



**Strategic Assessment of Need for
Artificial Grass Pitch Provision in London 2017 - 2041**

Facilities Planning Model

Date of report

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Section 1: Introduction

- 1.1 The Greater London Authority (GLA) wishes to develop an evidence base assessment of need for full size Artificial Grass Pitches (AGPs) for football and hockey. The assessment is based on the current provision of AGPs and the supply, demand and access to AGPs in 2017. Then a second assessment to 2041, to identify how the projected population growth 2017 – 2041 changes the demand for AGPs and the distribution of demand.
- 1.2 The GLA has requested Sport England to apply the Sport England facilities planning model (FPM) to produce the data for these assessments. In 2010, the GLA requested Sport England to undertake a similar study to provide an evidence base for AGPs in both 2010 and 2022. The outcomes of that study provided an evidence base which was applied in the GLA 2nd London Plan.
- 1.3 This report presents the findings from the AGP FPM assessment for 2017 and 2041. It will be used by the GLA to inform policies in the new London Plan, a draft of which is to be published in autumn 2017.
- 1.4 The report sets out the supply and demand for full size AGPs for both hockey and football in a combined assessment. This is based on the type of surface suitable for each sport; and the hours available for club and wider community use at each of the individual AGP pitch sites for each sport.
- 1.5 The assessment also includes how accessible the AGP sites are by different travel modes. For the walking catchment it is 20 minutes/1mile, the public transport catchment area for an AGP is set at 20 minutes' travel time. The car travel catchment area of an AGP is 20 minutes' drive time. The travel modes do not include travel to sports halls by cycling. This is because there is insufficient data to be able to project the amount of visits by cycling, or, develop a travel time/distance catchment area for cycling
- 1.6 Finally, by way of introduction to the assessment, it includes: an analysis of the scale of demand which is met (satisfied demand); the scale and location of any unmet demand; an estimate of how full the AGPs are (titled as used capacity of AGPs); and the local share of AGP's by residents, which is an equity assessment.

Structure of the fpm assessment

- 1.7 The structure and sequence of reporting for the assessment is to set out:
 - The extent to which the current demand for full size AGPs in 2017 is met by the current supply, based on the AGP supply and demand for sand based pitches for hockey and 3g pitch surfaces for football

- The impact of population growth from 2017 to 2041 has on the demand and its distribution.

1.8 The work is based on two separate pieces of analysis (known as runs) which have been modelled.

- Run 1 current supply of AGPs in 2017 for hockey and football use in London and pitches in the neighbouring local authorities to London, and where the catchment area of these AGPs extends into London.
- Run 2 the projected demand for AGPs in 2041 for football and hockey, based on the projected population growth in London and the surrounding local authorities. Both runs use the GLA 2015 based population projections for the 32 London Boroughs, plus the City of London. For the wider study area ONS population projections have been applied based on the 2039 ONS data with an uplift to 2041.

1.9 The sequence of reporting is to set out:

- An Executive Summary of key findings;
- The detailed assessment for both 2017 and for 2041 in one set of tables, so there is a “read across” and it is possible to see what has changed. These tables are followed with a commentary on the key findings. The headings and tables are: total supply; total demand, satisfied demand; unmet demand; used capacity (how full the AGPs are); and local share. The definition of each heading is set out at the start of the reporting;
- The findings are also supported by further tables to show which London Boroughs have the highest and lowest findings for each heading, for example the amount of unmet demand for AGPs. Also included are maps to illustrate the catchment area of AGPs and how access to AGPs by car and walking catchments differs across London. In effect, to illustrate which areas of London have the highest and lowest access to AGPs, based on the AGP location, catchment area and travel patterns; and

- Three Appendices, with Appendix 1 being a series of tables for all the headings described above and findings for all the London Boroughs. Appendix 2 is a description of all the pitches included in the assessment. Appendix 3 sets out the parameters applied in the facilities planning model.

Facilities Planning Model

- 1.10 The Sport England facilities planning model (FPM) is the industry benchmark standard for undertaking needs assessment for the main community sports facilities. It is compliant with meeting the requirements for needs assessment, as set out in paragraphs 73 – 74 of the National Planning Policy Framework.
- 1.11 The FPM is a computer-based supply/demand model, which has been developed by Edinburgh University in conjunction with Sport Scotland and Sport England since the 1980s. 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, and artificial grass pitches.
- 1.12 The FPM is applied for local authority assessments for these facility types. It can also be applied to indoor bowls as a specialist topic and this is usually in connection with commercial studies or Governing Body studies.
- 1.13 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
 - 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.
- 1.14 Its current use is applied 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.

- 1.15 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.
- 1.16 The FPM should be used as the start point for the assessment of the current and future demand for AGPs. The models findings should be reviewed with the National Governing Bodies for each sport, to gain a sports perspective. Also with the individual local authorities, the facility operators and sports clubs to gain a perspective of how things are operating on the ground. Together this provides the all-round assessment and evidence base on which to plan the future provision of AGPs.
- 1.17 This all round approach is emphasised because the environment for the application of the fpm in modelling for AGPs is changing. The model is based on existing patterns of use with football and hockey using sand based pitches. Whereas the FA strategy and direction is to move all football use on to 3g surfaces, this will reduce football demand for sand based surfaces and increase demand for 3g surfaces.
- 1.18 Increasingly, individual local authorities are taking account of these changes and developing local strategies to take account of these shifts. Then assessing the potential to change some surfaces or even provide more 3g surfaces. This work also involves local football leagues and their move to staging match play as well as training and development on 3g surfaces.
- 1.19 Rugby union is included as part of the pitch assessment. The current estimate is that 3% of the club and community use of AGPs is by rugby union, across England. There is not sufficient data and evidence to develop an assessment of need and the demand parameters for rugby union use of AGPs specifically. Increasingly however, rugby union use of AGPs is increasing and with it the development of pitch surfaces suitable for rugby union.

The study area

- 1.20 Describing the study area provides some points of explanation and a context for the report's findings. Customers of sports facilities do not reflect local authority boundaries and whilst there are management and pricing incentives (and possibly disincentives) for customers to use sports facilities located in the area in which they live, the reality is that people who use AGPs travel across local authority boundaries.
- 1.21 Consequently, in determining the position for London, it is important to take account of the AGPs in the neighbouring local authorities to London. In particular, to assess the impact of overlapping catchment areas of facilities. Taking account of all these factors is done

by establishing a study area which places London at the centre of the study and assesses the import and export of demand into and out of London and for each London Borough.

- 1.22 In addition, this approach embraces the National Planning Policy Framework approach of taking account of neighbouring authorities, when assessing locally derived needs and the development of a local evidence base for provision of services and facilities.

Section 2: Executive Summary

- 2.1 This Executive Summary describes the key findings under each of the headings described in the introduction. The Executive Summary focuses on the London wide findings and the Boroughs which have the highest and lowest levels of provision. The main report contains a number of tables which presents the findings for the Boroughs with the five highest and the five lowest levels of provision. Whilst Appendix 1 sets out the findings for all 32 London Boroughs.
- 2.2 The City of London is included in the assessment. There are however no AGPs in the City of London and it has only a small population of 8,855 people in 2017. So whilst the data is part of the assessment, the findings for the City of London are not included in the commentary because it is so different from the London Boroughs.

Total Supply

- 2.3 In 2017, there are 184 full size AGPs on 160 sites across the 32 London boroughs. The supply is projected to increase by one AGP pitch and one site by 2041 with the addition of a 3g pitch for football in Lambeth at Archbishops Park in Lambeth. This is the known

change in AGP supply at the time of undertaking the analysis (March 2017). There will obviously be further changes in AGP supply up to 2041, either by new provision of AGPs or the re-surfacing of existing AGPs and changes in the pitch carpet from sand based to a 3g surface. The AGP data base of full size pitch supply and committed changes was reviewed and signed off by the GLA at the time of the analysis.

2.4 This is the total supply of 184 full size AGPs. When the supply is assessed based on the supply available for community use in the weekly peak period (often referred to as the effective supply), this reduces to an effective supply of 141 AGPs for community use in 2017. The difference between the total and effective supply of 43 AGPs is for several reasons:

- Reduced hours for community use at AGP's on education sites and increasingly at some AGP sites owned and operated by local authorities: The owners, be it local authority, individual schools, colleges or higher education determine the policy and amount of community use of pitches. So the hours of access and community use does vary. Some schools/colleges are proactive in promoting community use of AGPs and the school as part of the community. Other schools take a more responsive approach and respond to lettings and bookings based on clubs approaching the school or college, so the level of use at these sites is lower than at the proactive schools/colleges.
- Floodlighting restrictions on the hours of use of AGPs: The weekly peak period can extend up to 9.30pm on weekday evenings. However, floodlighting restrictions on the hours of use, does mean pitches can close at 8.pm or even earlier, thereby restricting the hours of use. If planning constraints could be relaxed then there is an immediate increase in the AGP supply, without having to actually provide more AGPs.

2.5 The difference between the total supply and the effective supply of AGPs in 2017 is 43 pitches, or 23.3% of the total supply of AGP's. This is a very important finding and before considering the need for further provision of AGPs, a first assessment is to consider the scope to increase access to the AGPs which have reduced access for community use. Appendix 2 does list the hours of use in the weekly peak period for all AGP sites, so it is possible to identify where there are fewer hours of community use, for example East Barnet School has 8 hours of community use in the weekly peak period. Also this Appendix sets out the AGP supply in each Borough, for example, Bromley has 10 AGPs available for community use whereas Kingston on Thames and Sutton have less than one AGP available for community use in the weekly peak period. So it is also possible to identify where intervention by either AGP site or local authority area will achieve most in increasing supply.

- 2.6 It is perhaps not surprising to find that the outer London authorities, and those with the largest land area, have the highest supply of AGPs. Whilst the inner London authorities with more limited land, have the lowest supply. The contradiction to this assessment is Sutton which has no full size AGPs in either year.

Total Demand and Total Supply

- 2.7 The total population in London in 2017 is 8.83m and this is projected to increase to 10.66m by 2041. Based on the participation rates and frequency of participation for both sports, this population generates a total demand for 303 full size AGPs in the weekly peak period in 2017. This is projected to increase to a total demand for 339 AGPs in the weekly peak period by 2041. This compares with a total supply of full size AGPs in London of 184 in 2017 and 185 in 2041.
- 2.8 These findings are simply comparing the London total demand with the total supply of AGPs in London in both years. Subsequent headings set out how the distribution of demand interacts with the location and catchment area of AGPs, so how much demand can be satisfied/met and the scale and location of unmet demand.

Satisfied demand

- 2.9 Some 55% of the total demand for AGPs across London is met in 2017. This decreases to 48% in 2041, based on the projected increase in demand for AGPs from population growth.
- 2.10 This is a very low level of satisfied demand. The England wide figure for satisfied demand for AGPs in 2017 is 82% of total demand and it is projected to be 77.6% in 2041. London is the area of the country with the lowest level of satisfied demand, the next lowest being in Yorkshire at 79% of total demand being satisfied demand. The highest levels of satisfied demand are in the South West at 91% and in East Midlands at 93% of total demand being satisfied demand.
- 2.11 Satisfied demand does vary between the Boroughs, it being highest in Hillingdon at 82% of total demand being met, Bromley at 75%, Havering at 74%, Bexley at 73% and Richmond at 72%, in 2017. The Boroughs with the lowest level of satisfied demand are Westminster at 25%, Hackney at 31%, Kensington and Chelsea at 31%, Camden at 34% and Hammersmith and Fulham at 35% in 2017.

Access to AGPs

- 2.12 Access to AGPs by walking (20 minutes/1 mile catchment) is illustrated in Map 3.2. Only around 25% of the land area of London is inside the walking catchment area of one AGP. The outer London Boroughs have the largest land area and are the Boroughs with the most areas outside the walking catchment of an AGP.
- 2.13 All of Kingston Borough is notably outside the walking catchment area of a full size pitch. In Bromley, Harrow and Sutton there are only a few areas inside the walking catchment area of one AGP. The boroughs with the highest land area inside the walking catchment area of an AGP are, Barking and Dagenham, Brent, Enfield, Newham and Richmond
- 2.14 Access to AGP's by car (20 minutes is illustrated in Map 3.3. All areas of London have access to at least 6-8 AGPs (Map 3.1 in the main report) based on the pitch locations and drive time catchment areas of the pitch locations. Based on the findings in Map 3.1 it would appear that 60% of the London land area is inside the drive time catchment area of between 6 – 8 full size AGPs.
- 2.15 Access is lowest in the boroughs on the periphery of London, which paradoxically have the highest number of AGPs but residents also have the greater distances to travel because these Boroughs are larger in land area.
- 2.16 There is a footnote to these findings, residents of the inner London Boroughs, do have to travel to access AGPs, as the supply is lowest in the inner London boroughs. Residents in boroughs such as Camden, Hackney and Lambeth which have low AGP provision, also have a high percentage of residents who do not have access to a car, for example 63% of Hackney residents do not have access to a car and it is 60% in Camden. So, in effect, their residents' ability to access AGP's is constrained when measured against car travel.

