Gosport to test how viable they are under different circumstances. For each of the development schemes, the residual land value has been calculated. This value is then compared to a series of benchmarks in terms of Existing Use Value, or Alternative Use Value. It is important to note that it is not possible to establish a single benchmark in terms of residential land value above which it can be deemed that residential development will be viable.

Key Findings

The base case analysis (which assumes affordable housing grant is provided) shows that **40% affordable housing is achievable in the majority cases tested**. There are exceptions to this general pattern:

- In the lowest value areas of Gosport, viability remains challenging even when existing/alternative use values are very low. This reflects the fact that sales prices are not sufficiently higher than build costs, particularly when affordable housing and other costs are added in.
- Where existing use values are high, only schemes capable of achieving the highest values remain viable at 40% affordable housing.
- It is also important to bear in mind that no abnormal infrastructure costs have been built into the modelling given the variability of these between different sites.

Incrementally reducing the affordable housing quota where existing use values are very high has the effect of bringing some of the schemes into viability.

Results from the base case modelling demonstrate that the sales values (prices) of new homes can have a significant effect on viability, assuming other factors are held constant:

- The vast majority of schemes within all areas of the Borough are viable at 40% affordable housing (with grant) if land has a low existing or alternative use value.
- Low value areas or schemes become unviable at 40% as existing/ alternative use values increase.
- Only high value areas or schemes remain viable at 40% at the highest assumed existing/ alternative use values.

The future availability and scale of affordable housing grant is uncertain so it is prudent to examine the effect of removing grant on scheme viability. Removing grant has the effect of reducing residual land values across all the schemes (at 40% affordable housing contribution) with the greatest percentage fall in residual land values on the lower value schemes. This has the impact of removing viability from some schemes that were viable when grant was provided. Only the highest value schemes remain viable without grant when tested against the highest existing use threshold. On the whole, medium to high value schemes could deliver 40% without grant, providing existing/alternative use values do not prohibit the sites coming forward.

The viability modelling in this assessment suggests that there is no reason for viability to decline in relation to site size. Sites of 10 units modelled in this assessment display similar viability profile to those of 15 or more.

The assessment has tested the impact of increasing Section 106 'non affordable housing' contributions from £5,800 to £7,500 per unit. Unsurprisingly, this increase reduces residual land values across all schemes. In the majority of schemes, this increase in contributions does not make viable sites unviable (in relation to our existing use value thresholds). But it is important to keep in mind the potential for the cumulative burdens on schemes (affordable housing, S106 and increasing build costs over time associated with environmental performance) to impact on viability.

Rising prices have a positive impact on viability because of effect on revenues. Price rises of 5% per annum serve to increase residual land values on all schemes across the Borough to the extent that half of all schemes are viable at 40% affordable housing when judged against the **highest** existing use value threshold. Such price rises also bring some previously unviable sites in low value areas into viability, though price increases of this scale do not do enough to bring unviable schemes in the lowest value areas into viability at high existing use value thresholds.

Falling prices (-5% per annum) have a negative impact on viability because of the effect on both revenues and sales rates (the timing of revenue payments and therefore the knock on effects of interest payments on finance etc).

Implications for Policy

The analysis suggests a target of 40% affordable housing could be set providing sufficient flexibility is retained within policy to take into account site specific considerations e.g. developments in low value areas, high existing or alternative use values or large demolition and infrastructure costs.

DTZ see no reason in viability terms that the affordable housing threshold could not be extended to sites delivering 10 or more new homes, particularly since flexibility will be retained to deal with site specific considerations. Whilst this is only likely to deliver a small number of affordable homes each year, the administrative burden of assessing and negotiating this relatively small number of sites would be relatively light. Extending the threshold to sites delivering fewer than 10 units would capture a large number of additional sites and would be likely to entail a significant administrative burden on the Council.

The Council may wish to set out in policy some of the factors that are likely to affect the ability to deliver 40% as a way of demonstrating to developers its intention to take into consideration site specific circumstances. An assessment of these factors will give an indication of the contribution the Borough Council would expect in the event that it is not possible for a site to deliver 40%.

Gosport Viability Assessment: Non Technical Report

Overview

1 This report provides a synthesis of the analysis, findings and implications of the Gosport Viability Assessment. The purpose of the assessment is to test the Borough Council's proposed affordable housing policies and ensure that they are consistent with securing the delivery of new homes within the Borough.

2 It is recognised that most readers will not be technical experts in this area and so this report provides as far as possible a non technical summary of findings. But it is important to set out inputs and assumptions in full detail so that they can be scrutinised by those who are interested. Further detail on the approach is provided in technical appendices.

Policy Context: National and Local

3 There is now explicit national policy, set out in Planning Policy Statement 3 (PPS3) Housing, that affordable housing targets set by local authorities should:

> *"reflect an assessment of the likely economic viability of land for housing within the area, taking account of risks to delivery and drawing on informed assessments of the likely levels of finance available for affordable housing, including public subsidy and the level of developer contribution that can reasonably be secured."* (PPS3, paragraph 29, p10)

4 PPS3 does not specify how a viability study is to be undertaken – merely that affordable housing policies should be tested. However, the Planning Inspectorate has made clear through its rulings on Blyth Valley, Poole and Slough its intention to test local authority affordable housing policies to ensure that they are viable. DTZ understand that the Planning Inspectorate expects:

- Councils to justify their affordable housing policies (for example, in their Core Strategy or relevant Development Plan Document) with a viability assessment.
- Any affordable housing target must have been tested – it is not acceptable to simply rely on clauses that promise flexibility. Authorities need to justify the maximum contribution they are seeking, even if in practice lower levels may be considered for schemes under particular circumstances. The same also applies to thresholds.
- The Inspectorate does not believe it is sensible to set affordable housing policy for the next 20 years based on the current 'abnormal' market, as this would artificially reduce thresholds and quotas below where they should be over the long term. There is a clear need therefore to understand the impact of changing market conditions on levels of viability and how to set policy accordingly.

5 Gosport is part of the Partnership for Urban South Hampshire (PUSH). The demand and need for housing in the sub-region and the market area to which Gosport belongs has been assessed through the South Hampshire HMA (2005 and 2006) and key indicators are monitored on an annual basis. The South Hampshire HMA and a subsequent localised housing need study for

Gosport identified significant sub-regional demand and need for market and affordable housing.[1] A key mechanism for delivering new affordable housing is through securing a proportion of new homes on private developments, although Gosport has also delivered a substantial proportion of its new affordable housing through the direct development of affordable housing schemes.

6 It is the PUSH ambition to maximise the delivery of affordable housing, based on the evidence of housing need. At the sub-regional level, PUSH wish to achieve up to 40% affordable housing on new development sites. Gosport's Housing Needs Study indicates that the Borough Council should retain its current target of 40% affordable housing on sites capable of achieving 15 or more units.

7 However, locally, individual authorities need to explore whether this target is appropriate in their area, in viability terms, and to which sites it should apply. In order to ensure the delivery of new affordable homes it is important that affordable housing policies do not constrain overall development by undermining the viability of housing schemes. Setting an affordable housing contribution that undermines viability would restrict new housing delivery and the ability of the Council to meet its affordable housing policies as well as its overall housing allocations set out in the South East Plan.

8 Evidence of housing completions and affordable housing delivery in recent years suggest that the Borough Council has been broadly successful in achieving this target, on sites which are captured by affordable housing policy, and wish to retain it providing this can be supported be evidence of viability. Gosport Borough Council also wish to examine whether there is merit in reducing the affordable housing threshold, specifically whether it could be viably reduced to 10 dwellings.

Key Questions and Approach

9 The key questions that this viability assessment addresses are:

- Can 40% affordable housing be achieved through new housing development within Gosport on sites of 15 or more homes?
- Is it viable to seek affordable housing on sites which deliver 10 or more new homes – thus reducing the affordable housing threshold to 10 units from 15?
- How do different conditions, including house price changes, the removal of grant and increases in Section 106 contributions affect viability?

10 In order to examine these questions, DTZ has appraised a number of typical but hypothetical development sites within Gosport to test how viable they are under different circumstances. It is important to stress however that there can be no definitive answer to the question of viability, since it is dependent on a number of variables and judgements. It is useful to set out what defines whether a development scheme is likely to be viable.

[1] http://www.gosport.gov.uk/sections/your-council/council-services/planning-section/planning-policy-documents-available/

What Defines Viability

11 There are two important components that determine whether a housing development is likely to be viable or not:

- The overall scheme needs to be **profitable** for the developer. This means that when all the costs of delivering the scheme are taken into consideration, they are exceeded by the revenues generated by the scheme by a sufficient margin. The extent of the profit required for a developer to proceed will vary and is now increasingly dictated by the banks, where they are lending development finance, to ensure that the returns justify the risk.

- The overall scheme needs to generate a **positive land value** so that the land owner is incentivised. The value of land is calculated as a residual (ie what is left over) when the costs of the development are subtracted from the revenues.

12 Whether a particular scheme is viable is not black and white. Theoretically, a scheme can be defined as viable if the revenues generated exceed the costs of delivering the development and generate both a reasonable profit for the developer and a positive land value for the land owners. In practice, whether the scheme is brought forward will depend on how the land value compares to values generated by existing or alternative uses.

13 Where land has an existing use (eg car park, commercial premises etc) it needs also to be valued under its current activities. Developers and land owners are only likely to bring forward a residential development on such sites if the value generated by the scheme exceeds the value generated by current activities on the site.

14 The same issue applies to alternative uses to which the land might be put. However, it may not be appropriate to consider alternative use values on many sites since such development is subject to current planning policies which may mean that alternative uses are unlikely to secure planning consent.

15 Nevertheless, an important test for this viability assessment has involved establishing threshold values for existing/alternative uses. For residential development to be deemed viable, land values need to exceed these thresholds.

16 Landowners may also have expectations about what value they could achieve for their land under residential development. This is known as ‘hope value’ and can affect a landowner’s decision about whether to sell or develop their site if they perceive that a higher value could be achieved under different circumstances eg a change of policy or Government, a better market in 5 years time etc.

The Nature of Housing Development in Gosport

17 A key component of examining viability within Gosport is to analyse the pattern of housing completions in the past and the extent to which they have delivered affordable housing. Over the period 2004-2009, housing development in Gosport has been characterised by:

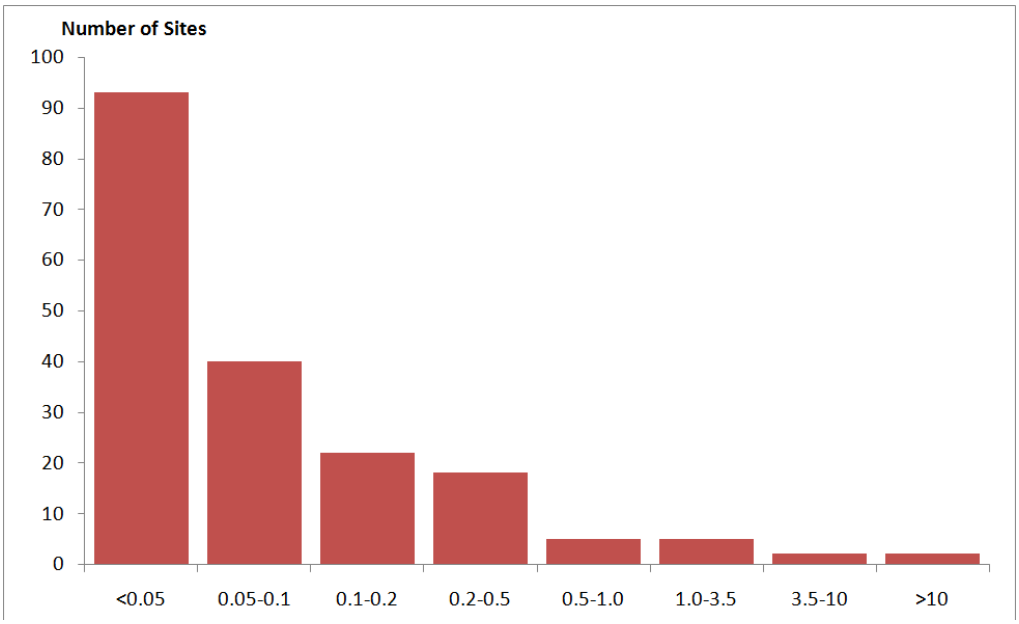
- A large volume of small sites: the largest proportion of sites were less than half of one hectare (ha) in area. The mean average development site between 2004 and 2009 was 0.54 ha in size. Only 9 sites where 1 ha or larger in size. Figure 1 charts the size of sites that came forward for development during the period 2004-2009 in Gosport Borough.

- 164 sites (408 net units) delivered fewer than 15 new homes and were not captured by affordable housing policies. Of these, 11 sites delivered 10-14 units (137 net units) and 153 sites delivered 1-9 units (271 net units). These figures include sites which resulted in negative or zero net completions and those developed solely for affordable housing by housing associations.

- 15 sites delivered 15 or more units (1,686 net units). These figures include sites which resulted in negative or zero net completions and those developed solely for affordable housing by housing associations. 5 of these sites were developed solely for affordable housing. Of the remaining 10 market led sites, 6 sites provided on-site affordable housing (380 affordable units from 1,321 net units in total) and 4 provided commuted payments in lieu of on-site affordable housing provision.

- Direct development by housing associations and the Borough Council has provided an important source of affordable housing (over the last 5 years equating to 157 net affordable homes) and has helped to compensate for the lack of such housing on small sites delivering market housing.

Figure 1: Site Area by Frequency, 2004 – 09 (hectares)



Source: Gosport Borough Council

Factors Affecting Viability & Assumptions for Gosport

18 As described above, there are two overarching variables that determine whether a development is likely to be viable: costs and revenues. There are numerous inputs that determine what the scheme's revenues and costs are.

19 Some of these are broadly standard across the country eg interest rates, level of profit a developer will expect etc. Others need to be defined locally. Specifically, these include the sales prices of new homes which generate the majority of the scheme's revenues; build costs of new homes and Section 106 contributions required by the Borough. The nature of typical development schemes in terms of site size, mix, density affects both revenues and costs. The inputs used in the Gosport Borough Council Affordable Housing Viability Assessment are briefly described below.

TYPICAL SCHEMES

20 The model requires us to specify a range of site sizes, densities and mixes to capture the variety of development scenarios within Gosport. Based on the analysis of completions within the Borough and sites identified by the Strategic Housing Land Availability Assessment[2], Figure 2 presents a matrix which aims to represent the range of development schemes that are likely to come forward within Gosport. It is important to keep in mind that these archetypes will not directly match past or future development sites in the Borough, but they are designed to capture a range of scenarios so that the assessment can draw broad conclusions on the impacts on viability of different variables.

21 The principles which have informed the selection of site archetypes are:

- The average site size in Gosport 2004 – 2009 was 0.54 ha, with a range of 0.003 – 40 ha. The majority of archetypes are therefore relatively small or modest sized sites but it is also important to test viability on a large site scenario.

- The mean average density in Gosport 2004 – 2009 was 78 dwellings per hectare (dph) (median 57 dph) with a range of 5 – 365 dph. Few sites are likely to come forward at the extremes of this range and those that do tend to be developments of single or small numbers of dwellings. A range of 35-80 was deemed appropriate to capture the majority of scenarios. This is also consistent with the Council's guidance on density in the current Local Plan, which states that proposals for new housing should be provided at a density of 30-50 dph. However higher density proposals may be permitted in locations close to principle or district centres or in areas with good public transport links.

- Given that the majority of developments within Gosport fall below the 15 unit threshold, the Borough Council want to consider the impact of lowering the affordable housing threshold to ten units and so developments at this threshold are tested in terms of their viability for affordable housing development.

[2] http://www.gosport.gov.uk/sections/your-council/council-services/planning-section/planning-policy-documents-available/

- The majority of past completions have been flats rather than houses, reflecting the development context and the urban nature of the Borough. There may be more limited development of flats in the future because of the changed credit environment and the development of more family sized homes is also an aspiration for the Borough Council and PUSH. Therefore the impact of a higher proportion of houses is tested (focused on the lower density typologies).

- Mix is generally consistent across different size sites but we assume that the smallest, lower density developments have a bias towards larger houses and vice versa, the larger higher density schemes have increased proportions of flats.

Figure 2: Development Archetypes for Gosport

			Site Size in Hectares (ha)									
			10	2		1		0.3		0.2		
				A		B		C		D		
Density (dwellings per hectare)	80	No. of Units		160		80		24		16		
		Mix	Not Tested	20%	1 bed flat	20%	1 bed flat	20%	1 bed flat	20%	1 bed flat	
				30%	2 bed flat	40%	2 bed flat	40%	2 bed flat	30%	2 bed flat	
				20%	2 bed house	20%	2 bed house	20%	2 bed house	30%	2 bed house	
				20%	3 bed house	20%	3 bed house	20%	3 bed house	20%	3 bed house	
				10%	4 bed house							
				E		F		G				
	60	No. of Units	600	120		60		18		12		
		Mix	Tested following the base case modelling (Archetype 'L')	10%	1 bed flat	10%	1 bed flat	10%	1 bed flat	Tested following the base case modelling (Archetype 'M')		
				40%	2 bed flat	40%	2 bed flat	30%	2 bed flat			
				20%	2 bed house	30%	2 bed house	30%	2 bed house			
				20%	3 bed house	20%	3 bed house	30%	3 bed house			
				10%	4 bed house							
			H	I		J		K				
	35	No. of Units	350	70		35		10		Not Tested		
		Mix	10%	1 bed flat	20%	2 bed flat	30%	2 bed house	30%	2 bed house		
			20%	2 bed flat	40%	2 bed house	40%	3 bed house	40%	3 bed house		
			20%	2 bed house	40%	3 bed house	30%	4 bed house	30%	4 bed house		
			20%	3 bed house								
			20%	4 bed house								
			10%	5 bed house								

Source: Gosport Borough Council SHLAA; Gosport Borough Council data on past completions; DTZ

Figure 3: Archetype Key

Archetype	Number of Units	Site Size
A	160	2
B	80	1
C	24	0.3
D	16	0.2
E	120	2
F	60	1
G	18	0.3
H	350	10
I	70	2
J	35	1
K	10	0.3

REVENUES

Sales Prices (Revenues from Market Homes) and Phasing

22 Sales prices for market homes are calculated by the average £ per square metre (per sq m).[3] **In order to set a realistic baseline for sales values we have used average sales values for the period 2004-08**.[4] It is interesting to note that the average prices over this period are similar to prices achieved in 2009 and the results are therefore broadly reflective of current sales values within the Borough. The purpose of this approach is to ensure we are not relying on prices that were achievable at the peak of the market and would therefore give an unrealistic view of viability. It is important to use new build prices, since these often have a premium over the second hand housing stock. The new build premium in Figure 4 has been derived using Hometrack data (which provides price data on new homes) and DTZ's knowledge of new build sales values in the Borough.

23 Because of the variability of house prices across any area it is important to test viability in low and high value areas. In Gosport, we have identified five bands of sale prices, ranging from the lowest sales prices in Band 1 to high sales prices in Band 5. The objective of this approach is not to establish different affordable policies in different areas but to ensure that a range of development scenarios have been tested in the development of policy.

Figure 4: Assumed Sales Prices by Value Band Per Sq M (Per Sq Ft)

	1	2	3	4	5	Average
Average £ per sq m 2004-08	£1,356	£1,571	£1,797	£1,991	£2,281	£1,797
Average £ per sq ft 2004-08	£126	£146	£167	£185	£212	£167
Flats: New Build Premium	*22%*	*22%*	*22%*	*22%*	*22%*	*22%*
Houses: New Build Premium	*27%*	*27%*	*27%*	*27%*	*27%*	*27%*
Flats Average + Premium per sq m	**£1,646**	**£1,905**	**£2,174**	**£2,421**	**£2,765**	**£2,184**
Houses Average + Premium per sq m	**£1,711**	**£1,980**	**£2,270**	**£2,518**	**£2,884**	**£2,270**
Flats: Average + Premium per sq ft	**£153**	**£177**	**£202**	**£225**	**£257**	**£203**
Houses: Average + Premium per sq ft	**£159**	**£184**	**£211**	**£234**	**£268**	**£211**

Source: DTZ; Hometrack; Land Registry

24 Sales prices per sq m are combined with floorspace assumptions for different properties, depending on the mix of homes in the particular scheme, generating a market revenue stream. The market revenue stream is then phased to reflect the reality of completions and sales rates to produce a realistic cash flow over time. In the base case model, we assume that market homes

[3] Figures provided per sq ft to reflect widespread use of this measurement within the development industry
[4] Data sourced from Hometrack for the years 2004/05, 2005/06, 2006/07 and 2007/08

are built out and sold at a rate of around 50 units per site per annum[5] (so a 150 unit site will experience a 3 year sale period). In the base case model we assume flat house prices over the appraisal period. However, the effect of house price rises or falls can have a significant impact on revenues when they are received over a number of years and this is examined later in this report.

Revenues from Affordable Homes and Grant

25 The base case model assumes affordable housing is delivered as 65% social rented and 35% shared ownership housing. This reflects PUSH's common affordable housing framework, evidenced by the South Hampshire HMA (2005). It is recognised that the development context for shared ownership and other intermediate products homes has changed as a result of the downturn and that it may be more difficult to develop (and sell) shared ownership properties in the short term.

26 DTZ has assumed that the developer receives payments for the affordable housing from the housing association **linked to the market value of the dwelling**. It is acknowledged that local housing associations are unlikely to calculate what they can pay for affordable housing on this basis. In reality, the amount that housing associations will bid for affordable housing on a market led development will depend on their own financial resources and their strategy for development and these are likely to vary between associations and over time. Because of this complexity DTZ has used assumptions developed at the national level for HCA research into affordable housing delivery.[6] On the assumption that grant is available, housing associations are assumed to pay the developer 60% of market value for a social rented property and 80% of market value for a shared ownership property.[7] These indicative values are based on DTZ's market experience nationally prior to the market downturn, and it is acknowledged that in the current market conditions housing associations may be unwilling or unable to pay for affordable housing at this level. However new benchmarks have yet to be established of what associations will pay for affordable housing.

27 The revenue stream for affordable units is realised in parallel with construction to reflect the fact that affordable housing revenues are often received earlier than those for market homes (which rely on sales).

[5] Assumption based on DTZ consultations with national house builders and the Home Builders Federation for the HCA study of the Scope for Affordable Housing Delivery through S106 in a Post Credit Crunch Residential Land Market

[6] ibid

[7] An alternative approach would be to capitalise housing association rents (DTZ assumes a 12 year period) and add grant (eg using HCA's target grant rate for social rented homes at £65k) to arrive at a value for the affordable housing component. A cross check of capitalised rents for Gosport plus grant suggests that such an approach would broadly equate to the assumed relationship between open market and affordable values.

COSTS

Construction Costs

28 Construction costs are dependent on the mix of types and sizes on homes in the scheme and the relevant cost assumptions for Gosport from the Building Cost Information Service (BCIS). DTZ has also uplifted the build costs by 25% to reflect the cost of external works, which are generally excluded from the BCIS data. Our approach to build costs matches that to sales values by using the average build costs for the period 2004-08. As with sales prices, build costs in 2009 are broadly similar to the average for the period 2004-08 so the figures can be regarded as reflective of current costs. The effect of the additional costs associated with meeting the Code for Sustainable Homes Levels 4 and 5 are tested as a sensitivity. This assessment has not tested Code Level 6 because there is significant uncertainty about the costs of meeting these requirements (not least requirements for developers to provide onsite renewable energy solutions). Furthermore, Code Level 6 is expected to become a requirement from 2016 (over 5 years from the base line of this assessment) which makes it difficult to make robust assumptions about the sales prices, and therefore revenues, associated with residential development. These uncertainties about costs and revenues would make an assessment about the viability of Code Level 6 unreliable.

Figure 5: Build Costs Assumptions in Gosport Borough (£ per sq m and per sq ft)

Property Type	Assumptions about Floorspace	Build Cost per sq m (per sq ft)
Gosport 1, 2 and 3 bed flats	Up to 75m2 / 805 sq ft gross floor area per unit **Flats**	£1,134 (£105)
Gosport 2 and 3 bed house	75 to 100m2 / 807 to 1,075 sq ft gross floor area per unit) **Houses**	£918 (£85)
Gosport 4 bed house	100 to 125m2 / 1,075 to 1,345 sq ft gross floor area per unit) **Houses**	£949 (£88)
Gosport 5 bed house	125m2 + / 1,345 sq ft gross floor area per unit **Houses**	£988 (£92)

Source: BCIS All Tender Price Index, uplifted +25% by DTZ to include allowance for external works. External works are those works that take place outside of the building footprint but inside of the development site footprint.

