Strategic Assessment for Provision of Sports Halls

Derby City Council

Sport England Facilities Planning Model Report

06 September 2021

EXECUTIVE SUMMARY

Introduction

i. Derby City Council is reviewing the current provision of sports halls and assessing the future demand and level of provision required up to 2028 and beyond. The Council has commissioned a Sport England Facility Planning Model (FPM) local assessment to develop an evidence base to support this strategic planning.

ii. The overall aims of the FPM work are to:

- Assess the extent to which the existing supply of sports halls meets current levels of demand in 2021 across the Derby City Council area and a wider study area.
- Assess how the impact of changes in population to 2028 and changes in the supply of sports halls impacts on the demand for sports halls and its distribution across Derby in the future.

iii. The FPM study builds up a picture of change and includes assessments based on different runs. This includes the sports halls provision and population in the neighbouring authorities to Derby, as the assessments are based on the catchment area of sports halls, which extend across local authority boundaries.

iv. The FPM modelling runs are:

- **Run 1** – Supply, demand, and access to sports halls in 2021. This run provides a baseline assessment of current provision and can be used to compare with the extent of change in Run 2.
- **Run 2** – Supply, demand, and access to sports halls in 2028, based on the impact that the projected population change to 2028 and the opening of the Derby Cathedral School sports hall in 2022 has on the demand for sports halls and its distribution. This will assess the findings based on these changes and whether the demand for sports halls across Derby can be met by this supply.

v. The main report sets out all findings under each of the seven assessment headings.

vi. This section of the report:

- Sets out the headline strategic overview.
- Provides a bullet point summary of the key findings that support the strategic overview and the way forward.

Headline Strategic Overview

vii. The **Derby demand** for sports halls **can be met** by the current **supply of sports halls** and the addition of the Derby Cathedral School sports hall. Derby's demand for sports halls in 2021 and 2028 equates to 77 badminton courts. Its available supply of sports halls equates to 88 badminton courts in 2021 and increases to 91 badminton courts by 2028.

viii. Based on the criteria of Derby residents participating at the nearest sports hall to where they live, which includes sports halls located in neighbouring local authorities, **92% of the Derby residents' demand for sports halls can be met now and projected forward to 2028.**

ix. Furthermore, based on the same criteria 93% (of the 92% satisfied/met Derby demand) is retained within the authority. This means that, for **over nine out of ten visits to a sports hall by a Derby resident, the nearest sports hall to where they live is located within Derby.**

x. However, **the sports halls are located in the right places and there is a very close correlation between the location/catchment area of the Derby sports halls and the location of the Derby residents' demand for sports halls.**

xi. There is some **unmet demand for sports halls,** and this **equates to 6 badminton courts in both 2021 and 2028.** This is demand located outside the catchment area of a sports hall, mainly from residents who do not have access to a car, it is not due to a lack of sports hall capacity.

xii. Unmet demand is highest in the California area, where it totals between 1-2 badminton courts in both years. It is lowest in the periphery of the city on all sides, at less than 0.1 of one badminton court in most areas.

xiii. The **estimated used capacity of the sports halls as a city-wide average is 71% in the weekly peak period.** Sport England's FPM work uses a benchmark measure of sports halls being comfortably full at 80% of capacity at peak times. Therefore, there is a working headroom of 9% before this level is reached.

xiv. Some sports halls are busier than others, depending mainly on the hours of access for community use, the level of demand located within its catchment area, the age and condition of the sports hall, and its comparative attractiveness.

xv. A combination of these factors identifies sites which are estimated to be 100% full in the weekly peak period, notably Springwood Leisure Centre, Derby High School, and The Sherwin Club.

xvi. The first, and **most challenging, strategic finding relates to the ownership of the sports halls. In 2021 there are 20 sports hall sites in Derby, of which 16 are owned**

by educational institutions – schools, (state and independent), colleges and higher education.

xvii. The policy towards community use, type of use and hours of access will be determined by each educational institution separately, and Derby City Council most likely has no control and possibly little influence over these matters.