Unmet Demand

- 2.17 Unmet demand has two definitions (1) demand for an AGP which cannot be met because there is not enough capacity to meet all the demand in the catchment area of the AGP location. (2) Unmet demand which is located outside the catchment area of an AGP, Unmet demand is 44% of total demand in 2017 and projected to increase to 51% of total demand by 2041.
- 2.18 The significance of this scale of unmet demand can be underlined with comparisons to other Regions. Unmet demand, as a percentage of total demand, is next highest in Yorkshire at 20.7% of total demand in 2017. Unmet demand is lowest in the East Midlands Region at 6.7% of the total demand for AGPs and is just 8.2% in the South East Region.

- 2.19 Of the total unmet demand, 97% in both 2017 and 2041 is due to lack of AGP capacity and under 3% from demand located outside catchment area of an AGP. This is consistent with the accessibility findings that, across the London there is very good access to a high number of pitches – based on car travel. All of London is inside the drive time catchment area of at least 6 – 8 pitches.
- 2.20 In terms of AGPs, the total unmet demand equates to 135 AGPs in 2017 and 175 AGPs by 2041. The unmet demand findings are the flip side of the satisfied demand findings, and where only 55% of demand was being met in 2017 and 48% in 2041. So whilst London does have a total supply of 184 AGPs in 2017 and an effective or available supply of 141 AGPs for community use, there is a considerable requirement for further AGPs, to meet demand.
- 2.21 In short, the unmet demand in 2017 of 135 AGPs is only 6 less than the total effective supply of AGPs which is 141. This underlines the scale of the difference between supply and demand for AGPs. Unmet demand for AGPs is highest in Newham at 14 AGPs, then a need for 12 AGPs in Barnet, Croydon, Ealing and Lambeth, Unmet demand is lowest in Kensington and Chelsea at less than 5 AGPs. Then less than 6 AGPs in Kingston, Richmond on Thames, and Sutton, whilst it is less than 7 AGPs in Hammersmith and Fulham. The table for unmet demand in all the London Boroughs is Table 3.11 in Appendix 1.
- 2.22 The findings do underline the significance of the findings under the supply heading. Namely the equivalent of 43 full size AGPs on education sites and increasingly some local authority sites being unavailable for community use. A first priority should be to increase access to these AGPs for community use and which goes some way to meeting some of the unmet demand.

Used Capacity of AGPs (how full are the pitches)

- 2.23 In both 2017 and 2041, the estimated used capacity of the AGPs is 100% in the weekly peak period.
- 2.24 The FPM assessment is that there is need for an extensive increase in provision of AGPs to meet the demand in 2017 and the projected demand in 2041. In short, the total demand for AGPs across London in 2017 is for 303 AGPs, whilst total supply is 184 AGPs, the difference being 119 full size AGPs. In 2041 total demand is projected to be for 339 AGPs and the supply based on known changes in 2017 is 185 AGPs, the difference being 154 AGPs. It is evident the existing supply has to be retained and protected as well as increasing access to the equivalent of the 43 AGPs on education sites currently which are currently not available for community use.

Overall Summary

- 2.25 London has as significant amount of unmet demand for provision of AGPs, which is higher than all other England regions. Increasing access for community use to the current equivalent of 43 full size AGPs currently unavailable and located predominately on education sites, would begin to increase supply and access for community use,
- 2.26 Whilst demand is greater than supply, another key feature is the distribution of the demand for AGP's. Based on the location of AGPs and their catchment area, there is very good access to pitches by car. However access by walking or use of public transport is poor, restricting access for those who do not own a car or choose not to travel by car. This highlights the importance of improving public transport and walking accessibility for AGPs.

Section 3: Main findings for combined use of artificial grass pitches – runs 1 (2017) and 2 (2041)

Introduction

- 3.1 The reporting of the main findings follows a sequence of setting out the data from both fpm runs in one table. Then is followed with a bullet point commentary on the main findings.
- 3.2 Based on these findings, then specific maps or further tables/graphs are included to explain in more detail the key findings. Run 1 is the current supply of AGPs for both football and hockey use. Run 1 includes all the current AGPs and their use for both football and hockey, based on the pitch surface suitable for each sport. Run 2 is the same assessment but for 2041.

QUANTITY (SUPPLY)

Table 3.1: Runs 1 – 2 Supply of Artificial Grass Pitches for London 2017 and 2041

LONDON TOTAL	RUN 1	RUN 2
Total Supply	2017	2041
Number of pitches	184	185
Number of pitch sites	160	161
Supply of total pitches in pitches	184	185
Supply of publicly available pitch space in pitches, scaled with hours available in the peak period	141.7	142.6
Supply of total pitch space in visits per week peak period	104,878	105,558
Pitches per 10,000 population	0.2	0.2

3.3 Definition of total supply – AGP supply is measured in the number of actual full size AGPs which are available for community use. The supply of AGP's is expressed as visits in the weekly peak period or number of full size AGPs.

3.4 The summary of key findings for runs 1 and 2 are:

- In 2017 there are 184 AGPs on 160 sites across the 32 London boroughs. The supply is projected to increase by one AGP and one site by 2041 with the addition of a 3g pitch for football in Lambeth at Archbishops Park in Lambeth. This was the committed change in AGP supply as at March 2017 and the basis for the modelling. There will obviously be further changes in AGP supply in the period up to 2041 but these are unknown. The AGP supply base was signed off by the GLA for analysis.
- This is the total supply of full size AGPs. When the supply is assessed based on the supply available for community use in the weekly peak period (often referred to as the effective supply), this reduces from a total supply of 184 AGPs, to an effective supply of 141 AGPs for community use in 2017. Both sets of figures increase by 1 in 2041. The reason for the difference between the total and effective supply is because of the reduced hours for community use at AGPs on some local authority sites and where individual schools, colleges and higher education are determining the policy and amount of community use of AGPs.
- The difference between the total supply and the effective supply of AGPs in 2017 is 43 pitches, or 23.3% of the total supply of pitches. Table 3.2 below lists the Boroughs with the highest and lowest number of full size AGPs.
- Before considering the need for further provision of AGPs, a first priority should be to consider the scope to increase access to the AGPs on education sites and which have reduced access for community use. In effect, to make more use of what already exists Appendix 2 lists the name of all AGP pitch sites and the hours available for community use in the weekly peak period. So it is possible to see where intervention needs to be targeted so as to increase the supply.
- The distribution of AGPs for the London Boroughs with the highest supply (in green) and the five with the lowest supply (in pink) are set out in Table 3.2 for both 2017 and 2041. The full findings for all London Boroughs are set out in Appendix 1.

Table 3.2: Number of full size AGPs in the London Boroughs with the highest and lowest provision 2017 and 2041

Supply - Pitch provision (pitches) scaled to take account of hours available for community use	RUN 1	RUN 2
London	2017	2041
London Total	141.7	142.7
Brent	5.6	5.6
Bromley	11.1	11.1
Camden	1.0	1.0
Greenwich	7.7	7.7
Hillingdon	9.1	9.1
Hounslow	7.6	7.6
Kensington & Chelsea	0.0	0.0
Kingston upon Thames	0.8	0.8
Lambeth	1.3	2.2
Sutton	0.8	0.8

- The AGP's provide for 104,800 visits in the weekly peak period in 2017 and 105,500 visits in the weekly peak period in 2041. The weekly peak period for floodlit AGPs is 34 hours and for non-floodlit AGPs it is 16 hours. Appendix 3 of the report sets out all the fpm parameters.
- A comparative measure for assessing supply of AGPs across each of the authorities on a consistent basis is pitches per 10,000 population. Across London there are 0.2 pitches per 10,000 population in both years. The range of AGPs per 10,000 population for the authorities with the highest and lowest provision is set out in table 3.2 below. Again the authorities with the highest provision are highlighted in green and those with the lowest in pink.

Table 3.3: AGPs per 10,000 population for each London Boroughs 2017 and 2041

Pitches per 10,000 population	RUN 1	RUN 2
London	2017	2041
London average	0.2	0.2

Pitches per 10,000 population	RUN 1	RUN 2
London	2017	2041
Bromley	0.4	0.3
Camden	0.0	0.0
Enfield	0.3	0.3
Greenwich	0.3	0.2
Hammersmith & Fulham	0.1	0.1
Havering	0.3	0.2
Hillingdon	0.4	0.3
Hounslow	0.3	0.3
Islington	0.0	0.1
Kensington & Chelsea	0.1	0.0
Kingston upon Thames	0.0	0.0
Merton	0.4	0.4
Richmond upon Thames	0.4	0.4
Southwark	0.3	0.2
Sutton	0.0	0.0

QUANTITY (TOTAL DEMAND)

Table 3.4: Runs 1 – 2 Demand for Artificial Grass Pitches for London 2017 and 2041

LONDON TOTAL	RUN 1	RUN 2
Total Demand	2017	2041
Population	8,835,569.	10,663,387.
Visits demand –visits per week peak period	224,529.	251,374.

Equivalent in pitches	303.4	339.7
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3.5 Definition of total demand - total demand is the measurement of the demand for artificial grass pitches for hockey and football and rugby union. Demand is measured in the same way as supply, in terms of numbers of visits in the weekly peak period and how this equates to demand in terms of full size AGPs. The demand assessment is based on the GLA 2015 based population projections for the 32 London Boroughs, plus the City of London. The total demand for AGPs for football and hockey is then determined from this population and by the percentage of the population who participate and their frequency of participation. This is for 6 different age bands and for males and females. Appendix 2 contains the fpm parameters applied in the study.

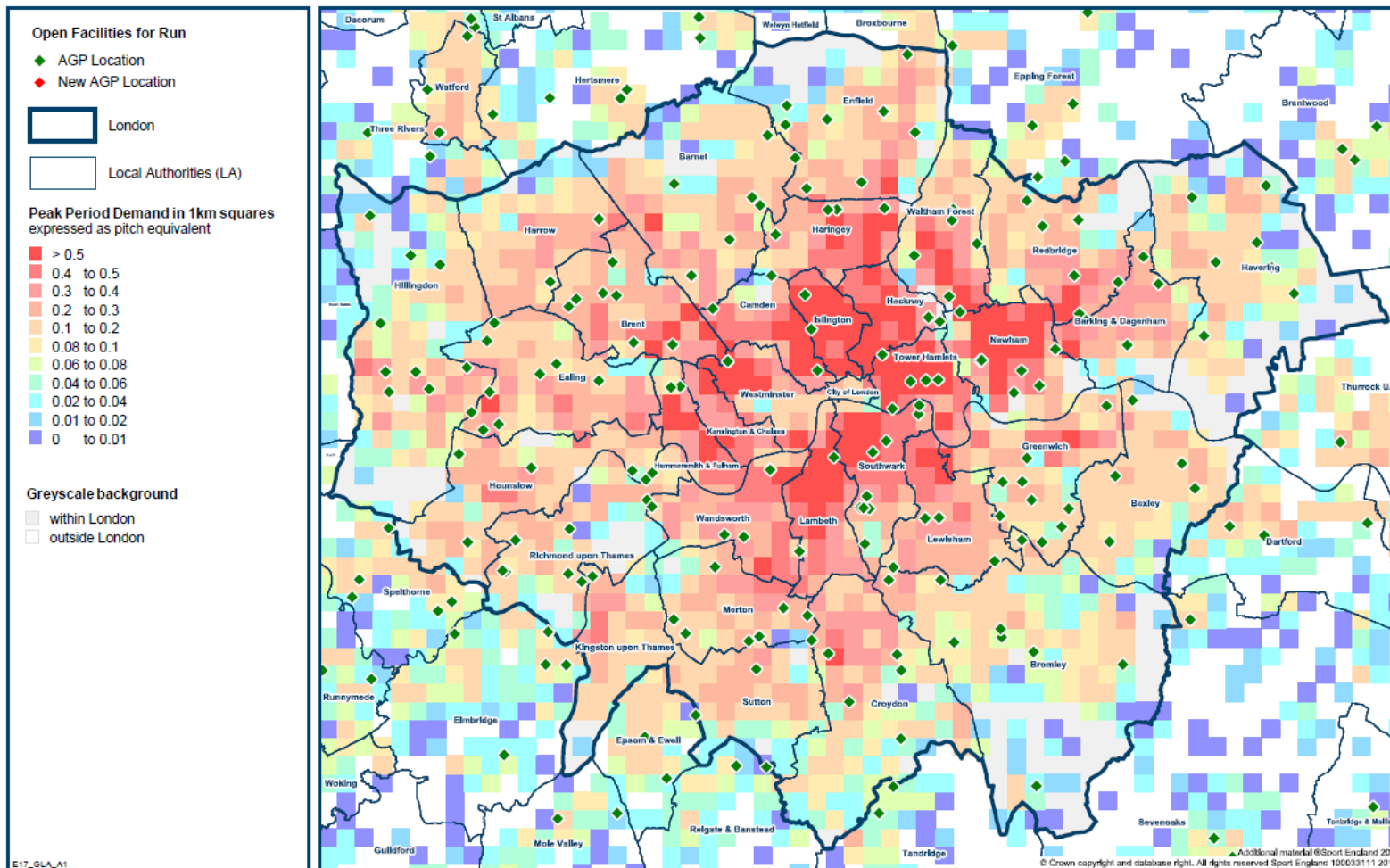
3.6 The summary of findings for runs 1- 2 are:

- The total population in London in 2017 is 8.835m and this is projected to increase to 10.663 m by 2041
- This population and based on the participation rates for both sports generates a total demand for 303 full size AGPs in the weekly peak period in 2017. This is projected to increase to a total demand for 339 AGPs in the weekly peak period by 2041. The scale, location and distribution of the demand for AGPs in 2017 is illustrated in Map 3.1. The key for the demand is on the left hand side of the map and demand is colour coded in terms of scale of AGPs. Demand is lowest in the squares shaded indigo blue at 0.01 of a full size AGP. Demand is highest in the dark red squares, at 0.5 of a full size AGP. As the map shows demand is highest in the inner London Boroughs and lowest in the outer
- London Boroughs, especially on the periphery of these Boroughs.