Demolition Costs

29 Demolition costs are assumed to amount to £110,000 per hectare of site size. This figure is based on DTZ's experience in the South East and does not account for abnormal costs which might be associated with more complex sites.

Developer's Profit

30 The target level of profit (we use Internal Rate of Return[8]) is set at 15% in the model. This level has been informed by DTZ's experience of past development projects and represents the **minimum** required for development to proceed. It is important to stress that the 15% threshold is only a proxy for viability. In practice the profit required on sites will vary and it is recognised that for certain schemes it will need to be higher. For this reason, the assessment also tests 20% IRR to examine the impact of a requiring a higher level of profitability.

Section 106 Contributions (Non affordable housing)

31 Contributions to community infrastructure and other requirements in order to mitigate the impact of development are assumed to amount to £5,800 per unit. This figure is based on discussions with Gosport Borough Council, though in practice these costs can vary considerably from scheme to scheme.

Professional Fees and Contingency

32 Equivalent to 10% and 5% respectively of construction costs.

Sales Costs and Interest

33 Sales costs are calculated at 3% of the total private sales revenue (excluding sales revenue from affordable units).

34 A standard finance rate of 6.5% is assumed and applied to the scheme's interest bearing balance (costs less revenues).

Infrastructure Costs

35 No abnormal infrastructure costs have been built into the modelling given the variability of these between different sites. It is acknowledged that such costs may have a significant impact on viability and this is a point emphasised in DTZ's discussion with the Gosport Waterfront consultant. However, a facility is built into the model to input site specific infrastructure costs where these are known and if the model is used to examine specific schemes.

[8] The IRR approach has been employed due to the importance of cost and revenue timing and financing periods on viability, which other performance measures do not adequately capture. The IRR is the discount rate needed to reduce the Net Present Value (NPV) of a particular scheme to zero. The net present value of a scheme is the sum of the present values of the individual amounts in the net income stream. Each future net income amount in the stream is discounted, meaning that it is divided by a number representing the opportunity cost of holding capital from now (year 0) until the year when income is received or the outgoing is spent.

LAND VALUES

36 Land values are treated as an output and equate to the residual value when costs (including the developer's profit) are subtracted from revenues of the scheme.

37 In theory if a site's residual value is above existing use value then it should be both viable and able to deliver that particular affordable housing contribution.[9] In practice the extent to which land value must exceed existing use value in order to incentivise development is the subject of much debate. However, for the purposes of the base case we assume that if a residual land value exceeds existing use value by more than 5% then it should (in theory) be viable.

38 For each of the development schemes, the residual land value has been calculated. This value is then compared to a series of benchmarks in terms of Existing Use Value, or Alternative Use Value. **It is not possible to establish a single benchmark in terms of residential land value above which it can be deemed that residential development will be viable**. This is because:

- In some parts of Gosport, for example Rowner, residential development is likely to be the highest value land use, and within established residential neighbourhoods the only land use that will secure planning permission. However, areas such as the Waterfront and Town Centre are characterised by a mix of land uses. In such areas the likelihood of a residential development proceeding depends on the scheme delivering an equal or better value than a development for non-residential uses that would secure permission. The residual land value of alternative developments therefore is a key consideration.

- The value of land in the same use varies across Gosport reflecting differences in locational attributes and environmental quality. Landowner expectations will be shaped by historic levels of value secured for residential development, since even if values fall, there will be an expectation that they will recover. By implication the level of land value expected by owners of land will vary.

- In a Borough such as Gosport where there are sites that are affected by historical and heritage considerations there is potential for considerable variability in demolition and build costs, which will affect calculations of scheme residual land values.

- Lastly, an additional layer of variability in determining what can be deemed viable arises as a result of the property market cycle, and the likelihood that the values of different potential uses on a site to move at different speeds, up or down, at different stages in the development cycle. Therefore at one point in the development cycle, offices can appear a more attractive form of development than residential, but this may switch at a different stage in the development cycle. These differential changes in values can vary depending on market shifts and how a particular location is perceived in terms of an office location or retail location compared to a residential location. Though it is relevant to note that Gosport does not have a strong office market and so this variability in the market may be less pronounced in the Borough.

[9] If it is below existing use value the affordable housing contribution will need to fall, which, keeping margin constant, will have the effect of increasing the residual land value.

39 The result of these different considerations is that it is not possible to state unequivocally in a Gosport context that a certain residual land value associated with a scheme can be regarded as viable, or not viable. This assessment is intended to inform general policy development and indicates proportion for affordable housing provision which is generally considered viable; it is recognised that individual schemes may need to be considered on their merits, taking into account specific scheme circumstances.

40 For the purpose of this assessment DTZ has compared the residual land values generated from the modelling against a number of land value thresholds. These thresholds are as follows:

- Residual land value expressed as £ per hectare value of above £14,900 per hectare. In the South East[10] the highest average value of agricultural land between 2004 and 2008 was £14,900 per hectare. Whist there is no agricultural land in Gosport this is used as a proxy for a low land value, such as open space, or for land that has no existing use value. Therefore, it is assumed that this would be the minimum threshold that would need to be exceeded if land is to be bought forward for residential use. It is therefore assumed that no landowner in Gosport would bring forward sites for less than this sum. In practice the number of sites that would be brought forward at this level are probably limited. Any scheme, based on the modelling assumptions used, that fails to deliver this level of land value can be deemed to be wholly unviable.

- The other benchmarks used for the analysis are residual land values of £290k per hectare, £995k per hectare and £1.7m per hectare. £290k per hectare is the lowest industrial land value (between 2004 and 2008). This would be the minimum threshold that would need to be exceeded if land was in industrial use, or where industrial use could secure planning permission, is to be brought forward for residential use. The £995k per hectare represents a mid-way threshold between the range of highest B1 office and lowest industrial land value.

- The highest benchmark reflects the average B1 office land value in the South East between 2004 and 2008. This land use class is used as it presents the highest land values available from the Valuation Office Agency. The VOA also provides residential land values for selected locations within the South East. Whilst specific values are not available for Gosport, the VOA does publish figures for Portsmouth which are likely to be broadly reflective of values which can be achieved in Gosport. The VOA data suggests that residential land values range between £1.39m- £1.45m per hectare – a range which is captured by our high existing use value threshold.

- These alternative uses compete for development funds with residential development, and if residential development is to proceed it will have to provide a comparable return to landowners. The wide range of land values used as benchmarks reflect just how greatly land values in Gosport can vary, and on a site specific basis, and with the property market cycle.

[10] Representative data specific to Gosport is hard to come by and so in order to increase sample size and robustness VOA data for the South East is used.

Overall Findings

41 The base case analysis shows that **40% affordable housing is achievable in the majority cases tested, where affordable housing grant is provided**. This is illustrated in Figure 6 where the green light indicates that a scheme is likely to be viable at that particular land value threshold. There are exceptions however to this general pattern:

- In the lowest value areas of Gosport (Band 1 sales prices), viability remains challenging even when existing/alternative use values are very low. This reflects the fact that sales prices are not sufficiently higher than costs, particularly when affordable housing and other costs are added in.

- Where existing use values are high, only schemes capable of achieving the highest values (Band 5 sales prices) remain viable at 40% affordable housing.

42 It is important to note that in the vast majority of scenarios modelled under the base case, with the exception of some schemes in the lowest value band, a positive residual land value is generated at 40% affordable housing. The existing or alternative use value is therefore the determining factor in establishing viability.

43 Where existing or alternative use values are very high, only the schemes able to generate higher value sales prices remain viable at 40% affordable housing provision. Incrementally reducing the affordable housing quota where existing use values are very high has the effect of bringing some of the schemes into viability.

Key to Figure 6

To help visual interpretation of the results, a system of traffic lights is used to indicate where schemes are deemed viable and where they are deemed not viable. The traffic light codes used are intuitive:

- **The Red Traffic Light** indicates that the scheme is clearly not viable because the residual land value per hectare generated by the scheme is 5% or more lower than the relevant benchmark of existing use value

- **The Amber Traffic Light** indicates that the scheme is of marginal viability because the residual land value per hectare generated by the scheme is between 5% lower than and 5% more than the relevant benchmark of existing use value

- **The Green Traffic Light** indicates that the scheme is viable because the residual land value per hectare generated by the scheme is more than 5% higher than the relevant benchmark of existing use value

Key to Figure 6: Development Archetypes for Gosport

			Site Size in Hectares (ha)									
			10	2		1		0.3		0.2	
				A		B		C		D	
Density (dwellings per hectare)	80	No. of Units		160		80		24		16	
		Mix	Not Tested	20%	1 bed flat	20%	1 bed flat	20%	1 bed flat	20%	1 bed flat
				30%	2 bed flat	40%	2 bed flat	40%	2 bed flat	30%	2 bed flat
				20%	2 bed house	20%	2 bed house	20%	2 bed house	30%	2 bed house
				20%	3 bed house	20%	3 bed house	20%	3 bed house	20%	3 bed house
				10%	4 bed house						
				E		F		G			
	60	No. of Units	600	120		60		18		12	
		Mix	Tested following the base case modelling (Archetype 'L')	10%	1 bed flat	10%	1 bed flat	10%	1 bed flat	Tested following the base case modelling (Archetype 'M')	
				40%	2 bed flat	40%	2 bed flat	30%	2 bed flat		
				20%	2 bed house	30%	2 bed house	30%	2 bed house		
				20%	3 bed house	20%	3 bed house	30%	3 bed house		
				10%	4 bed house						
			H		I		J		K		
	35	No. of Units	350	70		35		10		Not Tested	
		Mix	10%	1 bed flat	20%	2 bed flat	30%	2 bed house	30%	2 bed house	
			20%	2 bed flat	40%	2 bed house	40%	3 bed house	40%	3 bed house	
			20%	2 bed house	40%	3 bed house	30%	4 bed house	30%	4 bed house	
			20%	3 bed house							
			20%	4 bed house							
			10%	5 bed house							

Source: DTZ, based on Gosport Borough Council SHLAA and Gosport Borough Council data on past completions 2004-09

Figure 6: Residual Land Values (£ Per Hectare) Under Base Case (40% Affordable Housing Contribution and Grant Provided)

Existing Land Value Assumption: £14,900 (eg open space)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 448,052	£ 1,407,254	£ 2,242,328	£ 3,471,512
B	£ -	£ 291,447	£ 1,270,577	£ 2,124,004	£ 3,379,931
C	£ -	£ 332,846	£ 1,361,592	£ 2,260,631	£ 3,576,685
D	£ -	£ 536,273	£ 1,605,102	£ 2,537,377	£ 3,909,422
E	£ -	£ 349,390	£ 1,113,969	£ 1,780,199	£ 2,755,867
F	£ -	£ 358,820	£ 1,154,034	£ 1,846,776	£ 2,866,193
G	£ -	£ 557,901	£ 1,405,651	£ 2,144,681	£ 3,228,861
H	£ -	£ 233,933	£ 632,678	£ 980,355	£ 1,488,193
I	£ -	£ 449,105	£ 967,809	£ 1,419,848	£ 2,083,051
J	£ 150,397	£ 748,579	£ 1,378,848	£ 1,926,383	£ 2,734,868
K	£ 138,426	£ 749,156	£ 1,308,331	£ 1,927,775	£ 2,599,278
Average	£ 26,257	£ 459,591	£ 1,236,895	£ 1,926,396	£ 2,917,624

Existing Land Value Assumption: £290k (eg low grade industrial land)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 448,052	£ 1,407,254	£ 2,242,328	£ 3,471,512
B	£ -	£ 291,447	£ 1,270,577	£ 2,124,004	£ 3,379,931
C	£ -	£ 332,846	£ 1,361,592	£ 2,260,631	£ 3,576,685
D	£ -	£ 536,273	£ 1,605,102	£ 2,537,377	£ 3,909,422
E	£ -	£ 349,390	£ 1,113,969	£ 1,780,199	£ 2,755,867
F	£ -	£ 358,820	£ 1,154,034	£ 1,846,776	£ 2,866,193
G	£ -	£ 557,901	£ 1,405,651	£ 2,144,681	£ 3,228,861
H	£ -	£ 233,933	£ 632,678	£ 980,355	£ 1,488,193
I	£ -	£ 449,105	£ 967,809	£ 1,419,848	£ 2,083,051
J	£ 150,397	£ 748,579	£ 1,378,848	£ 1,926,383	£ 2,734,868
K	£ 138,426	£ 749,156	£ 1,308,331	£ 1,927,775	£ 2,599,278
Average	£ 26,257	£ 459,591	£ 1,236,895	£ 1,926,396	£ 2,917,624

Existing Land Value Assumption: £995k (mid point between high and low existing/alternative use values)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 448,052	£ 1,407,254	£ 2,242,328	£ 3,471,512
B	£ -	£ 291,447	£ 1,270,577	£ 2,124,004	£ 3,379,931
C	£ -	£ 332,846	£ 1,361,592	£ 2,260,631	£ 3,576,685
D	£ -	£ 536,273	£ 1,605,102	£ 2,537,377	£ 3,909,422
E	£ -	£ 349,390	£ 1,113,969	£ 1,780,199	£ 2,755,867
F	£ -	£ 358,820	£ 1,154,034	£ 1,846,776	£ 2,866,193
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J	£ 150,397	£ 748,579	£ 1,378,848	£ 1,926,383	£ 2,734,868
K	£ 138,426	£ 749,156	£ 1,308,331	£ 1,927,775	£ 2,599,278
Average	£ 26,257	£ 459,591	£ 1,236,895	£ 1,926,396	£ 2,917,624

Existing Land Value Assumption: £1.7m (eg high value commercial land)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 448,052	£ 1,407,254	£ 2,242,328	£ 3,471,512
B	£ -	£ 291,447	£ 1,270,577	£ 2,124,004	£ 3,379,931
C	£ -	£ 332,846	£ 1,361,592	£ 2,260,631	£ 3,576,685
D	£ -	£ 536,273	£ 1,605,102	£ 2,537,377	£ 3,909,422
E	£ -	£ 349,390	£ 1,113,969	£ 1,780,199	£ 2,755,867
F	£ -	£ 358,820	£ 1,154,034	£ 1,846,776	£ 2,866,193
G	£ -	£ 557,901	£ 1,405,651	£ 2,144,681	£ 3,228,861
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J	£ 150,397	£ 748,579	£ 1,378,848	£ 1,926,383	£ 2,734,868
K	£ 138,426	£ 749,156	£ 1,308,331	£ 1,927,775	£ 2,599,278
Average	£ 26,257	£ 459,591	£ 1,236,895	£ 1,926,396	£ 2,917,624

How Viability Varies Under Different Conditions

44 The assessment tests the impact of different factors on viability. The purpose of this exercise is to examine how far changing circumstances affect the ability to achieve affordable housing policies. This is both to ensure that policies which are developed from the assessment reflect broadly what can be achieved across the Borough as a whole and that policies are capable of being achieved over time as circumstances change.

Sales Values

45 DTZ has defined five price bands to distinguish between viability on schemes capable of generating different revenues. These price bands can be mapped onto the Borough to identify areas which might be affected differently in terms of viability. However, this by no means gives a definitive map of viability since sales prices can vary at the very local level and new build schemes also have the potential to establish new values (and break with existing patterns) where they are delivering a quality new product.

46 Results from the base case modelling in Figure 6 demonstrate that the sales values (prices) of new homes can have a significant effect on viability, assuming other factors including land values are held constant:

- The vast majority of schemes within all areas of the Borough are viable at 40% affordable (with grant) if land has a low existing or alternative use value.
- Low value areas (Bands 1 and 2) become unviable at 40% as existing/ alternative use value increases.
- Only high value areas remain viable at 40% at the highest assumed alternative use values.

Increasing the Proportion of Flats

47 The base case tested three density scenarios with the higher density archetypes containing a higher proportion of flats and smaller dwellings – generally a split of 60% flats and 40% small houses. Following the base case modelling DTZ added analysis of two additional archetypes – one large and one small site to examine the impact of a higher proportion of flats. The additional archetypes were:

- Archetype ‘L’ - a 10 hectare site of 600 dwellings (delivering at a density of 60 dph) consisting of 70% 1 and 2 bedroom flats and 30% 2 and 3 bedroom houses.
- Archetype ‘M’ - a 0.2 hectare site of 12 dwellings (delivering at a density of 60pdh) consisting of 100% 2 bedroom flats.

48 Both archetypes appear to be less viable than developments which contain a higher proportion of houses (including archetype ‘H’ at 35dph on a 10 hectare site and archetypes ‘D’ and ‘K’ of on sites of 0.3 and 0.2 hectares). This is likely to be driven by the higher build costs associated with a higher proportion of flats.

The Impact of Affordable Housing Grant

49 The base case modelling assumes that affordable housing grant is paid on every scheme. However, the future availability and scale of grant is uncertain so it is prudent to examine the effect of removing grant on scheme viability.

50 Removing grant has the effect of reducing residual land values across all the schemes (at 40% affordable housing contribution) by 26-85% with the greatest percentage fall in residual land values in the lower value bands. This has the knock on impact of removing viability in Band 2, even at the lowest existing use threshold and in Bands 3 and 4 at the highest existing use thresholds. Only Band 5 remains viable without grant at the highest existing use threshold.

51 On the whole, medium to high value schemes (Bands 3-5) could deliver 40% without grant providing existing/alternative use values do not prohibit the sites coming forward.

The Impact of Affordable Housing on Smaller Sites (10 to 14 units)

52 The viability modelling in this assessment suggests that there is no reason for viability to decline in relation to site size. Sites of 10 and 12 units modelled in this assessment display similar viability profile to larger sites, although the 12 unit archetype (100% 2 bed flats) appears less viable than the 10 unit site (100% houses) which might indicate that the nature of development on smaller sites could have a significant impact on viability. Whilst the 10 unit archetype of houses remained viable at the highest existing use value in the higher value bands, the 12 unit development of flats only remained viable at low and moderate existing use values.

53 Evidence from previous completions within the Borough demonstrates that, since 2004-05, 137 net new homes have been completed on sites delivering 10-14 units. If the policy of securing 40% affordable housing was applied to this figure it would facilitate 55 affordable housing units. Capturing sites of 10-14 units over the last 5 years would have only involved negotiation over 11 additional sites. The administrative burden on the Borough Council of extending the affordable housing threshold to sites of 10-14 units would be relatively light and therefore allow for proper consideration of site specific viability issues on these smaller schemes. In contrast, whilst sites delivering 1-9 units accounted for 271 net new homes this would have involved consideration of 153 separate sites and negotiation of 153 separate applications.

54 To summarise, there is no evidence that suggests applying affordable housing quotas to sites smaller than 10 units would be any less viable than those above 10 units. However, the analysis of previous sites suggests sites of 10 or more would be an appropriate threshold to avoid capturing large numbers of very small sites and the resulting burden of negotiation for both the Council and the developer.

55 It is important to note that the modelling is unable to capture site specifics factors and small sites may be more vulnerable to site-specific constraints eg demolition costs or infrastructure requirements because of the limited opportunity for economies of scale. DTZ is also aware of anecdotal evidence from other SHMAs and viability assessments that small sites sometimes

incur higher build costs – again because of limited economies of scale – but there is no evidence to support this in the available data.

56 There is also a risk in some areas that housing associations may be reluctant to take on small numbers of affordable homes and they may reflect this in the price they will pay for units on smaller developments, but this is not generally regarded as problem within Gosport. Housing associations have in any case been active in the direct development of small sites for affordable housing, taking up opportunities to develop small sites that become available.

57 Conversely, small sites may benefit in viability terms in other respects. Large sites are more likely to be affected by changes in the housing market (prices falls or rises) because of the longer sale period for the market units. Large sites are almost always owned by national and regional house builders who have larger overheads than small local developers. Although not modelled within this assessment, large sites may also be affected by significant costs associated with the provision of strategic infrastructure.

The Impact of Potential Future Policy Changes

58 The assessment tested the impact of increasing Section 106 'non affordable housing' contributions from £5,800 to £7,500 per unit. Such an increase in contributions would be associated with a mix of larger properties or with the introduction of the proposed Community Infrastructure Levy or similar tariff. Unsurprisingly, this increase in contributions reduces residual land values across all schemes. In percentage terms, schemes in lower value bands are hit harder and this has the effect of removing viability in value band 2.

59 In the majority of schemes, this increase in contributions does not make viable sites unviable (in relation to our existing use value thresholds). But it is important to keep in mind the potential for cumulative burdens on schemes (affordable housing, S106 and increasing build costs over time associated with environmental performance) together impacting on viability.

60 There are also likely to be additional costs associated with adopting the Code for Sustainable Homes. Whilst there is likely to be potential for cost reduction as each code level becomes the norm, research by CLG undertaken by Cyril Sweett on the additional costs associated with Code for Sustainable Homes suggests that build costs are likely to be substantively higher. Code Level 4 is likely to become mandatory under Building Regulations in 2013. There is as yet no Government commitment on the date for implementation of Level 5. DTZ has tested viability within Gosport under these higher build costs, assuming 40% affordable housing with grant:

- Compared to the base case (build costs averaged at 2004-08 levels), applying CSH level 4 has a noticeable impact upon the viability of affordable housing (40% with grant).
- Value Bands 1 and 2 are broadly unviable at all existing use value thresholds, where Value Band 2 was generally viable at the lower EUVs under the base case.
- Only Value Band 5 remains viable at all existing use value thresholds, including the highest threshold.
- Unsurprisingly, CSH level 5 reduces viability further.

- The assessment has not tested Code Level 6 because there is significant uncertainty about the costs of meeting these requirements. The timing of the introduction of Code Level 6 (over 5 years from the base line of this assessment) makes it difficult to make robust assumptions about the sales prices, and therefore revenues, associated with residential development. These uncertainties about costs and revenues would make an assessment about the viability of Code Level 6 unreliable.
- Nevertheless, the estimated cost implications of complying with Code Level 6 would significantly affect viability within the Borough under current assumptions about build costs and sales prices.

61 It is important to note that we have assumed no house price growth in this sensitivity test (consistent with the base case) and we have also assumed that CSH costs will remain high rather than falling as is often the case as new regulations are adopted and the building industry adapts. This means that our test probably over estimates the impact of increasing the Code level. Nevertheless, the implementation of the CSH level 4 in 2013 will need to be taken into consideration by the Borough Council as a factor which might affect viability, at least in the short term.

The Impact of Higher Developer's Profit

62 Given the change in the development environment since mid 2007, and in particular the difficulty of securing development finance, it is useful to consider the scenario where developers (or rather the banks financing developers) are seeking a higher return. We have re-modelled the base case (40% affordable housing with grant) under a target IRR (our measure of profitability) of 20%. Increasing the target return causes residual values to fall as the additional margin must be funded out of land value. However, the sensitivity analysis suggests that increasing the target IRR to 20% has a relatively limited impact on the results. Although across Gosport a decline in viability is evident compared with the base case (in terms of lower residual land values), the overall level of viability (tested against our existing use value thresholds) in each value area remains broadly unchanged. There are a small number of sites that were marginally viable in the base case that become viable only at a lower existing use value.

The Impact of Future House Price Scenarios

63 Rising prices have a positive impact on viability because of effect on revenues and serve to increase residual land values on all schemes across the Borough. Price rises of 5% per annum mean that half of all schemes are viable at 40% affordable housing when judged against the highest existing use value threshold.

64 The scale of the impact of a +5% increase in prices per annum is to bring some previously unviable sites in value bands 1 into viability at the lowest existing use value threshold. Price increases of this scale do not do enough to bring unviable schemes in the lowest value band into viability at high existing use value thresholds.

65 Falling prices (of -5% per annum) have a negative impact on viability because of the effect on both revenues and sales rates (the timing of revenue payments and therefore the knock on effects of interest payments on finance etc).

66 A -5% decline in house prices year on year with lower than average sales rates reduces residual land values across all schemes by 14-89% (with the greatest % reduction on the schemes in low value bands). This scale of house price falls has the effect of making some schemes in value band 2 unviable at the lowest existing use value threshold ie wholly unviable. Only schemes in value band 5, capable of generating higher sales prices, remain viable at the highest existing use value threshold.

