SPORT ENGLAND

Strategic Assessment of Need for Swimming Pools provision in Waltham Forest

Facility Planning Model

National Run Report

July 2019

Contents

1. Introduction

1.1. This report and the accompanying maps provide a strategic assessment of the current level of provision for Swimming Pools in Waltham Forest. This assessment uses Sport England's Facilities Planning Model and the data from the National Run using Active Places data as at April 2019.

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 Waltham 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: Enfield, Hackney, Haringey, Newham, Redbridge, LONDON, and ENGLAND.
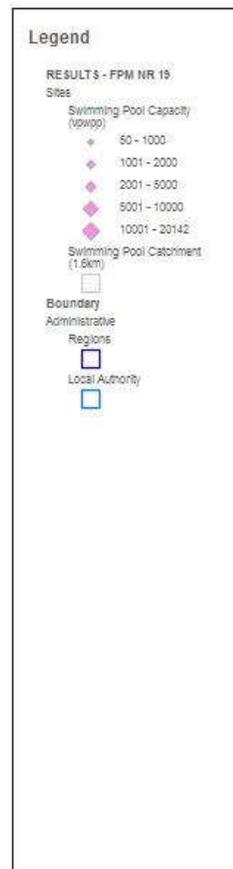
2.   Supply of Swimming Pools

Table 1 - Supply	Waltham Forest	Enfield	Hackney	Haringey	Newham	Redbridge	LONDON	ENGLAND TOTAL
Number of pools	13	10	9	8	11	8	403	3,061
Number of pool sites	8	7	5	5	5	7	275	2,128
Supply of total water space in sqm	2,920	2,597	2,921	1,790	4,681	1,751	97,077	684,751
Supply of publicly available water space in sqm (scaled with hours available in peak period)	2,361	2,420	2,457	1,615	4,117	1,322	86,493	587,090
Supply of total water space in vpwpp	20,469	20,982	21,301	14,006	35,697	11,457	749,893	5,090,071
Waterspace per 1,000 population	10	8	10	6	13	6	11	12

2.1.   Waltham Forest has 13 swimming pools on 8 sites, this supply comprises of 6 main pools, 5 learner/training pools and 2 leisure pools.

2.2.   Only 2 sites are more than 40 years old (Leytonstone LC 1977 and the Community pool at Waltham Forest College 1939 although both these older pools have been refurbished in the last 10 years). The most recent pool was built in 2016 (The Feel Good Centre) which is the largest pool in the borough offering an 8 lane 25m pool. With these older 2 sites it brings the average age of the sites down to 27 years but it is worth noting that the other six sites only have an average age of 16 years indicating a relatively recent and attractive supply of facilities.

2.3.   There is a range of ownership with 2 sites (3 pools) in education ownership, 4 sites local authority (8 pools) and 2 sites (2 pools) being commercially owned) NB – the Feel Good Centre is incorrectly recorded as being in commercial ownership in the model but is actually local authority owned –

2.4.   Peak and off peak availability is limited at some education sites. Overall the amount of waterspace available at peak periods equates to 2,361sqm compared to 2,920 actual sqm.

2.5.   The amount of waterspace per 1,000 population (10sm) is lower than the London (11) and England (12) level and in the mid range when compared to the adjoining London Boroughs.

2.6.   2019 FPM Map showing the locations of the Waltham Forest pools

Legend

RESULTS - FPM NR 19
Sites
  Swimming Pool Capacity
  (vpwpp)
  ◆ 50 – 1000
  ◆ 1001 – 2000
  ◆ 2001 – 5000
  ◆ 5001 – 10000
  ◆ 10001 – 20142
  Swimming Pool Catchment
  (1.6km)
  ☐
Boundary
Administrative
  Regions
  ☐
  Local Authority
  ☐

Contains Ordnance Survey data. © Crown copyright and database right 2019. Sport England 100033111.

