Facilities Planning Model Assessment of Swimming Pool Provision for Redditch Borough Council

Bespoke Report

29 July 2022

This document has been produced by ORH on behalf of Sport England for Redditch Borough Council on 29 July 2022. This document can be reproduced by Redditch Borough Council, subject to it being used accurately and not in a misleading context. When the document is reproduced in whole or in part within another publication or service, the full title, date, and accreditation to Sport England must be included.

ORH is the trading name of Operational Research in Health Limited, a company registered in England with company number 2676859.

Disclaimer

The information in this report is presented in good faith using the information available to ORH and 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.

The Facilities Planning Model (FPM)

It is most important to set out that the FPM study is a quantitative, accessibility and spatial assessment of the supply, demand, and access to swimming pools. It assesses how these factors change based on projected population growth and options to change the swimming pool supply.

The FPM study provides an assessment that can inform consultations, to then provide a rounded evidence base. This can then be applied in the development of the Council's strategic planning for the provision of swimming pools.

Accreditations

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

Population based on 2011 Census data and modified by 2018-based Subnational Population Projections for Local Authorities. Adapted from data from the Office for National Statistics licensed under the Open Government Licence v.3.0.

EXECUTIVE SUMMARY

Introduction

0.1 Redditch Borough Council (also referred to as Redditch, or the Borough) is reviewing the current provision of swimming pools and assessing future demand and level of provision required to 2040.

0.2 The FPM (Facilities Planning Model) modelling runs are to provide:

- Run 1 – a baseline assessment of provision in 2021.
- Run 2 – a forward assessment of demand for swimming pools and its distribution, based on the projected changes in population from 2021 to 2040.
- Run 3 – an assessment of the impact of re-opening Kingsley Sports Centre Swimming Pool in 2024 on the demand for swimming pools and its distribution.

0.3 The main report sets out the full set of findings under each of the seven assessment headings.

0.4 The next section of the report provides the headline strategic overview, the key findings and interventions arising from the FPM study on supply, demand and accessibility.

Headline Strategic Overview

0.5 The headline strategic finding is that a very high level of the Borough's demand for swimming pools can be met by the accessible supply of swimming pools in 2021 and 2040.

0.6 The Borough's demand for swimming pools is projected to decrease between 2021 and 2040.

0.7 The demand met increases when Kingsley Sports Centre is re-opened. The majority of the Redditch demand is then retained within the Borough.

0.8 Unmet demand is low in both years and is mainly due to demand too far away from a facility. However, there is insufficient unmet demand that can be covered from any one location to justify further swimming pool provision on this basis alone.

0.9 The swimming pools sites are estimated to be operating at an uncomfortably high level at peak times in both 2021 and 2040.

0.10 More of the Redditch demand for swimming pools is exported and met in Bromsgrove than is imported from Bromsgrove and met in Redditch. The location of the new housing sites is influencing the export and import of demand.

Key Findings

0.11 The key findings that underpin the headline strategic overview are as follows:

1. Abbey Stadium Sports Centre can provide for all swimming activities in dedicated pools.
2. Abbey Stadium Sports Centre is close to the largest housing development in Redditch and a major housing growth site in Bromsgrove.
3. Redditch's demand for swimming equates to 909 sqm of water in 2040. In Run 3, Redditch offers 536 sqm of water space for community use.
4. Between 2021 and 2040, Redditch's population is projected to increase by 1% but demand for swimming is projected to decrease by 3%.
5. Redditch is the only local authority in the study area with a projected decrease in demand for swimming between 2021 and 2040.
6. In Run 1, 12% of visits to swimming pools are made on foot or by public transport. This increases to 15% in Run 3.
7. In Run 1, 88% of Redditch's demand for swimming pools is met. In Run 2, this reduces to 86%, even though demand has decreased. In Run 3, satisfied demand increases to 90%.
8. In Run 3, 68% of Redditch's satisfied demand is retained within the Borough, compared to 53% in Run 1 and 52% in Run 2. In 2040, the number of visits retained in the Borough in the weekly peak period is 37% higher when Kingsley Sports Centre is open.
9. In 2040, re-opening Kingsley Sports Centre leads to a 31% reduction in exported demand.
10. Unmet demand increases from 115 sqm of water in Run 1 to 127 sqm of water in Run 2. In Run 3, unmet demand decreases by 30% to 89 sqm of water.
11. The majority of unmet demand is too far away from a facility, accounting for 92% of unmet demand in Runs 1 and 3, and 81% in Run 2. However, it accounts for less water space with each subsequent run.
12. Lack of facility capacity accounts for 8% of unmet demand in Run 1, 19% in Run 2 and 9% in Run 3.
13. In Run 3, reachable unmet demand is highest in an area south of Abbey Stadium Sports Centre, at 70 sqm of water. This is not enough unmet demand to consider building a new swimming pool to improve access for residents in this location.
14. The estimated used capacity of swimming pools in the Borough in the weekly peak period is 100% in Runs 1 and 2, and 98% in Run 3.
15. In Run 2, there are 576 visits in the weekly peak period that cannot be met at Abbey Stadium Sports Centre. This is 19% of the centre's capacity in the weekly peak period. In Run 3, this decreases to 148 visits, which is 5% of Abbey Stadium Sports Centre's capacity.

16. Imported demand is 16% of the used capacity of the current Redditch pools in Run 1. This increases to 20% in Run 2 and 26% in Run 3.
17. The largest amount of imported demand to the Borough is from Bromsgrove, with 205 visits in the weekly peak period in Run 1, increasing to 475 visits in Run 3.
18. Demand imported from Bromsgrove is considerably less than the Redditch demand exported and met at Bromsgrove pools. The difference is greatest in Run 1 at 1,150 visits and smallest in Run 3 at 409 visits.

Interventions and Next Steps

0.12 The interventions and suggested next steps are based on the FPM findings and need to be considered to develop an all-round evidence base. This includes review of the FPM assessment within the Council, and consultations with key organisations, such as educational owners of facilities, sports clubs and community groups.

0.13 It is envisaged this wider evidence base work will be progressed through the Council's Built Facilities Strategy. This will lead to options on ways to meet the projected demand for swimming pools up to 2040 and beyond.

0.14 Setting the FPM findings within this wider context, the recuring themes are:

- The impact of re-opening Kingsley Sports Centre in meeting the demand for swimming pools.
- Both swimming pool sites are estimated to be full in 2040.

0.15 Options for increasing swimming pool provision in Redditch should be considered, for the following reasons:

- Despite the Redditch demand for swimming decreasing by 3% between 2021 and 2040, the Abbey Stadium Sports Centre is estimated to have 100% used capacity in the weekly peak period in 2021 and 2040, and Kingsley Sports Centre is 95% utilised when it is re-opened.
- Furthermore, there are 148 visits in the weekly peak period that would like to access Abbey Stadium Sports Centre when Kingsley Sports Centre is open but cannot do so because it is full; this is 5% of Abbey Stadium Sports Centre's capacity.
- Retained demand is 68% and 3,408 visits in the weekly peak period when Kingsley Sports Centre is open; this is a 37% increase in terms of visits.
- The only scope to increase supply and capacity at the two sites is limited to increasing the hours available for the teaching/learning pool by 7.5 hours in the weekly peak period at Abbey Stadium Sports Centre.

0.16 Based on the FPM findings, retention of the two swimming pool sites, modelled in Run 3, meets the Redditch demand for swimming up to 2040. However, the state of the swimming pools needs to be considered:

- Abbey Stadium Sports Centre is meeting its purpose. It is a comparatively new pool site opened in 2012. It can support all swimming activities across its 25m pool and its learner pool. It is in the area of highest demand for swimming pools in 2021 and 2040.
- Kingsley Sports Centre does not meet the requirements identified by the FPM findings. The 20m x 9m four-lane pool, which opened in 1970 and was closed in 2017, has a maximum depth of 1.8m and is most suitable for recreational swimming. It is in the area of second-highest demand for swimming pools in 2021 and 2040.

0.17 Based on the FPM findings, re-providing the Kingsley Sports Centre may be a better option to consider rather than modernising the current pool.

0.18 An option for increasing capacity in Redditch could be based on:

- The projected demand for swimming pools in Redditch in 2040 is for 909 sqm of water.
- The total water space at Abbey Stadium Sports Centre is 365 sqm of water.
- A new Kingsley Sports Centre with a 25m x 13m six-lane (assuming lane width of 2.17m) swimming pool offering 325 sqm of water would increase the total water space in the Borough to 690 sqm of water.
- An option to include a 10m x 6.5m teaching/learner pool, at Abbey Stadium Sports Centre, would further increase the Borough's total supply to 755 sqm of water. (Note: this is based on all individual swimming pools being available for the maximum 52.5 hours in the weekly peak period.)

0.19 This option has the potential to reduce the used capacity across both sites and meet more of Redditch's demand for swimming pools within the Borough in modern, fit-for-purpose swimming pools. Both pool sites are in the areas of highest demand and could provide for all swimming activities in dedicated pools.

Contents

1. INTRODUCTION

1.1 Redditch Borough Council is reviewing the current provision of swimming pools and assessing the future provision required to 2040.

1.2 The key drivers for the work are to:

- Provide a 2021 evidence base for swimming pools in the Borough.
- Assess how the supply of swimming pools is meeting demand in the Borough in 2021.
- Provide a forward assessment of need and an evidence base for swimming pools to 2040, based on the projected population change in the Borough and across the study area.

1.3 The outputs from the FPM assessment will be applied in:

- The Council's indoor sports facilities strategic planning work.
- Development of planning policies for swimming pool provision.

1.4 The sequence of work is based on assessments known as runs, and these are set out in the Executive Summary.

The Study Area

1.5 The assessments include the swimming pools and population in the Borough and neighbouring local authority areas, which is known as the study area. This is because the assessments are based on the catchment areas of swimming pools, which extend across local authority boundaries (see Map 1.1).

1.6 The origins of customers of swimming pools do not reflect local authority boundaries. While there are management and pricing incentives for customers to use sports facilities in the same local authority area, additional factors that can influence which swimming pools people will choose to use include:

- How close the venue is to where residents live or work.
- Other facilities at the same site, such as a gym or studio.
- The programming of the pool with swimming activities that appeal to residents and are available at times that fit with the lifestyle of residents.
- The age and condition of the facility and inherently its attractiveness.

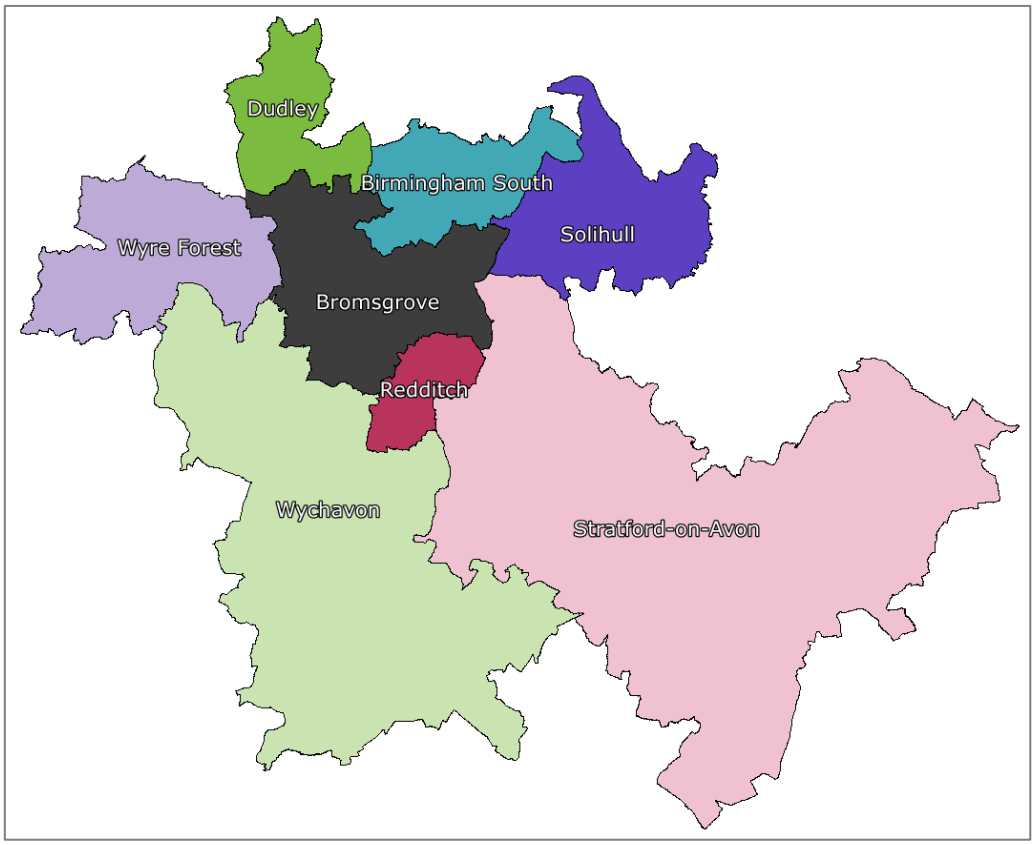
1.7 Increasingly, the quality of swimming pools and their offer are of more importance to residents in their choice of swimming pools. New facilities will have a significant draw because of the quality of the venues.

1.8 In determining the position across the Borough, it is important to take full account of the swimming pools and population in neighbouring local authority areas and, in particular, to assess the impact of swimming pools located outside the Borough but with catchment area that extend into the Borough, and vice versa.

1.9 The most attractive facility for some Redditch residents may be outside the Borough (known as exported demand). For residents of neighbouring authorities, their most attractive swimming pool may be inside the Borough (known as imported demand).

1.10 To take account of these factors, a study area is established that places Redditch at its centre and includes neighbouring local authority areas.

Map 1.1: Study Area for Redditch Borough Council Swimming Pools Assessment



Report Structure, Content and Sequence

1.11 The findings for the Redditch assessment are set out in a series of tables for the three runs. This allows a 'read across' to see the specific impact of changes between Runs 1 and 3 and builds up the picture of change.

1.12 The headings for each table are:

- Total Supply
- Total Demand
- Accessibility
- Satisfied Demand
- Unmet Demand
- Used Capacity
- Local Share

1.13 The terms listed above are defined beneath the tables.

1.14 To support the findings, this report also includes maps that show swimming pool locations, demand, deprivation, driving and walking coverage, public transport access, unmet demand and local share.

1.15 Where valid, the findings for neighbouring authorities are set out. A commentary is provided on these comparable findings. For example, some local authorities like to know how their findings on sqm of water per 1,000 population compare with those of neighbouring authorities.

1.16 The key findings in each of the sections are numbered and highlighted in bold typeface.

1.17 Details of the swimming pools in the neighbouring local authority areas for the assessment are set out in Appendix 1, and all maps for the study are provided in Appendix 2. The FPM and its parameters are described in Appendix 3.

2. SWIMMING POOL SUPPLY

Key finding 1 is that Abbey Stadium Sports Centre can provide for all swimming activities in dedicated pools.

Table 2.1: Supply of Swimming Pools in Redditch by Run

Total Supply	RUN 1	RUN 2	RUN 3
Redditch	2021	2040	2040
Number of pools	2	2	3
Number of pool sites	1	1	2
Supply in sqm of water	365	365	545
Supply in sqm of water scaled with hours available in peak period	356	356	536
Supply in visits per week in peak period	3,113	3,113	4,688
Average year built of sites Average age of sites	2012 9	2012 28	1991 49

Definition of supply – This is the supply or capacity of the swimming pools 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.

Weekly peak period – This is when the majority of visits take place and when users have most flexibility to visit. The peak period for swimming pools is one hour on weekday mornings, one hour on weekday lunchtimes, five and a half hours on weekday evenings, and seven and a half hours on weekend days. This gives a total of 52.5 hours per week. The modelling and recommendations are based on the ability of the public to access facilities during this weekly peak period.

2.1 In Runs 1 and 2, there are two individual swimming pools at one site in the Borough. In Run 3, there are three individual swimming pools at two sites because Kingsley Sports Centre is open.

Table 2.2: Details of Swimming Pools in Redditch included in the Runs

Site	Operation	Facility Type	Dimensions (m)	Area (sqm)	Year Built	Year Refurb	Peak Hours	Total Hours	Capacity (visits in weekly peak period)
Abbey Stadium Sports Centre	Public	Main Learner	25 x 12 10 x 6.5	300 65	2012		52.5 45	101.5 75.75	3,113
Kingsley Sports Centre	Public	Main	20 x 9	180	1970	2024	52.5	67.5	1,575

2.2 Public leisure centres provide for all swimming activities. These are:

- Learn to swim.
- Casual recreational swimming.
- Lane and fitness swimming.
- Swimming development through clubs.

2.3 Key finding 1 is that Abbey Stadium Sports Centre has a 25m six-lane pool and a 10m x 6.5m learner pool. The scale of the swimming pools means the centre can provide for all swimming activities in dedicated pools.

2.4 Kingsley Sports Centre has a 20m x 9m pool, which means it is most suitable for recreational swimming. The pool's maximum depth is 1.8m. Therefore, the area of the pool suitable for learn to swim, which requires a pool depth of 0.9m, limits its use for this activity.

2.5 Abbey Stadium Sports Centre main pool is available to the community for the maximum 52.5 hours in the weekly peak period. Availability of the learner pool is based on the number of hours required for this activity, which totals 45 in the weekly peak period.

2.6 Kingsley Sports Centre is modelled to have 52.5 hours available for community use in the weekly peak period.

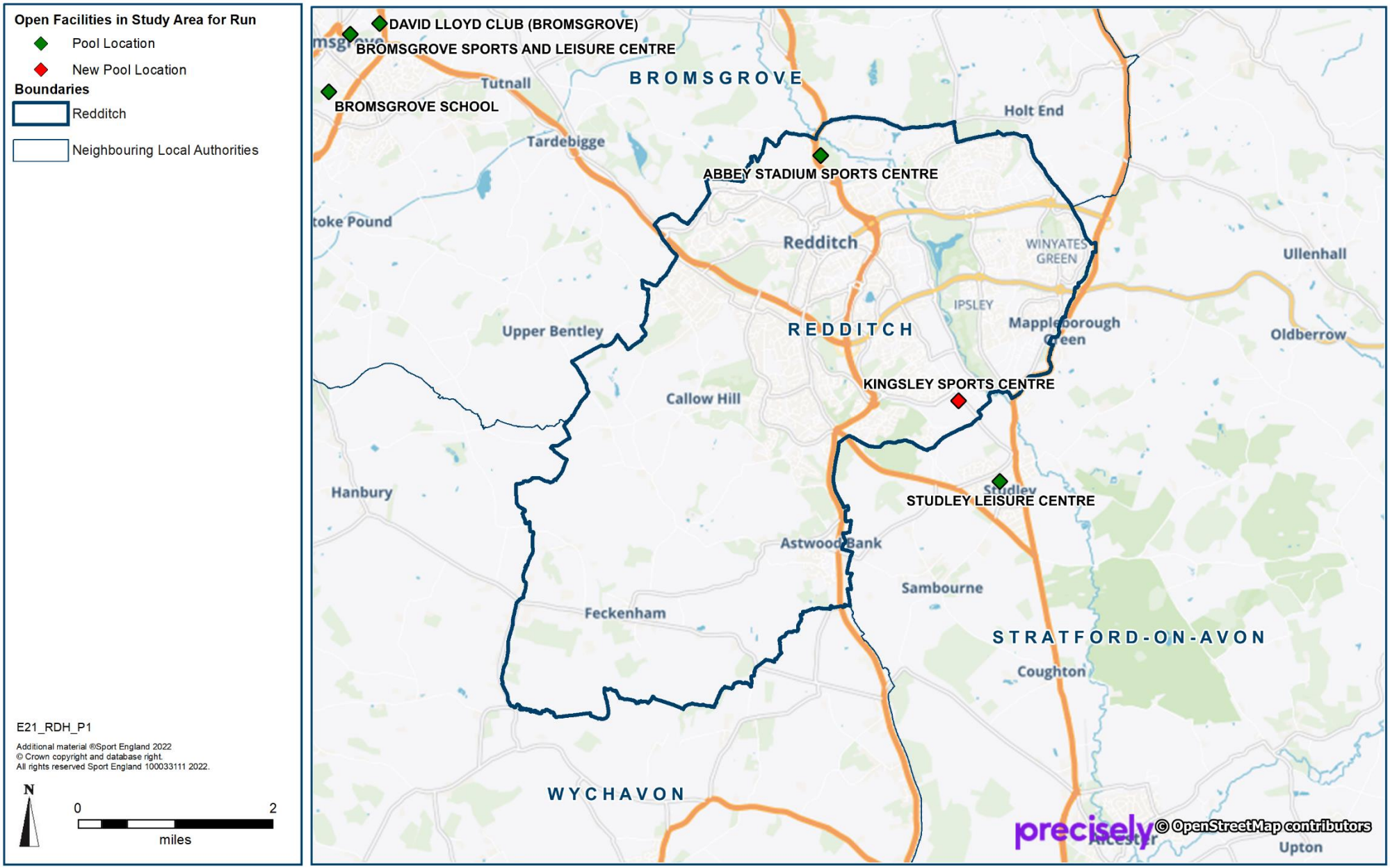
2.7 Abbey Stadium Sports Centre is a modern pool site, opened in 2012. Kingsley Sports Centre pool, which opened in 1970 and closed in September 2017, is modelled to re-open in 2024.

Swimming Pool Locations

2.8 The locations of the current swimming pools are shown as green diamonds and the future provision is shown as a red diamond in Map 2.1. The pool sites are located in the north of the Borough (Abbey Stadium Sports Centre) and the east (Kingsley Sports Centre).

2.9 Of note is that there are no swimming pool sites in the extensive west and south of the Borough. The implications of this are set out in the satisfied demand and unmet demand sections.

Map 2.1: Location of Swimming Pool Sites in Redditch Run 3 (2040)



3. DEMAND FOR SWIMMING POOLS

Key finding 2 is that Abbey Stadium Sports Centre is close to the largest housing development in Redditch and a major housing growth site in Bromsgrove.

Key finding 3 is that Redditch's demand for swimming equates to 909 sqm of water in 2040. In Run 3, Redditch offers 536 sqm of water space for community use.

Key finding 4 is that, between 2021 and 2040, Redditch's population is projected to increase by 1% but demand for swimming is projected to decrease by 3%.

Key finding 5 is that Redditch is the only local authority in the study area with a projected decrease in demand for swimming between 2021 and 2040.

Table 3.1: Demand for Swimming Pools in Redditch by Run

Total Demand	RUN 1	RUN 2	RUN 3
Redditch	2021	2040	2040
Population	85,164	85,819	85,819
Visits demanded in weekly peak period	5,677	5,526	5,526
Demand in sqm of water with comfort factor included	934	909	909

Definition of total demand – This represents the total demand for swimming by gender 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 gender and for different age bands, are calculated from Sport England's Active Lives survey up to November 2019 and are set out in Appendix 3.

3.1 The Borough's population in 2021 is 85,164. In 2040, the population is projected to be 85,819, an increase of 1%.

3.2 The Borough's population forecast is taken from the ONS 2018-based subnational projections. The geographical distribution of the population in the FPM for 2040 includes housing growth sites to 2030 provided by the Council, which are shown on Map 3.1.

3.3 The largest housing development in Redditch is located immediately west of Abbey Stadium Sports Centre. This site extends across the boundary into Bromsgrove District.

3.4 A major housing growth site in Bromsgrove is located in the southeast of the District, adjacent to the Redditch boundary. Abbey Stadium Sports Centre is also close to this housing area.

3.5 These proposals are in addition to new housing already permitted or planned for in existing development plans. It is important to note that the Local Plan to 2040 is currently at Regulation 18 stage only, and these proposals may change during Local Plan preparation.