Map 3.1: Total demand for AGPs London 2017

Facility Planning Model - AGPs Hockey/Football Combined Demand for London Run 1: 2017 Population

Peak period demand aggregated at 1km square grid (figure labels) and shown thematically (colours). Peak period demand at 1km square grid level expressed as pitch equivalent (740 vpwp = 1 pitch).



3.7 Many Londoners rely on public transport, walking and cycling to get around and only 40% own or have access to a car. This also means more residents will use public transport, walk or cycle to access AGPs. In turn, this means the location of AGPs in areas accessible by walking and cycling, and on public transport routes is important to maintain accessibility for all residents. The travel patterns to AGPs is set out under the satisfied demand heading.

SATISFIED DEMAND AND ACCESSIBILITY TO AGPs

Table 3.5: Runs 1 – 2 Satisfied Demand for Artificial Grass Pitches for London 2017 and 2041

LONDON TOTAL	RUN 1	RUN 2
Satisfied Demand	2017	2041
Total number of visits which are met (visits)	124,354.	121,861.
% of total demand satisfied	55.4	48.5
Total Annual Throughput (visits per year)	6,169,294.1	6,209,282.1
% of demand satisfied who travelled by car	77.1	73.6
% of demand satisfied who travelled by foot	22.	25.7
% of demand satisfied who travelled by public transport	1.	0.8
Demand Retained (visits)	102,302.	102,523.
Demand Retained -as a % of Satisfied Demand	82.3	84.1
Demand Exported (visits)	22,052.	19,339.
Demand Exported -as a % of Satisfied Demand	17.7	15.9

3.8 Definition of satisfied demand – satisfied demand measures the amount of total demand that can be met by the supply of AGPs, based on the catchment area of the AGPs, the travel patterns to them and the demand located within the catchment area of each AGP site. The travel modes are by walking (up to 20 minutes or 1 mile) by public transport (up to 20 minutes travel time) and by car (up to 20 minutes travel time),. The travel modes do not include travel to AGPs by cycling, as there is insufficient data to be able to assess the number of visits by cycling or the travel distance/time.

3.9 Satisfied demand also measures how much demand from London residents is met at AGPs located in London. This is based on demand traveling to the nearest AGP to where residents live (retained demand). Finally, it measures how much of the London demand is exported.

3.10 The summary of findings for runs 1- 2 are:

- Some 55.4% of the total demand for AGPs across London is met in 2017. This decreases to 48.5% in 2041 based on the projected increase in demand for AGPs from population growth. So only around 50% of the total demand for AGPs is located inside the catchment area of AGPs and with enough capacity at these pitches to absorb between 55.4% and 48.5% of total demand.
- Satisfied demand does vary between the Boroughs, it being highest in Hillingdon at 82% of total demand being met, Bromley at 75%, Havering at 74%, Bexley at 73% and Richmond at 72%, in 2017. The Boroughs with the lowest level of satisfied demand are Westminster at 25%, Hackney at 31%, Kensington and Chelsea at 31%, Camden at 34% and Hammersmith and Fulham at 35% in 2017.
- The findings for satisfied demand for the five authorities with the highest satisfied demand are in green and those with the lowest in pink. The findings for all the Boroughs is set out in Appendix 1 Table 3.6.

Table 3.6: Satisfied demand for AGPs London Boroughs 2017 and 2041

% of total demand satisfied	RUN 1	RUN 2
London	2017	2041
London Average	55.4	48.5
Bexley	72.9	65.9
Bromley	75.9	71.6
Camden	34.6	29.8
Hackney	31.0	25.4
Hammersmith & Fulham	35.5	31.4

Havering	74.5	63.9
Hillingdon	82.9	77.9
Kensington & Chelsea	32.1	27.7
Richmond upon Thames	72.8	68.0
Westminster	25.9	24.0

- Travel to AGPs is very much car based (20 minutes' drive time catchment) with 77% of all visits in 2017 and decreasing slightly to 73.6% in 2041. Walking to AGPs (20 minutes/1 mile catchment area) represents 22% of visits in 2017 and increasing slightly to 25.7% in 2041. Travel by public transport (20 minutes catchment area) is very low and hardly changes from 1% in 2017 to 0.8% in 2041.
- It is possible to map how many AGPs can be accessed by walking and car, based on the location of the pitches and their catchment area. This is set out in Map 3.1 for 2017 for the walking catchment area of AGPs and in Map 3.2 for the drive catchment area for AGPs in 2017.

Access to AGP's by walking

- The percentage of visits to AGPs by walkers does differ across the Boroughs and no doubt reflects the percentage of residents who have access to a car. The findings for the Boroughs with the highest percentage of visits by walkers is in green and those with the lowest percentage are in pink.

Table 3.7: Percentage of visits to AGPs by walkers for each London Boroughs 2017 and 2041

% of demand satisfied who travelled by foot	RUN 1	RUN 2
	2017	2041
London average	22.0	25.7
Bromley	11.0	11.3
Camden	42.8	50.2

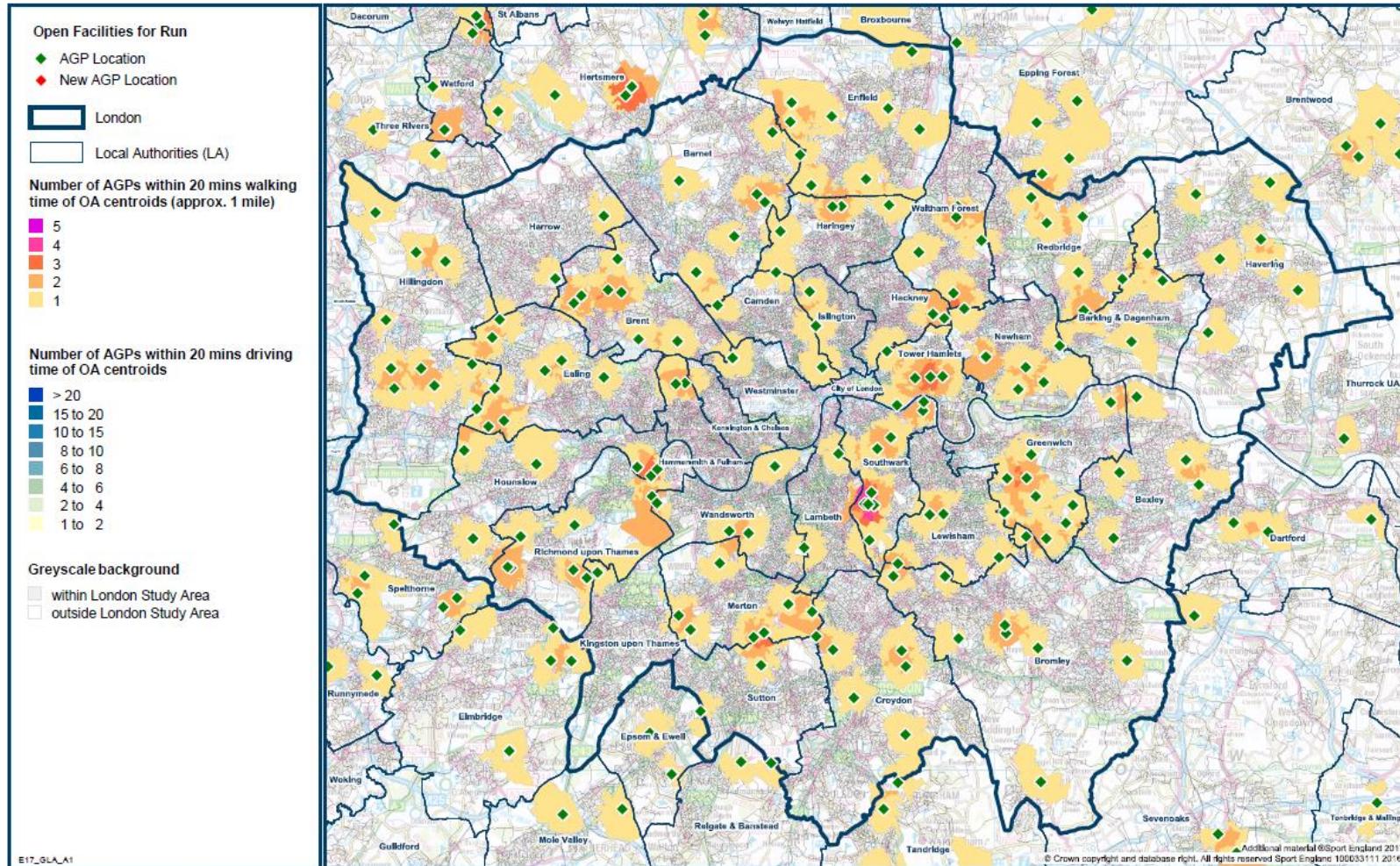
Harrow	9.0	10.4
Havering	9.9	11.4
Islington	45.0	52.6
Kingston upon Thames	7.1	7.5
Newham	35.3	45.3
Southwark	47.7	55.5
Sutton	10.7	12.0
Westminster	41.4	50.7

- Accessibility to AGPs based on their locations and their walking catchment in 2017 is set out in Map 3.2. The colour coded key for the number of accessible AGPs is the top key on the left side of the map. The key findings are that:
 - Not surprisingly there are large areas of London which are outside the 20 minute/1 mile walking catchment area of the AGP locations. Again, most noticeably, on the periphery of London and in the outer London Boroughs which have the larger land area.
 - Most noticeably there is only one AGP in Kingston Borough with a walking catchment area location. Hence why it has the lowest percentage of visits to pitches by walking for the whole of London. So, in effect, Kingston residents who do not have access to a car have very limited access to AGPs.
 - Access is also limited to a small area of the borough and to just one AGP where there is a low supply of pitches, in Lambeth and Westminster
 - The boroughs with the highest land area inside the walking catchment area of an AGP are, Barking and Dagenham, Brent, Enfield, Greenwich and Richmond.

Map 3.2: Number of accessible pitches based on the AGP locations and the walking catchment area 2017

Facility Planning Model - AGPs Hockey/Football Combined Catchments for London Run 1: 2017 Population

Catchments shown thematically (colours) at output area level expressed as the number of AGPs within 20 minutes travel time of output area centroid.



