Demographic and labour supply forecasts

Swale Borough Council

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1. Introduction

Swale Borough Council (SWBC) has commissioned Kent County Council's (KCC's) Research & Intelligence (R&I) team to produce a range of demographic and labour supply projections/forecasts. The revocation of the South East Plan has given SWBC the opportunity to reconsider its future development options, however, these must be evidence based. The demographic and labour supply projections/forecasts that have been commissioned form an important aspect of this assessment.

SWBC's housing target according to the South East Plan was 10,800 additional dwellings to be built between 2006 and 2026. Additionally, SWBC have asked us to consider the economic development quantities associated with each of the housing scenarios and to look at how the two may impact on each other. This paper links the two components. Consideration is first given to the demographic impacts of different house building levels, including an assessment of other possible housing targets for SWBC to consider. The demographic outputs are then considered from a labour supply perspective and in turn labour demand from the economic development options is assessed.

SWBC have commissioned R&I to look at the demographic and labour supply implications of six options. The paper begins by outlining the six different scenarios followed by a brief outline of the methodology that has been used along with an outline of the data sources and assumptions used. The report then goes on to present a summary of the main findings. Detailed statistical outputs are available separately.

In producing this report, R&I are providing an independent assessment of the scenarios being tested by SWBC and the results of this assessment should not be taken as reflecting a policy position of Kent County Council.

This work is part of an ongoing process. The forecasts in this report are intended to inform the Council's considerations of its strategic spatial options. It does not represent the policy position of the Council and further work will be undertaken to inform future refinement of the preferred option.

2. The six scenarios

It is important to understand how the demographics of an area are expected to change in the future in order to formulate planning policy. However there are a number of different ways of assessing what the future demographics might be.

SWBC commissioned an assessment of six scenarios. The scenarios were chosen to reflect consideration of need versus aspiration.

Scenario 1: A zero-net migration projection

A good starting point is to explore a projection that is confined to examining the needs arising from indigenous growth and change within the existing population. This is referred to as a zero-net migration (ZNM) scenario.

It is then useful to look at what might happen in the future if past migration trends are to continue. For example, if net migration to Swale continues at the rate it has done in the past then what impact will this have on Swale's future population and how much housing will this population need?

SWBC have requested that we consider the future impact of a past trend based on an average of net migration over the last 5-years.

Scenario 2: A 5-yr migration trend projection

This is commonly referred to as a short-term migration trend and is the approach adopted by the Office for National Statistics when producing the Sub National Population Projections. The projection has been based on an average of net migration levels to Swale between 2004 and 2009. More information is given in Section 4.

Both the zero net migration and 5-year migration trend scenarios are population led projections. A projection assumes that past trends will continue indefinitely into the future. Whilst it is unlikely that a trend will continue indefinitely (as it is likely to be affected by future policy decisions) projections can provide a useful indication of future growth and need. For example, migration might need to be at a certain level in order to achieve the aspired economic growth of an area. The projection would provide an assessment of future housing need based on the assumption that migration continues at that level.

The alternative to a projection is a forecast. A forecast makes changes to past trends by taking account of future growth policies. This is usually housing growth policies.

SWBC have requested that we consider the future impact of four housing growth options which are currently being considered by the Council.

The first is a strategy based on building an additional 13,503 dwellings between 2006 and 2031.

Scenario 3: SWBC Option 1 - Strategy forecast based on 13,503 additional dwellings

The second is a strategy also based on building an additional 13,503 dwellings between 2006 and 2031 but using a different phasing.

Scenario 4: SWBC Option 2 - Strategy forecast based on 13,503 additional dwellings

The third is a strategy based on building an additional 13,513 dwellings between 2006 and 2036.

Scenario 5: SWBC Option 3 - Strategy forecast based on 13,513 additional dwellings

The fourth is a strategy based on building an additional 18,583 dwellings between 2006 and 2036.

Scenario 6: SWBC Option 4 - Strategy forecast based on 18,583 additional dwellings

SWBC Options 1-4 are dwelling-led scenarios. These forecasts explore what the impact of building the additional amount of dwellings in the SWBC area will be over the next 25/30 years on the demographics of the area.

Once the future demographic assessment of each scenario has been considered, the labour supply implications are then discussed in relation to SWBC's economic development aspirations.

3. Methodology

3.1 Demographic forecasts

The six scenarios have been tested for the SWBC area as whole.

The district level demographic forecasting model used by KCC is the Chelmer Population and Housing Model. This was originally developed by Anglia Ruskin University but is now maintained by Cambridge Econometrics.

Over many years of research and development, the Chelmer Model is now more robust and has the advantage of becoming the industry standard. The model is used by a large number of local authorities, regional planning bodies, property developers and others, and has had a central role in many planning enquiries and Examinations in Public (EIPs).

The Chelmer model is based on the basic principles of the cohort survival methodology:

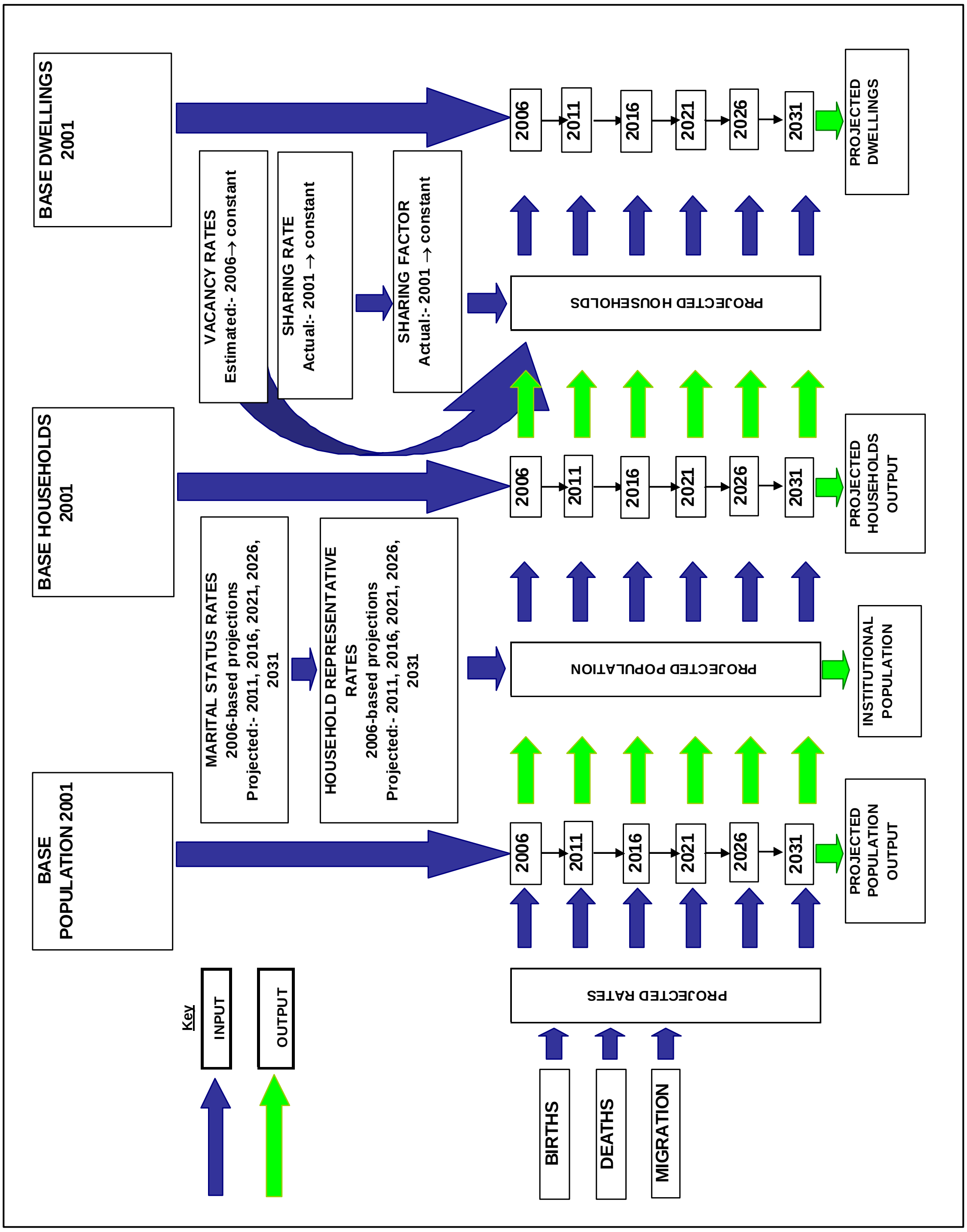
1. Take a base population (by age and gender);
2. Add births and 'in' migration (by age and gender) for year 1;
3. Subtract deaths and 'out' migration (by age and gender) for year 1;
4. Age the entire population by one year;
5. Results for year 1 can be noted;
6. Repeat the process above for year 2 and onwards

Whilst the cohort survival method may sound simple, the process actually requires a lot of complex input and output figures in order to model real-life events. Figure 1 illustrates the process in detail but below is a brief summary of the processes involved.

The Chelmer model allows different types of forecast scenarios to be tested. The two main types are:

- **Conventional migration-led forecasts**. In a conventional migration-led projection the model projects the change in the population between two dates by assuming a continuous migration supply (or no migration in a zero-net migration scenario) and applying birth and death rates. The projection of private households is made from the private household population through assumptions for age/gender-specific headship rates. The implied increase for the number of dwellings is then derived through assumptions for rates of sharing dwellings by multiple households and for vacancy rates.
- **Housing-led forecasts**. In a housing-led forecast (or strategy-based forecast) the forecasting of population is evaluated in terms of the capacity of an area to accommodate dwellings. This is calculated from a base number of dwellings and future building/ demolition rates. From this, the population growth and migration implications are derived. The Chelmer model takes not differentiate the type and size of dwelling to be built.

Figure 1: Overview of the Chelmer model components and processes



The Chelmer model works on 5-year forecast periods. The base year of the model is 2001 with forecasts produced for each 5-year period up to 2031.

The model only has the ability to forecast up to 2031, however, two of SWBC housing options are based on a housing provision up to 2036. In order to consider the demographic and labour supply implications from 2031-2036 of these two scenarios, some additional modelling outside of the Chelmer model has been undertaken.

A straight-forward trend approach has been used.

The demographic factors existent at 2031 have been assumed to remain constant beyond this year. Although SWBC set no end limit on the growth post 2031, for the purpose of calculating the impact it has been assumed that that the post-2031 growth will take place between 2031 and 2036.

Firstly a persons per dwelling rate for 2031 was calculated by dividing the total population at 2031 by the total number of dwellings at 2031. Please note, that the persons per dwelling rate does differ to the average household size figure which is the private household population divided by the total number of households.

Secondly, the number of dwellings to be built post-2031 was added to the total number of dwellings in 2031 to give an estimate of total dwellings as at 2036. The 2036 dwelling estimate was then multiplied by the 2031 persons per dwelling rate to give a 2036 estimate of the total population.

These steps were repeated for households, private household population and non-domestic population (calculating a 2031 rate per dwelling for each of these) in order to derive a 2036 estimate for these variables.

It was decided not to apply this methodology to calculate other, more detailed variables (i.e. an age breakdown, household by type etc) as it was a too simplistic approach for more complex variables.

3.2 Labour supply forecasts

The labour supply forecasts are produced using the population outputs from the demographic assessments of each of the seven scenarios.

The population forecasts are disaggregated into seven age bands; those aged 16-24; 25-34; 35-44; 45-59; 60-64; 65-69 and 70-74 years.

These age bands have been used to coincide with those in the national Labour Force Projections 2006-2026, published in January 2006, by the Office for National Statistics.

Labour supply analysis has been extended to the age of 74 to account for the small number of people who remain economically active beyond the "normal" retirement age. In doing so, it captures the maximum number of people possible that will be seeking employment and not just those that are considered to be of "working age".

The Office for National Statistics has recently redefined the definition of working age from 16-59 for women and 16-64 for men, to 16-64 for both men and women, to reflect the proposed standardisation of retirement age, which is due to be phased in over the next few years.

In addition to disaggregating the population forecasts by age, a gender distinction is also made.

Activity rates are then applied to all the population outputs for each scenario in order to generate the resident labour supply (economically active population).

The activity rates are calculated for each gender/age band based on local 2001 Census data, which are then rolled forward to 2020 using the national growth rates as set out in the national projections. All post-2020 activity rates are held constant at the 2020 level.

Chart 1 illustrates the projected male activity rates and Chart 2 illustrates the projected female activity rates that have been used to calculate the labour supply forecasts.