3.6 **Key finding 2** is that Abbey Stadium Sports Centre is close to the largest housing development in Redditch and a major housing growth site in Bromsgrove.

3.7 Redditch's demand for swimming pools equates to 934 sqm of water in 2021 and is projected to decrease by 3% to 909 sqm of water by 2040.

3.8 **Key finding 3** is that Redditch's demand for swimming equates to 909 sqm of water in 2040. Redditch's supply of water space available for community use is 536 sqm of water in 2040 when Kingsley Sports Centre is open.

3.9 **Key finding 4** is that between 2021 and 2040 Redditch's population is projected to increase by 1% but demand for swimming is projected to decrease by 3%.

Demand in the Study Area

3.10 **Key finding 5** is that Redditch is the only local authority in the study area with a projected decrease in demand for swimming between 2021 and 2040. Demand is projected to increase most in Stratford-upon-Avon, by 18%, in Wychavon, by 16% and in Bromsgrove, by 11%.

Table 3.2: Demand for Swimming by Local Authority

Demand in sqm of water considering a 'comfort' factor	RUN 1	RUNS 2 and 3	% Change
Local Authority	2021	2040	2021-2040
Redditch	**934**	**909**	**-2.7%**
Birmingham South	6,186	6,517	5.4%
Dudley	3,518	3,719	5.7%
Solihull	2,371	2,572	8.5%
Stratford-on-Avon	1,395	1,644	17.9%
Bromsgrove	1,076	1,191	10.7%
Wychavon	1,399	1,616	15.6%
Wyre Forest	1,083	1,132	4.5%

Decrease in Demand for Swimming

3.11 The most likely reason for the slight decrease in demand for swimming between Run 1 and Runs 2 and 3 is the change in demographics in the Borough between 2021 and 2040.

3.12 The ageing of the resident population between 2021 and 2040 will influence the demand for swimming. It can mean that there are fewer people in the main age bands for swimming in

2040 than in 2021. (Appendix 3 sets out the swimming participation and frequency rates by age and gender.)

3.13 Therefore, the increase in demand for swimming from population growth is offset by the ageing of the much larger resident population. The modelling assumes the frequency of swimming participation remains constant.

Geographical Distribution of Demand

3.14 In 2021 and 2040, demand is highest in the northeast of the Borough, with values of 51 sqm of water in 2021 (see Map 3.2) and 47 sqm of water in 2040 (see Map 3.3). Demand is next highest in the area west of Kingsley Sports Centre, with values of 49 sqm of water in 2021 and 46 sqm of water in 2040.

3.15 Demand is very low in the southwest of the Borough, an area with least access to swimming pool sites.

Deprivation

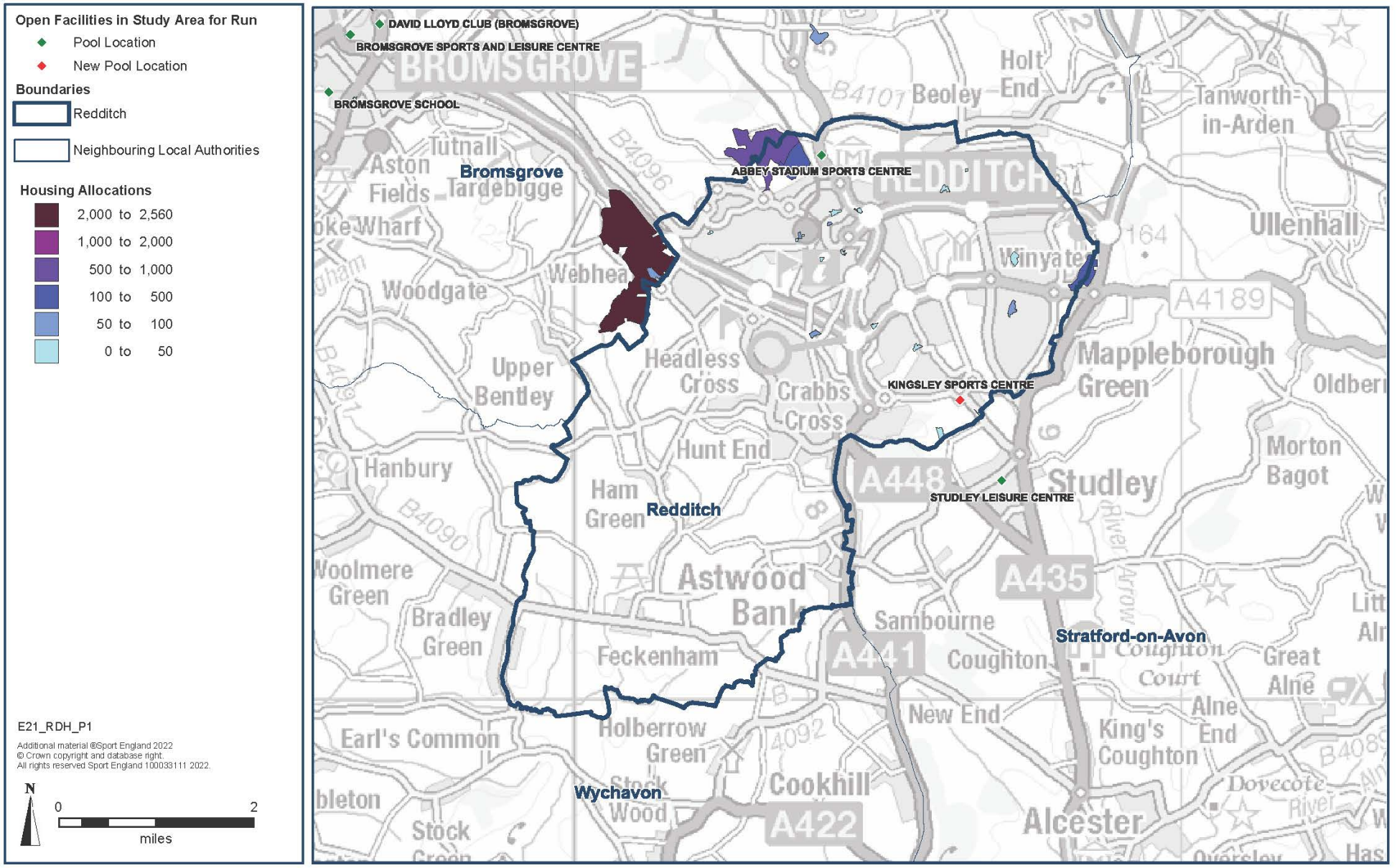
3.16 A total of 9% of the Borough's lower super output areas (LSOAs) are in the most deprived 10% nationally. Overall, Redditch ranks in the top 40% of most-deprived local authorities.

3.17 However, deprivation varies across the Borough, as shown in Map 3.4. Neither swimming pool site is located in an area of high deprivation.

3.18 The Index of Multiple Deprivation (IMD) score is used in the FPM to limit whether people will use commercial facilities (see Appendix 3 for definition of IMD). A weighting factor is incorporated to reflect the cost element often associated with commercial facilities. The assumption is that the higher the IMD score (less affluence), the less likely the population of the LSOA would choose to go to a commercial facility.

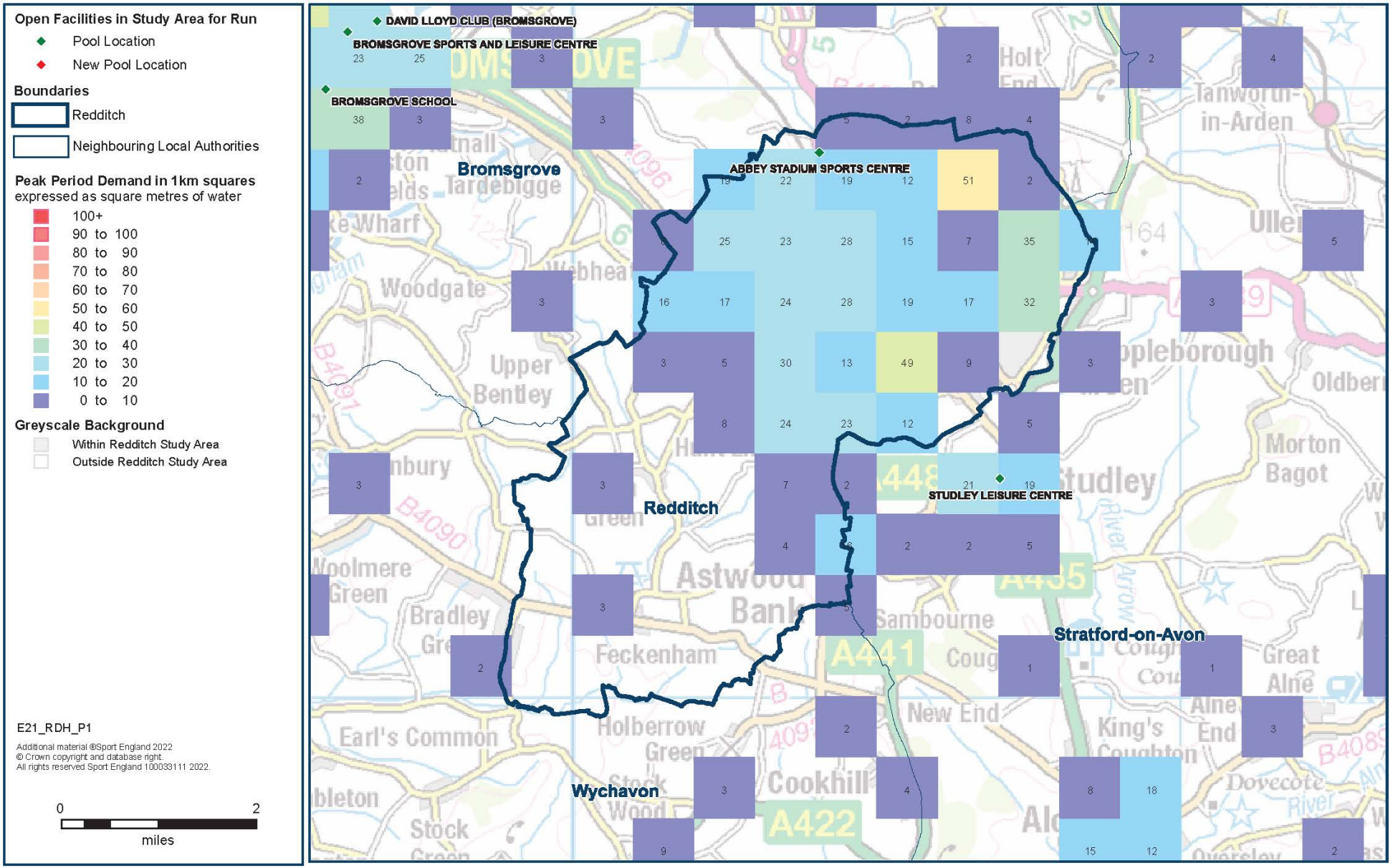
Map 3.1: Housing Growth Areas in Redditch to 2040 (Run 3)

Sites and allocations supplied by Redditch Borough Council.



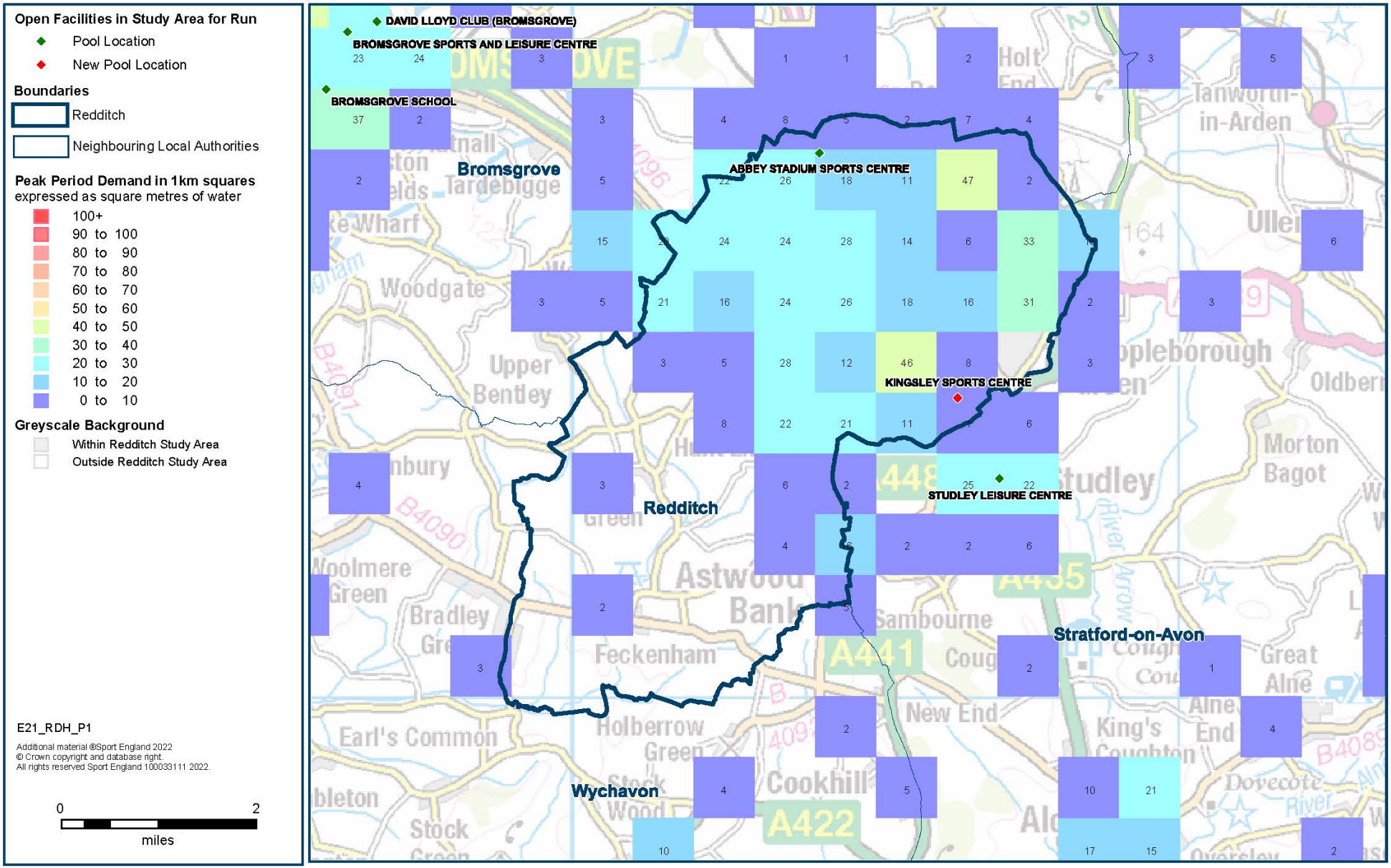
Map 3.2: Demand for Swimming Pools in Redditch 2021 (Run 1)

FPM peak period demand aggregated at 1km square grid expressed as square metres of water and shown thematically (colours).



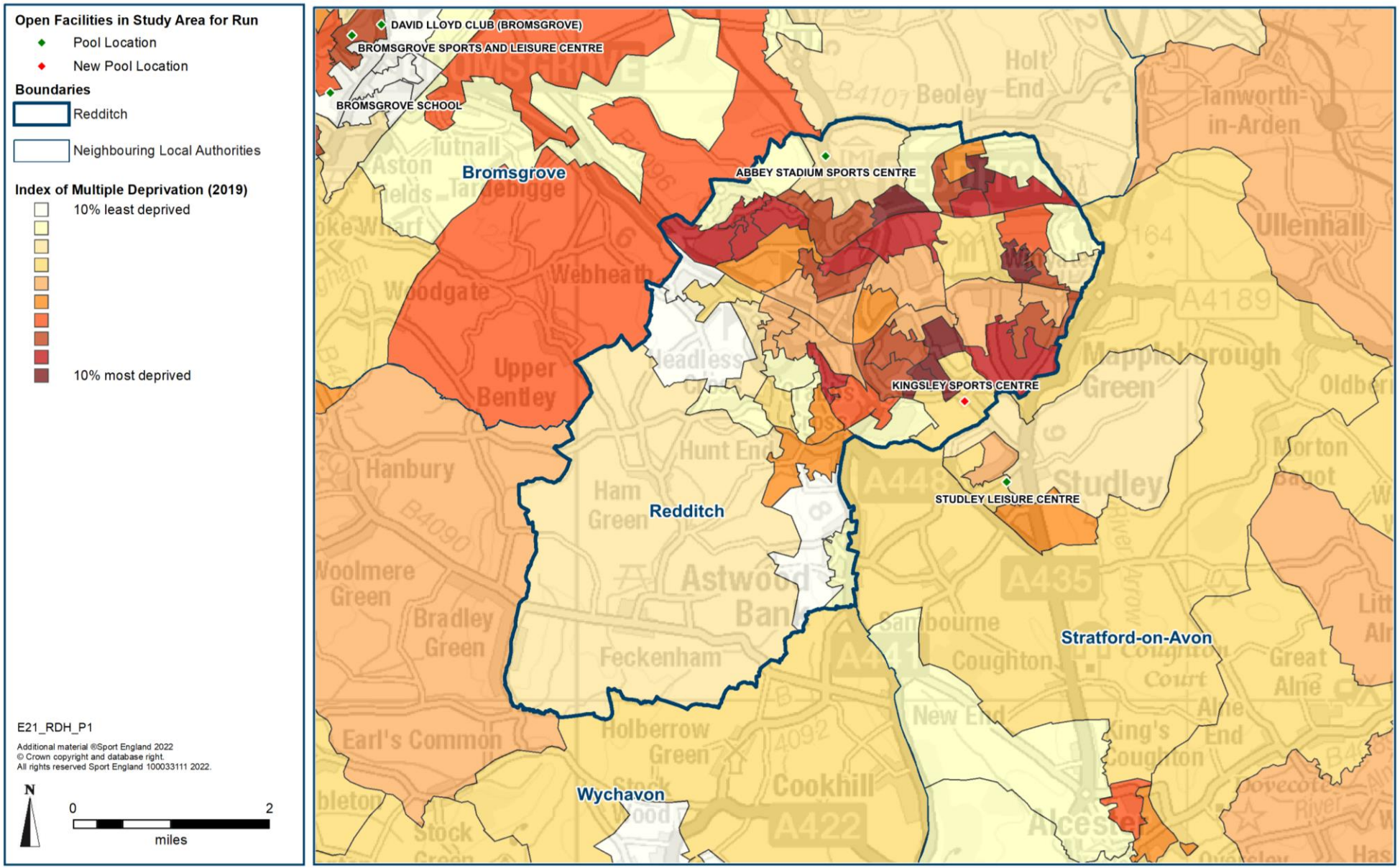
Map 3.3: Demand for Swimming Pools in Redditch 2040 (Run 3)

FPM peak period demand aggregated at 1km square grid expressed as square metres of water and shown thematically (colours).



Map 3.4: Deprivation in Redditch Run 3 (2040)

Deprivation shown thematically (colours) at lower super output area level by decile.



4. ACCESSIBILITY

Key finding 6 is that, in Run 1, 12% of visits to swimming pools are made on foot or by public transport. This increases to 15% in Run 3.

Table 4.1: Travel Modal Split of Redditch Demand to Swimming Pools by Run

Accessibility	RUN 1	RUN 2	RUN 3
Redditch	2021	2040	2040
% of population without access to a car	19.5	19.5	19.5
% of population within a 20-minute walk of a pool	4.6	5.3	11.2
% of demand satisfied who travelled by car	88.5	89.5	84.7
% of demand satisfied who travelled on foot	2.3	2.2	5.3
% of demand satisfied who travelled by public transport	9.2	8.3	10.0

Definition of accessibility – For residents without access to a car, travel to swimming pools by public transport or on foot is the choice of travel mode. 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 set out in Appendix 3. The travel-time limits used are:

- Drive is 30 minutes.
- Public transport is 30 minutes (at half the speed of a car).
- Walking is 40 minutes (two miles).

On average, a 20-minute travel time accounts for approximately 90% of visits to a swimming pool.

4.1 In Redditch, 20% of the population do not have access to a car. This is lower than the national average of 25% and the West Midlands Region average of 24%.

4.2 In Run 1, 89% of travel to swimming pools is by car. In Run 3, this decreases to 85%.

4.3 **Key finding 6** is that, in Run 1, 12% of visits to swimming pools are made on foot or by public transport. This increases to 15% in Run 3.

4.4 For residents travelling on foot or by public transport, a network of accessible swimming pools is important in order to encourage swimming participation.

Walking Access

4.5 Only 5% of the Borough's residents are within a 20-minute walk of a swimming pool in Runs 1 and 2. This increases to 11% in Run 3.

4.6 Residents in the yellow area in Map **4.1** (Run 3) are within a 20-minute walk (one mile) of one swimming pool site. However, not all residents in these areas will walk to a swimming pool and some will travel further.

Public Transport Access

4.7 In Run 3, both swimming pool sites in the Borough are within five minutes' walk of a bus stop (see Map 4.2).

4.8 Neither public leisure centre is within 15 minutes' walk of a railway station.

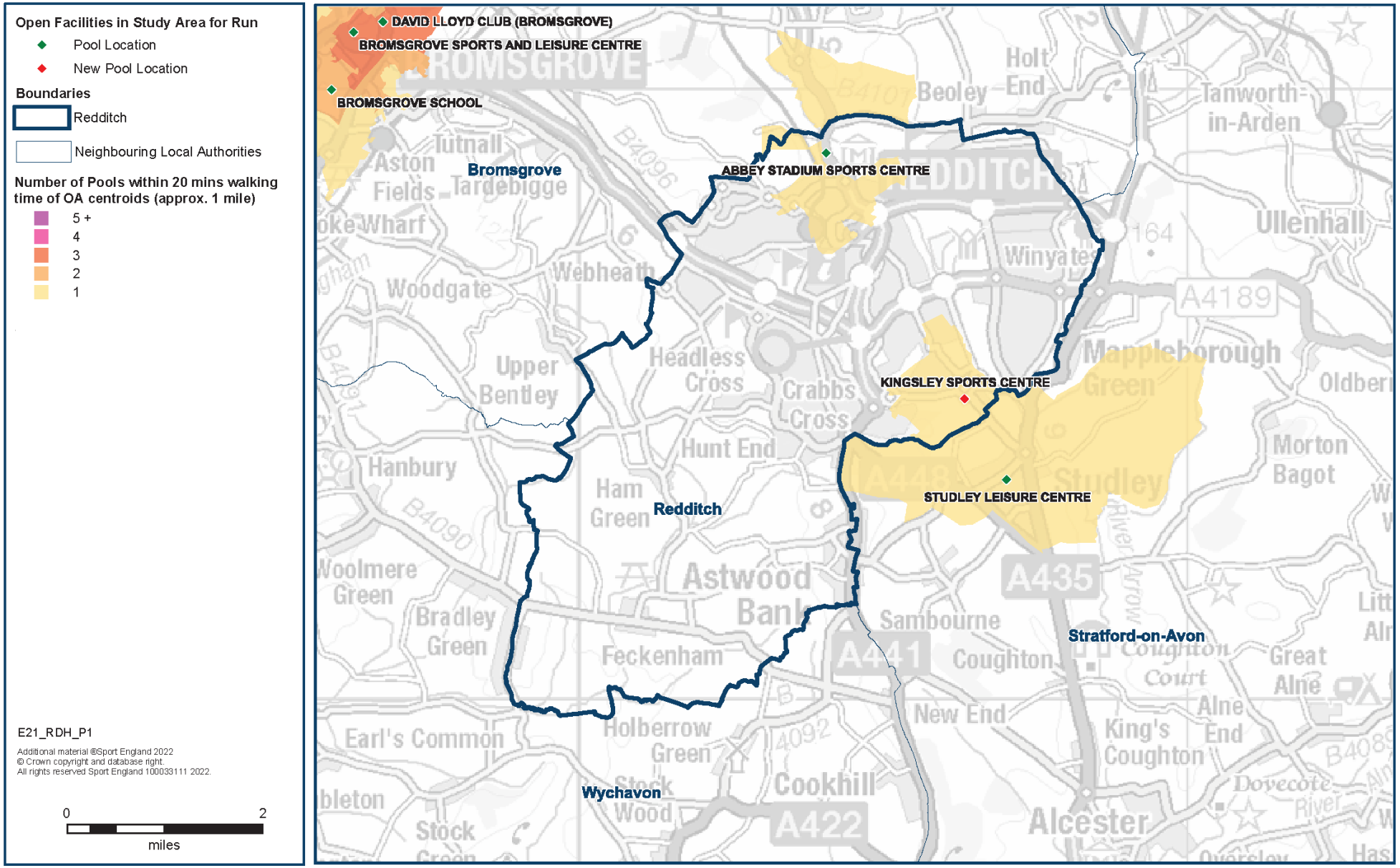
4.9 It should be noted that while most Borough residents can get to a swimming pool from a public transport stop, it may not mean they can get to a swimming pool within 20 minutes from home via a combination of walking and public transport. Also, in rural areas the service may not be regular.