3. Demand for Swimming Pools

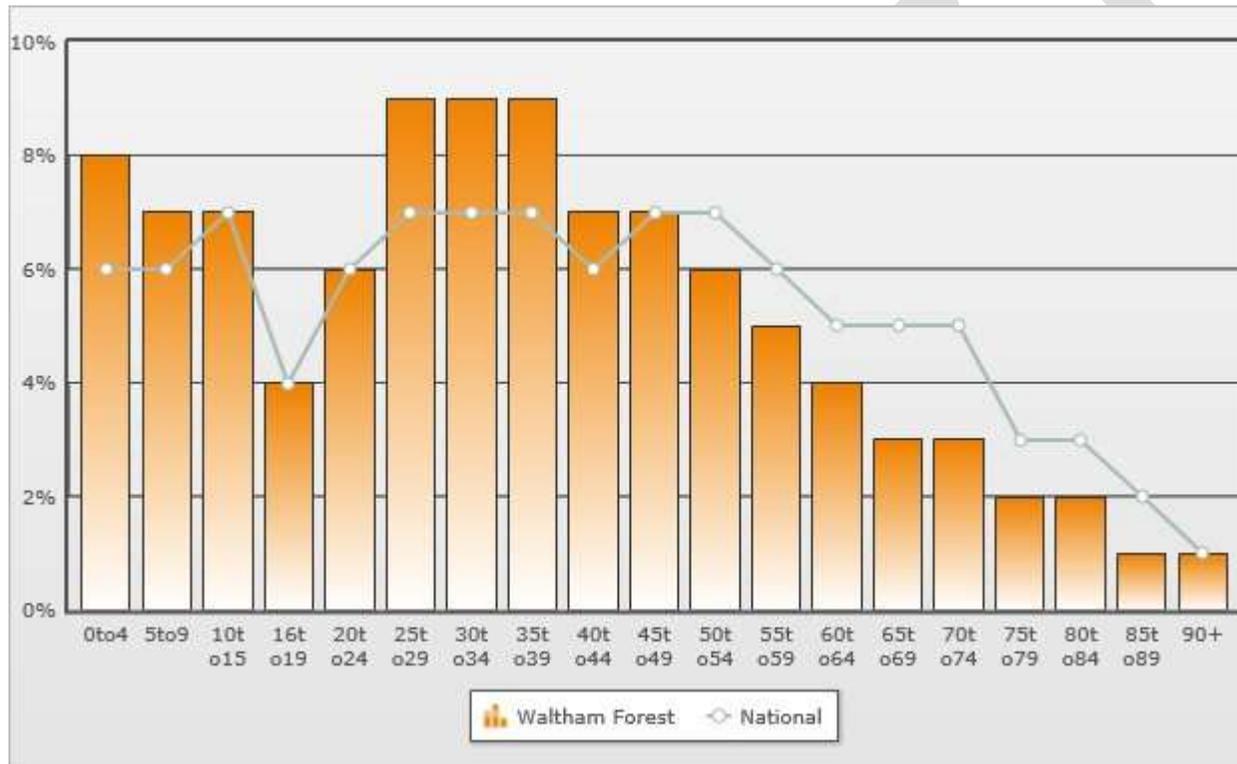| Table 2 - Demand	Waltham Forest	Enfield	Hackney	Haringey	Newham	Redbridge	LONDON	ENGLAND TOTAL
Population	286,786	339,465	286,420	285,954	359,467	307,681	9,104,671	56,405,366
Swims demanded - vpwpp	18,611	21,844	18,979	18,513	23,546	19,803	584,882	3,481,323
Equivalent in waterspace - with comfort factor included	3,089	3,624	3,150	3,072	3,908	3,286	97,065	577,751
% of population without access to a car	41.5	31.7	63.7	51.3	51.1	27.0	40.0	24.9

Definition of total demand – it represents the total demand for swimming pools by both genders and for 14 five-year age bands from 0 to 65+. This is calculated as the percentage of each age band/gender that participates. This is added to the frequency of participation in each age band/gender, so as to arrive at a total demand figure, which is expressed in visits in the weekly peak period. Total demand is also expressed in square metres of waterspace. The findings on the percentage of the population who do not have access to a car is set out under total demand heading.

3.1. The 286,786 resident population of generates a demand of 18,611 visits per week during the peak period (vpwpp). Allowing for a comfort factor this level of demand equates to 3,089sqm of waterspace being needed during peak periods.

3.2. The percentage of the population without a car in Waltham Forest is 41.5% which is higher than the national (24.9%) and the London level (40). It is in the mid range of the adjoining boroughs.

3.3. The amount of demand within an area will be affected by the age and gender profile of the population The population profile of Waltham Forest compared to the national profile shows a higher number of 25-44 year olds and lower number of 50-84 year olds suggesting a more active population.

