Facilities Planning Model Assessment of Swimming Pools Provision in Broadland

Standard Report 2020

20 December 2021

Disclaimer

The information in this report is presented in good faith using the information available to Sport England at the time of preparation. It is provided on the basis that the authors of the report are not liable to any person or organisation for any damage or loss which may occur in relation to taking, or not taking, action in respect of any information or advice within the document.

Accreditations

Other than data provided by Sport England, this report also contains data from the following sources:

Executive Summary

i. The key element to be taken from this report is that Broadland District Council does not have any public swimming pool provision. The type of activities provided and hours of access for community use are determined by the three commercial swimming pool providers and the one educational provider. Broadland District Council does not control the programme of community use.

Key Findings

ii. The three commercial pools in Broadland provide recreational swimming for centre membership and operate learn to swim schools, while Thorpe St Andrew School pool provides learn to swim activities. There are no swimming pool sites in Broadland that provide public recreational 'pay and swim' casual use.

iii. Because of the pool sizes, it is unlikely that they are suitable for swimming development by clubs. This lack of opportunity, especially for casual pay and swim, may be limiting swimming participation in Broadland.

iv. Residents who wish to do recreational swimming on a pay and swim basis without joining a commercial centre have to travel to Norwich or North Norfolk, depending on where they live. The finding is that 92% of all visits to swimming pools by Broadland residents are made by car, perhaps reinforcing the point on lack of opportunity.

v. The key findings from the supply, demand and access assessment are set out below and are described in full under each assessment heading:

1. The average age of the swimming pool sites in 2020 is 37 years old, and only Mermaid River Pools has been modernised.

2. A total of 86% of swimming demand in Broadland is satisfied/met.

3. Only 48% of the satisfied demand is retained within the authority; Broadland exports more of its demand with Norwich being the major destination.

4. Broadland exports 3,536 visits in the weekly peak period compared to 3,200 retained visits per week in the peak period.

5. Broadland's unmet demand is only 14% of its demand, which equates to 186 sqm of water. Only 5% of unmet demand is due to lack of capacity and 95% is demand located outside the catchment area of a pool.

6. There is not a sufficient cluster of unmet demand in any one location to consider increasing swimming pool provision to improve accessibility for residents.

7. Broadland's average estimated used capacity of swimming pools is 56% in the weekly peak period.

8. The used capacity of the Broadland pools which is imported is 868 visits in the weekly peak period; this is a quarter of its exported visits.

Strategic Overview

vi. While 86% of the total Broadland demand for swimming is being met, only 48% of this is met within the District. The drive time catchment area of the cluster of swimming pool locations in Norwich extends into Broadland. UEA Sportspark swimming pool is an extensive facility providing all swimming activities and full community use through membership.

vii. The balance between satisfied demand and unmet demand is 86% and 14% respectively. There is no cluster location of high unmet demand. Unmet demand is highest in Heartsease and Sprowston and east of these areas where it totals between 45 sqm and 50 sqm of water, followed by the Acle area where it totals between 10 sqm and 15 sqm of water. The remainder of unmet demand is dispersed across the District, with values of between 2 sqm and 3 sqm of water per one-kilometre grid square.

viii. The level of swimming pool capacity used at each pool site does vary. The three commercial swimming pool sites provide the maximum 52.5 hours in the weekly peak period for community use through recreational swimming by the centre membership or learn to swim activities. There is scope to increase the 31 hours for community use at the Thorpe St Andrew School pool site, but again this site provides learn to swim activities. Overall, there is a reasonable level of used capacity at the pool sites but only for a narrow range of activities.

ix. Of particular note is the age of the Thorpe St Andrew School pool which opened in 1950 and, according to the data, has not had any extensive modernisation. The future operation of the pool site could be of concern due to its age. The three commercial swimming pool sites opened between 1999 and 2006. The most recent pool site to open is Mermaid River Pools in 2003 and this is the only pool site to have been modernised, in 2006.

x. In summary, Broadland has a good supply of three commercial swimming pool sites that provide for residents who wish to join a commercial centre to swim; these centres also provide learn to swim activities, as does the one educational pool site. The pools have reasonable levels of estimated usage, and the commercial centres provide the maximum hours for use through membership.

xi. The level of demand for swimming which can be met for the activities provided is high, but is higher in most of the neighbouring local authorities who also provide a more extensive swimming offer.

Next Steps

xii. The impact of population growth and the increasing demand for swimming in the District needs consideration. On this evidence base there is a working headroom of 14% unused capacity as a District average before the Sport England benchmark of pools being comfortably full at 70% of capacity used is reached. However, the pools provide for the narrow range of activities described.

xiii. It is recommended that, for future strategic planning, an assessment is made of the future demand for swimming and how this can be met. If Broadland District Council does not wish to provide public swimming pools, then ensuring that there is access for all types of swimming activities, and especially for recreational swimming on a pay and swim basis, is the most important priority.

xiv. Broadland District Council will determine how it applies the outcomes of this report, however, it may wish to consider reviewing the findings and applying the evidence base to ensure that the benefits from the strategic direction being set by Sport England are realised.

xv. Finally, it is important to point out that this is a one-year assessment and provides the evidence base as of now. The findings should be consulted on to provide a rounded evidence base and address the recommendations set out.

xvi. Longer term local assessments can be undertaken in order to provide an evidence base in Local Plan policy and for securing investment.

Contents

1. Introduction

1.1 This assessment uses Sport England's Facilities Planning Model (FPM) and the data from the National Run using Active Places data as of 2020.

1.2 The supply assessment is based on swimming pools sites being open and accessible for community use. If there are temporary closures of swimming pool sites due to Covid-19 or for any other reasons, the local authority should inform Sport England Active Places Power by use of the 'contact us' link https://www.activeplacespower.com.

1.3 This standard run assessment provides an initial assessment of the current supply and demand for provision of swimming pools in Broadland District East Anglia. This assessment does not include future population growth projections; it is a baseline evidence base for swimming pool provision.

1.4 To help with comparative analysis, data outputs for the neighbouring local authorities, together with regional and national findings, are included in the data tables.

Context

1.5 This report should form part of a wider assessment of provision at local level, which then provides a rounded assessment and evidence base report. This should include other available information and knowledge from (1) a sports perspective, such as national sports governing bodies and other sports organisations, and (2) a local perspective from the local authority, the facility operator, and local sports clubs.

1.6 When reviewing the findings from this FPM standard report, the outcomes should be applied with reference to the evidence base benefits from the strategic direction being set by Sport England on:

- The policies, programmes and interventions proposed to increase sports participation and physical activity
- The application of the research applied by Sport England in determining the strategy and the evidence base
- The role that sports facilities can play in increasing sports participation and physical activity

1.7 The strategy can be accessed at Uniting the Movement | Sport England.

Future Assessment

1.8 Longer term bespoke FPM local assessments for future provision can be undertaken based on:

- Review of these findings
- Projected population growth and inclusion of residential sites identified in the Local Plan

- Options for changes in supply – closure/new openings at same or different locations and different scale

1.9 The purpose is to identify how these changes in supply will impact on access to swimming pools for residents in future years and whether they will meet future demand.

1.10 These can be applied as an evidence base in Local Plan policy and for securing developer contributions based on growth. The future assessments also provide a long-term evidence base for securing inward investment – grant aid applications and prototype developments, for example, Sport England Leisure Local.

Report Structure, Content and Sequence

1.11 This report sets out the full findings under seven assessment headings of Supply, Demand, Satisfied Demand, Unmet Demand, Used Capacity (how full the facilities are) and Local Share (an equity measure).

1.12 Each heading has a table of main findings followed by a definition of the assessment heading and the findings; each key finding is numbered and in bold typeface. Each table includes the findings for all the neighbouring authorities, along with the regional and England-wide findings. This is because the assessments are based on catchment areas which may extend across local authority boundaries.

1.13 Where valid to do so, the findings for neighbouring local authorities are compared with the core authority, for example, water space per 1,000 population.

1.14 Maps to support the findings on facility locations, satisfied demand, unmet demand, local share, and public transport access to facilities are also included.

1.15 Appendix **1** lists the facilities excluded from the study with explanations, and Appendix **2** describes the facility planning inclusion criteria and model parameters.

2. Supply of Swimming Pools

Supply	Broadland	Breckland	Great Yarmouth	North Norfolk	Norwich	South Norfolk	East Region	England
Number of pools	5	5	2	8	6	7	339	3,031
Number of pool sites	4	2	2	6	5	5	239	2,099
Supply of total water space in sqm of water	919	1,170	514	1,563	1,980	1,395	75,369	681,528
Supply of publicly available water space in sqm of water (scaled with hours available in the peak period)	845	1,044	400	1,413	1,874	1,120	63,554	588,927
Supply of total water space in visits per week in the peak period	7,325	9,051	3,468	12,247	16,245	9,712	551,016	5,105,997

Definition of supply – This is the supply or capacity of the swimming pools which are available for community and swimming club use in the weekly peak period. Supply is expressed in the number of visits that a pool can accommodate in the weekly peak period and in square metres of water.

2.1 There are five individual pools located at four sites in Broadland in 2020. The total supply of water space is 919 sqm of water, of which 845 sqm of water is available for community use in the weekly peak period (Note: for context, a 25m x 10m four-lane pool is 250 sqm of water).

2.2 **Key finding 1** is that there are no local authority public swimming pool sites in Broadland District, but there are three commercial swimming pool sites and one educational pool site. Broadland District Council has no control over the access to these swimming pools for community use, which is decided by each owner in terms of the types of swimming activities available, the pool programming and pricing. This supply of swimming pools and the level of access for community use can change at any time.

2.3 The largest swimming pool site is David Lloyd (Norwich), which has a 25m x 13m six-lane main pool and an 8m x 8m leisure pool. It is the only pool site to have two individual pools, and is the most recent swimming pool site to open, in 2006.

2.4 Mermaid River Pools (opened in 2003) has a main pool with dimensions of 20m x 9m and four lanes. Bannatyne Health Club (opened in 1999) is the third commercial swimming pool site, with a main pool of 20m x 8m and four lanes.

2.5 Based on the data, the three commercial pool sites each provide 52.5 hours of community use per week. The activities are recreational swimming by the centre membership, and

there may also be a swim school operation. There is no public access for recreational casual pay and swim.

2.6 The educational swimming pool site is at Thorpe St Andrew School and, opened is 1950, is the oldest swimming site in Broadland. It has a main pool of 20m x 10m and four lanes, with 31 hours available for community use per week. Learn to swim schools operate at this site, and there is no public casual pay and swim.

2.7 **Key finding 2** is that the average age of the swimming pool sites in 2020 is 37 years and, according to the data, only Mermaid River Pools which opened in 2003 has been modernised, in 2006. The average age is influenced by the Thorpe St Andrew School pool site, with the other three swimming pool sites having opened more recently between 1999 and 2006.