Driving Access

4.10 Residents in the south of the Borough, in the yellow areas in Map 4.3 (Run 3), have access to the fewest swimming pools sites. They can drive to between one and five swimming pool sites within 20 minutes. Residents in the northeast of the Borough, in the dark green areas in Map 4.3, have access to the most sites, with between ten and 15 swimming pool sites within a 20-minute drive.

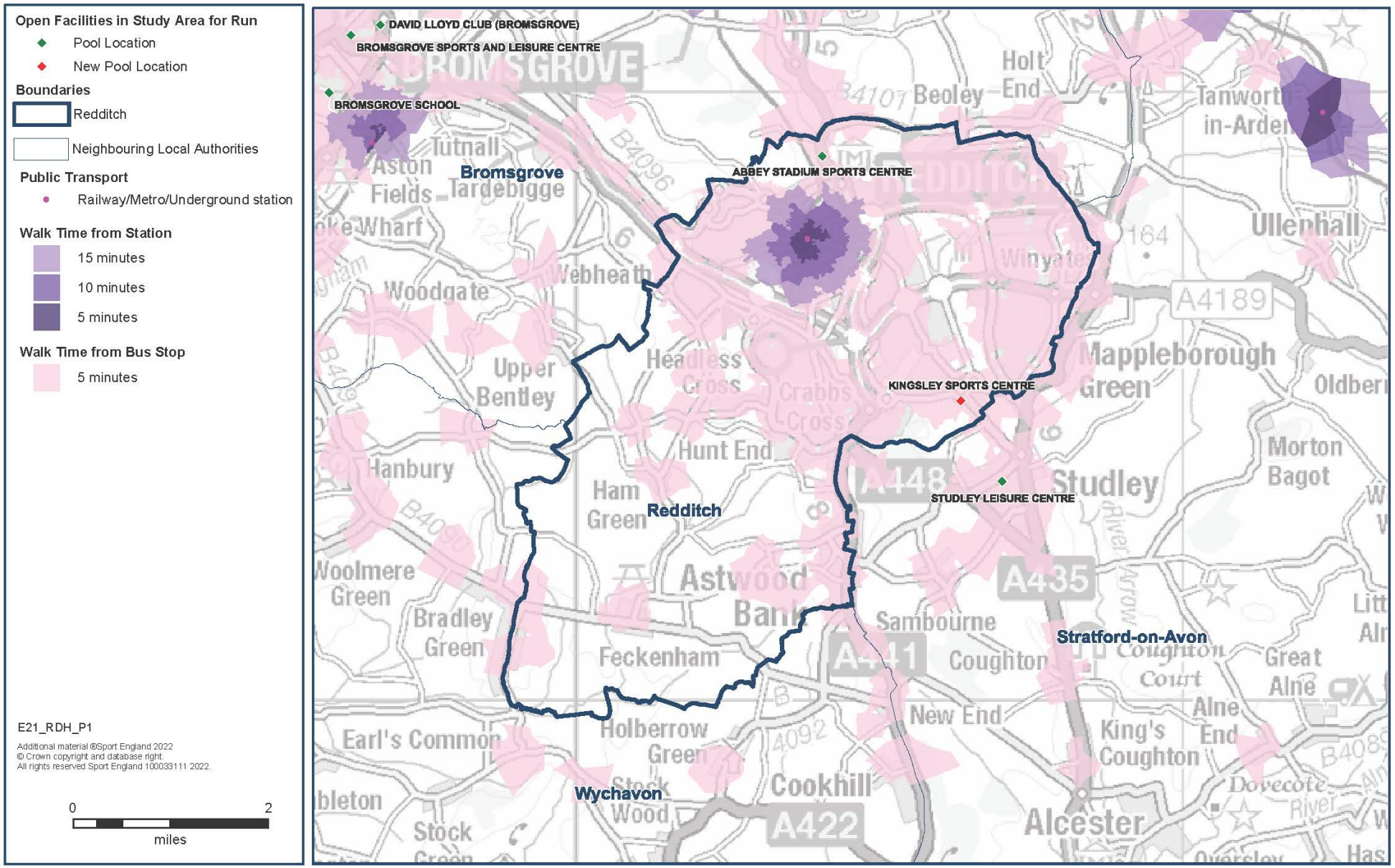
Map 4.1: Walking Access to Swimming Pools in Run 3 (2040)

FPM coverage shown thematically (colours) at output area level expressed as the number of pool sites within 20 minutes' walk of output area centroid.



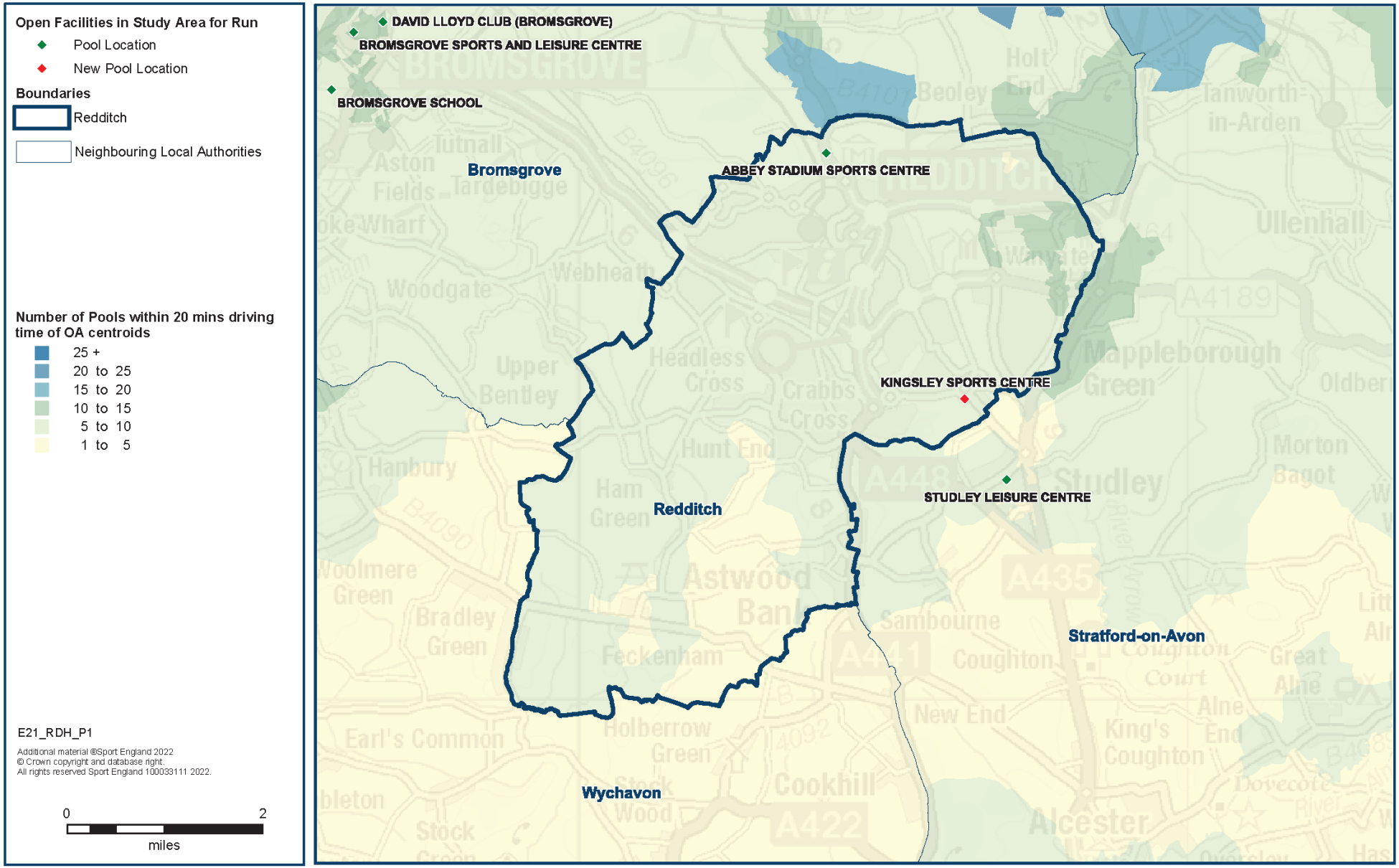
Map 4.2: Walking Access to Public Transport in Redditch Run 3 (2040)

Areas within walking time shown thematically (colours) from bus, coach and tram stops, and railway, metro and underground stations.



Map 4.3: Driving Access to Swimming Pools in Run 3 (2040)

FPM coverage shown thematically (colours) at output area level expressed as the number of pool sites within 20 minutes' drive of output area centroid.



5. SATISFIED DEMAND FOR SWIMMING

Key finding 7 is that, in Run 1, 88% of Redditch's demand for swimming pools is met. In Run 2, even though demand has decreased, met demand decreases to 86. In Run 3, met demand increases to 90%.

Key finding 8 is that, in Run 3, 68% of Redditch's satisfied demand is retained within the Borough, compared to 53% in Run 1 and 52% in Run 2. In 2040, the number of visits retained in the Borough in the weekly peak period is 37% higher when Kingsley Sports Centre is open.

Key finding 9 is that, in 2040, re-opening Kingsley Sports Centre leads to a 31% reduction in exported demand.

Table 5.1: Satisfied Demand for Swimming in Redditch by Run

Satisfied Demand	RUN 1	RUN 2	RUN 3
Redditch	2021	2040	2040
Number of visits which are met per week in peak period	4,976	4,756	4,986
% of total demand satisfied	87.7	86.1	90.2
Number of visits retained per week in peak period	2,623	2,484	3,408
Demand retained as a % of satisfied demand	52.7	52.2	68.4
Number of visits exported per week in peak period	2,354	2,272	1,578
Demand exported as a % of satisfied demand	47.3	47.8	31.6

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

5.1 **Key finding 7** is that, in Run 1, 88% of Redditch's demand for swimming pools is met. In Run 2, this reduces to 86%, even though demand has decreased. In Run 3, met demand increases to 90%.

5.2 Between 2021 and 2040, the number of visits changes very little, at 4,976 visits in the weekly peak period in Run 1 and 4,986 visits in Run 3. However, satisfied demand is slightly lower in Run 2 (86%) than in Run 3 (90%).

Satisfied Demand in the Study Area

5.3 Between 88% (Birmingham South) and 95% (Bromsgrove) of demand in the local authorities in the study area is met in 2021. There is virtually no change between 2021 and 2040. (Details of the swimming pools in the neighbouring local authority areas are listed in Appendix 1.)

Table 5.2: Percentage of Satisfied Demand for Swimming in Study Area by Run

% of Total Demand Satisfied	RUN 1	RUN 2	RUN 3
Local Authority	2021	2040	2040
Redditch	**87.7**	**86.1**	**90.2**
Birmingham South	88.4	87.8	87.9
Dudley	90.2	90.5	90.5
Solihull	93.2	92.7	92.7
Stratford-on-Avon	89.8	89.4	89.8
Bromsgrove	94.8	94.4	94.6
Wychavon	91.5	89.9	90.2
Wyre Forest	89.0	88.8	88.8

Retained Demand

5.4 A subset of the satisfied demand findings shows how much of Redditch's demand for swimming is retained at pools within the Borough. This assessment is based on the catchment area of the Redditch pools and residents in the Borough participating at these pools. This is called retained demand.

5.5 **Key finding 8** is that, in Run 3, 68% of Redditch's satisfied demand is retained within the Borough, compared to 53% in Run 1 and 52% in Run 2. In 2040, the number of visits retained in the Borough in the weekly peak period is 37% higher when Kingsley Sports Centre is open.

Exported Demand

5.6 The residue of satisfied demand, after retained demand, is exported demand. This is based on Redditch residents who live within the travel time of a swimming pool outside the Borough and use that swimming pool.

5.7 **Key finding 9** is that exported demand is 2,272 visits in the weekly peak period in Run 2. In Run 3, this decreases by 31% to 1,578 visits.

5.8 In 2021 and 2040, the largest exported demand from Redditch is to Bromsgrove, with 1,355 visits in the weekly peak period in Run 1 (58% of all exported demand), 1,274 visits in Run 2 (56%) and 884 visits in Run 3 (56%).

5.9 Exported demand is shown spatially in Map **5.1** for Run 1.

Table 5.3: Export Destination of Redditch Satisfied Demand by Run

Export (visits per week peak period)	RUN 1	RUN 2	RUN 3
Local Authority	2021	2040	2040
Redditch	**2,623**	**2,484**	**3,408**
Birmingham South	93	91	57
Dudley	0	2	2
Solihull	134	140	88
Stratford-on-Avon	759	752	541
Bromsgrove	1,355	1,274	884
Wychavon	11	11	7
Wyre Forest	0	0	0

Note: The figures for Redditch are the level of satisfied demand retained within the Borough.

Map 5.1: Export of Redditch Satisfied Demand for Swimming Run 1 (2021)

FPM exported demand between study area and surrounding local authorities shown thematically (size of lines) as visits per week in the peak period (vpwpp).

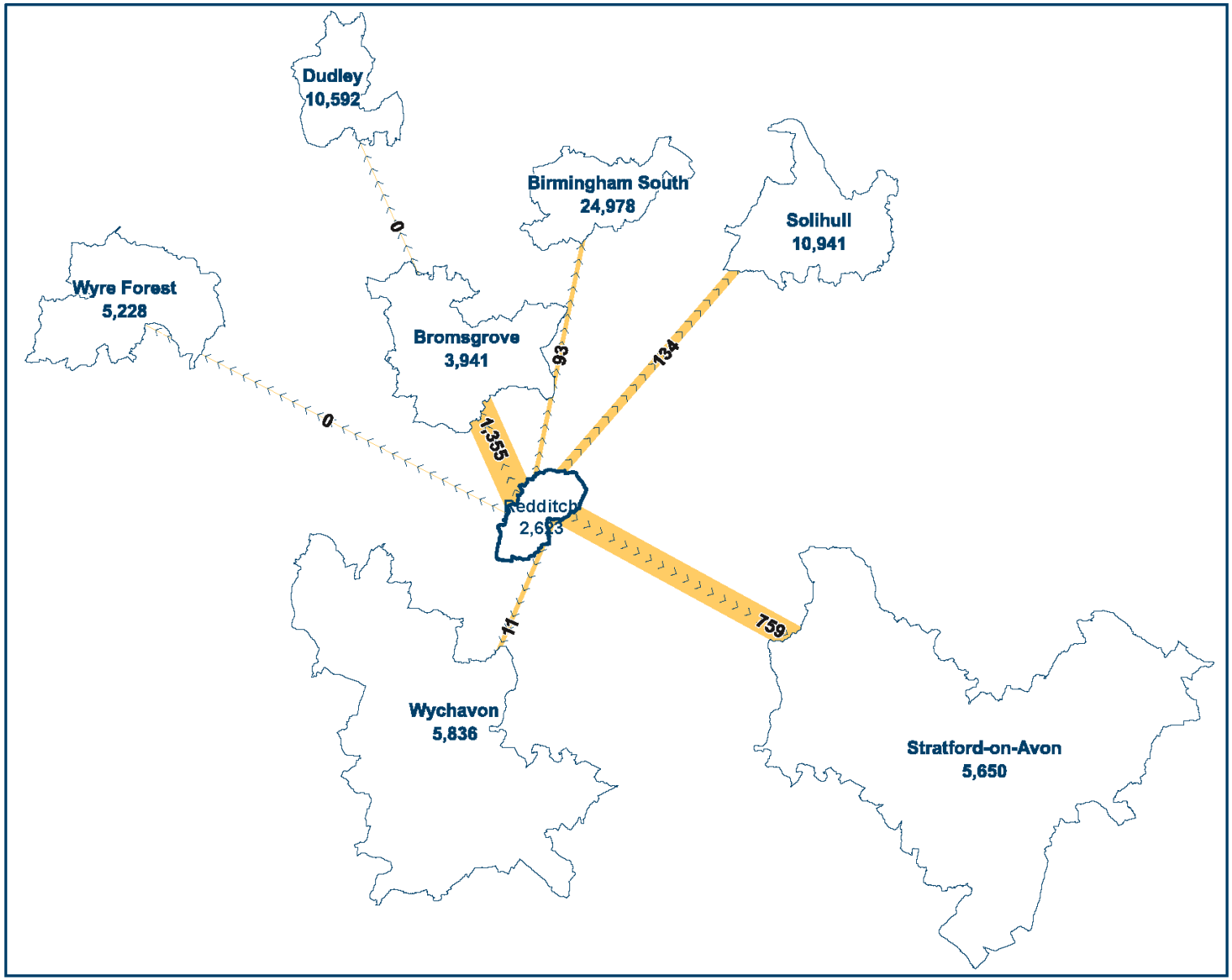
Boundaries
Values in areas show retained vpwpp

- Redditch
- Surrounding LAs

Import/Export
Values on arrows show flow vpwpp

- Direction of flow
- Import
- Export

The amber chevron represents the number of visits that are exported and met in each of the neighbouring local authorities. The figure in the boundaries is the number of visits retained within the authority.



E21_RDH_P1

6. UNMET DEMAND FOR SWIMMING

Key finding 10 is that unmet demand increases from 115 sqm of water in Run 1 to 127 sqm of water in Run 2. In Run 3, unmet demand decreases by 30% to 89 sqm of water.

Key finding 11 is that the majority of unmet demand is too far away from a facility, accounting for 92% of unmet demand in Runs 1 and 3, and 81% in Run 2. However, it accounts for less water space with each subsequent run.

Key finding 12 is that lack of facility capacity accounts for 8% of unmet demand in Run 1, 19% in Run 2 and 9% in Run 3.

Key finding 13 is that, in Run 3, reachable unmet demand is highest in an area south of Abbey Stadium Sports Centre at 70 sqm of water. This is not enough unmet demand to consider building a new swimming pool to improve access for residents in this location.

Table 6.1: Unmet Demand for Swimming in Redditch by Run

Unmet Demand	RUN 1	RUN 2	RUN 3
Redditch	2021	2040	2040
Number of visits unmet per week in peak period	700	770	539
Unmet demand as a % of total demand	12.3	13.9	9.8
Equivalent in sqm of water with comfort factor	115	127	89
% of unmet demand due to:			
Facility too far away:	91.7	80.9	91.6
Without access to a car	82.3	72.6	83.1
With access to a car	9.4	8.3	8.6
Lack of facility capacity:	8.4	19.1	8.5
Without access to a car	6.4	13.3	6.7
With access to a car	2.0	5.9	1.7

Definition of unmet demand – This has two parts: demand for swimming pools that 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 too far away from any swimming pool and is then classified as unmet demand.

6.1 Key finding 10 is that unmet demand increases from 115 sqm of water in Run 1 to 127 sqm of water in Run 2. In Run 3, unmet demand decreases by 30% to 89 sqm of water.

6.2 Key finding 11 is that the majority of unmet demand is too far away from a facility, accounting for 92% of unmet demand in Runs 1 and 3, and 81% in Run 2. However, it accounts for less water space with each subsequent run:

- Run 1 – 106 sqm
- Run 2 – 103 sqm
- Run 3 – 82 sqm

6.3 Demand too far away from a swimming pool will always exist because it is not possible to achieve complete spatial coverage whereby all areas of a local authority are within walking distance of a swimming pool and not everyone will want, or is able, to drive the full distance.

6.4 Key finding 12 is that lack of facility capacity accounts for 8% of unmet demand in Run 1, 19% in Run 2 and 9% in Run 3.

Location of Unmet Demand

6.5 Unmet demand is dispersed at low values across the Borough in all runs. It is highest in the northeast of the Borough, at 11 sqm of water in Run 2 for (see Map 6.1) and 9 sqm of water in Run 3 (see Map 6.2).

6.6 Unmet demand is next highest in the area west of Kingsley Sports Centre at 9 sqm of water in Run 2. But this reduces to 3 sqm in Run 3.

Meeting Unmet Demand

6.7 Analysis of the spread of unmet demand shows the level of unmet demand that would be met by a potential new facility in any given location. This 'reachable unmet demand' is calculated for each one-kilometre grid square and is shown thematically in Map 6.3 for Run 3.

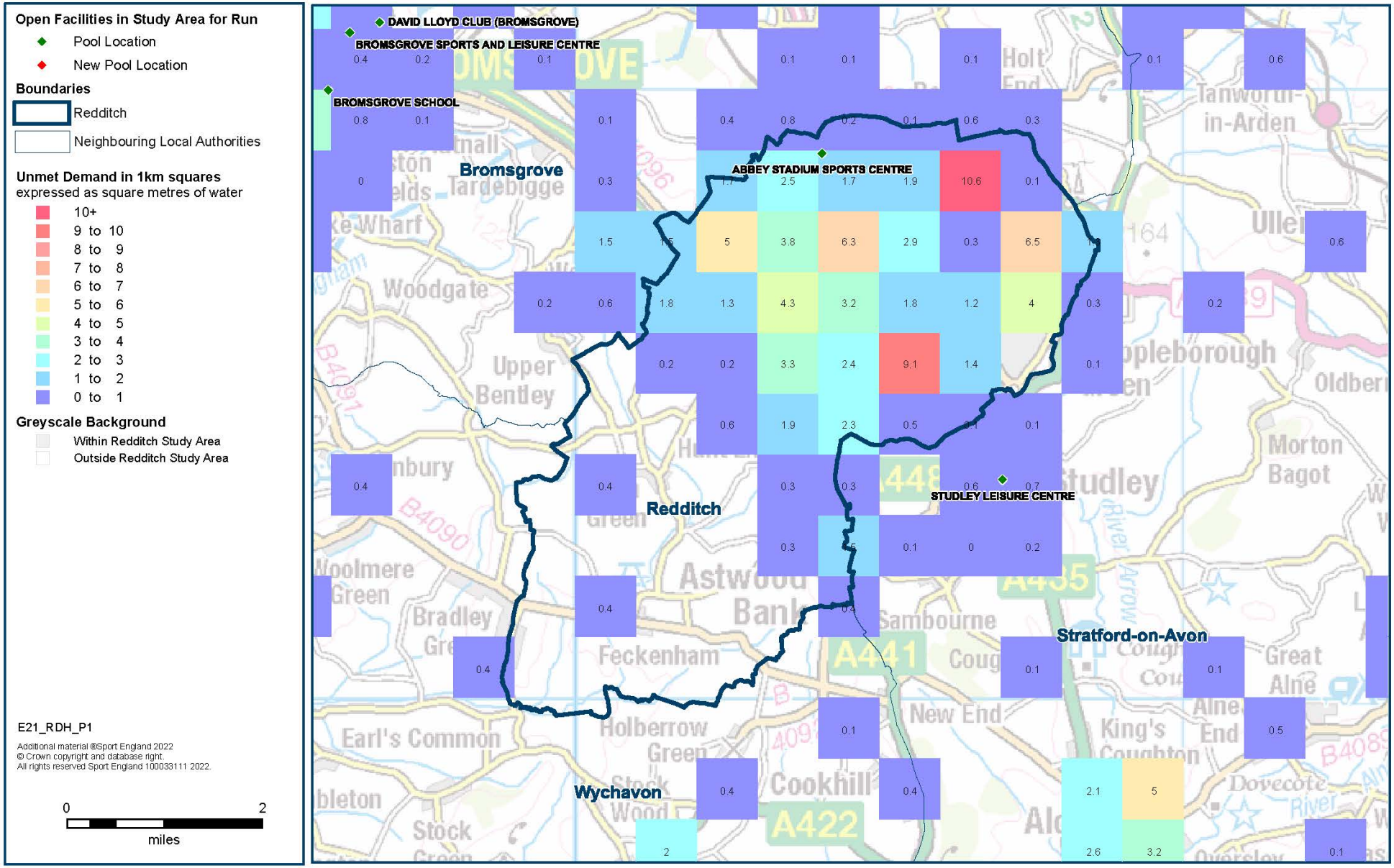
6.8 Accessibility is a major factor in determining reachable unmet demand. Therefore, a location with a good road network has a higher reachable unmet demand than a facility in an area with poor transportation links that make it more difficult for people to move around and get to a facility. It is important to emphasise that reachable unmet demand is not a reflection of need for a particular area.

