Strategic Assessment of Need for Swimming Pools provision in Epping Forest

Facility Planning Model

National Run Report 2017

May 2017

Contents

1. Introduction ..... **Error! Bookmark not defined.**

2. Supply of Swimming Pools 4

3. Demand for Swimming Pools 6

4. Supply & Demand Balance 7

5. Satisfied Demand- demand from Epping Forest residents currently being met by supply 9

6. Unmet Demand - demand from Epping Forest residents not currently being met 11

7. Used Capacity - How well used are the facilities? 13

8. Local Share - equity share of facilities 15

9. Summary and Conclusions 16

10. Maps 18

Appendix 1: Swimming Pools Included/Excluded 19

Appendix 2 – Model description, Inclusion Criteria and Model Parameters 23

1. Introduction

1.1. This report and the accompanying maps provide a strategic assessment of the current level of provision for Swimming Pools in Epping Forest. This assessment uses Sport England's Facilities Planning Model and the data from the National Run using Active Places data as at January 2017.

1.2. The information contained within the report should be read alongside the two appendices. Appendix 1 sets out the facilities that have been included within this analysis together with those that have been excluded. Appendix 2 provides background to the Facilities Planning Model (FPM), facility inclusion criteria and the model parameters.

1.3. The FPM modelling and dataset builds in a number of assumptions as set out in Appendix 2 regarding the supply and demand of provision. This report should not be considered in isolation and it is recommended that this analysis should form part of a wider assessment of provision at the local level, using other available information and knowledge from (a) sports perspective (NGB and local clubs & teams), and for; (b) a local perspective (from the LA/facility providers/community).

1.4. To help with comparative analysis the data outputs for Epping Forest have been compared with national and regional averages in addition to other authorities, which may be relevant due to geographic, CIPFA or other relationship. The comparison authorities include: Brentwood, Broxbourne, Chelmsford, Harlow, Havering, Uttlesford, Waltham Forest, ENGLAND.

2. Supply of Swimming Pools

Table 1 - Supply	Epping Forest	Brentwood	Broxbourne	Chelmsford	Harlow	Havering	Uttlesford	Waltham Forest	ENGLAND
Number of pools	8	9	5	12	3	12	5	13	3,075
Number of pool sites	5	7	3	9	2	9	4	8	2,144
Supply of total water space in sqm	1,560	1,919	1,135	2,571	622	2,596	1,092	2,858	685,151
Supply of publicly available water space in sqm (scaled with hrs avail in pp)	1,483	1,317	875	2,163	430	2,123	818	2,307	578,213
Supply of total water space in VPWPP	12,855	11,421	7,589	18,751	3,732	18,405	7,096	20,004	5,013,110
Water space per 1,000	12	25	12	15	7	10	12	10	12

2.1. The are a total of 8 pools on 5 sites across Epping Forest. This consists of 5 main pools with 3 of these having secondary pools.

2.2. Of the pools one is a 20m 5 lane pool, one is a 25m 4 lane pool, one a 5 lane 25m pool and two are 25m 6 lane pools, although Loughton at 12m wide is under the minimum (12.5m) recommended for a 6 lane pool.

2.3. The average age of a pool in Epping Forest is over 28 years old. The age and condition of a facility will impact significantly on its attractiveness to customers and its ability to drive income and participation. With facilities ranging in age from 50 years at Waltham Abbey which was built in 1967, with no recorded refurbishment through to the newest, Nuffield, built in 2004. In general the stock is ageing and is likely to require significant investment to ensure it continues to remain attractive to users.

2.4. The model attributes an attractiveness score to each site based on its characteristics in terms of management, location, scale and key is its age and any refurbishment that has been undertaken. The older the facility, in general, the less attractive it becomes and

as a result less users are pushed to that facility within the modelling. The modelling shows that Waltham has a score of just 28%, and Ongar 41%. This is mainly due to their age, whereas the Councils newer facility at Loughton has a score of 93%.

2.5. Three of the sites are provided by the Council and managed by outside agencies on their behalf. The remaining two are provided by private health club operators, and whilst they have a role to play in the landscape, these facilities are unlikely to be available to all within the community due to the costs to join.

2.6. A total of 1,560sqm of water space is available in Epping Forest, but once peak time access is considered this drops to 1,483sqm.

2.7. This equates to the provision of up to 12,855 visits per week in the peak period (vpwpp).

2.8. Of this total 8,019, or just over 63%, are available at Council owned sites. This is currently a positive in that well over half of the swimming offer is within the control of the local authority, albeit, pre-dominantly in ageing facilities.

2.9. Epping Forest has 12sqm of water space per 1,000 residents, based on the level of identified supply. This is the same as the national average. It is important to note that no judgement is made here that the national average is enough for the supply to meet demands it is purely a comparison. A number of neighbouring authorities have far higher figures (Brentwood (25), Chelmsford (15), but others have far lower – Harlow (7) and Waltham Forest (10). The impact of neighbouring provision can have a significant impact on the quality of access for Epping Forest residents as users often look at the best, most appropriate offer to swim as opposed to whether it is located in their own district. This can result in significant import and export issues which will be explored later in this report.

3. Demand for Swimming Pools

Table 2 - Demand	Epping Forest	Brentwood	Broxbourne	Chelmsford	Harlow	Havering	Uttlesford	Waltham Forest	ENGLAND
Population	132,578	77,357	97,893	175,112	86,917	254,327	87,776	276,171	55,517,970
Swims demanded –vpwpp	8,467	4,895	6,362	11,166	5,731	16,409	5,607	18,727	3,576,219
Equivalent in water space – with comfort factor included	1,406	813	1,056	1,853	951	2,724	931	3,108	593,499
% of population without access to a car	14.50	13.90	16.40	14.60	24.10	21.90	9.30	41.50	24.90

3.1. With its current population (132,578) and demographic Epping Forest has a weekly peak demand of 8,467 swims. This equates to a total water space requirement of 1,406sqm.

3.2. This equates to approximately 27 lanes or 4.5 six lane 25m pools.

3.3. It is estimated that 14.5% of the population currently do not have access to a car. Whilst this figure is low when compared to the national average, for a relatively rural district it is quite high.