2.8 Details of the swimming pool sites in Broadland District are provided in Table **2.1**.

2.9 The locations of the swimming pool sites in Broadland are shown in Map **2.1**. The purple diamond is the pool site location, and the size of the diamond is representative of the scale of the pool site in terms of capacity. Maps **2.2** and **2.3** show more detail for the central and north-west areas of the authority.

2.10 All three pool sites in the central part of Broadland are very close to the boundary with Norwich. Bannatyne Health Club is to the north-west of the Norwich boundary, David Lloyd and Thorpe St Andrew School are to the south-east. Of note is the cluster of five swimming pools in Map **2.2** located in Norwich City. The 20-minute drive time catchment area for these sites will extend into much of Broadland and provide access for Broadland residents who travel to swimming pools by car.

Table 2.1: Swimming Pool Supply (Facilities Included)

Name of Facility	Type of Pool	Dimensions in metres	Area sqm	Site Year Built	Site Year Refurbished	Weight Factor	Hours in Peak Period	Total Hours Available	Site Capacity - visits per week peak period
Bannatyne Health Club	Main/General	20 x 8	160	1999		82%	52.5	104	1,400
David Lloyd	Main/General Leisure Pool	25 x 13 8 x 8	325 64	2006		93%	52.5 52.5	109.5 109.5	3,404
Mermaid River Pools	Main/General	20 x 9	170	2003	2006	91%	52.5	112	1,488
Thorpe St Andrew School	Main/General	20 x 10	200	1950		21%	31	41	1,033

Map 2.1: Swimming Pool Sites in Broadland District (2020)

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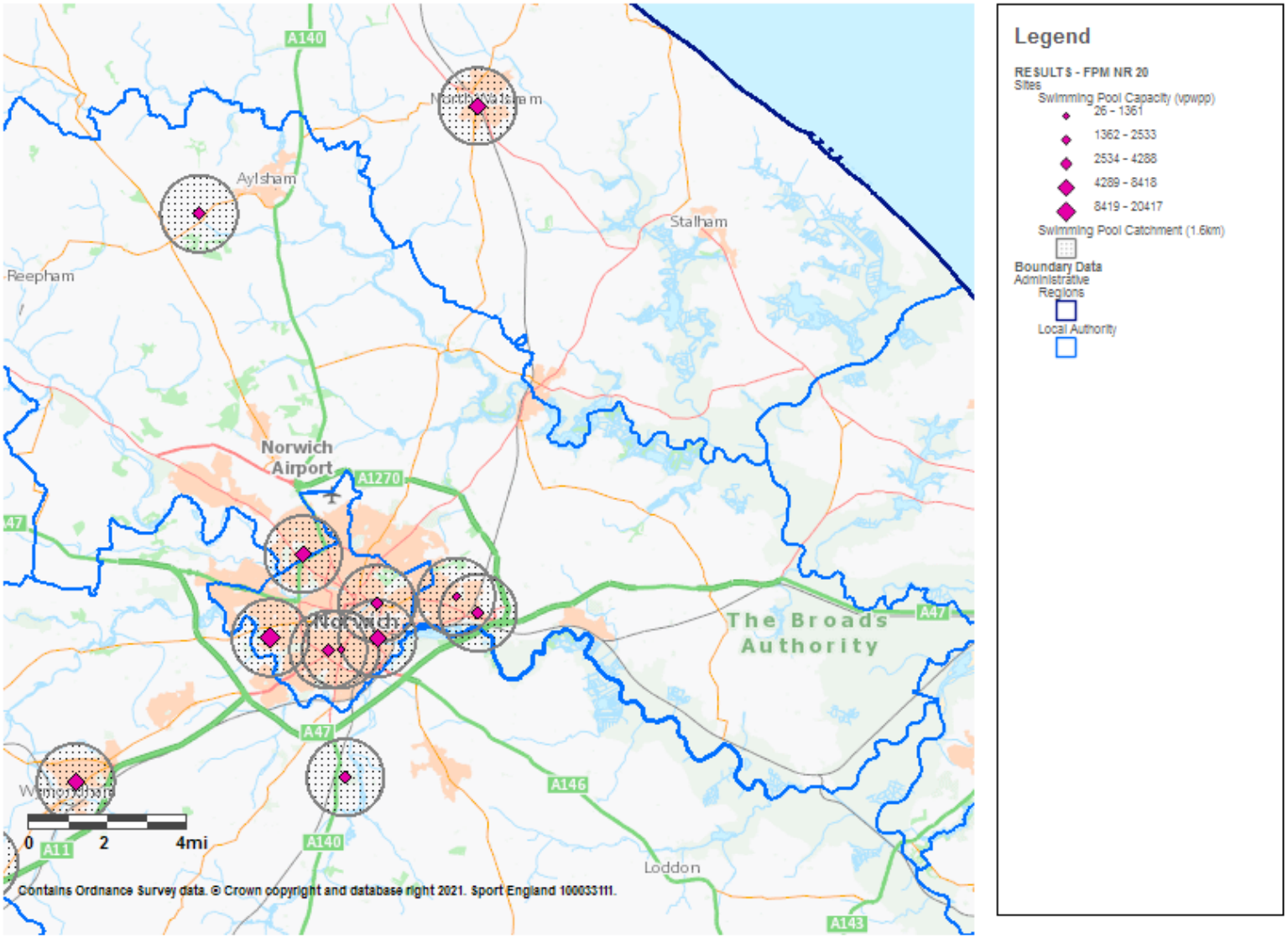

Map 2.2: Swimming Pool Sites in Central Broadland (2020)

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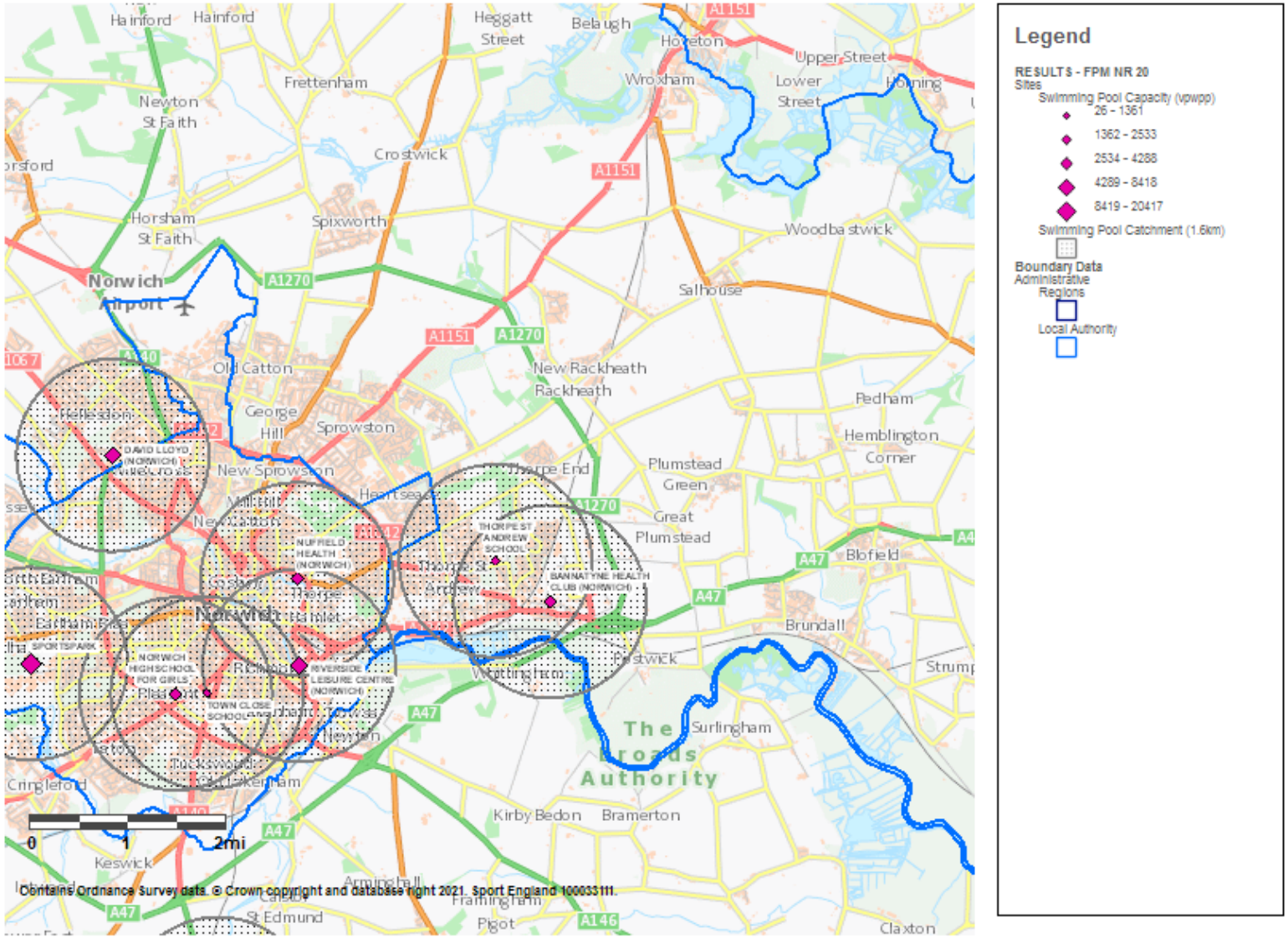

Legend

RESULTS - FPM NR 20

Sites

Swimming Pool Capacity (vpwpp)

- 26 - 1361
- 1362 - 2533
- 2534 - 4288
- 4289 - 8418
- 8419 - 20417

Swimming Pool Catchment (1.6km)

Boundary Data

Administrative Regions

Local Authority

Map 3.3: Swimming Pool Site in North-West Broadland (2020)