Male Population

Female Population

Chart legend: Waltham Forest, National
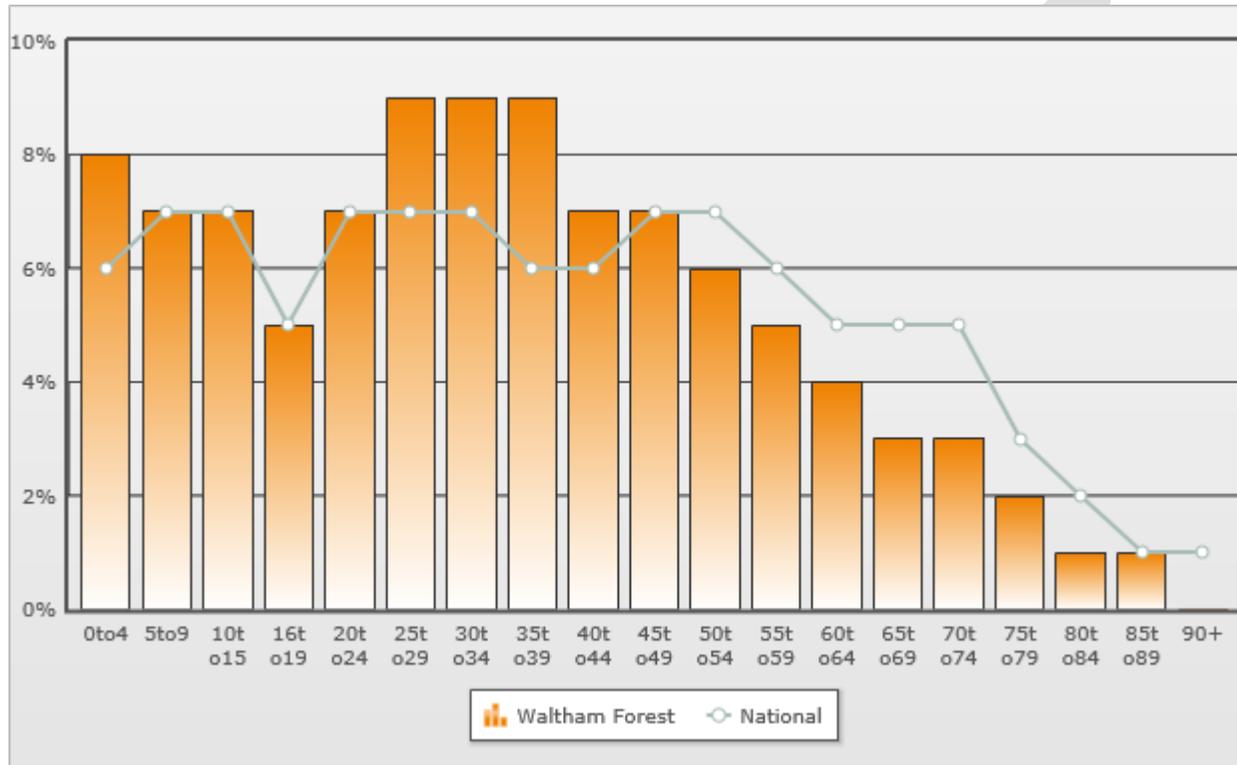
4.   Supply & Demand Balance

Table 3 - Supply/Demand Balance	Waltham Forest	Enfield	Hackney	Haringey	Newham	Redbridge	LONDON	ENGLAND TOTAL
Supply - Swimming pool provision (sqm) scaled to take account of hours available for community use	2,361	2,420	2,457	1,615	4,117	1,322	86,493	587,090
Demand - Swimming pool provision (sqm) taking into account a 'comfort' factor	3,089	3,624	3,150	3,072	3,908	3,286	97,065	577,751
Supply / Demand balance - Variation in sqm of provision available compared to the minimum required to meet demand	-728	-1,204	-693	-1,457	209	-1,964	-10,572	9,339

Note: This section only provides a 'global' view of provision and does not take account of the location, nature and quality of facilities in relation to demand; how accessible facilities are to the resident population (by car and on foot); nor does it take account of facilities in adjoining boroughs. These are covered in the more detailed modelling set out in the following sections (Satisfied Demand, Unmet Demand and Local Share).