3.4. Of the current visits that are met to pools by Epping Forest residents over 85% of these are made by those travelling by car which highlights the reliance people have on car access to take part in swimming.

4. Supply & Demand Balance

Table 3 - Supply/Demand Balance	Epping Forest	Brentwood	Broxbourne	Chelmsford	Harlow	Havering	Uttlesford	Waltham Forest	ENGLAND
Supply - Swimming pool provision (sqm) scaled to take account of hours available for community use	1,483	1,317	875	2,163	430	2,123	818	2,307	578,213
Demand - Swimming pool provision (sqm) taking into account a 'comfort' factor	1,406	813	1,056	1,853	951	2,724	931	3,108	593,499
Provision available compared to the minimum required to meet demand	77	504	-181	310	-521	-601	-113	-801	-15,286

4.1. There is a total water supply of 1,483sqm in Epping Forest but when its availability in the peak period is considered this drops to 1,406sqm.

4.2. When looking at a very simplistic picture of the overall supply and demand across Epping Forest the resident population is estimated to generate a demand for a minimum of 1,406 sqm of water space. This compares to a current available supply of 1,483 sqm of water space, giving a supply/demand balance of 77 sqm of water space.

4.3. Neighbouring authority figures vary greatly with Harlow the lowest at just 430sqm and Havering the highest at 2,724. However, it must be looked at in relation to population for it to have any genuine value which is explored in section 2. As an example even though Havering has a very high level of supply due to its population it only equates to 10sqm of water space per 1,000 residents whereas Epping Forest is 12.

4.4. The key issue here is the balance between the demand generated by the Epping Forest based population and the supply that is Epping Forest based. Currently the supply is 1,483 and the demand 1,406, indicating a slight oversupply of 77sqm, or approximately 1.5 lanes of a 25m pool.

4.5. However, this oversupply is low and pools are likely to have capacity issues if it were any lower in the peak period.

4.6. It is important to note if there were any significant changes in participation rates and / or population the current pool supply is unlikely to be in a position to cope with this if the demand were to be met within Epping Forest based facilities.

4.7. A further issue that is likely to impact significantly on the quality of access Epping Forest residents do or do not enjoy is the scale of provision in neighbouring authorities. All but one have undersupplies, with Waltham Forests as high as 801sqm and Havering's 610sqm. Only Chelmsford has an oversupply of 310sqm. This is suggesting that as a wider area there are significant levels of undersupply which is likely to place pressure on existing facilities, which may have an impact on the quality of access and experience enjoyed at those facilities.

4.8. However, it is important to note a number of issues. Firstly, this is purely a measure of supply and demand viewing Epping Forest as an island. In reality people do not see borders and participation will cross borders. Secondly, these figures are making no judgement on the geographical distribution, quality of, or access to, any facilities.

5. Satisfied Demand- demand from Epping Forest residents currently being met by supply

Table 4 - Satisfied Demand	Epping Forest	Brentwood	Broxbourne	Chelmsford	Harlow	Havering	Uttlesford	Waltham Forest	ENGLAND
Total number of visits which are met	7,890	4,737	6,074	10,702	5,087	15,388	5,242	16,913	3,254,391
% of total demand satisfied	93.20	96.80	95.50	95.80	88.80	93.80	93.50	90.30	91
% of demand satisfied who travelled by car	86.30	82.40	81.60	82.80	80.90	77.10	91.50	58.70	75.50
% of demand satisfied who travelled by foot	8.20	12.20	11.30	12	10.50	13.70	5.50	25.80	14.80
% of demand satisfied who travelled by public transport	5.50	5.40	7	5.30	8.60	9.20	3.10	15.50	9.60
Demand Retained	4,434	3,591	3,860	9,463	3,388	11,683	3,363	9,042	3,252,563
Demand Retained -as a % of Satisfied Demand	56.20	75.80	63.60	88.40	66.60	75.90	64.20	53.50	99.90
Demand Exported	3,456	1,145	2,214	1,240	1,698	3,705	1,879	7,871	1,828
Demand Exported -as a % of Satisfied Demand	43.80	24.20	36.40	11.60	33.40	24.10	35.80	46.50	0.10

5.1. Of the 8,467 vpwpp demanded by Epping Forest residents currently 7,890, or 93.2% are met by facilities either based in Epping Forest or in neighbouring authorities.

5.2. This figure is higher than the national (91%) average but lower than most neighbours with Brentwood residents having the highest figure at 96.8%. This is no real surprise with the indicated levels of oversupply in Brentwood.

5.3. Of the visits that are met 86.3% are made by those travelling by car, 8.2% on foot and just 5.5% via public transport. The number of visits made by car are significantly higher than the national (75.5%) average and is higher than all comparator authorities other than Uttlesford (91.5%). This does reflect the rural nature of the district but also the reliance people have on private transport to be active in swimming. This should be considered when planning any changes to pool provision.

5.4. Of the visits that are met only 56% are met by facilities based within Epping Forest. This figure is considered to be low and indicates the reliance residents have on neighbouring authority facilities for their swimming participation. This indicates the need for cross border dialogue and planning with regards to pool provision and access.

5.5. In comparison only Waltham Forest retains less with 53.5% of visits met by visits in the local authority area and Chelmsford is the highest with 88% retained.

5.6. This means that some 3,456, or 43.8%, of peak time visits are undertaken at facilities outside of Epping Forest. This is likely to be as a result of a combination of the following issues – proximity of offer, quality of offer, cost of offer, age of facility etc.