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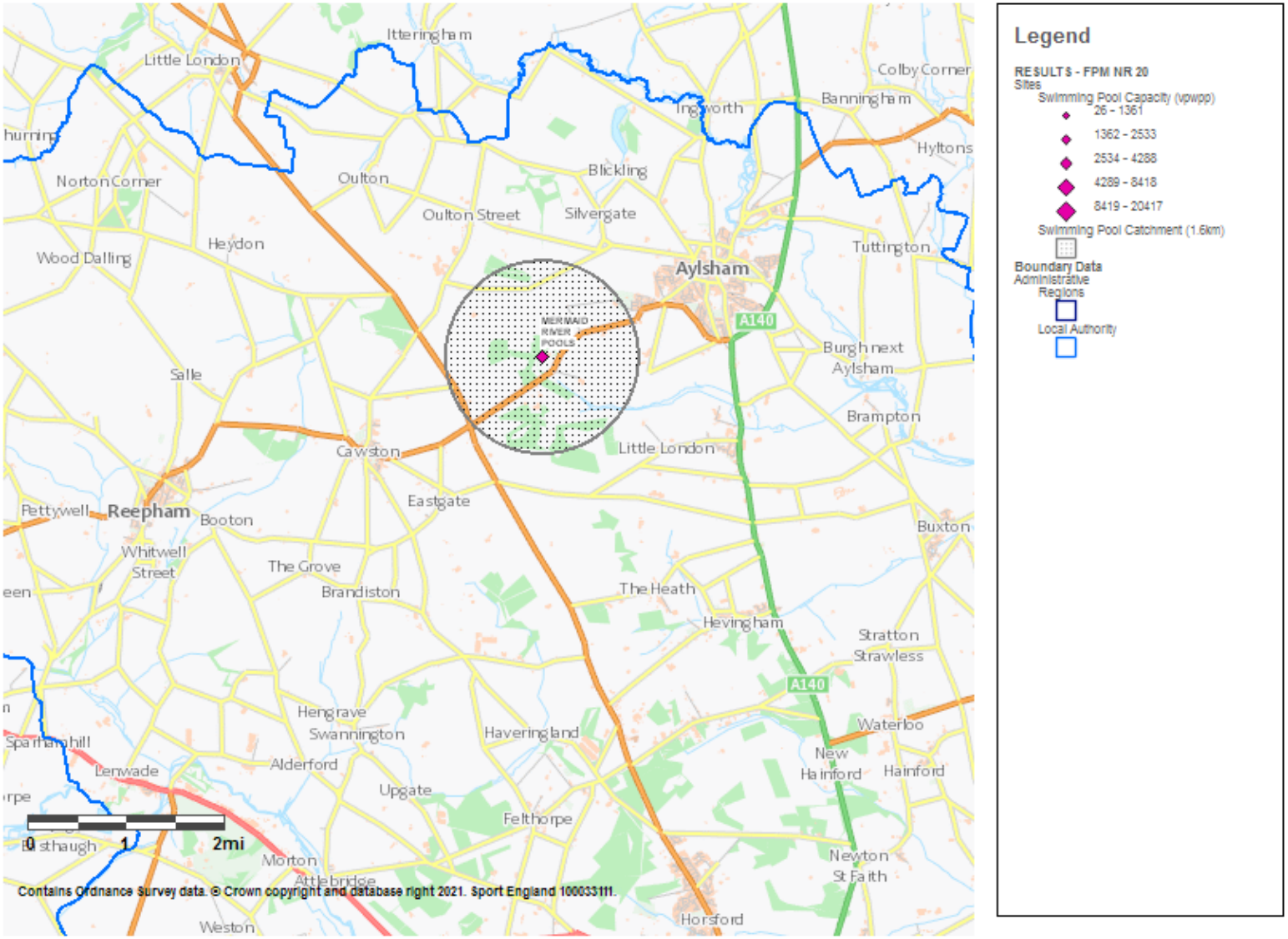


3. Demand for Swimming Pools

Demand	Broadland	Breckland	Great Yarmouth	North Norfolk	Norwich	South Norfolk	East Region	England
Population	131,671	142,019	100,097	105,800	142,790	142,704	6,277,257	56,630,408
Swims demanded – visits per week peak period	7,851	8,462	6,021	5,968	8,877	8,642	388,000	3,519,309
Equivalent in water space – with comfort factor included	1,304	1,404	999	990	1,473	1,435	64,391	584,055

Definition of total demand – This represents the total demand for swimming by both genders and for seven five-year age bands from 0 to 65+ and is calculated as the percentage of each age band/gender that participates. This is added to the frequency of participation in each age band/gender to arrive at a total demand figure, which is expressed in visits in the weekly peak period and square metres of water. The FPM parameters for the percentage of participation and frequency of participation, for both genders and for different age bands, are set out in Appendix **2**.

3.1 The total population of Broadland District in 2020 is 131,671, and this population generates a total demand for swimming of 7,851 visits in the weekly peak period. This period consists of weekday mornings (1 hour), weekday lunchtimes (1 hour), weekday evenings (up to 5 hours per day) and weekend days (up to 7 hours per day).

3.2 This equates to a total demand for 1,304 sqm of water. For context, the available supply of water space in the peak period in Broadland is 845 sqm of water.

4. Satisfied Demand

Demand from Broadland residents currently being met by supply

Satisfied Demand	Broadland	Breckland	Great Yarmouth	North Norfolk	Norwich	South Norfolk	EAST REGION	ENGLAND
Total number of visits which are met	6,736	5,969	4,191	4,387	8,205	7,292	346,833	3,225,075
% of total demand satisfied	85.8	70.5	69.6	73.5	92.4	84.4	89.4	91.6
% of demand satisfied who travelled by:								
Car	92.0	86.0	78.5	88.9	65.2	90.5	80.4	71.9
Foot	4.2	10.2	11.7	7.6	20.0	6.5	12.9	18.2
Public Transport	3.8	3.8	9.8	3.6	14.8	3.0	6.8	9.9
Retained Demand:								
Number of visits Retained	3,200	4,780	3,421	4,089	7,723	4,017	337,209	3,223,156
As a % of Satisfied Demand	47.5	80.1	81.6	93.2	94.1	55.1	97.2	99.9
Exported Demand:								
Number of visits Exported	3,536	1,189	770	299	482	3,275	9,637	1,931
As a % of Satisfied Demand	52.5	19.9	18.4	6.8	5.9	44.9	2.8	0.1

Definition of satisfied demand – This represents the proportion of total demand that is met by the capacity at the swimming pools from Broadland residents who live within the driving, walking or public transport catchment area of a pool. This includes pools located both inside and outside Broadland.

4.1 **Key finding 3** is that 86% of the total demand for swimming from Broadland residents is met.

4.2 Satisfied demand in Broadland is the second highest in the study area. In the neighbouring local authorities demand being met ranges from 70.5% in Breckland to 92.4% in Norwich; the East Region average is 89.4%.

Retained Demand

4.3 A subset of the satisfied demand findings shows how much of Broadland's demand for swimming is retained at the pools located within Broadland. This assessment is based on the catchment area of Broadland pools and residents located in Broadland and is known as retained demand.

4.4 **Key finding 4** is that, of the total 86% Broadland demand for swimming which is met, only 47.5% is retained within the authority. This is quite a low level of retained demand; the range in the neighbouring local authorities is from 55% in South Norfolk to 94% in Norwich, with four authorities retaining over 80% of the satisfied demand within their own authority.

4.5 The model iteratively allocates demand to facilities using a set of distance decay functions and choice parameters, which is supported by Sport England's research. Increasingly there are other factors that influence which pools residents chose to use, such as other facilities on the same site, for example, a gym or studio, or ease of parking.

Exported Demand

4.6 The residue of satisfied demand, after retained demand, is exported demand. The 2020 finding is that 52.5% of the Broadland satisfied demand for swimming is met at a site outside Broadland. The authority is very much dependent on access to these swimming pool sites to meet its demand for swimming pools.

4.7 **Key finding 5** is that Broadland's retained demand is 3,200 visits per week in the weekly peak period; its exported demand is 3,536 visits in the weekly peak period.

4.8 The data does not identify how much of Broadland's demand goes to which authority or pool site, but only provides the total figure for exported demand. However, based on Maps **2.1** and **2.2** in Section 2 of this report, the cluster of five swimming pool sites in Norwich located close to the Broadland boundary suggests that the majority of the exported demand goes to Norwich.

5. Unmet Demand

Demand from Broadland residents not currently being met

Unmet Demand	Broadland	Breckland	Great Yarmouth	North Norfolk	Norwich	South Norfolk	East Region	England
Total number of visits in the peak, not currently being met	1,116	2,493	1,830	1,581	672	1,350	41,167	294,234
Unmet demand as a % of total demand	14.2	29.5	30.4	26.5	7.6	15.6	10.6	8.4
Equivalent in water space m2 - with comfort factor	186	414	304	262	112	224	6,832	48,830
% of Unmet Demand due to:								
Outside Catchment:	95.1	99.6	48.0	98.4	88.8	85.8	87.8	90.1
Who do not have access to a car	43.2	30.4	33.4	38.0	84.5	36.6	55.7	68.5
Who have access to a car	51.9	69.2	14.6	60.4	4.3	49.2	32.1	21.5
Lack of Capacity:	4.9	0.4	52.0	1.6	11.2	14.2	12.2	9.9
Who do not have access to a car	0.6	0.0	18.1	0.0	10.2	1.0	4.7	7.3
Who have access to a car	4.3	0.4	33.9	1.6	1.0	13.2	7.5	2.6

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

5.1 **Key finding 6** is that Broadland's total unmet demand is 14% of total demand, and this equates to 186 sqm of water.

5.2 Of the total unmet demand, 95% is from unmet demand located outside the catchment area of a pool, and 5% is from lack of swimming pool capacity. Unmet demand outside a catchment will always exist because it is not possible to achieve complete spatial coverage whereby all areas of an authority are inside a catchment for residents without access to a car.

5.3 Fortunately, there is not a great demand for swimming located in these areas. In terms of visits, the total unmet demand is 1,116 visits per week in the peak period. This compares with the Broadland demand inside a catchment, and which is being met, of 6,736 visits per week in the peak period.

5.4 The overall key point is not that unmet demand outside a catchment exists, but the scale of the unmet demand, and this is more important. Also, if this unmet demand is clustered in one location, further pool provision should be considered so as to improve accessibility for residents.

5.5 Map **5.1** shows the location and scale of the total unmet demand for swimming across Broadland. Maps **5.2** and **5.3** provide more detail for the central and north-west areas of the authority.

