Strategic Commission Analysis Report

Otterpool Park, Folkestone & Hythe District population forecasts

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SUBJECT TO MEMBER APPROVAL

Strategic Commissioning - Analytics, Kent County Council
www.kent.gov.uk/research

Kent County Council kent.gov.uk

Introduction

This report draws on available intelligence to identify potential scenarios for the demographic mix of the population which might inhabit the planned Otterpool Park development in the District of Folkestone & Hythe.

The approach used is to examine previous similar large scale developments in the county using Census data, to identify the potential population mix at Otterpool Park.

Two similar large scale developments are considered, which are Kings Hill, Tonbridge and Malling; and Park Farm, Ashford.

Both sites can be considered to model garden villages. King's Hill is a development on a previous RAF airfield site and is located at some distance from any existing major urban conurbations. Park Farm is an extensive greenfield site but is located in close proximity to Ashford town urban concentration.

As at census 2011 there were a total of 2,778 dwellings at Kings Hill and 1,945 at Park Farm, with the two sites representing the largest recent developments in the county. No site in Kent has since achieved numbers close to these dwelling counts.

These two locations are hereafter referred to as the Study Sites.

What is notable about these two past large developments is that the number of children in the population and the need for school places was found to be above that for smaller in-fill developments in the County.

It is important to reflect on evidence from these previous large scale sites, to ensure appropriate infrastructure is planned and provided for the community at Otterpool Park.

This work seeks to identify population mix by age, with a particular focus on school age children. The main output is to identify the potential pupil product ratio or number

of children of school age per dwelling. Demand for other services are also considered.

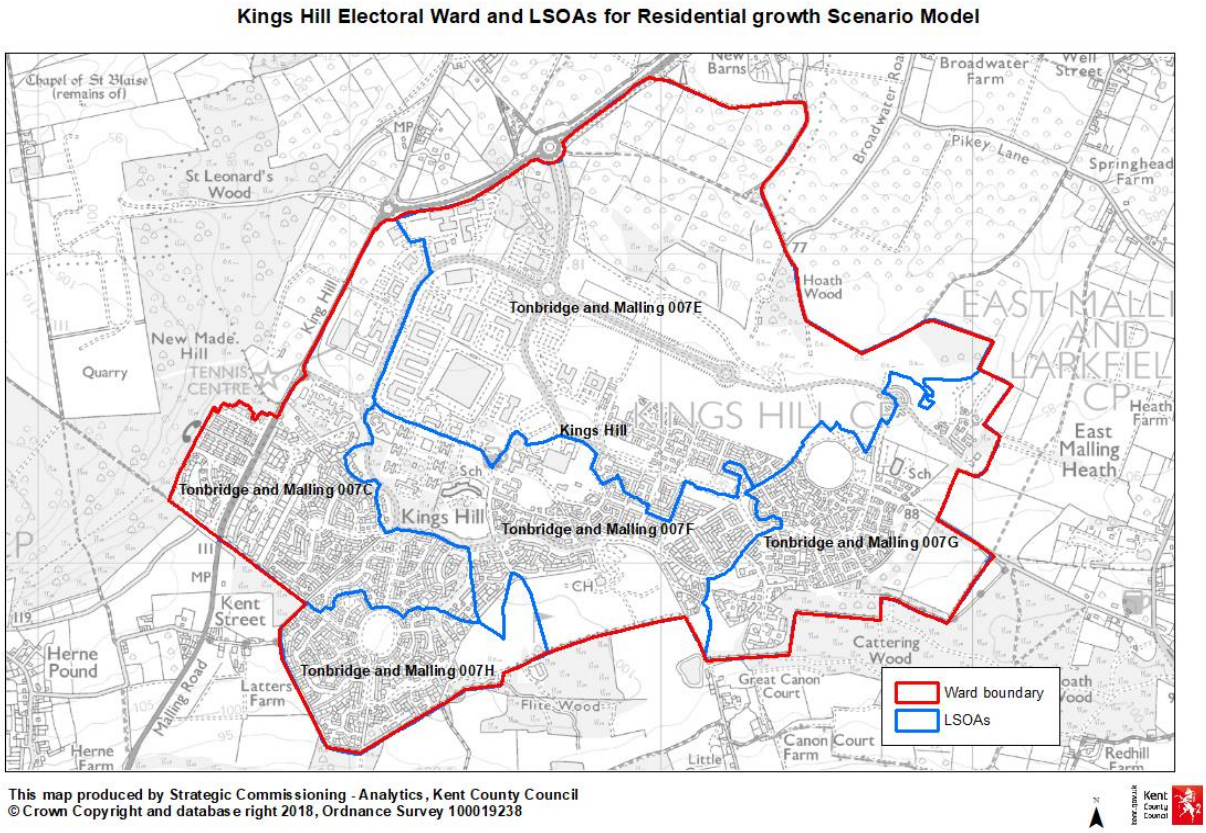
It should be noted that population forecasting, while using sound methods and models, requires a set of assumptions as inputs, and depending on assumptions used, can produce very different results. The main approach to population forecasting is to examine different sets of assumptions through scenarios and to plan for the future based on a range of potential outcomes, rather than on the basis of a single number. It is common to have a central forecast and both a high and a low variant scenario.