6. Unmet Demand - demand from Epping Forest residents not currently being met

Table 5 - Unmet Demand	Epping Forest	Brentwood	Broxbourne	Chelmsford	Harlow	Havering	Uttlesford	Waltham Forest	ENGLAND
Total number of visits in the peak, not currently being met	577	159	288	464	644	1,021	366	1,814	321,829
Unmet demand as a % of total demand	6.80	3.20	4.50	4.20	11.20	6.20	6.50	9.70	9
Equivalent in water space m2 - with comfort factor	96	26	47	78	106	170	60	301	53,410
% of Unmet Demand due to ;									
Lack of Capacity -	7.80	0.20	7.10	0	26.60	16.10	0.70	45.40	10
Outside Catchment -	92.20	99.80	92.90	100	73.40	83.90	99.30	54.60	90
Outside Catchment;	92.20	99.80	92.90	100	73.40	83.90	99.30	54.60	90
% Unmet demand who do not have access to a car	73.80	81.90	80.30	79.80	66.50	76.90	58.20	52.50	70.30
% of Unmet demand who have access to a car	18.40	17.90	12.70	20.20	6.90	7	41.10	2.10	19.70
Lack of Capacity;	7.80	0.20	7.10	0	26.60	16.10	0.70	45.40	10
% Unmet demand who do not have access to a car	4.30	0.10	5.60	0	19.60	13.60	0.20	41.60	7.70
% of Unmet demand who have access to a car	3.50	0.10	1.50	0	6.90	2.50	0.50	3.80	2.30

6.1. There are a total of 577 vpwpp that are not currently met by facilities either based within Epping Forest or in neighbouring authorities.

6.2. This level of unmet demand equates to 6.8% of the total demand. In comparison Harlow has an unmet demand of 11.2% but Chelmsford's is as low as 4.2%.

6.3. Of the unmet demand 92.2% of this is due to residents living outside the drive time and / or walk time of a facility. For a district like Epping it is always going to be difficult to ensure all residents are within an appropriate catchment but it can have a significant impact on someones ability to participate.

6.4. Of the 92.2% of visits not met due to being outside a catchment 73.8% of this is due to residents not having access to a car.

6.5. The aggregated unmet demand is spread across the district (See map in Appendix A) but Chigwell has the highest levels of unmet demand at 171sqm. This is relatively significant when you consider a 4 lane 25m pool is only 212.5sqm. Loughton is lower at 118sqm with Chipping Ongar at just 30sqm. These figures are assuming that the current levels of water supply and access are maintained.

7. Used Capacity - How well used are the facilities?

Table 6 - Used Capacity	Epping Forest	Brentwood	Broxbourne	Chelmsford	Harlow	Havering	Uttlesford	Waltham Forest	ENGLAND
Total number of visits used of current capacity	6,823	5,273	6,906	11,071	3,732	16,316	3,781	15,316	3,254,781
% of overall capacity of pools used	53.10	46.20	91	59	100	88.70	53.30	76.60	64.90
% of visits made to pools by walkers	8.10	10.90	9.90	11.40	14.30	13	7.60	28.60	14.80
% of visits made to pools by road	91.90	89.10	90.10	88.60	85.70	87	92.40	71.40	85.20
Visits Imported;									
Number of visits imported	2,389	1,682	3,046	1,609	343	4,633	418	6,274	2,218
As a % of used capacity	35	31.90	44.10	14.50	9.20	28.40	11.10	41	0.10
Visits Retained:									
Number of Visits retained	4,434	3,591	3,860	9,463	3,388	11,683	3,363	9,042	3,252,563
As a % of used capacity	65	68.10	55.90	85.50	90.80	71.60	88.90	59	99.90

7.1. The existing pools, on average, across Epping Forest, have significant spare capacity. Only 53.1% of available capacity is utilised with Sport England suggesting that a pool cannot be considered “full” until it hits a 70% capacity limit. After this point the ability to have a high quality session reduces so Sport England do not advise that pools should exceed this level of used capacity.

7.2. Only Brentwood has a lower figure, of the comparator authorities, at just 46.2%, with Broxbourne as high as 91% and Harlow 100%.

7.3. It is important to note that these figures are based on modelling and may not reflect actual usage at sites so the wider strategy work should look to explore this in more detail.

7.4. The averages across an area can hide highs and lows so it is important to understood facility specific issues. Of the three local authority owned facilities Loughton is modelled to be at 100%, Ongar at 38% and Waltham Abbey at 36%. This is mainly down to the age of the facilities with the model not pushing users to older facilities. The reality may be different as users may not have an alternative that is convenient to their lifestyle so the figures may be higher at the two older sites. Nuffield (35%) and David Lloyd (37%) are lower due to the fact that they are private members clubs and usage is traditionally lower at these sites due to the cost to use.

8. Local Share - equity share of facilities

Table 7 - Local Share	Epping Forest	Brentwood	Broxbourne	Chelmsford	Harlow	Havering	Uttlesford	Waltham Forest	ENGLAND
Local Share: <1 capacity less than demand, 1> capacity greater than demand	1.30	1.40	1.10	1.40	0.70	1	1.20	0.90	1.10

8.1. The local share score is a representation of the overall share of access that Epping Forest residents enjoy to pools. It considers the availability, size and scale of offer and access and a value below 1 indicates that the available capacity is less than the demand and a number over 1 indicates that the supply outstrips demand. It is important to note that this also includes facilities that are accessible (in terms of travel) within neighbouring authorities, so any changes to supply in these areas could significantly impact on the Epping Forest Score.

8.2. The overall score for Epping Forest is high at 1.3. It I slower than Brentwood (1.4) and Chelmsford (1.4) but higher than the national average (1.1) and significantly higher than Harlow (0.7).

8.3. An overall figure can mask highs and lows across a district so it is important to note any district wide differences (see Appendix A map).

8.4. Interestingly the highest scores are in Chigwell, even though they have an identified undersupply. They score 2.35, Loughton 1.49, Chipping Ongar 1.27 but Waltham Abbey is far lower at just 0.97.

9. Summary and Conclusions

9.1. Whilst the overall level of supply that is Epping Forest based residents enjoy in line with national averages (note this is not a judgement that the supply is, as a result good), the quality of the offer is relatively poor. The average age of facilities is 28 years old and a number are far older. This is likely to have a significant impact on people's desire to use those facilities and in doing so their propensity to be active.

9.2. The scale of the facilities on offer is also relatively weak. Although the level of supply is slightly more than demanded by residents when Epping Forest is viewed as an island there is only two 6 lane 25m pools, one of which (Loughton), is actually under the recommended minimum width for a 6 lane pool.