Chart 1: Projected male activity rates for Swale

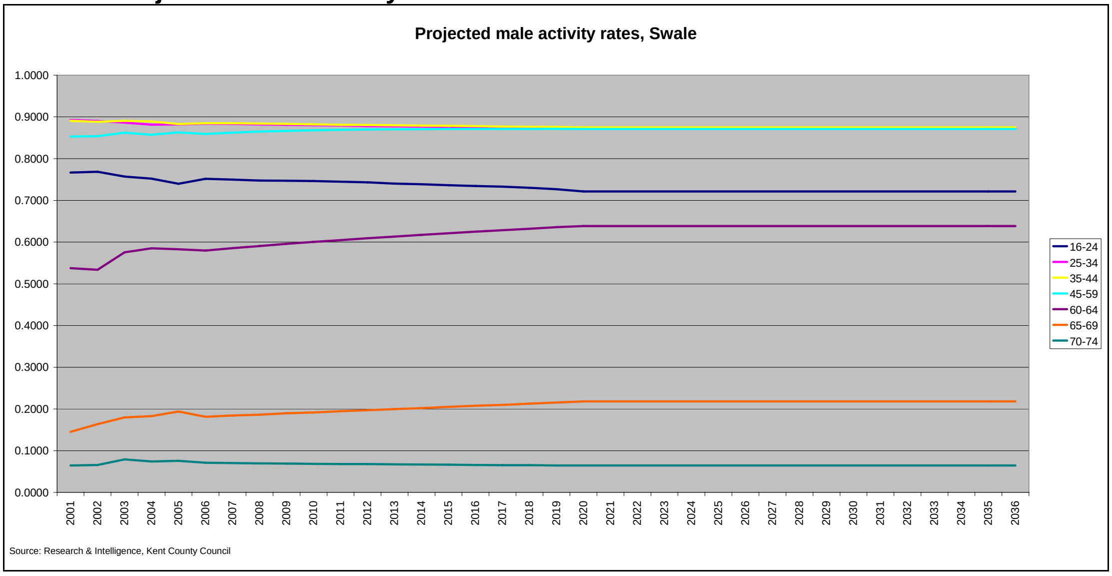
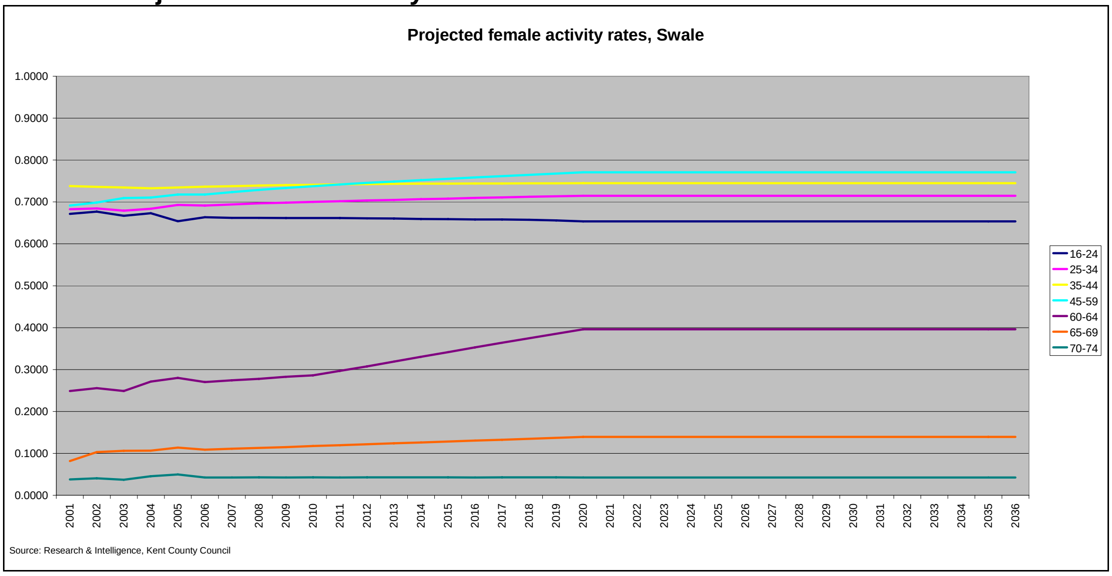


Chart 2: Projected female activity rates for Swale



The detailed activity rates for each age/ gender band by individual year from 2001 to 2036 has been supplied to SWBC in the accompanying spreadsheets.

A 2001 Census workplace ratio figure is then used to convert the resident labour supply to a workplace-based labour supply. This gives an approximation to the likely number of people looking for work in Swale as it allows for a proportion of the resident population to commute elsewhere for work and for those outside the area to commute in.

Additional work has been undertaken by R&I to update the 2001 Census workplace ratio which is presented in the paper 'Updating the journey to work matrix' (September 2010). A summary of the methodology is set out below.

To update the matrix, the labour supply (economically active population) estimates are used, as at 2010. 2010 unemployment rates are used to give economically active in employment. This is used to update the "residents" dimension of the matrix.

To update the workplace side of the matrix, the 2008 Annual Business Inquiry (ABI) data has been used. However, because the census matrix is based on each persons primary job (i.e. one person, one job), the 2008 job distribution figures have been converted (by district/area in the matrix) to match the "residents in employment" total from the labour supply.

Therefore the 2008 job *distribution* is used to determine each districts share of employment, rather than the actual number of jobs at 2008.

This methodology overcomes the differences in definition between the two datasets and resolves the issue of the ABI being a job-count rather than a count of people in employment. The shares by residents and then by workplace are calculated iteratively, until the matrix is resolved.

4. Data sources and assumptions

4.1 Starting base for all scenarios

Although the Chelmer model currently has a base year of 2001, all six of the SWBC scenarios have been controlled at 2006 to the mid-2006 population estimates (revised May 2010) as published by the Office for National Statistics. For this reason, all six scenarios show the same figures for 2006. In effect the base year for all scenarios becomes 2006.

4.2 Control variables

The Chelmer model only allows you to control to one variable in a given year. As mentioned above, the decision was made to control all six of the scenarios at 2006 to a mid year population estimate rather than a dwelling count. Controlling to a 2006 dwelling count results in the population for this year being calculated, the result of which was well above the known population total. Population was therefore chosen as the control variable for 2006 resulting in the number of dwellings for this year has been calculated by the Chelmer model rather than being an actual figure. The dwelling count for 2006 presented in the forecasts/ projections is therefore likely to differ from the dwelling count for the same year published elsewhere.

Table 1 outlines the control variables used to produce each of the scenarios. As the Chelmer model works on 5-year periods, the information has been presented in the required format for inputting into the Chelmer model.

Table 1: Control variables used to create SWBC scenarios

	1	2	3	4	5	6
Scenario	Zero Net Migration	5-year trend	Option 1 - 13,503 dwellings	Option 2 - 13,503 dwellings	Option 3 - 13,513 dwellings	Option 4 - 18,583 dwellings
Unit	Net migration	Net migration	Additional dwellings	Additional dwellings	Additional dwellings	Additional dwellings
2006-2011	0	3,700	2,446	2,446	2,446	2,446
2011-2016	0	3,700	4,954	4,594	4,334	4,784
2016-2021	0	3,700	4,504	4,574	3,284	4,434
2021-2026	0	3,700	1,599	1,789	1,369	3,049
2026-2031	0	3,700	0	100	680	1,680
2031-2036	0	n/a	n/a	n/a	1,400	2,200
Total 2006-2031	**0**	**18,500**	**13,503**	**13,503**	**12,113**	**16,393**
Total 2006-2036	**n/a**	**n/a**	**n/a**	**n/a**	**13,513**	**18,593**

Source: Research & Intelligence, Kent County Council

The net migration value used to produce the 5-year migration trend was based on an average of migration between mid-2004 and 2009.

SWBC has provided the housing provision used to run the four SWBC housing-led options. These have been provided simply as one possible example for the purposes of generally testing the demographics and labour supply implications of the options. They should not be interpreted as representing actual scenarios relating to specific sites or their phasing.

4.3 Demographic data sets

A summary of the variables required to produce the demographic forecasts was presented in Figure 1. Table 2 below outlines in more detail the exact demographic data sets which have been used as inputs into the forecasting model to produce the six SWBC scenarios.

Table 2: Demographic data sets used to create SWBC scenarios

Indicator	Data set	Source
Base population	2006 Mid Year Population Estimates	**ONS**
Institutional population	2001 Census. Numbers held constant up to age of 75 but then proportions for age groups after 75 to reflect ageing population	ONS
Vacancy rate	2006 HSSA vacancy rate but modified to include 2nd homes/ holiday accommodation	CLG/ ONS
Sharing rate	2001 Census	ONS
Local birth/ death corrections	Average number of births and deaths 2005-2009	ONS
Fertility and mortality rate	2006-based long term projections of fertility and mortality (national profile applied to local area)	ONS
Migrant age/ sex profile	2001 Census	ONS
International migrant profile	2006-based international migrant profile	ONS
Household representative rates	2006-based household representative/ marital rates	CLG/ONS

Although the SWBC scenarios are a mix of both migration-led and housing-led approaches, the same demographic data inputs have been used to produce each of the scenarios. The only difference is the control variables as outlined in Table 1.

4.4 Labour supply data sets

Section 3.2 outlined the main data sets used to produce the labour supply forecasts. These are:

Activity rates by age and gender for Swale Borough calculated from 2001 Census results.

National Labour Force Projections 2006-2026 published in January 2006, by the Office for National Statistics are then applied to the 2001 rates to produce projected economic activity rates.

5. Results

This section provides a summary of the results. In addition to the information presented here, a series of accompanying Excel spreadsheets which contain the detailed information have been produced and provided to SWBC.

5.1 Demographic analysis

5.1.1 Dwelling growth

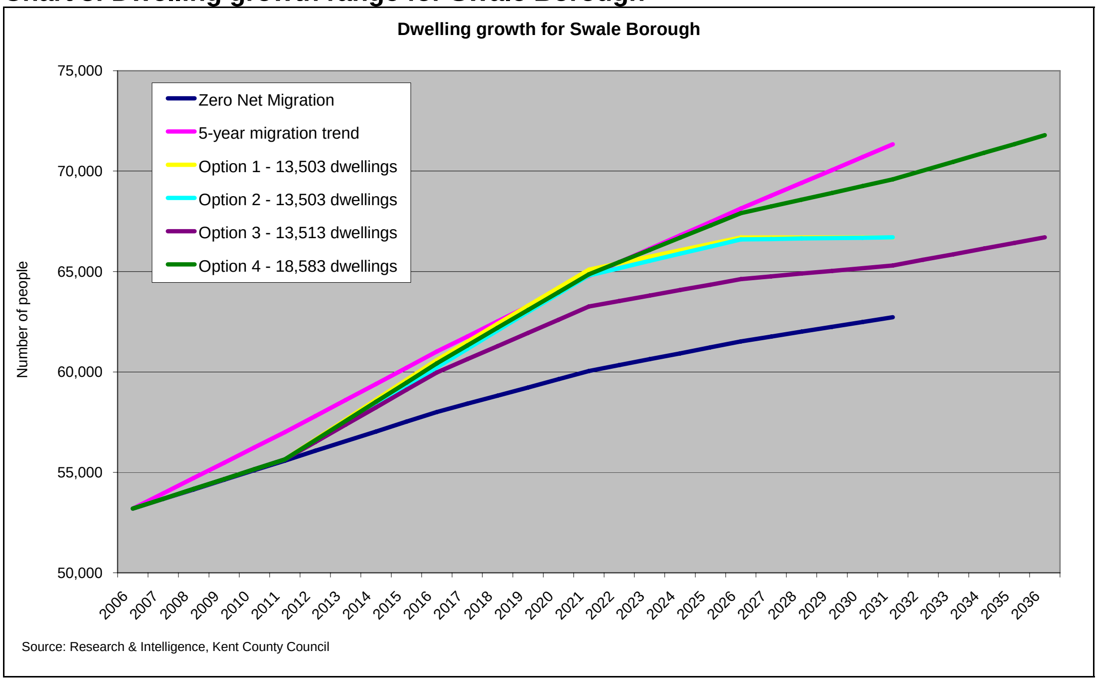
In 2006 there were estimated to be 53,200 dwellings in Swale Borough.

(*Please note that as the forecasts have been controlled to a population count at 2006, the dwelling count for this year has been calculated by the Chelmer model and will therefore differ from other dwelling counts recorded by SWBC).*

By 2031 there could be anywhere in the region of 62,700 to 71,300 dwellings dependent on which of the six scenarios is considered. For the lowest of these projections/ forecasts the growth to 2031 is equivalent to a 17.9% increase in dwelling stock (an additional 9,500 dwellings). For the highest, it is equivalent to a 34.1% increase (an additional 18,100 dwellings). These statements exclude growth post-2031 which is considered in SWBC Options 3 and 4.