Implications for Policy

Can 40% Affordable Housing Be Achieved Through New Housing Development Within Gosport On Sites Of 15 Or More Homes?

67 For strategic policy the analysis suggests a target of 40% affordable housing could be set providing sufficient flexibility is retained within policy to take into account site specific considerations eg developments in low value areas, high existing or alternative use values or large demolition and infrastructure costs. This recommendation is justified on the following basis:

- The majority of schemes tested could deliver 40% affordable housing (with grant). Although the proportion able to achieve viability reduces as the existing use value threshold is increased, nevertheless a reasonable number of schemes remain viable.
- We consider it is appropriate to set the quota at 40% to ensure that, where schemes are generating high values, opportunities are taken to secure more affordable housing, though recognising that not all schemes will be able to achieve this quota and in these cases the Borough Council will need to be flexible.
- Lowering the affordable housing quota would increase the number of viable schemes but it would not bring all schemes within the Borough into viability – there is no magic quota where everything becomes viable.

Is It Viable To Seek Affordable Housing On Sites Which Deliver 10 Or More New Homes – Reducing The Affordable Housing Threshold From 15 To 10 Units?

68 DTZ see no reason in viability terms that the affordable housing threshold could not be extended to sites delivering 10 or more new homes, particularly since flexibility will be retained to deal with site specific considerations. Whilst this is only likely to deliver a small number of affordable homes each year, the administrative burden of assessing and negotiating this relatively small number of sites would be relatively light.

69 Extending the threshold to sites delivering fewer than 10 units would capture a large number of additional sites and would be likely to entail a significant administrative burden on the Council and affect its ability to engage with smaller builders delivering these sites.

How Do Different Conditions Affect Viability?

70 Given that it will not be possible to secure 40% affordable housing on all development sites within the Borough, Gosport Borough Council need to adopt a process for resolving what the contribution should be in the event that it is not possible for a site to deliver 40%.

71 In practice, such a process already exists since the Borough Council have negotiated site specific contributions over the last 5 years. However, it would make sense to acknowledge in the Council's policy documents that there is flexibility over the contribution that individual sites will make, where it can be demonstrated that a 40% affordable housing contribution would make development unviable. The Council may wish to set out in policy some of the factors that are likely to affect the ability to deliver 40% as a way of demonstrating to developers its intention to take into consideration site specific circumstances. These could include:

- A deteriorating market environment eg falling prices of new build homes
- Localised market conditions which constrain the ability to achieve sufficient market sales values
- Abnormal build costs eg associated with topography, contamination or complexity of the site
- Lack of available affordable housing grant or RSLs unable to fund intermediate type products at a particular point in time
- Significant costs or contributions which are necessary for the development to proceed, in particular:
  - Strategic infrastructure requirements
  - Archaeological and heritage considerations/ requirements
  - Ecological/ nature or wildlife considerations
  - Environmental considerations/ requirements.

Affordable Housing Viability Assessment: Technical Appendices

Final Report to
Gosport Borough Council

DTZ
125 Old Broad Street
London EC2N 2BQ

2010

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1. Appendix 1: Study Brief

1.1 DTZ has been commissioned by Gosport Borough Council (GBC) to carry out a viability assessment of its affordable housing policies. The work has been undertaken to inform the development of policy for affordable housing provision contained in the Council's LDF Core Strategy and to satisfy the requirement set out in PPS3: Housing. PPS3 states that affordable housing targets and thresholds should take into account the impact that these may have on the economic viability of development schemes.

Affordable Housing Policy Objectives

1.2 In developing affordable housing policy Gosport Borough Council is seeking to achieve a number of different objectives:

- To maximise the delivery of affordable housing given the high level of housing need identified through housing need assessments in the Borough and the South Hampshire HMA (undertaken for the PUSH sub-region/ South Hampshire market area).
- To devise policy that will maintain the pipeline of new housing developments coming forward to ensure provision of new homes, including market and affordable homes
- To devise policy in such a way that landowners are sufficiently incentivised to bring forward residential development
- The desire to foster mixed communities and to ensure a reasonable mix of incomes and ages within local neighbourhoods.

The Study Approach

1.3 At the core of the study approach is a viability modelling exercise. This examines the impact on viability of different affordable housing contributions on **hypothetical** development schemes in different parts of Gosport.

1.4 The modelling runs a cash flow analysis for a representative range of development schemes (referred to as scheme **archetypes**) across Gosport Borough using as a baseline, costs and values from the period 2004 to 2008.

1.5 There are a number of reasons for using average values and costs for the period 2004-08:

- The planning inspectorate has indicated that viability assessments should not be based on an 'abnormal market'. It is difficult if not impossible to define a normal market but it would seem sensible that the baseline for the study should not be based on values or costs at one specific point in time, which might not be representative of the past or future. Thus, taking an average of a 4 year period provides a reasonable basis for modelling since there is a reasonable expectation that these costs and values will be achieved in the future (as they have in the past) and they do not represent values or costs at either the peak or trough in the market.

- Using current values would represent some risk when analysing data at the localised level. Since the housing market downturn set in, transactions have fallen dramatically and are currently around half the levels experienced in the decade to mid 2007. Thus, house prices reported in 2008 and 2009 have been based on very low numbers of transactions and are likely also to have been influenced by the type of properties traded. There is a risk that using current (2009) values could be affected by a small sample size and skew the results.

1.6 The building blocks of the viability modelling are shown in Figure 1.1. Further information on the model is presented in Appendix 2-6, with detailed information on the way the model works and key assumptions.

Figure 1.1: The Viability Modelling Approach

Framework for Analysis	Key Components	Key Variables for Testing	Viability Tests
House price and sales rate scenarios	Revenues (price of market and affordable homes)	Percentage of affordable housing	Internal Rate of Return (target 15%)
5 Value bands representing the range of average values	Costs (build, non-Affordable Housing s106 contributions, marketing, finance costs, etc)	Market prospects – different scenarios	Residual land value (using land value as output)
Development archetypes – 11 different scheme types	Land value (can be an input or an output)	Level of affordable housing grant	-

1.7 The remaining appendices provide information on the following:

- **Appendix 2** sets out the residential **values** in Gosport**,** how they have been derived and how they relate to different parts of the Borough
- **Appendix 3** shows the development **archetypes** and how they have been developed
- **Appendix 4** presents the **model structure**, its operation and key assumptions
- **Appendix 5** sets out the results of the **base case** modelling
- **Appendix 6** examines how **sensitive** the results of the analysis are to changes in key assumptions and variables

2. Appendix 2: Residential Values in Gosport

2.1 A key driver of development viability is the sales value per square metre (or per sq ft) that can be achieved on new schemes. Higher sales values produce greater revenue streams, thus improving margins if costs are kept constant. However, in practice, competitive bidding for land means that a development in a high value area is often no more profitable than that in a lower value area, as higher revenues are offset by higher land costs (thereby keeping margins at the same level).

2.2 An important part of the viability modelling is therefore to capture how sales values (and by implication land values) vary across Gosport Borough.

Value Bands within Gosport

2.3 Gosport Borough Council proposes to apply an affordable housing quota of 40% across the Borough. A key aim of this viability assessment is to test this proposed policy and ensure that the Borough Council develop affordable housing policies that are likely to be achievable and viable over the plan period.

2.4 Some local authorities apply different affordable housing policies to different parts of their Borough due to the variability in viability and so it is useful to test how viability varies.

2.5 Data on house prices suggests that sales values within Gosport do not have a clearly discernible geographical pattern, with the exception that higher values are achieved in the waterfront areas. Nevertheless, it is important to test variations in sales values which can occur on different schemes. To achieve this, DTZ has tested a series of value bands, based on the range of sales value data from the 52 Lower Super Output Areas (LSOA)[1] that exists in the Borough.

2.6 The 52 LSOAs are divided into 5 different value bands based upon an equal spread of values in each band. These are shown in Figure 2.1 along with the number of LSOAs in each value band (shown in brackets). Value band 1 represents the lowest values and value band 5 the highest. Figure 2.2 uses average house price £ per sq ft data from Hometrack for the 12 month period to October 2009 to give a *current* view of the pattern of sales values in Gosport. Figures 2.3 and 2.4 demonstrate that this pattern has remained broadly constant over the last 5 years.

2.7 Hometrack data provides the most representative picture of house prices in any Local Authority area. Land Registry data often contains a large number of duplicate entries, requires cleaning to be accurate and also is subject to significant time lags. A comparison between the two sources shows that in an average Local Authority area Hometrack has 350 price points

[1] Each LSOA has, on average a population of 1,500 people.

(from a combination of mortgage valuations and completed transactions) per month compared with the Land Registry that only has ten (which is based on transactions only).

2.8 The key in Figure 2.2 shows the price range that each LSOA corresponds to (the darker and redder the LSOA the more expensive it is) and the total number of LSOAs falling within that price bracket (the same applies in Figure 2.3 and 2.4). This suggests that values do vary across Gosport Borough but that there is no clear pattern to this variation apart from the higher values achieved in the coastal, waterfront areas.

2.9 Whilst Figure 2.2 shows the most recent sales value patterns across the Borough, the Planning Inspectorate has indicated that viability assessments should not reflect circumstances of an 'abnormal market'. Given the cyclicality of the housing market, a normal market is very difficult to define. Nevertheless, it would seem sensible not to rely on values from one specific point in time, particularly values associated with the peak (Q3-4 2007) or trough in the market (Q1 2009). Using current values is also unlikely to be representative of the market conditions during the LDF plan period with home sales transactions having dropped by 50%[2] since the onset of the downturn in 2007.

2.10 To ensure that this assessment tests values that are typical of those within Gosport Borough, we have proposed that our baseline values for the Viability Assessment are determined by the average for the period is 2004-2008. Appendix 1 sets out the rationale for using this approach. **Essentially, it is about establishing a baseline for values and costs which is reasonably representative of what has been achieved in the past and could be achieved in the future, but does not represent either the peak or trough in the market cycle.**

2.11 This viability assessment therefore tests Gosport Borough Council's affordable housing policy using average sales values for each of the 5 value bands. This ensures that the testing reflects the reality of varying sales values across the Borough. However, it is interesting to note that average current values (2009) do not differ significantly from the average values from 2004-08 (see Figure 2.6) so we expect that the modelling is broadly representative of current viability in the Borough and that modelling using 2009 values would not have a discernable effect on results.

[2] According to Land Registry sales transactions data for 2007 Q3 compared with 2009 Q3.

Figure 2.1: Value Bands Applied to Different Areas within Gosport

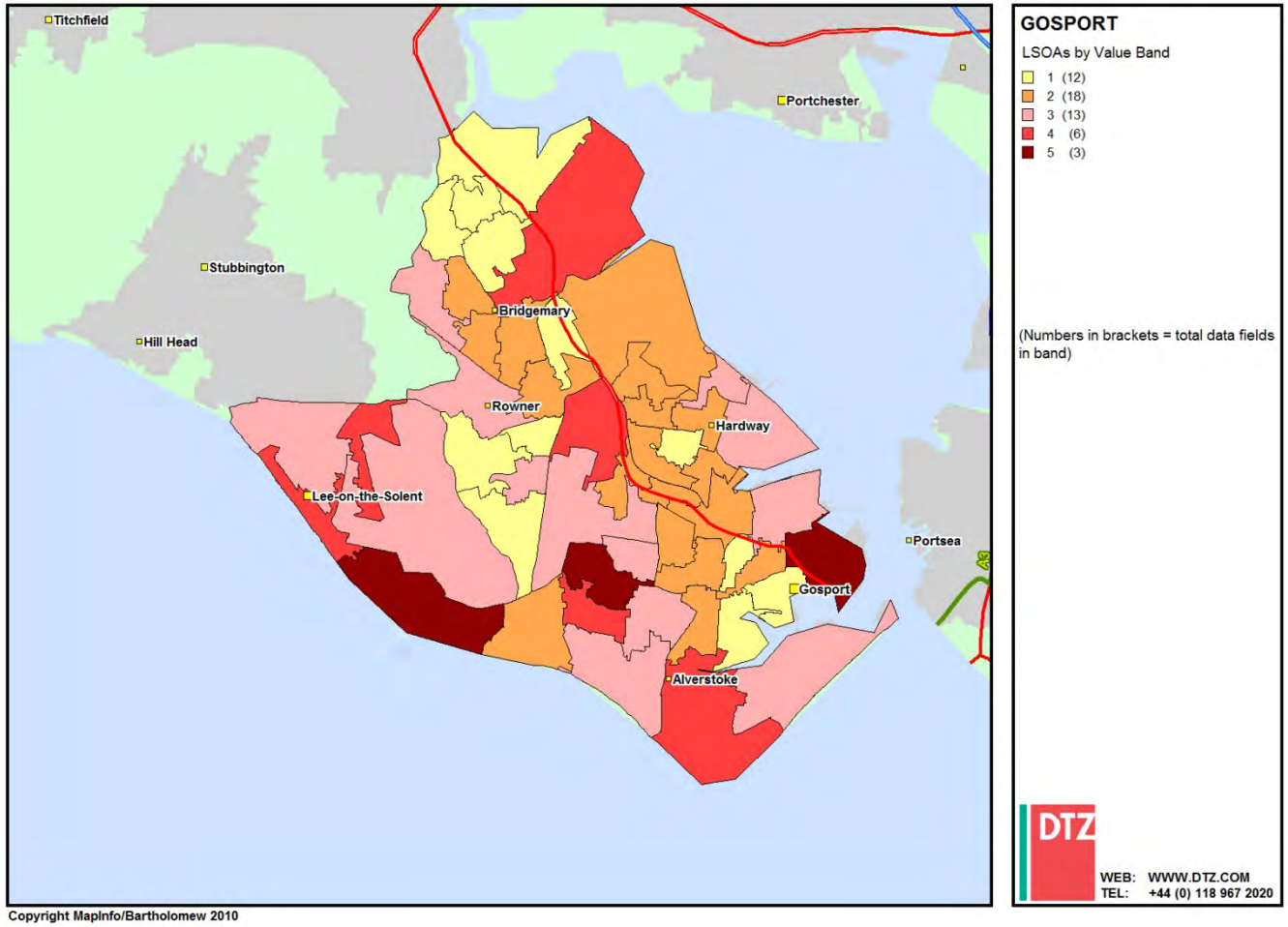


Figure 2.2: Spatial Variation of Average House Prices, March – October 2008/09 (£ per sq ft, 12 month average)

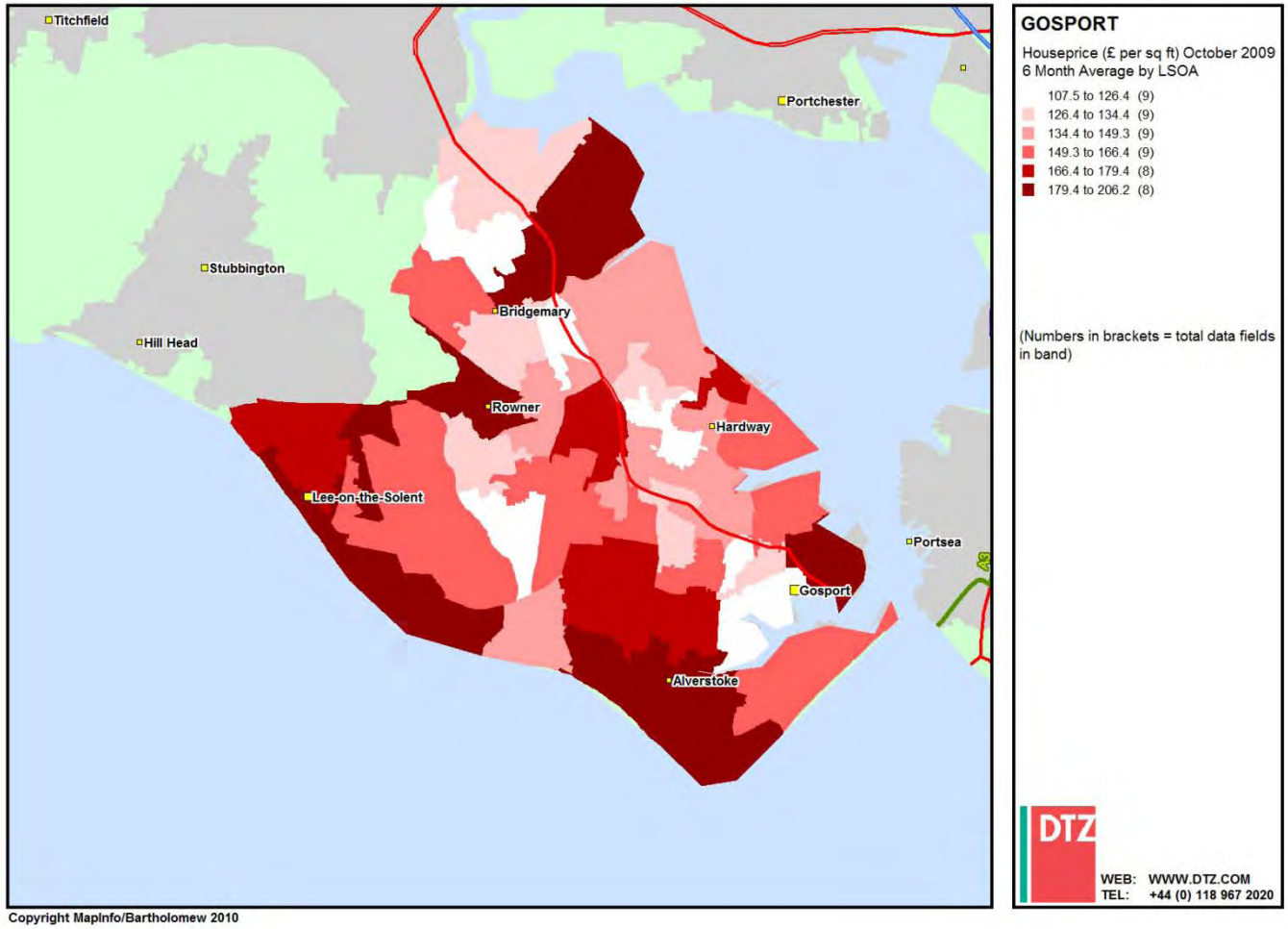


Figure 2.3: Average House Prices, October 2007/08 (£ per sq ft, 12 month average)

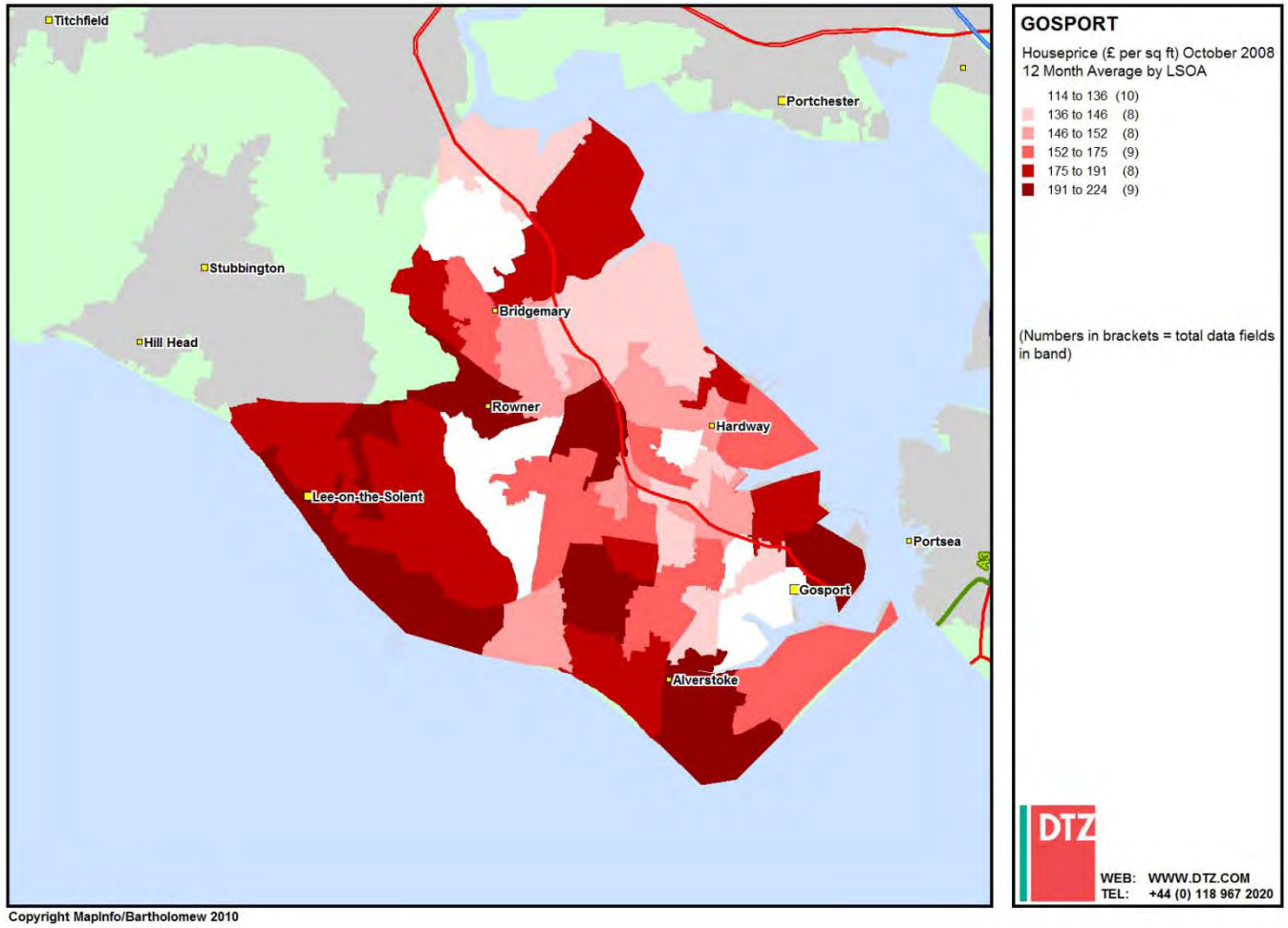
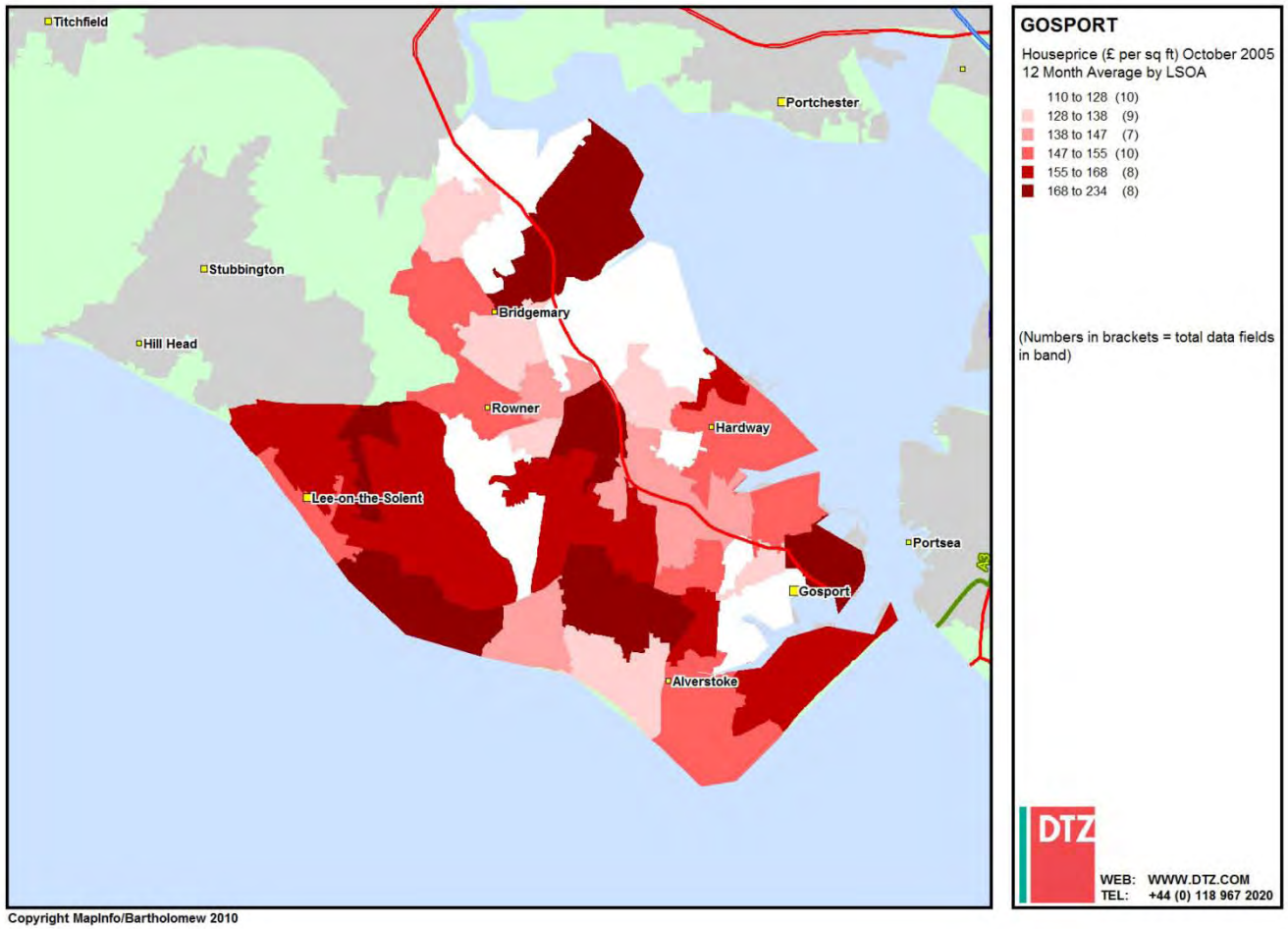


Figure 2.4: Average House Prices, October 2004/05 (£ per sq ft, 12 month average)



2.12 Price (£ per sq m) values for each band are summarised in Figure 2.5 and figures provided on a price per sq ft basis in Figure 2.6.