9.3. The pool supply is mainly through local authority owned facilities, with 63% of total available swims in the peak period being provided by these 3 sites based on the data in the model. The remainder is via private health clubs which are likely to be beyond the means of most residents due to their membership pricing structures. This shows a significant reliance on the local offer for most residents to access swimming opportunities and the overall age of these facilities means that short / medium terms solutions are likely to be needed to ensure this level of offer, as a minimum is retained.

9.4. Currently 93.2% of the swims demanded in the peak period are being met. However, only 56% of the swims that are met are met by facilities based in Epping Forest. This identifies the major reliance residents currently have on facilities based in neighbouring authorities for their offer. This identifies a key requirement for Epping Forest to co-ordinate access and the planning of any new provision with its neighbours to ensure access and sustainability of offer.

9.5. This means that 3,456 vpwpp are exported. This is a huge amount of swimming demand which equates to 10 lanes of a 25m pool.

9.6. Although the overall data suggest that there is a slight oversupply of water space (77sqm) when Epping Forest is viewed as an island this does not consider the spatial issues associated with provision and access. As a result there is unmet demand across the area. Chigwell has the highest levels of unmet demand, which is relatively significant, at 171sqm (a 4 lane 25m pool is 212.5sqm) down to just 30sqm at Chipping Ongar.

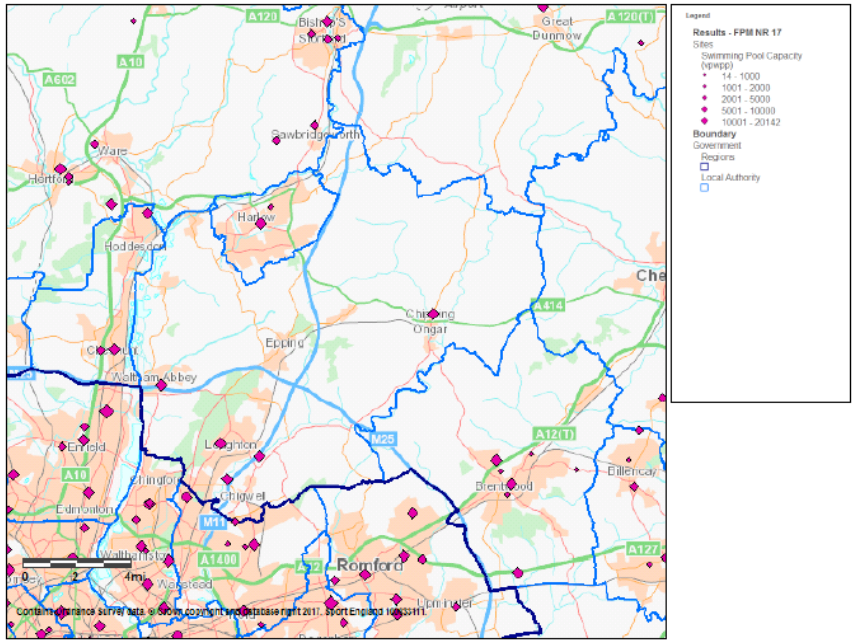
9.7. The existing pool supply in Epping Forest is only modelled to be 53.1% full. This is well below SE recommended maximum capacity of 70%. This suggests that the sites can accommodate significant growth arising from participation increases and / or increased use from population growth. However, it has to be noted that this is a modelling exercise and local data may suggest the pools are fuller than this. It also has to be noted that the model pushes users away from ageing facilities. If the facilities on these sites were subject to major refurbishment and / or replacement

then the model would indicate far higher levels of usage and the reliance on neighbouring authority facilities is likely to change.

9.8. In general Epping Forest residents enjoy good access to water space with a local share score of 1.3. However, it has t0 be noted that much of this score is down to the quality of access that residents enjoy in neighbouring authority facilities.

10. Maps

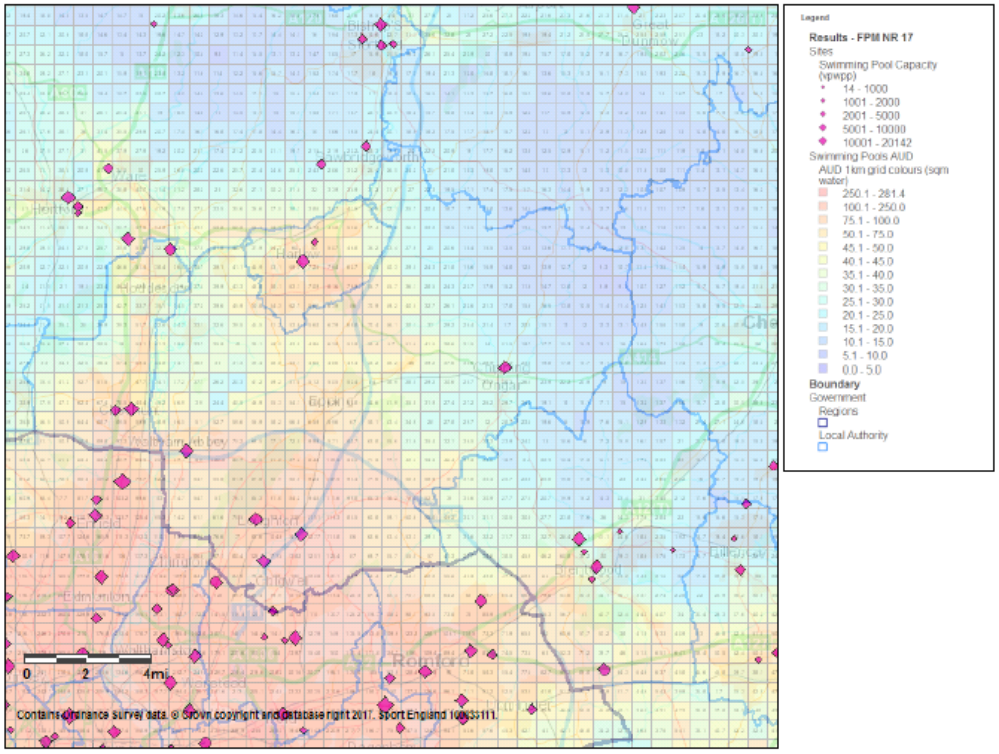
Sites



Aggregated Unmet Demand

Facilities Planning Model - National Runs - Swimming Pools 2017 Aggregated Unmet Demand

Aggregated Unmet Demand expressed as square metres of water (rounded to two decimal places). Data outputs shown thematically (colours) at 1km square (figure labels).