Chart 3 presents the dwelling growth range based on the six scenarios.

Chart 3: Dwelling growth range for Swale Borough



The four housing-led scenarios are driven by housing numbers provided by SWBC (as set out in Table 1). For all four housing-led scenarios the housing provision post-2021 is at a lower level than for previous years causing the dwelling growth to slow down from 2021 onwards.

The zero net migration scenario projects the lowest increase in dwellings. This projection reflects growth in the existing population only and makes an assessment of the amount of housing needed to accommodate the change in the existing population.

Looking to 2031 only, the 5-year trend projects the highest dwelling growth. The migration levels used for the 5-year trend are higher than the levels of migration generated from any of the housing-led scenarios leading to a higher population growth (see section 5.1.2) and thus higher need for housing.

Post-2031, SWBC Option 4 (18,583 additional dwellings) forecasts the highest dwelling growth.

Table 3 summarises the future housing need for each of the six scenarios.

Table 3: Additional dwellings required between 2006 and 2031/36 for each scenario

					2006-2031		2006-2036	
Scenario		2006	2031	2036	Additional dwellings	% increase	Additional dwellings	% increase
1	Zero Net Migration	53,200	62,700	n/a	9,500	*17.9%*	n/a	n/a
2	5-year trend	53,200	71,300	n/a	18,100	*34.1%*	n/a	n/a
3	Option 1 - 13,503 dwellings	53,200	66,700	n/a	13,500	*25.4%*	n/a	n/a
4	Option 2 - 13,503 dwellings	53,200	66,700	n/a	13,500	*25.4%*	n/a	n/a
5	Option 3 - 13,513 dwellings	53,200	65,300	66,700	12,100	*22.8%*	13,500	*25.4%*
6	Option 4 - 18,583 dwellings	53,200	69,600	71,800	16,400	*30.8%*	18,600	*34.9%*

Source: Research & Intelligence, Kent County Council
All figures have been individually rounded to the nearest hundred
Percentages have been calculated using unrounded figures

To accommodate Swale Borough's existing population needs, SWBC would need to build 9,500 new homes between 2006 and 2031 (as illustrated by the zero net migration projection). Any additional homes built above this level would be above the dwellings needed by the existing population and thus would result in increased net in-migration to the Borough.

In reality the Council has no control over who accommodates these homes. For the purposes of illustration the minimum new home requirement is explained as indigenous population need. However, migration into and out the borough cannot be stopped and therefore will exist in reality. This may result in migrants accommodating the new homes, squeezing local people out, or local people accommodating the new homes.

All four of SWBC housing growth options are above the existing populations need. Further analysis of the impact on migration for each of these options is presented in Section 5.1.4.

SWBC Options 1 to 3 are based on the same overall future housing provision but based on either a different spatial distribution or time frame.

SWBC Option 4 is roughly in-line with the 5-year migration trend projection, albeit over a slightly longer time frame.

Further assessment of the demographic impacts of each option should be considered before deciding what the future housing target for Swale Borough should be.

5.1.2 Population growth

The population of Swale Borough was estimated to be 127,600 in 2006.

By 2031, the population of the Borough could be between 135,700 and 156,900 people dependent on which of the six scenarios we look at.
For the lowest of these projections that is equivalent to a 6.3% increase in population (an additional 8,000 people). For the highest, it is equivalent to a 22.9% increase (an additional 29,300 people). These statements exclude growth post-2031 which is considered in SWBC Options 3 and 4.

Chart 4 presents the population growth range based on the six scenarios.

Chart 4: Population growth range for Swale Borough

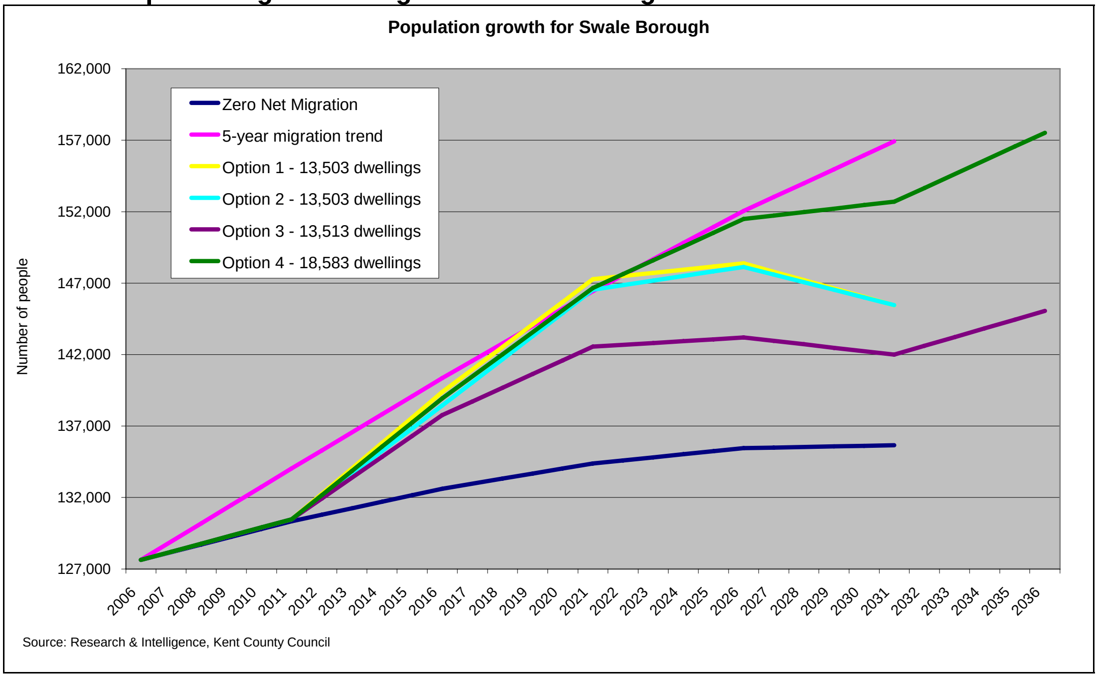


Table 4 summarises the future population growth for each scenario.

Table 4: Population growth between 2006 and 2031/36 for each scenario

Scenario		2006	2031	2036	2006-2031		2006-2036	
					Additional dwellings	% increase	Additional dwellings	% increase
1	Zero Net Migration	127,600	135,700	n/a	8,000	6.3%	n/a	n/a
2	5-year trend	127,600	156,900	n/a	29,300	22.9%	n/a	n/a
3	Option 1 - 13,503 dwellings	127,600	145,500	n/a	17,800	14.0%	n/a	n/a
4	Option 2 - 13,503 dwellings	127,600	145,500	n/a	17,800	14.0%	n/a	n/a
5	Option 3 - 13,513 dwellings	127,600	142,000	145,000	14,400	11.3%	17,400	13.6%
6	Option 4 - 18,583 dwellings	127,600	152,700	157,500	25,100	19.6%	29,900	23.4%

Source: Research & Intelligence, Kent County Council
All figures have been individually rounded to the nearest hundred
Percentages have been calculated using unrounded figures

The zero net migration scenario projects the lowest population growth over the period 2006-2031 with an increase of 8,000 people. This is expected given that this projection constrains growth to natural change only, therefore reflecting existing population growth.

Looking to 2031 only, the 5-year trend projects the highest population growth over the 25-year period with an increase of 29,300 people. This trend is based on a higher migration level than the migration levels generated from each of the four housing-led scenarios.

However, looking post-2031, SWBC Option 4 forecasts the highest population growth. By 2036 the population of the SWBC area is forecast to have reached 157,500 (an increase of 29,900 people since 2006).

As one would expect, the population growth generated from each of the scenarios follows broadly the same pattern as that for dwelling growth (section 5.1.1). However, population does not grow at exactly the same rate as dwellings – on the whole population grows at slower rate than dwellings due to changes in household formation patterns. This issue will be discussed in further detail in the next section (5.1.3).

Looking at overall population growth alone is not sufficient for making an assessment of Swale's future demographics. The age profile of the population will differ slightly for each of the scenarios, which in turn will have an impact on Swale's future labour supply. This issue will be discussed in further detail in section 5.1.5 and 5.2.1.

5.1.3 Changing household size

Population growth is projected to grow at a slower rate than dwelling growth. This is due to two factors.

Firstly, the forecasts assume a degree a vacancy. That is not all of the dwellings will be accommodated. Vacancy is assumed to be 1.4% which is based on current vacancy rates and an allowance for second homes. The vacancy rate is held constant throughout the whole forecasting period.

Secondly, and more influential, are the changes taking place to household formation patterns, causing the population to grow at a slower rate than dwellings. For example, a single dwelling today will on average be occupied by a larger household than it will in 20 years time.

In 2006 the average size of a Swale household was 2.38 persons. By 2031 the average household size in Swale could have fallen to 2.13 persons per hectare depending on which of the six scenarios is considered. Table 5 outlines the change in average household size for each scenario.

Table 5: Current and potential future average household size for Swale

Scenario		Persons per household		
		2006	2031	2036
1	Zero Net Migration	2.38	2.13	n/a
2	5-year trend	2.38	2.17	n/a
3	Option 1 - 13,503 dwellings	2.38	2.15	n/a
4	Option 2 - 13,503 dwellings	2.38	2.15	n/a
5	Option 3 - 13,513 dwellings	2.38	2.14	2.14
6	Option 4 - 18,583 dwellings	2.38	2.17	2.17

Source: Research & Intelligence, Kent County Council

Average household size is an output variable from the forecasting model, rather than an input variable, hence different forecasts of household size.

Average household size is falling due to a number of factors; an ageing population, increase in divorce rates, decrease in the number of marriages, decrease in births etc. The result is an increase in the number of one person households and decline in family households, reducing average household size. This is illustrated in Table 6 which summarises the change in household type between 2006 and 2031 for each of the scenarios.

Table 6: Change in household type between 2006 and 2031 for each scenario

Scenario		Married couple 2006 to 31		Co-habiting couple 2006 to 31		Lone parent 2006 to 31		One person 2006 to 31		Other multi-person 2006 to 31	
		no.	%	no.	%	no.	%	no.	%	no.	%
1	Zero Net Migration	-2,200	-8.8%	2,600	40.7%	-300	-7.4%	9,000	60.1%	400	17.2%
2	5-year trend	700	2.9%	4,300	67.5%	500	12.8%	11,800	78.9%	700	29.7%
3	Option 1 - 13,503 dwellings	-700	-2.9%	3,200	51.4%	100	1.8%	10,200	68.7%	600	22.7%
4	Option 2 - 13,503 dwellings	-700	-2.9%	3,300	51.7%	100	2.1%	10,200	68.6%	600	22.9%
5	Option 3 - 13,513 dwellings*	-1,300	-5.0%	3,000	47.7%	-100	-1.5%	9,800	65.7%	500	20.7%
6	Option 4 - 18,583 dwellings*	200	0.7%	3,900	61.7%	300	9.2%	11,200	74.9%	700	26.9%

*Options 3 and 4 include a phasing for dwellings post-2031. Household type forecasts are only available up to 2031.
Source: Research & Intelligence, Kent County Council
All figures have been individually rounded to the nearest hundred
Percentages have been calculated using unrounded figures

5.1.4 Migration levels

Two of the six SWBC scenarios are migration-led scenarios. These have been produced by assuming that net migration totals will be at a given level.

The migration levels for the four housing-led options have been calculated by the forecasting model.

A comparison of the generated migration levels from the four housing-led options alongside the levels used to create the migration-led scenarios is outlined in Table 7.

Table 7: Migration assumptions in each of the six scenarios

Scenario		Net persons					Total 2006-2031
		2006-2011	2011-2016	2016-2021	2021-2026	2026-2031	
1	Zero Net Migration	0	0	0	0	0	0
2	5-year trend	3,700	3,700	3,700	3,700	3,700	18,500
3	Option 1 - 13,503 dwellings	100	6,600	5,600	-1,000	-3,900	7,500
4	Option 2 - 13,503 dwellings	100	5,700	5,800	-400	-3,600	7,600
5	Option 3 - 13,513 dwellings*	100	5,000	2,600	-1,100	-1,800	4,900
6	Option 4 - 18,583 dwellings*	100	6,200	5,400	2,800	0	14,500

*Options 3 and 4 include a phasing for dwellings post-2031. Migration forecasts are only available up to 2031.

Source: Research & Intelligence, Kent County Council

All figures have been individually rounded to the nearest hundred

Whilst the migration controls for both the zero net migration and 5-year migration trend projection were held constant throughout the whole of the forecasting period, the generated migration assumptions for the four housing-led scenarios are dependent on the phasing of housing used to create the forecast.