When looking at a very simplistic picture of the overall supply and demand across Waltham Forest the resident population is estimated to generate a demand for a minimum of 3,099 sqm of water space. This compares to a current available supply of 2,361 sqm of water space, giving a supply/demand balance of -728 sqm of water space.

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

Table 4 - Satisfied Demand	Waltham Forest	Enfield	Hackney	Haringey	Newham	Redbridge	LONDON	ENGLAND TOTAL
Total number of visits which are met	16,802	20,239	17,619	16,033	21,058	17,740	544,480	3,178,618
% of total demand satisfied	90.3	92.7	92.8	86.6	89.4	89.6	93.1	91.3
% of demand satisfied who travelled by car	55.5	64.6	31.0	48.8	46.5	73.1	54.1	72.2
% of demand satisfied who travelled by foot	29.2	23.0	50.6	29.3	35.5	14.0	32.5	18.4
% of demand satisfied who travelled by public transport	15.3	12.4	18.4	21.9	18.0	12.9	13.4	9.4
Demand Retained	8,869	14,441	10,993	7,798	16,430	6,582	521,605	3,176,560
Demand Retained - as a % of Satisfied Demand	52.8	71.4	62.4	48.6	78.0	37.1	95.8	99.9
Demand Exported	7,934	5,798	6,625	8,214	4,628	11,158	22,875	2,069
Demand Exported - as a % of Satisfied Demand	47.2	28.6	37.6	51.2	22.0	62.9	4.2	0.1

Definition of satisfied demand – it represents the proportion of total demand that is met by the capacity at the swimming pools from residents who live within the driving, walking or public transport catchment area of a swimming pool.

- o The level of satisfied demand in Waltham Forest is 90.3%, lower than the national and London levels although in the mid range of its neighbouring boroughs

- o There is a high proportion travelling by foot and public transport than that seen in the national figures reflecting the urban nature of the area.

- o A very significant proportion (47.2% or 7,934 vpwpp) of the satisfied demand of Waltham Forest residents is being met by pool provision outside the area.

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

Table 5 - Unmet Demand	Waltham Forest	Enfield	Hackney	Haringey	Newham	Redbridge	LONDON	ENGLAND TOTAL
Total number of visits in the peak, not currently being met	1,809	1,605	1,361	2,481	2,488	2,063	40,401	302,705
Unmet demand as a % of total demand	9.7	7.3	7.2	13.4	10.6	10.4	6.9	8.7
Equivalent in water space m^2 - with comfort factor	301	266	226	412	413	342	6,705	50,236
% of Unmet Demand due to;								
Lack of Capacity -	45.1	28.3	31.2	37.0	43.5	35.3	23.5	8.9
Outside Catchment -	54.9	71.7	68.8	63.0	56.5	64.7	76.5	91.1
Outside Catchment;	54.9	71.7	68.8	63.0	56.5	64.7	76.5	91.1
% of Unmet demand who do not have access to a car	52.8	67.7	67.6	61.6	55.0	61.4	73.0	71.4
% of Unmet demand who have access to a car	2.0	4.0	1.2	1.4	1.5	3.3	3.5	19.7
Lack of Capacity;	45.1	28.3	31.2	37.0	43.5	35.3	23.5	8.9
% of Unmet demand who do not have access to a car	41.3	25.7	30.3	35.3	40.4	30.0	21.7	7.2
% of Unmet demand who have access to a car	3.9	2.7	0.9	1.8	3.1	5.3	1.8	1.7

The unmet demand definition has two parts to it - demand for pools which cannot be met because (1) there is too much demand for any particular swimming pool within its catchment area; or (2) the demand is located outside the catchment area of any pool and is then classified as unmet demand. This is unmet demand from lack of access.

6.1. The level of unmet demand is 1,809 vpwpp which equates to approx. 301sqm of waterspace. This is 9.7% of the total demand from residents which is not currently being met.