xviii. Any reduction in community use at these education sites will have a significant impact on the overall supply and demand balance. It could change the positive summary reported here to an under-supply or lack of access to sports halls in certain parts of the city.

xix. Furthermore, education sports halls sites are much more likely to provide for organised use by sports clubs or community groups with regular lets on a long-term basis, rather than for developing participation by casual users.

xx. **It is proposed that Derby City Council applies the findings from this assessment, together with its own assessment of the educational institutions of most importance, in providing for indoor hall sports participation. Securing long term access for community use at these venues should then be sought**. The City Council may also wish to consider making it a planning consent condition, that any new education sports hall does have a community use agreement included. This should set out the sports hall will be available for community use outside of education hours/use and the school/college will be responsible for discharging that condition. This is common practice by most local authorities and is always a condition of grant aid from Sport England for a new sports hall in education ownership.

xxi. **Given the overall findings on education sports halls the City Council may also wish to consider developing a co-ordinated bookings and lettings system for all education sports halls**. This does require the support and engagement of all the education owners. The benefits to the City Council are a better understanding of the level and type of community use at education sites. Also the opportunity to work with sports and create centres for particular sports. The benefit for the education owners is booking and lettings are centrally managed with clubs directed to where there is time available. It also provides the opportunity to coordinate hire charges.

xxii. The **second strategic challenge is the average age of the sports hall sites, which is 30 years in 2021.** Of the **15 sports hall sites which opened before 2000, nine have been modernised**. Modernisation is defined as one or more of the sports hall floors being upgraded to a sprung timber floor, the sports hall lighting being replaced and upgraded, or the changing accommodation being modernised. The older unmodernised venues are education sites, and, without modernisation, this may decrease their attractiveness and therefore reduce participation.

xxiii. This could influence which education institutions Derby City Council wishes to work with to secure long term access for community use (see Table **2.1** Supply section for age of sports halls).

Summary of Key Findings

xxiv. A summary of key findings under the assessment headings is then provided. This gives more context on the headline strategic overview and the interventions identified by the FPM study.

Supply of Sports Halls

- The total number of badminton courts in Derby is 110 in 2021 and 114 in 2028. The number of badminton courts available for community use in 2021 (Run 1) is 88 and in 2028 is 91 (Run 2) *(figures rounded to the nearest court).*
- Aggregated across the venues there are 22 badminton courts in 2021, and 23 in 2028, that are unavailable for community use. This is a significant difference, which indicates that there is significant scope to maintain the supply needed to meet the Derby demand (see Supply section Table **2.1**).
- The sports hall provision is extensive in scale, with 11 of the 26 individual sports halls being four-court badminton sized. This size of sports hall can accommodate all the indoor hall sports at the community level of participation and provide for club sport development.
- There are seven sports hall sites (35% of the total supply in 2021) with more than four badminton courts; four venues have five badminton courts, one venue has six, one has eight, and one has a 12-court main hall. These larger sports halls can accommodate multi-sports use at the same time and also provide an events venue with a show court and spectator seating (see Supply section Table **2.2**).

Travel Patterns

- Of all visits to sports halls by Derby residents, 69% are by car (up to 30 minutes' drive time), 17% by walkers (up to 40 minutes' walk, the equivalent of 2 miles) and 14% by public transport (modelled as twice as long as driving) (see Satisfied Demand section Table **5.1**).
- Nearly one in three visits to sports halls (31% of all visits) are by walkers or people who use public transport. For these residents, a network of local accessible sports halls is important to support participation (see Satisfied Demand section Table **5.1**).

Satisfied/Met Demand

- Satisfied demand is extremely high, with over nine out of ten visits to a sports hall by a Derby resident located inside the catchment area of a sports hall. Also, there is sufficient capacity at venues to meet this level of total demand (see Satisfied Demand section Table **5.1**).

Retained Demand

- Retained demand is very high, at 93% of total satisfied demand in both years. The location and catchment area of Derby's sports halls are very closely correlated with the location of Derby residents' demand for sports halls, with over nine out of ten visits to a sports hall by a Derby resident being from within the authority (see Satisfied Demand section Table **5.1**).