The largest amount of housing to be built in all four housing-led scenarios was in the periods 2011-2016 and 2016-2021, which explains the high levels of net migration in these periods. For all four housing-led scenarios the level of net migration in these periods exceeds the migration level used to create the 5-year migration trend projection. This suggests that the level of housing growth planned for 2011-2021 in all four of the housing-led scenarios is also higher than the levels experienced historically.

Beyond 2021 the number of dwellings planned for construction diminishes in all four of the housing-led scenarios but to different extents. For SWBC Options 1-3 the planned number of houses in the periods 2021-2026 and 2026-2031 (outlined in Table 1) is at a level that will lead to net outward migration. In effect the forecast is suggesting that within these options an insufficient number of dwellings are planned after 2021 to accommodate Swale's future housing needs, resulting in people leaving the Borough to live elsewhere. Swale may wish to consider whether the profile of dwelling completions in these housing scenarios is realistic, or whether a smoother profile would better match the current market conditions and longer term housing needs.

SWBC Option 4 does not lead to net outward migration post-2021. However, the housing provision does lead to a reduced level of net inward migration in the period 2021-2026 and to a balance of inward and outward migration in the period 2026-2031.

Whilst it is useful to look at the overall net migration levels, it is also helpful to look at the age profile of the migrants as this will have an impact on the overall age profile of the population and thus available labour supply.

Table 8 outlines the total number of net migrants generated from each of the scenarios by their age group.

Table 8: Age profile of net migrants between 2006 and 2031 for each scenario

	Net migrant total 2006-2031				
Age group	5-year migration trend	Option 1 - 13,503 dwellings	Option 2 - 13,503 dwellings	Option 3 - 13,513 dwellings*	Option 4 - 18,583 dwellings*
0-- 4	3,300	2,200	2,200	1,900	3,000
5-- 9	1,700	800	800	600	1,400
10-- 14	2,100	1,300	1,300	1,200	1,800
15-- 19	-1,000	-1,600	-1,600	-1,700	-1,200
20-- 24	-6,300	-7,200	-7,200	-7,400	-6,600
25-- 29	2,300	1,000	1,100	700	1,900
30-- 34	3,600	2,400	2,400	2,100	3,100
35-- 39	2,500	1,500	1,500	1,300	2,100
40-- 44	2,000	1,300	1,300	1,100	1,700
45-- 49	3,000	2,500	2,500	2,300	2,800
50-- 54	1,400	1,000	1,000	900	1,300
55-- 59	200	-200	-200	-300	100
60-- 64	900	500	500	500	800
65-- 69	800	600	600	500	700
70-- 74	300	100	100	100	200
75-- 79	400	300	300	200	400
80-- 84	500	300	300	300	400
85 +	900	700	700	700	800
All Ages	18,500	7,500	7,600	4,900	14,500

*Options 3 and 4 include a phasing for dwellings post-2031. Migration forecasts are only available up to 2031.

Source: Research & Intelligence, Kent County Council

All figures have been individually rounded to the nearest hundred

Percentages have been calculated using unrounded figures

The same migrant profile has been used to create the forecasts although the migrant age/ sex structure has been set to propensities. This means that the probability of an age/ sex band in the source population generating a migrant is kept constant.

On the whole the age profile of migrants is similar in all five of the scenarios (zero net migration is not included in this analysis as it is inapplicable). However, the number of migrants by each age group varies in each of the scenarios as you would expect.

All five scenarios show a net outflow of people aged 15-24 years from the Borough. This represents the outflow of people leaving the Borough to go to university. SWBC Options 1-3 also show a net outflow of people aged 55-59.

Swale is forecast to see net inward migration for all remaining age groups in all five of the scenarios.

The net migrant profile for SWBC Options 1 and 2 are identical due to the overall housing provision for these two scenarios being identical during the period 2006-2031.

Although SWBC Option 3 is based on a similar housing quantity to Options 1 and 2, Option 3 covers a longer time period 2006-2036. However, as stated in the methodology section, it is not possible to forecast the migration assumptions beyond 2031. Therefore the migration levels for Option 3 will be higher than that shown in Table 8 if the full forecasting period is considered. This also applies to Option 4.

The inward migration of the working age groups is of particular importance to Swale's future labour supply. However, before we look at labour supply in more detail, we should first consider the impact of the migration profile on the overall future population profile of Swale.

5.1.5 Population age profile

Section 5.1.2 outlined the total population growth of each of the six SWBC scenarios. However, there will be some significant changes to the age profile of Swale's future population as a result of the migrant age/sex profile, changes to fertility and mortality, and linked to this an ageing population.

Table 9 outlines the change in population by 5-year age group over the period 2006 to 2031 for each of the six scenarios.

Table 9: Population change by age group between 2006 and 2031 for each scenario

Age group	Net increase in people 2006-2031					
	Zero net migration	5-year migration trend	Option 1 - 13,503 dwellings	Option 2 - 13,503 dwellings	Option 3 - 13,513 dwellings*	Option 4 - 18,583 dwellings*
0-- 4	-200	1,500	400	500	200	1,200
5-- 9	-400	1,400	500	600	200	1,200
10-- 14	-700	1,000	300	300	-100	800
15-- 19	-400	1,200	500	500	200	900
20-- 24	400	1,500	600	600	600	1,100
25-- 29	-700	600	-700	-700	-700	100
30-- 34	-1,200	400	-700	-700	-1,000	100
35-- 39	-2,100	-300	-1,000	-1,000	-1,400	-400
40-- 44	-2,600	-900	-1,600	-1,600	-2,000	-1,200
45-- 49	-1,100	400	-300	-300	-600	100
50-- 54	-300	900	400	400	100	700
55-- 59	-900	200	-300	-300	-500	0
60-- 64	2,000	2,900	2,400	2,400	2,300	2,700
65-- 69	3,600	4,200	3,900	3,900	3,800	4,100
70-- 74	2,600	3,000	2,800	2,800	2,800	2,900
75-- 79	2,200	2,600	2,400	2,400	2,300	2,500
80-- 84	3,500	3,700	3,600	3,600	3,500	3,700
85 +	4,400	4,800	4,500	4,500	4,500	4,700
All Ages	**8,000**	**29,300**	**17,800**	**17,800**	**14,400**	**25,100**

*Options 3 and 4 include a phasing for dwellings post-2031. Population forecasts by age are only available up to 2031.

Source: Research & Intelligence, Kent County Council

All figures have been individually rounded to the nearest hundred

Percentages have been calculated using unrounded figures

The zero net migration projection illustrates how Swale' population is naturally going to age. The projection shows a decrease in the working age population. The working age population are the main child bearing age group and therefore a decline in this population group also leads to a decline in the number of children. In contrast the number of people aged 60+ is naturally projected to increase over the period 2006 to 2031.

Whilst the four SWBC housing-led options showed a net in-flow of working age people, there is forecast to be an overall decline in the population aged 25-49, (although to a lesser extent in Option 4). This is because the Borough's existing population is ageing. Despite this, the decline is not to such an extent that it leads to a decreasing child population. The population aged 0-24 is forecast to increase in all four housing-led options. Fertility rates in Swale are highest amongst those aged 20-29. The number of 20-24 year olds is forecast to increase in all four housing-led options. Whilst the increase in 20-24 year olds may be as a result of natural ageing in the population, it can also be attributed to younger families, usually with children, who typically move in to new housing estates. Section 5.1.4 illustrated that Swale's migrant profile is relatively young.

All four SWBC housing-led options show the largest real increases in the population aged 60+.

Charts 5 to 10 compare the age profile of Swale in 2006 and 2031 for each of the scenarios.

Proportionately, the population of working age is declining between 2006 and 2031, whereas the retirement age population is proportionately increasing.

The next section (5.2) will demonstrate the impact of Swale's changing age profile on future labour supply.