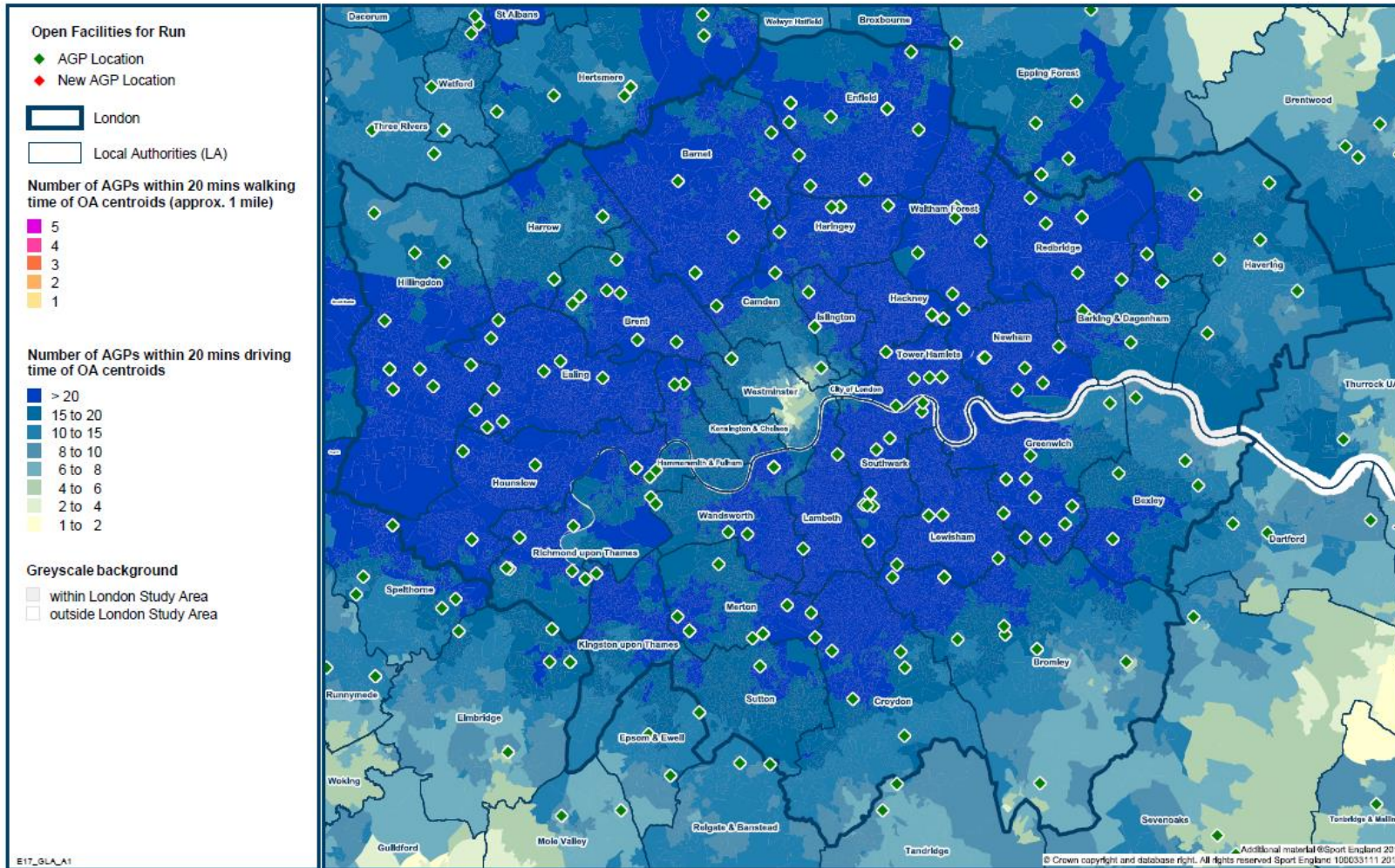
Access to AGP's by car

- The drive time catchment area for AGPs is up to 20 minutes' drive time, Map 3.3 shows the AGP locations as diamonds. The colour coded key for the number of accessible AGPs is the lower key on the left of the map. The key findings are that
 - Across London there is access to a high number of AGPs by car. All areas have access to at least 6-8 AGPs. The areas shaded lightest blue have this lowest level of access, so the periphery of London and on all four sides of London. The area with the highest level of this least access (!) is Bromley
 - The number of AGPs that can then be accessed by car travel increases by the different shades of blue. In the darkest blue area and which would appear to represent around 60% of London, residents in these areas have access to over 20 AGPs, based on the AGP locations and their drive time catchment area. In effect a very high level of access to the majority of the London land area
 - Although the inner London boroughs have the lowest level of AGP supply, they have the highest level of access to AGPs. There are however two footnotes to this finding. Firstly residents of the inner London Boroughs do have to travel to access these AGPs, they are not local. Secondly, it is based on car travel and Boroughs such as Camden, Hackney and Lambeth, all of which have low AGP provision, also have a high percentage of residents who do not have access to a car. So, in effect, their resident's' ability to access AGPs based on car travel is constrained. In addition, access by public transport, walking and cycling is poor.

Map 3.3: Number of accessible AGPs based on the pitch locations and drive time catchment area 2017

Facility Planning Model - AGPs Hockey/Football Combined Catchments for London Run 1: 2017 Population

Catchments shown thematically (colours) at output area level expressed as the number of AGPs within 20 minutes travel time of output area centroid.



Retained demand

- It is also possible to measure how much of the London demand for AGPs is retained at pitches in the London area - known as retained demand. This is based on the location and catchment area of the AGPs and residents traveling to the nearest AGP to where they live. In 2017 retained demand is 82.3% of total satisfied demand and in 2041 it is estimated to be 84.1% of total satisfied demand.
- So, in short, retained demand represents over 8 out of 10 visits by a London resident to an AGP – a high level of retained demand.
- Again, the findings for individual boroughs does vary from the London average and the findings for the Boroughs with the highest and lowest retained demand are set out in Table 3.8 below.

Table 3.8: Retained demand as a percentage of satisfied demand for London Boroughs 2017 and 2041

Demand Retained -as a % of Satisfied Demand	RUN 1	RUN 2
London	2017	2041
London average	82.3	84.1
Bromley	68.9	70.5
Camden	18.9	20.4
Greenwich	62.5	63.2
Hillingdon	59.2	61.6
Kingston upon Thames	10.0	10.2
Lambeth	12.2	20.6
Lewisham	18.5	19.1
Merton	63.3	64.7
Southwark	64.0	62.6
Sutton	14.8	15.7

Exported demand

- It is also possible to measure how much of the London demand is exported by each local authority. This is demand which is then met in a neighbouring authority, or, in the case of authorities on the periphery of London, demand met in authorities outside London.
- As Table 3.9 shows, ALL 100% of the demand by Kensington and Chelsea residents is met outside the Borough. In effect, the Borough is benefiting from the location and catchment area of AGPs in neighbouring authorities extending across Kensington and Chelsea. There is a very similar situation in Kingston, where 90% of its residents demand for AGPs is exported and met outside the Borough.
- Table 3.8 sets out how much demand is being exported by each authority, with the highest exporters shown in green and the lowest exporters in pink.

Table 3.9: Exported demand as a percentage of satisfied demand London Boroughs 2017 and 2041

Demand Exported -as a % of Satisfied Demand	RUN 1	RUN 2
London	2017	2041
Bromley	31.1	29.5
Greenwich	37.5	36.8
Havering	47.4	45.9
Kensington & Chelsea	100.0	100.0
Kingston upon Thames	90.0	89.8
Lambeth	87.8	79.4
Lewisham	81.5	80.9
Merton	36.7	35.3
Southwark	36.0	37.4
Sutton	85.2	84.3

UNMET DEMAND

Table 3.10: Runs 1 – 2 Unmet Demand for Artificial Grass Pitches for London area 2017 and 2041

LONDON TOTAL	RUN 1	RUN 2
Unmet Demand	2017	2041
Total number of visits in the peak, not currently being met (visits)	100,176.	129,513.
Unmet demand as a % of total demand	44.6	51.5
Equivalent in pitches	135.4	175.
% of Unmet Demand due to:		
Lack of Capacity -	97.1	97.5
Outside Catchment -	2.9	2.5

3.11 Unmet demand has two definitions (1) demand for an AGP which cannot be met because there is not enough capacity to meet all the demand in the catchment area of the AGP location. (2) Unmet demand which is located outside the catchment area of an AGP, most usually the walking catchment and cannot access an AGP, so this is considered as unmet demand outside catchment.

3.12 The summary of findings on unmet demand for runs 1 – 2 are:

- The amount of unmet demand is a very high: 44.6% of total demand in 2017 and projected to increase to 51.5% of total demand by 2041
- The significance of this finding can be underlined with comparisons to other Regions. Unmet demand as a percentage of total demand is next highest in Yorkshire, at 20.7% of total demand in 2017. Unmet demand is lowest in the East Midlands Region at 6.7% of the total demand for AGPs in that Region in 2017 and is just 8.2% in the South East Region. The England wide average for unmet demand is 18% of total demand, in 2017.

- Of the total unmet demand in London, 97% in both years is due to lack of AGP capacity and under 3% from demand located outside catchment area of an AGP. This is consistent with the accessibility findings that, across London there is very good access to AGPs. All of London is inside the drive time catchment area of at least 6 – 8 pitches.
- In terms of AGPs, the total unmet demand equates to 135 AGPs in 2017 and 175 AGPs by 2041. The unmet demand findings are the flip side of the satisfied demand findings, and where only 55% of demand was being met in 2017 and 48% in 2041. So whilst London does have a total supply of 184 full size AGPs in 2017 and an effective or available supply of 141 pitches for community use, there is a very considerable requirement for further AGPs to meet demand. This is for 135 AGPs in 2017 and up to 175 by 2041.
- The fpm findings are comparing the supply and demand for AGPs based on known participation rates for both football and hockey use. The findings do however underline the significance of the findings under the supply heading. Namely the equivalent of 43 full size AGPs on education sites being unavailable for community use. A first priority should be to increase access to these pitches for community use.

3.13 The scale of unmet demand in pitches for both years is set out in table 3.11. The Boroughs with the highest levels of unmet demand are in green and these with the lowest in pink. Appendix 2 contains the findings on unmet demand for all the London Boroughs.

Table 3.11: Unmet demand for pitches London Boroughs 2017 and 2041

Unmet demand equivalent in pitches	RUN 1	RUN 2
London	2017	2041
Barnet	12.7	14.5
Croydon	12.4	13.9
Ealing	12.0	13.0
Hammersmith & Fulham	6.5	7.4
Kensington & Chelsea	4.9	5.1
Kingston upon Thames	5.9	6.5
Lambeth	12.0	13.8
Newham	14.2	17.1
Richmond upon Thames	5.8	5.7

Sutton	5.9	6.4
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AVAILABILITY (USED CAPACITY – how full are the AGPs?)

Table 3.12: Used Capacity of pitches for London Boroughs 2017 and 2041

LONDON TOTAL	RUN 1	RUN 2
Used Capacity	2017	2041
Total number of visits used of current capacity (visits)	104,878	105,558
% of overall capacity of pitches used	100	100
% of visits made to pitches by walkers	25.9	29.5
% of visits made to pitches by road	74.1	70.5
Visits Imported;		
Number of visits imported (visits)	2,576	3,035
As a % of used capacity	2.5	2.9
Visits Retained:		
Number of Visits retained (visits)	102,302	102,523
As a % of used capacity	97.5	97.1

3.14 Definition of used capacity – is a measure of how full the AGPs are estimated to be and is also a measure of the level of imported demand. The imported demand refers to where the nearest AGP for a resident in authority A is an AGP in authority B. If this resident travels to the nearest AGP to where they live, then this becomes part of the used capacity of the AGP in that authority.

3.15 The summary of findings on used capacity are:

- In both runs the estimated used capacity of the pitches is 100% in the weekly peak period. This is almost an inevitable finding, given the findings on supply and demand and the level of unmet demand just reported on. Namely that there is a total demand for 303 full size AGPs in the weekly peak period in 2017. This is projected to increase to a total demand for 339 AGPs in the weekly peak period by 2041. This compares with a total supply of full size AGPs in London of 184 in 2017 and 185 in 2041.

- The earlier set of findings set out where the interventions need to take place, to increase supply, by increasing access to the equivalent of 43AGPs on education sites which have reduced access for community use. Also under the supply heading those Boroughs that have the least supply of AGPs should be targeted. Whilst under the unmet demand heading, the findings set out which Boroughs have the highest level of unmet demand and should be targeted.
- In run 1 imported demand from outside London is only 2.5% of the used capacity of AGPs and then 2.9% in 2041. This is the imported demand from residents of authorities bordering London and where the nearest pitch to where these residents live is a pitch in a London Borough.
- The imported demand between and across each individual Boroughs does vary considerably and the Boroughs with the lowest and highest levels of imported demand are set out in Table 3.13. The boroughs with high imported demand, reflect that the pitch locations in their borough (authority A) are nearest to a lot of demand in neighbouring authorities (authority B, C etc). If the residents in authorities B and C use the nearest pitch to where they live (in authority A) then this becomes part of the used capacity of the pitches in authority A.

Table 3.13: Imported demand as a percentage of used capacity of pitches for London Borough 2017 and 2041

Visits Imported; As a % of used capacity	RUN 1	RUN 2
London	2017	2041
London average	2.5	2.9
Bexley	34.8	37.4
Croydon	29.3	26.5
Hackney	67.1	66.8
Hammersmith & Fulham	69.9	66.2
Hounslow	68.0	67.1
Lambeth	59.6	58.3
Newham	25.8	25.9
Richmond upon Thames	60.6	62.3
Sutton	33.4	32.5
Tower Hamlets	20.6	15.4

LOCAL SHARE

Table 3.14: Local Share of AGPs for London Boroughs 2017 and 2041

LONDON TOTAL	RUN 1	RUN 2
Local Share	2017	2041
Local Share: <1 capacity less than demand, >1 capacity greater than demand	0.5	0.5
Score - with 100 = FPM Total (England and also including adjoining LAs in Scotland and Wales)	53.8	52.3
+/- from FPM Total (England and also including adjoining LAs in Scotland and Wales)	-46.2	-47.7

3.16 Local share is defined as the distribution of demand for AGPs across each authority. The share of AGPs geographically is represented in one kilometre grid squares and the share of access to AGPs in that square. A value of 1 is where supply equals demand and a value below 1 is where demand is greater than supply. A value above one is where supply is greater than demand.

3.17 Local share is a useful guide in making interventions to try and improve access for residents in the areas who have the least share of AGPs.

3.18 The summary of findings on local share are:

- The GLA wide local share is 0.5 in both years and so demand exceeds supply in terms of local share of AGPs. Not a surprising finding given the previous findings on the quantitative assessment of supply and demand for AGPs.

- The London findings can be compared with the England wide findings, with the England wide local share of AGPs set at 1. The findings are that local share of AGPs is lower in London at 53.8 of the national share of AGPs in 2017. In 2041 the London local share of AGPs is 52.3 and still considerably below the England wide share of AGPs.

3.19 The Boroughs with the highest and lowest local share is set out in Table 3.14. Again Boroughs with a high local share are in green and those where it is low are in pink.