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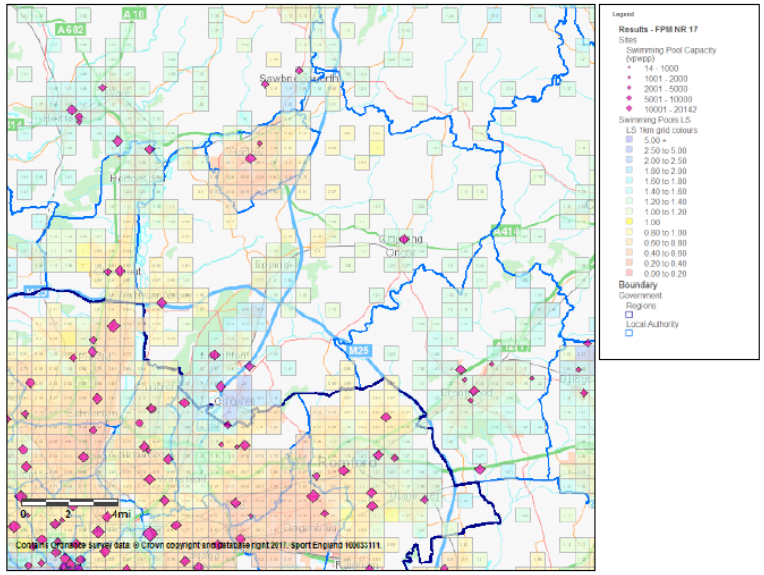
Local Share

Facilities Planning Model - National Runs - Swimming Pools 2017 Local Share
Share of water divided by demand. Data outputs shown thematically (colours) and aggregated at 1km square (figure labels). Local Share Values: 1 – Supply equals Demand, 2 – Supply is double Demand, 0.5 – Supply is half Demand.



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Appendix 1: Swimming Pools Included/Excluded

Facilities Included within the National Run FPM Analysis in **Epping Forest**

SPORT ENGLAND

Facilities Included:

Name of Facility	Type	Dimensions	Area	Site Year Built	Site Year Refurbished	Weight Factor	Hours in Peak Period	Total Hours Available	Site Capacity - vpwpp	% of Capacity Used
DAVID LLOYD CLUB (CHIGWELL)	Main/General	25 x 10	250	1992	2014	93%	52.0	115	2167	37
LOUGHTON LEISURE CENTRE	Main/General	25 x 12	300	2003		93%	52.0	93	3328	100
LOUGHTON LEISURE CENTRE	Learner/Teaching/Training	12 x 7	84				52.0	103.5		
NUFFIELD HEALTH CHIGWELL FITNESS & WELLBEING GYM	Main/General	20 x 11	220	2004		94%	52.0	109.5	2669	35
NUFFIELD HEALTH CHIGWELL FITNESS & WELLBEING GYM	Learner/Teaching/Training	11 x 8	88				52.0	109.5		
ONGAR LEISURE CENTRE	Main/General	25 x 13	313	1977		41%	51.0	95.5	2661	38
WALTHAM ABBEY SWIMMING POOL	Main/General	25 x 9	225	1967		28%	52.0	96.5	2030	36
WALTHAM ABBEY SWIMMING POOL	Learner/Teaching/Training	10 x 8	80				6.0	16.5		

Facilities Excluded

The audit excludes facilities that are deemed to be either for private use, too small, closed or there is a lack of information, particularly relating to hours of use. The following facilities were deemed to fall under one or more of these categories and therefore excluded from the modelling:

Site Name	Facility Sub Type	Reason for Exclusion
ABRIDGE GOLF AND COUNTRY CLUB	Lido	Closed. Too Small. Lido.
CHIGWELL SCHOOL	Lido	Private Use. Lido.
DAVENANT FOUNDATION SCHOOL	Main/General	Too Small.
DAVID LLOYD CLUB (CHIGWELL)	Lido	Lido.
MARRIOTT LEISURE CLUB (WALTHAM ABBEY)	Main/General	Too Small.
MARRIOTT LEISURE CLUB (WALTHAM ABBEY)	Learner/Teaching/Training	Too Small.
NUFFIELD HEALTH CHIGWELL FITNESS & WELLBEING GYM	Lido	Lido.
WEST HATCH HIGH SCHOOL ACADEMY	Main/General	Too Small.
WOOLSTON MANOR GOLF AND COUNTRY CLUB	Lido	Too Small. Lido.

Appendix 2 – Model description, Inclusion Criteria and Model Parameters

Included within this appendix are the following:

- Model description
- Facility Inclusion Criteria
- Model Parameters

Model Description

1. Background

1.1. The Facilities Planning Model (FPM) is a computer-based supply/demand model, which has been developed by Edinburgh University in conjunction with sportscotland and Sport England since the 1980s.

1.2. The model is a tool to help to assess the strategic provision of community sports facilities in an area. It is currently applicable for use in assessing the provision of sports halls, swimming pools, indoor bowls centres and artificial grass pitches.

2. Use of FPM

2.1. Sport England uses the FPM as one of its principal tools in helping to assess the strategic need for certain community sports facilities. The FPM has been developed as a means of:

- assessing requirements for different types of community sports facilities on a local, regional or national scale;
- helping local authorities to determine an adequate level of sports facility provision to meet their local needs;
- helping to identify strategic gaps in the provision of sports facilities; and
- comparing alternative options for planned provision, taking account of changes in demand and supply. This includes testing the impact of opening, relocating and closing facilities, and the likely impact of population changes on the needs for sports facilities.