Chart 5

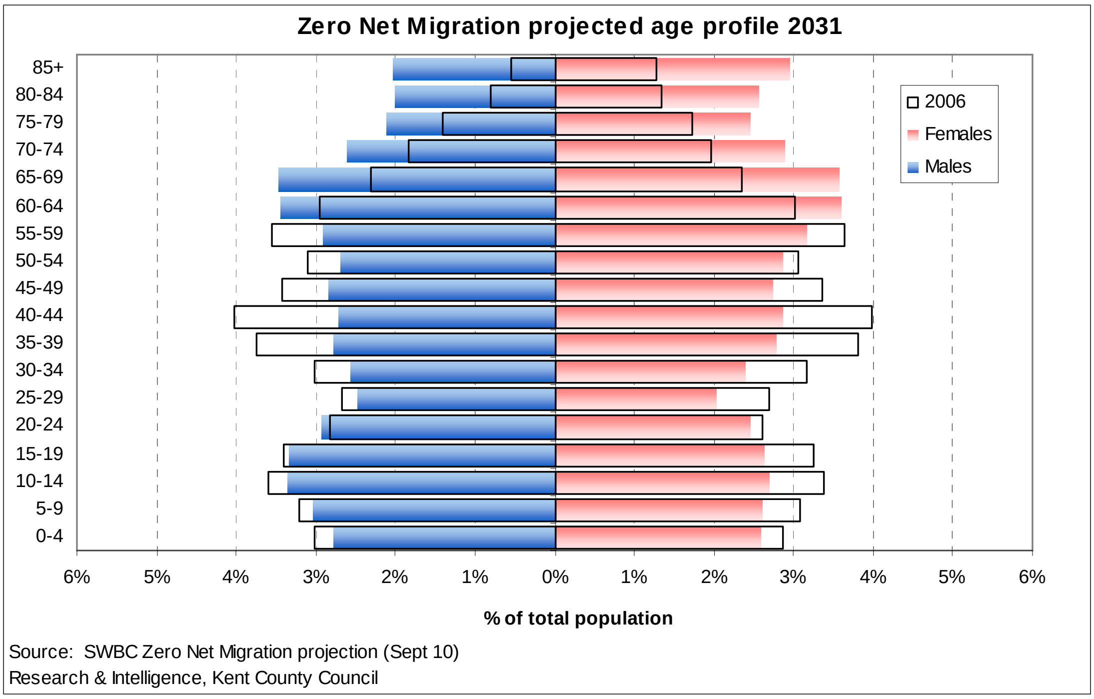


Chart 6

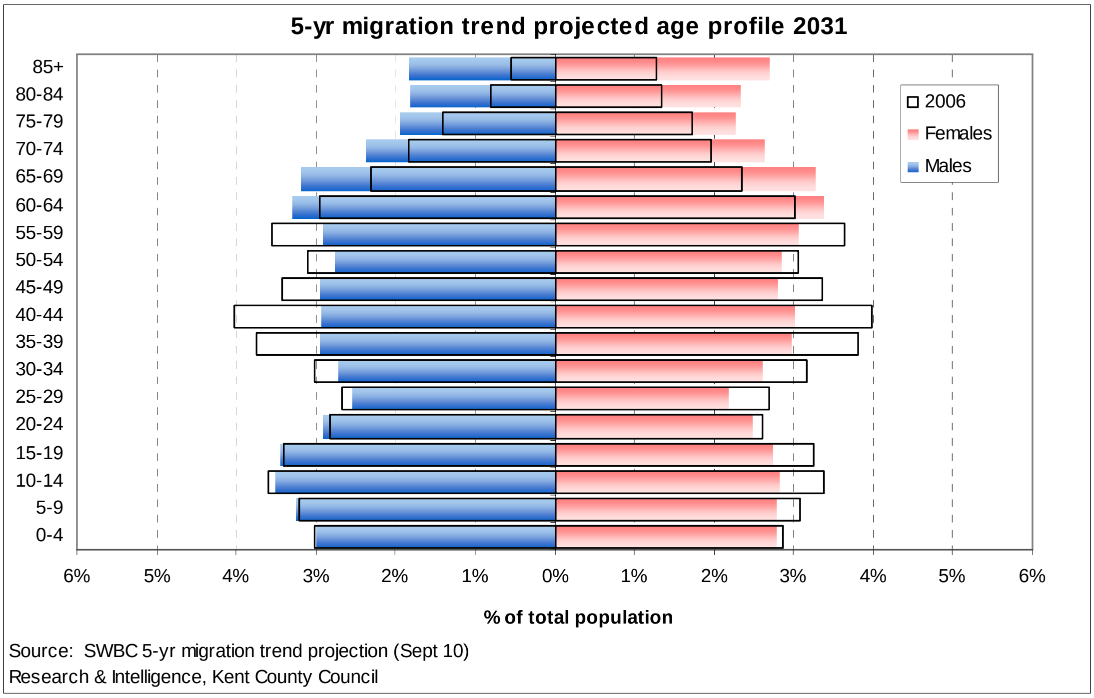


Chart 7

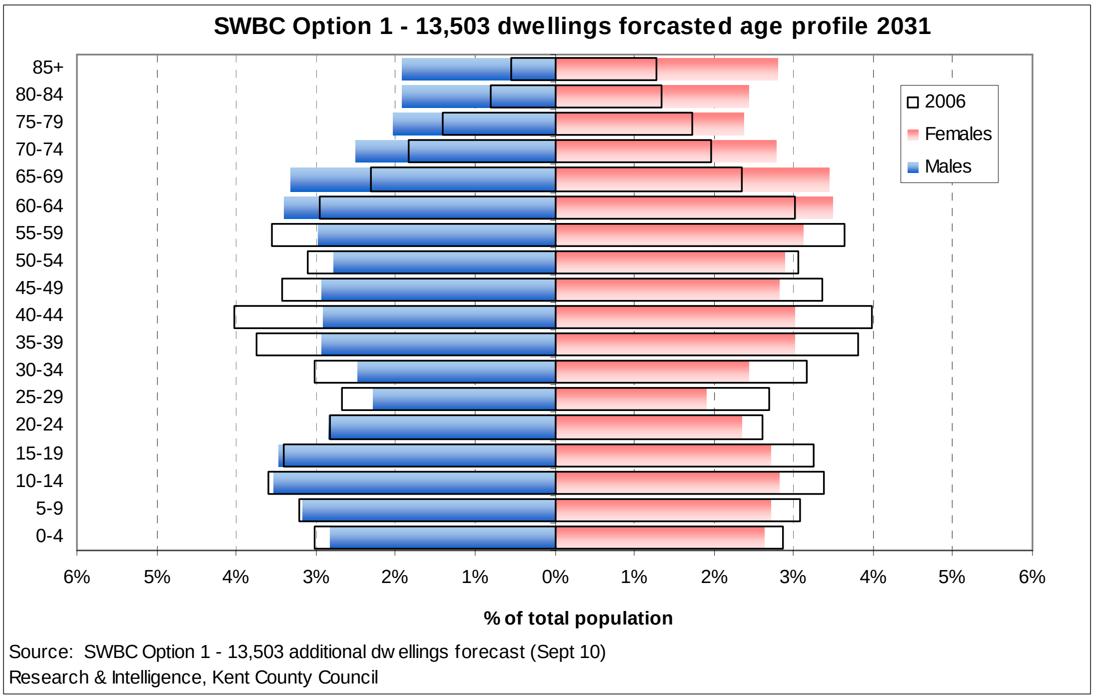


Chart 8

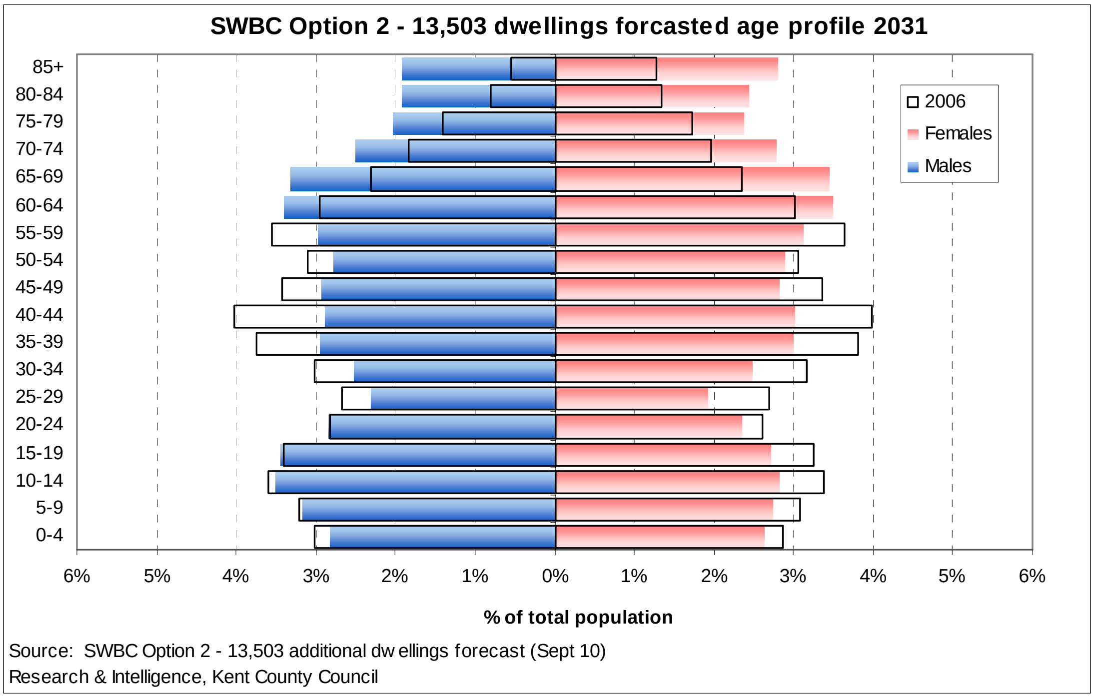


Chart 9

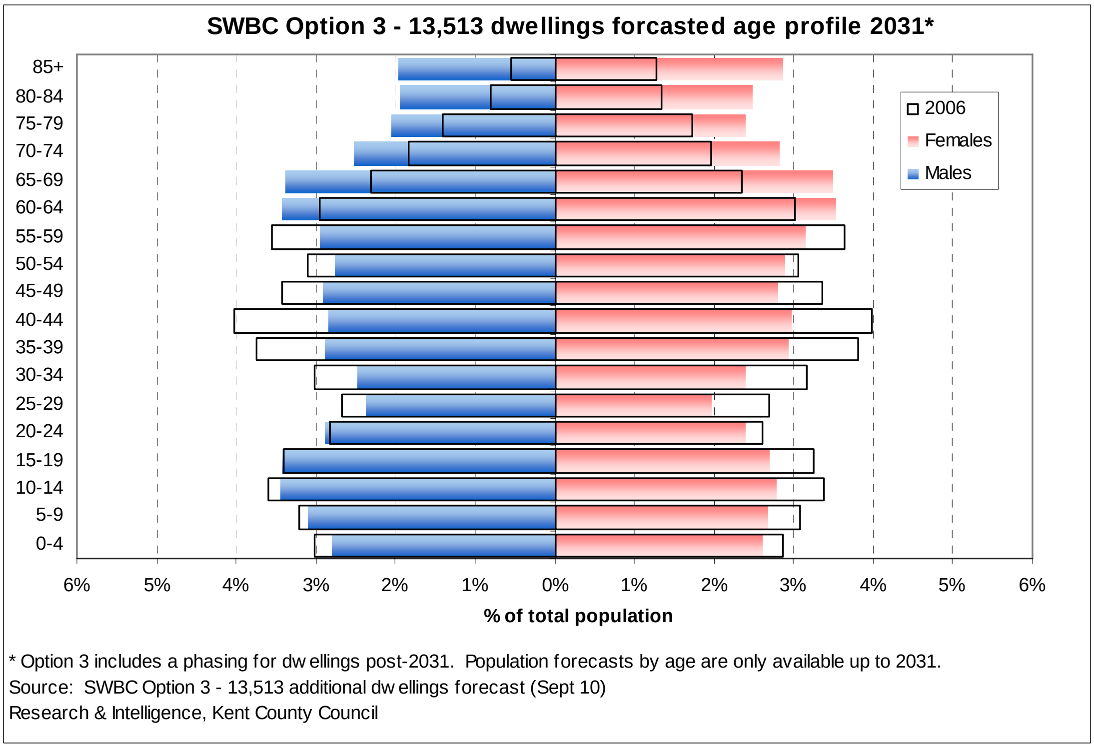
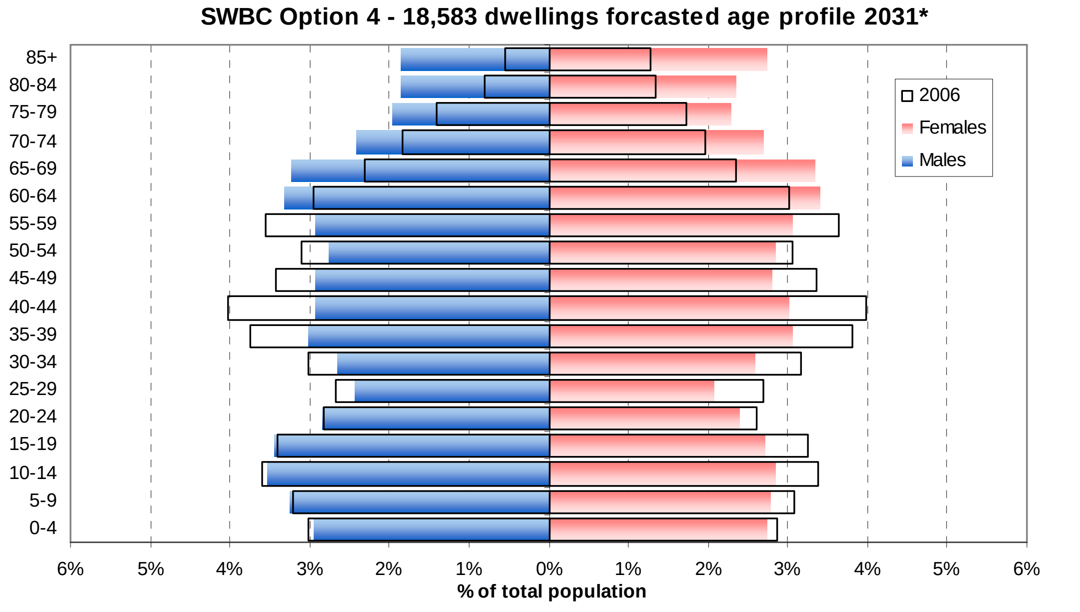


Chart 10



* Option 4 includes a phasing for dwellings post-2031. Population forecasts by age are only available up to 2031.
Source: SWBC Option 4 - 18,583 additional dwellings forecast (Sept 10)
Research & Intelligence, Kent County Council

5.2 Labour supply analysis

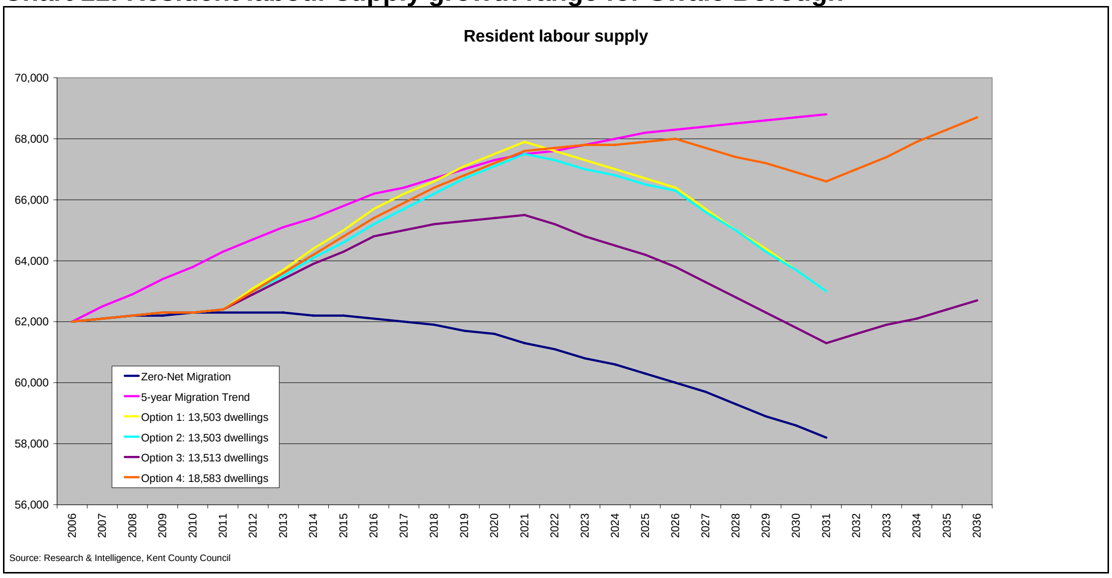
5.2.1 Resident labour supply

In 2006 there were estimated to be 62,000 economically active Swale residents (i.e. in work or seeking work). By 2031 there could be between 58,200 and 68,800 economically active residents dependent on which of the six scenarios is considered.

For the lowest of these projections, there would be a reduction in resident labour of -6.1% (3,800 fewer people). For the highest, it is equivalent to a growth of 11.0% (an additional 6,800 people). These two extremes are derived from the zero-net migration and the short term trend migration scenarios respectively.