Defining the Study Sites

To ensure that data capture is robust, it is important that the boundaries of the sites are clearly defined and that all data examined is matched to the same site boundaries.

The Kings Hill site is clearly defined through a combination of five lower super output areas as shown below in Figure 1

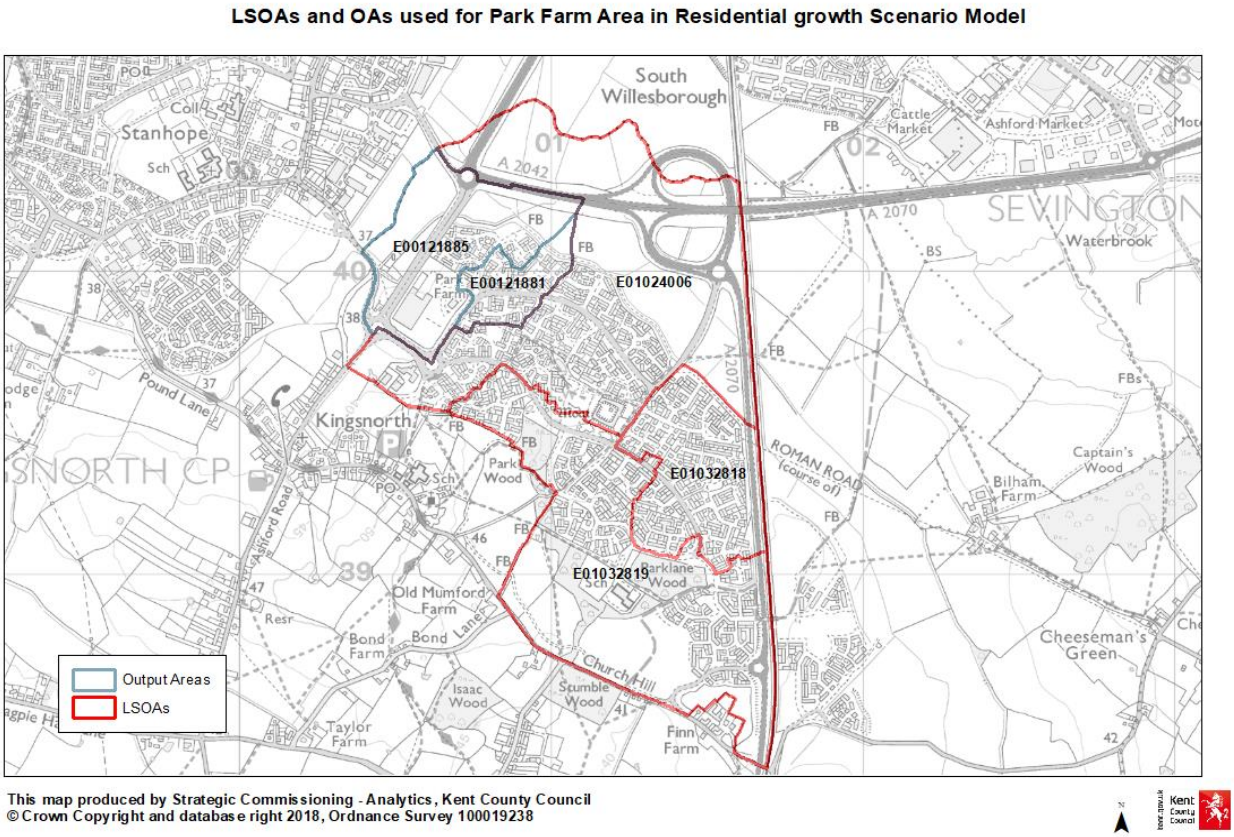
Figure 1 – Kings Hill development study area



At census 2011, there were 2,778 dwellings within the Kings Hill study area and a population of 7,700 people, with an average household size of 2.8 people per dwelling. There were no communal establishments in the study area and the property mix was 90/10 houses/flats.

The Park Farm development study area is defined through a combination of three lower super output areas and 2 census output area as shown below in Figure 2.