6.9 Key finding 13 is that, in Run 3, reachable unmet demand is highest in an area south of Abbey Stadium Sports Centre at 70 sqm of water. This is not enough unmet demand to consider building a new swimming pool provision to improve access for residents in this location.

For context, the minimum amount of water space required to justify a new pool would be 160 sqm, which is a 20m x 8m four-lane pool (assuming lane width of 2m).

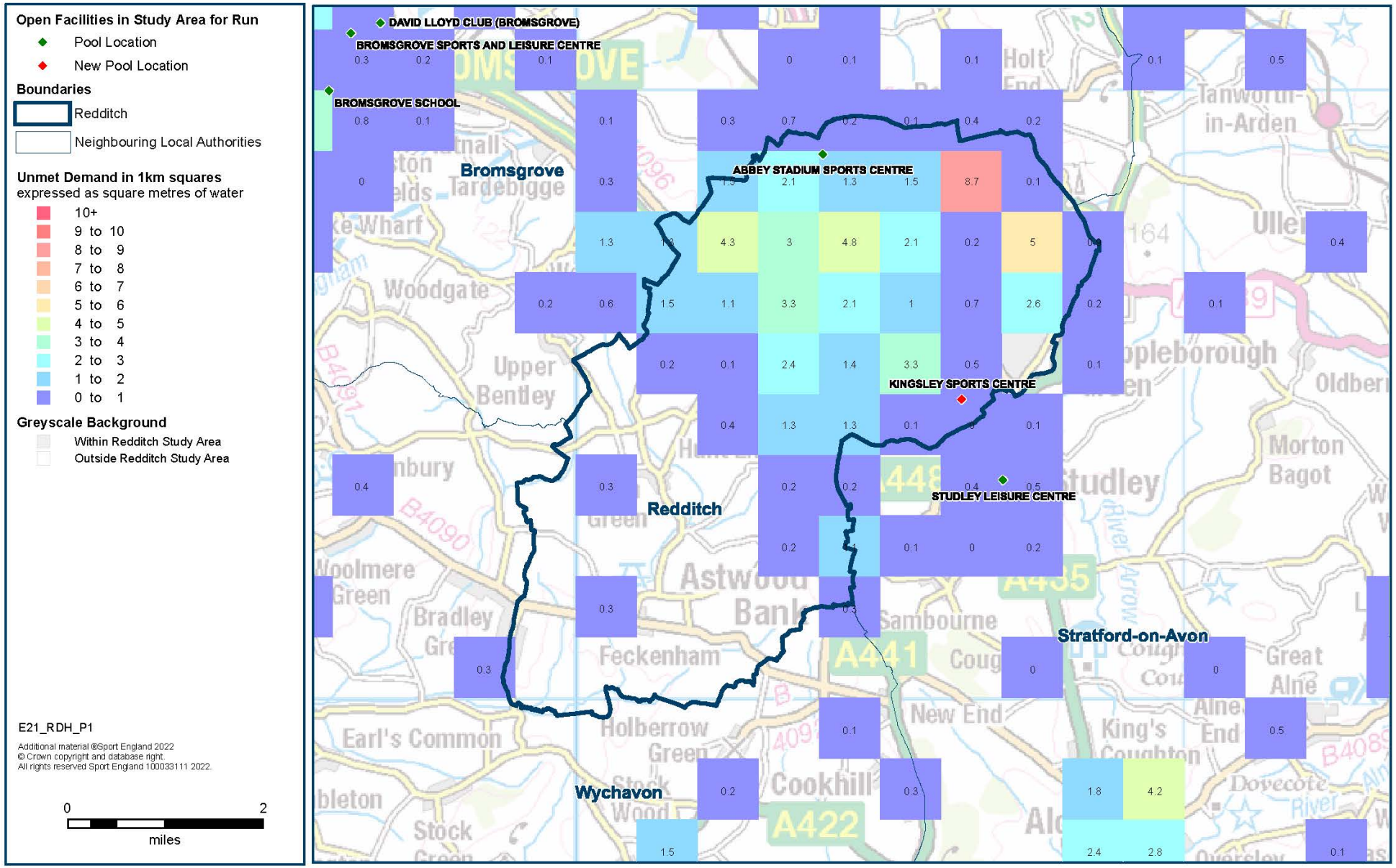
Map 6.1: Unmet Demand for Swimming Pools in Redditch Run 2 (2040)

FPM unmet demand aggregated at 1km square grid expressed as square metres of water and shown thematically (colours).



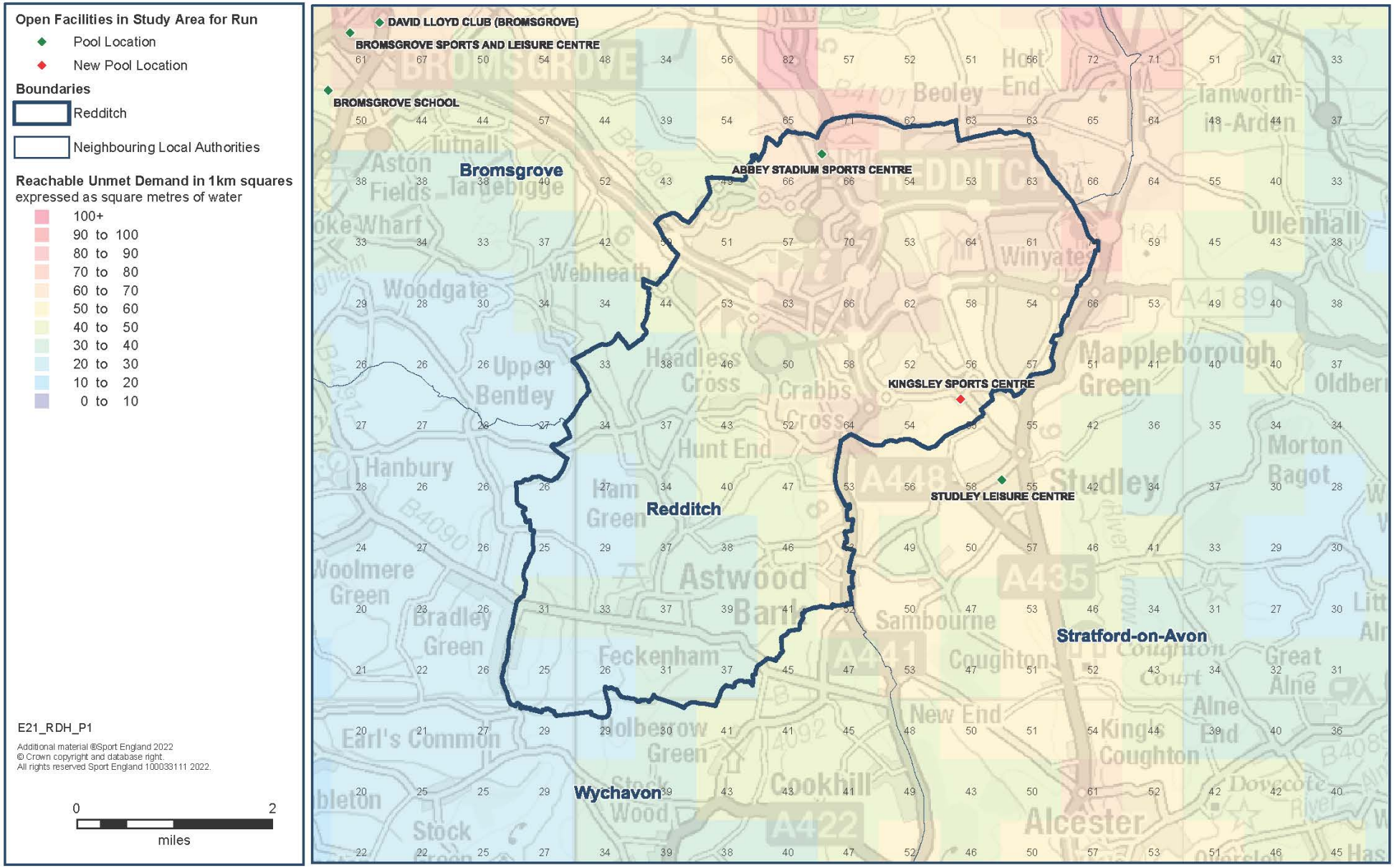
Map 6.2: Unmet Demand for Swimming Pools in Redditch Run 3 (2040)

FPM unmet demand aggregated at 1km square grid expressed as square metres of water and shown thematically (colours).



Map 6.3: Reachable Unmet Demand for Swimming Pools in Redditch Run 3 (2040)

FPM reachable unmet demand aggregated at 1km square grid expressed as square metres of water (figure labels) and shown thematically (colours).



7. USED CAPACITY OF FACILITIES

Key finding 14 is that the estimated used capacity of swimming pools in the Borough in the weekly peak period is 100% in Runs 1 and 2, and 98% in Run 3.

Key finding 15 is that, in Run 2, there are 576 visits in the weekly peak period that cannot be met at Abbey Stadium Sports Centre. This is 19% of the centre's capacity in the weekly peak period. In Run 3, this decreases to 148 visits, which is 5% of Abbey Stadium Sports Centre's capacity.

Key finding 16 is that imported demand is 16% of the used capacity of the current Redditch pools in 2021. This increases to 20% in Run 2 and 26% in Run 3.

Key finding 17 is that the largest amount of imported demand to the Borough is from Bromsgrove, with 205 visits in the weekly peak period in Run 1, increasing to 475 visits in Run 3.

Key finding 18 is that demand imported from Bromsgrove is considerably less than the Redditch demand exported and met at Bromsgrove pools. The difference in greatest in Run 1 at 1,150 visits and smallest in Run 3 at 409 visits.

Table 7.1: Used Capacity of Swimming Pools in Redditch by Run

Used Capacity	RUN 1	RUN 2	RUN 3
Redditch	2021	2040	2040
Number of visits used of capacity in weekly peak period	3,113	3,113	4,605
% of overall capacity of pools used	100.0	100.0	98.2
Number of visits imported in weekly peak period	490	629	1,197
Visits imported as a % of used capacity	15.7	20.2	26.0
Difference between visits imported and exported	-1,864	-1,643	-381

Definition of used capacity – This is a measure of usage at swimming pools and estimates how well used or how 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 above 70% of capacity is busy and that the swimming pool is operating at an uncomfortable level.

7.1 Key finding 14 is that the estimated used capacity of swimming pools in the Borough in the weekly peak period is 100% in in Runs 1 and 2, and 98% in Run 3.

7.2 The estimated used capacity of Abbey Stadium Sports Centre is 100% in the weekly peak period in all three runs. Kingsley Sports Centre is 95% utilised in Run 3. These are very

busy pools, operating above the Sport England comfort level of 70% utilisation at peak times.

Table 7.2: Used Capacity of Redditch Swimming Pools in Percentages by Run

Utilised Capacity	RUN 1	RUN 2	RUN 3
Individual Sites	2021	2040	2040
Abbey Stadium Sports Centre	100	100	100
Kingsley Sports Centre	-	-	95

7.3 There are several reasons for the high estimated used capacity. Often it is difficult to identify which of these reasons apply because several could be interacting simultaneously, but variation is generally caused by any of the following factors (more detail is provided in subsequent paragraphs):

- The type of site operator (public/commercial).
- The level of demand within the travel-time limit from the site and reachable from other pools.
- The scale of the swimming pool.
- The age of the pool and its 'attractiveness' weighting.
- Imported demand.

7.4 Public leisure centres are more utilised because of their 'draw effect'. Public leisure centres:

- Are accessible for public and swimming club use.
- Have the longest opening hours and are proactively managed to encourage and support swimming participation and physical activity. Abbey Stadium Sports Centre main pool is available for the maximum 52.5 hours in the weekly peak period. Availability of the learner pool is 45 hours in the weekly peak period. Kingsley Sports Centre is modelled to re-open with 52.5 hours available for community use.
- Unlike commercial swimming pools, do not require payment of a monthly membership fee.
- Provide for all activities, learn to swim, recreational swimming, lane and fitness swimming, and swimming development by clubs.

7.5 It is important to consider the scale of the swimming pool site when looking at estimated used capacity. Abbey Stadium Sports Centre has a 25m six-lane pool and a 10m x 6.5m learner pool. It can accommodate 3,113 visits per week in the peak period. Kingsley Sports Centre has a 20m four-lane pool and a weekly peak period capacity of 1,575 visits. Therefore, while both centres have almost the same percentage figure for used capacity, Abbey Stadium Sports Centre accommodates a much higher level of use.

7.6 All swimming pools in the model are weighted to reflect their age, condition and whether they have been modernised. This is to assess their comparative attractiveness to customers.

7.7 The estimated used capacity is influenced by all these inter-related reasons (including imported demand reviewed below) and should be reviewed with the facility operator.

Swimming Pools with 100% of Pool Capacity Used

7.8 When the finding is that a swimming pool is estimated to be full, the FPM tries to re-allocate demand to other swimming pools within the same travel-time area. This is an iterative process and continues until there is no more capacity at the other swimming pool sites to absorb demand. This is known as 'demand re-distributed after initial allocation'.

7.9 **Key finding 15** is that, in Run 2, there are 576 visits in the weekly peak period that cannot be met at Abbey Stadium Sports Centre. This is 19% of the centre's capacity in the weekly peak period. In Run 3, this decreases to 148 visits, which is 5% of Abbey Stadium Sports Centre's capacity.

Table 7.3: Visits Re-distributed After Initial Allocation by Run

Visits Redistributed	RUN 1	RUN 2	RUN 3	Capacity (visits in weekly peak period)
Individual Sites	2021	2040	2040	
Abbey Stadium Sports Centre	-337	-576	-148	3,113
Kingsley Sports Centre	-	-	321	1,575

Note: A negative figure shows the visits that cannot be met at the site. A positive figure shows the number of visits that have been re-allocated to them.

Summary of Findings and Used Capacity

7.10 Given the used capacity findings, the question to pose is:

Do the findings indicate there is a need to increase swimming pool provision in the Borough?

7.11 The answer is yes, for the following reasons:

- Despite the finding that Redditch's demand for swimming is projected to decrease by 3% between 2021 and 2040 (see Section 3: Demand for Swimming Pools), Abbey Stadium Sports Centre is estimated to have 100% used capacity in the weekly peak period in 2021 and 2040, and Kingsley Sports Centre is 95% utilised when it re-opens.
- Furthermore, there are 148 visits in the weekly peak period that would like to access Abbey Stadium Sports Centre when Kingsley Sports Centre is re-opened but cannot because it is full, which is 5% of Abbey Stadium Sports Centre's capacity.
- Retained demand is 68% of satisfied demand when Kingsley Sports Centre is re-opened, and the number of visits retained increases by 37% (see Section 5: Satisfied Demand for Swimming).
- The only scope to increase supply and capacity at the two sites is limited to increasing the hours available for learn to swim by 7.5 hours at Abbey Stadium Sports Centre (see Section 2: Swimming Pool Supply).

7.12 The option for increasing provision is set out in the Executive Summary, under the Interventions and Next Steps heading.

Imported Demand

7.13 Imported demand is set out under Used Capacity. If residents of neighbouring local authority areas swim at a site in Redditch, their usage becomes part of the used capacity of Redditch's swimming pools.

7.14 **Key finding 16** is that imported demand is 16% of the used capacity of the current Redditch pools in Run 1. This increases to 20% in Run 2 and 26% in Run 3.

7.15 **Key finding 17** is that the largest amount of imported demand to the Borough is from Bromsgrove, with 205 visits in the weekly peak period in Run 1, increasing to 475 visits in Run 3.

Table 7.4: Import Origin of Visits to Swimming Pools in Redditch by Run

Import (visits per week peak period)	RUN 1	RUN 2	RUN 3
Local Authority	2021	2040	2040
Redditch	**2,623**	**2,484**	**3,408**
Birmingham South	125	120	195
Dudley	1	0	1
Solihull	9	9	18
Stratford-on-Avon	114	134	417
Bromsgrove	205	328	475
Wychavon	33	34	86
Wyre Forest	0	0	1

Note: The figures for Redditch represent the used capacity of the Borough's pools by its residents.

7.16 Imported demand is shown spatially in in Map **7.1** for Run 3 (2040).

Import/Export Balance

7.17 Overall, Redditch is a net exporter of demand. In Runs 1 and 2, the difference is more than 1,600 visits in the weekly peak period, but this reduces to 381 visits in Run 3.

7.18 **Key finding 18** is that demand imported from Bromsgrove is considerably less than the Redditch demand exported and met at Bromsgrove pools. The difference in greatest in Run 1 at 1,150 visits and smallest in Run 3 at 409 visits.

Map 7.1: Imported Demand Visits per Week in the Peak Period Run 3 (2040)

FPM imported demand between study area and surrounding local authorities shown thematically (size of lines) as visits per week in the peak period (vpwpp).

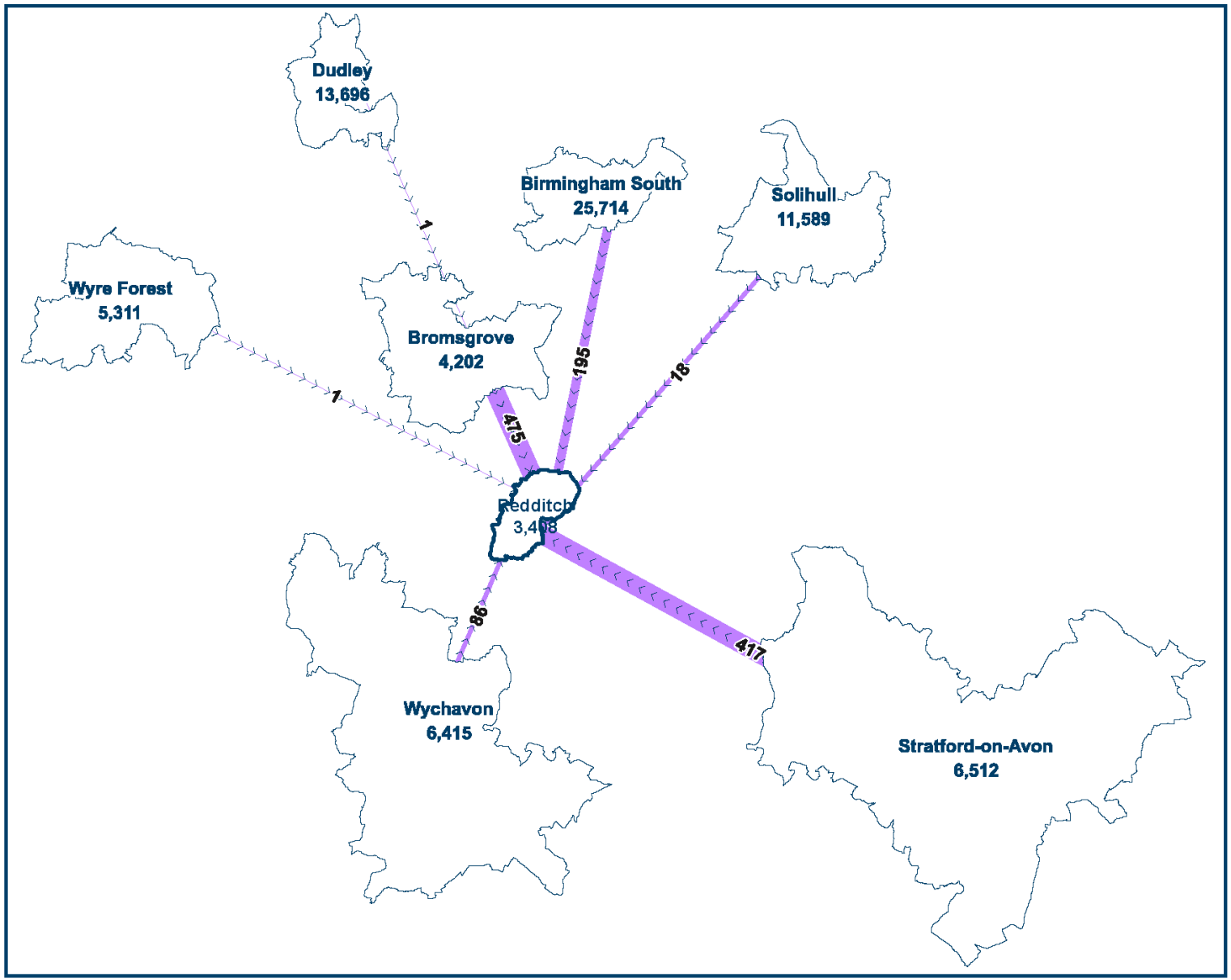
Boundaries
Values in areas show retained vpwpp

- Redditch
- Surrounding LAs

Import/Export
Values on arrows show flow vpwpp

- Direction of flow
- Import
- Export

The figure within the purple chevron shows the number of visits imported from the neighbouring local authorities. The figure within the boundaries is the capacity used by the local authority's residents.



E21_RDH_P1

8. LOCAL SHARE OF FACILITIES

Table 8.1: Local Share of Swimming Pools in Redditch by Run

Local Share	RUN 1	RUN 2	RUN 3
Redditch	2021	2040	2040
Local Share: <1 supply less than demand, >1 supply greater than demand	0.87	0.52	0.56

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

8.1 Local share shows how access and share of swimming pools differs across the local authority area, as follows:

- A value of 1 means that the level of supply just matches demand.
- A value of less than 1 indicates a shortage of quality supply.
- A value greater than 1 indicates a surplus.

8.2 Overall, local share identifies the areas of the Borough where the share of swimming pools is better and worse. The intervention is to try and increase access for residents in the areas with the poorest access to swimming pools.

8.3 In all three runs, as a Borough-wide average, there is not enough quality provision that the demand can access. In Run 1, local share is 0.87, decreasing to 0.52 in Run 2 because of the significant aging of the facilities between 2021 and 2040, making the facilities less attractive. Share increases to 0.56 in Run 3 with an increase in supply because of the opening of Kingsley Sports Centre. However, because of the age of Kingsley Sports Centre, there is only a minor increase in local share in Run 3 compared to Run 2.