Chart 11 presents the growth range of resident labour supply for Swale based on the six scenarios.

Chart 11: Resident labour supply growth range for Swale Borough



As growth in labour supply is strongly dependent on the changing demographic profile, it is not surprising that the each of the scenarios follows a similar growth pattern to that seen in the previous demographic section. The zero net migration scenario projects the lowest increase in labour supply, whereas the 5-year migration trend projects the highest. The profile for Options 1 and 2 are almost identical, while Option 4 generates the highest quantity of additional labour. Three of the four Options result in rapid increase in labour supply to 2021, followed by a decline as dwelling numbers reduced significantly. The exception is Option 4 that peaks in 2026. Options 3 and 4 both extend to 2036 and therefore see an additional boost in the labour as a result of the proposed increase in housing supply between 2031 and 2036.

Table 10 outlines the future resident labour supply for each scenario and change between 2006 and 2031.

Table 10: Change in resident labour supply between 2006 and 2031/36 for each scenario

Scenario	2006	2031	No.	%
ZNM	62,000	58,200	-3,800	-6.1
STM	62,000	68,800	6,800	11.0
Option 1: 13,503 dwellings	62,000	63,000	1,000	1.6
Option 2: 13,503 dwellings	62,000	63,000	1,000	1.6
Option 3: 13,513 dwellings	62,000	61,300	-700	-1.1
Option 4: 18,583 dwellings	62,000	66,600	4,600	7.4

Scenario	2006	2036	No.	%
Option 3: 13,513 dwellings	62,000	62,700	700	1.1
Option 4: 18,583 dwellings	62,000	68,700	6,700	10.8

Source: Research & Intelligence, Kent County Council
All figures have been rounded to the nearest 100

Swale's future resident labour supply is discussed in more detail in the context of labour demand in Sections 5.2.4 and 5.2.5.

5.2.2 Workplace labour supply

As mentioned in the methodology section, a 2001 Census workplace ratio figure has been used to convert the resident labour supply to a workplace-based labour supply. This gives an approximation to the likely number of people looking for work in Swale as it allows for a proportion of the resident population to commute elsewhere for work and for those outside the area to commute in.

Overall, Swale was a net exporter of labour in 2001, as Table 11 shows, with a workplace ratio (the ratio of resident workers to workplace workers) of .8293. Those with a ratio less than 1.0 export labour while those with a ratio greater than 1.0 import labour.

In a recent R&I research paper entitled, "Updating the 2001 Census journey to work matrix (September 2010)", estimates of journey to work movements at 2010 were calculated, based on updated numbers of residents in employment and updated numbers of jobs. This enables the calculation of updated workplace ratios. These are shown alongside the 2001 Census ratios in Table 1

Table 11: 2001 Census workplace ratios and estimated 2010 workplace ratios

	2001	2010
Workplace ratio	0.8293	0.8108

Table 11 shows that there is likely to have been a decrease in the workplace ratio in Swale post 2001. The research looked at this in total only and did not examine the changes by gender or by age. For this reason, the workplace labour supply forecasts continue to be based on the 2001 Census figure. However, the research suggests that, in numerical terms, the net out-flow of workers from Swale could have already increased from 9,500 people in 2001 to 11,025 in 2010.

In 2006 there were an estimated 51,300 economically active people working in Swale Borough if the workplace ratio is held constant at its 2001 level. By 2031 there could be between 48,200 and 56,900 people depending on which of the six scenarios is considered.

For the lowest of these projections (the Zero-net Migration option) this is the equivalent of drop of -6.0% (3,100 fewer people). For the highest, it is equivalent to a 10.9% increase (an additional 5,600 people).

Chart 12 presents the growth range of workplace labour supply for Swale based on the six scenarios.

Chart 12: Workplace labour supply growth range for Swale Borough

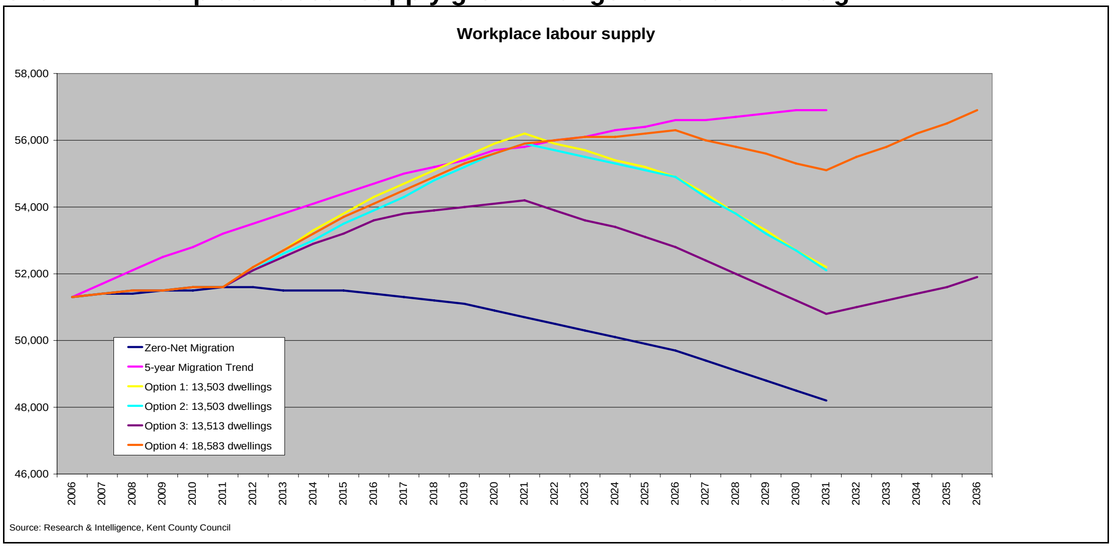


Table 12 outlines the future workplace labour supply for each scenario and change between 2006 and 2031/36.

Table 12: Change in workplace labour supply between 2006 and 2031/36 for each scenario

Scenario	2006	2031	No.	%
Zero-Net Migration	51,300	48,200	-3,100	-6.0
5-year Migration Trend	51,300	56,900	5,600	10.9
Option 1: 13,503 dwellings	51,300	52,200	900	1.8
Option 2: 13,503 dwellings	51,300	52,100	800	1.6
Option 3: 13,513 dwellings	51,300	50,800	-500	-1.0
Option 4: 18,583 dwellings	51,300	55,100	3,800	7.4

Scenario	2006	2036	No.	%
Option 3: 13,513 dwellings	51,300	51,900	600	1.2
Option 4: 18,583 dwellings	51,300	56,900	5,600	10.9

Source: Research & Intelligence, Kent County Council
All figures have been rounded to the nearest 100

Swale's future workplace labour supply is discussed in more detail in the context of labour demand in Sections 5.2.4 and 5.2.5.

5.2.3 Sensitivity testing of labour supply

A paper produced by Research & Intelligence (R&I) entitled "Economic Forecasts – supply and demand (August 2010)", explored the balance between supply and demand, using employment forecasts from Experian and comparing them with the R&I labour supply forecasts. In this paper, sensitivity testing explored the impact of potential changes in the labour market that might increase labour supply beyond the forecast level.

This paper explored the potential for additional labour to be generated by; an increase in those with more than one job (which would reduce the gap that may exist between supply and demand), a reduction in 2001 Census out-commuting levels (to retain a higher proportion of the area's resident labour) and a reduction in the estimated impact of high-speed rail services drawing commuters to Ebbsfleet.

This work, which was based on the strategy-based population forecasts consistent with the South East Plan (Sept. '09), suggested the potential for an increase of 1,500 people in the workplace labour supply in Swale, by 2026 if local employment growth created the demand for more labour.

5.2.4 Labour demand/ Job Growth

Employment land

Swale has created a number of potential employment land supply options to set the scale of development for the purposes of economic development planning. This has taken the form of 4 schedules setting out the phased development of sites by Use Class, to 2031/36, alongside the 4 housing options. This is set out in Annexes 1 and 2. As with housing, these simply represent possible examples and should not be viewed as the Council's policy.

Annex 1 contains an assessment of the jobs likely to be generated by existing commitments. This was provided by Swale Borough Council and is taken from their Employment Land Study and Job Capacity Study. The table provides a breakdown of they key sites by Use Class, based on applying standard floorspace per worker ratios.

The floorspace ratios employed by Swale are broadly in line with those published in the Arup/English Partnerships report. Generating potential job numbers from raw land or floorspace figures carries an element of risk, as in practice both occupation and density are largely beyond the Borough's control. For this reason these figures should be used an indicative only.

Annex 2 sets out the development scenarios for each of the 4 options.
It draws on the data supplied in Annex I, specifically the Use Class split of the existing commitments, which is applied to the phased total commitments from the Swale Employment Land Review and in then combined with the phased Options data, where the Use Class data was not available. This is a fairly broad-brush approach but is sufficient to derive a reasonable job potential for each of the Options.

However, it should be noted that this approach does not take account of potential changes in other employment sectors; the public sector, leisure and other services for example.

5.2.5 Comparing labour supply and demand

As well as comparing labour supply and demand within Swale, SWBC have also asked us to consider labour supply in the context of their economic development quantities associated with each of the dwelling options.

Quantifying demand (jobs)
Annex 2 sets out the process of estimating the phased number of jobs that could be generated by each of the 4 options. This is summarised in Table 13.

Table 13: Summary of potential job generation for each Option

Year	Option 1	Option 2	Option 3	Option 4
06/07 – 10/11	6,500	6,500	6,500	7,000
11/12 – 15/16	4,400	4,400	5,000	6,300
16/17 – 20/21	4,500	4,500	8,500	9,800
21/22 – 25/26	3,000	3,100	8,100	7,400
26/27 – 30/31	2,400	2,400	3,800	1,400
Post 2031	0	0	5,000	5,000
Total	20,800	20,800	36,900	36,900

Source: Estimates produced by Research & Intelligence
Numbers rounded to the nearest 100

Quantifying the availability of labour

The forecast options for resident labour supply were summarised in the Table 10 (page 28). This showed that the maximum labour generated by the various housing options was under Option 4, which is forecast to produce an additional 4,600 jobs by 2031 rising to 6,700 by 2036.

However, it is the workplace labour supply that is the most appropriate measure of the likely labour available to fill jobs in Swale. As Swale is a net exporter of labour, this measure shows a lower level of labour growth. Under Option 4 this would mean an increase in workplace labour of 3,800 by 2031 rising to 5,600 by 2036.

Clearly, this is well below the job potential identified in Borough's employment land review.

Where could additional labour come from?

Potentially, the creation of additional jobs in an area could change existing travel to work patterns by drawing on labour from neighbouring areas, provided the labour is available within those areas.

Table 14 shows the top 10 places which currently supply Swale's labour and shows their forecast resident labour supply growth 2006-2026.

Table 14: Top 8 areas which currently supply Swale's labour

Those working in Swale by where they live 2010 [1]			Labour Supply forecast (Sept '09) [2]			
			2006	2026	No.	%
Swale	37,110	78.5	62,600	63,600	1,000	1.6
Medway UA	3,155	6.7	131,500	132,000	500	0.4
Canterbury	2,355	5.0	71,300	75,500	4,200	5.9
Maidstone	1,015	2.1	74,200	79,200	5,000	6.7
Ashford	625	1.3	55,500	75,300	19,800	35.7
Greater London	585	1.2	n/a	n/a	-	-
Thanet	455	1.0	55,700	54,100	-1,600	-2.9
Dover	405	0.9	49,000	49,900	900	1.8
Tonbridge & Malling	365	0.8	58,300	60,900	2,600	4.5
Gravesham	235	0.5	48,200	51,600	3,400	7.1

[1] Estimated by Research & Intelligence, Kent County Council
[2] Strategy Forecast - South East Plan (Sept '09), Research & Intelligence, Kent County Council

These forecasts are based on the last "top down" set of forecasts that are consistent across the whole of Kent. They are based on the South East Plan housing quantities (KCC Strategy forecasts, Sept. '09).

This data shows that the problem of an ageing workforce has a significant impact on some of the neighbouring areas that supply Swale with labour. Medway in particular is likely to suffer a slowdown in the growth of its workforce, which is forecast to grow by only 500 over this period. Thanet is forecast to experience a decline in its workforce. The neighbouring Districts of Maidstone and Canterbury could supply Swale with additional labour, but not to the level that would be required to fill the estimated job potential that could be generated by the employment land sites.

Potentially, additional labour might be generated from the recently introduced measures to end a statutory retirement age. The extent to which this would affect the analysis presented here is not clear yet but allowances are already made in these forecasts for those who currently work beyond the standard retirement age (previously 65) up to the age of 74.