2.13 The values that are inputted into the model represent the average sales values (£ per sq m) for each of the five value bands for the period 2004-08. Figure 2.6 also shows the highest and lowest values for each area.

Figure 2.5: Values £ per sq m 2004-08 and 2009 by Value Band (VB)

	VB1	VB2	VB3	VB4	VB5	Average
Average £ per sq m 2004	1,313	1,537	1,711	1,808	2,292	1,732
Average £ per sq m 2008	1,399	1,592	1,883	2,174	2,270	1,861
Min £ per sq m 2004-08	1,205	1,442	1,679	1,926	2,174	1,689
Max £ per sq m 2004-08	1,410	1,657	1,894	2,044	2,356	1,872
Average £ per sq m 2009	1,323	1,506	1,808	1,969	2,012	1,722
Average £ per sq m 2004-08	1,356	1,571	1,797	1,991	2,281	1,797
% difference between Average & Min	-11%	-8%	-7%	-3%	-5%	-7%
% difference between Average & Max	4%	6%	5%	3%	3%	4%

Source: Hometrack

Figure 2.6: Values £ per sq ft 2004-08 and 2009 by Value Band (VB)

	VB1	VB2	VB3	VB4	VB5	Average
Average £ per sq ft 2004	122	143	159	168	213	161
Average £ per sq ft 2008	130	148	175	202	211	173
Min £ per sq ft 2004-08	112	134	156	179	202	157
Max £ per sq ft 2004-08	131	154	176	190	219	174
Average £ per sq ft 2009	123	140	168	183	187	160
Average £ per sq ft 2004-08	126	146	167	185	212	167
% difference between Average & Min	-11%	-8%	-7%	-3%	-5%	-7%
% difference between Average & Max	4%	6%	5%	3%	3%	4%

Source: Hometrack

2.14 The data presented in Figures 2.5 and 2.6 represent a mix of new build and existing dwelling prices. The model requires new build values as an input and these can also be derived from Hometrack data. Figure 2.7 shows that on average across the Borough there has been a significant premium on new build flats and houses.

2.15 However, we cannot simply apply this premium to the sales values in Figure 2.6 because these averages include new build properties. We have therefore adjusted downwards to a 'premium to be applied' which takes into account the fact that £ per sq m sales values in Figures 2.5 and 2.6 are already a mix of existing and new build properties. The premium applied is essentially a judgement based on DTZ's market knowledge within Gosport and cross checked with the long term average premium for new build sales prices in the South

East as a whole. The average premium on the sales prices of new build properties in the South East as a whole over the period 2004-08 was 19% according to CLG data (based on Land Registry transactions). This is broadly consistent with the premium we have adopted in Gosport for the same period.

Figure 2.7: New Build Premiums in Gosport Borough

	New Build Premium (Flat)	New Build Premium (House)
2004/05	57%	43%
2005/06	9%	37%
2006/07	34%	61%
2007/08	71%	71%
Average Premium	43%	53%
Premium to be Applied	**22%**	**27%**

Source: Hometrack; DTZ

2.16 Figure 2.8 sets out the revised sales values that will be inputted into the model for the base case. The figures are derived by adding the new build premiums from Figure 2.7 to the 'Average £ per sq m 2004-08' values in Figure 2.5.

Figure 2.8 Adjusted 2009 Sales Values by Value Band (VB)

	1	2	3	4	5	Average
Average £ per sq m 2004-08	£1,356	£1,571	£1,797	£1,991	£2,281	£1,797
Average £ per sq ft 2004-08	£126	£146	£167	£185	£212	£167
Flats: New Build Premium	*22%*	*22%*	*22%*	*22%*	*22%*	*22%*
Houses: New Build Premium	*27%*	*27%*	*27%*	*27%*	*27%*	*27%*
Flats Average + Premium per sq m	**£1,646**	**£1,905**	**£2,174**	**£2,421**	**£2,765**	**£2,184**
Houses Average + Premium per sq m	**£1,711**	**£1,980**	**£2,270**	**£2,518**	**£2,884**	**£2,270**
Flats: Average + Premium	**£153**	**£177**	**£202**	**£225**	**£257**	**£203**
Houses: Average + Premium	**£159**	**£184**	**£211**	**£234**	**£268**	**£211**

Source: DTZ; Hometrack; Land Registry

2.17 From DTZ's experience of residential development within Gosport, the values derived from Hometrack are deemed to reasonably cover typical sales values achievable in the Borough.

Future Housing Market Scenarios

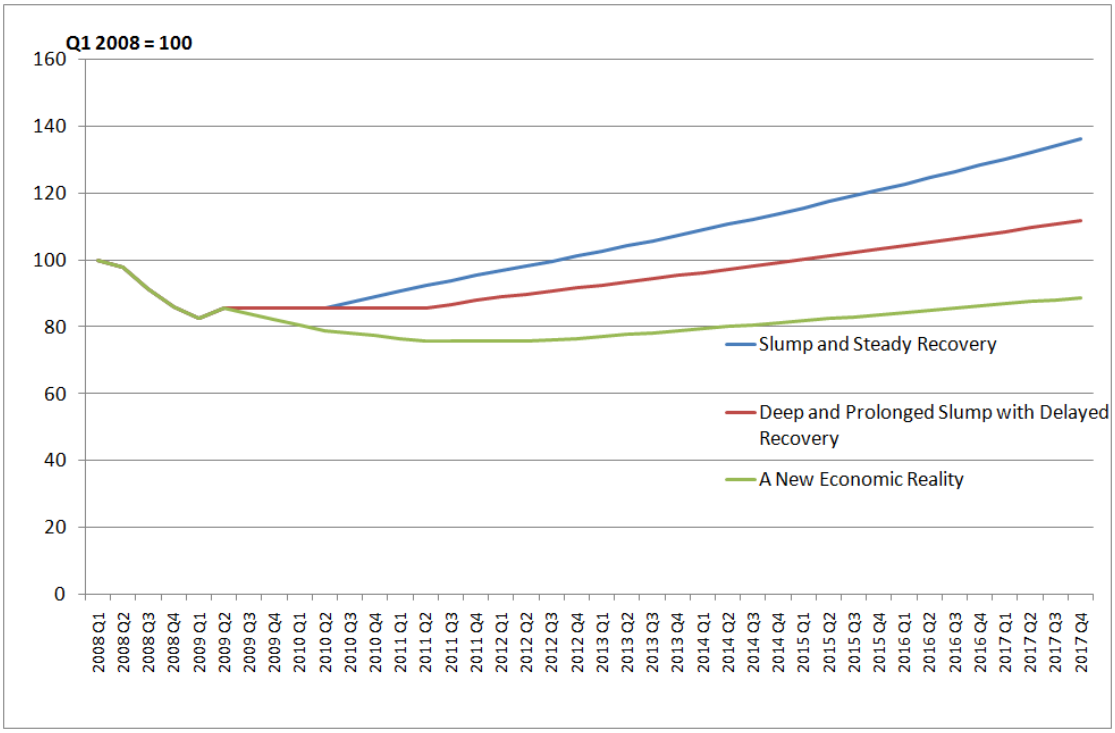
2.18 A key feature of DTZ's viability modelling is that it is cash flow based. This is extremely important in testing viability, since development is delivered over a period of time and the timing of revenues (sales of new homes) and the timing of costs (eg build costs, interest charges) will significantly affect the viability of development.

2.19 The recent housing market downturn has illustrated the importance of cash flow to development viability. Falls in prices and the contraction in mortgage availability led to a significant fall in sales. Transactions fell to just 40% of normal market levels in Q1 2009 in the Borough and the South East as a whole. For developers this meant that not only were prices of new homes lower than expected, the time taken to sell homes on new developments radically increased. But build costs still had to be met and interest payments made, seriously affecting the profile of cash flow on new developments and undermining viability.

2.20 For some sites, particularly larger ones, the profile of cash flow will extend over more than one year. This means that the assessment needs to test the impact of house price inflation or deflation over the period.

2.21 Predicting the future course of house prices is difficult, if not impossible. DTZ has its own housing market scenarios which focus on the path of the recovery in the South East. These are illustrated below in Figure 2.9 but are not used within the Gosport Viability model.

Figure 2.9: DTZ House Price Scenarios for the Outer South East



2.22 The purpose of this viability assessment is to test and support the development of affordable housing policies for the plan period to 2026. We propose therefore a simplified set of scenarios that test the impact on viability of the three possible states of the housing market:

- House prices rising (+5% nominal price increase per annum and sales rates stable)
- House prices staying flat (0% per annum and sales rates stable) **(this scenario is used for the base case)**
- House prices falling (-5% nominal price decrease per annum and sales rates fall by 50%)

2.23 The magnitude of inflation or deflation in these scenarios is somewhat arbitrary but the purpose is to demonstrate the broad impact on viability of price rises or falls. We believe +5% nominal house price inflation is a realistic assumption since the long term *real* trend in prices (ie adjusted for inflation) in the UK over the last 35 years has been close to 3%. We propose that the price falls scenario is of the same magnitude as the price rises scenario for consistency.

2.24 However, it is also important to adjust sales rate assumptions in the price falls scenario. Sales rates tend to remain steady in a rising market (averaging 1 per week for each sales outlet on a development site).[3] In a falling market, sale rates decline significantly as demand weakens, largely in anticipation of further price falls. Thus, we assume sales rates in a falling market are half the levels in a rising or flat market.

2.25 In the base case (reported in Appendix 5) we assume that house prices remain flat over the course of the development period. House price rises and falls are tested in the sensitivity analysis which is reported in Appendix 6.

[3] Assumption based on discussions with the Home Builders' Federation and major developers in the South East for DTZ's study of viability in England for the HCA

3. Appendix 3: Analysis of Sites and Development of Archetypes

3.1 The purpose of this Appendix is to examine the nature of residential development within Gosport in recent years. This analysis is then used to develop a number of archetypes, typical of the range of housing development in the Borough, which are then used to model viability.

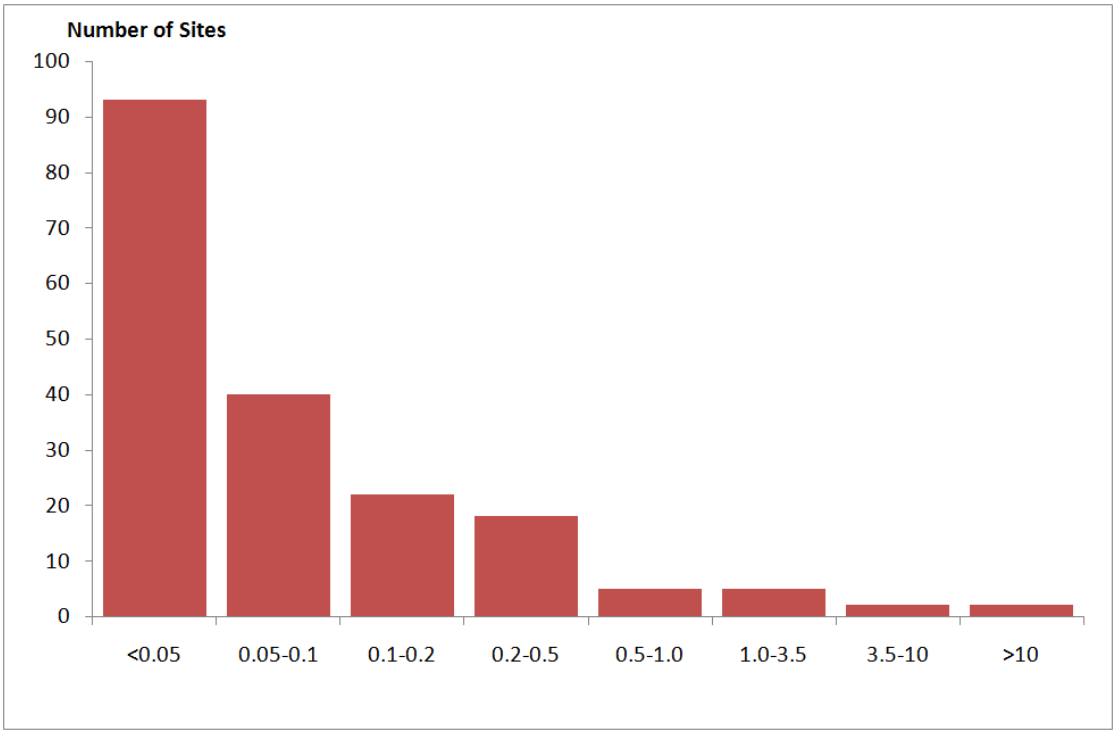
3.2 The analysis presented in this paper has been carried out on completions data provided by Gosport Borough Council and the Council's Strategic Housing Land Availability Assessment.

3.3 A significant proportion of completions within the Borough result from small scale subdivisions of existing building and conversions, including a large number of single dwelling completions.

Site Area and Size

3.4 Figure 3.1 charts the size of sites that came forward for development during the period 2004-2009 in Gosport Borough. The largest proportion of development sites were less than half of one hectare in size. The mean average development site between 2004 and 2009 was 0.54 ha in size. Only 9 sites were greater than 1 hectare in size.

Figure 3.1: Site Area by Frequency, 2004 – 09 (ha.)



Source: Gosport Borough Council

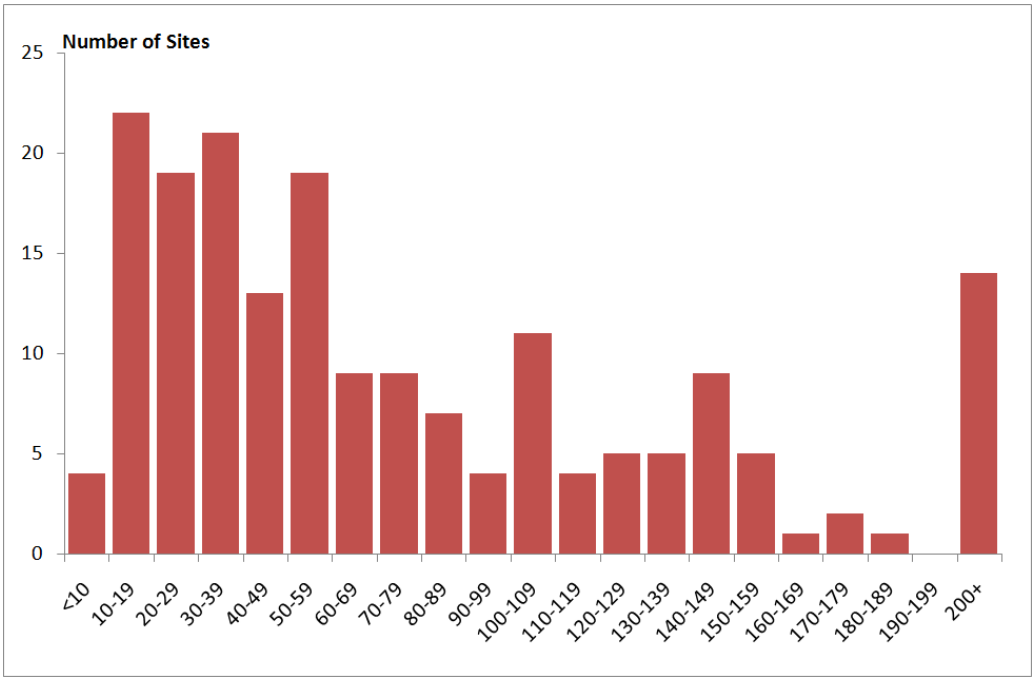
3.5 The majority of housing sites developed over the last 5 years in the Borough have been small sites and have therefore not been captured by the Council's affordable housing policies:

- 164 sites (408 net units) delivered fewer than 15 new homes and were not captured by affordable housing policies. Of these, 11 sites delivered 10-14 units (137 net units) and 153 sites delivered 1-9 units (271 net units). These figures include sites which resulted in negative or zero net completions and those developed solely for affordable housing by housing associations.
- 15 sites delivered 15 or more units (1,686 net units). These figures include sites which resulted in negative or zero net completions and those developed solely for affordable housing by housing associations. 5 of these sites were developed solely for affordable housing. Of the remaining 10 market led sites, 6 sites provided on-site affordable housing (380 affordable units from 1,321 net units in total) and 4 provided commuted payments in lieu of on-site affordable housing provision.
- Direct development by housing associations and the Borough Council has provided an important source of affordable housing (over the last 5 years, equating to 157 net affordable homes) and has helped to compensate for the lack of such housing on small sites delivering market housing.

Density

3.6 Figure 3.2 illustrates the density on those sites that came forward for development period 2004-09. Analysis of completions data shows that the average density of development sites was 78 dwellings per hectare (dph) and the median was 57 dph, with a range of 5 – 365 dph.

Figure 3.2: Site Density (Dwellings Per Hectare, dph) 2004 – 09



Source: Gosport Borough Council. Note: sites developed at 200+ dph plus are generally single or small numbers of dwellings

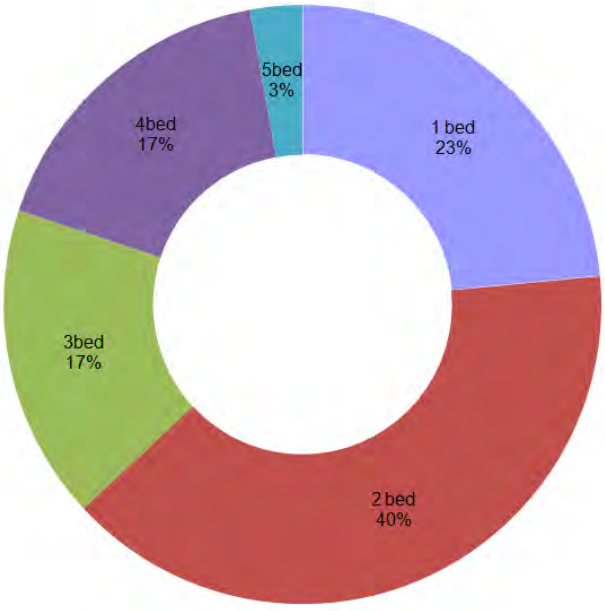
3.7 Few sites are likely to come forward at the extremes of this range and those that do tend to be developments of single or small numbers of dwellings. Gosport Borough Council's current planning policy guidance states that dwellings should be built out at a density of between 30 and 50 dph. However higher density proposals may be permitted in locations close to principle or district centres or in areas with good public transport links.

Dwelling Size and Type

3.8 Gross dwelling completions during the period 2004 – 2009 totalled 2,347, equating to around 400 new homes per annum. Net completions were 2,094 over the period. The size profile of these completions was skewed towards one and two bed properties, which is consistent with development in the wider South Hampshire sub-region and South East region as a whole over the period[1]:

- 551 (23%) were 1 bed properties
- 929 (40%) were 2 bed properties
- 399 (17%) were 3 bed properties
- 401 (17%) were 4 bed properties
- 67 (3%) were 5 bed properties

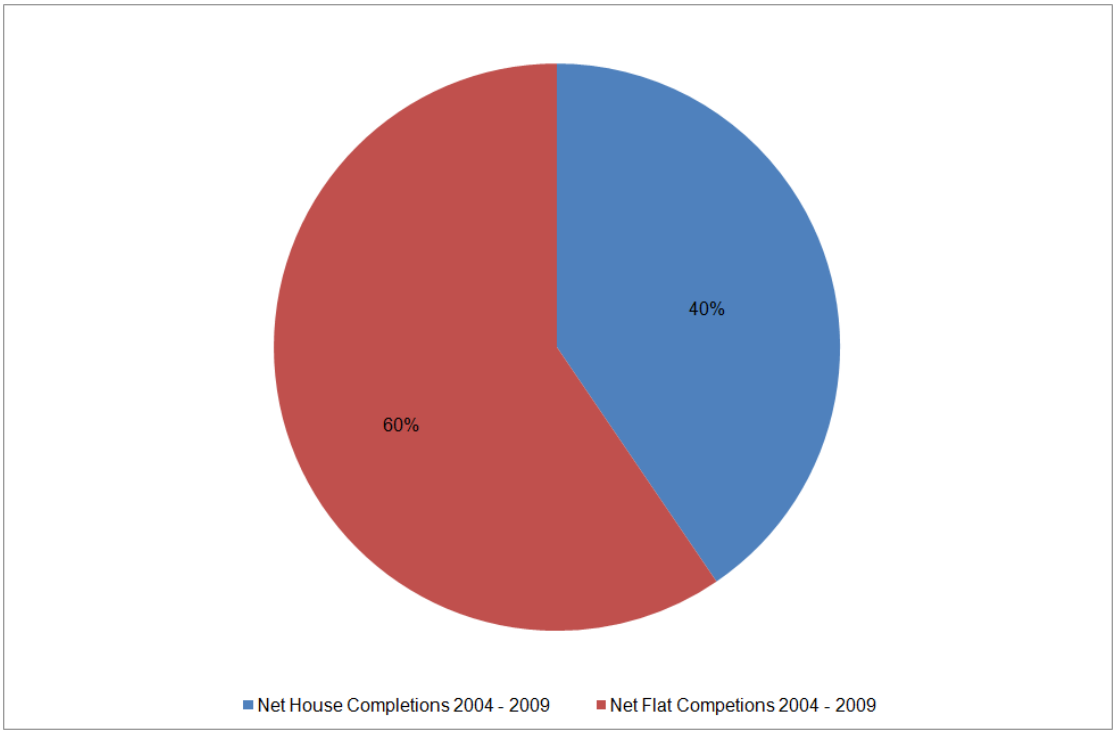
Figure 3.3: Gross Dwelling Completion by Size, 2004-09



Source: Gosport Borough Council

[1] See DTZ research on 'Housing Type and Size in the South East' 2007 for the South East Regional Assembly and SEESA

Figure 3.4: Net Completions by Type, 2004-09



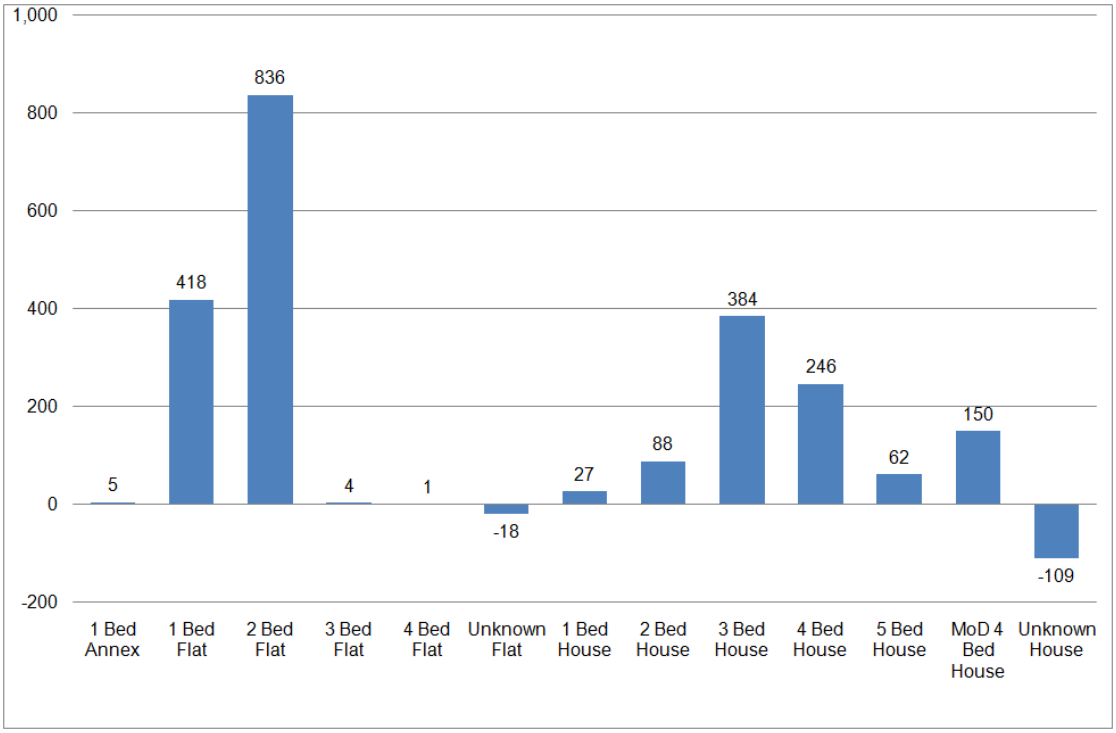
Source: Gosport Borough Council

3.9 Figure 3.4 shows the proportion of houses (40%) to flats (60%) developed between 2004 and 2009. During the period 2004-2009 the most common dwelling to be built was a two bedroom flat. 67% of all flats built had two bedrooms. 3 bedrooms was the most frequently built house size. 45% of houses had 3 bedrooms.