2.2. Its current use is limited to those sports facility types for which Sport England holds substantial demand data, i.e. swimming pools, sports halls, indoor bowls and artificial grass pitches.

2.3. The FPM has been used in the assessment of Lottery funding bids for community facilities, and as a principal planning tool to assist local authorities in planning for the provision of community sports facilities. For example, the FPM was used to help assess the impact of a 50m swimming pool development in the London Borough of Hillingdon. The Council invested £22 million in the sports and leisure complex around this pool and received funding of £2,025,000 from the London Development Agency and £1,500,000 from Sport England[1].

3. How the model works

3.1. In its simplest form, the model seeks to assess whether the capacity of existing facilities for a particular sport is capable of meeting local demand for that sport, taking into account how far people are prepared to travel to such a facility.

3.2. In order to do this, the model compares the number of facilities (supply) within an area, against the demand for that facility (demand) that the local population will produce, similar to other social gravity models.

3.3. To do this, the FPM works by converting both demand (in terms of people), and supply (facilities), into a single comparable unit. This unit is 'visits per week in the peak period' (VPWPP). Once converted, demand and supply can be compared.

3.4. The FPM uses a set of parameters to define how facilities are used and by whom. These parameters are primarily derived from a combination of data including actual user surveys from a range of sites across the country in areas of good supply, together with participation survey data. These surveys provide core information on the profile of users, such as, the age and gender of users, how often they visit, the distance travelled, duration of stay, and on the facilities themselves, such as, programming, peak times of use, and capacity of facilities.

3.5. This survey information is combined with other sources of data to provide a set of model parameters for each facility type. The original core user data for halls and

[1] Award made in 2007/08 year.

pools comes from the National Halls and Pools survey undertaken in 1996. This data formed the basis for the National Benchmarking Service (NBS). For AGPs, the core data used comes from the user survey of AGPs carried out in 2005/6 jointly with sportscotland.

3.6. User survey data from the NBS and other appropriate sources are used to update the models parameters on a regular basis. The parameters are set out at the end of the document, and the range of the main source data used by the model includes:

- National Halls & Pools survey data –Sport England
- Benchmarking Service User Survey data –Sport England
- UK 2000 Time Use Survey – ONS
- General Household Survey – ONS
- Scottish Omnibus Surveys – sportscotland
- Active People Survey - Sport England
- STP User Survey - Sport England & sportscotland
- Football participation - The FA
- Young People & Sport in England – Sport England
- Hockey Fixture data - Fixtures Live
- Taking Part Survey - DCMS

4. **Calculating Demand**

4.1. This is calculated by applying the user information from the parameters, as referred to above, to the population[2]. This produces the number of visits for that facility that will be demanded by the population.

4.2. Depending on the age and gender make-up of the population, this will affect the number of visits an area will generate. In order to reflect the different population make-up of the country, the FPM calculates demand based on the smallest census groupings. These are Output Areas (OA)[3].

[2] For example, it is estimated that 7.72% of 16-24 year old males will demand to use an AGP, 1.67 times a week. This calculation is done separately for the 12 age/gender groupings.

3 Census Output Areas (OA) are the smallest grouping of census population data, and provides the population information on which the FPM's demand parameters are applied. A demand figure can then be calculated for each OA based on the population profile. There are over 171,300 OAs in England. An OA has a target value of 125 households per OA.

4.3. The use of OAs in the calculation of demand ensures that the FPM is able to reflect and portray differences in demand in areas at the most sensitive level based on available census information. Each OA used is given a demand value in VPWPP by the FPM.

5. Calculating Supply Capacity

5.1. A facility's capacity varies depending on its size (i.e. size of pool, hall, pitch number), and how many hours the facility is available for use by the community.

5.2. The FPM calculates a facility's capacity by applying each of the capacity factors taken from the model parameters, such as the assumptions made as to how many 'visits' can be accommodated by the particular facility at any one time. Each facility is then given a capacity figure in VPWPP. (See parameters in Section C).

5.3. Based on travel time information[4] taken from the user survey, the FPM then calculates how much demand would be met by the particular facility having regard to its capacity and how much demand is within the facility's catchment. The FPM includes an important feature of spatial interaction. This feature takes account of the location and capacity of all the facilities, having regard to their location and the size of demand and assesses whether the facilities are in the right place to meet the demand.

5.4. It is important to note that the FPM does not simply add up the total demand within an area, and compare that to the total supply within the same area. This approach would not take account of the spatial aspect of supply against demand in a particular area. For example, if an area had a total demand for 5 facilities, and there were currently 6 facilities within the area, it would be too simplistic to conclude that there was an oversupply of 1 facility, as this approach would not take account of whether the 5 facilities are in the correct location for local people to use them within that area. It might be that all the facilities were in one part of the borough, leaving other areas under provided. An assessment of this kind would not reflect the true picture of provision. The FPM is able to assess supply and demand within an area based on the needs of the population within that area.

[4] To reflect the fact that as distance to a facility increases, fewer visits are made, the FPM uses a travel time distance decay curve, where the majority of users travel up to 20 minutes. The FPM also takes account of the road network when calculating travel times. Car ownership levels, taken from Census data, are also taken into account when calculating how people will travel to facilities.

5.5. In making calculations as to supply and demand, visits made to sports facilities are not artificially restricted or calculated by reference to administrative boundaries, such as local authority areas. Users are generally expected to use their closest facility. The FPM reflects this through analysing the location of demand against the location of facilities, allowing for cross boundary movement of visits. For example, if a facility is on the boundary of a local authority, users will generally be expected to come from the population living close to the facility, but who may be in an adjoining authority.

6. Calculating the capacity of Sports Halls – Hall Space in Courts(HSC)

6.1. The capacity of sports halls is calculated in the same way as described above with each sports hall site having a capacity in VPWPP. In order for this capacity to be meaningful, these visits are converted into the equivalent of main hall courts, and referred to as 'Hall Space in Courts' (HSC). This "court" figure is often mistakenly read as being the same as the number of 'marked courts' at the sports halls that are in the Active Places data, but it is not the same. There will usually be a difference between this figure and the number of 'marked courts' that is in Active Places.