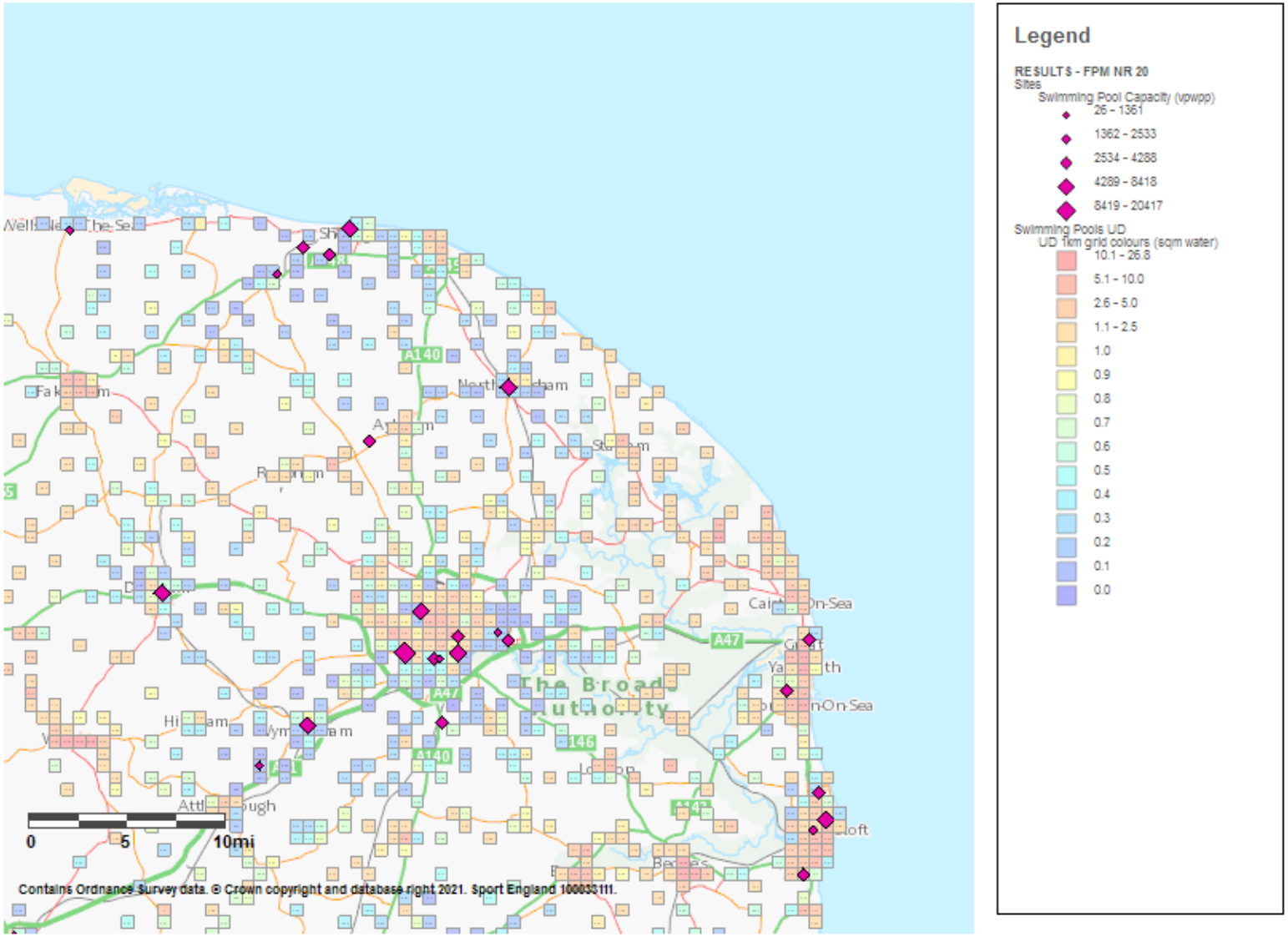
5.6 Unmet demand is represented by colour-coded one-kilometre grid squares, with the sqm of water of unmet demand shown in each square. The blue to green squares have values of between 0.1 sqm and 0.7 sqm of water, so very low. The yellow squares represent 0.8 sqm to 1.0 sqm of water, the light orange squares 1.0 sqm to 2.5 sqm of water, the medium orange squares 2.5 sqm to 5.0 sqm of water and the dark orange squares 5.0 sqm to 7.5 sqm of water.

5.7 Unmet demand is highest in Heartsease and Sprowston and to the east of these areas, where it totals between 45 sqm and 50 sqm of water, followed by the Acle area at between 10 sqm and 15 sqm of water.

5.8 After these locations, the majority of unmet demand is distributed in values of between 1 sqm and 2 sqm of water in the one-kilometre grid squares across the District. **Key finding 7** is that, overall, there is not a sufficient cluster of unmet demand in any one location to consider increasing swimming pool provision in order to improve accessibility for residents (Note: for context, a 25m x 10m four-lane swimming pool is 250 sqm of water).

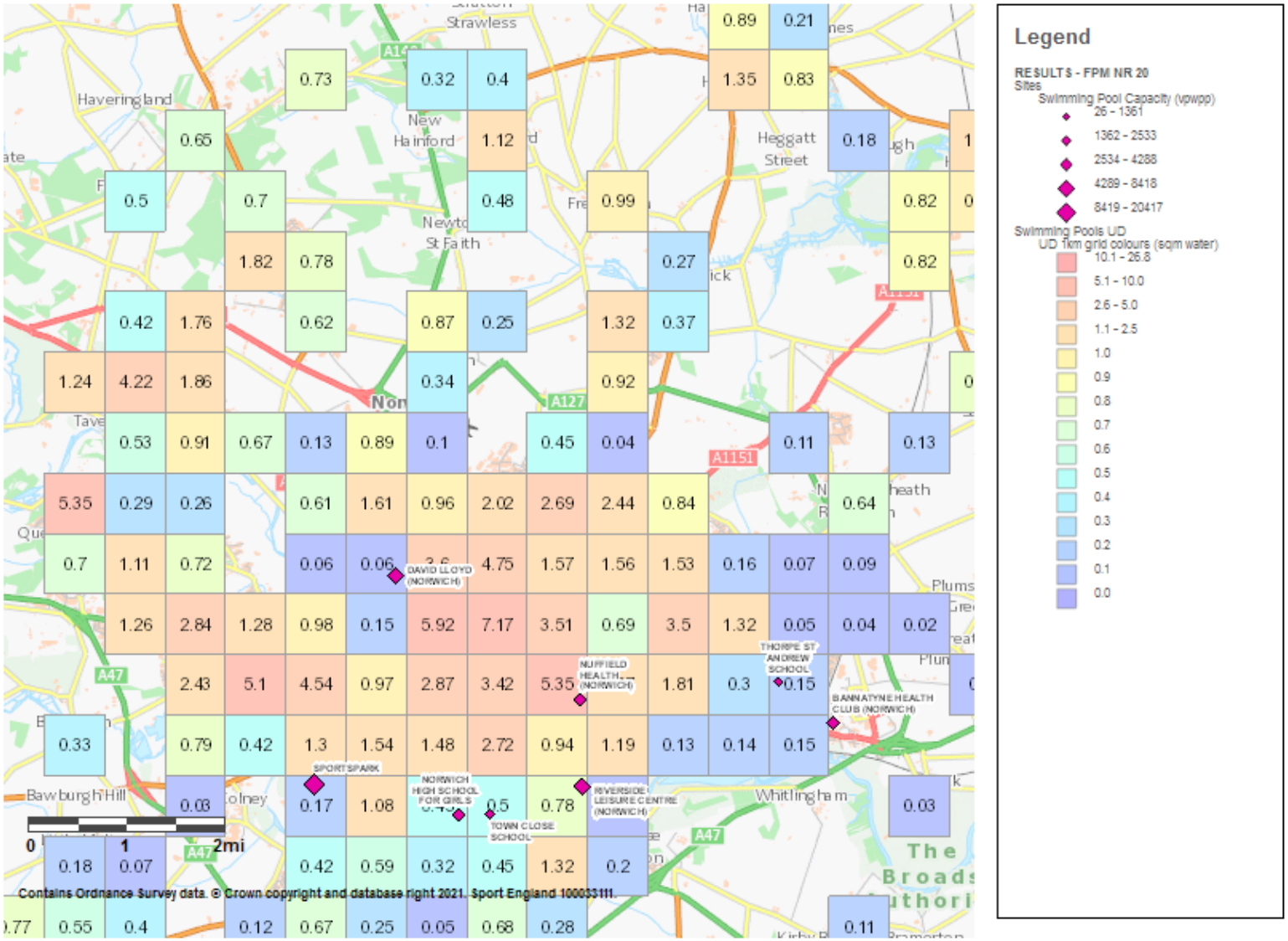
Map 5.1: Unmet Demand for Swimming Pools in Broadland District (2020)

Facility Planning Model unmet demand aggregated at 1km square grid (figure labels) and shown thematically (colours). Unmet demand at 1km square grid level expressed as square meters of water.



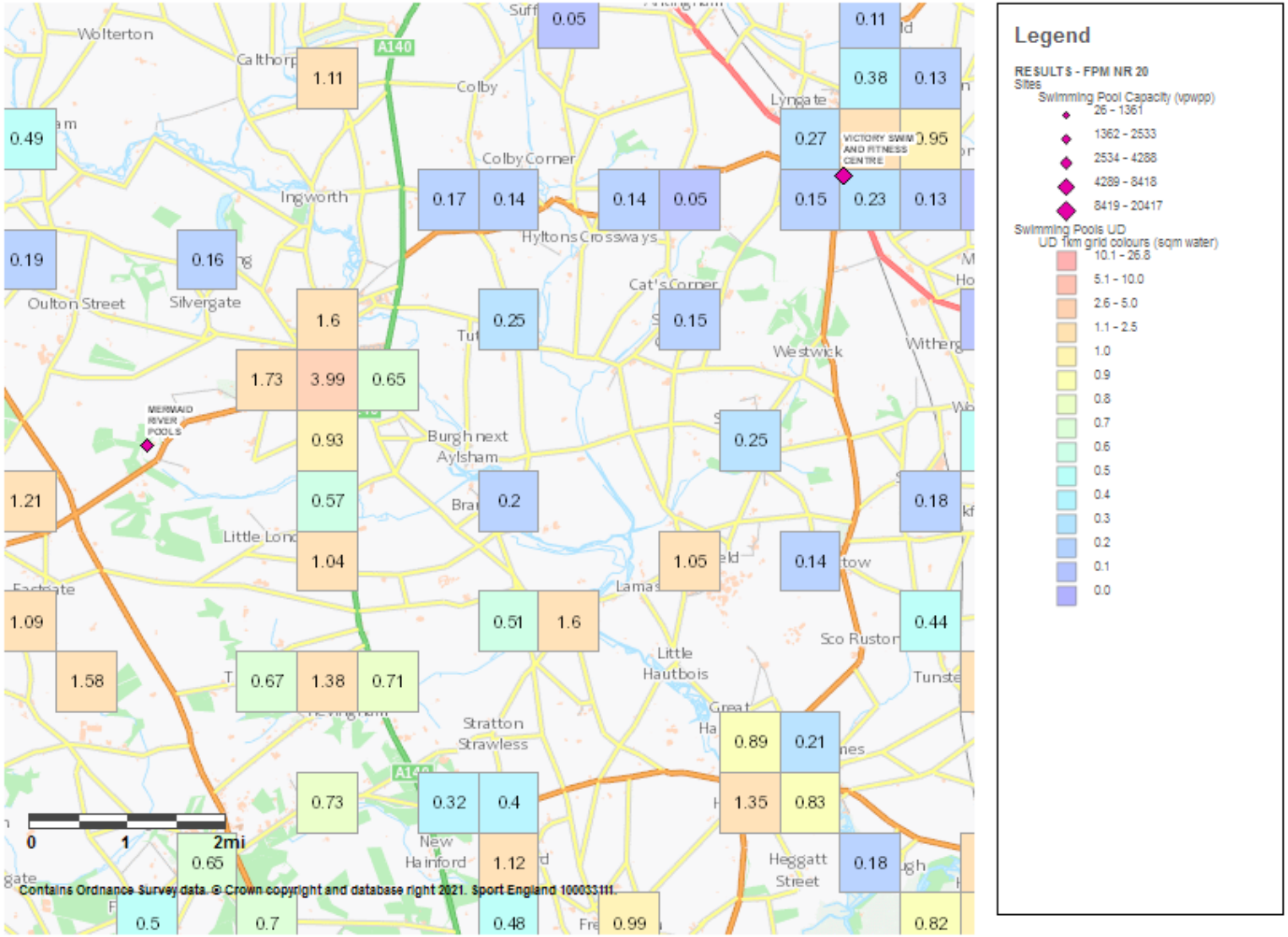
Map 5.2: Unmet Demand for Swimming Pools in Central Broadland (2020)

Facility Planning Model unmet demand aggregated at 1km square grid (figure labels) and shown thematically (colours). Unmet demand at 1km square grid level expressed as square meters of water.