Table 3.15: Local Share of pitches London Boroughs 2017 and 2041

Local Share: <1 capacity less than demand, >1 capacity greater than demand	RUN 1	RUN 2
London	2017	2041
London average	0.5	0.4
Barnet	0.6	0.5
Bexley	0.7	0.7
Bromley	1.0	0.9
Camden	0.3	0.3
Hackney	0.3	0.3
Hammersmith & Fulham	0.3	0.3
Havering	0.7	0.6
Hillingdon	0.8	0.8
Islington	0.3	0.3
Kensington & Chelsea	0.3	0.2
Lambeth	0.3	0.3
Tower Hamlets	0.3	0.3
Wandsworth	0.3	0.3
Westminster	0.2	0.2

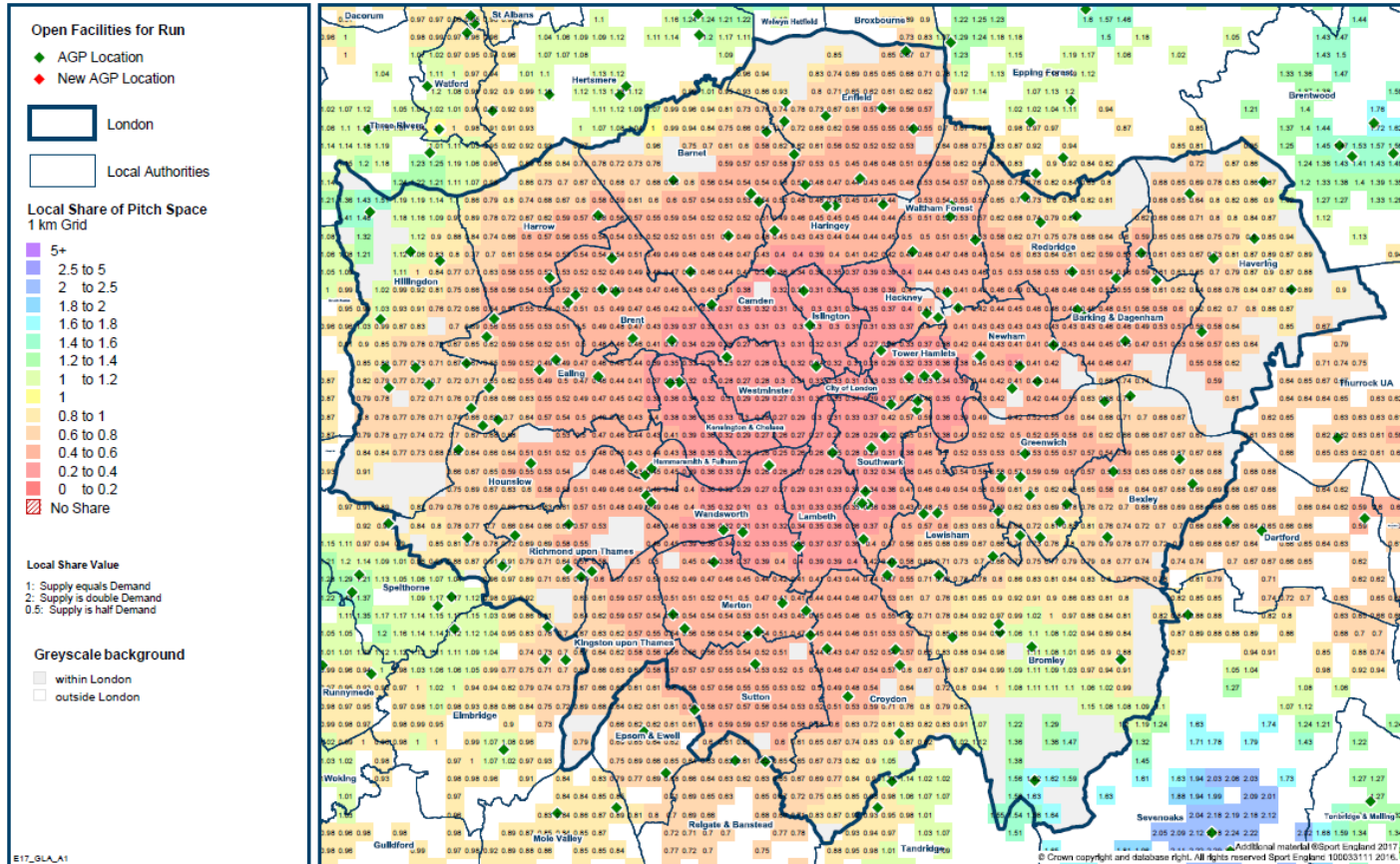
- 3.20 The distribution of local share is also set out in Map 3.4. overleaf. It reflects the findings in table 3.15 that local share is highest in the Boroughs on the periphery of London.
- 3.21 The inner London Boroughs, shaded red have the lowest local share of AGPs. Again reflecting that the supply of AGPs is lowest in these boroughs, whilst they have some of the highest population densities and so high levels of demand. As has been evident in a lot of the findings, increasing the supply of AGPs in these Boroughs is the higher priority.

Map 3.4: Local share of pitches London 2017

Facility Planning Model - AGPs Hockey/Football Combined Local Share for London

Run 1: 2017 Population

Share of Pitch Space divided by demand. Data outputs shown thematically (colours) and aggregated at 1km square (figure labels).



3.22 This ends the reporting of the full findings on the London AGP provision 2017 – 2041. The key findings on AGP provision are set out in the Executive Summary.

Appendix 1: GLA Study on Full Size Artificial Grass Pitches: Table of Findings for all London Boroughs 2017 and 2041

(Note the Table number refers to the table entry in the main report)

Table 3.2: Number of full size AGPs for each London Borough 2017 and 2041

Supply - Pitch provision (pitches) scaled to take account of hours available for community use	RUN 1	RUN 2
London	2017	2041
London Total	141.7	142.7
Barking & Dagenham	4.0	4.0
Barnet	5.5	5.5
Bexley	4.6	4.6
Brent	5.6	5.6
Bromley	11.1	11.1
Camden	1.0	1.0
City of London	0.0	0.0
Croydon	4.8	4.8
Ealing	6.3	6.3
Enfield	6.1	6.1
Greenwich	7.7	7.7
Hackney	4.7	4.7
Hammersmith & Fulham	1.6	1.6
Haringey	4.2	4.2
Harrow	2.6	2.6
Havering	4.8	4.8
Hillingdon	9.1	9.1
Hounslow	7.6	7.6

Supply - Pitch provision (pitches) scaled to take account of hours available for community use	RUN 1	RUN 2
Islington	2.9	2.9
Kensington & Chelsea	0.0	0.0
Kingston upon Thames	0.8	0.8
Lambeth	1.3	2.2
Lewisham	2.1	2.1
Merton	6.6	6.6
Newham	4.4	4.4
Redbridge	5.9	5.9
Richmond upon Thames	3.7	3.7
Southwark	6.9	6.9
Sutton	0.8	0.8
Tower Hamlets	3.7	3.7
Waltham Forest	5.2	5.2
Wandsworth	4.2	4.2
Westminster	1.9	1.9

Table 3.3: AGPs per 10,000 population for each London Borough 2017 and 2041

Pitches per 10,000 population	RUN 1	RUN 2
London Average	2017	2041
London average	0.2	0.2
Barking & Dagenham	0.2	0.2
Barnet	0.2	0.2
Bexley	0.2	0.2
Brent	0.2	0.2
Bromley	0.4	0.3
Camden	0.0	0.0
City of London	0.0	0.0
Croydon	0.2	0.1
Ealing	0.2	0.2
Enfield	0.3	0.3
Greenwich	0.3	0.2
Hackney	0.2	0.1
Hammersmith & Fulham	0.1	0.1
Haringey	0.2	0.2
Harrow	0.2	0.1
Havering	0.3	0.2
Hillingdon	0.4	0.3
Hounslow	0.3	0.3
Islington	0.1	0.1
Kensington & Chelsea	0.0	0.0
Kingston upon Thames	0.1	0.0
Lambeth	0.1	0.1

Pitches per 10,000 population	RUN 1	RUN 2
Lewisham	0.2	0.1
Merton	0.4	0.4
Newham	0.2	0.1
Redbridge	0.2	0.2
Richmond upon Thames	0.4	0.4
Southwark	0.3	0.2
Sutton	0.0	0.0
Tower Hamlets	0.1	0.1
Waltham Forest	0.2	0.2
Wandsworth	0.2	0.1
Westminster	0.1	0.1

Table 3.6: Satisfied demand for AGPs for each London Borough 2017 and 2041

% of total demand satisfied	RUN 1	RUN 2
London	2017	2041
London Average	55.4	48.5
Barking & Dagenham	61.7	47.5
Barnet	61.3	52.5
Bexley	72.9	65.9
Brent	60.2	54.1
Bromley	75.9	71.6
Camden	34.6	29.8
City of London	21.6	19.0
Croydon	64.8	58.4
Ealing	63.8	58.8

% of total demand satisfied	RUN 1	RUN 2
Enfield	69.9	62.4
Greenwich	63.0	54.9
Hackney	31.0	25.4
Hammersmith & Fulham	35.5	31.4
Haringey	48.9	42.8
Harrow	63.5	54.8
Havering	74.5	63.9
Hillingdon	82.9	77.9
Hounslow	71.4	65.2
Islington	35.3	30.3
Kensington & Chelsea	32.1	27.7
Kingston upon Thames	62.9	56.8
Lambeth	35.1	32.0
Lewisham	53.9	47.9
Merton	57.8	52.9
Newham	46.7	38.3
Redbridge	65.2	55.8
Richmond upon Thames	72.8	68.0
Southwark	47.8	43.2
Sutton	60.5	54.0
Tower Hamlets	44.9	36.1
Waltham Forest	57.7	49.5
Wandsworth	40.2	35.5
Westminster	25.9	24.0

Table 3.7: Percentage of visits to AGPs by walking for each London Borough 2017 and 2041

% of demand satisfied who travelled by foot	RUN 1	RUN 2
London	2017	2041
London average	22.0	25.7
Barking & Dagenham	25.2	30.2
Barnet	12.5	14.2
Bexley	12.9	14.0
Brent	27.0	30.0
Bromley	11.0	11.3
Camden	42.8	50.2
City of London	57.3	68.2
Croydon	16.2	17.9
Ealing	17.9	20.6
Enfield	16.9	19.3
Greenwich	19.6	21.1
Hackney	35.4	42.7
Hammersmith & Fulham	16.3	19.9
Haringey	24.0	28.2
Harrow	9.0	10.4
Havering	9.9	11.4
Hillingdon	12.4	12.9
Hounslow	11.4	12.3

% of demand satisfied who travelled by foot	RUN 1	RUN 2
London	2017	2041
Islington	45.0	52.6
Kensington & Chelsea	23.8	27.9
Kingston upon Thames	7.1	7.5
Lambeth	30.5	39.2
Lewisham	17.7	19.7
Merton	21.6	23.4
Newham	35.3	45.3
Redbridge	20.0	23.7
Richmond upon Thames	14.8	15.7
Southwark	47.7	55.5
Sutton	10.7	12.0
Tower Hamlets	57.1	67.7
Waltham Forest	26.8	31.7
Wandsworth	27.7	32.7
Westminster	41.4	50.7

Table 3.8: Retained demand as a percentage of satisfied demand for each London Borough 2017 and 2041

Demand Retained -as a % of Satisfied Demand	RUN 1	RUN 2
London	2017	2041
London average	82.3	84.1
Barking & Dagenham	46.6	45.9
Barnet	34.6	38.3
Bexley	54.7	56.0

Demand Retained -as a % of Satisfied Demand	RUN 1	RUN 2
London	2017	2041
Brent	51.9	54.4
Bromley	68.9	70.5
Camden	18.9	20.4
City of London	0.0	0.0
Croydon	42.1	43.2
Ealing	45.5	46.9
Enfield	39.5	43.3
Greenwich	62.5	63.2
Hackney	48.2	51.5
Hammersmith & Fulham	20.4	23.0
Haringey	46.5	49.8
Harrow	25.8	28.0
Havering	52.6	54.1
Hillingdon	59.2	61.6
Hounslow	36.4	38.2
Islington	52.1	55.9
Kensington & Chelsea	0.0	0.0
Kingston upon Thames	10.0	10.2
Lambeth	12.2	20.6
Lewisham	18.5	19.1
Merton	63.3	64.7
Newham	49.5	50.0
Redbridge	52.5	55.9
Richmond upon Thames	34.5	35.7
Southwark	64.0	62.6
Sutton	14.8	15.7

Demand Retained -as a % of Satisfied Demand	RUN 1	RUN 2
London	2017	2041
Tower Hamlets	52.4	55.3
Waltham Forest	53.1	56.8
Wandsworth	48.0	50.2
Westminster	37.4	36.7

Table 3.9: Exported demand as a percentage of satisfied demand for each London Borough 2017 and 2041

Demand Exported -as a % of Satisfied Demand	RUN 1	RUN 2
London	2017	2041
London average	17.7	15.9
Barking & Dagenham	53.4	54.1
Barnet	65.4	61.7
Bexley	45.3	44.0
Brent	48.1	45.6
Bromley	31.1	29.5
Camden	81.1	79.6
City of London	100.0	100.0
Croydon	57.9	56.8
Ealing	54.5	53.1
Enfield	60.5	56.7
Greenwich	37.5	36.8
Hackney	51.8	48.5
Hammersmith & Fulham	79.6	77.0
Haringey	53.5	50.2

Demand Exported -as a % of Satisfied Demand	RUN 1	RUN 2
London	2017	2041
Harrow	74.2	72.0
Havering	47.4	45.9
Hillingdon	40.8	38.4
Hounslow	63.6	61.8
Islington	47.9	44.1
Kensington & Chelsea	100.0	100.0
Kingston upon Thames	90.0	89.8
Lambeth	87.8	79.4
Lewisham	81.5	80.9
Merton	36.7	35.3
Newham	50.5	50.0
Redbridge	47.5	44.1
Richmond upon Thames	65.5	64.3
Southwark	36.0	37.4
Sutton	85.2	84.3
Tower Hamlets	47.6	44.7
Waltham Forest	46.9	43.2
Wandsworth	52.0	49.8
Westminster	62.6	63.3