Geographical Distribution of Local Share

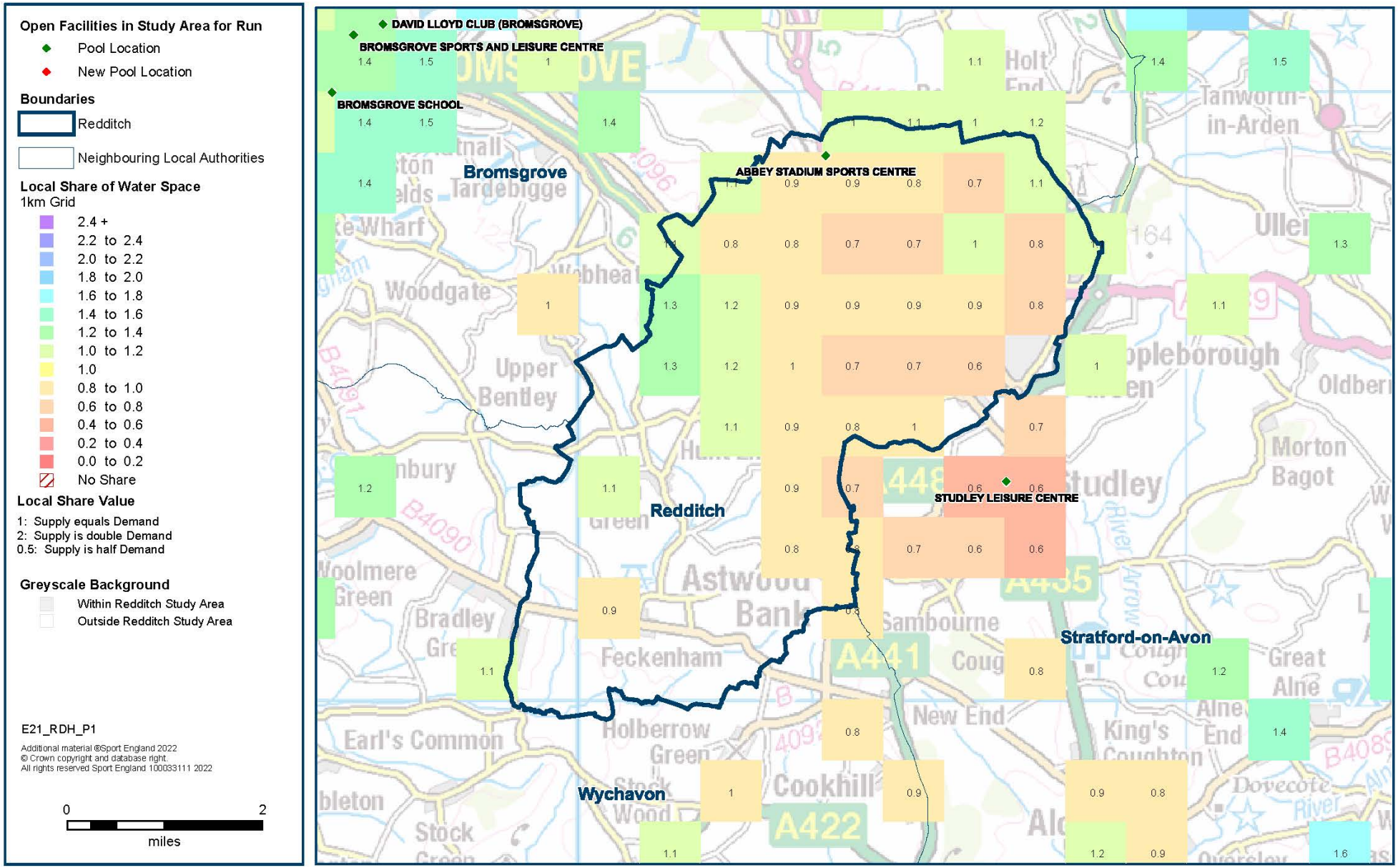
8.4 In Run 1, there is a contrasting picture of share across the Borough (see Map **8.1**). In the green areas (values 1.0–1.4), demand can access more than enough quality provision.

8.5 In Run 2, demand in all areas of the Borough cannot access enough quality supply (see Map **8.2**). Share is poorest in the area with the light-red square (value 0.4).

8.6 In Run 3, despite Kingsley Sports Centre being open, demand across the Borough still cannot access enough quality supply (see Map **8.3**).

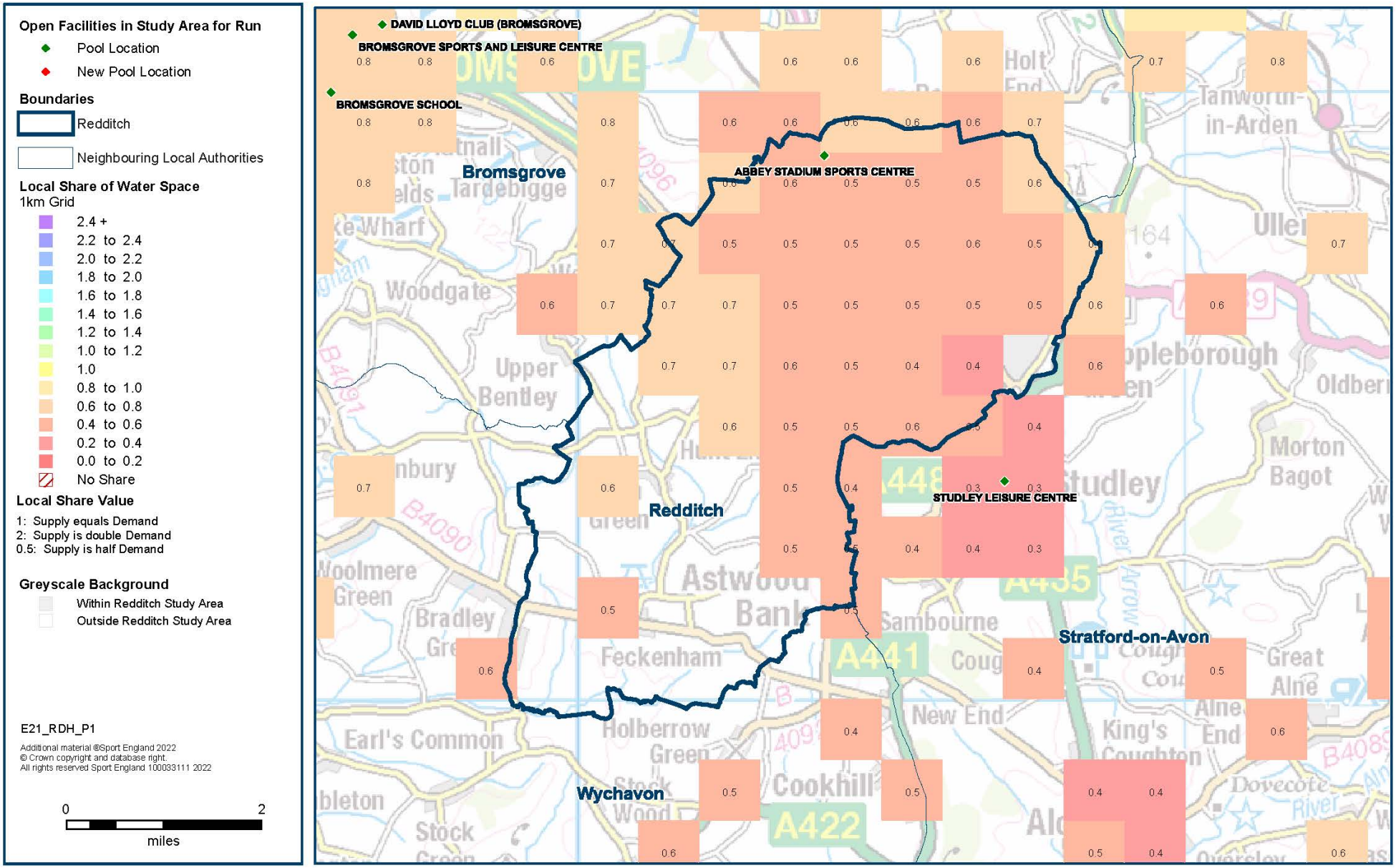
Map 8.1: Local Share of Swimming Pools Redditch Run 1 (2021)

FPM share of water divided by demand aggregated at 1km square and shown thematically (colours).



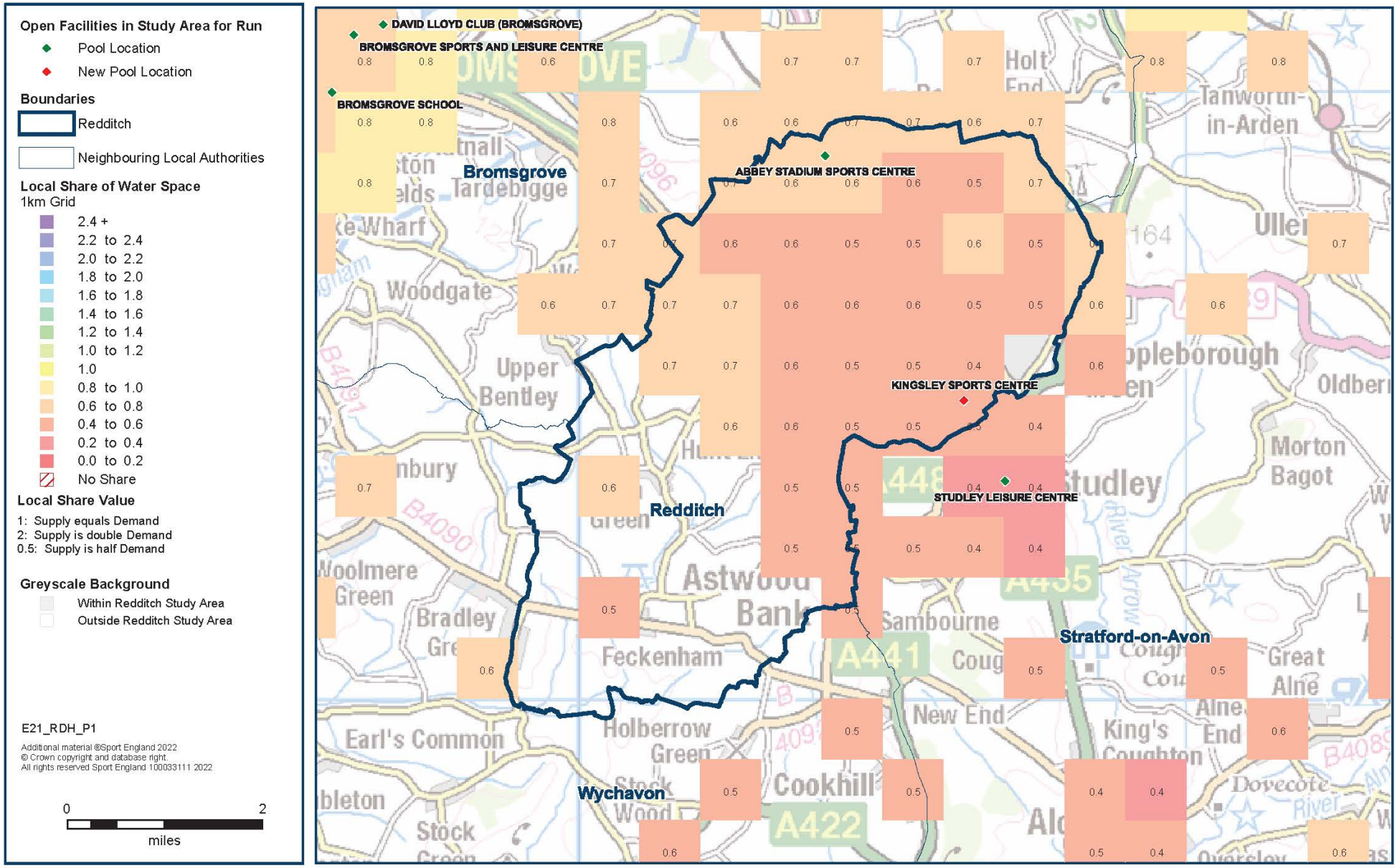
Map 8.2: Local Share of Swimming Pools in Redditch Run 2 (2040)

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



Map 8.3: Local Share of Swimming Pools in Redditch Run 3 (2040)

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



Comparative Measure of Provision

8.7 A comparative measure of swimming pool provision is water space per 1,000 population.

Table 8.2: Water Space per 1,000 Population by Area and Run

Water space per 1,000 population	RUN 1	RUN 2	RUN 3
Local Authority	2021	2040	2040
Redditch	**4.3**	**4.3**	**6.4**
Birmingham South	9.8	9.1	9.1
Dudley	6.5	8.3	8.3
Solihull	16.6	15.1	15.1
Stratford-on-Avon	11.4	9.4	9.4
Bromsgrove	11.6	10.2	10.2
Wychavon	9.4	7.9	7.9
Wyre Forest	9.2	8.5	8.5
WEST MIDLANDS TOTAL	11.0	10.1	10.2
ENGLAND TOTAL	11.9	11.0	11.0

8.8 Redditch has the lowest provision of water space per 1,000 population of all the local authorities in the study area and by a considerable margin. It is 4.3 sqm of water per 1,000 population in Runs 1 and 2, increasing to 6.4 sqm in Run 3.

8.9 The next lowest level of provision is in Dudley, at 6.5 sqm of water per 1,000 population in Run 1, increasing to 8.3 sqm of water in Runs 2 and 3.

8.10 The highest provision is in Solihull, with 16.6 sqm of water per 1,000 population in Run 1, and 15.1 sqm in Runs 2 and 3, more than twice the provision in Redditch.

8.11 The Redditch provision is also below the regional and England averages in all three runs.

8.12 The findings on water space per 1,000 population are reported because some local authorities like to compare their quantitative provision with others; however, it does not set a standard of provision, and should not be used as such.

8.13 The supply and demand assessment and evidence base for swimming pools in the Borough is based on the findings analysed in this report in Sections 2 to 8.

APPENDIX 1: SWIMMING POOLS IN NEIGHBOURING AUTHORITIES INCLUDED IN THE ASSESSMENT

Site	Operation	Facility Type	Dimensions (m)	Area (sqm)	Year Built	Year Refurb
Birmingham South						
Archbishop Ilsley Catholic School	Public	Main	17 x 10	170	1950	
Cocks Moors Woods Leisure Centre	Public	Leisure	25 x 13	313	1987	
Edgbaston High School for Girls	Public	Main	23 x 10	229	1998	2008
Fox Hollies Leisure Centre	Public	Main	25 x 12	300	1986	2003
Fox Hollies Leisure Centre		Learner	12 x 5	60		
Harborne Pool and Fitness Centre	Public	Main	25 x 13	325	2012	
Harborne Pool and Fitness Centre		Learner	13 x 8	104		
King Edward VI Camp Hill School for Girls	Public	Main	25 x 13	313	1975	2007
King Edward VI High School for Girls	Public	Main	23 x 10	228	1965	1986
King Edward's School	Public	Main	25 x 15	375	1985	
Linden Road Instruction Pool	Public	Main	19 x 9	171	1935	2010
Moseley Road Baths	Public	Main	21 x 10	213	1907	2012
Northfield Leisure Centre	Public	Main	25 x 13	325	2018	
Northfield Leisure Centre		Learner	12 x 10	120		
Nuffield Health (Birmingham Rubery)	Comm.	Main	25 x 6	150	2000	2007
Sparkhill Swimming Pool and Fitness	Comm.	Main	25 x 13	325	2017	
Sparkhill Swimming Pool and Fitness		Learner	13 x 8	104		
Stechford Leisure Centre	Public	Main	25 x 13	325	2018	
Stechford Leisure Centre		Learner	20 x 13	260		
The Blue Coat School	Public	Main	25 x 10	250	1997	
University of Birmingham Sport and Fitness	Public	Main	50 x 17	850	2017	
Dudley						
Crystal Leisure Centre	Public	Main	25 x 10	250	1990	2009
Crystal Leisure Centre		Leisure	24 x 20	480		
David Lloyd Club (Dudley)	Comm.	Main	25 x 15	375	2001	
Dudley Leisure Centre (Run 1 only)	Public	Main	25 x 10	250	1978	2004
Dudley Leisure Centre (Run 1 only)		Learner	10 x 5	50		
Duncan Edwards Leisure Centre (Runs 2 and 3)	Public	Main	25 x 17	425	2022	
Duncan Edwards Leisure Centre (Runs 2 and 3)		Learner	17 x 7	116.2		
Halesowen Leisure Centre (Runs 2 and 3)	Public	Main	33 x 12	400	1963	2022
Halesowen Leisure Centre (Runs 2 and 3)		Learner	15 x 9	135		
Pedmore High School	Public	Main	20 x 8	150	1965	2003
Summerhill School	Public	Main	25 x 8	200	2003	
The Crestwood School	Public	Main	20 x 6	120	1958	
Village Gym (Dudley)	Comm.	Main	25 x 10	250	2000	
Solihull						
Bannatyne Health Club (Solihull)	Comm.	Main	20 x 8	150	1997	2004
Club Moativation (Solihull)	Comm.	Main	17 x 10	170	1990	2005
David Lloyd Club (Solihull Cranmore)	Comm.	Main	25 x 13	313	1998	2022
David Lloyd Club (Solihull Cranmore)		Learner	13 x 13	156		
David Lloyd Club (Solihull Fitness)	Comm.	Main	25 x 8	200	1998	
Livingwell Health Club (Birmingham Metropole)	Comm.	Main	20 x 20	400	1995	2005

North Solihull Sports Centre	Public	Main	33 x 13	426	1979	2008
North Solihull Sports Centre		Learner	17 x 8	128		
Saint Martin's School	Public	Main	25 x 8	200	2003	
Smiths Wood Academy	Public	Main	20 x 7	140	2008	
Solihull School	Public	Main	24 x 9	204	1970	2008
Tudor Grange Leisure Centre	Public	Main	25 x 18	450	2008	2018
Tudor Grange Leisure Centre		Learner	12 x 8	96		
Tudor Grange Leisure Centre		Diving	12 x 8	96		
Village Gym (Solihull)	Comm.	Main	20 x 9	180	2009	
Virgin Active Club (Solihull)	Comm.	Main	25 x 11	263	2001	
Virgin Active Club (Solihull)		Learner	11 x 7	74		
Stratford-on-Avon						
Bannatyne Health Club and Spa (Wildmoor)	Comm.	Main	20 x 8	160	2005	
Shipston Leisure Centre	Comm.	Main	25 x 10	250	2005	
Southam Leisure Centre	Public	Main	25 x 10	250	1988	2004
Stratford Leisure Centre	Public	Main	33 x 12	396	1975	2015
Stratford Leisure Centre		Learner	12 x 10	120		
Studley Leisure Centre	Public	Main	20 x 9	180	1971	2002
Vital Health & Wellbeing (Alveston Manor)	Comm.	Main	18 x 9	162	2003	
Bromsgrove						
Bromsgrove School	Public	Main	25 x 9	225	1989	2012
Bromsgrove Sports and Leisure Centre	Public	Main	25 x 13	325	2017	
Bromsgrove Sports and Leisure Centre		Learner	20 x 7	140		
David Lloyd Club (Bromsgrove)	Comm.	Main	25 x 13	325	2002	2015
Spindles Health Club (Bromsgrove)	Comm.	Main	18 x 9	162	1990	1996
Wychavon						
David Lloyd Club (Worcester)	Comm.	Main	25 x 12	300	2012	
Droitwich Spa Leisure Centre	Public	Main	25 x 13	325	1995	
Evesham Leisure Centre	Public	Main	25 x 11	275	2009	
Evesham Leisure Centre		Learner	12 x 7	84		
Pershore Leisure Centre	Public	Main	25 x 11	275	2002	
Wyre Forest						
Holy Trinity School	Public	Main	23 x 9	207	1965	2012
Mercure Bewdley The Heath Hotel	Comm.	Main	25 x 10	250	1990	
Mercure Bewdley The Heath Hotel		Learner	4 x 4	16		
Wyre Forest Leisure Centre	Public	Main	25 x 13	325	2016	
Wyre Forest Leisure Centre		Learner	15 x 10	150		