Exported Demand

- Exported demand is very low, with 7% of the Derby demand for sports halls exported and met at sports halls in neighbouring local authorities in 2021; this figure is 6% in 2028. The largest exported demand is to South Derbyshire (see Satisfied Demand section Table **5.3**).

Unmet Demand

- In 2021 and 2028 unmet demand is low and within a range of just 5.5–6 badminton courts. The vast majority of unmet demand is demand located outside catchment, at 88% in 2021 and 89% in 2028.
- Unmet demand from lack of sports hall capacity is very low and equates to less than one badminton court in both years (see Unmet Demand section Table **6.1**).

Used Capacity

- The sports halls, as an authority-wide average, are estimated to be 71% full at peak times in 2021 and 2028. There is 9% of working headroom before the Sport England benchmark of sports halls being comfortably full at 80% of capacity at peak times is reached.
- Used capacity varies, depending mainly on the hours of access for community use, the level of demand located within its catchment area, the age and condition of the sports hall, and its comparative attractiveness.
- A combination of these factors estimates Springwood Leisure Centre, Derby High School and The Sherwin Club to be 100% full in the weekly peak period. The intervention is to try and manage the sports hall demand across venues by programming changes to accommodate the most popular activities at peak times.

The Facilities Planning Model

xxv. The FPM study is a quantitative, accessibility and spatial assessment of the supply, demand, and access to sports halls. It assesses how these factors change based on projected population change and options to change the sports hall supply.

xxvi. The FPM study provides a hard evidence base that can inform consultations and provide a rounded evidence base. This can then be used in the development of the Derby City Council's strategic planning for the provision of sports halls.

Contents

1. INTRODUCTION

1.1 Derby City Council is reviewing the current provision of sports halls and assessing the future demand and level of provision up to 2028 and beyond. The Council has commissioned a Sport England Facilities Planning Model (FPM) local assessment to develop a sports halls evidence base.

1.2 The evidence base will be applied in updating the Council's Built Indoor Sports Facilities Strategy for provision of sports halls.

1.3 The FPM study builds up a picture of change and includes assessments based on different runs. These runs include the sports halls provision and population in the neighbouring local authorities to Derby. This is because the assessments are based on the catchment area of the sports hall locations, and these extend across local authority boundaries.

1.4 The FPM separate modelling runs are:

- **Run 1** – Supply, demand, and access to sports halls in 2021. This run provides a baseline assessment of current provision and can be used to compare the findings with changes in the demand and supply of sports halls in future years. Does the 2021 supply meet the demand for sports halls, or is there unmet demand and, if so, at what scale and where is it located?
- **Run 2** – Supply, demand, and access to sports halls in 2028, based on the impact that the projected growth in population from 2021 to 2028 across Derby and the neighbouring authorities has on the future demand for sports halls. This run also includes the opening of the Derby Cathedral School sports hall in 2022 and provides an overall assessment on the future demand for sports halls with this site included. Run 2 is the strategic assessment with committed changes in sports halls supply.

The Study Area

1.5 Customers of sports halls do not reflect local authority boundaries. While there are management, and possibly pricing, incentives for customers to use sports facilities located in the local authority area where they live, residents make choices about which sports halls they use.

1.6 These are based on: how close the venue is to where residents live; other facilities on the same site, such as a gym or studio; the programming of the venue with activities that appeal and are available at times which fit with the lifestyle of residents; the age and condition of the facility and inherently its attractiveness.

1.7 Consequently, in determining the position across the Derby City Council area, it is important to take full account of sports halls in the neighbouring local authorities and, in particular, to assess the impact of overlapping catchment areas from facilities located outside Derby but where the catchment area extends into the city and vice versa.

1.8 The nearest facility for some Derby residents may be outside the authority (known as exported demand), while for residents of neighbouring authorities, their nearest sports halls maybe inside Derby (known as imported demand).

1.9 To take account of these impacts, a study area is established which places Derby at the centre of the study and includes the neighbouring local authorities. A map of the study area is set out below at Map **1.1**.