3.10 Whilst it is important that the development archetypes reflect the size and type of homes that have been delivered in recent years, it is also important to bear in mind how the market has changed since 2007 and how this might affect the profile of new homes proposed by developers. DTZ anticipate that there will be some shift away from the development of flats. Where site circumstances permit, developers may wish to bring forward a higher proportion of houses than flats in the future for the following reasons:

- Investment buyers and their willingness to buy off plan significantly de-risking flatted development in the period to mid 2007. The investment market has been significantly affected by the downturn (and specifically the lack of available credit) thus removing an important component of demand for this type of product for at least the short term.
- Houses can be built out gradually (unlike flats) and in response to sales rates. This reduces risk for the developer and allows them to control their cash flow.
- There has been growing recognition amongst planning and housing authorities in the PUSH sub-region about the acute need for larger (family sized) homes in the affordable housing sector. This is likely to encourage planning authorities to facilitate the development of houses, where possible, so that there is an opportunity to address this need.

Figure 3.5: Net Completions by Size and Type, 2004-09



Source: Gosport Borough Council

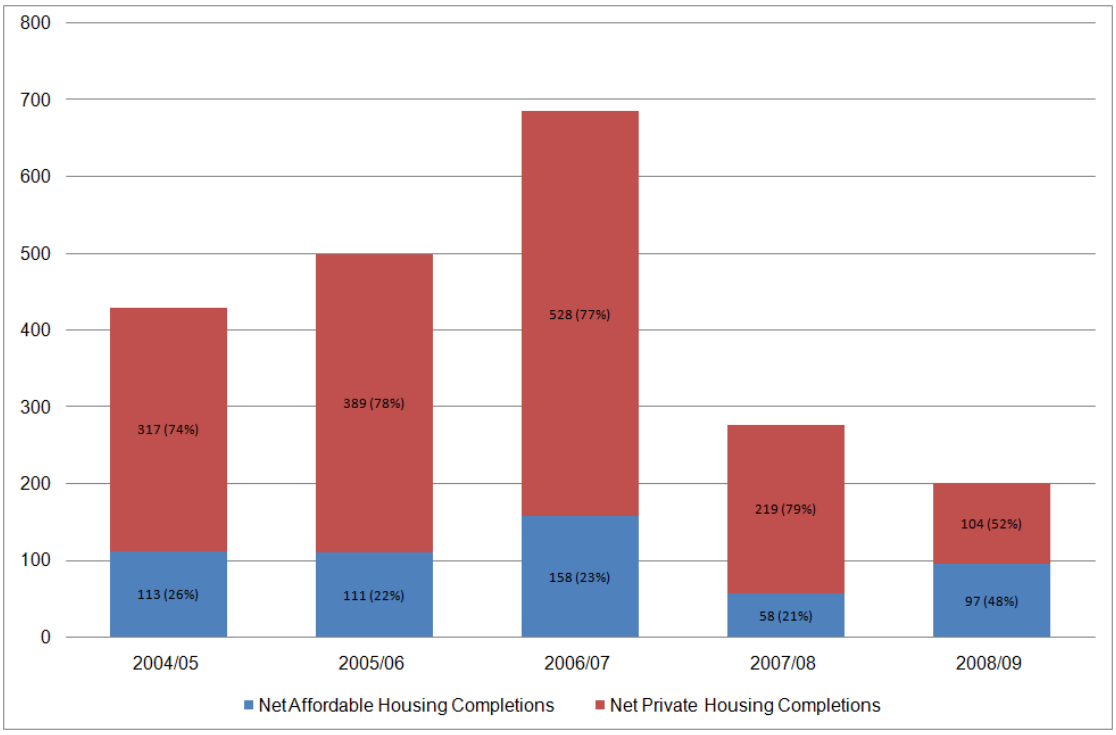
Affordable Housing

3.11 Figure 3.6 provides data on total net affordable and private completions between 2004 and 2009 in Gosport Borough. 537 affordable dwellings have been delivered over the period 2004 – 2009. This equates to 26% of total completions over the period. It is important to note that these figures include:

- Sites which fell below the affordable housing threshold and therefore did not contribute any additional affordable homes (analysis of site size suggests that over 80% of development sites fell below the threshold and did not provide affordable housing).
- Sites which developed 100% affordable housing, delivered by the Borough Council and RSLs, often using Council owned land.

3.12 The overall proportion of affordable housing has fluctuated over the 5 year period with the most notable increase in 2008/9 where affordable housing made up 48% of all completions (net). It should be noted that some affordable housing provision on major residential developments within the Borough (Cherque Farm, Royal Clarence Yard and St George Barracks South) is not reflected in these figures as construction began prior to 2004.

Figure 3.6: Number of Affordable Home Completed and as a Percentage of Total Net Completions



Source: Gosport Borough Council

Development Archetypes

3.13 The model requires us to specify a range of site sizes, densities and mix to capture the variety of development scenarios within the Borough. Based on the analysis of completions, Figure 3.7 presents a matrix which aims to represent the range of development schemes that are likely to come forward within Gosport. It is important to keep in mind that these archetypes will not directly match past or future development sites in the Borough, but they are designed to capture a range of scenarios so that the assessment can draw conclusions on the impacts on viability of different variables.

3.14 The principles which have informed the matrix are:

- Average site size in Gosport 2004 – 2009 was 0.54 ha, with a range of 0.003 – 40 ha. Thus, the majority of archetypes are relatively small or modest sized sites but it is also important to test viability on a large site scenario.

- The mean average density in Gosport 2004 – 2009 was 78 dph (median 57 dph) with a range of 5 – 365 dph. Few sites are likely to come forward at the extremes of this range and so a range of 35-80 was deemed appropriate to capture the majority of scenarios and to be consistent with the Council's guidance on density which states that proposals for new housing should be provided at a density of 30-50 dph, however higher density proposals may be permitted in locations close to principle or district centres or in areas with good public transport links.

- Gosport Borough Council want to consider the impact of lowering the threshold to ten units and so developments at and below the current threshold (of 15 units) are tested in terms of their viability for affordable housing development.

- 60% of homes developed in the last 5 years have been flats rather than houses, however there may be more limited development of flats in the future, therefore the impact of a higher proportion of houses will be tested (focused on the lower density typologies).

- Mix is generally consistent across different size sites but we assume that the smallest, lower density developments have a bias towards larger houses and vice versa, the larger higher density schemes have increased proportions of flats.

3.15 Each of the development scenarios below is tested in each of the value bands. This produces a large number of residual land value results, for which we provide conclusions on viability in comparison with:

- A low existing use value

- A medium existing use value

- A high existing use value

3.16 These values are based on Valuation Office data on the existing use value per hectare of different land uses and are explained in detail in Appendix 5.

Figure 3.7: Development Archetypes for Gosport

			Site Size in Hectares (ha)									
			10	2		1		0.3		0.2		
				A		B		C		D		
Density (dwellings per hectare)	80	No. of Units		160		80		24		16		
		Mix	Not Tested	20%	1 bed flat	20%	1 bed flat	20%	1 bed flat	20%	1 bed flat	
				30%	2 bed flat	40%	2 bed flat	40%	2 bed flat	30%	2 bed flat	
				20%	2 bed house	20%	2 bed house	20%	2 bed house	30%	2 bed house	
				20%	3 bed house	20%	3 bed house	20%	3 bed house	20%	3 bed house	
				10%	4 bed house							
				E		F		G				
	60	No. of Units	600	120		60		18		12		
		Mix	Tested following the base case modelling (Archetype 'L')	10%	1 bed flat	10%	1 bed flat	10%	1 bed flat	Tested following the base case modelling (Archetype 'M')		
				40%	2 bed flat	40%	2 bed flat	30%	2 bed flat			
				20%	2 bed house	30%	2 bed house	30%	2 bed house			
				20%	3 bed house	20%	3 bed house	30%	3 bed house			
				10%	4 bed house							
			H			I		J		K		
	35	No. of Units	350	70		35		10		Not Tested		
		Mix	10%	1 bed flat	20%	2 bed flat	30%	2 bed house	30%	2 bed house		
			20%	2 bed flat	40%	2 bed house	40%	3 bed house	40%	3 bed house		
			20%	2 bed house	40%	3 bed house	30%	4 bed house	30%	4 bed house		
			20%	3 bed house								
			20%	4 bed house								
			10%	5 bed house								

4. Appendix 4: Model Structure and Assumptions

4.1 This Appendix provides an overview of the structure of the viability model and the assumptions it uses.

What Defines Viability?

4.2 The model is based on the principles of Circle Developer which is a software package used by development specialists to appraise individual sites. These principles have been translated into an excel model which has been developed to test a large number of hypothetical sites simultaneously. In the model, viability is determined by examining residual land values and comparing these with existing use values.

4.3 In theory if a sites' residual value (at a given rate of return/profit margin) is above existing use value then it should be both viable and able to deliver that particular affordable housing contribution.[1] In practice the extent to which land value must exceed existing use value in order to incentivise development is the subject of much debate. However, for the purposes of this study we assume that if a residual land value exceeds existing use value then it should (in theory) be viable.

4.4 The model can also look at viability in terms of indicators of profitability which may be used within the development industry, including the achievement of a target Internal Rate of Return (IRR). The IRR is the discount rate needed to reduce the Net Present Value (NPV)[2] of a particular scheme to zero.

4.5 The IRR target - the requirement for a scheme to be deemed viable - is set at 15% (though this is varied to 20% and tested as a sensitivity). Before the onset of the credit crunch a 15% IRR was generally regarded by developers as the minimum needed to proceed with a scheme (though under current market conditions this has increased on many schemes due to stricter and costlier credit terms imposed by lenders).

4.6 The model can also measure scheme profitability, as defined by scheme surplus divided by scheme cost (profit on cost) and scheme surplus divided by scheme revenue (profit on Gross Development Value). This differs from the IRR approach as it does not use a discount rate to attach a 'worth' to when costs or revenues arise. Nevertheless, it still provides a useful measure of profitability and many developers use these to decide whether a scheme is viable.

4.7 Whilst each measure is calculated by the model, for the purposes of this study we focus upon the **residual land value** to establish whether a scheme is viable. This measure is typically used by developers, landowners and public authorities and so provides common ground in the assessment of viability.

[1] However, if it is below existing use value the affordable housing contribution may need to fall, which, keeping margin constant, will have the effect of increasing the residual land value.

[2] The net present value of a scheme is the sum of the present values of the individual amounts in the net income stream. Each future net income amount in the stream is discounted, meaning that it is divided by a number representing the opportunity cost of holding capital from now (year 0) until the year when income is received or the outgoing is spent. In the model the discount rate is currently set at an industry standard rate of 9%.

Model Inputs

4.8 The model is structured on the basis of a time series cash flow for a particular development. The main input into the model is the configuration of the scheme (its archetype), in terms of the number of dwellings/density, dwelling mix (size, type and tenure) and disposal period. The scheme archetypes, which have been developed to reflect a representative range of different schemes across Gosport Borough, are described in Appendix 3 of this report.

4.9 The other major inputs into the model are the assumptions around costs and values. DTZ have developed different 'value bands' each of which has a different set of sales values. A full analysis of how the value geographies have been formulated for Gosport Borough is contained in Appendix 2. Each scheme therefore correlates to a specific set of inputs. These are described below.

Revenue (£ per sq m) by unit type, size and tenure

4.10 For the market housing an average £ per sq m value is calculated for each value band as shown in the Appendix 2. For the revenue streams generated by the affordable housing we have applied a proportion to the market value of a unit which a developer would receive for a comparable unit of affordable housing with or without grant payment. **The base case modelling assumes that grant is paid**.

4.11 DTZ's experience is that, on average and on a like for like basis, a developer would receive around 40% of market value for a social rented unit and 60% of market value for a shared ownership unit (without grant). With grant the figure on average rises to 60% of market value for a social rented unit and 80% on a shared ownership unit (an increase of 20% for both). [3] This is presented using a simple illustration in Figure 4.1.

4.12 It is acknowledged that local housing associations are unlikely to calculate what they can pay for affordable housing on this basis. In reality, the amount that housing associations will bid for affordable housing on a market led development will depend on their own financial resources and their strategy for development and these are likely to vary between associations and over time. Because of this complexity DTZ has used assumptions developed at the national level for HCA research into affordable housing delivery.[4] These indicative values are based on DTZ's market experience nationally prior to the market downturn, and it is acknowledged that in the current market conditions housing associations may be unwilling or unable to pay for affordable housing at this level. However new benchmarks have yet to be established of what associations will pay for affordable housing.

4.13 The revenue stream for affordable units is realised in parallel with construction to reflect the fact that affordable housing revenues are often received earlier than those for market homes (which rely on sales).

[3] An alternative approach would be to capitalise housing association rents (DTZ assumes a 12 year period) and add grant (eg using HCA's target grant rate for social rented homes at £65k) to arrive at a value for the affordable housing component. A cross check of capitalised rents for Gosport plus grant suggests that such an approach would broadly equate to the assumed relationship between open market and affordable values.

[4] HCA study of the Scope for Affordable Housing Delivery through S106 in a Post Credit Crunch Residential Land Market

Figure 4.1: Generation of Affordable Values Using Proportionate Approach

	Without Grant (%)	With Grant (%)	Without Grant (£)	With Grant (£)
Market Value of Flat in Value Geography (£ per sqft)	*100%*	*100%*	*£100*	*£100*
Shared Ownership Value Flat (£ per sqft)	60%	80%	£60	£80
Social Rent Value Flat (£ per sqft)	40%	60%	£40	£60

Unit Area Assumptions

4.14 The £ per sq m values (both market and affordable) are combined with assumptions on unit area sizes to generate total unit prices. The unit area assumptions, based upon DTZ's market knowledge are shown in Figure 4.2 and 4.3.

Figure 4.2: Sq M Unit Area Assumptions Used For Generating Revenue per Unit – Gosport Borough

Square Metres	Private	Shared Ownership	Social Rented
One bedroom flat	51	51	51
Two bedroom flat	60	60	60
Two bedroom house	84	84	84
Three bedroom house	88	88	88
Four bedroom house	111	111	111
Five bedroom house	135	135	135

Source: DTZ, based on consultation with developers and RSLs as part of the HCA Viability Study

Figure 4.3: Sq Ft Unit Area Assumptions Used For Generating Revenue per Unit – Gosport Borough

Square Feet	Private	Shared Ownership	Social Rented
One bedroom flat	550	550	550
Two bedroom flat	650	650	650
Two bedroom house	900	900	900
Three bedroom house	950	950	950
Four bedroom house	1,200	1,200	1,200
Five bedroom house	1,450	1,450	1,450

Source: DTZ, based on consultation with developers and RSLs as part of the HCA Viability Study

4.15 The output of this process provides the total revenue stream for each archetypal scheme, which is then subject to phasing (depending on the size of the site) and discounted cash flow analysis, as outlined in more detail below.

Build Costs

4.16 We have obtained data from the Building Cost Information Service (BCIS) on average build costs (£ per sq m) for Gosport Borough. Our approach to build costs matches that to sales values by using the average build cost for the study period 2004-08. Analysis of the BCIS All In Tender Price Index shows that build costs for 2009 are at the same levels as in 2005[5]. The build costs used in the model can be regarded as broadly representative of current build costs and are assumed sufficient to meet Code for Sustainable Homes Level 3.

Figure 4.4: Gosport Borough Build Costs £ per Sq M 2004-08

Build Costs £ Per Sq Ft	New Build	Conversion	Listed Conversion
Up to 75m2 / 807sqft GFA per unit) **Flat**	£850	£807	£1,022
75 to 100m2 / 807 to 1,075sqft GFA per unit) **Flat**	£882	£839	£1,054
100 to 125m2 / 1,075 to 1,345 sqft GFA per unit) **Flat**	£936	£882	£1,119
Over 125m2 / 1,345 sqft GFA per unit) **Flat**	£1,076	£1,022	£1,302
75 to 100m2 / 807 to 1,075sqft GFA per unit) **Houses**	£687	£473	£829
100 to 125m2 / 1,075 to 1,345 sqft GFA per unit) **Houses**	£710	£495	£850
Over 125m2 / 1,345 sqft GFA per unit) **Houses**	£742	£506	£882

(Source: BCIS/DTZ)

[5] This is based on analysing two-quarter average annual change in costs between Q1 2005 and Q2 2009.

Figure 4.5: Gosport Borough Build Costs £ per Sq Ft 2004-08

Build Costs £ Per Sq Ft	New Build	Conversion	Listed Conversion
Up to 75m2 / 807sqft GFA per unit) **Flat**	£79	£75	£95
75 to 100m2 / 807 to 1,075sqft GFA per unit) **Flat**	£82	£78	£98
100 to 125m2 / 1,075 to 1,345 sqft GFA per unit) **Flat**	£87	£82	£104
Over 125m2 / 1,345 sqft GFA per unit) **Flat**	£100	£95	£121
75 to 100m2 / 807 to 1,075sqft GFA per unit) **Houses**	£64	£44	£77
100 to 125m2 / 1,075 to 1,345 sqft GFA per unit) **Houses**	£66	£46	£79
Over 125m2 / 1,345 sqft GFA per unit) **Houses**	£69	£47	£82

(Source: BCIS/DTZ)

4.17 BCIS provide differential build cost values for new build and conversion and for different gross floor areas (GFA) per unit as shown in Figure 4.4 and 4.5. These have been matched to unit sizes using the process shown in Figure 4.6.

Figure 4.6: BCIS Unit Costs – Type and Size Matching Assumptions – Gosport Borough

BCIS £ psft	1 Bed Flat	2 Bed Flat	2 Bed House	3 Bed House	4 Bed House	5 Bed House
Up to 75m2 / 805 sqft GFA per unit) **Flats**	●	●				
75 to 100m2 / 807 to 1,075sqft GFA per unit) **Houses**			●	●		
100 to 125m2 / 1,075 to 1,345 sqft GFA per unit) **Houses**					●	
Over 125 m2/ GFA per unit						●

4.18 However, in DTZ's experience, at the localised level, costs from BCIS tend to be on the low side and a small number of particular schemes can skew the data as the sample size BCIS

has at the Local Authority level is relatively small. BCIS costs also do not include the full costs of external works[6].

4.19 An investigation into the difference between BCIS cost data compared with that in the Greater London Authority Toolkit found that BCIS data needs to be inflated by 35% to provide a more realistic set of build costs. In this study we have reduced this uplift to take into account the fact that external works are less complex outside of London. DTZ assumes that 25% uplift should be applied[7].

Figure 4.7: Final Build Costs Used In Model Gosport Borough (£ per sq m)

Build Costs £ Per Sq m	Applies To	New Build	Conversion	Listed Conversion
Up to 75m2 / 805 sqft GFA per unit) **Flats**	**Gosport** 1, 2 and 3 bed flats	£1,134	£1,007	£1,273
75 to 100m2 / 807 to 1,075sqft GFA per unit) **Houses**	**Gosport** 2 and 3 bed house	£918	£634	£1,102
100 to 125m2 / 1,075 to 1,345 sqft GFA per unit) **Houses**	**Gosport** 4 bed house	£949	£656	£1,139
125m2 + / 1,345 sq ft GFA per unit **Houses**	**Gosport** 5 bed house	£988	£683	£1,186

[6] External works are those works that take place outside of the building footprint but inside of the development site footprint

[7] This 25% assumption was sense-checked by analysing a sample of 50 actual schemes (nationally) submitted to BCIS. These are available on the homepage under 'Analyses'. Some of this submitted data is sufficiently detailed to allow investigation into what proportion of total costs on a scheme are made up of external works. This exercise confirmed that 25% would be an appropriate uplift to use.

Figure 4.8: Final Build Costs Used In Model For Gosport Borough (£ per sq ft)

Build Costs £ Per Sq Ft	Units Applied To	New Build	Conversion	Listed Conversion
Up to 75m2 / 805 sqft GFA per unit) **Flats**	**Gosport** 1, 2 and 3 bed flats	£105	£94	£118
75 to 100m2 / 807 to 1,075sqft GFA per unit) **Houses**	**Gosport** 2 and 3 bed house	£85	£59	£102
100 to 125m2 / 1,075 to 1,345 sqft GFA per unit) **Houses**	**Gosport** 4 bed house	£88	£61	£106
125m2 + / 1,345 sq ft GFA per unit **Houses**	**Gosport** 5 bed house	£92	£63	£110

Code for Sustainable Homes Build Cost Assumptions

4.20 There are also likely to be additional costs associated with adopting the Code for Sustainable Homes. Whilst there is likely to be potential for cost reduction as each code level becomes the norm, research by CLG undertaken by Cyril Sweett on the additional costs associated with Code for Sustainable Homes suggests that build costs are likely to be substantially higher. Figure 4.9 summarises the additional cost of meeting Code Levels 4 and 5 under the medium scenario in the CLG research ie neither best or worst case cost implications[8]. Code Level 4 is likely to become mandatory under Building Regulations in 2013. There is as yet no Government commitment on the date for implementation of Level 5.

4.21 The assessment has not tested Code Level 6 because there is significant uncertainty about the costs of meeting these requirements and the timing of the introduction of Code Level 6 (over 5 years from the base line of this assessment) makes it difficult to make robust assumptions about the sales prices, and therefore revenues, associated with residential development. These uncertainties about costs and revenues would make an assessment about the viability of Code Level 6 unreliable. Nevertheless, the estimated cost implications of complying with Code Level 6 would significantly affect viability within the Borough under current assumptions about build costs and sales prices.

4.22 DTZ has tested viability within Gosport under these higher build costs in two separate sensitivity tests (for Code Level 4 and 5) but it is important to note that, over time, there is an expectation that these additional costs will fall. We have also assumed nil house price growth so in practice these sensitivity tests apply very conservative assumptions about the impact of increasing Code levels.