Activity rates in the age bands beyond 65 are currently at a very low and it is questionable whether even doubling the rates currently assumed would have a major impact on labour availability. A revised set of national activity rate forecasts are due sometime in 2011 (the exact timing of the release is not yet known) and R&I will be revising its labour supply forecasts when this information becomes available.

6. Conclusion

Forecasting is always full of uncertainty. Even in demographic forecasts, where variables such as birth and death rates, fertility rates and average household size tend to change relatively slowly and on fairly predictable paths, there is still a degree of uncertainty and they can only be based on information that is known at the time of their production. Nevertheless, forecasts are an important tool for planning purposes and provide a valuable insight into potential outcomes and some broad conclusions can be made, based on the available evidence.

The current assessment of Swale's future demographics have shown that SWBC needs to build at least 9,500 dwellings between 2006 and 2031 in order to meet the needs of Swale's existing population (the zero-net migration option). Any additional homes built above this level would imply continuing net in-migration. However the potential quantity of job opportunities generated by the economic development options being assessed are considerably above that which can be met by the resident labour supply generated by the housing options being tested.

It is therefore highly unlikely that the level of job growth set out in the Economic Development options could be achieved, even with the high dwelling option.

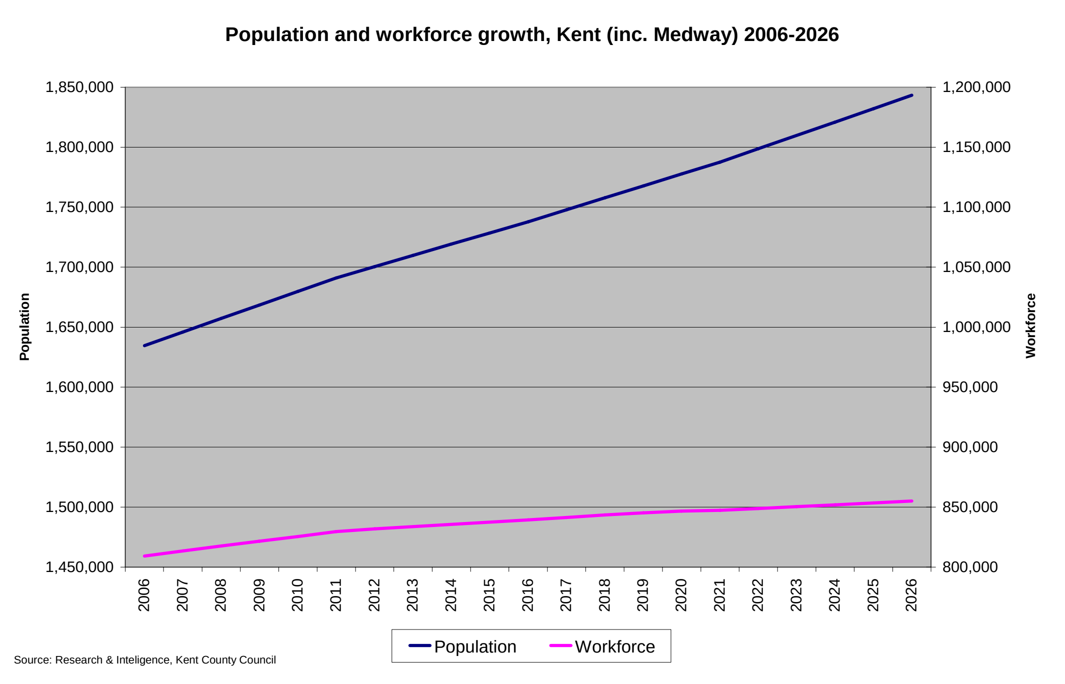
However, there is some benefit in having an employment land capacity in excess of that required by the local labour supply. This is necessary to allow existing companies to expand or move to better premises and provides the necessary scope to recycle or upgrade the stock of employment floorspace.

To put the scale of Swale's potential job growth in the context of overall labour growth in Kent; the resident labour growth in Kent (including Medway) is expected to be in the order of 45,900 between 2006 and 2026. Under Options 1 and 2, Swale is making provision for approximately 18,400 jobs between 2006 and 2026. This would require 40% of all the resident labour growth in Kent. Option 4 generates the highest number of potential jobs by 2026; approximately 30,500. This would require 65% of all the resident labour growth in Kent. This compares the position as far as 2026 only. Swale's employment provision extends to 2031 which is currently beyond the horizon of the Kent forecasts, so it is difficult to assess the extent of Swale's requirement the Kent's overall labour availability.

No separate account has been taken of the likely "specialist" nature of the labour requirement on the Kent Science Park, which may well draw labour from a much wider area than Swale's immediate neighbours. Nevertheless, the issue of reduced labour availability in the future applies nationally.

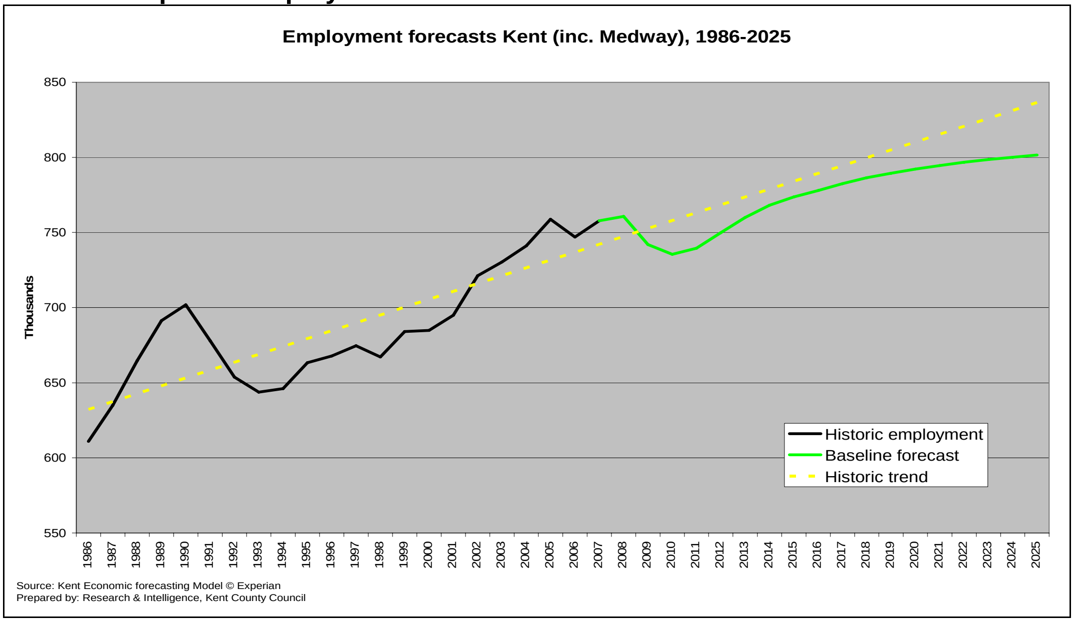
Chart 13 shows that the overall population growth in Kent is expected to continue while workforce growth slows down, widening the gap between total population and workforce.

Chart 13: Population versus workforce growth in Kent



This consequence is supported by independent employment forecasts from Experian that show overall job growth in Kent slowing down compared to the long-term trend, as the country emerges from recession and the impact of the demographic effects of the ageing population constrain growth. See Chart 14.

Chart 14: Experian employment forecasts for Kent



There are many uncertainties regarding future employment growth, especially in light of the substantial reductions in public sector employment proposed by the coalition government. With a moderate dependence on public sector employment (19.7% as at 2008), the Borough is still potentially vulnerable to job losses and/or shifts in sectoral structure. This may also affect many of the assumptions that underpin this analysis, such as future job numbers and journey to work patterns as well as much broader issues regarding overall economic growth and the level of unemployment.

Potentially, the forecast imbalance between demand and supply for labour could be reduced by clawing back a proportion of those who currently commute out of Swale Borough for work, mainly to London (estimated to be around 5,000 people), Medway (4,800) and Maidstone (3,000) in order to provide additional labour locally. However, this is unlikely to have a significant effect unless the types of jobs that these out-commuters seek (especially those who commute to London) can be provided locally and on a scale large enough to attract more residents to work locally. But this alone will be insufficient to fully balance the equation.

It is an "inconvenient truth" that one of the key economic impacts of the ageing population, is a slowdown in the growth of the workforce, which will occur over the next 25 years. This, combined with a fragile economy, a potential shift from public to private sector employment and the potential for slow economic growth nationally, at least in the short term, make it unlikely that this level of job growth will be achieved. Regardless of the amount of land available and the potential to create jobs, at the end of the day, a job is only really a job if there is someone to fill it, so a more realistic consideration of the actual delivery of jobs from employment sites would seem justified.
It is hoped that this paper will provide valuable evidence to SWBC and assist them to further assess the demographic and economic impacts of the options currently being considered with regards to future economic and housing growth.

SWBC may wish to revisit the economic activity forecasts when new national forecasts are released (likely to be later in 2011) to fully assess the impact of ending statutory retirement age.

SWBC may also want to consider how wide the Kent Science Park labour catchment might be and the extent to which those areas could provide labour.

7. Further information

For further information or any questions relating to the content of this report please contact KCC's Research & Intelligence team.

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Updating the 2001 Census journey to work matrix (September 2010), Research & Intelligence, Kent County Council.

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Employment Densities: A full guide (July 2001), Arup Economics+Planning/ English Partnerships.

Annex1

Estimated jobs from existing commitments provided by Swale BC

Use	Site area (ha)	B1(a)	Mixed B1	B1(c)	B2	B8	Mixed B	All
KCC sites		45,000	138,500	17,500	181,200	140,400	116,000	638,600
Adjust to B Uses		**B1(a)**	**B1(b)**	**B1c**	**B2**	**B8**		**All**
KCC sites		**96,055**	**5,540**	**116,805**	**187,000**	**233,200**		638,600
Kemsley Fields/Ridham						100,000	0	100,000
Neats Court, Sheppey	21	7,000				61,300		68,300
Stapehurst Rd, Sittingbourne	1	4,000						4,000
East of Whitway Rd, Sheppey	11	0			49,000			49,000
Western Link, Faversham	8	5,600		11,100	2,000	1,300		20,000
Total not available		16,600	0	11,100	51,000	162,600	0	241,300
Remaining Land		**79,455**	**5,540**	**105,705**	**136,000**	**70,600**		**397,300**
% split		20.0	1.4	26.6	34.2	17.8		100.0
Apply Job ratio/m2		20	25	34	34	50-80		

		B1(a)	B1(b)	B1(c)	B2	B8		All
Estimated jobs		3,973	222	3,109	4,000	1,041		12,345

Source: Swale Borough Council

Annex2

Phasing options provided by Swale BC and estimation of job potential

OPTION 1	**Dwellings**							
	06/07 – 10/11	11/12 – 15/16	16/17 – 20/21	21/22 – 25/26	26/27 – 30/31	Post 2031	**Notes/totals**	
Housing completions	2,096	0	0	0	0	0	2,096 From AS phasing	
Extant planning permissions	350	1,585	142	0	0	0	2,077 From 08/09 SHLAA	
SHLAA 08/09	0	1,969	2,052	809	0	0	4,830	
New sites to meet option 1	0	1,400	2,310	790	0	0	4,500	
TOTAL HOUSING	**2,446**	**4,954**	**4,504**	**1,599**	**0**	**0**	(total) 13,503	
Existing employment commitments (from ELR) - sq. m.	203,363	95,000	95,000	95,000	74,839	0	563,202 (397,839 is existing commitments)	563,202
New employment sites to meet option 1 - sq. m.	A 0	A 18,000	A 20,950	A	A	A		
	B1a 0	B1a 4,000	B1a 2,000	B1a	B1a	B1a		
	B1b 0	B1b 4,000	B1b 2,000	B1b	B1b	B1b		
	B1c 0	B1c 4,000	B1c 2,000	B1c	B1c	B1c		
	D 0	D 0	D 5,000	D	D	D		
	B2 0	B2 0	B2 0	B2	B2	B2		
	B8 0	B8 0	B8 0	B8	B8	B8		
Total new sites sq. m	0	30,000	31,950	0	0	0	61,950	
TOTAL EMPLOYMENT FLOORSPACE sq. m.	**203,363**	**125,000**	**126,950**	**95,000**	**74,839**	**0**	**625,152**	

Estimated Use Class split based on existing comittments							**Total floorspace**	**%**
B1(a)	40,670	18,999	18,999	18,999	14,967	0	112,633	20.0
B1(b)	2,836	1,325	1,325	1,325	1,044	0	7,853	1.4
B1(c)	54,106	25,276	25,276	25,276	19,912	0	149,845	26.6
B2	69,613	32,520	32,520	32,520	25,618	0	192,790	34.2
B8	36,137	16,881	16,881	16,881	13,299	0	100,081	17.8
Total	203,363	95,000	95,000	95,000	74,839	0	563,202	

Assumes Use Class split from existing commitments.