Map 5.3: Unmet Demand for Swimming Pools North-West Broadland (2020)

Facility Planning Model unmet demand aggregated at 1km square grid (figure labels) and shown thematically (colours). Unmet demand at 1km square grid level expressed as square meters of water.



Population Without Access to a Car

Population No Car	Broadland	Breckland	Great Yarmouth	North Norfolk	Norwich	South Norfolk	East Region	England
Population	131,671	142,019	100,097	105,800	142,790	142,704	6,277,257	56,630,408
% of population without access to a car	10.9	15.0	26.6	15.6	32.0	11.0	17.7	24.9

5.9 The percentage of the population without access to a car influences travel patterns to swimming pools. If there is a low percentage, it means there is likely to be a higher percentage of visits to pools by car; the drive time catchment is 30 minutes' travel time. However, the FPM uses a distance decay function where, the further a user is from a facility, the less likely they will travel (a description of the distance decay function is provided in Appendix **2**).

5.10 If there is a high percentage of residents without access to a car, and who either walk or use public transport to access a pool, then a network of local swimming pool sites becomes more important in order to maintain access and encourage swimming participation. The public transport catchment area for pools is also 30 minutes' travel time (at half speed of car), and for walking it is 40 minutes/2 miles.

5.11 Based on the 2011 Census, 11% of Broadland's resident population do not have access to a car. Broadland together with South Norfolk has the lowest percentage of residents without access to a car. The East Region average is 18%, and England-wide 25% of the population do not have access to a car.

5.12 The findings for Broadland are that 92% of all visits to pools are by car, with 4% of visits by walking and 4% of visits by public transport (see Satisfied Demand table). Therefore, not surprisingly and given the very low percentage of the population without access to a car, the vast majority of visits to pools are by car, and only 8%, or one in twelve visits, are by a combination of walking and public transport.

5.13 To gain some understanding of how accessible the swimming pool sites are by public transport, Map **5.1** for the central part of the authority and Map **5.2** for the north-west of the authority, show the locations of the swimming pool sites (pink diamonds) and the areas of the authority that are within 0-5 minutes' walk of a bus stop (grey areas).

5.14 As might be anticipated in a largely rural authority, there is a limited area of Broadland that is within the 0-5 minutes of a bus stop, and this mainly benefits the Thorpe St Andrew School site. The Mermaid River Pools site is located outside the bus travel catchment area. Overall, access to Broadland's swimming pool sites by public transport is very limited.

Map 5.1: Areas of Central Broadland within 5 minutes' walk of a bus stop (2020)

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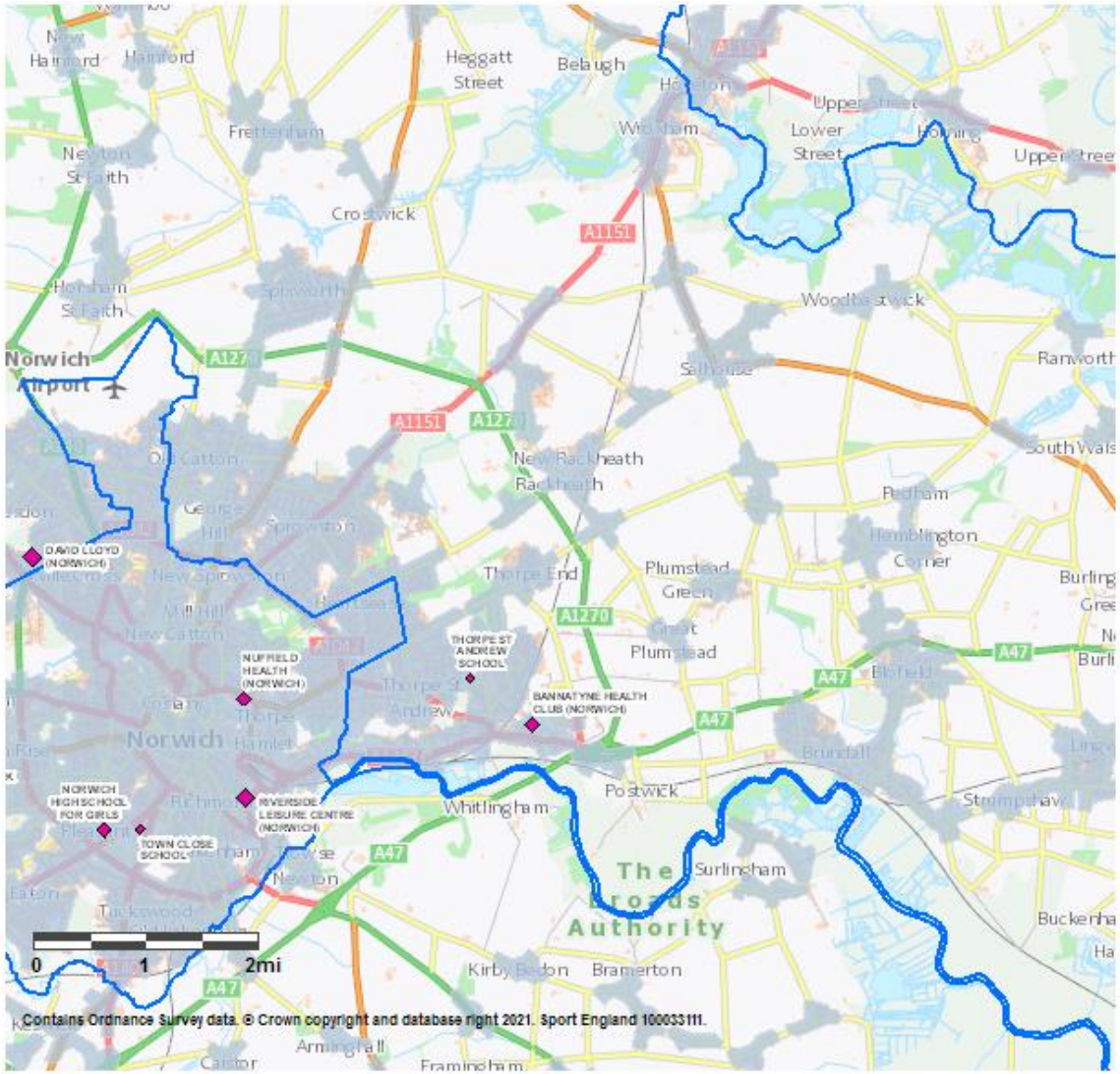


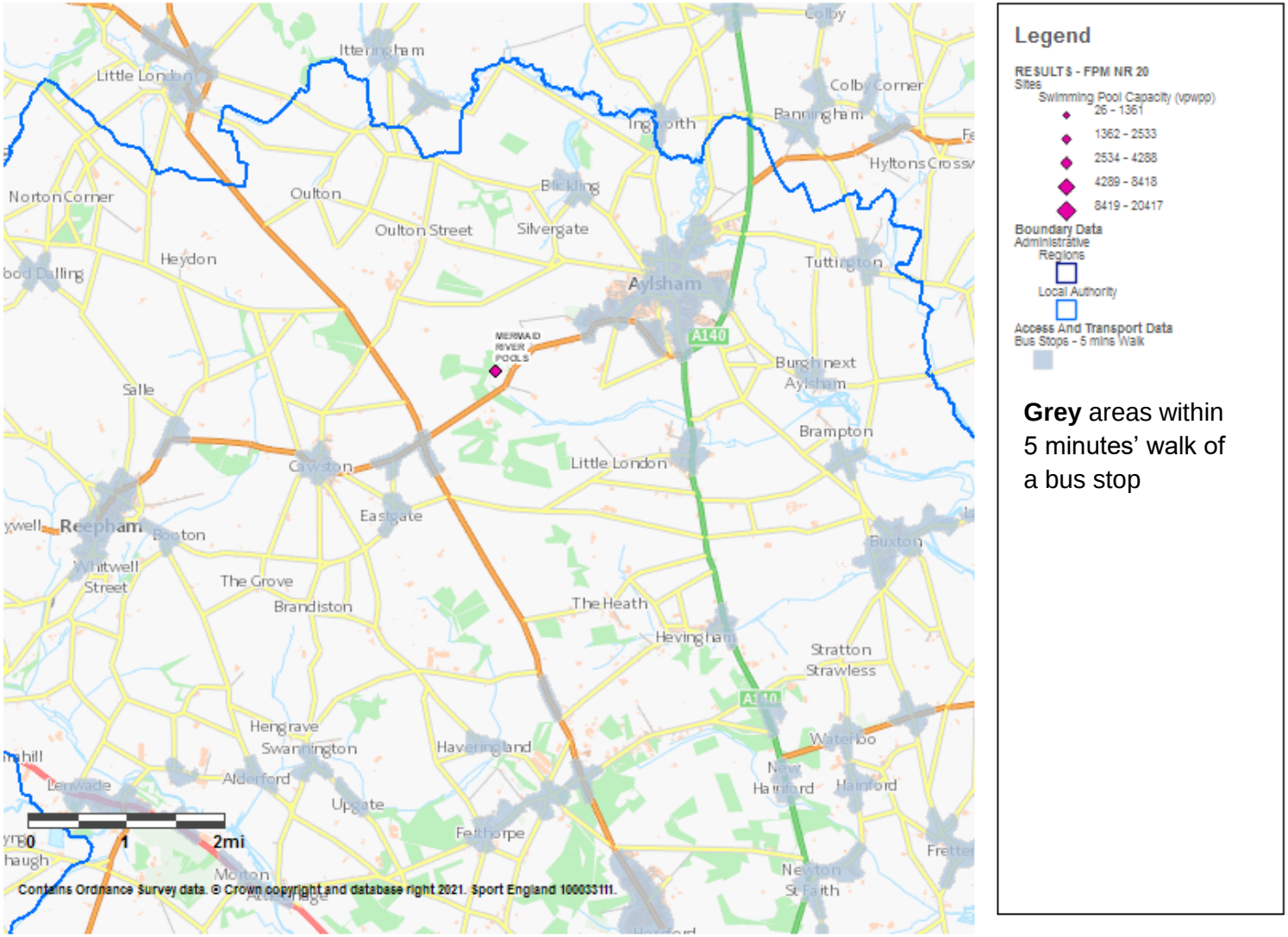
Legend

RESULTS - FPM NR 20
Sites
Swimming Pool Capacity (vpwpp)
26 - 1361
1362 - 2533
2534 - 4288
4289 - 8418
8419 - 20417
Boundary Data
Administrative
Regions
Local Authority
Access And Transport Data
Bus Stops - 5 mins Walk

Grey areas within 5 minutes' walk of a bus stop

Map 5.2: Areas of North-West Broadland within 5 minutes' walk of a bus stop (2020)

Sport England assumes no responsibility for the completeness, accuracy and currency of the information contained on this map. This information is taken from the Active Places Power website and its terms and conditions apply – 17/10/2021



6. Used Capacity

How well used are the facilities?