[8] CLG (2008) Cost Analysis of the Code for Sustainable Homes: Final Report

Figure 4.9: Additional Build Costs Associated with the Application of Code for Sustainable Homes Levels 4 and 5

CLG Typology	Applied to Gosport	Level 4 additional cost per sq m	Level 5 additional cost per sq m	Level 6 additional cost per sq m
Detached	4 + 5 bed houses	£101	£191	£335
End terrace	2 + 3 bed houses	£94	£186	£314
Flat	All flats	£103	£208	£360

Source: CLG Research on Additional Costs of Code for Sustainable Homes (2008) undertaken by Cyril Sweet Consultants

Build Costs Between Tenures and Net to Gross

4.23 DTZ has not used tenure cost differentials for the base case. Where the affordable housing component is tenure blind or clustered i.e. designed to be indistinguishable from the market housing and integrated within the development; build costs will be broadly similar. This reflects the fact that although the cosmetic finish on private housing is determined by the cost/value ratio of maximising revenue in the short term (because developers will generally have less interest in the longevity of the product which may increase costs), an RSL may not require the same level of "cosmetic" finish but will require higher quality of basic construction aimed at minimising repairs and maintenance in the longer term (and so total costs will be broadly similar).

4.24 To convert build costs per sq m to build costs per unit, costs per sq m are multiplied by gross external areas for each type and size of unit, which are set out in Figure 4.10. Gross external build areas are used for calculating unit costs (as opposed to gross internal areas for unit values) as the cost of the entire building, including its ancillary areas, has to be borne by the developer.

4.25 Based upon DTZ's market knowledge, gross internal build areas are around 80% of the gross external area for flats and around 95% of the gross external area for houses. Based upon these assumptions the approach to calculating gross external build areas for the different type and sizes of unit is shown in Figure 4.8.

Figure 4.10: Gross Area Assumptions

Type and Size of Unit	Gross Internal Area (Sq ft) *(80% Flats, 95% Houses)*	Gross External Area (Sq ft)
One bedroom flat (sq ft)	550	688
Two bedroom flat (sq ft)	650	813
Two bedroom house (sq ft)	900	945
Three bedroom house (sq ft)	950	998
Four bedroom house (sq ft)	1,200	1,260
Five bedroom house (sq ft)	1,450	1,523

4.26 Combining the relevant build cost per unit with the relevant gross external area assumption above therefore provides the total construction costs associated with each archetypal scheme, which is then subject to phasing and discounted cash flow analysis, as outlined in more detail below.

Additional Cost Components

4.27 The analysis above shows the way that build/construction costs within the model are generated based upon the particular scheme. Construction costs tend to form the largest component of total development costs. In addition to construction costs a particular scheme will also incur the costs shown in Figure 4.11 - this documents the full range of cost components within the model. A brief commentary on how these cost components are calculated on a nominal basis (before adjustment to reflect phasing through the cash flow) is also shown.

Figure 4.11: Analysis of Model Cost Components

COST COMPONENT	BASIS UPON WHICH MODEL CALCULATES (NOMINAL BASIS)
Demolition costs	Assumed to amount to £110,000 per hectare of site size. This figure is informed by DTZ's market knowledge and recent applications from other viability studies that show high variability of demolition costs, but that £1 per sq ft across a whole site (there are 110,000 sq ft in a hectare) would appear reasonable. Demolition costs are assumed not to be incurred for converted dwellings.
Construction Costs	As outlined above. Costs generated by configuration of scheme archetype and relevant build cost type.
Section 106 costs (non-affordable housing)	Assumed to amount to £5,800 for every unit (market and affordable), which is based upon information provided by Gosport Borough Council and is consistent with DTZ's experience of non-affordable housing section 106 costs in other local authorities in the South East.
Sales costs	Calculated at 3% of the total private sales revenue (excludes sales revenue from affordable units).
Land value / land price	Can either be an input or an output of model (see below on treatment as output). As an input it can either be obtained from Valuation Office data or can be assumed as a % of Gross Development Value (the total revenue generated by the schemes).
Interest	A standard finance rate of 6.5% is assumed and applied to the scheme's interest baring balance (costs less revenues), which reflects historic development finance rates.

Cash Flow and Phasing

4.28 In order to move from nominal costs and revenues to a time series cash flow the model phases these streams over the time period of delivery. To document this process and the assumptions employed a worked example[9] is shown below (Figure 4.12). The move from

[9] The figures for the worked example are adapted from an anonymous historic scheme and used to illustrate the how the model works. The figures themselves are therefore purely illustrative.

nominal values to the **real values as they appear in the cash flow** is explained in the third column. This is a generic example and not specific to Gosport.

4.29 Figure 4.12 sets out the costs associated with this hypothetical scheme, and how costs in the model move from a nominal level to the real level as they appear in the final cash flow. Revenues for the scheme are shown in Figure 4.13. Revenues are split between those generated by the sale of private units and those generated by sale of affordable units. A detailed analysis of how the revenue streams for private and affordable housing units are calculated is presented earlier in this section.

Figure 4.12: Worked Example of Cash Flow Costs

Cost	Nominal	Real	Nominal to Real Explanation	With Contingency Added
Demolition	£322,917	£325,714	Assumed to be incurred over first 2 quarters of development period (Yr 1). 5.5% build cost inflation per annum assumed (compounded over 2 quarters) in model. Demolition costs are only incurred on new build schemes.	£325,714 (no contingency)
Non Affordable Housing Section 106	£1,620,000	£1,620,000	Fixed payment in first quarter of development period. No inflation factor assumed.[10]	£1,620,000 (no contingency)
Construction	£20,345,685	£21,803,405	Assumed over years 2 to 4 (3 year build period for this particular scheme). 5.5% build cost inflation per annum assumed in model.	**£25,073,916** Inflated by 10% for professional fees and 5% for contingency
Sales Costs	£1,040,041	£1,120,238	Assumed to be incurred over years 3 to 5 (disposal period for this particular scheme). Sales costs equal to 3% of private unit revenue.	£1,120,238 (no contingency)
Land Price	£11,395,744	£12,052,423	Uplifted by acquisition on land costs (land purchaser costs such as legal costs and stamp duty) of 5.75%. Cost incurred in Yr 1.	£12,052,423 (no contingency)
Interest	£3,902,232	£3,902,232	Nominal level calculated on interest bearing balance over duration of scheme, so remains the same.	£3,902,232 (no contingency)
Car Parking Costs	None	None	On schemes providing car parking these will be factored into the cash flow in year 1 at their nominal amount	£0
Total Cash Flow Costs				**£44,094,523**

[10] Some section 106 payments will be due on completion, though for the purposes of the modelling we have assumed these are required on commencement (as most are).

Figure 4.13: Worked Example of Cash Flow Revenues

Revenue	Nominal	Real	Nominal to Real Explanation
Private Units	£34,668,020	£37,295,913	For this worked example the nominal figure is inflated by a standard assumed uplift of 2.5% in house prices (and therefore revenue) over the course of the development. For the Gosport modelling we used average house prices over the 2004 to 2008 period and assumed flat price growth in the base case and tested +5% per annum increases and falls in the sensitivity modelling.
Affordable	£10,914,956	£11,742,328	As affordable housing revenues are agreed at the outset of a build period they are not subject to house price inflation.
Total		**£49,038,241**	

4.30 Adding together the costs and revenue streams in the cash flow generates the scheme surplus, which is expressed as a profit on cost. The model also calculates the scheme's internal rate of return (see above). For this particular worked example the scheme surplus of £4.94m equates to a profit on cost of 11.2% and an IRR of 13% (Figure 4.14), meaning that according to the viability target (15%) the scheme would not be viable.

Figure 4.14: Scheme Totals

Totals	£
Costs	£44,094,523
Revenue	£49,038,241
Surplus	£4,943,718
Profit On Cost	**11.2%**
IRR	**13%**

Residual Land Values

4.31 The worked example above takes land value as a pre-determined input into the scheme. However, for the purposes of *this* study land value will be assessed as a residual output of a scheme, which will then be compared with existing use value to determine whether the scheme would be viable. The process of calculating the residual land value within the model can be documented by first showing the effect of assuming a zero land value. This means that a scheme will generate a much inflated surplus due to the removal of a large component of total cost. This is illustrated in the worked example in Figure 4.15.

Figure 4.15: Model Outputs With and Without Land Value

	With Land Value Inputted			Without Land Value Inputted		
	Nominal	Real/Uplifted	With Contingency and Prof Fees	Nominal	Real/Uplifted	With Contingency and Prof Fees
Costs						
Demolition	£322,917	£325,714	£325,714	£322,917	£325,714	£325,714
Sec 106	£1,620,000	£1,620,000	£1,620,000	£1,620,000	£1,620,000	£1,620,000
Construction	£20,345,685	£21,803,405	*£25,073,916*	£20,345,685	£21,803,405	*£25,073,916*
Sales Costs	£1,040,041	£1,120,238	£1,120,238	£1,040,041	£1,120,283	£1,120,283
Land Value / Price	£11,395,744	£12,052,423	£12,052,423	£0	£0	£0
Interest	£3,902,232	£3,902,232	£3,902,232	£568,030	£568,030	£568,030
Total	£38,626,619	£40,824,012	**£44,094,523**	£28,707,897	£25,437,432	**£28,707,943**
Revenues						
Private Units	£34,668,020	£37,295,913	£37,295,913	£34,668,020	£37,295,913	£37,295,913
Affordable	£10,914,956	£11,742,238	£11,742,238	£10,914,956	£11,742,238	£11,742,238
Total	£45,582,976	**£49,038,241**	**£49,038,241**	£45,582,976	**£49,038,241**	**£49,038,241**
Surplus, Profit and IRR						
Surplus			£4,943,718			£20,330,298
Profit on Costs			11.2			71%
IRR			13%			84%

4.32 Figure 4.15 shows the modelling impact of removing the land value/cost. For the worked example the profit on costs and IRR rise dramatically, to 71% and 84% respectively. This is due both to the removal of land costs and lower interest payments, as the interest bearing balance is significantly reduced in the early stages of the project because of the absence of land cost. In order to generate a residual land value the goal seek function[11] is then used to determine by what level the land value would have to rise to (from zero) in order to achieve the target internal rate of return (15%). For the worked example this would equate to a residual land value of £11.38m as set out in Figure 4.16.

Figure 4.16: Calculation of Residual Land Value as an Output

	Final Cash Flow Without Land Value	Final Cash Flow With Land Value Calculated As A Residual
COSTS		
Demolition	£325,714	£325,714
Sec 106	£1,620,000	£1,620,000
Construction	£25,073,916	£25,073,916
Sales Costs	£1,120,238	£1,120,238
Land Value / Price	£0	**£11,386,836**
Interest	£568,030	£3,500,601
Total	**£28,707,943**	**£43,027,305**
REVENUES		
Private Units	£37,295,913	£37,295,913
Affordable	£11,742,238	£11,742,238
Total	**£49,038,241**	**£49,038,241**
RETURNS		
Surplus	£20,330,298	£6,010,936
Profit on Costs	71%	14%
IRR	**84%**	**15%**

4.33 The residual land values generated using this approach are expressed as a £ value per hectare and compared to data on existing use values and residential land valuations in Gosport (from sources such as the Valuation Office) to determine viability. The process is then repeated in the modelling to examine the impact of different affordable housing levels.

[11] Goal seek is a function in excel that allows one to find a specific value for a cell by adjusting the value of another cell. In terms of viability, as land price/cost rises the rate of return on a particular scheme drops as profitability is reduced. So goal seek is used within the model to find out by how much land cost can rise by (from £0) on a particular scheme until the rate of return is lowered to the target level. The resulting land cost is the land's residual value.

Sales Rates

4.34 Variations in sales rates impact on scheme viability. The more difficult a market environment the less supply that can be absorbed and therefore the longer the disposal period. This impacts on scheme finances as a scheme's interest bearing balance takes longer to be offset by revenue streams from disposals (therefore interest payment costs rise and profitability is reduced). In the current market environment sales rates have slowed significantly. However, as this study aims to model 'normal' market conditions we assume build out and sales rates equate to around 1 unit sold per week / 50 per annum. This is based on discussions with a number of national developers and the HBF for the HCA Viability Study undertaken by DTZ in 2008.

Sales Values

4.35 The sales values employed in the modelling will reflect the average that developers would have achieved over the 2004 to 2008 period. These £ per sq m sales values for each of the value areas are set out in the analysis in Appendix 2 and the rationale for doing this in Appendix 1.

Additional Assumptions

4.36 There are a number of smaller additional assumptions in the model, the main ones being:

1. Residential units take one year to construct
2. Revenue within the cashflow is net of residential marketing and agents fees
3. Model assumes contractors prelims and insurance are accounted for within the residential build cost
4. Model assumes revenues are received in parallel with construction expenditure
5. Marketing and sales fees are only applied to private residential schemes
6. Interest is calculated quarterly and in arrears. It is assumed that profit is taken from the sites when the cashflow is positive.

5. Appendix 5: The Base Case Modelling and Findings

5.1 This Appendix sets out the base case modelling results using the approach documented in Appendix 4. A summary of the model workings and assumptions is shown in the diagram in Figure 5.1.

5.2 As discussed in Appendix 4, viability is assessed on the basis of a cash flow viability model. For every scheme archetype (11) in each value band (5) a cash flow is run using the cost and revenue assumptions relevant to the particular scheme.[1]

5.3 It is important to reiterate the key assumptions and how they are dealt with in the modelling and the base case. These are shown in Figure 5.2.

5.4 The approach to the modelling has been to first generate a set of results using the base case assumptions. These results are the focus of this Appendix. A series of scenarios are then examined to show the impact on scheme viability of altering these assumptions (reported in Appendix 6).

5.5 The key base assumptions are as follows:

1. That the target internal rate of return (IRR) is 15% (this is assumed to be the threshold that defines whether a site is viable in terms of profitability).

2. Average sales values for the period 2004 to 2008 are used in each of the areas.

3. That grant payment is made on schemes and that as a result social rented units are valued at 60% of open market value (OMV) and shared ownership units are valued at 80% of OMV.

4. That affordable housing is delivered as 65% social rented housing and 35% intermediate shared ownership housing.

5. That the schemes are new build (not conversions).

5.6 The impact on viability of changing some of these assumptions is then examined by sensitivity analysis.

[1] The cost and revenue assumptions are determined by the scheme's value band and the mix assumptions used in the archetype.

Figure 5.1: Viability Model Structure and Assumptions

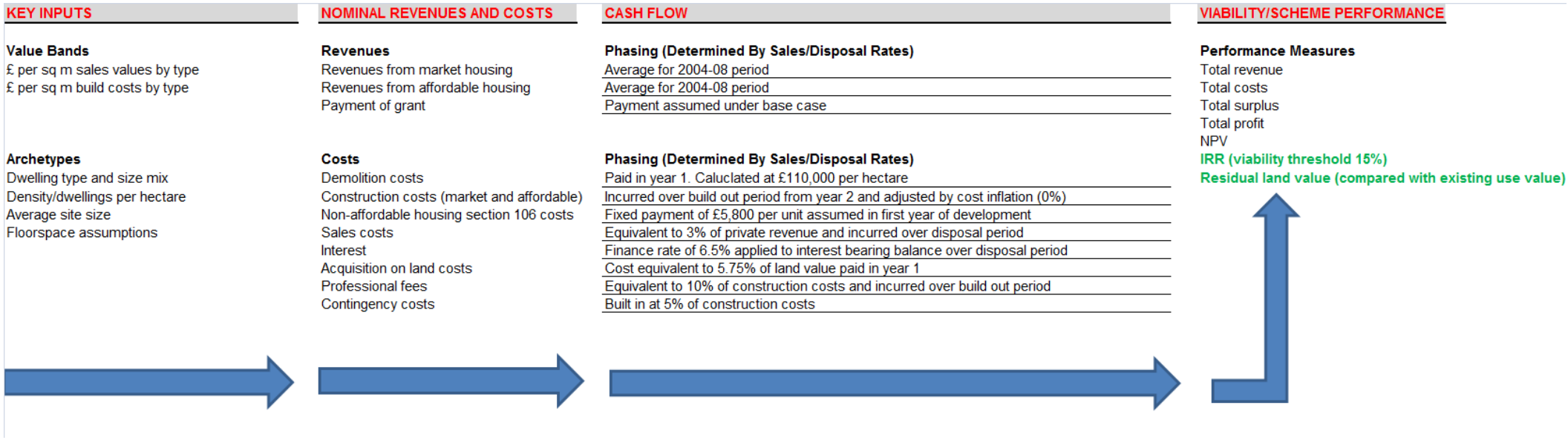


Figure 5.2: Additional Detail on Key Base Case Model Assumptions

Market Revenues and Phasing

Market revenues are calculated based on the average £ per sq m values that apply to the particular area in question. This is derived by averaging sales value across all the Lower Super Output Areas (LSOAs) in each value band. New build values are based upon DTZ's market knowledge and data from Hometrack which records average £ per sq m prices across existing and new build properties at a localised level. The values are combined with internal unit size assumptions and the scheme mix (determined by the archetype) to generate total market revenue streams. The total market revenue streams are then phased through the cash flow. The base case assumes house prices remain flat. The effect of house price rises or falls is examined later in this report as part of the sensitivity testing. The phasing through the cash flow is determined by the build out and disposal rate, which is assumed at around 50 units per site per annum (so a 150 unit site will experience a 3 year disposal period), with market revenues assumed to be realised in the year of construction.

Affordable Revenues and Grant Payment

The tenure split between market housing and affordable housing is altered within the base case modelling to examine the impact this has on levels on viability. The affordable housing contribution is split 65% social rented and 35% shared ownership housing. It has been assumed that the developer receives payments for the affordable housing from the RSL linked to the market value of the dwelling. On the assumption that grant is available the RSLs are assumed to pay the developer 60% of market value for a social rented unit and 80% of market value for a shared ownership unit. These indicative values are based on DTZ's market experience prior to the market downturn, and it is acknowledged that in the current market conditions RSLs are unlikely to be willing or able to pay for affordable housing at this level because their ability and appetite for cross-subsidising affordable house purchase on Section 106 sites is much reduced. However new benchmarks have yet to be established of what RSLs will pay for affordable housing on s106 sites, and whether this will exceed the capitalised value of rents.

Phasing of Affordable Revenue

The revenue stream for affordable units is calculated by multiplying the number of affordable units by the relevant sales values (at an appropriate level of discount to market value). The model then phases this amount over the period of delivery. The model assumes that a price is established at the outset for affordable units on a site and that this is not subsequently affected by the market conditions that prevail between the point of agreement and when the affordable revenue is realised (in parallel with construction). The real value of the revenue stream is kept constant and is not eroded by inflation.

Internal Rate Return (IRR) Target

The target IRR - the level above which a scheme is considered to be profitable - is set at 15% in the modelling. This assumed level has been informed by DTZ's experience of past development projects and represents a **minimum** IRR required for development to proceed. The IRR approach has been employed due to the importance of cost and revenue timing and financing periods on viability, which other performance measures do not adequately capture. It is important to stress that the 15% threshold is only a proxy for viability. In practice the rate of return required on sites will vary and it is recognised that for certain schemes this will need to be higher than the assumed level.

Demolition Costs

Demolition costs are assumed to amount to £110,000 per hectare of site size. This figure is based on the study team's experience of demolition costs in other areas (at around £1 per sq ft) (there are 110,000 sq ft in a hectare).

Construction Costs

Construction costs are generated by the configuration (mix of types and sizes) in the scheme archetype and the relevant cost assumptions from the BCIS, uplifted by DTZ to reflect the cost of external works.

Section 106 Costs (Non affordable housing)

Assumed to amount to £5,800 per unit, though in practice these costs can vary considerably from scheme to scheme.

Professional Fees and Contingency

Equivalent to 10% and 5% respectively of construction costs.

Land Values

Land value is treated as an output once costs (including profit) and revenues have been taken into account.

Sales Costs and Interest

Sales costs are calculated at 3% of the total private sales revenue (excluding sales revenue from affordable units). A standard finance rate of 6.5% is assumed and applied to the scheme's interest bearing balance (costs less revenues).

Infrastructure Costs

No abnormal infrastructure costs have been built into the modelling given the variability of these between different sites. However, a facility is built into the model to input site specific infrastructure costs where these are known and if the model is used to examine specific schemes.

Residual Land Value Analysis

5.7 The base case analysis sets a fixed target rate of return (15%) for each scheme and examines how residual land values are affected by affordable housing contributions and whether the residual values generated are higher or lower than existing use values.

5.8 In theory if a sites residual value (at a given rate of return/profit margin) is above existing use value then it should be both viable and able to deliver that particular affordable housing contribution.[2] In practice the extent to which land value must exceed existing use value in order to incentivise development is the subject of much debate. However, for the purposes of the base case we assume that if a residual land value exceeds existing use value by 5% or more then it should (in theory) be viable.

5.9 It is not possible to establish a single benchmark in terms of residential land value above which it can be deemed that residential development will be viable. This is because:

- The value of land in the same use varies across Gosport reflecting differences in locational attributes and perceived environmental quality. This reality is reflected in the different values of housing across the Borough as shown in Appendix 2. Landowner expectations will be shaped by historic levels of value secured for residential development, since even if values fall, there will be an expectation that they will recover. By implication the level of land value expected by owners of land will vary.

- In some parts of Gosport, for example Rowner, residential development is likely to be the highest value land use, and within established residential neighbourhoods the only land use that will secure planning permission. However, areas such as the Waterfront & Town Centre are characterised by a mix of land uses. In such areas the likelihood of a residential development proceeding depends on the scheme delivering an equal or better value than a development for non-residential uses that would secure permission. The residual land value of alternative developments therefore is a key consideration.

- In a Borough such as Gosport where there are sites that are affected by historical and heritage considerations there is potential for considerable variability in demolition and build costs, which will affect calculations of scheme residual land values.

- Lastly, an additional layer of variability in determining what can be deemed viable arises as a result of the property market cycle, and the likelihood that the values of different potential uses on a site to move at different speeds, up or down, at different stages in the development cycle. Therefore at one point in the development cycle, offices can appear a more attractive form of development than residential, but this may switch at a different stage in the development cycle. These differential changes in values can vary depending on market shifts and how a particular location is perceived in terms of an office location or retail location compared to a residential location.

5.10 The result of these different considerations is that it is not possible to state unequivocally in Gosport that a certain Residual Land Value associated with a scheme can be regarded as viable, or not viable. This study is intended to inform general policy development and indicates

[2] However, if it is below existing use value the affordable housing contribution will need to fall, which, keeping margin constant, will have the effect of increasing the residual land value.

proportion for affordable housing provision which are generally considered viable in different parts of the Borough; it is recognised that individual schemes may need to be considered on their merits, taking into account specific scheme circumstances.

5.11 For the purposes of this assessment DTZ has compared the Residual Land Value associated with the modelled assumptions for each of the main archetypes against a number of land value thresholds. These thresholds are as follows:

- Residual Land Value expressed as £ per hectare value of above £14,900 per hectare. In the South East[3] the (high) average value of agricultural land[4] between 2004 and 2008 was £14,900 per hectare. Whist there is no agricultural land in Gosport this is used as a proxy for a low land value, such as open space, or for land that has no existing use value. Therefore, it is assumed that this would be the absolute minimum threshold that would need to be exceeded if land is to be bought forward for residential use. It is therefore assumed that no landowner in Gosport would bring forward sites for less than this sum. In practice the number of sites that would be brought forward at this sort of level are probably limited. Any scheme, based on the modelling assumptions used, that fails to deliver this level of land value can be deemed to be wholly unviable.

- The other benchmarks used for the analysis are Residual Land Values of £290k per hectare, £995k per hectare and £1.7m per hectare. £290k per hectare is the lowest industrial land value between 2004 and 2008. This would be the absolute minimum threshold that would need to be exceeded if land was in industrial use, or where industrial use could secure planning permission, is to be brought forward for residential use. The highest benchmark reflects the average B1 office land value in the South East between 2004 and 2008. This land use class is used as it presents the highest land values available from the VOA. It is also consistent with residential land values reported in neighbouring Portsmouth (which range from £1.3-£1.4m per hectare) – there is no comparable data available for Gosport.

- These alternative uses compete for development funds with residential development, and residential development if it is to proceed will have to provide a comparable return to landowners. The £995k per hectare represents a mid-way threshold between the range of highest B1 office and lowest industrial land value. The wide range of land values used as benchmarks reflect just how greatly land values in Gosport can vary, and on a site specific basis, and with the property market cycle.

[3] Representative data specific to Gosport is hard to come by and so in order to increase sample size and robustness VOA data for the South East is used.

[4] See footnote 2.