6.2. There is a near equal split between the unmet demand is due to residents living outside the catchment area of a pool and the unmet demand due to pools being at capacity. In both cases the overwhelming majority of residents do not have access to a car

6.3. Unmet Demand and the Aggregated Unmet Demand Maps below help identify where there may be "hot spots" within the borough. The highest levels of unmet demand are in the south and western areas of the borough

Facilities Planning Model - National Runs - Swimming Pools 2019 Unmet Demand

Unmet Demand expressed as square metres of water (round to two decimal places). Data outputs shown thematically (colours) at either output area level or aggregated at 1km square (figure labels).
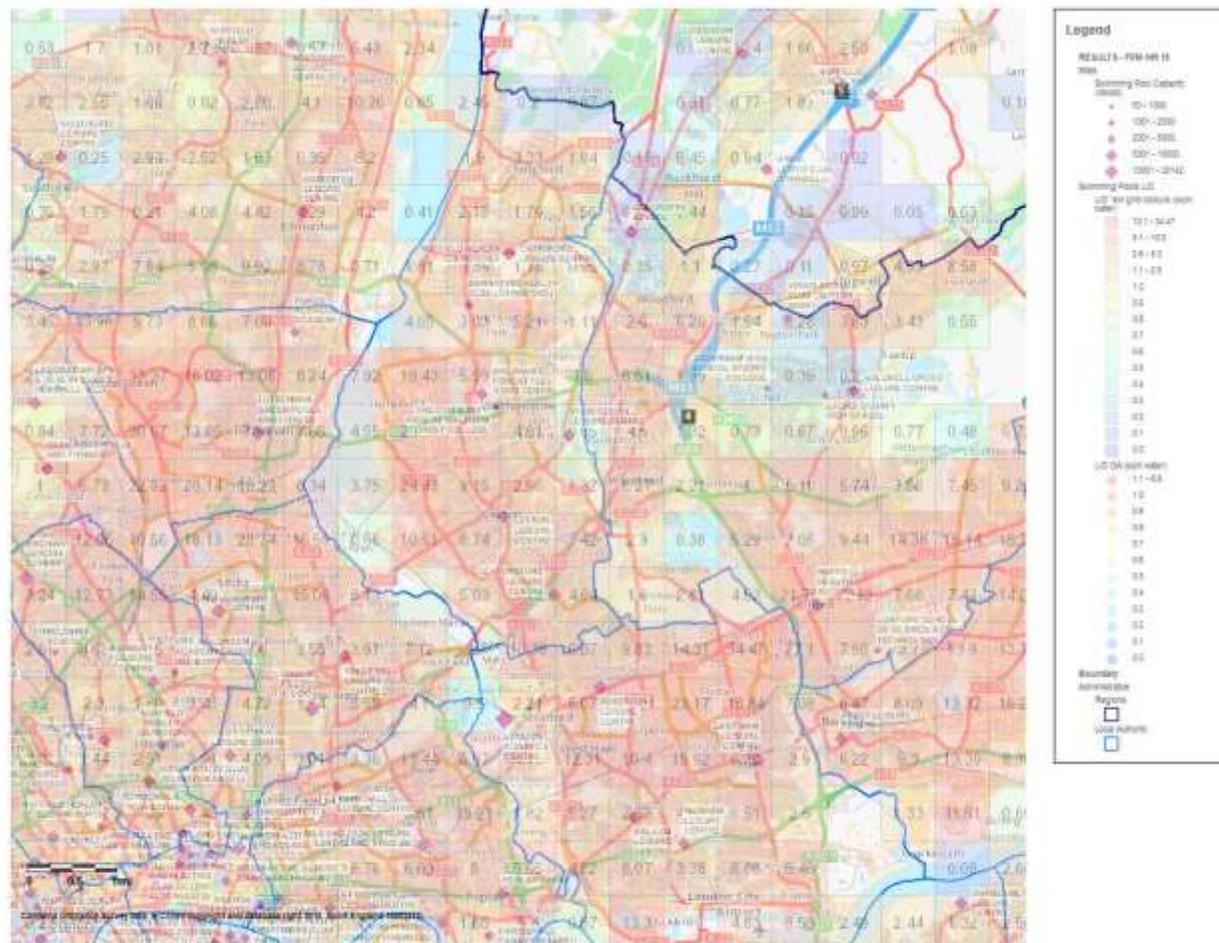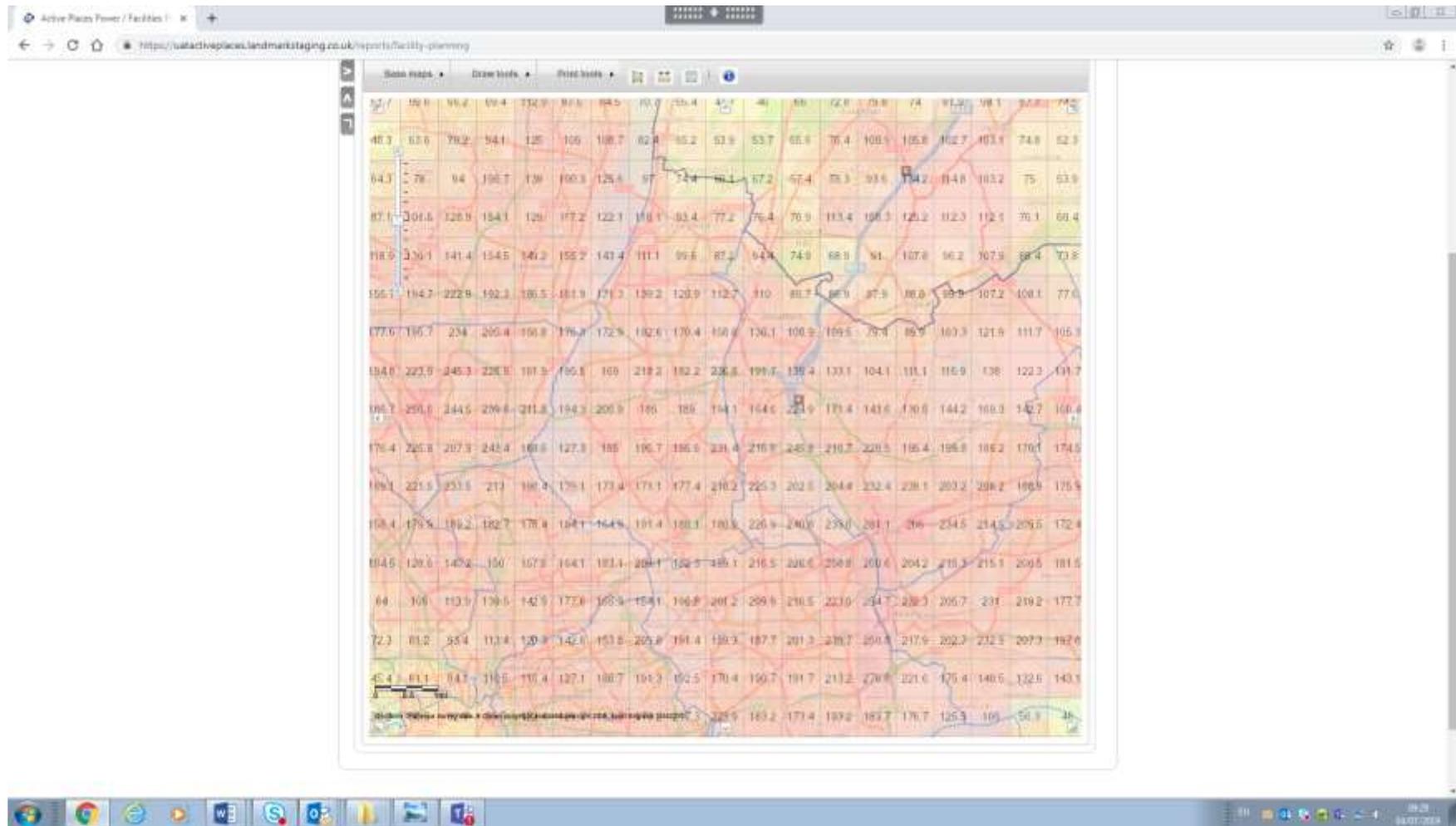
7. Used Capacity - How well used are the facilities?