Table 3.11: Unmet demand for pitches for each London Borough 2017 and 2041

Unmet demand equivalent in pitches	RUN 1	RUN 2
London	2017	2041
Barking & Dagenham	7.7	10.7

Unmet demand equivalent in pitches	RUN 1	RUN 2
London	2017	2041
Barnet	12.7	14.5
Bexley	7.6	7.9
Brent	11.7	12.5
Bromley	9.4	9.9
Camden	8.7	9.6
City of London	0.3	0.3
Croydon	12.4	13.9
Ealing	12.0	13.0
Enfield	11.1	11.5
Greenwich	9.9	12.0
Hackney	10.3	11.8
Hammersmith & Fulham	6.5	7.4
Haringey	9.9	10.6
Harrow	8.0	8.5
Havering	7.6	8.8
Hillingdon	10.6	10.7
Hounslow	9.4	10.1
Islington	8.5	9.6
Kensington & Chelsea	4.9	5.1
Kingston upon Thames	5.9	6.5
Lambeth	12.0	13.8
Lewisham	10.6	11.4
Merton	6.8	7.1
Newham	14.2	17.1
Redbridge	10.3	11.5
Richmond upon Thames	5.8	5.7

Unmet demand equivalent in pitches	RUN 1	RUN 2
London	2017	2041
Southwark	11.6	13.7
Sutton	5.9	6.4
Tower Hamlets	12.5	15.8
Waltham Forest	9.9	10.8
Wandsworth	11.0	12.7
Westminster	8.0	9.1

Table 3.13: Imported demand as a percentage of used capacity of pitches for each London Borough 2017 and 2041

Visits Imported; As a % of used capacity	RUN 1	RUN 2
London	2017	2041
London Total	2.5	2.9
Barking & Dagenham	45.3	42.4
Barnet	51.2	47.0
Bexley	34.8	37.4
Brent	34.9	34.8
Bromley	55.9	55.0
Camden	43.0	41.5
City of London		
Croydon	29.3	26.5

Visits Imported; As a % of used capacity	RUN 1	RUN 2
London	2017	2041
Ealing	44.3	43.0
Enfield	49.7	48.9
Greenwich	49.4	46.0
Hackney	67.1	66.8
Hammersmith & Fulham	69.9	66.2
Haringey	46.2	45.9
Harrow	49.7	49.8
Havering	38.0	36.6
Hillingdon	43.1	43.8
Hounslow	68.0	67.1
Islington	46.5	44.2
Kensington & Chelsea		
Kingston upon Thames	53.3	52.6
Lambeth	59.6	58.3
Lewisham	49.3	50.1
Merton	62.4	63.2
Newham	25.8	25.9
Redbridge	40.4	39.0
Richmond upon Thames	60.6	62.3
Southwark	48.9	46.8
Sutton	33.4	32.5
Tower Hamlets	20.6	15.4
Waltham Forest	42.4	42.1
Wandsworth	49.7	46.2
Westminster	60.0	58.7

Table 3.15: Local Share of pitches for each London Borough 2017 and 2041

Local Share: <1 capacity less than demand, >1 capacity greater than demand	RUN 1	RUN 2
London	2017	2041
London average	0.5	0.4
Barking & Dagenham	0.5	0.4
Barnet	0.6	0.5
Bexley	0.7	0.7
Brent	0.4	0.4
Bromley	1.0	0.9
Camden	0.3	0.3
City of London	0.3	0.3
Croydon	0.6	0.5
Ealing	0.5	0.5
Enfield	0.5	0.5
Greenwich	0.6	0.6
Hackney	0.3	0.3
Hammersmith & Fulham	0.3	0.3
Haringey	0.4	0.4
Harrow	0.6	0.6
Havering	0.7	0.6
Hillingdon	0.8	0.8
Hounslow	0.6	0.6
Islington	0.3	0.3
Kensington & Chelsea	0.3	0.2
Kingston upon Thames	0.5	0.5
Lambeth	0.3	0.3
Lewisham	0.6	0.6

Local Share: <1 capacity less than demand, >1 capacity greater than demand	RUN 1	RUN 2
London	2017	2041
Merton	0.4	0.4
Newham	0.4	0.4
Redbridge	0.6	0.5
Richmond upon Thames	0.6	0.5
Southwark	0.4	0.3
Sutton	0.5	0.5
Tower Hamlets	0.3	0.3
Waltham Forest	0.5	0.4
Wandsworth	0.3	0.3
Westminster	0.2	0.2

Appendix 2: Artificial Grass Pitches included in the assessment.

Name of Site	Type	Dimensions	Area	Public/ Commercial	Hours in Peak Period	Site Capacity – visits per week peak period	% of Capacity Used	% of Capacity Not Used	Car % Demand	Public Tran % Demand	Walk % Demand
Barking and Dagenham						2,985	100%	0%	75%	1%	24%
BARKING ABBEY SCHOOL SPORTS GROUND	3GFloodlit	104 x 67	6968	P	16.0	200	100%	0%	41%	0%	59%
CASTLE GREEN	FSANDFloodlit	100 x 63	6300	P	29.0	590	100%	0%	69%	1%	31%
ROBERT CLACK SCHOOL LEISURE CENTRE	FSANDFloodlit	97 x 60	5820	P	68.0	1,480	100%	0%	81%	1%	18%
ROBERT CLACK SCHOOL LEISURE CENTRE	3GFloodlit	100 x 60	6000		68.0						
WARREN SPORTS CENTRE	FSANDFloodlit	100 x 60	6000	P	32.0	715	100%	0%	79%	1%	20%
Barnet						4,077	100%	0%	79%	1%	21%
ASHMOLE ACADEMY	DSANDFloodlit	101 x 63	6363	P	25.0	540	100%	0%	80%	1%	19%
CHRISTS COLLEGE FINCHLEY	3GFloodlit	98 x 66	6468	P	34.0	740	100%	0%	84%	1%	15%
EAST BARNET SCHOOL	3GNonFloodlit	95 x 60	5700	P	8.0	100	100%	0%	50%	0%	50%
LUCOZADE POWERLEAGUE SOCCER CENTRE (FINCHLEY)	3GFloodlit	100 x 60	6000	C	34.0	740	100%	0%	78%	1%	21%
MILL HILL SCHOOL SPORTS CENTRE	FSANDFloodlit	100 x 60	6000	P	16.0	200	100%	0%	98%	1%	1%
UNIVERSITY COLLEGE SCHOOL PLAYING FIELDS	FSANDFloodlit	94 x 60	5640	P	5.0	62	100%	0%	89%	2%	10%
WHITEFIELD SCHOOL	3GFloodlit	120 x 70	8400	P	54.0	1,130	100%	0%	75%	1%	24%
WHITEFIELD SCHOOL	3GFloodlit	120 x 70	8400		54.0						
WOODHOUSE COLLEGE	3GFloodlit	96 x 61	5856	P	27.0	565	100%	0%	74%	1%	25%
Bexley						3,430	100%	0%	83%	1%	16%
CHISLEHURST AND SIDCUP GRAMMAR SCHOOL	FSANDFloodlit	97 x 62	6014	P	13.0	390	100%	0%	83%	1%	16%
ERITH SCHOOL COMMUNITY SPORTS CENTRE	FSANDFloodlit	100 x 60	6000	P	64.0	1,360	100%	0%	87%	1%	12%
ERITH SCHOOL COMMUNITY SPORTS CENTRE	FSANDFloodlit	100 x 60	6000		64.0						
MAYPLACE SPORTS FIELD	FSANDFloodlit	91 x 55	5005	C	34.0	740	100%	0%	89%	1%	10%
SPORTING CLUB THAMESMEAD	3GFloodlit	106 x 68	7208	P	34.0	740	100%	0%	79%	1%	20%
WELLING SCHOOL	3GNonFloodlit	97 x 56	5432	P	16.0	200	100%	0%	53%	1%	47%
Brent						4,165	100%	0%	68%	1%	31%
ARK ACADEMY	3GFloodlit	100 x 65	6500	P	27.0	565	100%	0%	66%	1%	33%
CAPITAL CITY ACADEMY	3GFloodlit	100 x 70	7000	P	29.0	590	100%	0%	45%	0%	55%
JFS SCHOOL	FSANDFloodlit	98 x 60	5850	P	29.0	590	100%	0%	86%	1%	13%
PRESTON MANOR HIGH SCHOOL	FSANDFloodlit	100 x 62	6150	P	34.0	740	100%	0%	77%	1%	22%
THE PAVILION AT STONEBRIDGE RECREATION GROUND	3GFloodlit	108 x 71	7668	P	34.0	740	100%	0%	61%	1%	39%
VALE FARM SPORTS CENTRE	3GFloodlit	91 x 55	5005	P	34.0	740	100%	0%	73%	1%	27%
WEMBLEY HIGH TECHNOLOGY COLLEGE	3GNonFloodlit	104 x 62	6448	P	16.0	200	100%	0%	69%	1%	30%

Name of Site	Type	Dimensions	Area	Public/ Commercial	Hours in Peak Period	Site Capacity – visits per week peak period	% of Capacity Used	% of Capacity Not Used	Car % Demand	Public Tran % Demand	Walk % Demand
Bromley						8,200	100%	0%	89%	1%	10%
BISHOP JUSTUS C OF E SCHOOL	3GFloodlit	120 x 75	9000	P	64.0	1,360	100%	0%	93%	1%	6%
BISHOP JUSTUS C OF E SCHOOL	3GFloodlit	90 x 60	5400		64.0						
BROMLEY FOOTBALL CLUB	3GFloodlit	100 x 60	6000	P	32.0	715	100%	0%	90%	1%	9%
CRYSTAL PALACE NATIONAL SPORTS CENTRE	FSANDFloodlit	109 x 80	8720	P	34.0	740	100%	0%	73%	1%	26%
DARWIN SPORTS CENTRE	3GFloodlit	100 x 60	6000	P	34.0	740	100%	0%	95%	2%	3%
ERIC LIDDELL SPORTS CENTRE	DSANDFloodlit	100 x 64	6400	P	29.0	590	100%	0%	85%	1%	14%
LANGLEY PARK SPORTS CENTRE	FSANDFloodlit	100 x 65	6500	P	29.0	590	100%	0%	92%	1%	7%
RAVENSBORNE SCHOOL	3GFloodlit	99 x 58	5742	P	27.0	565	100%	0%	89%	1%	10%
THE COUNTY GROUND	3GFloodlit	100 x 60	6000	C	102.0	2,220	100%	0%	88%	1%	11%
THE COUNTY GROUND	3GFloodlit	100 x 60	6000		102.0						
THE COUNTY GROUND	3GFloodlit	100 x 60	6000		102.0						
THE PRIORY LINK	3GFloodlit	89 x 62	5518	P	32.0	680	100%	0%	88%	2%	11%
Camden						740	100%	0%	8%	0%	92%
CORAMS FIELDS	3GFloodlit	118 x 62	7316	P	34.0	740	100%	0%	8%	0%	92%
Croydon						3,533	100%	0%	75%	1%	25%
CANTERBURY ROAD RECREATION GROUND	FSANDFloodlit	99 x 60	5940	P	25.0	628	100%	0%	58%	1%	41%
CROYDON SPORTS CLUB	DSANDFloodlit	100 x 60	6000	P	34.0	740	100%	0%	91%	1%	9%
OASIS ACADEMY SHIRLEY PARK	DSANDFloodlit	100 x 60	6000	P	29.0	590	100%	0%	76%	1%	23%
THE ARCHBISHOP LANFRANC SCHOOL	3GFloodlit	100 x 60	6000	P	14.0	420	100%	0%	73%	1%	26%
TRINITY SPORTS CLUB	3GFloodlit	92 x 55	5038	P	29.0	590	100%	0%	77%	1%	22%
WHITGIFT SPORTS CENTRE	DSANDFloodlit	95 x 60	5700	P	27.0	565	100%	0%	70%	1%	29%
Ealing						4,643	100%	0%	76%	1%	23%
ALEC REED ACADEMY SPORTS CENTRE	DSANDFloodlit	100 x 60	6000	P	29.0	590	100%	0%	85%	1%	14%
FEATHERSTONE SPORTS CENTRE (SOUTHALL)	DSANDFloodlit	98 x 61	6002	P	29.0	678	100%	0%	77%	1%	22%
KAJIMA COMMUNITY (BRENTSIDE SITE)	FSANDFloodlit	124 x 82	10168	P	29.0	590	100%	0%	77%	1%	22%
NORTHOLT HIGH SPORTS CENTRE	3GFloodlit	100 x 60	6000	P	27.0	565	100%	0%	72%	1%	27%
SPIKES BRIDGE PARK	3GFloodlit	106 x 70	7420	P	34.0	740	100%	0%	73%	1%	26%
ST AUGUSTINE'S PRIORY	FSANDFloodlit	100 x 66	6600	P	18.0	540	100%	0%	73%	1%	26%
ST BENEDICTS SCHOOL (PERIVALE PLAYING FIELD)	FSANDNonFloodlit	101 x 63	6363	P	16.0	200	100%	0%	97%	2%	2%