APPENDIX 2: MAPS

Swimming Pools Coverage Run 1

Swimming Pools Coverage Run 2

Swimming Pools Coverage Run 3

Demand Run 1

Demand Run 2

Demand Run 3

Unmet Demand Run 1

Unmet Demand Run 2

Unmet Demand Run 3

Reachable Unmet Demand Run 1

Reachable Unmet Demand Run 2

Reachable Unmet Demand Run 3

Local Share Run 1

Local Share Run 2

Local Share Run 3

Import/Export Run 1

Import/Export Run 2

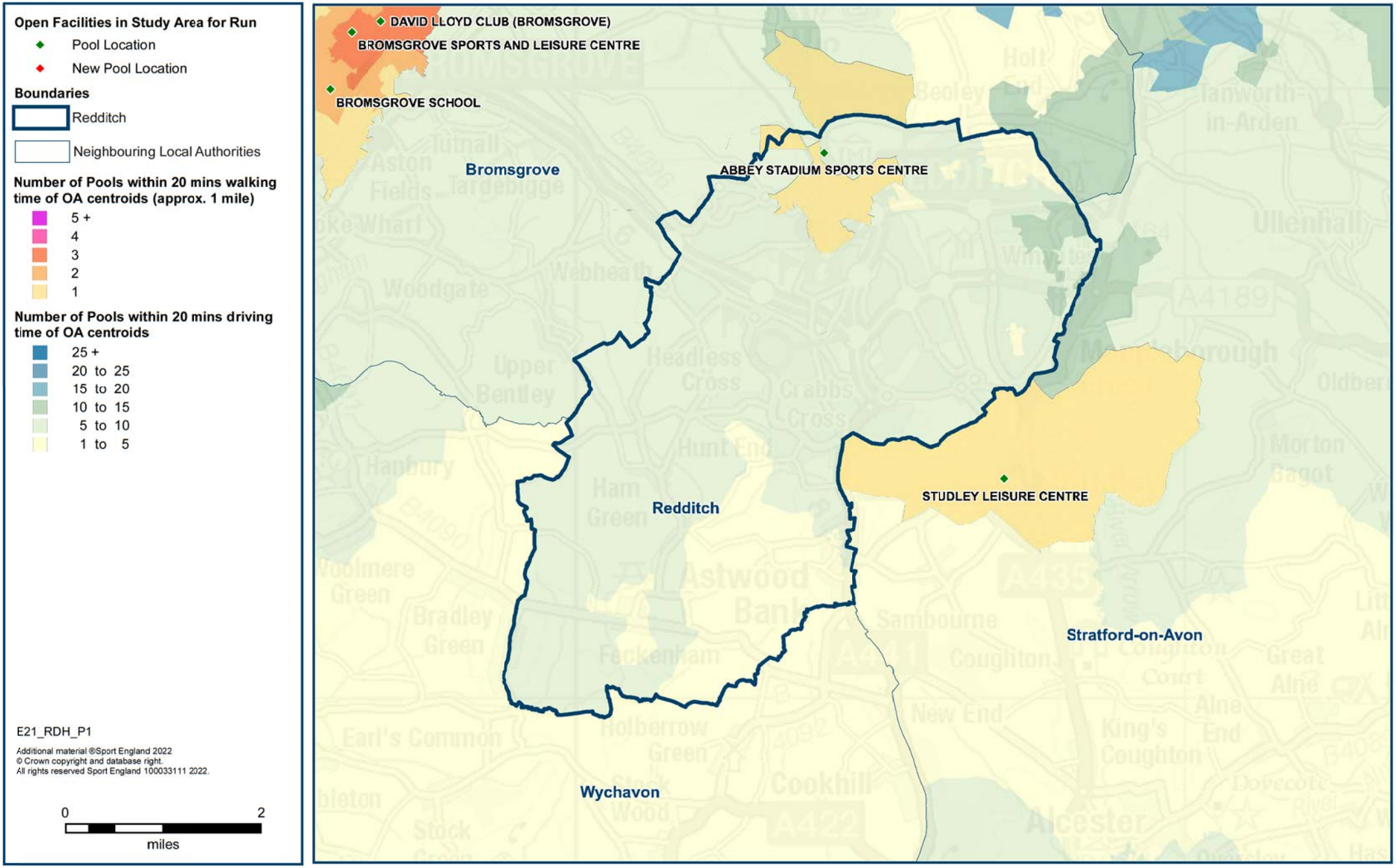
Import/Export Run 3

SPORT ENGLAND

Facility Planning Model - Pools Coverage for Redditch

Run 1: Existing Position - Year 2021

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

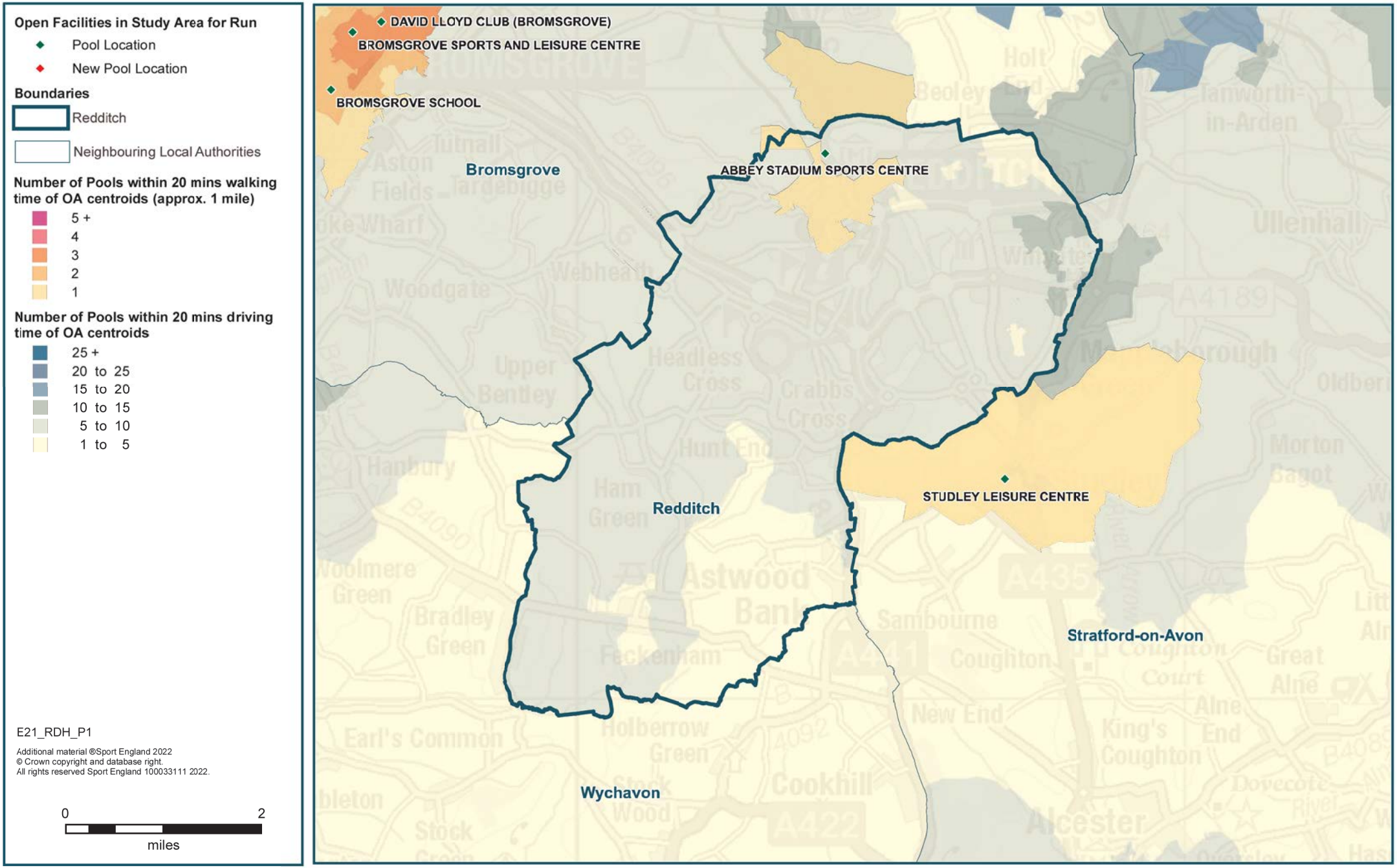


SPORT ENGLAND

Facility Planning Model - Pools Coverage for Redditch

Run 2: Existing Provision - Year 2040

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

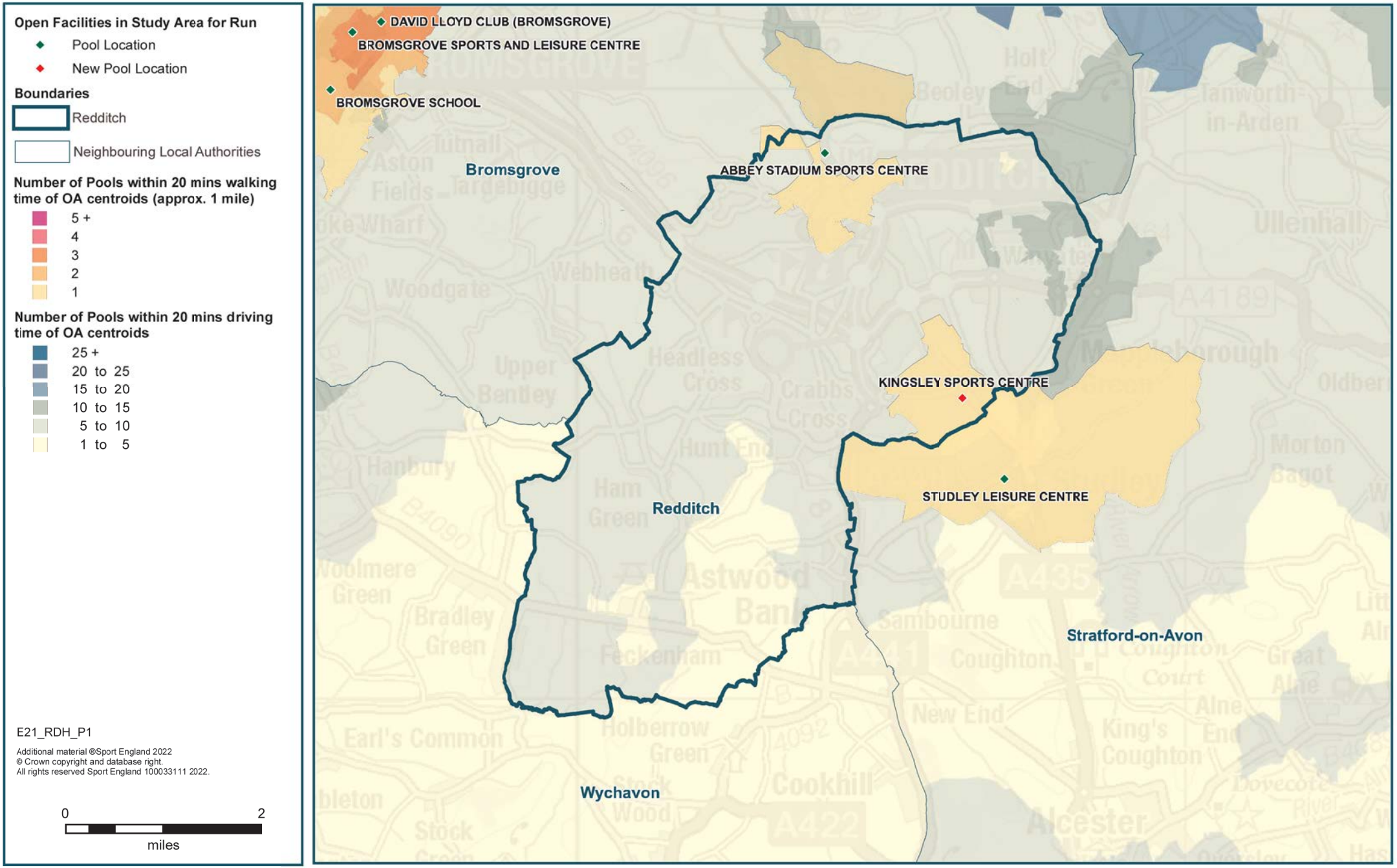


SPORT ENGLAND

Facility Planning Model - Pools Coverage for Redditch

Run 3: Existing Provision with Kingsley Sports Centre Refurb - Year 2040

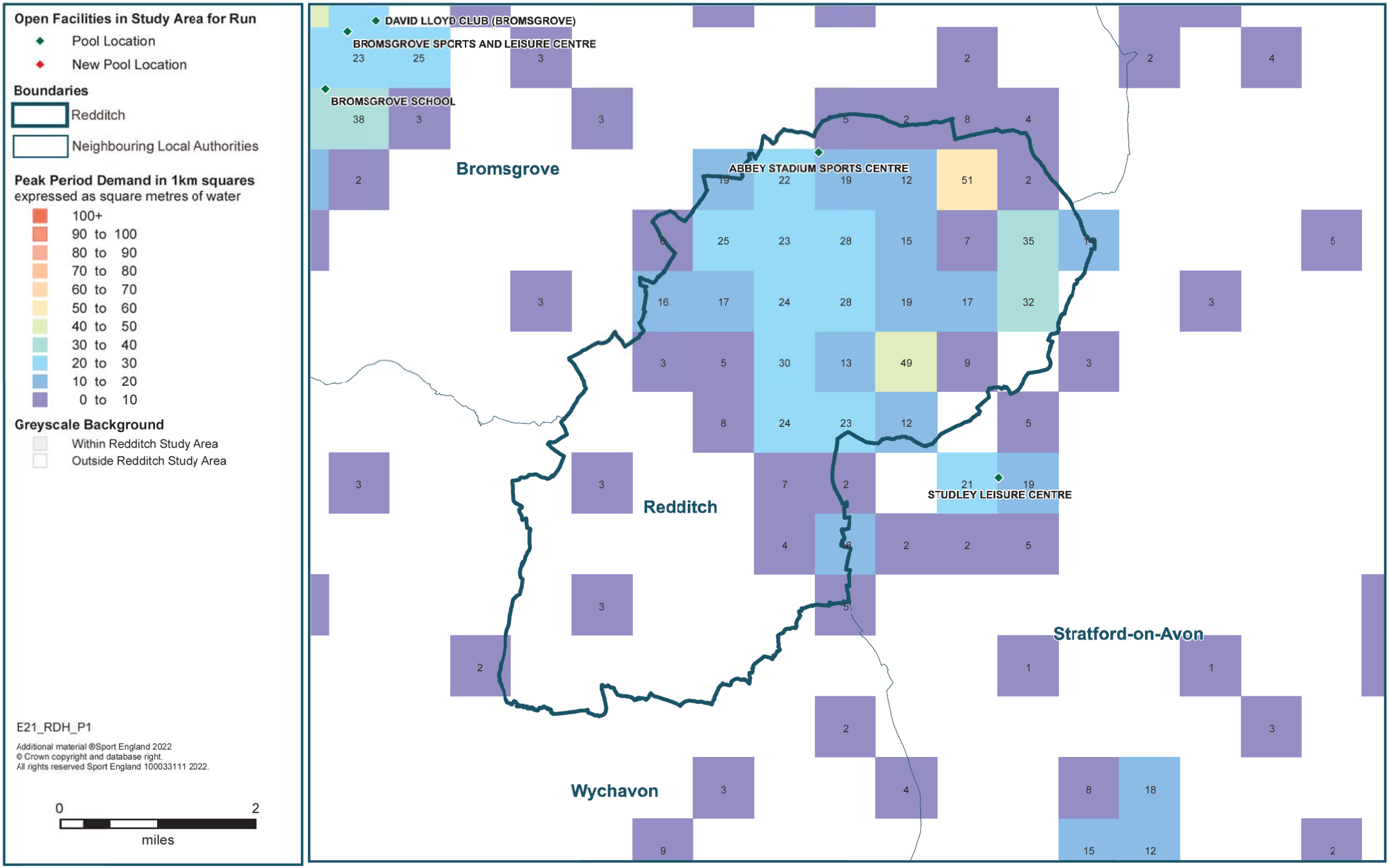
Coverage shown thematically (colours) at output area (OA) level expressed as the number of pools within 20 minutes travel time of output area centroid.



Facility Planning Model - Pools Demand for Redditch

Run 1: Existing Position - Year 2021

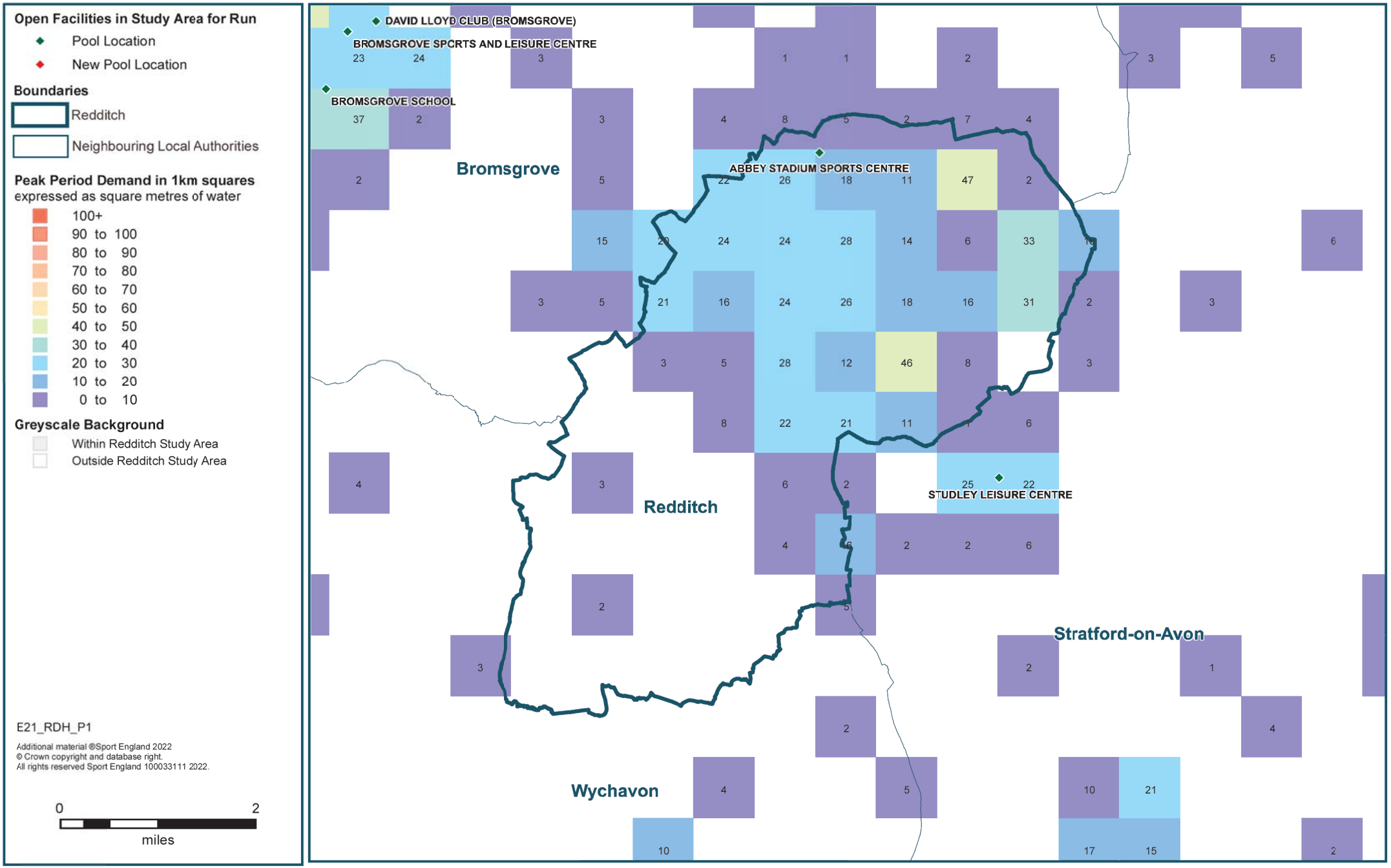
Peak period demand aggregated at 1km square grid expressed as square meters of water (figure labels) and shown thematically (colours)..



Facility Planning Model - Pools Demand for Redditch

Run 2: Existing Provision - Year 2040

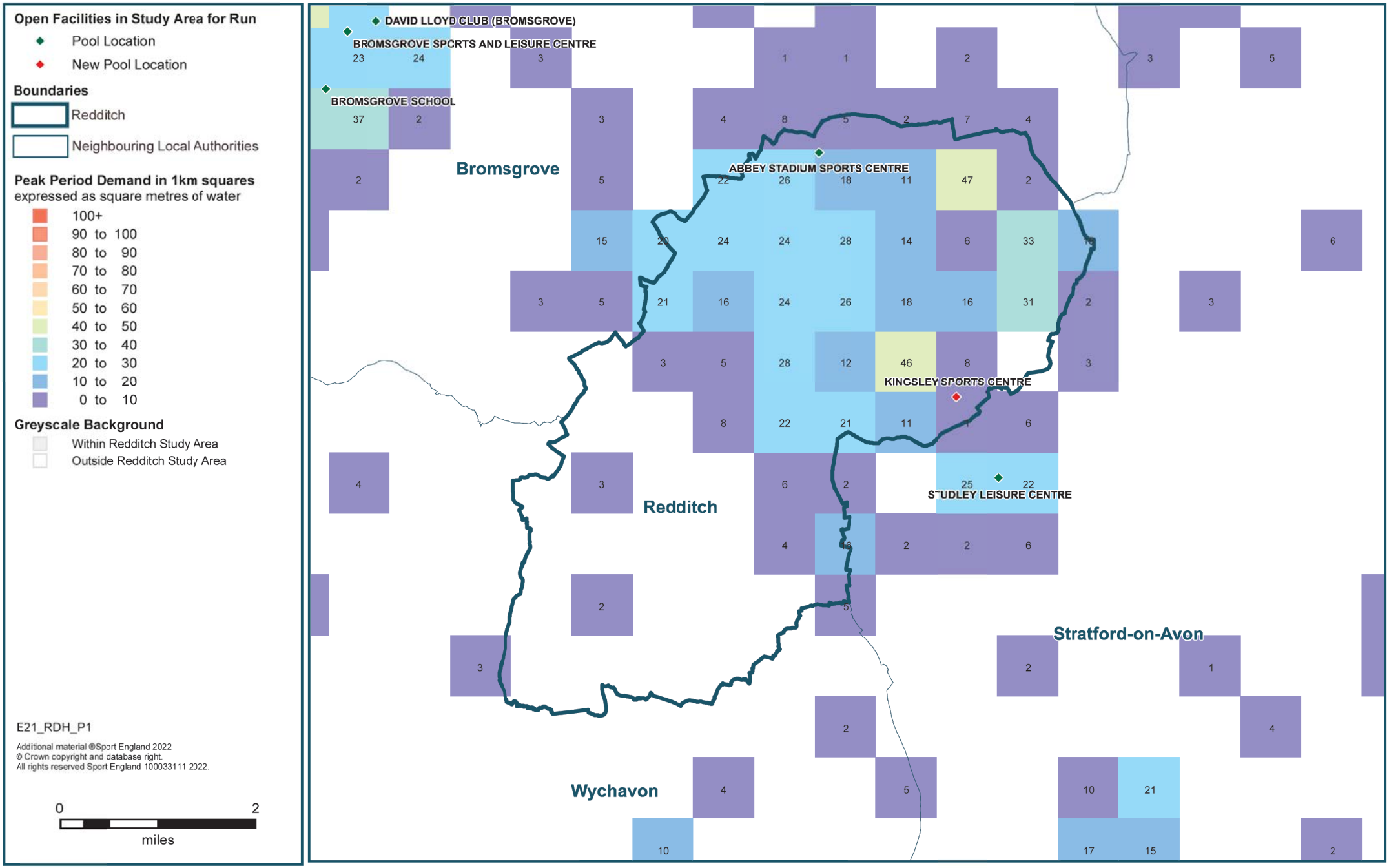
Peak period demand aggregated at 1km square grid expressed as square meters of water (figure labels) and shown thematically (colours)..



Facility Planning Model - Pools Demand for Redditch

Run 3: Existing Provision with Kingsley Sports Centre Refurb - Year 2040

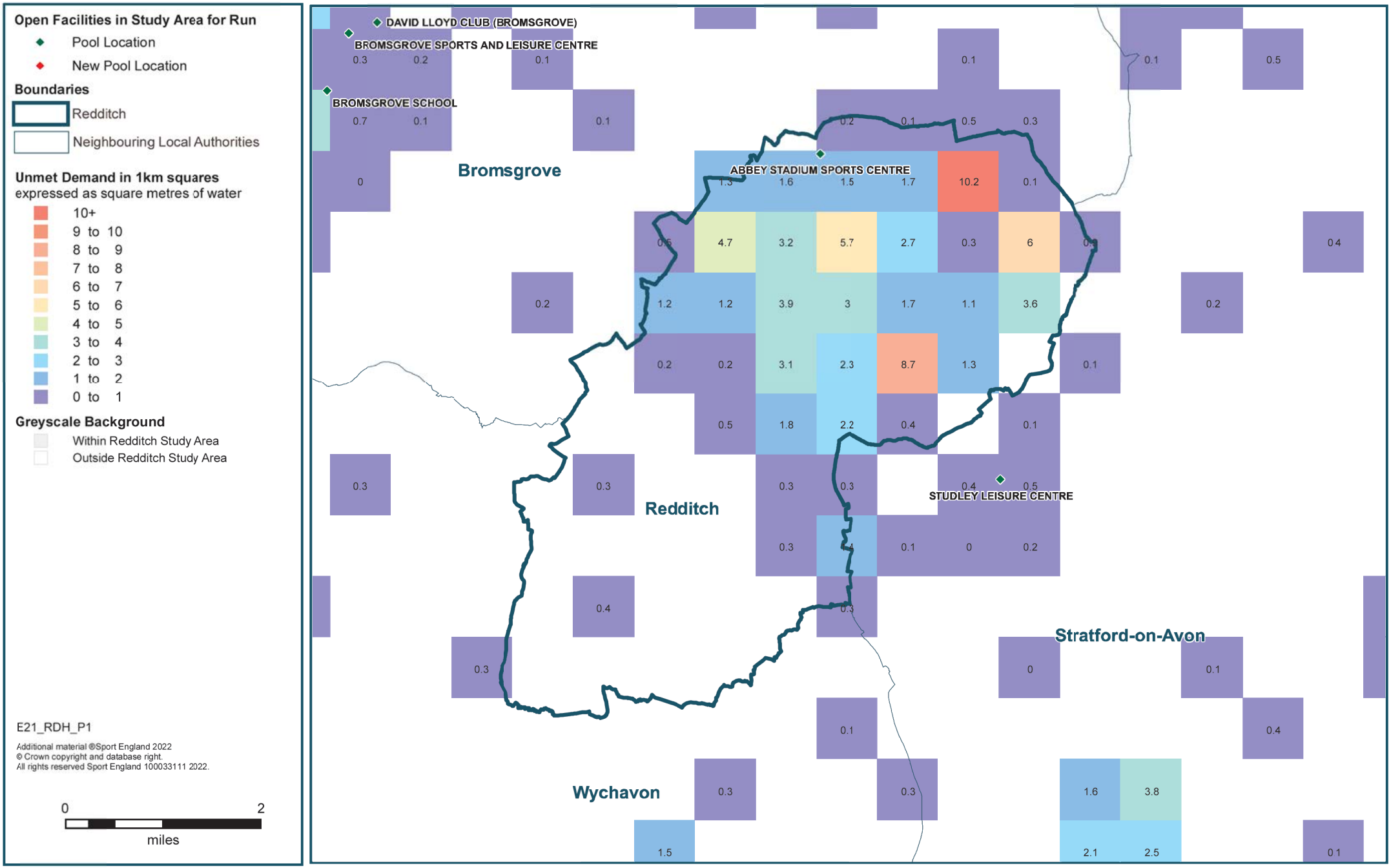
Peak period demand aggregated at 1km square grid expressed as square meters of water (figure labels) and shown thematically (colours)..