Table 6 - Used Capacity	Waltham Forest	Enfield	Hackney	Haringey	Newham	Redbridge	LONDON	ENGLAND TOTAL
Total number of visits used of current capacity	14,211	20,055	19,293	12,372	33,209	9,416	536,753	3,178,578
% of overall capacity of pools used	69.4	95.6	90.6	88.3	93.0	82.2	71.6	62.4
% of visits made to pools by walkers	33.4	24.1	51.2	36.8	25.3	24.0	32.9	18.4
% of visits made to pools by road	66.6	75.9	48.8	63.2	74.7	76.0	67.1	81.6
Visits Imported; Number of visits imported	5,342	5,614	8,299	4,574	16,779	2,835	15,148	2,018
As a % of used capacity	37.6	28.0	43.0	37.0	50.5	30.1	2.8	0.1
Visits Retained; Number of visits retained	8,869	14,441	10,993	7,798	16,430	6,582	521,605	3,176,560
As a % of used capacity	62.4	72.0	57.0	63.0	49.5	69.9	97.2	99.9

Definition of used capacity - is a measure of usage at swimming pools and estimates how well used/how full facilities are. The facilities planning model is designed to include a 'comfort factor', beyond which, in the case of pools, the venues are too full. The model assumes that usage over 70% of capacity is busy and the swimming pool is operating at an uncomfortable level above that percentage.

7.1.   The overall capacity used in Waltham Forest is 69.4% which is higher than the national level. It is lower than London and also all the other adjoining boroughs.

7.2.   Looking at individual sites most of them exceed the 70% comfort factor with 5 sites at 100% utilised capacity, only the commercially owned pool show utilisation below the comfort factor level. It should be noted that the newly built Feel Good Centre is being shown to have only a 26% utilisation rate which could be down to it being incorrectly categorised as a commercially owned facility (the model 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.)

7.3.   There is a significant level of imported demand (i.e. residents in adjoining LA areas using Waltham Forest located pools (37.6% of the used capacity, approx. 5,342 vpwpp) making Waltham Forest a slight net exporter of demand but more importantly highlighting the significance of cross boundary provision.

7.4.   In terms of how residents access the pools by walking there is a degree of variation, the extremes being the Community pool at Waltham Forest College (73%) and Bannatyne and the Feel Good Centre at 11%.

Note that the model looks at resident demand and use and not by non-residents. In the case of areas such as Waltham Forest where visitors are more common this will have a bearing on demand and is not picked up by the FPM

8. Local Share - equity share of facilities

Table 7 - Share	Waltham Forest	Enfield	Hackney	Haringey	Newham	Redbridge	LONDON	ENGLAND TOTAL
Local Share: <1 capacity less than demand, >1 capacity greater than demand	0.9	0.8	0.8	0.7	0.8	1.0	1.0	1.1
Score - with 100 = FPM Total (England and also including adjoining LAs in Scotland and Wales)	79.5	72.3	75.0	64.3	67.9	88.4	90.2	100.0
+/- from FPM Total (England and also including adjoining LAs in Scotland and Wales)	-20.5	-27.7	-25.0	-35.7	-32.1	-11.6	-9.8	0.0

Local share has quite a complicated definition - it helps to show which areas have a better or worse share of facility provision. It takes into account the size and availability of facilities as well as travel modes. Local share is useful at looking at 'equity' of provision.

Local Share is the available capacity that can be reached in an area divided by the demand for that capacity in the area. A value of 1 means that the level of supply just matches demand while a value of less than 1 indicates a shortage of supply and a value greater than 1 indicates a surplus..

8.1. In the Waltham Forest area as a whole local share = 0.9 which means the capacity within the existing supply is slightly less than the demand

8.2. The score of 79.5 denotes that Waltham Forest residents have a lower share of accessible pool facilities than the national average (100)

8.3. Variations in the relative share within the borough can be seen on the map below and show a much higher share for residents in the north of the borough compared to those in the south

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Facilities Planning Model - National Runs - Swimming Pools 2019 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.

9. Summary and Conclusions

9.1. Waltham Forest has a lower level of supply of Swimming pools per head of population than national levels and London levels.

9.2. Several education owned pools are not fully available in the peak period indicating there is some spare capacity in the current supply if these could be opened up for longer.

9.3. The average age of the swimming pools is 27 years with a couple of relatively old sites over 40 years old bringing the average down. Most pools are relatively modern.

9.4. There is a range of facility providers with the local authority being the largest provider

9.5. Based solely on residents demand most of the public owned pools operate well above the used capacity level deemed comfortable,

9.6. The Feel Good Centre has been incorrectly categorised as a commercially owned site which could be distorting the findings where the model will allocate use away from commercial sites based on the IMD score in the catchment

9.7. Some of the pools only open for part of peak periods leaving potential additional capacity which could be offered by extending opening times.