Used Capacity	Broadland	Breckland	Great Yarmouth	North Norfolk	Norwich	South Norfolk	East Region	England
Total number of visits used of current capacity	4,068	5,566	3,468	4,475	13,753	6,117	348,537	3,225,120
% of overall capacity of pools used	55.5	61.5	100.0	36.5	84.7	63.0	63.3	63.2
% of visits made to pools by:								
Walkers	7.2	10.90	14.1	7.4	12.0	7.7	12.8	18.2
Road	92.8	89.1	85.	92.6	88.0	92.3	87.2	81.8
Visits Imported:								
Number of visits Imported	868	786	47	387	6,031	2,100	11,328	1,964
As a % of used capacity	21.3	14.1	1.4	8.6	43.8	34.3	3.3	0.1
Visits Retained:								
Number of visits Retained	3,200	4,780	3,421	4,089	7,723	4,017	337,209	3,223,156
As a % of used capacity	78.7	85.9	98.6	91.4	56.2	65.7	96.7	99.9

Definition of used capacity – This is a measure of usage at swimming pools and estimates how well used or full facilities are. The FPM is designed to include a 'comfort factor', beyond which the venues are too full. The pool itself becomes too crowded to swim comfortably, and the changing and circulation areas also become too congested. In the model Sport England assumes that usage over 70% of capacity is busy and that the swimming pool is operating at an uncomfortable level above that percentage.

6.1 **Key finding 8** is that the estimated used capacity of the swimming pools as a Broadland average, is 55.5% in the weekly peak period. This provides some working headroom before the Sport England benchmark of 70% of pools being comfortable at peak times is reached.

6.2 The findings on used capacity for the individual swimming pool sites does vary, and these are set out in Table **6.1**. The variation is caused by the interaction of:

- The **level of demand in the catchment area of the swimming pool site** and whether or not sites overlap. Mermaid River Pools does not share its catchment

area with other pool sites and so will retain the demand for swimming in the area. It has an estimated used capacity of 37% in the weekly peak period.

- The **hours available for community use**, as Table **6.1** shows, vary from 31 hours in the weekly peak period at the Thorpe St Andrew School pool to the maximum 52.5 hours at the three other swimming pool sites. There is more capacity that could be available at the Thorpe St Andrew School pool in order to increase supply; it has an estimated used capacity of 46% in the weekly peak period.
- The **scale of the swimming pool site**. David Lloyd (Norwich) is the largest site in the District with a 25m x 13m six-lane main pool and an 8m x 8m leisure pool, and has the highest estimated used capacity of 60% in the weekly peak period. This compares with Bannatyne Health Club which has a 20m x 8m four-lane main pool and an estimated used capacity of 71% in the weekly peak period. The David Lloyd centre has a lower percentage figure than Bannatyne Health Club but, because it is a larger site, it can accommodate more usage. It is important to consider the scale of a swimming pool site when looking at the estimated used capacity and not just the percentage figure alone.
- The **age of the swimming pool site and its weighting**. All the swimming pool sites are weighted in the model to reflect their age, condition and whether they have been modernised so as to assess their comparative attraction to customers. According to the data, only Mermaid River Pools has been modernised (opened in 2003 and modernised in 2006) and has a weighting of 91%. The oldest swimming pool site is Thorpe St Andrew School, opened in 1950 and with a weighting of 21%.

6.3 The findings for each individual swimming pool site vary from the Broadland average for all these inter-related reasons and should be reviewed with the facility operator.

6.4 There is only scope to increase the peak hours/capacity at the Thorpe St Andrew School pool in order to meet more of Broadland's demand for swimming. However, this is limited by the site only providing learn to swim activities and being the oldest pool site in the District. All the other pool sites provide the maximum peak hours for community use.

Imported Demand

6.5 Imported demand is set out under Used Capacity because, if residents in neighbouring authorities swim at a centre in Broadland, their usage becomes part of the used capacity of Broadland's swimming pools.

6.6 **Key finding 9** is that the used capacity of the Broadland pools which is imported is 868 visits in the weekly peak period. For comparison, Broadland exports 3,536 visits in the weekly peak period which is met at pool sites in neighbouring local authorities.

Table 6.1: Percentage of Used Capacity of Broadland Swimming Pools (2020)

Facility	Type of Pool	Dimensions in metres	Area sqm	Site Year Built	Site Year Refurbished	Weight Factor	Hours in Peak Period	Total Hours Available	Site Capacity - visits per week peak period	% of Capacity Used
Bannatyne Health Club	Main/General	20 x 8	160	1999		82%	52.5	104	1,400	71
David Lloyd	Main/General Leisure Pool	25 x 13 8 x 8	325 64	2006		93%	52.5 52.5	109.5 109.5	3,404	60
Mermaid River Pools	Main/General	20 x 9	170	2003	2006	91%	52.5	112	1,488	37
Thorpe St Andrew School	Main/General	20 x 10	200	1950		21%	31	41	1,033	46

7. Local Share

Equity share of facilities

Local Share	Broadland	Breckland	Great Yarmouth	North Norfolk	Norwich	South Norfolk	East Region	England
Local Share: <1 supply less than demand, 1> supply greater than demand	1.1	0.8	0.5	1.5	0.9	1.0	1.1	1.1

Definition of local share – This helps to show which areas have a better or worse share of facility provision. It considers the size, availability, and quality of facilities, as well as travel modes. Local share is the available capacity that people want to go to in an area, divided by the demand for that capacity in the area.

7.1 A value of 1 means that the level of supply just matches demand, while a value of less than 1 indicates a shortage of supply and a value greater than 1 indicates a surplus. Local share is useful for looking at 'equity' of provision and to show how access and share of swimming pools differs across the authority.

7.2 The interventions are to try and increase access to swimming pools where residents have the lowest share of swimming pools.

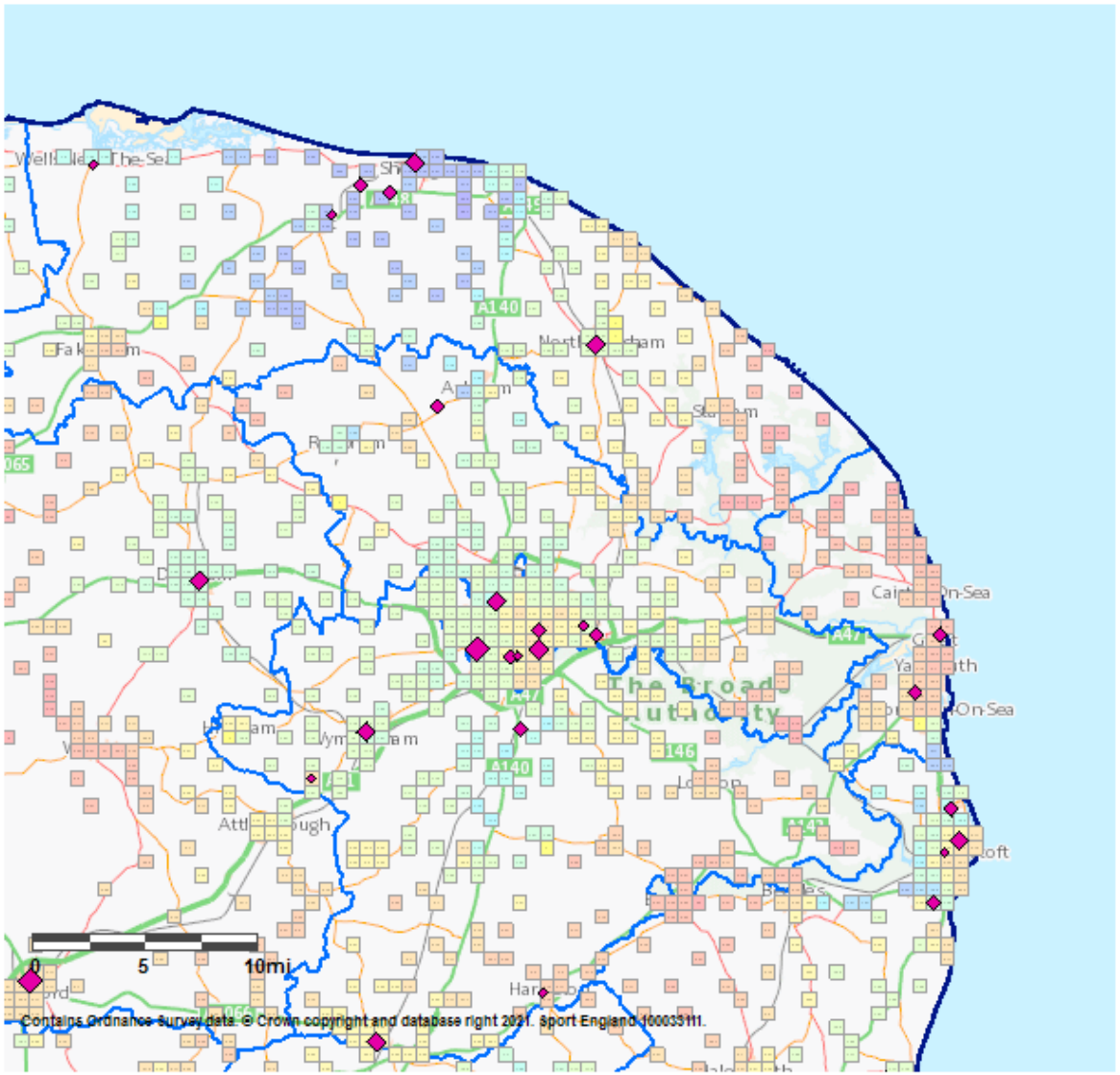
7.3 Broadland has a local share of 1.1 and so supply is greater than demand in terms of local share. Local share varies across the District and the findings are set out in Maps **7.1** for the District, Map **7.2** for the central area of Broadland, and Map **7.3** for the south-east of the authority.