Facility Planning Model - Pools Unmet Demand for Redditch

Run 1: Existing Position - Year 2021

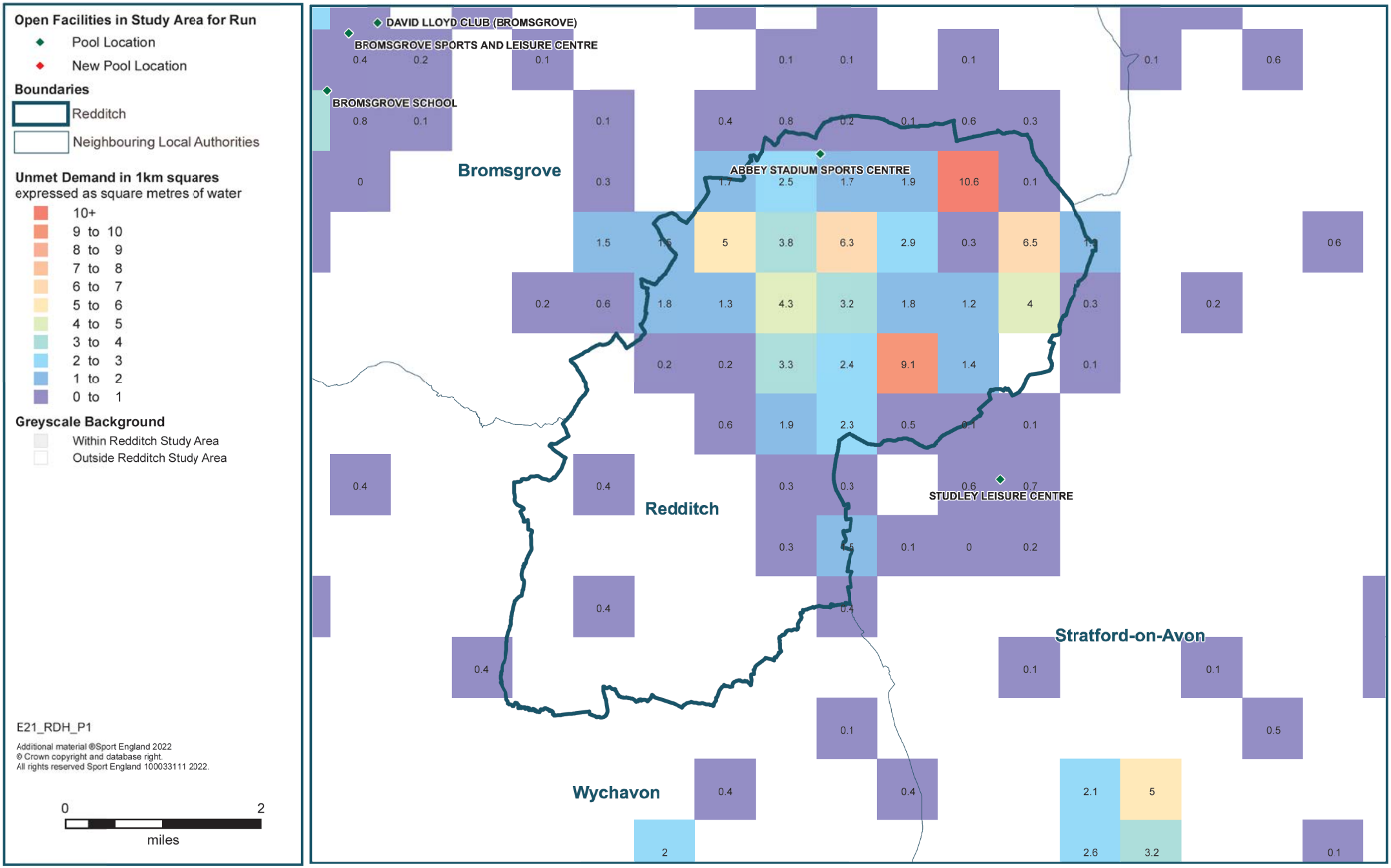
Unmet demand aggregated at 1km square grid expressed as sqm of water (figure labels) and shown thematically (colours).



Facility Planning Model - Pools Unmet Demand for Redditch

Run 2: Existing Provision - Year 2040

Unmet demand aggregated at 1km square grid expressed as sqm of water (figure labels) and shown thematically (colours).

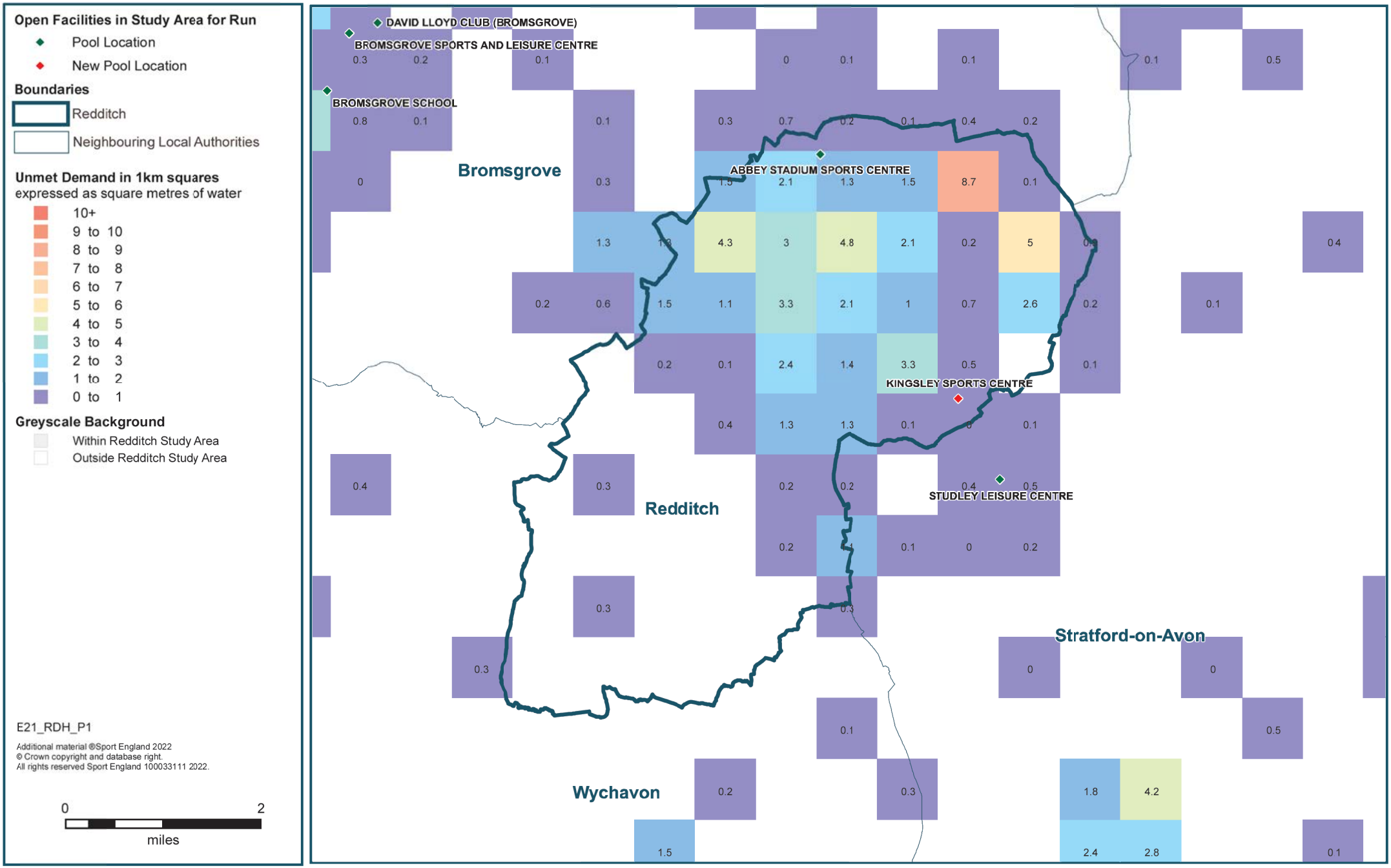


SPORT ENGLAND

Facility Planning Model - Pools Unmet Demand for Redditch

Run 3: Existing Provision with Kingsley Sports Centre Refurb - Year 2040

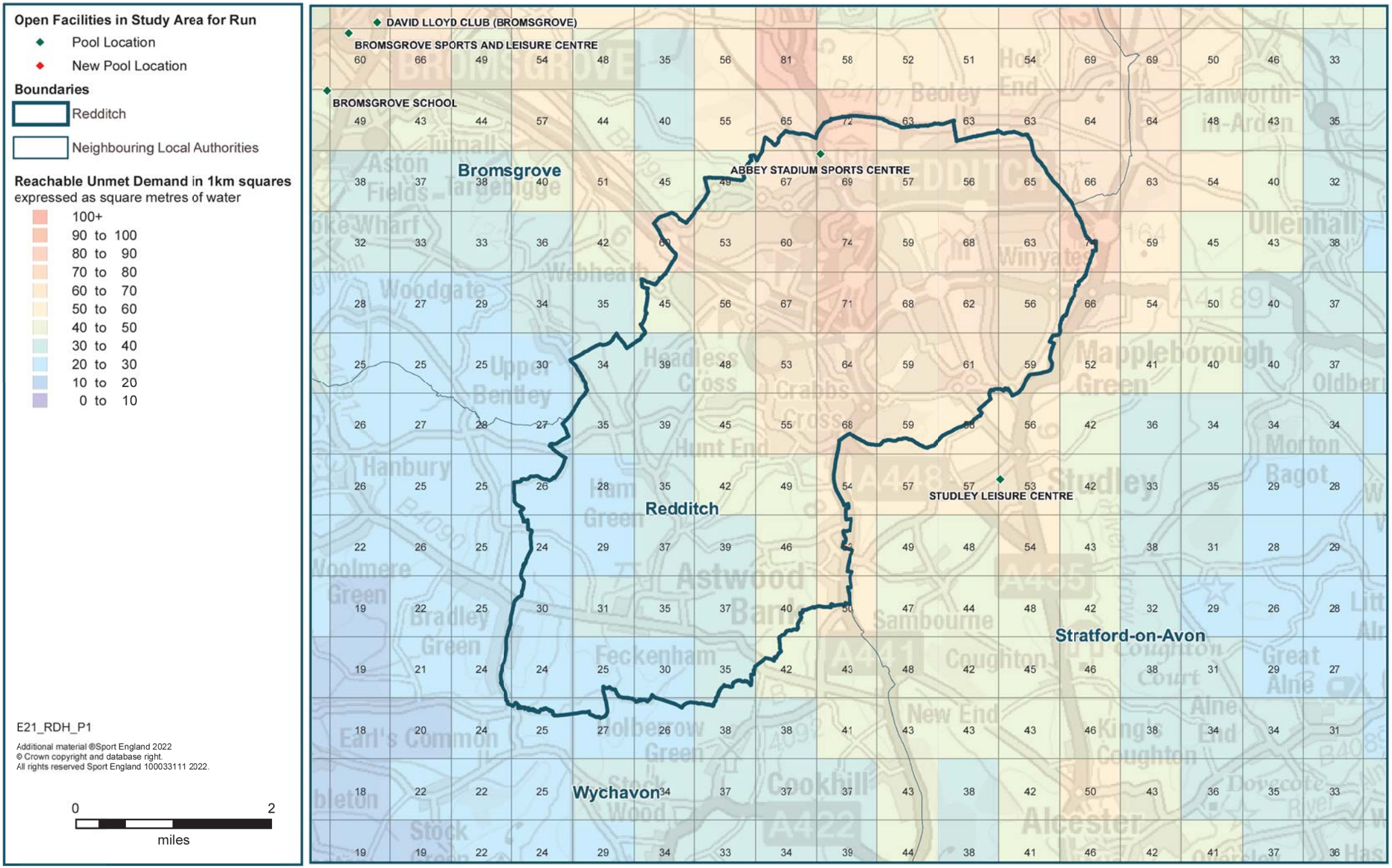
Unmet demand aggregated at 1km square grid expressed as sqm of water (figure labels) and shown thematically (colours).



Facility Planning Model - Pools Reachable Unmet Demand for Redditch

Run 1: Existing Position - Year 2021

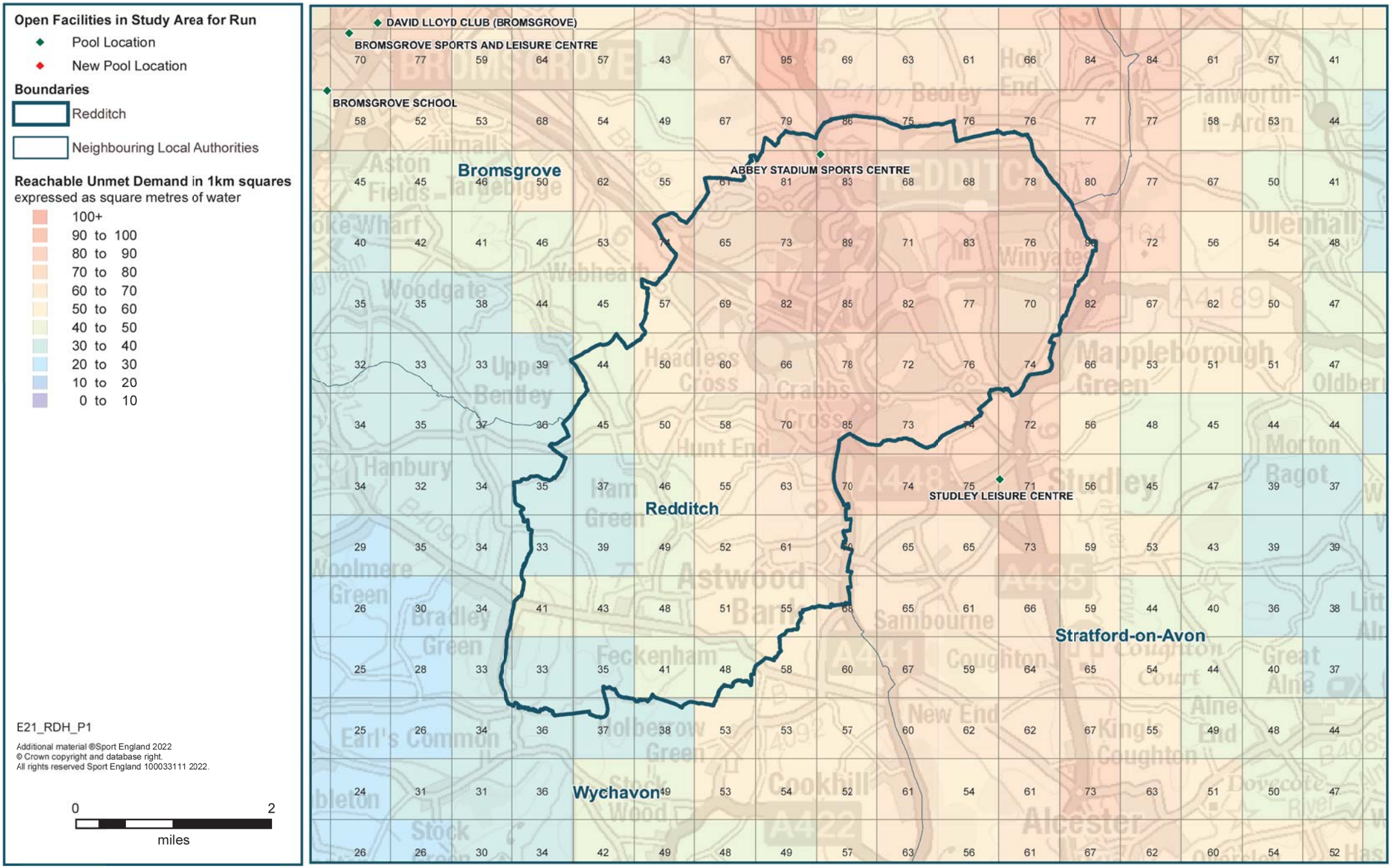
Reachable unmet demand aggregated at 1km square grid expressed in sqm of water (figure labels) and shown thematically (colours).



Facility Planning Model - Pools Reachable Unmet Demand for Redditch

Run 2: Existing Provision - Year 2040

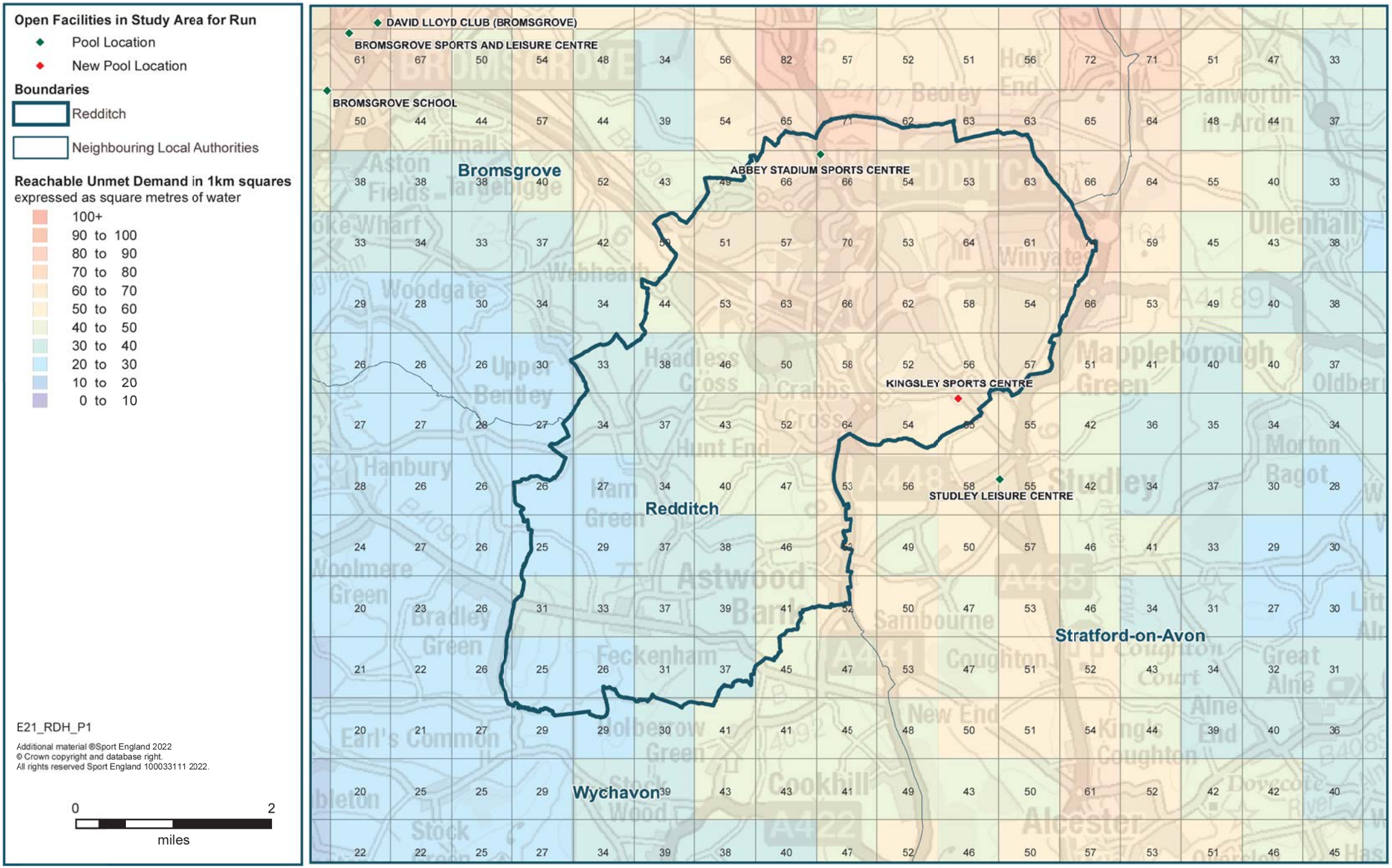
Reachable unmet demand aggregated at 1km square grid expressed in sqm of water (figure labels) and shown thematically (colours).



Facility Planning Model - Pools Reachable Unmet Demand for Redditch

Run 3: Existing Provision with Kingsley Sports Centre Refurb - Year 2040

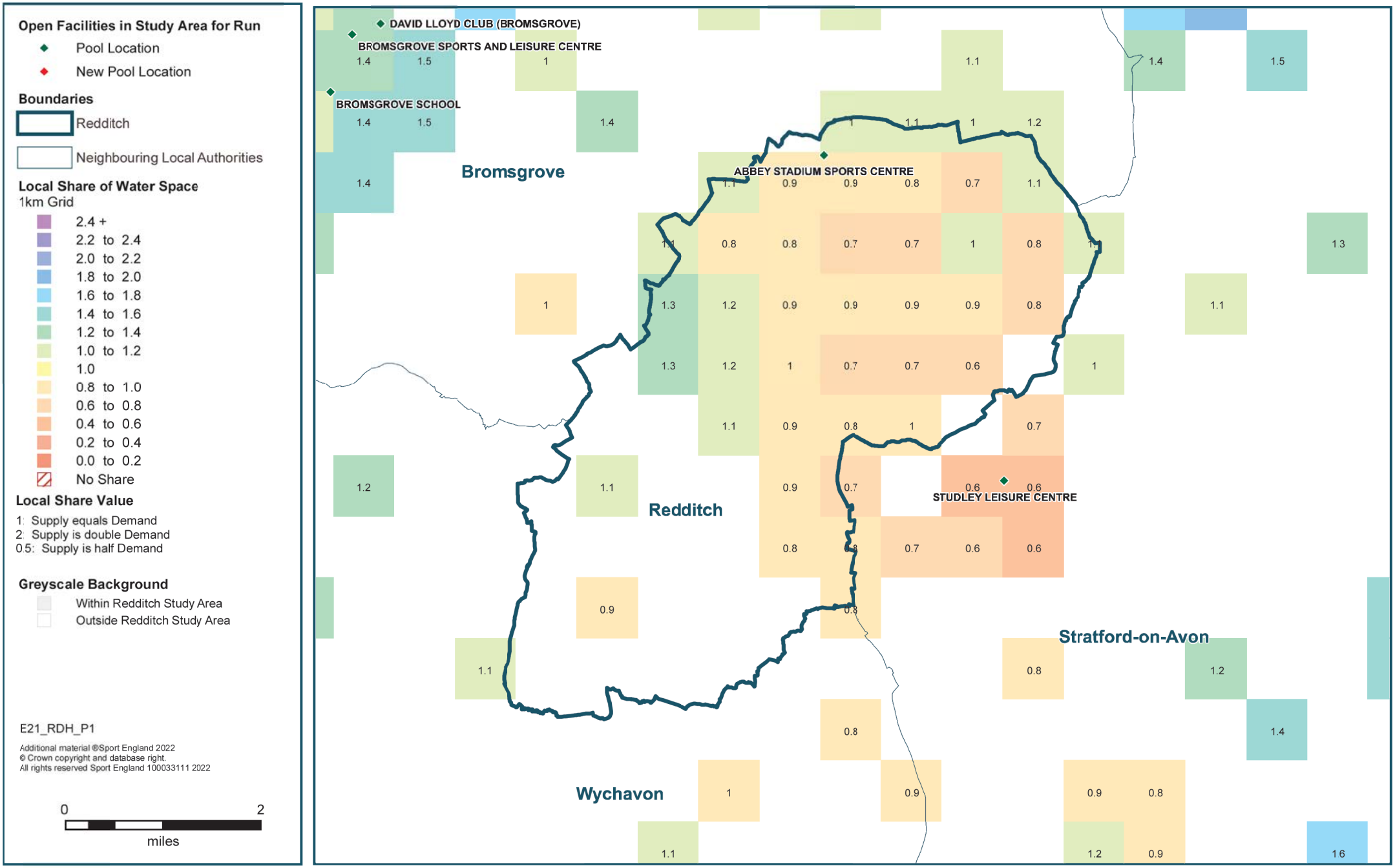
Reachable unmet demand aggregated at 1km square grid expressed in sqm of water (figure labels) and shown thematically (colours).