6.2. The reason for this, is that the HSC is the 'court' equivalent of the all the main and ancillary halls capacities, this is calculated based on hall size (area), and whether it's the main hall, or a secondary (ancillary) hall. This gives a more accurate reflection of the overall capacity of the halls than simply using the 'marked court' figure. This is due to two reasons:

6.3. In calculating capacity of halls, the model uses a different 'At-One-Time' (AOT) parameter for main halls and for ancillary halls. Ancillary halls have a great AOT capacity than main halls - see below. Marked Courts can sometimes not properly reflect the size of the actual main hall. For example, a hall may be marked out with 4 courts, when it has space for 5 courts. As the model uses the 'courts' as a unit of size, it is important that the hall's capacity is included as a 5 'court unit' rather than a 4 'court unit'.

6.4. The model calculates the capacity of the sports hall as 'visits per week in the peak period' (VPWPP), it then uses this unit of capacity to compare with the demand, which is also calculated as VPWPP. It is often difficult to visualise how much hall space is when expressed as VPWPP. To make things more meaningful this

capacity in VPWPP is converted back into 'main hall court equivalents', and is called in the output table 'Hall Space in Courts'.

7. Facility Attractiveness – for halls and pools only

7.1. Not all facilities are the same and users will find certain facilities more attractive to use than others. The model attempts to reflect this by introducing an attractiveness weighting factor, which effects the way visits are distributed between facilities. Attractiveness however, is very subjective. Currently weightings are only used for hall and pool modelling, with a similar approach for AGPs is being developed.

7.2. Attractiveness weightings are based on the following:

7.2.1. Age/refurbishment weighting – pools & halls - the older a facility is, the less attractive it will be to users. It is recognised that this is a general assumption and that there may be examples where older facilities are more attractive than newly built ones due to excellent local management, programming and sports development. Additionally, the date of any significant refurbishment is also included within the weighting factor; however, the attractiveness is set lower than a new build of the same year. It is assumed that a refurbishment that is older than 20 years will have a minimal impact on the facilities attractiveness. The information on year built/refurbished is taken from Active Places. A graduated curve is used to allocate the attractiveness weighting by year. This curve levels off at around 1920 with a 20% weighting. The refurbishment weighting is slightly lower than the new built year equivalent.

7.2.2. Management & ownership weighting – halls only - due to the large number of halls being provided by the education sector, an assumption is made that in general, these halls will not provide as balanced a program than halls run by LAs, trusts, etc., with school halls more likely to be used by teams and groups through block booking. A less balanced programme is assumed to be less attractive to a general, pay & play user, than a standard local authority leisure centre sports hall, with a wider range of activities on offer.

7.3. To reflect this, two weightings curves are used for education and non-education halls, a high weighted curve, and a lower weighted curve;

7.3.1. High weighted curve - includes non-education management - better balanced programme, more attractive.

7.3.2. Lower weighted curve - includes Educational owned & managed halls, less attractive.

7.4. Commercial facilities – halls and pools - whilst there are relatively few sports halls provided by the commercial sector, an additional weighing factor is incorporated within the model to reflect the cost element often associated with commercial facilities. For each population output area the Indices of Multiple Deprivation (IMD) score is used to limit whether people will use commercial facilities. The assumption is that the higher the IMD score (less affluence) the less likely the population of the OA would choose to go to a commercial facility.

8. Comfort Factor – halls and pools

8.1. As part of the modelling process, each facility is given a maximum number of visits it can accommodate, based on its size, the number of hours it's available for community use and the 'at one time capacity' figure (pools =1 user /6m2 , halls = 6 users /court). This is gives each facility a "theoretical capacity".

8.2. If the facilities were full to their theoretical capacity then there would simply not be the space to undertake the activity comfortably. In addition, there is a need to take account of a range of activities taking place which have different numbers of users, for example, aqua aerobics will have significantly more participants, than lane swimming sessions. Additionally, there may be times and sessions that, whilst being within the peak period, are less busy and so will have fewer users.

8.3. To account of these factors the notion of a 'comfort factor' is applied within the model. For swimming pools 70%, and for sports halls 80%, of its theoretical capacity is considered as being the limit where the facility starts to become uncomfortably busy. (Currently, the comfort factor is NOT applied to AGPs due to the fact they are predominantly used by teams, which have a set number of players and so the notion of having 'less busy' pitch is not applicable.)

8.4. The comfort factor is used in two ways;

8.4.1. Utilised Capacity - How well used is a facility? 'Utilised capacity' figures for facilities are often seen as being very low, 50-60%, however, this needs to be

put into context with 70-80% comfort factor levels for pools and halls. The closer utilised capacity gets to the comfort factor level, the busier the facilities are becoming. You should not aim to have facilities operating at 100% of their theoretical capacity, as this would mean that every session throughout the peak period would be being used to its maximum capacity. This would be both unrealistic in operational terms and unattractive to users.

8.4.2. Adequately meeting Unmet Demand – the comfort factor is also used to increase the amount of facilities that are needed to comfortably meet the unmet demand. If this comfort factor is not added, then any facilities provided will be operating at its maximum theoretical capacity, which is not desirable as a set out above.

9. **Utilised Capacity (used capacity)**

9.1. Following on from Comfort Factor section, here is more guidance on Utilised Capacity.

9.2. Utilised capacity refers to how much of facilities theoretical capacity is being used. This can, at first, appear to be unrealistically low, with area figures being in the 50-60% region. Without any further explanation, it would appear that facilities are half empty. The key point is not to see a facilities theoretical maximum capacity (100%) as being an optimum position. This, in practise, would mean that a facility would need to be completely full every hour it was open in the peak period. This would be both unrealistic from an operational perspective and undesirable from a user's perspective, as the facility would completely full.