9.8. Waltham Forest residents have a significant amount of their demand satisfied by pools outside the borough, and as an area Waltham Forest is a net exporter of demand with residents in adjoining LA's using Waltham Forest pools, this highlights the importance of considering cross boundary provision

9.9 Local share across the city shows that overall supply is not fully meeting demand and residents have a lower "share" of access compared to the national benchmark

10.   Maps

Included within the report

Appendix 1: Swimming Pools Included/Excluded

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

Facilities Included:

Name of Site	Type	Dimensions	Area	Site Year Built	Site Year Refurb	Weight Factor	Public/Commercial	Hours in Peak Period	Total Hours Available	Site Capacity - vpwp	% of Capacity Used	% of Capacity Not Used	Site Capacity Used in the Peak Period	Demand Redistributed after initial allocation	Annual Throughput	Road % Demand	Car % Demand	Public Transport % Demand	Walk % Demand
Waltham Forest				1992		91%				20,469	69%	31%	14,211	-3,584	1,031,981	67%	54%	13%	33%
BANNATYNE HEALTH CLUB (CHINGFORD)	Leisure Pool	25 x 9	213	2002		89%	C	52	110.5	1,837	27%	73%	496	137	42,032	89%	79%	10%	11%
CHINGFORD LEISURE CENTRE	Main/General	25 x 13	313	2002		89%	P	52	93	3,640	100%	0%	3,640	385	265,307	85%	70%	15%	15%
CHINGFORD LEISURE CENTRE	Learner/Teaching/Training	13 x 13	156					36	56.3										
LEYTON LEISURE CENTRE	Leisure Pool	25 x 8	193	1991	2013	90%	P	52	93	2,392	100%	0%	2,392	-2,050	178,482	39%	29%	9%	61%
LEYTON LEISURE CENTRE	Learner/Teaching/Training	12 x 7	84					52	93										
LEYTONSTONE LEISURE CENTRE	Main/General	25 x 13	313	1977	2014	82%	P	45	85.3	2,770	100%	0%	2,770	-842	210,328	52%	39%	13%	48%
LEYTONSTONE LEISURE CENTRE	Learner/Teaching/Training	12 x 10	120					21.5	32										
NUFFIELD HEALTH (CHINGFORD)	Main/General	25 x 8	200	2001		87%	C	52.0	107	1,733	24%	76%	409	101	33,782	86%	77%	8%	14%
SYLVESTRIAN LEISURE CENTRE	Main/General	25 x 13	325	2007		95%	P	39.5	43	2,600	100%	0%	2,600	-1,012	139,523	74%	59%	15%	26%
SYLVESTRIAN LEISURE CENTRE	Learner/Teaching/Training	10 x 7	70					39.5	43										
THE COMMUNITY POOL AT WALTHAM FOREST COLLEGE	Main/General	30 x 13	375	1939	2011	70%	P	10.0	24.5	625	100%	0%	625	-671	59,019	27%	21%	6%	73%

| WALTHAM FOREST FEEL GOOD CENTRE | Main/General | 25 x 17 | 413 | 2016 | | 100% | C | 52.0 | 104 | 4,871 | 26% | 74% | 1,279 | 370 | 103,507 | 89% | 78% | 11% | 11% |
| WALTHAM FOREST FEEL GOOD CENTRE | Learner/Teaching/ Training | 15 x 10 | 150 | | | | | 52.0 | 104 | | | | | | | | | | |

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:

THE MCENTEE SCHOOL (CLOSED)	Closed.Private Use.Too Small
WALTHAM FOREST POOL & TRACK (CLOSED)	Closed.
WALTHAM FOREST POOL & TRACK (CLOSED)	Closed.
WALTHAM FOREST POOL & TRACK (CLOSED)	Closed.

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

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[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].

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[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.

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[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	73%	18%	9%
Sports Hall	75%	16%	9%
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.

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[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

At one Time Capacity		0.16667 per square metre = 1 person per 6 square meters
Catchment Maps		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.
Duration		60 minutes for tanks and leisure pools

Percentage Participation								

Age	0 - 15	16 - 24	25 - 39	40 - 59	60-79	80+
Male	XX	XX	XX	XX	XX	XX
Female	XX	XX	XX	XX	XX	XX

Age	0 - 15	16 - 24	25 - 39	40 - 59	60-79	80+
Male	XX	XX	XX	XX	XX	XX
Female	XX	XX	XX	XX	XX	XX

Frequency per week

Peak Period		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%
Percentage in Peak Period		