Name of Site	Type	Dimensions	Area	Public/ Commercial	Hours in Peak Period	Site Capacity – visits per week peak period	% of Capacity Used	% of Capacity Not Used	Car % Demand	Public Tran % Demand	Walk % Demand
SWIFT ROAD OUTDOOR SPORTS CENTRE	3GFloodlit	108 x 53	5724	P	34.0	740	100%	0%	70%	1%	30%
Enfield						4,515	100%	0%	82%	1%	17%
AYLWARD ACADEMY	FSANDFloodlit	100 x 60	6000	P	29.0	590	100%	0%	68%	1%	31%
BROOMFIELD SCHOOL	FSANDNonFloodlit	100 x 60	6000	P	16.0	200	100%	0%	96%	2%	3%
HIGHLANDS SCHOOL	FSANDNonFloodlit	98 x 60	5880	P	16.0	200	100%	0%	98%	1%	1%
LEA VALLEY HIGH SCHOOL SPORTS CENTRE	FSANDFloodlit	100 x 60	6000	P	26.0	500	100%	0%	76%	1%	23%
OASIS ACADEMY HADLEY	DSANDFloodlit	101 x 61	6161	P	29.0	590	100%	0%	71%	1%	28%
SOUTHBURY LEISURE CENTRE	FSANDFloodlit	92 x 54	4968	P	26.0	780	100%	0%	78%	1%	21%
SOUTHBURY LEISURE CENTRE	3GFloodlit	92 x 54	4968		26.0						
SOUTHGATE HOCKEY CENTRE	WATERFloodlit	100 x 60	6000	P	68.0	1,480	100%	0%	94%	1%	4%
SOUTHGATE HOCKEY CENTRE	DSANDFloodlit	100 x 60	6000		68.0						
SOUTHGATE SCHOOL	3GNonFloodlit	98 x 63	6174	P	14.0	175	100%	0%	69%	1%	30%
Greenwich						5,683	100%	0%	81%	1%	18%
BLACKHEATH HIGH SCHOOL SPORTS FIELD	FSANDFloodlit	102 x 62	6324	P	28.0	560	100%	0%	85%	1%	14%
CHARLTON ATHLETIC COMMUNITY CENTRE FOR SKILLS	3GFloodlit	101 x 63	6363	C	34.0	740	100%	0%	89%	1%	10%
COLDHARBOUR LEISURE CENTRE	3GFloodlit	97 x 61	5917	P	34.0	740	100%	0%	84%	1%	15%
COLFE'S LEISURE CENTRE	FSANDFloodlit	102 x 64	6528	P	19.0	395	100%	0%	76%	1%	23%
MERIDIAN SPORTS AND SOCIAL CLUB LTD	3GFloodlit	105 x 69	7245	C	34.0	740	100%	0%	69%	1%	30%
SAMUEL MONTAGUE YOUTH CENTRE	3GFloodlit	100 x 63	6300	P	33.0	728	100%	0%	80%	1%	19%
STATIONERS CROWN WOODS ACADEMY	3GFloodlit	100 x 60	6000	P	10.0	300	100%	0%	84%	1%	15%
WELL HALL	3GFloodlit	98 x 55	5390	P	34.0	740	100%	0%	80%	1%	19%
WOOLWICH POLYTECHNIC	FSANDFloodlit	90 x 65	5850	P	34.0	740	100%	0%	86%	1%	13%
Hackney						3,450	100%	0%	68%	1%	31%
HAGGERSTON PARK	3GFloodlit	91 x 55	5005	P	21.0	490	100%	0%	7%	0%	93%
LEE VALLEY HOCKEY AND TENNIS CENTRE	WATERFloodlit	102 x 67	6834	P	68.0	1,480	100%	0%	97%	2%	1%
LEE VALLEY HOCKEY AND TENNIS CENTRE	WATERFloodlit	103 x 63	6489		68.0						
MABLEY GREEN	3GFloodlit	100 x 60	6000	P	68.0	1,480	100%	0%	58%	1%	42%
MABLEY GREEN	3GFloodlit	100 x 60	6000		68.0						
Hammersmith and Fulham						1,160	100%	0%	53%	1%	46%
BURLINGTON DANES ACADEMY	3GFloodlit	100 x 60	6000	P	14.0	420	100%	0%	42%	0%	58%

Name of Site	Type	Dimensions	Area	Public/ Commercial	Hours in Peak Period	Site Capacity – visits per week peak period	% of Capacity Used	% of Capacity Not Used	Car % Demand	Public Tran % Demand	Walk % Demand
LINFORD CHRISTIE OUTDOOR SPORTS CENTRE	FSANDFloodlit	100 x 70	7000	P	34.0	740	100%	0%	60%	1%	39%
Haringey						3,085	100%	0%	67%	1%	32%
FORTISMERE SCHOOL	FSANDNonFloodlit	100 x 57	5700	P	16.0	200	100%	0%	96%	2%	3%
MALLINSON SPORTS CENTRE	FSANDNonFloodlit	100 x 60	6000	P	16.0	200	100%	0%	95%	2%	3%
NEW RIVER SPORT & FITNESS	3GFloodlit	110 x 58	6380	P	68.0	1,480	100%	0%	65%	1%	34%
NEW RIVER SPORT & FITNESS	3GFloodlit	96 x 60	5760		68.0						
NORTHUMBERLAND PARK SPORTS CENTRE	FSANDFloodlit	101 x 60	6060	P	34.0	740	100%	0%	60%	1%	39%
ST. THOMAS MORE CATHOLIC SCHOOL	3GFloodlit	96 x 53	5088	P	19.0	465	100%	0%	60%	1%	39%
Harrow						1,936	100%	0%	82%	1%	18%
HARROW SCHOOL SPORTS COMPLEX	FSANDFloodlit	93 x 60	5580	P	16.0	480	100%	0%	76%	1%	24%
HARROW SCHOOL SPORTS COMPLEX	3GFloodlit	92 x 57	5244		16.0						
THE HIVE GYM	3GFloodlit	100 x 60	6000	P	66.0	1,456	100%	0%	84%	1%	16%
THE HIVE GYM	3GFloodlit	100 x 60	6000		66.0						
 Havering						3,540	100%	0%	88%	1%	11%
BOWER PARK ACADEMY	FSANDFloodlit	105 x 70	7350	P	20.0	320	100%	0%	80%	1%	19%
COOPERS COMPANY & COBORN SCHOOL	DSANDFloodlit	91 x 55	5005	P	32.0	680	100%	0%	92%	1%	7%
DRAPERS ACADEMY	FSANDFloodlit	100 x 60	6000	P	29.0	590	100%	0%	85%	1%	14%
EMERSON PARK ACADEMY	3GFloodlit	97 x 61	5917	P	16.0	480	100%	0%	91%	1%	8%
THE BRITTONS ACADEMY	FSANDFloodlit	100 x 60	6000	P	29.0	590	100%	0%	81%	1%	18%
THE CAMPION SCHOOL	FSANDFloodlit	100 x 60	6000	P	32.0	680	100%	0%	90%	1%	9%
THE FRANCES BARDSLEY SCHOOL FOR GIRLS	FSANDNonFloodlit	100 x 60	6000	P	16.0	200	100%	0%	97%	1%	2%
Hillingdon						6,747	100%	0%	88%	1%	11%
BARNHILL COMMUNITY HIGH SCHOOL	FSANDNonFloodlit	100 x 60	6000	P	16.0	200	100%	0%	96%	1%	3%
BRUNEL UNIVERSITY (UXBRIDGE CAMPUS)	DSANDFloodlit	102 x 62	6324	P	68.0	1,480	100%	0%	85%	1%	14%
BRUNEL UNIVERSITY (UXBRIDGE CAMPUS)	3GFloodlit	101 x 63	6363		68.0						
HAREFIELD ACADEMY	3GFloodlit	97 x 61	5917	P	29.0	642	100%	0%	95%	2%	4%
HAYES AND YEADING FC	3GFloodlit	105 x 70	7350	P	34.0	740	100%	0%	87%	1%	12%
HEWENS COLLEGE	FSANDFloodlit	98 x 61	5948	P	29.0	590	100%	0%	86%	1%	13%
HILLINGDON SPORTS AND LEISURE COMPLEX	3GFloodlit	100 x 60	6000	P	34.0	740	100%	0%	94%	1%	4%
KINGS COLLEGE PLAYING FIELDS	DSANDFloodlit	98 x 62	6045	P	34.0	740	100%	0%	90%	1%	9%

Name of Site	Type	Dimensions	Area	Public/ Commercial	Hours in Peak Period	Site Capacity – visits per week peak period	% of Capacity Used	% of Capacity Not Used	Car % Demand	Public Tran % Demand	Walk % Demand
ROSEDALE COLLEGE	3GFloodlit	100 x 60	6000	P	29.0	590	100%	0%	72%	1%	27%
STOCKLEY ACADEMY SPORTS CENTRE	DSANDFloodlit	110 x 72	7920	P	12.0	360	100%	0%	81%	1%	18%
THE MIDDLESEX STADIUM	3GFloodlit	110 x 71	7810	C	28.0	665	100%	0%	93%	1%	6%
Hounslow						5,655	100%	0%	88%	1%	10%
BARNES HOCKEY CLUB	WATERFloodlit	100 x 61	6100	P	34.0	740	100%	0%	98%	2%	0%
CRANFORD COMMUNITY COLLEGE SPORTS CENTRE	DSANDFloodlit	100 x 60	6000	P	28.0	595	100%	0%	85%	1%	14%
FELTHAM COMMUNITY COLLEGE	3GFloodlit	100 x 60	6000	P	68.0	1,480	100%	0%	88%	1%	11%
FELTHAM COMMUNITY COLLEGE	DSANDFloodlit	100 x 60	6000		68.0						
KING'S HOUSE SPORTS GROUND	3GFloodlit	100 x 60	6000	P	30.0	620	100%	0%	83%	1%	16%
THE INDIAN GYMKHANA CLUB	DSANDFloodlit	100 x 60	6000	P	34.0	740	100%	0%	83%	1%	16%
UNIVERSITY OF WESTMINSTER (QUINTIN HOGG MEMORIAL SPORTS GROUND)	WATERFloodlit	100 x 60	6000	P	68.0	1,480	100%	0%	90%	1%	9%
UNIVERSITY OF WESTMINSTER (QUINTIN HOGG MEMORIAL SPORTS GROUND)	DSANDFloodlit	100 x 60	6000		68.0						
Islington						2,158	100%	0%	40%	0%	60%
MARKET ROAD ATP	3GFloodlit	100 x 60	6000	P	64.0	1,430	100%	0%	36%	0%	64%
MARKET ROAD ATP	3GFloodlit	100 x 60	6000		64.0						
WHITTINGTON PARK SYNTHETIC TURF PITCH	3GFloodlit	100 x 63	6300	P	33.0	728	100%	0%	48%	0%	52%
Kensington and Chelsea											
Kingston on Thames						590	100%	0%	79%	1%	20%
THE TIFFIN GIRLS' SCHOOL	DSANDFloodlit	97 x 62	6014	P	29.0	590	100%	0%	79%	1%	20%
Lambeth						940	100%	0%	44%	1%	56%
KENNINGTON PARK PITCH	FSANDFloodlit	108 x 70	7560	P	34.0	740	100%	0%	30%	0%	69%
STREATHAM & CLAPHAM HIGH SCHOOL	DSANDNonFloodlit	97 x 61	5917	P		200	100%	0%	93%	2%	6%
Lewisham						1,546	100%	0%	75%	1%	24%
HAKA SPORTS COMPLEX	FSANDFloodlit	100 x 60	6000	P	16.0	428	100%	0%	66%	1%	33%
KINGS COLLEGE (BROCKLEY RISE PLAYING FIELD)	FSANDFloodlit	100 x 60	6000	P	32.0	400	100%	0%	96%	1%	3%
KINGS COLLEGE (BROCKLEY RISE PLAYING FIELD)	DSANDFloodlit	100 x 60	6000		32.0						
LADYWELL SCHOOL	3GFloodlit	100 x 60	6000	P	19.0	518	100%	0%	58%	1%	41%