Facility Planning Model - Pools Local Share for Redditch

Run 1: Existing Position - Year 2021

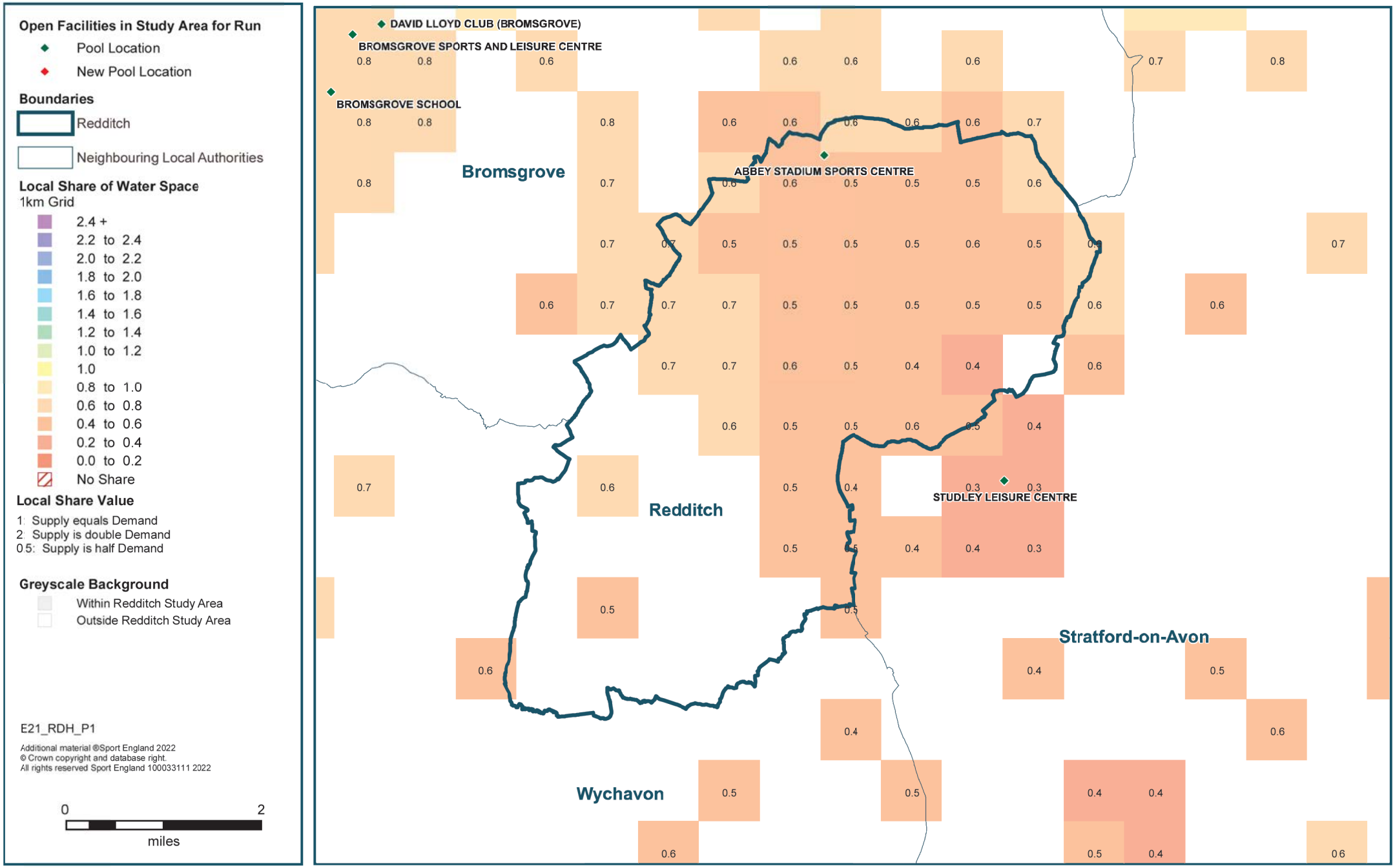
Share of water divided by demand aggregated at 1km square (figure labels) and shown thematically (colours).



Facility Planning Model - Pools Local Share for Redditch

Run 2: Existing Provision - Year 2040

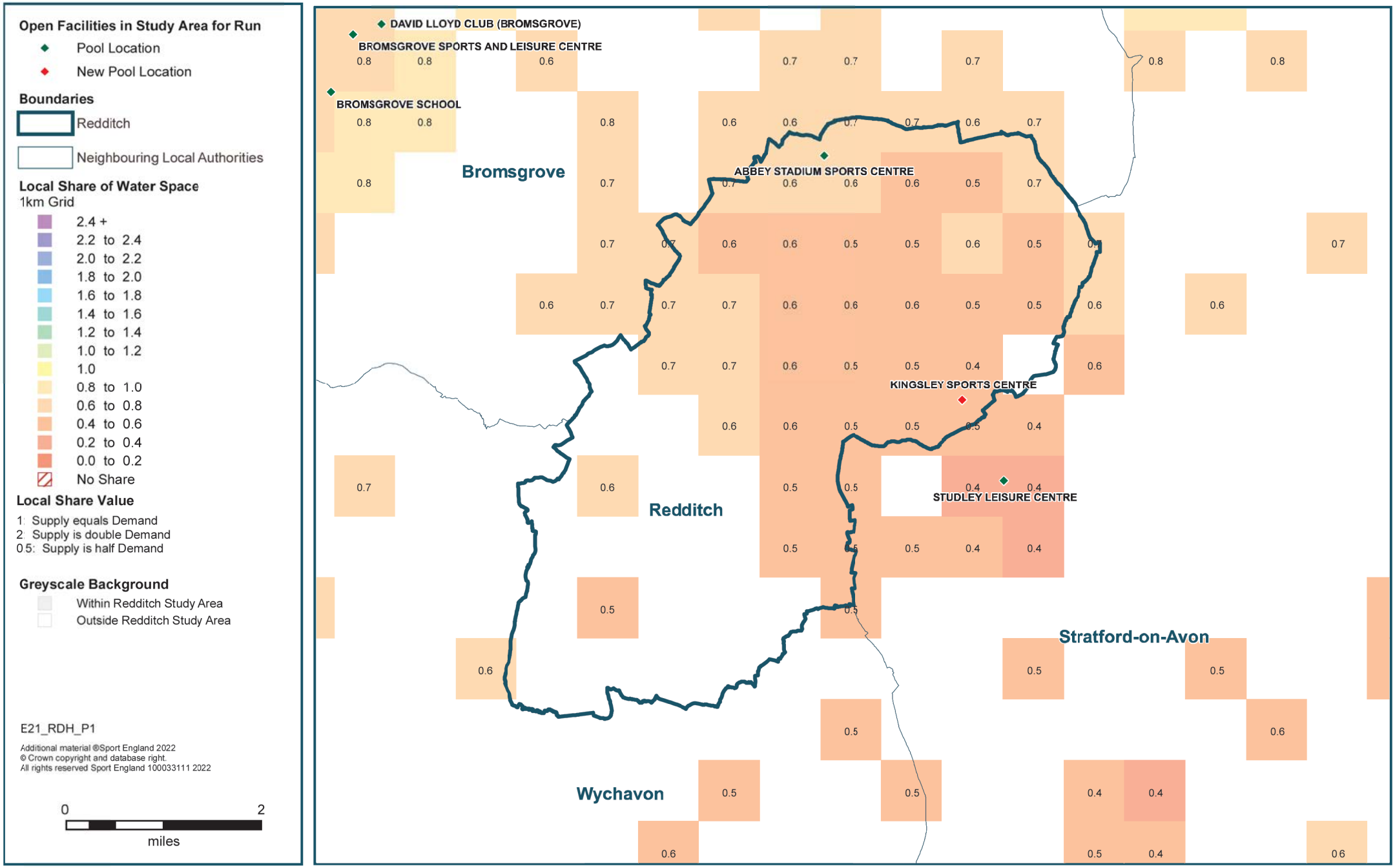
Share of water divided by demand aggregated at 1km square (figure labels) and shown thematically (colours).



Facility Planning Model - Pools Local Share for Redditch

Run 3: Existing Provision with Kingsley Sports Centre Refurb - Year 2040

Share of water divided by demand aggregated at 1km square (figure labels) and shown thematically (colours).



Facility Planning Model - Pools Import/Export for Redditch

Run 1: Existing Position - Year 2021

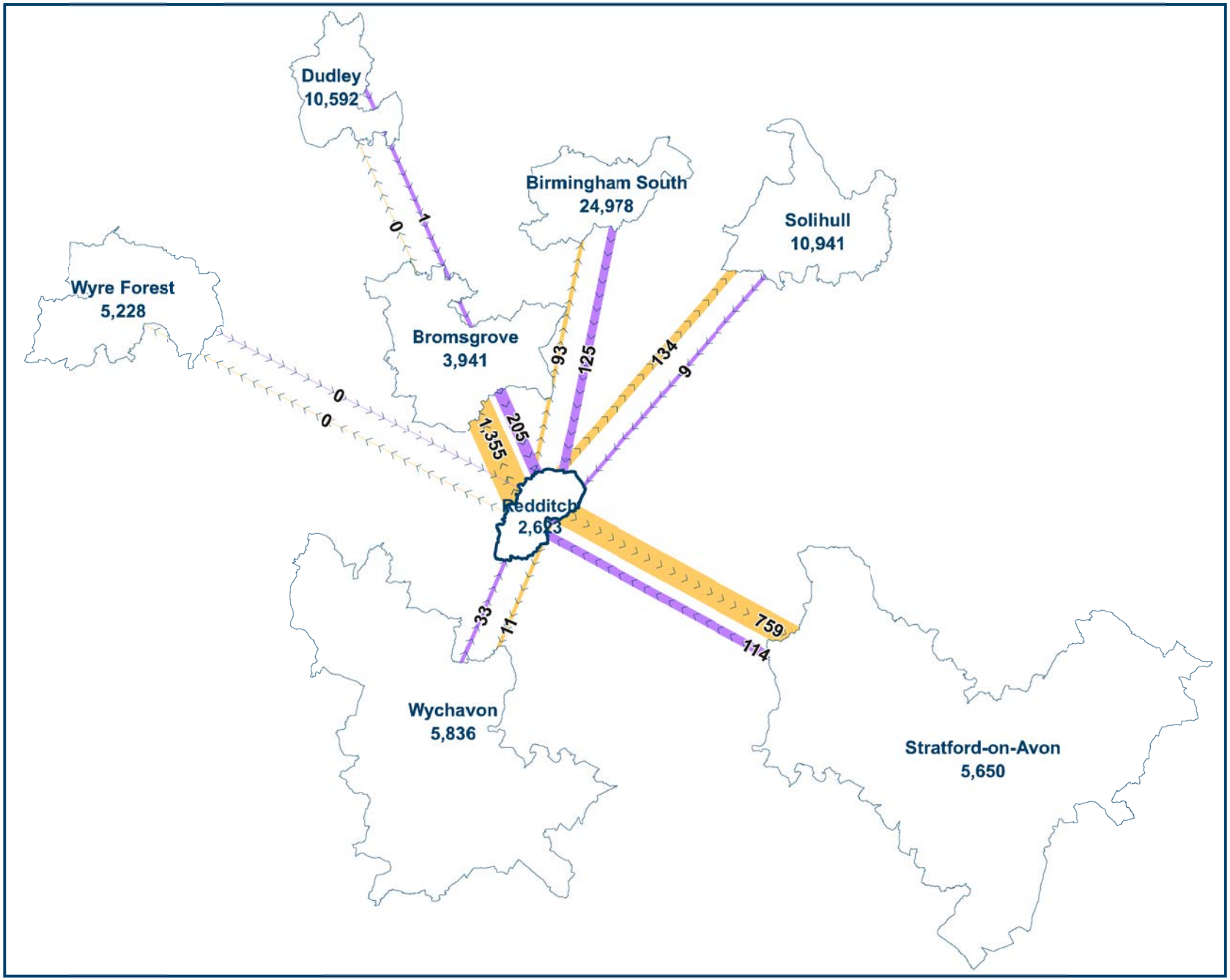
Imported and exported demand between study area and surrounding local authorities shown thematically (size of lines) as visits per week in the peak period.

Boundaries
Values in areas show retained vpwpp

- Redditch
- Surrounding LAs

Import/Export
Values on arrows show flow vpwpp

- Direction of flow
- Import
- Export



E21_RDH_P1

Facility Planning Model - Pools Import/Export for Redditch

Run 2: Existing Provision - Year 2040

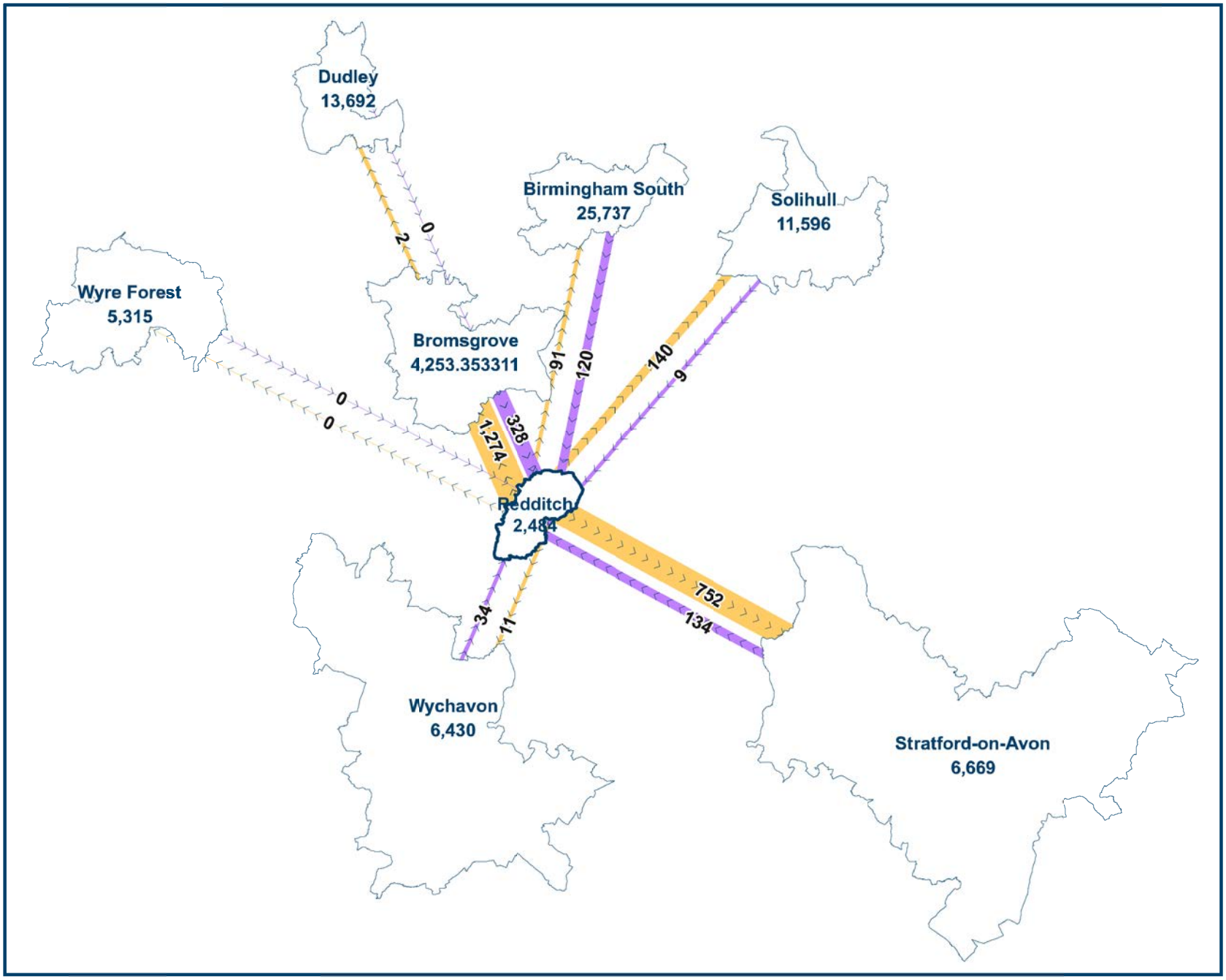
Imported and exported demand between study area and surrounding local authorities shown thematically (size of lines) as visits per week in the peak period.

Boundaries
Values in areas show retained vpwpp

- Redditch
- Surrounding LAs

Import/Export
Values on arrows show flow vpwpp

- Direction of flow
- Import
- Export



E21_RDH_P1

Facility Planning Model - Pools Import/Export for Redditch

Run 3: Existing Provision with Kingsley Sports Centre Refurb - Year 2040

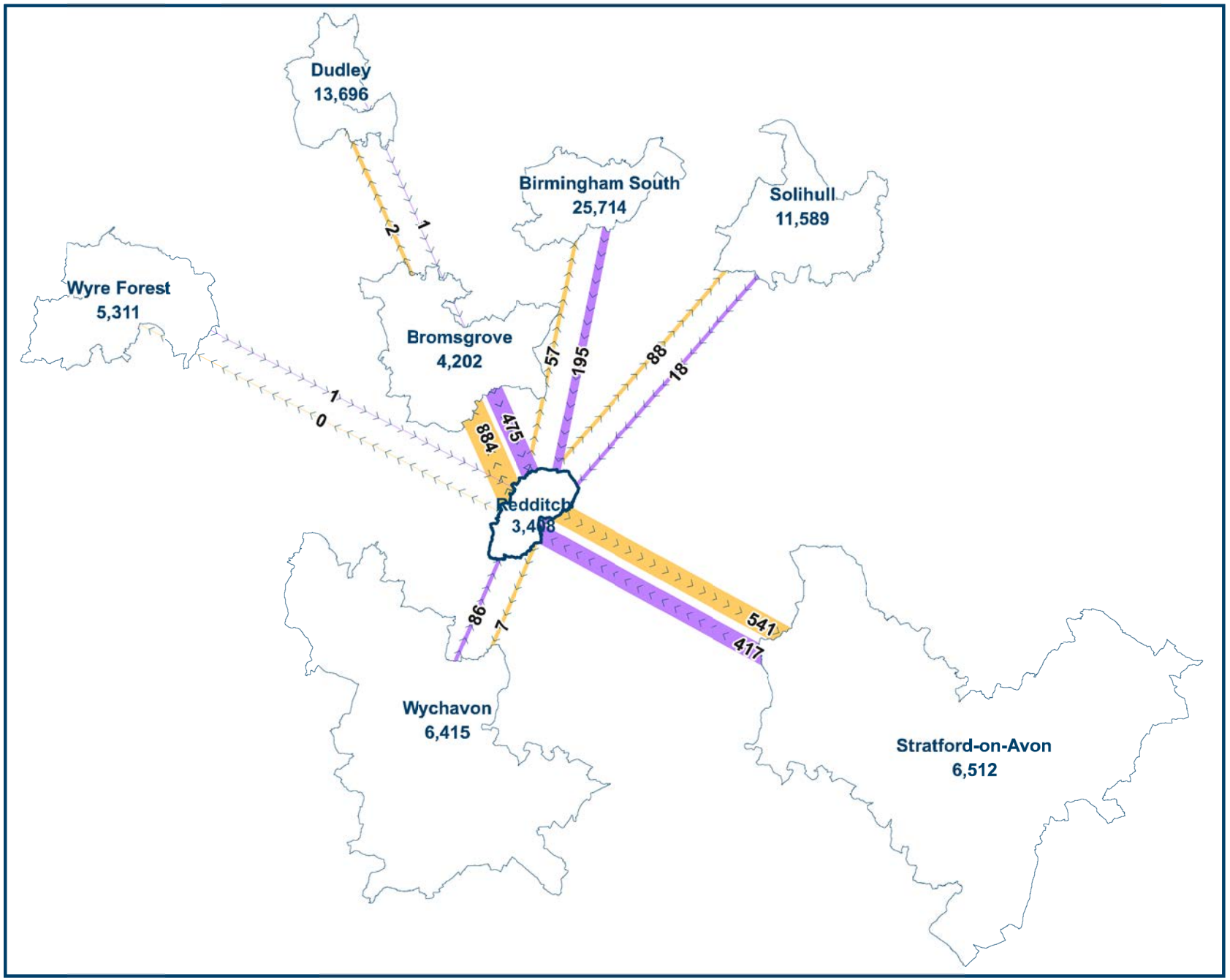
Imported and exported demand between study area and surrounding local authorities shown thematically (size of lines) as visits per week in the peak period.

Boundaries
Values in areas show retained vpwpp

- Redditch
- Surrounding LAs

Import/Export
Values on arrows show flow vpwpp

- Direction of flow
- Import
- Export



E21_RDH_P1

APPENDIX 3: MODEL DESCRIPTION, INCLUSION CRITERIA AND MODEL PARAMETERS

Included within this Appendix are the following:

- Model Description
- Facility Inclusion Criteria
- Model Parameters

Model Description

1. Background

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

1.2. The model is a tool 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 swimming pools, sports halls, 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 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 conducted 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 about 175,000 people and covers the full age/gender range. Detailed questions are asked about over 200 separate sports categories 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. 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 accommodated by the particular facility at any one time. Each facility is then given a capacity figure in VPWPP.

---

[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.

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 authority, 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 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 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 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

[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 most 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 considered when calculating how people will travel to facilities.

of the actual main hall. For example, a hall may be marked out with 4 courts, when it has space for 3 courts. As the model uses the 'courts' as a unit of size, it is important that the hall's capacity is included as a 3 '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 education 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 education and non-education halls, a high weighted curve, and a lower weighted curve.

- High weighted curve – includes non-education management and a better balanced programme, more attractive.
- Lower weighted curve – includes educational 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 weighting 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.

7.5. The English Indices of Deprivation 2019, produced by the Ministry of Housing, Communities and Local Government, measure relative levels of deprivation in 32,844 lower super output areas (LSOAs) in England. Deciles are calculated by ranking the LSOAs from most deprived to least deprived and dividing them into ten groups. IMD is an overall relative measure of deprivation constructed by combining seven domains of deprivation according to their relative weights.

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 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 swimming 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 Borough 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, swimming pools and AGPs are made by car, with a significant minority of visits to pools and swimming pools 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 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 swimming pools 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 sportscotland 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></td><td>0.16667 per square metre = 1 person per 6 square meters</td><td></td></tr>
<tr><td>Catchment Maps</td><td></td><td>Car: 20 minutes
Walking: 1.6 km
Public transport: 20 minutes at about half the speed of a car

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

Frequency per Week</td><td></td><td>
<table>
<tr><th>Age</th><th>0-15</th><th>16-24</th><th>25-34</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><td></td></tr>
<tr><td>Peak Period

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

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