9.3. For example; a 25m, 4 lane pool has a theoretical capacity of 2260 per week, during 52 hour peak period.

9.4. As set out in the table below, usage of a pool will vary throughout the evening, with some sessions being busier than others though programming, such as, an aqua-aerobics session between 7-8pm, lane swimming between 8-9pm. Other sessions will be quieter, such as between 9-10pm. This pattern of use would give a total of 143 swims taking place. However, the pool's maximum theoretical capacity is 264 visits throughout the evening. In this instance the pool's utilised capacity for the evening would be 54%.

	4-5pm	5-6pm	6-7pm	7-8pm	8-9pm	9-10pm	Total Visits for the evening
Theoretical max capacity	44	44	44	44	44	44	264
Actual Usage	8	30	35	50	15	5	143

9.5. As a guide, 70% utilised capacity is used to indicate that pools are becoming busy, and 80% for sports halls. This should be seen only as a guide to help flag up when facilities are becoming busier, rather than a 'hard threshold'.

10. Travel times Catchments

10.1. The model uses travel times to define facility catchments in terms of driving and walking.

10.2. The Ordnance Survey (OS) Integrated Transport Network (ITN) for roads has been used to calculate the off-peak drive times between facilities and the population, observing one-way and turn restrictions which apply, and taking into account delays at junctions and car parking. Each street in the network is assigned a speed for car travel based on the attributes of the road, such as the width of the road, and geographical location of the road, for example the density of properties along the street. These travel times have been derived through national survey work, and so are based on actual travel patterns of users. The road speeds used for Inner & Outer London Boroughs have been further enhanced by data from the Department of Transport.

10.3. The walking catchment uses the OS Urban Path Network to calculate travel times along paths and roads, excluding motorways and trunk roads. A standard walking speed of 3 mph is used for all journeys.

10.4. The model includes three different modes of travel, by car, public transport & walking. Car access is also taken into account, in areas of lower access to a car, the model reduces the number of visits made by car, and increases those made on foot.

10.5. Overall, surveys have shown that the majority of visits made to swimming pools, sports halls and AGPs are made by car, with a significant minority of visits to pools and sports halls being made on foot.

Facility	Car	Walking	Public transport
Swimming Pool	76%	15%	9%
Sports Hall	77%	15%	8%
AGP Combined Football Hockey	 83% 79% 96%	 14% 17% 2%	 3% 3% 2%

10.6. The model includes a distance decay function; where the further a user is from a facility, the less likely they will travel. Set out below is the survey data with the % of visits made within each of the travel times, which shows that almost 90% of all visits, both car borne or walking, are made within 20 minutes. Hence, 20 minutes is often used as a rule of thumb for catchments for sports halls and pools.

	Sport Halls		Swimming Pools	
Minutes	**Car**	**Walk**	**Car**	**Walk**
0-10	62%	61%	58%	57%
10-20	29%	26%	32%	31%
20 -40	8%	11%	9%	11%

10.7. For AGPs, there is a similar pattern to halls and pools, with Hockey users observed as travelling slightly further (89% travel up to 30 minutes). Therefore, a 20 minute travel time can also be used for 'combined' and 'football', and 30 minutes for hockey.

Artificial Grass Pitches						
	Combined		Football		Hockey	
Minutes	**Car**	**Walk**	**Car**	**Walk**	**Car**	**Walk**
0-10	28%	38%	30%	32%	21%	60%
10-20	57%	48%	61%	50%	42%	40%
20 -40	14%	12%	9%	15%	31%	0%

NOTE: These are approximate figures, and should only be used as a guide.

Inclusion Criteria used within analysis
Swimming Pools

The following inclusion criteria were used for this analysis;

- Include all Operational Indoor Pools available for community use i.e. pay and play, membership, Sports Club/Community Association.
- Exclude all pools not available for community use i.e. private use.
- Exclude all outdoor pools i.e. Lidos.
- Exclude all pools where the main pool is less than 20 meters OR is less than 160 square meters.
- Include all 'planned', 'under construction, and 'temporarily closed' facilities only where all data is available for inclusion.
- Where opening times are missing, availability has been included based on similar facility types.
- Where the year built is missing assume date 1975[5].

Facilities in Wales and the Scottish Borders included, as supplied by sportscotland and Sports Council for Wales.

[5] Choosing a date in the mid '70s ensures that the facility is included, whilst not overestimating its impact within the run.

Model Parameters used in the Analysis

Pool Parameters

<table>
<tr><td>At one Time Capacity</td><td></td><td>0.16667 per square metre = 1 person per 6 square meters</td></tr>
<tr><td>Catchment Maps</td><td></td><td>Car: 20 minutes
Walking: 1.6 km
Public transport: 20 minutes at about half the speed of a car
NOTE: Catchment times are indicative, within the context of a distance decay function of the model.</td></tr>
<tr><td>Duration</td><td></td><td>60 minutes for tanks and leisure pools</td></tr>
<tr><td>Percentage Participation

Frequency per week</td><td></td><td>
<table>
<tr><th>Age</th><th>0 - 15</th><th>16 - 24</th><th>25 - 39</th><th>40 - 59</th><th>60-79</th><th>80+</th></tr>
<tr><td>Male</td><td>11.03</td><td>7.42</td><td>9.26</td><td>7.89</td><td>4.52</td><td>1.67</td></tr>
<tr><td>Female</td><td>13.91</td><td>13.95</td><td>15.76</td><td>12.25</td><td>7.37</td><td>1.51</td></tr>
</table>
<table>
<tr><th>Age</th><th>0 - 15</th><th>16 - 24</th><th>25 - 39</th><th>40 - 59</th><th>60-79</th><th>80+</th></tr>
<tr><td>Male</td><td>1.11</td><td>1.06</td><td>0.96</td><td>1.04</td><td>1.28</td><td>1.54</td></tr>
<tr><td>Female</td><td>1.08</td><td>0.98</td><td>0.88</td><td>1.02</td><td>1.14</td><td>1.22</td></tr>
</table>
</td></tr>
<tr><td>Peak Period

Percentage in Peak Period</td><td></td><td>Weekday: 12:00 to 13:30; 16:00 to 22.00
Saturday: 09:00 to 16:00
Sunday: 09:00 to 16:30
Total: 52 Hours

63%</td></tr>
</table>