Name of Site	Type	Dimensions	Area	Public/ Commercial	Hours in Peak Period	Site Capacity – visits per week peak period	% of Capacity Used	% of Capacity Not Used	Car % Demand	Public Tran % Demand	Walk % Demand
SYDENHAM HIGH SCHOOL GDST	FSANDNonFlo odlit	100 x 60	6000	P	16.0	200	100%	0%	96%	1%	3%
Merton						4,870	100%	0%	82%	1%	17%
HARRIS ACADEMY MERTON	FSANDFloodlit	100 x 60	6000	P	29.0	590	100%	0%	75%	1%	24%
HARRIS ACADEMY MORDEN	FSANDNonFlo odlit	97 x 61	5917	P	16.0	200	100%	0%	96%	1%	3%
KING'S COLLEGE SCHOOL SPORTS GROUND	FSANDFloodlit	100 x 60	6000	P	54.0	1,130	100%	0%	88%	1%	11%
KING'S COLLEGE SCHOOL SPORTS GROUND	DSANDFloodli t	100 x 60	6000		54.0						
RAYNES PARK HIGH SCHOOL	FSANDFloodlit	98 x 62	6076	P	32.0	680	100%	0%	85%	1%	14%
RICARDS LODGE HIGH SCHOOL	FSANDNonFlo odlit	98 x 60	5880	P	16.0	200	100%	0%	96%	2%	2%
ST MARKS CHURCH OF ENGLAND ACADEMY	FSANDFloodlit	100 x 61	6100	P	29.0	590	100%	0%	69%	1%	30%
TOOTING AND MITCHAM COMMUNITY SPORTS CLUB	3GFloodlit	100 x 64	6400	P	68.0	1,480	100%	0%	81%	1%	19%
TOOTING AND MITCHAM COMMUNITY SPORTS CLUB	3GFloodlit	97 x 60	5794		68.0						
Newham						3,267	100%	0%	48%	0%	51%
BRAMPTON MANOR ACADEMY	FSANDFloodlit	104 x 67	6968	P	18.0	452	100%	0%	44%	0%	56%
KINGSFORD COMMUNITY SCHOOL	3GFloodlit	97 x 61	5917	P	21.0	490	100%	0%	55%	0%	45%
LANGDON ACADEMY	3GFloodlit	100 x 60	6000	P	29.0	590	100%	0%	49%	0%	51%
MEMORIAL RECREATION GROUND	3GFloodlit	100 x 64	6400	P	34.0	740	100%	0%	48%	0%	52%
ROYAL DOCKS COMMUNITY SCHOOL	3GFloodlit	102 x 55	5610	P	14.0	280	100%	0%	42%	0%	58%
WEST HAM TIGER TURF	3GFloodlit	101 x 62	6262	P	32.0	715	100%	0%	49%	0%	51%
Redbridge						4,360	100%	0%	74%	1%	25%
ASHTON PLAYING FIELDS	FSANDFloodlit	100 x 60	6000	P	34.0	740	100%	0%	86%	1%	13%
CATERHAM HIGH SCHOOL SPORTS COLLEGE	3GFloodlit	92 x 60	5520	P	26.0	605	100%	0%	82%	1%	17%
LOXFORD SCHOOL OF SCIENCE & TECHNOLOGY	3GFloodlit	100 x 60	6000	P	18.0	540	100%	0%	42%	0%	57%
MAYFIELD SCHOOL	3GFloodlit	96 x 60	5760	P	23.0	515	100%	0%	61%	0%	39%
REDBRIDGE SPORTS & LEISURE	3GFloodlit	92 x 54	4968	P	68.0	1,480	100%	0%	90%	1%	10%
REDBRIDGE SPORTS & LEISURE	3GFloodlit	92 x 54	4968		68.0						
SEVEN KINGS HIGH SCHOOL	3GFloodlit	100 x 60	6000	P	16.0	480	100%	0%	51%	0%	49%
Richmond on Thames						2,715	100%	0%	85%	1%	14%
HAMPTON SCHOOL	3GFloodlit	151 x 81	12231	P	14.0	175	100%	0%	83%	1%	16%
HAMPTON SPORT AND FITNESS CENTRE	FSANDFloodlit	100 x 60	6000	P	34.0	740	100%	0%	84%	1%	15%
ORLEANS PARK SCHOOL	FSANDNonFlo odlit	95 x 60	5700	P	16.0	200	100%	0%	97%	2%	2%
SHENE SPORTS & FITNESS CENTRE	FSANDFloodlit	100 x 63	6260	P	18.0	260	100%	0%	90%	2%	8%

Name of Site	Type	Dimensions	Area	Public/ Commercial	Hours in Peak Period	Site Capacity – visits per week peak period	% of Capacity Used	% of Capacity Not Used	Car % Demand	Public Tran % Demand	Walk % Demand
TEDDINGTON LOCK PLAYING FIELDS	3GFloodlit	100 x 60	6000	P	16.0	200	100%	0%	63%	1%	36%
TEDDINGTON SPORTS CENTRE	DSANDNonFloodlit	100 x 60	6000	P	32.0	400	100%	0%	97%	2%	1%
TEDDINGTON SPORTS CENTRE	DSANDFloodlit	100 x 60	6000		32.0						
WHITTON SPORTS & FITNESS CENTRE	3GFloodlit	100 x 60	6000	P	34.0	740	100%	0%	81%	1%	19%
Southwark						5,135	100%	0%	56%	1%	43%
ALLEYN'S SCHOOL	FSANDFloodlit	97 x 60	5820	P	16.0	200	100%	0%	95%	2%	3%
BACONS COLLEGE SPORTS CENTRE	3GFloodlit	92 x 58	5336	P	30.0	655	100%	0%	57%	1%	42%
BURGESS PARK	3GFloodlit	102 x 70	7140	P	16.0	200	100%	0%	7%	0%	93%
CHARTER SCHOOL SPORTS CENTRE	FSANDFloodlit	97 x 61	5917	P	34.0	740	100%	0%	56%	1%	44%
DULWICH COLLEGE SPORTS CLUB	FSANDFloodlit	90 x 55	4950	P	32.0	680	100%	0%	69%	1%	30%
DULWICH HEALTH CLUB	FSANDFloodlit	100 x 60	6000	C	34.0	740	100%	0%	45%	1%	55%
JAGS SPORTS CLUB	FSANDFloodlit	100 x 60	6000	P	29.0	590	100%	0%	64%	1%	35%
ST. PAULS RECREATION GROUND	3GFloodlit	100 x 60	6000	P	34.0	740	100%	0%	65%	1%	35%
THE CITY OF LONDON ACADEMY	DSANDFloodlit	100 x 60	6000	P	29.0	590	100%	0%	37%	1%	62%
Sutton						590	100%	0%	76%	0%	24%
CARSHALTON BOYS SPORTS COLLEGE	3GFloodlit	100 x 60	6000	P	29.0	590	100%	0%	76%	0%	24%
Tower Hamlets						2,748	100%	0%	26%	0%	74%
JOHN ORWELL SPORTS CENTRE	FSANDFloodlit	100 x 60	6000	P	34.0	740	100%	0%	39%	1%	60%
MILE END PARK LEISURE CENTRE AND STADIUM	FSANDFloodlit	91 x 54	4958	P	34.0	740	100%	0%	33%	0%	66%
ST PAULS WAY TRUST SCHOOL	DSANDFloodlit	101 x 63	6363	P	18.0	540	100%	0%	15%	0%	85%
STEPNEY GREEN PARK	3GFloodlit	106 x 70	7420	P	33.0	728	100%	0%	12%	0%	88%
Waltham Forest						3,875	100%	0%	64%	1%	36%
DOUGLAS EYRE SPORTS GROUND	3GFloodlit	106 x 70	7420	P	34.0	740	100%	0%	64%	1%	36%
DRAPERS SPORTS GROUND	3GFloodlit	102 x 62	6324	P	32.0	715	100%	0%	45%	0%	55%
MATCH DAY CENTRES	3GFloodlit	103 x 70	7210	P	34.0	740	100%	0%	69%	1%	31%
PETER MAY SPORTS CENTRE	3GFloodlit	106 x 74	7844	P	34.0	740	100%	0%	77%	1%	22%
SYLVESTRIAN LEISURE CENTRE	FSANDNonFloodlit	100 x 60	6000	P	16.0	200	100%	0%	96%	2%	3%
THE SCORE CENTRE	3GFloodlit	100 x 60	6000	P	34.0	740	100%	0%	55%	1%	45%
Wandsworth						3,110	100%	0%	62%	1%	38%
ASHCROFT TECHNOLOGY ACADEMY SPORTS FIELD	FSANDFloodlit	100 x 60	6000	P	5.0	150	100%	0%	37%	0%	62%
ASPIRE CENTRE (SOUTHFIELDS ACADEMY)	3GFloodlit	100 x 60	6000	P	34.0	740	100%	0%	48%	0%	52%

Name of Site	Type	Dimensions	Area	Public/ Commercial	Hours in Peak Period	Site Capacity – visits per week peak period	% of Capacity Used	% of Capacity Not Used	Car % Demand	Public Tran % Demand	Walk % Demand
BANK OF ENGLAND SPORTS CENTRE	DSANDFloodlit	98 x 61	5978	C	34.0	740	100%	0%	79%	1%	20%
BATTERSEA ALL WEATHER SPORTS GROUND	DSANDFloodlit	94 x 57	5358	P	68.0	1,480	100%	0%	62%	1%	37%
BATTERSEA ALL WEATHER SPORTS GROUND	DSANDFloodlit	94 x 57	5358		68.0						
Westminster						1,430	100%	0%	54%	1%	45%
PADDINGTON RECREATION GROUND	WATERFloodlit	102 x 64	6482	P	64.0	1,430	100%	0%	54%	1%	45%
PADDINGTON RECREATION GROUND	3GFloodlit	97 x 59	5748		64.0						

Appendix 3: Description of the facilities planning model

1. Included within this appendix are the following:
 - a. Model description

- b. Facility Inclusion Criteria
- c. Model Parameters

Background

- 2. 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. 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.

Use of FPM

- 3. 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.
- 4. 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.
- 5. 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 England¹.

How the model works

6. 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.
7. 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.
8. 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.
9. 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.
10. 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 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.
11. 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

¹ Award made in 2007/08 year.

- UK 2000 Time Use Survey - ONS
- General Household Survey - ONS
- Scottish Omnibus Surveys – Sport Scotland
- 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

Calculating Demand

12. This is calculated by applying the user information from the parameters, as referred to above, to the population². This produces the number of visits for that facility that will be demanded by the population. Depending on the age and gender makeup of the population, this will affect the number of visits an area will generate. In order to reflect the different population makeup of the country, the FPM calculates demand based on the smallest census groupings. These are Output Areas (OA)³. The use of OA's 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.

Calculating Supply Capacity

13. 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. 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).

² For example, it is estimated that 10.45% of 16-24 year old males will demand to use an AGP, 1.69 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 175,400 OA's across England & Wales. An OA has a target value of 125 households (300 people) per OA.

14. Based on travel time information⁴ 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.
15. 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 over supply 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.
16. 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.

Facility Attractiveness – for halls and pools only

17. 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.
18. Attractiveness weightings are based on the following:

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.

- 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
 - 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.
19. To reflect this, two weightings curves are used for education and non-education halls, a high weighted curve, and a lower weighted curve;
- High weighted curve - includes Non education management - better balanced programme, more attractive
 - Lower weighted curve - includes Educational owned & managed halls, less attractive.
20. 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.

Comfort Factor

21. 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 = 5 users /court). This gives each facility a "theoretical capacity".
22. 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.
23. 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).
24. The comfort factor is used in two ways;
 - 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
 - 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.

Utilised Capacity (used capacity)

25. Following on from Comfort Factor section, here is more guidance on Utilised Capacity.
26. 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. England figure for Feb 2008 Pools was only 57.6%.

27. 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.

Facility	Car	Walking	Public transport
Swimming Pool	70.0%	18.8%	11.2%
Sports Hall	74.6%	15.5%	10.0%
AGP			
Combined	89.0%	9.0%	2.0%
Football	87.1%	10.7%	2.1%
Hockey	95.4%	2.6%	1.9%

28. For example:

A 25m, 4 lane pool has Theoretical capacity of 2260 per week, during 52 hour peak period.

	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

29. 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 capacity is 264 visits throughout the evening. In this instance the pools utilised capacity for the evening would be 54%.

30. As a guide, 70% utilised capacity is used to indicate that pools are becoming busy, and 80% for sports halls.

Travel times Catchments

- 31. The model use travel times to define facility catchments. These travel times have been derived through national survey work, and so are based on actual travel patterns of users. With the exception of London where DoT travel speeds are used for Inner & Outer London Boroughs, these travel times are used across the country and so do not pick up on any regional differences, of example, longer travel times for remoter rural communities.
- 32. The model includes three different modes of travel, by car, public transport & walking. Car ownership levels are also taken into account, in areas of low car ownership, the model reduces the number of visits made by car, and increases those made on foot.
- 33. 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.
- 34. The model includes a distance decay function; where the further a user is from a facility, the less likely they will travel. The survey data show 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 can be used as a rule of thumb for catchments for sports halls, AGPs and pools.

Minutes	Sport halls		Swimming Pools	
	Car	Walk	Car	Walk
0-10	57%	55%	58%	56%
10-20	33%	30%	34%	30%
20 -40	9%	12%	7%	11%

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

B. Inclusion Criteria used within analysis

Swimming Pools

35. 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 where identified
 - Where opening times are missing, availability has been included based on similar facility types
 - Where the year built is missing assume date 1975.
36. Facilities in Wales and the Scottish Borders included, as supplied by sportscotland and Sports Council for Wales. All facilities weighted 75% due to no data on age of facilities.

Model Parameters used in the Analysis

At one Time Capacity	0.16667 per square metre = 1 person per 6 square meters					
Catchments	Car:	20 minutes				
	Walking:	1.6 km				
	Public transport:	20 minutes at about half the speed of a car				
	NOTE; Catchments use a distance decay function. Times and distances above are indicative.					
Duration	64 minutes for tanks					
	68 minutes for leisure pools					
Participation -% of age band	0-15	16-24	25-39	40-59	60-79	
	M	13.23	10.86	13.73	8.13	3.93
Frequency - VPWPP	F	12.72	14.51	18.89	10.44	4.52
	M	0.92	0.84	0.71	0.94	1.18
	F	0.95	0.76	0.79	0.81	1.07
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				
Percentage of demand in Peak Period	63%					