Estimated jobs from existing commitments (from ELR)							**Total jobs**
B1(a)	2,034	950	950	950	748	0	5,632
B1(b)	113	53	53	53	42	0	314
B1(c)	1,591	743	743	743	586	0	4,407
B2	2,047	956	956	956	753	0	5,670
B8	723	338	338	338	266	0	2,002

Phased jobs from Option 1								**Density**
B1(a)	0	200	100	0	0	0	300	20
B1(b)	0	160	80	0	0	0	240	25
B1(c)	0	118	59	0	0	0	176	34
B2	0	0	0	0	0	0	0	34
B8	0	0	0	0	0	0	0	50
A	0	900	1,048	0	0	0	1,948	20
D	0	0	125	0	0	0	125	40

TOTAL JOBS ESTIMATE FOR OPTION 1							
B1(a)	2,034	1,150	1,050	950	748	0	5,932
B1(b)	113	213	133	53	42	0	554
B1(c)	1,591	861	802	743	586	0	4,584
B2	2,047	956	956	956	753	0	5,670
B8	723	338	338	338	266	0	2,002
A	0	900	1,048	0	0	0	1,948
D	0	0	125	0	0	0	125
Total all uses	**6,508**	**4,418**	**4,452**	**3,040**	**2,395**	**0**	**20,814**

Phasing options provided by Swale BC and estimation of job potential

OPTION 2	**Dwellings**												**Notes/totals**	
	06/07 – 10/11		11/12 – 15/16		16/17 – 20/21		21/22 – 25/26		26/27 – 30/31		Post 2031			
Housing completions		2,096		0		0		0		0		0	2,096 From AS phasing	
Extant planning permissions		350		1,585		142		0		0		0	2,077 From 08/09 SHLAA	
SHLAA 08/09		0		1,969		2,052		809		0		0	4,830	
New sites to meet option 2		0		1,040		2,380		980		100		0	4,500	
TOTAL HOUSING		**2,446**		**4,594**		**4,574**		**1,789**		**100**		**0**	(total) 13,503	
Existing employment commitments (from ELR) - sq. m.		203,363		95,000		95,000		95,000		74,839		0	563,202 (397,839 is existing commitments)	563,202
New employment sites to meet option 2 - sq. m.	A	0	A	18,000	A	20,950	A		A		A			
	B1a	0	B1a	4,000	B1a	2,000	B1a		B1a		B1a			
	B1b	0	B1b	4,000	B1b	2,000	B1b		B1b		B1b			
	B1c	0	B1c	4,000	B1c	2,000	B1c		B1c		B1c			
	D	0	D	0	D	5,000	D		D		D			
	B2	0	B2	0	B2	0	B2	500	B2		B2			
	B8	0	B8	0	B8	0	B8		B8		B8			
Total new sites sq. m		0		30,000		31,950		500		0		0	62,450	
TOTAL EMPLOYMENT FLOORSPACE sq. m.		**203,363**		**125,000**		**126,950**		**95,500**		**74,839**		**0**	**625,652**	

Estimated Use Class split based on existing comittments							**Total floorspace**	**%**
B1(a)	40,670	18,999	18,999	18,999	14,967	0	112,633	20.0
B1(b)	2,836	1,325	1,325	1,325	1,044	0	7,853	1.4
B1(c)	54,106	25,276	25,276	25,276	19,912	0	149,845	26.6
B2	69,613	32,520	32,520	32,520	25,618	0	192,790	34.2
B8	36,137	16,881	16,881	16,881	13,299	0	100,081	17.8
Total	203,363	95,000	95,000	95,000	74,839	0	563,202	

Assumes Use Class split from existing commitments.

Estimated jobs from existing commitments (from ELR)							**Total jobs**
B1(a)	2,034	950	950	950	748	0	5,632
B1(b)	113	53	53	53	42	0	314
B1(c)	1,591	743	743	743	586	0	4,407
B2	2,047	956	956	956	753	0	5,670
B8	723	338	338	338	266	0	2,002

Phased jobs from Option 2								**Density**
B1(a)	0	200	100	0	0	0	300	20
B1(b)	0	160	80	0	0	0	240	25
B1(c)	0	118	59	0	0	0	176	34
B2	0	0	0	15	0	0	15	34
B8	0	0	0	0	0	0	0	50
A	0	900	1,048	0	0	0	1,948	20
D	0	0	125	0	0	0	125	40

TOTAL JOBS ESTIMATE FOR OPTION 2							
B1(a)	2,034	1,150	1,050	950	748	0	5,932
B1(b)	113	213	133	53	42	0	554
B1(c)	1,591	861	802	743	586	0	4,584
B2	2,047	956	956	971	753	0	5,685
B8	723	338	338	338	266	0	2,002
A	0	900	1,048	0	0	0	1,948
D	0	0	125	0	0	0	125
Total all uses	**6,508**	**4,418**	**4,452**	**3,055**	**2,395**	**0**	**20,829**

Phasing options provided by Swale BC and estimation of job potential

OPTION 3	Dwellings							
	06/07 – 10/11	11/12 – 15/16	16/17 – 20/21	21/22 – 25/26	26/27 – 30/31	Post 2031	Notes/totals	
Housing completions	2,096	0	0	0	0	0	2,096 From AS phasing	
Extant planning permissions	350	1,585	142	0	0	0	2,077 From 08/09 SHLAA	
SHLAA 08/09	0	1,969	2,052	809	0	0	4,830	
New sites to meet option 3	0	780	1,090	560	680	1,400	4,510	
TOTAL HOUSING	**2,446**	**4,334**	**3,284**	**1,369**	**680**	**1,400**	(total) 13,513	
Existing employment commitments (from ELR) - sq. m.	203,363	95,000	95,000	95,000	74,839	0	563,202 (397,839 is existing commitments)	563,202
New employment sites to meet option 1 - sq. m.	A 0	A 18,000	A 20,950	A	A	A 9,290		
	B1a 0	B1a 4,000	B1a 2,000	B1a 58,333	B1a 10,000	B1a 19,000		
	B1b 0	B1b 4,000	B1b 2,000	B1b 13,333	B1b 10,000	B1b 19,000		
	B1c 0	B1c 4,000	B1c 32,000	B1c 53,334	B1c 18,360	B1c 19,000		
	D 0	D	D 5,000	D	D	D		
	B2 0	B2 20,000	B2 20,000	B2	B2	B2		
	B8 0	B8	B8 130,000	B8 500	B8	B8 113,600		
Total new sites sq. m	0	50,000	211,950	125,500	38,360	179,890	605,700	
TOTAL EMPLOYMENT FLOORSPACE sq. m.	**203,363**	**145,000**	**306,950**	**220,500**	**113,199**	**179,890**	**1,168,902**	

Estimated Use Class split based on existing comittments							**Total floorspace**	**%**
B1(a)	40,670	18,999	18,999	18,999	14,967	0	112,633	20.0
B1(b)	2,836	1,325	1,325	1,325	1,044	0	7,853	1.4
B1(c)	54,106	25,276	25,276	25,276	19,912	0	149,845	26.6
B2	69,613	32,520	32,520	32,520	25,618	0	192,790	34.2
B8	36,137	16,881	16,881	16,881	13,299	0	100,081	17.8
Total	203,363	95,000	95,000	95,000	74,839	0	563,202	

Assumes Use Class split from existing commitments.

Estimated jobs from existing commitments (from ELR)							**Total jobs**
B1(a)	2,034	950	950	950	748	0	5,632
B1(b)	113	53	53	53	42	0	314
B1(c)	1,591	743	743	743	586	0	4,407
B2	2,047	956	956	956	753	0	5,670
B8	723	338	338	338	266	0	2,002

Phased jobs from Option 3								**Density**
B1(a)	0	200	100	2,917	500	950	4,667	20
B1(b)	0	160	80	533	400	760	1,933	25
B1(c)	0	118	941	1,569	540	559	3,726	34
B2	0	588	588	0	0	0	1,176	34
B8	0	0	2,600	10	0	2,272	4,882	50
A	0	900	1,048	0	0	465	2,412	20
D	0	0	125	0	0	0	125	40

TOTAL JOBS ESTIMATE FOR OPTION 3							
B1(a)	2,034	1,150	1,050	3,867	1,248	950	10,298
B1(b)	113	213	133	586	442	760	2,247
B1(c)	1,591	861	1,685	2,312	1,126	559	8,133
B2	2,047	1,545	1,545	956	753	0	6,847
B8	723	338	2,938	348	266	2,272	6,884
A	0	900	1,048	0	0	465	2,412
D	0	0	125	0	0	0	125
Total all uses	**6,508**	**5,006**	**8,522**	**8,069**	**3,835**	**5,005**	**36,947**

Phasing options provided by Swale BC and estimation of job potential

OPTION 4	**Dwellings**													
	06/07 – 10/11		11/12 – 15/16		16/17 – 20/21		21/22 – 25/26		26/27 – 30/31		Post 2031		**Notes/totals**	
Housing completions		2,096		0		0		0		0		0	2,096 From AS phasing	
Extant planning permissions		350		1,585		142		0		0		0	2,077 From 08/09 SHLAA	
SHLAA 08/09		0		1,969		2,052		809		0		0	4,830	
New sites to meet option 4		0		1,230		2,240		2,240		1,680		2,200	9,590	
TOTAL HOUSING		**2,446**		**4,784**		**4,434**		**3,049**		**1,680**		**2,200**	(total) 18,583	
Existing employment commitments (from ELR) - sq. m.		203,363		135,000		135,000		73,839		0		0	563,202 (397,839 is existing commitments)	563,202
New employment sites to meet option 1 - sq. m.	A	0	A	18,000	A	20,950	A		A		A	9,290		
	B1a	0	B1a	4,000	B1a	2,000	B1a	58,333	B1a	10,000	B1a	19,000		
	B1b	0	B1b	4,000	B1b	2,000	B1b	13,333	B1b	10,000	B1b	19,000		
	B1c	0	B1c	4,000	B1c	32,000	B1c	53,334	B1c	18,360	B1c	19,000		
	D	0	D		D	5,000	D		D		D			
	B2	0	B2	20,000	B2	20,000	B2		B2		B2			
	B8	0	B8		B8	130,000	B8	500	B8		B8	113,600		
Total new sites sq. m		0		50,000		211,950		125,500		38,360		179,890	605,700	
TOTAL EMPLOYMENT FLOORSPACE sq. m.		**203,363**		**145,000**		**306,950**		**220,500**		**113,199**		**179,890**	**1,168,902**	

Estimated Use Class split based on existing comittments							**Total floorspace**	**%**
B1(a)	40,670	26,998	26,998	14,767	0	0	109,434	20.0
B1(b)	2,836	1,882	1,882	1,030	0	0	7,630	1.4
B1(c)	54,106	35,918	35,918	19,645	0	0	145,588	26.6
B2	69,613	46,212	46,212	25,276	0	0	187,313	34.2
B8	36,137	23,989	23,989	13,121	0	0	97,238	17.8
Total	203,363	135,000	135,000	73,839	0	0	563,202	

Assumes Use Class split from existing commitments.

Estimated jobs from existing commitments (from ELR)							**Total jobs**
B1(a)	2,034	1,350	1,350	738	0	0	5,472
B1(b)	113	75	75	41	0	0	305
B1(c)	1,591	1,056	1,056	578	0	0	4,282
B2	2,047	1,359	1,359	743	0	0	5,509
B8	723	480	480	262	0	0	1,945

Phased jobs from Option 4								**Density**
B1(a)	0	200	100	2,917	500	950	4,667	20
B1(b)	0	160	80	533	400	760	1,933	25
B1(c)	0	118	941	1,569	540	559	3,726	34
B2	0	588	588	0	0	0	1,176	34
B8	0	0	2,600	10	0	2,272	4,882	50
A	0	900	1,048	0	0	465	2,412	20
D	0	0	125	0	0	0	125	40

TOTAL JOBS ESTIMATE FOR OPTION 4							
B1(a)	2,034	1,550	1,450	3,655	500	950	10,138
B1(b)	113	235	155	575	400	760	2,239
B1(c)	1,591	1,174	1,998	2,146	540	559	8,008
B2	2,047	1,947	1,947	743	0	0	6,686
B8	723	480	3,080	272	0	2,272	6,827
A	0	900	1,048	0	0	465	2,412
D	0	0	125	0	0	0	125
Total all uses	**6,508**	**6,286**	**9,802**	**7,392**	**1,440**	**5,005**	**36,435**