7.4 Local share is highest in the central area of Broadland in the areas shaded green, with values of 1.0 to1.2 and 1.2 to1.4. There are three swimming pool sites in this area and therefore more supply for the population to access.

7.5 Local share is lowest in the south-east of the District in the Acle area shown by pink squares and with values of 0.0 to 0.2. There are no swimming pools in this area, but the demand and unmet demand for swimming are also lowest in this area.

Map 7.1: Local Share of Swimming Pools in Broadland (2020)

Facility Planning Model share of water divided by demand. Data outputs shown thematically (colours) and aggregated at 1km square (figure labels).



Legend

RESULTS - FPM NR 20
Sites
Swimming Pool Capacity (vpwpp)
- 26 - 1361
- 1362 - 2533
- 2534 - 4288
- 4289 - 8418
- 8419 - 20417

Swimming Pools LS
LS 1km grid colours
- 5.00 +
- 2.50 to 5.00
- 2.00 to 2.50
- 1.80 to 2.00
- 1.60 to 1.80
- 1.40 to 1.60
- 1.20 to 1.40
- 1.00 to 1.20
- 1.00
- 0.80 to 1.00
- 0.60 to 0.80
- 0.40 to 0.60
- 0.20 to 0.40
- 0.00 to 0.20

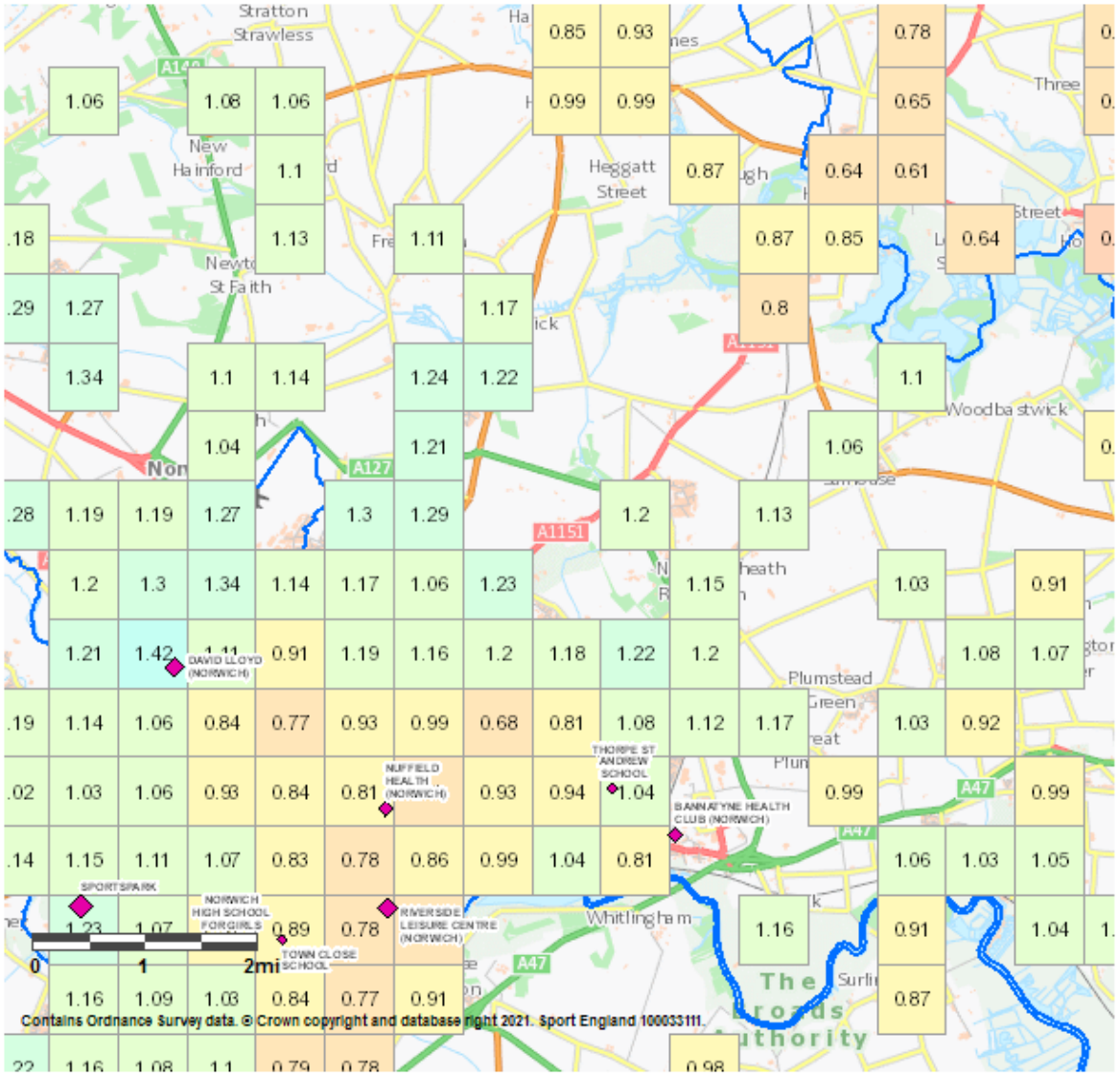
Boundary Data
Administrative Regions
Local Authority

Local Share Values

1: Supply equals Demand
2: Supply is double Demand
0.5: Supply is half Demand

Map 7.2: Local Share of Swimming Pools in Central Broadland (2020)

Facility Planning Model share of water divided by demand. Data outputs shown thematically (colours) and aggregated at 1km square (figure labels).



Legend

RESULTS - FPM NR 20
Sites
Swimming Pool Capacity (vpwpp)
26 - 1361
1362 - 2533
2534 - 4288
4289 - 8418
8419 - 20417

Swimming Pools LS
LS 1km grid colours
5.00 +
2.50 to 5.00
2.00 to 2.50
1.80 to 2.00
1.60 to 1.80
1.40 to 1.60
1.20 to 1.40
1.00 to 1.20
1.00
0.80 to 1.00
0.60 to 0.80
0.40 to 0.60
0.20 to 0.40
0.00 to 0.20

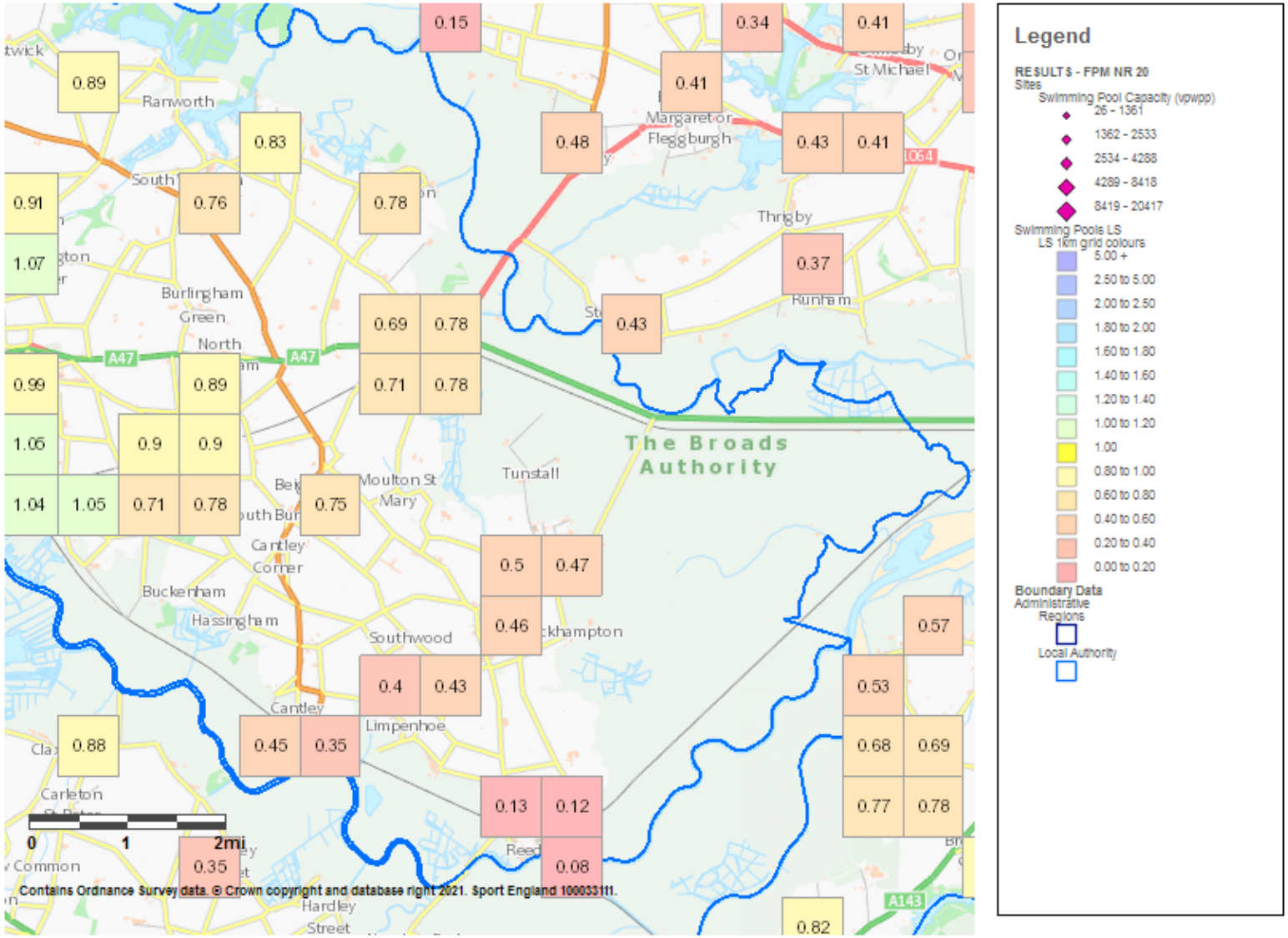
Boundary Data
Administrative Regions
Local Authority

Local Share Values

1: Supply equals Demand
2: Supply is double Demand
0.5: Supply is half Demand

Map 7.3: Local Share of Swimming Pools in South-East Broadland (2020)

Facility Planning Model share of water divided by demand. Data outputs shown thematically (colours) and aggregated at 1km square (figure labels).



Water Space per 1,000 Population 2020

Share	Broadland	Breckland	Great Yarmouth	North Norfolk	Norwich	South Norfolk	East Region	England
Supply of total water space in sqm of water	919	1,170	514	1,563	1,980	1,395	75,369	681,528
Population	131,671	142,019	100,097	105,800	142,790	142,704	6,277,257	56,630,408
Water space per 1,000 population	7	8	5	15	14	10	12	12

7.6 Based on a measure of water space per 1,000 population, the Broadland supply is 7 sqm of water space per 1,000 population in 2020. Broadland has the second lowest supply after Great Yarmouth with 5 sqm of water per 1,000 population. The highest supply is in North Norfolk with 15 sqm of water per 1,000 population, and the East Region and England-wide averages are both 12 sqm of water per 1,000 population in 2020.