Figure 2 – Park Farm development study area



At census 2011, there were 1,945 dwellings within the Park Farm study area and a population of 5,493 people with 96 individuals living in communal establishments, giving an average household size of 2.77 people per dwelling. The property mix was 95/5 houses/flats.

Pupil product ratios (PPR)

Pupil product ratios are defined as the average number of school age children per dwelling. These are calculated for primary school age children and secondary school age. Census tables QS103EW was used for this purpose with this table providing age breakdown by single year of age.

Initial work was to identify the number of children of school age per dwelling without considering the property type mix. The ratios for the study areas can be compared to standard rates KCC usually applies to new developments which are 0.28 for primary and 0.20 for secondary.

Primary school age was defined as age 4 to 10 and secondary school age as age 11 to 15. The age ranges selected refer to age at the start of academic year with children aged 4 at August 30, expected to join school in reception year either as part of September or January in-takes.

Table 1 - Kings Hill pupil product ratios (site average)

Age range	Numbers of children in study area	Pupil product ratio
Primary school age – age 4 to 10	1,134	0.41
Secondary school age – age 11 to 15	655	0.24

Kings Hill has high numbers of children per dwelling with primary school age children being particularly high. Standard rates used by KCC are 0.28 primary and 0.20 secondary.

Table 2 – Park Farm pupil product ratios (site average)

Age range	Numbers of children in study area	Pupil product ratio
Primary school age – age 4 to 10	666	0.34
Secondary school age – age 11 to 15	492	0.25

Park Farm also has high numbers of children per dwelling with both primary and secondary numbers being higher than KCC standard rates.

When looking at these PPRs is important to consider the mix of properties, as houses traditionally have much higher numbers of children per dwelling than flats. Previous work by KCC has shown that houses generate 6 times as many primary school age children than flats and 9 times as many children of secondary school age. However, this work was based on traditional flatted development. These assumptions in relations to flats may not be valid if there is a different offer at Otterpool Park, akin to those seen in more recent London developments for example Kidbrooke Development.

By knowing the property mix in Kings Hill and Park Farm and assuming the comparative ratios between houses and flats are similar to county averages we are able to calculate a PPR per house and per flat for the study sites.

Applying weighted average methods and the assumptions outlined above the following estimates for PPR for the study sites by dwelling type have been calculated.

Table 3 - Kings Hill pupil product ratios (estimates by property type)

Age range	House PPR	Flat PPR
Primary school age – age 4 to 10	0.45	0.08
Secondary school age – age 11 to 15	0.24	0.03

Estimated PPRs for flats are very similar between the two sites as are PPRs for secondary age school children age children. Kings Hill has much higher primary school age PPR per house.

Table 4 – Park Farm pupil product ratios (estimates by property type)

Age range	House PPR	Flat PPR
Primary school age – age 4 to 10	0.35	0.06
Secondary school age – age 11 to 15	0.25	0.03

Otterpool Park - School age population forecasts

Having calculated estimated PRRs per dwelling type, it is now possible to examine what the implications might be for Otterpool Park given different mixes of dwelling types if the population for the development is similar to either of the study sites.

Various scenarios to produce population forecasts can be examined by mixing assumptions about the numbers of dwellings, the mix of dwelling types between houses and flats, and the application of different PPRs from study sites.

Pupil numbers are expressed as total children and as a count of forms of entry (FE). The preferred school sizes to provide the optimum learning environment are 2FE primary school and 6FE secondary school.

Scenario 1 – 8,500 dwellings, assuming study site dwelling mix and PPR

	Park Farm property mix and PPR	**Kings Hill property mix and PPR**
Primary school age – age 4 to 10	2,890 (13.8 FE)	3,485 (16.6 FE)
Secondary school age – age 11 to 15	2,125 (14.2 FE)	2,040 (13.6 FE)

Scenario 2 – 8,500 dwellings, with 70/30 house/flat mix

	Park Farm PPR	**Kings Hill PPR**
Primary school age – age 4 to 10	2,231 (10.6 FE)	2,869 (13.7 FE)
Secondary school age – age 11 to 15	1,683 (11.2 FE)	1,621 (10.8 FE)

Scenario 3 – 7,857 C3 dwellings, with 70/30 house/flat mix and 643 C2 communal establishment beds/units

	Park Farm PPR	**Kings Hill PPR**
Primary school age – age 4 to 10	2,062 (9.8 FE)	2,652 (12.6 FE)
Secondary school age – age 11 to 15	1,556 (10.4 FE)	1,498 (10.0 FE)

Scenario 4 – 7,857 C3 dwellings, all houses with 643 C2 communal establishment beds/units