The Findings

5.12 The findings of the analysis are presented in Figure 5.3. The results assesses viability against the four benchmarks used to represent Existing Use or Alternative Use Value in Gosport, as follows:

- £14,900 / hectare
- £290k / hectare
- £995k / hectare
- £1.7m / hectare

5.13 To help visual interpretation of the results, a system of traffic lights is used to indicate where schemes are deemed viable and where they are deemed not viable. The traffic light codes used are intuitive. Thus:

- **The Red Traffic Light** indicates that the scheme is clearly not viable because the residual land value per hectare generated by the scheme is 5% or more lower than the relevant benchmark of existing use value
- **The Amber Traffic Light** indicates that the scheme is of marginal viability because the residual land value per hectare generated by the scheme is between 5% lower than and 5% more than the relevant benchmark of existing use value
- **The Green Traffic Light** indicates that the scheme is viable because the residual land value per hectare generated by the scheme is more than 5% higher than the relevant benchmark of existing use value

5.14 Figure 5.3 shows that:

- At the lowest assumed level of existing use value, 40% affordable housing could be delivered across Gosport without difficulty - except in areas falling within Value Band 1 (the lowest value band). In this Value Band only the smaller, low density sites appear to be able to deliver this level of contribution.
- The pattern of viability remains largely the same even if existing use values are £290k per hectare, the key difference being that every scheme in Value Band 1 becomes unviable with a 40% affordable housing contribution.
- At the £995k per hectare existing use value just over half of schemes remain viable. In addition to the whole of Value Band 1, the whole of Value Band 2 becomes unviable with a 40% affordable housing requirement. Whilst some schemes in Value Band 3 move in to the margins of non-viability.
- At a £1.7m per hectare benchmark the majority of schemes are unviable with a 40% affordable housing contribution. Only schemes in Value Bands 4 and 5 remain viable. Those that are not viable in Value Band 4 are low and medium density large sites. The least viable is the largest archetype consisting of 350 units.

5.15 In summary, the base case analysis shows that 40% affordable housing is achievable across the majority of the Borough, with the exception of the lowest value areas. Where existing use values are very high, only the higher value areas – including the waterfront areas – remain viable at this level of affordable housing provision. It is important to keep in mind that we have not costed for any abnormal infrastructure or other costs (eg flood mitigation) however, which might be associated with bring complex sites forward.

5.16 Reducing the affordable housing quota to 30% where existing use values are very high has the effect of bringing some of the schemes in the middle value band into viability (see Figure 5.4). Reducing the affordable housing quota to 30% brings a further 6 archetypes into viability at the highest existing use threshold.

5.17 It is also important to note that in all of the scenarios modelled under the base case, with the exception of some schemes in the lowest value band, a positive residual land value is generated at 40% affordable housing. The existing use value is therefore the determining factor in establishing viability in this viability assessment.

Key to Figures 5.3 and 5.4: Development Archetypes for Gosport

			Site Size in Hectares (ha)									
			10	2		1		0.3		0.2	
				A		B		C		D	
Density (dwellings per hectare)	80	No. of Units		160		80		24		16	
		Mix	Not Tested	20%	1 bed flat	20%	1 bed flat	20%	1 bed flat	20%	1 bed flat
				30%	2 bed flat	40%	2 bed flat	40%	2 bed flat	30%	2 bed flat
				20%	2 bed house	20%	2 bed house	20%	2 bed house	30%	2 bed house
				20%	3 bed house	20%	3 bed house	20%	3 bed house	20%	3 bed house
				10%	4 bed house						
				E		F		G			
	60	No. of Units	600	120		60		18		12	
		Mix	Tested following the base case modelling (Archetype 'L')	10%	1 bed flat	10%	1 bed flat	10%	1 bed flat	Tested following the base case modelling (Archetype 'M')	
				40%	2 bed flat	40%	2 bed flat	30%	2 bed flat		
				20%	2 bed house	30%	2 bed house	30%	2 bed house		
				20%	3 bed house	20%	3 bed house	30%	3 bed house		
				10%	4 bed house						
			H			I		J		K	
	35	No. of Units	350	70		35		10		Not Tested	
		Mix	10%	1 bed flat	20%	2 bed flat	30%	2 bed house	30%	2 bed house	
			20%	2 bed flat	40%	2 bed house	40%	3 bed house	40%	3 bed house	
			20%	2 bed house	40%	3 bed house	30%	4 bed house	30%	4 bed house	
			20%	3 bed house							
			20%	4 bed house							
			10%	5 bed house							

Source: Gosport Borough Council SHLAA; Gosport Borough Council data on past completions; DTZ

40% AFFORDABLE FLOORSPACE CONTRIBUTION

Figure 5.3: Residual Site Values (£s Per Hectare) With 40% Affordable Floorspace Contribution and the Provision of Affordable Housing Grant

Existing Land Value Assumption: £14,900 (eg open space)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 448,052	£ 1,407,254	£ 2,242,328	£ 3,471,512
B	£ -	£ 291,447	£ 1,270,577	£ 2,124,004	£ 3,379,931
C	£ -	£ 332,846	£ 1,361,592	£ 2,260,631	£ 3,576,685
D	£ -	£ 536,273	£ 1,605,102	£ 2,537,377	£ 3,909,422
E	£ -	£ 349,390	£ 1,113,969	£ 1,780,199	£ 2,755,867
F	£ -	£ 358,820	£ 1,154,034	£ 1,846,776	£ 2,866,193
G	£ -	£ 557,901	£ 1,405,651	£ 2,144,681	£ 3,228,861
H	£ -	£ 233,933	£ 632,678	£ 980,355	£ 1,488,193
I	£ -	£ 449,105	£ 967,809	£ 1,419,848	£ 2,083,051
J	£ 150,397	£ 748,579	£ 1,378,848	£ 1,926,383	£ 2,734,868
K	£ 138,426	£ 749,156	£ 1,308,331	£ 1,927,775	£ 2,599,278
Average	£ 26,257	£ 459,591	£ 1,236,895	£ 1,926,396	£ 2,917,624

Existing Land Value Assumption: £290k (eg low grade industrial land)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 448,052	£ 1,407,254	£ 2,242,328	£ 3,471,512
B	£ -	£ 291,447	£ 1,270,577	£ 2,124,004	£ 3,379,931
C	£ -	£ 332,846	£ 1,361,592	£ 2,260,631	£ 3,576,685
D	£ -	£ 536,273	£ 1,605,102	£ 2,537,377	£ 3,909,422
E	£ -	£ 349,390	£ 1,113,969	£ 1,780,199	£ 2,755,867
F	£ -	£ 358,820	£ 1,154,034	£ 1,846,776	£ 2,866,193
G	£ -	£ 557,901	£ 1,405,651	£ 2,144,681	£ 3,228,861
H	£ -	£ 233,933	£ 632,678	£ 980,355	£ 1,488,193
I	£ -	£ 449,105	£ 967,809	£ 1,419,848	£ 2,083,051
J	£ 150,397	£ 748,579	£ 1,378,848	£ 1,926,383	£ 2,734,868
K	£ 138,426	£ 749,156	£ 1,308,331	£ 1,927,775	£ 2,599,278
Average	£ 26,257	£ 459,591	£ 1,236,895	£ 1,926,396	£ 2,917,624

Existing Land Value Assumption: £995k (mid point between high and low existing/alternative use values)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 448,052	£ 1,407,254	£ 2,242,328	£ 3,471,512
B	£ -	£ 291,447	£ 1,270,577	£ 2,124,004	£ 3,379,931
C	£ -	£ 332,846	£ 1,361,592	£ 2,260,631	£ 3,576,685
D	£ -	£ 536,273	£ 1,605,102	£ 2,537,377	£ 3,909,422
E	£ -	£ 349,390	£ 1,113,969	£ 1,780,199	£ 2,755,867
F	£ -	£ 358,820	£ 1,154,034	£ 1,846,776	£ 2,866,193
G	£ -	£ 557,901	£ 1,405,651	£ 2,144,681	£ 3,228,861
H	£ -	£ 233,933	£ 632,678	£ 980,355	£ 1,488,193
I	£ -	£ 449,105	£ 967,809	£ 1,419,848	£ 2,083,051
J	£ 150,397	£ 748,579	£ 1,378,848	£ 1,926,383	£ 2,734,868
K	£ 138,426	£ 749,156	£ 1,308,331	£ 1,927,775	£ 2,599,278
Average	£ 26,257	£ 459,591	£ 1,236,895	£ 1,926,396	£ 2,917,624

Existing Land Value Assumption: £1.7m (eg high value commercial land)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 448,052	£ 1,407,254	£ 2,242,328	£ 3,471,512
B	£ -	£ 291,447	£ 1,270,577	£ 2,124,004	£ 3,379,931
C	£ -	£ 332,846	£ 1,361,592	£ 2,260,631	£ 3,576,685
D	£ -	£ 536,273	£ 1,605,102	£ 2,537,377	£ 3,909,422
E	£ -	£ 349,390	£ 1,113,969	£ 1,780,199	£ 2,755,867
F	£ -	£ 358,820	£ 1,154,034	£ 1,846,776	£ 2,866,193
G	£ -	£ 557,901	£ 1,405,651	£ 2,144,681	£ 3,228,861
H	£ -	£ 233,933	£ 632,678	£ 980,355	£ 1,488,193
I	£ -	£ 449,105	£ 967,809	£ 1,419,848	£ 2,083,051
J	£ 150,397	£ 748,579	£ 1,378,848	£ 1,926,383	£ 2,734,868
K	£ 138,426	£ 749,156	£ 1,308,331	£ 1,927,775	£ 2,599,278
Average	£ 26,257	£ 459,591	£ 1,236,895	£ 1,926,396	£ 2,917,624

30% AFFORDABLE FLOORSPACE CONTRIBUTION

Figure 5.4: Residual Site Values (£s Per Hectare) With 30% Affordable Floorspace Contribution and the Provision of Affordable Housing Grant

Existing Land Value Assumption: £14,900 (eg open space)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 654,143	£ 1,644,502	£ 2,508,065	£ 3,779,281
B	£ -	£ 508,756	£ 1,520,370	£ 2,402,620	£ 3,701,409
C	£ -	£ 561,994	£ 1,626,481	£ 2,554,472	£ 3,920,041
D	£ -	£ 774,313	£ 1,880,291	£ 2,841,631	£ 4,260,717
E	£ -	£ 514,001	£ 1,304,071	£ 1,993,031	£ 3,006,673
F	£ -	£ 535,966	£ 1,357,164	£ 2,073,657	£ 3,127,852
G	£ -	£ 741,300	£ 1,618,267	£ 2,382,472	£ 3,506,877
H	£ -	£ 316,127	£ 728,978	£ 1,088,878	£ 1,618,315
I	£ 49,816	£ 559,774	£ 1,095,635	£ 1,563,155	£ 2,247,500
J	£ 254,400	£ 873,517	£ 1,524,492	£ 2,092,188	£ 2,926,143
K	£ 237,471	£ 873,404	£ 1,446,932	£ 2,092,087	£ 2,781,062
Average	£ 49,244	£ 628,481	£ 1,431,562	£ 2,144,751	£ 3,170,533

Existing Land Value Assumption: £290k (eg low grade industrial land)

Arhcetype	Value Band 1	2	3	4	5
A	£ -	£ 654,143	£ 1,644,502	£ 2,508,065	£ 3,779,281
B	£ -	£ 508,756	£ 1,520,370	£ 2,402,620	£ 3,701,409
C	£ -	£ 561,994	£ 1,626,481	£ 2,554,472	£ 3,920,041
D	£ -	£ 774,313	£ 1,880,291	£ 2,841,631	£ 4,260,717
E	£ -	£ 514,001	£ 1,304,071	£ 1,993,031	£ 3,006,673
F	£ -	£ 535,966	£ 1,357,164	£ 2,073,657	£ 3,127,852
G	£ -	£ 741,300	£ 1,618,267	£ 2,382,472	£ 3,506,877
H	£ -	£ 316,127	£ 728,978	£ 1,088,878	£ 1,618,315
I	£ 49,816	£ 559,774	£ 1,095,635	£ 1,563,155	£ 2,247,500
J	£ 254,400	£ 873,517	£ 1,524,492	£ 2,092,188	£ 2,926,143
K	£ 237,471	£ 873,404	£ 1,446,932	£ 2,092,087	£ 2,781,062
Average	£ 49,244	£ 628,481	£ 1,431,562	£ 2,144,751	£ 3,170,533

Existing Land Value Assumption: £995k (mid point between high and low existing use values)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 654,143	£ 1,644,502	£ 2,508,065	£ 3,779,281
B	£ -	£ 508,756	£ 1,520,370	£ 2,402,620	£ 3,701,409
C	£ -	£ 561,994	£ 1,626,481	£ 2,554,472	£ 3,920,041
D	£ -	£ 774,313	£ 1,880,291	£ 2,841,631	£ 4,260,717
E	£ -	£ 514,001	£ 1,304,071	£ 1,993,031	£ 3,006,673
F	£ -	£ 535,966	£ 1,357,164	£ 2,073,657	£ 3,127,852
G	£ -	£ 741,300	£ 1,618,267	£ 2,382,472	£ 3,506,877
H	£ -	£ 316,127	£ 728,978	£ 1,088,878	£ 1,618,315
I	£ 49,816	£ 559,774	£ 1,095,635	£ 1,563,155	£ 2,247,500
J	£ 254,400	£ 873,517	£ 1,524,492	£ 2,092,188	£ 2,926,143
K	£ 237,471	£ 873,404	£ 1,446,932	£ 2,092,087	£ 2,781,062
Average	£ 49,244	£ 628,481	£ 1,431,562	£ 2,144,751	£ 3,170,533

Existing Land Value Assumption: £1.7m (eg high value commercial land)

Archetype	Value band 1	2	3	4	5
A	£ -	£ 654,143	£ 1,644,502	£ 2,508,065	£ 3,779,281
B	£ -	£ 508,756	£ 1,520,370	£ 2,402,620	£ 3,701,409
C	£ -	£ 561,994	£ 1,626,481	£ 2,554,472	£ 3,920,041
D	£ -	£ 774,313	£ 1,880,291	£ 2,841,631	£ 4,260,717
E	£ -	£ 514,001	£ 1,304,071	£ 1,993,031	£ 3,006,673
F	£ -	£ 535,966	£ 1,357,164	£ 2,073,657	£ 3,127,852
G	£ -	£ 741,300	£ 1,618,267	£ 2,382,472	£ 3,506,877
H	£ -	£ 316,127	£ 728,978	£ 1,088,878	£ 1,618,315
I	£ 49,816	£ 559,774	£ 1,095,635	£ 1,563,155	£ 2,247,500
J	£ 254,400	£ 873,517	£ 1,524,492	£ 2,092,188	£ 2,926,143
K	£ 237,471	£ 873,404	£ 1,446,932	£ 2,092,087	£ 2,781,062
Average	£ 49,244	£ 628,481	£ 1,431,562	£ 2,144,751	£ 3,170,533

6. Appendix 6: Sensitivity Testing

6.1 This Appendix presents results of the sensitivity testing which examines the impact of different factors on viability. The purpose of this exercise is to examine how far changing circumstances affects the ability to achieve affordable housing policies. In all of the sensitivity tests, variables are held at those assumed under the base case unless they are being specifically tested, that is:

- Prices are assumed to remain flat over the period of the development
- Affordable housing grant is assumed to be provided
- The target rate of return is held at 15% IRR
- S106 Non Affordable Housing Contributions are assumed to be £5,800 per unit

The Impact of Affordable Housing Grant

6.2 The base case modelling assumes that affordable housing grant is paid on every scheme. However, the future availability and scale of grant is uncertain so it is prudent to examine the effect of removing grant on scheme viability.

6.3 Figure 6.1 provides results of the modelling which assume a 40% affordable housing contribution with no affordable housing grant. Removing grant has the effect of reducing residual land values across all the schemes (at 40% affordable housing contribution) by 26-85% with the greatest percentage fall in residual land values in the lower value bands. This has the knock on impact of removing viability in Band 2, even at the lowest existing use threshold and in Bands 3 and 4 at the highest existing use thresholds. Only Band 5 remains viable without grant at the highest existing use threshold.

6.4 On the whole, medium to high value schemes (Bands 3-5) could deliver 40% without grant providing existing/alternative use values do not prohibit the sites coming forward.

The Impact of Future House Price Scenarios

6.5 Rising prices have a positive impact on viability because of effect on revenues and serves to increase residual land values on all schemes across the Borough. Figure 6.2 shows that price rises of 5% per annum mean that half of all schemes are viable at 40% affordable housing (including grant) when judged against the highest existing use value threshold.

6.6 The scale of the impact of a +5% increase in prices per annum is to bring some previously unviable sites in value bands 1 into viability at the lowest existing use value threshold. Price increases of this scale do not do enough to bring unviable schemes in the lowest value band into viability at high existing use value thresholds.

6.7 Falling prices (of -5% per annum) have a negative impact on viability because of the effect on both revenues and sales rates (the timing of revenue payments and therefore the knock on effects of interest payments on finance etc). Figure 6.3 presents the results for 40% affordable

housing contribution (including grant) under the scenario that prices and sales rates fall over the course of the development.

6.8 A -5% decline in house prices year on year with lower than average sales rates reduces residual land values across all schemes by 14-89% (with the greatest % reduction on the schemes in low value bands). This scale of house price falls has the effect of making some schemes in value band 2 unviable at the lowest existing use value threshold ie wholly unviable. Only schemes in value band 5, capable of generating higher sales prices, remain viable at the highest existing use value threshold.

Increasing the Proportion of Flats

6.9 The base case tested three density scenarios with the higher density archetypes containing a higher proportion of flats and smaller dwellings – generally a split of 60% flats and 40% small houses. Following the base case modelling DTZ added analysis of two additional archetypes – one large and one small site to examine the impact of a higher proportion of flats. The additional archetypes were:

- A 10 hectare site of 600 dwellings (delivering at a density of 60 dph) consisting of 70% 1 and 2 bedroom flats and 30% 2 and 3 bedroom houses.
- A 0.2 hectare site of 12 dwellings (delivering at a density of 60pdh) consisting of 100% 2 bedroom flats.

6.10 Both archetypes appear to be less viable than developments which contain a higher proportion of houses (including archetype 'H' at 35dph on a 10 hectare site and archetypes 'D' and 'K' of on sites of 0.3 and 0.2 hectares). The new archetypes appear to support 40% affordable housing in the higher value band (3-5) and when existing use values are low or moderate. Neither of the new archetypes could support 40% affordable housing under the highest existing use value threshold.

The Impact of Higher Developer's Profit

6.11 Given the change in the development environment since mid 2007, and in particular the difficulty of securing development finance, it is useful to consider the scenario where developers (or rather the banks financing developers) are seeking a higher return. We have re-modelled the base case (40% affordable housing with grant) under a target IRR (our measure of profitability) of 20%. Increasing the target return causes residual values to fall as the additional margin must be funded out of land value. However, the sensitivity analysis suggests that increasing the target IRR to 20% has a relatively limited impact on the results. Although across Gosport a decline in viability is evident compared with the base case (in terms of lower residual land values), the overall level of viability (tested against our existing use value thresholds) in each value area remains broadly unchanged. There are a small number of sites that were viable in the base case that become unviable when a higher developer's profit is included:

- 2 schemes in value band 4 at the highest existing use threshold
- 3 schemes in value bands 2 and 3 at the moderate existing use thresholds

The Impact of Affordable Housing on Smaller Sites (10 to 14 units)

6.12 The viability modelling in this assessment suggests that there is no reason for viability to decline in relation to site size. Sites of 10 and 12 units modelled in this assessment display similar viability profile to larger sites, although the 12 unit archetype (100% 2 bed flats) appears less viable than the 10 unit site (100% houses) which might indicate that the nature of development on smaller sites could have a significant impact on viability. Whilst the 10 unit archetype of houses remained viable at the highest existing use value in the higher value bands, the 12 unit development of flats only remained viable at low and moderate existing use values.

6.13 Evidence from previous completions within the Borough demonstrates that, since 2004-05, around 137 net new homes have been completed on sites delivering 10-14 units. Capturing sites of 10-14 units over the last 5 years would have only involved negotiation over 11 additional sites. The administrative burden on the Borough Council of extending the affordable housing threshold to sites of 10-14 units would be relatively light and therefore allow for proper consideration of site specific viability issues on these smaller schemes. In contrast, whilst sites delivering 1-9 units accounted for 271 net new homes and would have involved consideration of 153 separate sites.

6.14 To summarise, there is no evidence that suggests applying affordable housing quotas to sites smaller than 10 units would be any less viable than those above 10 units. However, the analysis of previous sites suggests sites of 10 or more would be an appropriate threshold to avoid capturing large numbers of very small sites and the resulting burden of negotiation for both the Council and the developer.

6.15 It is important to note that the modelling is unable to capture site specifics factors and small sites may be more vulnerable to site-specific constraints eg demolition costs or infrastructure requirements because of the limited opportunity for economies of scale. DTZ is also aware of anecdotal evidence from other SHMAs and viability assessments that small sites sometimes incur higher build costs – again because of limited economies of scale – but there is no evidence to support this in the available data.

6.16 There is also a risk in some areas that housing associations may be reluctant to take on small numbers of affordable homes and they may reflect this in the price they will pay for units on smaller developments, but this is not generally regarded as problem within Gosport. Housing associations have in any case been active in the direct development of small sites for affordable housing, taking up opportunities to develop small sites that become available.

6.17 Conversely, small sites may benefit in viability terms in other respects. Large sites are more likely to be affected by changes in the housing market (prices falls or rises) because of the longer sale period for the market units. Large sites are almost always owned by national and regional house builders who have larger overheads than small local developers. Although not modelled within this assessment, large sites may also be affected by significant costs associated with the provision of strategic infrastructure.

The Impact of Potential Future Policy Changes

6.18 The assessment has tested the impact of increasing Section 106 'non affordable housing' contributions from £5,800 per unit to £7,500 per unit (see Figure 6.4). Such an increase in contributions would be associated with a mix of larger properties or, perhaps, with the introduction of the Government's proposed Community Infrastructure Levy. Unsurprisingly, this increase in contributions reduces residual land values across all schemes. In percentage terms, schemes in lower value bands are hit harder and this has the effect of removing viability in value band 2.

6.19 In the majority of schemes, this increase in contributions does not make viable sites unviable (in relation to our existing use value thresholds). But it is important to keep in mind the potential for cumulative burdens on schemes (affordable housing, S106 and increasing build costs over time associated with environmental performance) together impacting on viability.

6.20 There are also likely to be additional costs associated with adopting the Code for Sustainable Homes. Whilst there is likely to be potential for cost reduction as each code level becomes the norm, research by CLG undertaken by Cyril Sweett on the additional costs associated with Code for Sustainable Homes suggests that build costs are likely to be substantially higher. Code Level 4 is likely to become mandatory under Building Regulations in 2013. There is as yet no Government commitment on the date for implementation of Level 5.

6.21 This assessment has not tested Code Level 6 because there is significant uncertainty about the costs of meeting these requirements and the timing of the introduction of Code Level 6 (over 5 years from the base line of this assessment) which makes it difficult to make robust assumptions about the sales prices, and therefore revenues, associated with residential development. These uncertainties about costs and revenues would make an assessment about the viability of Code Level 6 unreliable. Nevertheless, the estimated cost implications of complying with Code Level 6 would significantly affect viability within the Borough under current assumptions about build costs and sales prices.

6.22 DTZ has tested viability within Gosport under these higher build costs. Figure 6.5 summarises the results when Code Level 4 requirements are added to standard build costs:

- Compared to the base case (build costs averaged at 2004-08 levels), applying CSH level 4 has a noticeable impact upon the viability of affordable housing (40% with grant).
- Value Bands 1 and 2 are broadly unviable at all existing use value thresholds, where Value Band 2 was generally viable at the lower EUVs under the base case.
- Only Value Band 5 remains viable at all existing use value thresholds.
- Unsurprisingly, CSH level 5 reduces viability further.

It is important to note that we have assumed no house price growth in this sensitivity test (consistent with the base case) and we have also assumed that CSH costs will remain high rather than falling as is often the case as new regulations are adopted and the building industry adapts.