7.7 The provision in Broadland is considerably below that of most of its neighbours, the East Region, and the England-wide averages. The overall level of provision and findings for Broadland are based on all the supply and demand findings, and not just on supply. This is simply a measure which compares the Broadland supply with that of the neighbouring local authorities, regional and national averages. It is reported because some local authorities like to understand how their provision compares with other authorities.

Appendix 1: Swimming Pools Excluded

The audit excludes facilities that are deemed to be either for private use, too small (below 160 sqm of water), closed or there is a lack of information, particularly relating to hours of use. The following facilities were deemed to fall under one or more of these categories and therefore excluded from the modelling:

Site Name	Facility Sub Type	Reason for Exclusion
Aylsham High School	Main/General	Too Small
Blofield Primary School	Lido	Private Use
David Lloyd (Norwich)	Lido	Lido
Expert Fitness (Closed)	Main/General	Closed
Hellesdon High School	Main/General	Too Small
Langley Preparatory School (Closed)	Main/General	Closed
Oasis Sports & Leisure Club (Thorpe) (Closed)	Learner/Teaching/Training	Closed
Old Brewery House Hotel (Closed)	Learner/Teaching/Training	Closed
Sprowston Community High School	Main/General	Too Small
Sprowston Manor Hotel & Country Club	Leisure Pool	Too Small
St Faith's Centre (Norwich)	Leisure Pool	Too Small
Taverham Hall Preparatory School	Main/General	Too Small
Wensum Valley Hotel Golf & Country Club	Learner/Teaching/Training	Too Small

Appendix 2: Model Description, Inclusion Criteria and Model Parameters

Included within this Appendix are the following:

- Model Description
- Facility Inclusion Criteria
- Model Parameters

Model Description

1. Background

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

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

2. Use of FPM

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

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

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

2.3. The FPM has been used in the assessment of Lottery funding bids for community facilities, and as a principal planning tool to assist local authorities in planning for the provision of community sports facilities.

3. How the Model Works

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

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

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

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

3.5. This survey information is combined with other sources of data to provide a set of model parameters for each facility type. The original core user data for halls and 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 2005/06 jointly with sportscotland.

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

- Active Lives
    - For the adult survey, this data is collected by an online survey or paper questionnaire on behalf of Sport England. Each annual sample includes on the order of 175,000 people and covers the full age/gender range. Detailed questions are asked about 439 sports in terms of participation and frequency.
    - For the children and young people survey, this data is collected through schools with up to three mixed ability classes in up to three randomly chosen year groups completing an online survey.
- National Benchmarking Service
    - This is a centre-based survey whose primary purpose is to enable centres to benchmark themselves against other centres. Sample interviews are conducted on site. The number of people surveyed varies by year depending on how many centres take part. Approximately 10,000 swimmers

and 3,500 sports hall users are surveyed per year. This data is used for journey times, establishing proportions of particular activities in different hall types, the duration of activities and the time of activity (peak period).

- Scottish Health
    - The annual survey is of about 6,600 people (just under 5,000 adults). This data is primarily used to assess participation, frequency, and activity duration.

Other data is used where available. For example, the following data sources are among those which have been used to cross-check results:

- Children's Participation in Culture and Sport, Scottish Government, 2008
- Young People's Participation in Sport, Sports Council for Wales, 2009
- Health & Social Care Information Centre, Lifestyle Statistics, 2012
- Young People and Sport, Sport England, 2002
- Data from Angus Council, 2013/14
- National Pools & Halls Survey, 1996
    - This survey has been used to obtain capacities per sports hall for differing sport types for programming data.

4. Calculating Demand

4.1. Demand is calculated by applying the user information from the parameters, as referred to above, to the population[1]. This produces the number of visits for that facility that will be demanded by the population.

4.2. Depending on the age and gender make-up of the population, this will affect the number of visits an area will generate. In order to reflect the different population make-up of the country, the FPM calculates demand based on the smallest census groupings. These are Output Areas (OAs)[2].

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

5. Calculating Supply Capacity

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

. 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

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

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

accommodated by the particular facility at any one time. Each facility is then given a capacity figure in VPWPP.

5.3. Based on travel time information[3] taken from the user survey, the FPM then calculates how much demand would be met by the particular facility, having regard to its capacity and how much demand is within the facility's catchment. The FPM includes an important feature of spatial interaction. This feature takes account of the location and capacity of all the facilities, having regard to their location and the size of demand, and assesses whether the facilities are in the right place to meet the demand.

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

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

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

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

6.2. The reason for this is that the HSC is the 'court' equivalent of all the main and activity halls capacities; this is calculated based on hall size (area) and whether it is the main hall or a

[3] 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.

secondary (activity) hall. This gives a more accurate reflection of the overall capacity of the halls than simply using the 'marked courts' figure. This is due to two reasons:

- In calculating the capacity of halls, the model uses a different 'At-One-Time' (AOT) parameter for main halls and for activity halls. Activity halls have a greater AOT capacity than main halls – see below. Marked courts can sometimes not properly reflect the size of the actual main hall. For example, a hall may be marked out with 4 courts, when it has space for 5 courts. As the model uses the 'courts' as a unit of size, it is important that the hall's capacity is included as a 5 'court unit' rather than a 4 'court unit'.
- The model calculates the capacity of the sports hall as 'visits per week in the peak period' (VPWPP), and then uses this unit of capacity to compare with demand, which is also calculated as VPWPP. It is often difficult to visualise how much hall space there is when expressed as VPWPP. To make things more meaningful, this capacity in VPWPP is converted back into 'main hall court equivalents' and is noted in the output table as 'Hall Space in Courts'.

7. Facility Attractiveness – for Halls and Pools Only

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

7.2. Attractiveness weightings are based on the following:

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

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

- High weighted curve – includes non-educational management and a better balanced programme, more attractive.
- Lower weighted curve – includes educationalal owned and managed halls, less attractive.

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

8. Comfort Factor – Halls and Pools

8.1. As part of the modelling process, each facility is given a maximum number of visits it can accommodate based on its size, the number of hours it is available for community use, and the 'at one time capacity' figure (pools = 1 user/6m^2, halls = 6 users/court). This gives each facility a 'theoretical capacity'.

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

8.3. To account for these factors the notion of a 'comfort factor' is applied within the model. For swimming pools, 70%, and for sports halls, 80%, of their theoretical capacity is considered as being the limit where a 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, therefore the notion of having a 'less busy' pitch is not applicable.)

8.4. 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 at 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 number of facilities needed to comfortably meet unmet demand. If this comfort factor is not applied, then any facilities provided will be operating at their maximum theoretical capacity, which is not desirable as noted previously.

9. Utilised Capacity (Used Capacity)

9.1. Following on from the comfort factor section, here is more guidance on utilised capacity.

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

9.3. For example, a 25m, four-lane pool has a theoretical capacity of 2,260 per week, during a 52.5-hour peak period.

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

Visits per hour	4-5pm	5-6pm	6-7pm	7-8pm	8-9pm	9-10pm	Total visits for the evening
Theoretical maximum capacity	44	44	44	44	44	44	264
Actual usage	8	30	35	50	15	5	143

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

10. Travel Times Catchments

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

10.2. The Ordnance Survey (OS) MasterMap Highways Network Roads has been used to calculate the off-peak drive times between facilities and the population, observing any one-way and turn restrictions which apply and taking account of delays at junctions and

car parking. Each street in the network is assigned a speed for car travel based on the attributes of the road, such as the width of the road, the geographical location of the road, and the density of properties along the street. These travel times have been derived through national survey work, and so are based on actual travel patterns of users. The road speeds used for inner and outer London boroughs have been further enhanced by data from the Department of Transport.

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

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

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

Facility	Car	Walking	Public Transport
Swimming Pool	72%	18%	10%
Sports Hall	74%	17%	9%
AGP			
Combined	79%	18%	3%
Football	74%	22%	4%
Hockey	97%	2%	1%

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

Minutes	Swimming Pools		Sport Halls	
	Car	Walk	Car	Walk
0-10	56%	53%	54%	55%
11-20	35%	34%	36%	32%
21-30	7%	10%	7%	10%
31-45	2%	2%	2%	3%

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

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

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

Facility Inclusion Criteria

Swimming Pools

The following inclusion criteria were used for this analysis:

- Include all operational indoor swimming 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 metres in length, or the area is less than 160 square metres. If the principal pool is a leisure pool with an area less than 200 square metres, then all pools on the site should be excluded.
- Include all 'planned', 'under construction, and 'temporarily closed' facilities only where all data is available for inclusion.
- Where opening times are missing, availability has been included based on similar facility types.
- Where the year built is missing assume date 1975[4].

Facilities over the border in Wales and Scotland are included, as supplied by **sport**scotland and Sport Wales.

[4] Choosing a date in the mid 1970s ensures that the facility is included, while not overestimating its impact within the run.

Model Parameters

Pools Parameters

<table>
<tr><td>At One Time Capacity</td><td>0.167 per square metre = 1 person per 6 square meters</td></tr>
<tr><td>Catchment Maps</td><td>Car: 20 minutes
Walking: 1.6 km
Public transport: 20 minutes at about half the speed of a car

NOTE: Catchment times are indicative, within the context of a distance decay function of the model.</td></tr>
<tr><td>Duration</td><td>60 minutes</td></tr>
<tr><td>Percentage Participation

Frequency per Week</td><td>
<table>
<tr><th>Age</th><th>0-15</th><th>16-24</th><th>25-34</th><th>35-44</th><th>45-59</th><th>60-79</th></tr>
<tr><td>Male</td><td>14.5</td><td>6.9</td><td>10.4</td><td>8.6</td><td>5.4</td><td>1.6</td></tr>
<tr><td>Female</td><td>16.2</td><td>10.2</td><td>13.8</td><td>11.8</td><td>7.7</td><td>1.5</td></tr>
</table>
<table>
<tr><th>Age</th><th>0-15</th><th>16-24</th><th>25-34</th><th>35-44</th><th>45-59</th><th>60-79</th></tr>
<tr><td>Male</td><td>1.09</td><td>1.03</td><td>0.86</td><td>1.01</td><td>1.30</td><td>1.73</td></tr>
<tr><td>Female</td><td>1.10</td><td>0.96</td><td>0.82</td><td>1.00</td><td>1.17</td><td>1.28</td></tr>
</table>
</td></tr>
<tr><td>Peak Period

Proportion in Peak Period</td><td>Weekday: 9:00 to 10:00, 12:00 to 13:30, 15:30 to 21:00
Weekend: 08:00 to 15:30
Total: 52.5 hours

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