	Park Farm PPR	**Kings Hill PPR**
Primary school age – age 4 to 10	2,750 (13.1 FE)	3,536 (16.8 FE)
Secondary school age – age 11 to 15	2,121 (14.1 FE)	2,043 (13.6 FE)

If we assume a Kings Hill PPR with 7,857 C3 dwellings, with 70/30 house/flat mix and 643 C2 communal establishment beds/units as a central forecast (Scenario 3), the possible range around this given other potential scenarios is as follows:

	Min need	**Central need**	**Max Need**
Primary school age – age 4 to 10	9.8 FE	12.6 FE	16.8 FE
Secondary school age – age 11 to 15	10.0 FE	10.0 FE	14.2 FE

The scenarios show that a wide range of outcomes could occur depending on how Otterpool Park is built out and developed. Flexibility is required for any legal agreement relating to developer contributions to allow for the potential different mixes of property types and resulting population mixes. Sufficient land and build costs will need to be safeguarded within any legal agreement to ensure that sufficient schools can be built in the possible scenario of a Kings Hill PRR in combination with all 7,857 units being houses.

Demand for other services

While the main need for infrastructure considered in this report is the need for primary and secondary school education, there are a range of other KCC services which will need to be provided to mitigate the demand created at Otterpool Park. These include a range of other community based services; schools for pupils with specialist educational needs, Early Years education, Sixth form provision, adult social care, flexible community space and health services.

KCC has developed a set of demand measures for these services based on rates per head of population. Demand for some of these other community based services is considered below.

The main assumption used in demand for other services is that the average household size in the development will be 2.8, similar to that seen in both of the study sites and that the number of dwellings will be 7,857. An additional 643 residents are assumed in relation to 643 units of communal establishments. This brings the total forecast population to 22,643 for a housing quantum of 8,500.

The expected age structure for modelling other services is as follows:

Age Range	Numbers	Percentage
0-3	1,807	8%
4-10	2,671	12%
11-15	1,493	7%
16-64	14,614	65%
65+	2,057	9%
TOTAL	**22,643**	

Note that the assumption of 2.8 people per dwelling is a very different assumption from that underpinning ONS household projections which assume that average household size is currently 2.20 within the district and will reduce to 2.08 by 2031.

Sixth Form Provision

The number of young people aged 16 to 17 drives the need for sixth form education. At Kings Hill there were 0.07 young people of this age per dwelling and at Park Farm 0.09.

These numbers indicator a potential demand range of between 9.2 and 11.8 form of entry for sixth form pupils.

Special School Provision

Need for special school places varies by age with average need being 12.5 places per 1,000 primary school population, 25.5 per 1,000 at secondary school and 17.5 for sixth form.

Using previous scenario 3 and a central forecast based on Kings Hill PRR, we obtain a forecast of 81 special school places being required.

Health services

The need for primary care facilities at unit size of 1,851 sqm is calculated at 0.052 per 1,000 population. This results in a potential demand of 1.2 facilities of this size.

The need for acute hospital beds is 1.9 per 1,000 population. This results in a potential demand of 43 beds.

The need for mental health beds 0.4 per 1,000 population. This results in a potential demand of 9.1 beds.

The need for maternity beds is 0.14 per 1,000 population. This results in a potential demand of 3.2 beds.

Additional demand for an extra 1,500 dwellings

Should an additional 1,500 dwelling be included in the master plan, we can apply the same numbers and methods as outlined in previous sections to determine the potential range of demand for community services.

Scenario 1 – 1,500 dwellings, assuming study site dwelling mix and PPR

	Park Farm PPR	**Kings Hill PPR**
Primary school age – age 4 to 10	520 (2.4 FE)	615 (2.9 FE)
Secondary school age – age 11 to 15	375 (2.5 FE)	360 (2.4 FE)

Scenario 2 – 1,500 dwellings, with 70/30 house/flat mix

	Park Farm PPR	**Kings Hill PPR**
Primary school age – age 4 to 10	394 (1.9 FE)	506 (2.4 FE)
Secondary school age – age 11 to 15	297 (2.0 FE)	286 (1.9 FE)

Scenario 3 – 1,500 dwellings, all houses

	Park Farm PPR	**Kings Hill PPR**
Primary school age – age 4 to 10	525 (2.5 FE)	675 (3.2 FE)
Secondary school age – age 11 to 15	405 (2.7 FE)	390 (2.6 FE)

This gives a range of between 1.9 to 3.2 FE primary with 2.4 being the central forecast, and 1.9 to 2.7 secondary, with central forecast and minimum being the same value of 1.9.