Figure 6.1: The Impact of Removing Affordable Housing Grant at 40% Affordable Housing Contribution

Existing Land Value Assumption: £14,900 (eg open space)

	Value Band				
Archetype	1	2	3	4	5
A	£ -	£ -	£ 694,024	£ 1,452,058	£ 2,564,951
B	£ -	£ -	£ 543,071	£ 1,316,669	£ 2,453,628
C	£ -	£ -	£ 598,146	£ 1,409,611	£ 2,608,359
D	£ -	£ -	£ 811,337	£ 1,655,258	£ 2,896,679
E	£ -	£ -	£ 545,952	£ 1,149,979	£ 2,038,225
F	£ -	£ -	£ 563,138	£ 1,191,425	£ 2,114,605
G	£ -	£ 7,509	£ 774,922	£ 1,445,606	£ 2,430,989
H	£ -	£ -	£ 336,896	£ 653,116	£ 1,116,766
I	£ -	£ 112,643	£ 582,638	£ 992,234	£ 1,594,949
J	£ -	£ 340,342	£ 911,032	£ 1,408,528	£ 2,140,579
K	£ -	£ 340,289	£ 862,778	£ 1,408,358	£ 2,033,795
Average	£ -	£ 72,798	£ 656,721	£ 1,280,258	£ 2,181,230

Existing Land Value Assumption: £290k (eg low grade industrial land)

	Value Band				
Archetype	1	2	3	4	5
A	£ -	£ -	£ 694,024	£ 1,452,058	£ 2,564,951
B	£ -	£ -	£ 543,071	£ 1,316,669	£ 2,453,628
C	£ -	£ -	£ 598,146	£ 1,409,611	£ 2,608,359
D	£ -	£ -	£ 811,337	£ 1,655,258	£ 2,896,679
E	£ -	£ -	£ 545,952	£ 1,149,979	£ 2,038,225
F	£ -	£ -	£ 563,138	£ 1,191,425	£ 2,114,605
G	£ -	£ 7,509	£ 774,922	£ 1,445,606	£ 2,430,989
H	£ -	£ -	£ 336,896	£ 653,116	£ 1,116,766
I	£ -	£ 112,643	£ 582,638	£ 992,234	£ 1,594,949
J	£ -	£ 340,342	£ 911,032	£ 1,408,528	£ 2,140,579
K	£ -	£ 340,289	£ 862,778	£ 1,408,358	£ 2,033,795
Average	£ -	£ 72,798	£ 656,721	£ 1,280,258	£ 2,181,230

Existing Land Value Assumption: £995k (mid point between high and low existing use values)

	Value Band				
Archetype	1	2	3	4	5
A	£ -	£ -	£ 694,024	£ 1,452,058	£ 2,564,951
B	£ -	£ -	£ 543,071	£ 1,316,669	£ 2,453,628
C	£ -	£ -	£ 598,146	£ 1,409,611	£ 2,608,359
D	£ -	£ -	£ 811,337	£ 1,655,258	£ 2,896,679
E	£ -	£ -	£ 545,952	£ 1,149,979	£ 2,038,225
F	£ -	£ -	£ 563,138	£ 1,191,425	£ 2,114,605
G	£ -	£ 7,509	£ 774,922	£ 1,445,606	£ 2,430,989
H	£ -	£ -	£ 336,896	£ 653,116	£ 1,116,766
I	£ -	£ 112,643	£ 582,638	£ 992,234	£ 1,594,949
J	£ -	£ 340,342	£ 911,032	£ 1,408,528	£ 2,140,579
K	£ -	£ 340,289	£ 862,778	£ 1,408,358	£ 2,033,795
Average	£ -	£ 72,798	£ 656,721	£ 1,280,258	£ 2,181,230

Existing Land Value Assumption: £1.7m (eg high value commercial land)

	Value Band				
Archetype	1	2	3	4	5
A	£ -	£ -	£ 694,024	£ 1,452,058	£ 2,564,951
B	£ -	£ -	£ 543,071	£ 1,316,669	£ 2,453,628
C	£ -	£ -	£ 598,146	£ 1,409,611	£ 2,608,359
D	£ -	£ -	£ 811,337	£ 1,655,258	£ 2,896,679
E	£ -	£ -	£ 545,952	£ 1,149,979	£ 2,038,225
F	£ -	£ -	£ 563,138	£ 1,191,425	£ 2,114,605
G	£ -	£ 7,509	£ 774,922	£ 1,445,606	£ 2,430,989
H	£ -	£ -	£ 336,896	£ 653,116	£ 1,116,766
I	£ -	£ 112,643	£ 582,638	£ 992,234	£ 1,594,949
J	£ -	£ 340,342	£ 911,032	£ 1,408,528	£ 2,140,579
K	£ -	£ 340,289	£ 862,778	£ 1,408,358	£ 2,033,795
Average	£ -	£ 72,798	£ 656,721	£ 1,280,258	£ 2,181,230

Figure 6.2: The Impact of House Price Rises of 5% Per Annum at 40% Affordable Housing Contribution (including Grant)

Existing Land Value Assumption: £14,900 (eg open space)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 934,131	£ 1,958,047	£ 2,855,953	£ 4,176,282
B	£ -	£ 615,114	£ 1,640,012	£ 2,534,058	£ 3,850,467
C	£ -	£ 584,096	£ 1,649,771	£ 2,578,819	£ 3,945,945
D	£ -	£ 796,739	£ 1,903,974	£ 2,866,217	£ 4,286,978
E	£ -	£ 668,230	£ 1,479,331	£ 2,186,173	£ 3,225,938
F	£ -	£ 582,210	£ 1,408,734	£ 2,129,965	£ 3,190,993
G	£ -	£ 763,461	£ 1,641,576	£ 2,406,665	£ 3,532,356
H	£ 169,282	£ 596,224	£ 1,049,902	£ 1,441,246	£ 2,021,488
I	£ 94,744	£ 609,742	£ 1,151,014	£ 1,623,476	£ 2,318,380
J	£ 282,540	£ 902,439	£ 1,554,132	£ 2,122,499	£ 2,957,291
K	£ 264,145	£ 902,283	£ 1,475,127	£ 2,122,382	£ 2,810,651
Average	£ 73,701	£ 723,152	£ 1,537,420	£ 2,260,678	£ 3,301,524

Existing Land Value Assumption: £290k (eg low grade industrial land)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 934,131	£ 1,958,047	£ 2,855,953	£ 4,176,282
B	£ -	£ 615,114	£ 1,640,012	£ 2,534,058	£ 3,850,467
C	£ -	£ 584,096	£ 1,649,771	£ 2,578,819	£ 3,945,945
D	£ -	£ 796,739	£ 1,903,974	£ 2,866,217	£ 4,286,978
E	£ -	£ 668,230	£ 1,479,331	£ 2,186,173	£ 3,225,938
F	£ -	£ 582,210	£ 1,408,734	£ 2,129,965	£ 3,190,993
G	£ -	£ 763,461	£ 1,641,576	£ 2,406,665	£ 3,532,356
H	£ 169,282	£ 596,224	£ 1,049,902	£ 1,441,246	£ 2,021,488
I	£ 94,744	£ 609,742	£ 1,151,014	£ 1,623,476	£ 2,318,380
J	£ 282,540	£ 902,439	£ 1,554,132	£ 2,122,499	£ 2,957,291
K	£ 264,145	£ 902,283	£ 1,475,127	£ 2,122,382	£ 2,810,651
Average	£ 73,701	£ 723,152	£ 1,537,420	£ 2,260,678	£ 3,301,524

Existing Land Value Assumption: £995k (mid point between high and low existing use values)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 934,131	£ 1,958,047	£ 2,855,953	£ 4,176,282
B	£ -	£ 615,114	£ 1,640,012	£ 2,534,058	£ 3,850,467
C	£ -	£ 584,096	£ 1,649,771	£ 2,578,819	£ 3,945,945
D	£ -	£ 796,739	£ 1,903,974	£ 2,866,217	£ 4,286,978
E	£ -	£ 668,230	£ 1,479,331	£ 2,186,173	£ 3,225,938
F	£ -	£ 582,210	£ 1,408,734	£ 2,129,965	£ 3,190,993
G	£ -	£ 763,461	£ 1,641,576	£ 2,406,665	£ 3,532,356
H	£ 169,282	£ 596,224	£ 1,049,902	£ 1,441,246	£ 2,021,488
I	£ 94,744	£ 609,742	£ 1,151,014	£ 1,623,476	£ 2,318,380
J	£ 282,540	£ 902,439	£ 1,554,132	£ 2,122,499	£ 2,957,291
K	£ 264,145	£ 902,283	£ 1,475,127	£ 2,122,382	£ 2,810,651
Average	£ 73,701	£ 723,152	£ 1,537,420	£ 2,260,678	£ 3,301,524

Existing Land Value Assumption: £1.7m (eg high value commercial land)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 934,131	£ 1,958,047	£ 2,855,953	£ 4,176,282
B	£ -	£ 615,114	£ 1,640,012	£ 2,534,058	£ 3,850,467
C	£ -	£ 584,096	£ 1,649,771	£ 2,578,819	£ 3,945,945
D	£ -	£ 796,739	£ 1,903,974	£ 2,866,217	£ 4,286,978
E	£ -	£ 668,230	£ 1,479,331	£ 2,186,173	£ 3,225,938
F	£ -	£ 582,210	£ 1,408,734	£ 2,129,965	£ 3,190,993
G	£ -	£ 763,461	£ 1,641,576	£ 2,406,665	£ 3,532,356
H	£ 169,282	£ 596,224	£ 1,049,902	£ 1,441,246	£ 2,021,488
I	£ 94,744	£ 609,742	£ 1,151,014	£ 1,623,476	£ 2,318,380
J	£ 282,540	£ 902,439	£ 1,554,132	£ 2,122,499	£ 2,957,291
K	£ 264,145	£ 902,283	£ 1,475,127	£ 2,122,382	£ 2,810,651
Average	£ 73,701	£ 723,152	£ 1,537,420	£ 2,260,678	£ 3,301,524

Figure 6.3: The Impact of Falling Prices of -5% Per Annum and Reduced Sales Rates at 40% Affordable Housing Contribution (including Grant)

Existing Land Value Assumption: £14,900 (eg open space)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ -	£ 889,990	£ 1,667,204	£ 2,810,822
B	£ -	£ -	£ 908,467	£ 1,720,121	£ 2,920,470
C	£ -	£ 82,439	£ 1,076,066	£ 1,941,294	£ 3,214,615
D	£ -	£ 275,486	£ 1,307,921	£ 2,207,429	£ 3,531,152
E	£ -	£ 44,870	£ 765,066	£ 1,392,404	£ 2,315,790
F	£ -	£ 138,396	£ 900,514	£ 1,566,692	£ 2,545,224
G	£ -	£ 351,504	£ 1,168,701	£ 1,881,419	£ 2,930,345
H	£ -	£ -	£ 283,090	£ 592,664	£ 1,047,482
I	£ -	£ 291,994	£ 787,343	£ 1,219,406	£ 1,855,493
J	£ 17,931	£ 595,796	£ 1,202,495	£ 1,732,544	£ 2,512,150
K	£ 12,461	£ 595,678	£ 1,141,352	£ 1,731,618	£ 2,387,451
Average	£ 2,763	£ 216,015	£ 948,273	£ 1,604,800	£ 2,551,908

Existing Land Value Assumption: £290k (eg low grade industrial land)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ -	£ 889,990	£ 1,667,204	£ 2,810,822
B	£ -	£ -	£ 908,467	£ 1,720,121	£ 2,920,470
C	£ -	£ 82,439	£ 1,076,066	£ 1,941,294	£ 3,214,615
D	£ -	£ 275,486	£ 1,307,921	£ 2,207,429	£ 3,531,152
E	£ -	£ 44,870	£ 765,066	£ 1,392,404	£ 2,315,790
F	£ -	£ 138,396	£ 900,514	£ 1,566,692	£ 2,545,224
G	£ -	£ 351,504	£ 1,168,701	£ 1,881,419	£ 2,930,345
H	£ -	£ -	£ 283,090	£ 592,664	£ 1,047,482
I	£ -	£ 291,994	£ 787,343	£ 1,219,406	£ 1,855,493
J	£ 17,931	£ 595,796	£ 1,202,495	£ 1,732,544	£ 2,512,150
K	£ 12,461	£ 595,678	£ 1,141,352	£ 1,731,618	£ 2,387,451
Average	£ 2,763	£ 216,015	£ 948,273	£ 1,604,800	£ 2,551,908

Existing Land Value Assumption: £995k (mid point between low and high existing use values)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ -	£ 889,990	£ 1,667,204	£ 2,810,822
B	£ -	£ -	£ 908,467	£ 1,720,121	£ 2,920,470
C	£ -	£ 82,439	£ 1,076,066	£ 1,941,294	£ 3,214,615
D	£ -	£ 275,486	£ 1,307,921	£ 2,207,429	£ 3,531,152
E	£ -	£ 44,870	£ 765,066	£ 1,392,404	£ 2,315,790
F	£ -	£ 138,396	£ 900,514	£ 1,566,692	£ 2,545,224
G	£ -	£ 351,504	£ 1,168,701	£ 1,881,419	£ 2,930,345
H	£ -	£ -	£ 283,090	£ 592,664	£ 1,047,482
I	£ -	£ 291,994	£ 787,343	£ 1,219,406	£ 1,855,493
J	£ 17,931	£ 595,796	£ 1,202,495	£ 1,732,544	£ 2,512,150
K	£ 12,461	£ 595,678	£ 1,141,352	£ 1,731,618	£ 2,387,451
Average	£ 2,763	£ 216,015	£ 948,273	£ 1,604,800	£ 2,551,908

Existing Land Value Assumption: £1.7m (eg high value commercial land)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ -	£ 889,990	£ 1,667,204	£ 2,810,822
B	£ -	£ -	£ 908,467	£ 1,720,121	£ 2,920,470
C	£ -	£ 82,439	£ 1,076,066	£ 1,941,294	£ 3,214,615
D	£ -	£ 275,486	£ 1,307,921	£ 2,207,429	£ 3,531,152
E	£ -	£ 44,870	£ 765,066	£ 1,392,404	£ 2,315,790
F	£ -	£ 138,396	£ 900,514	£ 1,566,692	£ 2,545,224
G	£ -	£ 351,504	£ 1,168,701	£ 1,881,419	£ 2,930,345
H	£ -	£ -	£ 283,090	£ 592,664	£ 1,047,482
I	£ -	£ 291,994	£ 787,343	£ 1,219,406	£ 1,855,493
J	£ 17,931	£ 595,796	£ 1,202,495	£ 1,732,544	£ 2,512,150
K	£ 12,461	£ 595,678	£ 1,141,352	£ 1,731,618	£ 2,387,451
Average	£ 2,763	£ 216,015	£ 948,273	£ 1,604,800	£ 2,551,908

Figure 6.4: The Impact of Higher Section 106 (Non Affordable Housing) Contributions of £7,500 Per Unit at 40% Affordable Housing (including Grant)

Existing Land Value Assumption: £14,900 (eg open space)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 292,492	£ 1,249,459	£ 2,081,629	£ 3,310,016
B	£ -	£ 135,700	£ 1,113,423	£ 1,968,693	£ 3,224,696
C	£ -	£ 177,747	£ 1,207,191	£ 2,103,871	£ 3,423,943
D	£ -	£ 380,596	£ 1,450,210	£ 2,382,552	£ 3,754,415
E	£ -	£ 232,843	£ 996,340	£ 1,661,993	£ 2,641,589
F	£ -	£ 242,409	£ 1,037,494	£ 1,730,275	£ 2,749,640
G	£ -	£ 441,076	£ 1,288,045	£ 2,026,566	£ 3,113,949
H	£ -	£ 165,815	£ 563,317	£ 910,406	£ 1,421,983
I	£ -	£ 381,231	£ 898,411	£ 1,350,538	£ 2,015,984
J	£ 81,994	£ 680,945	£ 1,309,490	£ 1,859,085	£ 2,667,143
K	£ 73,280	£ 680,645	£ 1,243,560	£ 1,858,172	£ 2,535,062
Average	£ 14,116	£ 346,500	£ 1,123,358	£ 1,812,162	£ 2,805,311

Existing Land Value Assumption: £290k (eg low grade industrial land)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 292,492	£ 1,249,459	£ 2,081,629	£ 3,310,016
B	£ -	£ 135,700	£ 1,113,423	£ 1,968,693	£ 3,224,696
C	£ -	£ 177,747	£ 1,207,191	£ 2,103,871	£ 3,423,943
D	£ -	£ 380,596	£ 1,450,210	£ 2,382,552	£ 3,754,415
E	£ -	£ 232,843	£ 996,340	£ 1,661,993	£ 2,641,589
F	£ -	£ 242,409	£ 1,037,494	£ 1,730,275	£ 2,749,640
G	£ -	£ 441,076	£ 1,288,045	£ 2,026,566	£ 3,113,949
H	£ -	£ 165,815	£ 563,317	£ 910,406	£ 1,421,983
I	£ -	£ 381,231	£ 898,411	£ 1,350,538	£ 2,015,984
J	£ 81,994	£ 680,945	£ 1,309,490	£ 1,859,085	£ 2,667,143
K	£ 73,280	£ 680,645	£ 1,243,560	£ 1,858,172	£ 2,535,062
Average	£ 14,116	£ 346,500	£ 1,123,358	£ 1,812,162	£ 2,805,311

Existing Land Value Assumption: £995k (mid point between low and high existing use values)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 292,492	£ 1,249,459	£ 2,081,629	£ 3,310,016
B	£ -	£ 135,700	£ 1,113,423	£ 1,968,693	£ 3,224,696
C	£ -	£ 177,747	£ 1,207,191	£ 2,103,871	£ 3,423,943
D	£ -	£ 380,596	£ 1,450,210	£ 2,382,552	£ 3,754,415
E	£ -	£ 232,843	£ 996,340	£ 1,661,993	£ 2,641,589
F	£ -	£ 242,409	£ 1,037,494	£ 1,730,275	£ 2,749,640
G	£ -	£ 441,076	£ 1,288,045	£ 2,026,566	£ 3,113,949
H	£ -	£ 165,815	£ 563,317	£ 910,406	£ 1,421,983
I	£ -	£ 381,231	£ 898,411	£ 1,350,538	£ 2,015,984
J	£ 81,994	£ 680,945	£ 1,309,490	£ 1,859,085	£ 2,667,143
K	£ 73,280	£ 680,645	£ 1,243,560	£ 1,858,172	£ 2,535,062
Average	£ 14,116	£ 346,500	£ 1,123,358	£ 1,812,162	£ 2,805,311

Existing Land Value Assumption: £1.7m (eg high value commercial land)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 292,492	£ 1,249,459	£ 2,081,629	£ 3,310,016
B	£ -	£ 135,700	£ 1,113,423	£ 1,968,693	£ 3,224,696
C	£ -	£ 177,747	£ 1,207,191	£ 2,103,871	£ 3,423,943
D	£ -	£ 380,596	£ 1,450,210	£ 2,382,552	£ 3,754,415
E	£ -	£ 232,843	£ 996,340	£ 1,661,993	£ 2,641,589
F	£ -	£ 242,409	£ 1,037,494	£ 1,730,275	£ 2,749,640
G	£ -	£ 441,076	£ 1,288,045	£ 2,026,566	£ 3,113,949
H	£ -	£ 165,815	£ 563,317	£ 910,406	£ 1,421,983
I	£ -	£ 381,231	£ 898,411	£ 1,350,538	£ 2,015,984
J	£ 81,994	£ 680,945	£ 1,309,490	£ 1,859,085	£ 2,667,143
K	£ 73,280	£ 680,645	£ 1,243,560	£ 1,858,172	£ 2,535,062
Average	£ 14,116	£ 346,500	£ 1,123,358	£ 1,812,162	£ 2,805,311

Figure 6.5: The Impact of the Additional Build Costs Associated with Meeting the Code for Sustainable Homes Level 4

Existing Land Value Assumption: £14,900 (eg open space)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 87,940	£ 1,072,716	£ 1,928,913	£ 3,190,447
B	£ -	£ -	£ 697,846	£ 1,550,301	£ 2,807,546
C	£ -	£ -	£ 760,243	£ 1,658,101	£ 2,977,979
D	£ -	£ -	£ 988,455	£ 1,921,312	£ 3,293,200
E	£ -	£ -	£ 669,494	£ 1,337,005	£ 2,316,629
F	£ -	£ -	£ 695,126	£ 1,386,764	£ 2,404,453
G	£ -	£ 76,475	£ 924,487	£ 1,663,235	£ 2,750,179
H	£ -	£ 159,762	£ 578,393	£ 943,707	£ 1,483,229
I	£ -	£ -	£ 681,010	£ 1,132,784	£ 1,797,739
J	£ -	£ 403,341	£ 1,032,948	£ 1,581,870	£ 2,389,631
K	£ -	£ 403,126	£ 978,711	£ 1,581,411	£ 2,270,868
Average	£ -	£ 102,786	£ 825,403	£ 1,516,855	£ 2,516,536

Existing Land Value Assumption: £290k (eg low grade industrial land)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 87,940	£ 1,072,716	£ 1,928,913	£ 3,190,447
B	£ -	£ -	£ 697,846	£ 1,550,301	£ 2,807,546
C	£ -	£ -	£ 760,243	£ 1,658,101	£ 2,977,979
D	£ -	£ -	£ 988,455	£ 1,921,312	£ 3,293,200
E	£ -	£ -	£ 669,494	£ 1,337,005	£ 2,316,629
F	£ -	£ -	£ 695,126	£ 1,386,764	£ 2,404,453
G	£ -	£ 76,475	£ 924,487	£ 1,663,235	£ 2,750,179
H	£ -	£ 159,762	£ 578,393	£ 943,707	£ 1,483,229
I	£ -	£ -	£ 681,010	£ 1,132,784	£ 1,797,739
J	£ -	£ 403,341	£ 1,032,948	£ 1,581,870	£ 2,389,631
K	£ -	£ 403,126	£ 978,711	£ 1,581,411	£ 2,270,868
Average	£ -	£ 102,786	£ 825,403	£ 1,516,855	£ 2,516,536

Existing Land Value Assumption: £995k (mid point between low and high existing use values)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 87,940	£ 1,072,716	£ 1,928,913	£ 3,190,447
B	£ -	£ -	£ 697,846	£ 1,550,301	£ 2,807,546
C	£ -	£ -	£ 760,243	£ 1,658,101	£ 2,977,979
D	£ -	£ -	£ 988,455	£ 1,921,312	£ 3,293,200
E	£ -	£ -	£ 669,494	£ 1,337,005	£ 2,316,629
F	£ -	£ -	£ 695,126	£ 1,386,764	£ 2,404,453
G	£ -	£ 76,475	£ 924,487	£ 1,663,235	£ 2,750,179
H	£ -	£ 159,762	£ 578,393	£ 943,707	£ 1,483,229
I	£ -	£ -	£ 681,010	£ 1,132,784	£ 1,797,739
J	£ -	£ 403,341	£ 1,032,948	£ 1,581,870	£ 2,389,631
K	£ -	£ 403,126	£ 978,711	£ 1,581,411	£ 2,270,868
Average	£ -	£ 102,786	£ 825,403	£ 1,516,855	£ 2,516,536

Existing Land Value Assumption: £1.7m (eg high value commercial land)

Archetype	Value Band 1	2	3	4	5
A	£ -	£ 87,940	£ 1,072,716	£ 1,928,913	£ 3,190,447
B	£ -	£ -	£ 697,846	£ 1,550,301	£ 2,807,546
C	£ -	£ -	£ 760,243	£ 1,658,101	£ 2,977,979
D	£ -	£ -	£ 988,455	£ 1,921,312	£ 3,293,200
E	£ -	£ -	£ 669,494	£ 1,337,005	£ 2,316,629
F	£ -	£ -	£ 695,126	£ 1,386,764	£ 2,404,453
G	£ -	£ 76,475	£ 924,487	£ 1,663,235	£ 2,750,179
H	£ -	£ 159,762	£ 578,393	£ 943,707	£ 1,483,229
I	£ -	£ -	£ 681,010	£ 1,132,784	£ 1,797,739
J	£ -	£ 403,341	£ 1,032,948	£ 1,581,870	£ 2,389,631
K	£ -	£ 403,126	£ 978,711	£ 1,581,411	£ 2,270,868
Average	£ -	£ 102,786	£ 825,403	£ 1,516,855	£ 2,516,536