Map 1.1: Study Area Map for the Derby Sports Halls Assessment

Report Structure, Content and Sequence

1.10 The findings for Derby are set out in a series of tables for each of the two runs. This allows a 'read across' to see the specific impact of changes between Runs 1 and 2 and builds up the picture of change.

1.11 The headings for each table are total supply; total demand; supply and demand balance; satisfied demand; unmet demand; used capacity; and local share. The definition of each heading is set out at the beginning of the report of findings.

1.12 Maps to support the findings on sports halls locations, total demand, unmet demand, the driving and walking catchment area of the sports halls, public transport access to sports halls, import and export of demand and local share of access to sports halls, are also included.

1.13 Where valid to do so, the findings for the neighbouring authorities to Derby are also set out, and commentary is provided on these comparable findings. For example, some local authorities like to know how their findings on numbers of badminton courts per 10,000 population compare with neighbouring authorities.

1.14 Appendix **1** sets out the sports halls included in the assessment, and Appendix **2** is a description of the FPM and its parameters.

2. SPORTS HALLS SUPPLY

Table 2.1: Sports Halls Supply Derby 2021-2028

Total Supply	RUN 1	RUN 2
Derby	**2021**	**2028**
Number of halls	26	27
Number of hall sites	20	21
Supply of total hall space expressed as main court equivalents	110.1	114.1
Supply of hall space in courts, scaled by hours available in the pp	88.6	91.4
Supply of total hall space in visits per week peak period	32,262	33,254
Courts per 10,000 population	4.2	4.3

2.1 **Definition of supply** – This is the supply or capacity of the sports halls which are available for public and club use in the weekly peak period. The supply is expressed in the number of visits that a sports hall can accommodate in the weekly peak period and in the number of badminton courts.

2.2 In Run 1 there are 20 sports hall sites and 26 individual sports halls located in Derby. In Run 2 this increases by one site and one sports hall with the addition of the Derby Cathedral School sports hall scheduled to open in 2022.

2.3 A summary description of the sports hall sites in Derby is set out in Table **2.2**.

2.4 The total number of badminton courts in Derby in Run 1 is 110 and in Run 2 is 114.

2.5 The number of badminton courts available for community use in Run 1 is 88 (rounded down to nearest number of courts) in Run 1, and this increases to 91 in Run 2 (rounded to nearest number of courts).

2.6 The reason for the difference in the two sets of figures, and the **first key finding** is that aggregated across the venues, there are 22 badminton courts in Run 1 and 23 courts in Run 2 which are unavailable for community use.

2.7 This unavailable supply represents 20% of the total supply of badminton courts in both runs. There is a significant difference between the total supply and the available supply, and the implications of these findings are set out under the supply and demand balance and unmet demand headings.

2.8 The average age of all the sports hall sites in 2021 is 30 years. The oldest sports hall site is Bemrose Community School which opened in 1950 and was modernised in 2015. The most recent sports hall opened in 2015 and is located at the University of Derby (Kedleston Road site).

Table 2.2: Runs 1-2 Sports Hall Supply Derby 2021 – 2028

Name of Site	Type	Dimensions	Area	No of Courts	Site Year Built	Site Year Refurb	Car % Demand	Public Transport % Demand	Walk % Demand
DERBY							**72%**	**12%**	**16%**
BEMROSE COMMUNITY SCHOOL	Main	41 x 21	867	5	1950	2015	59%	12%	29%
CHELLASTON ACADEMY	Main	35 x 20	690	4	1998		82%	8%	10%
	Activity	18 x 10	180						
CITY OF DERBY ACADEMY	Main	41 x 21	867	5	2008		77%	9%	14%
DAVID LLOYD CLUB (DERBY)	Main	35 x 20	690	4	1998	2010	93%	7%	0%
DERBY ARENA	Main	59 x 36	2106	12	2015		79%	17%	4%
DERBY CATHEDRAL SCHOOL (Open Run 2)	Main	35 x 20	690	4	2022		52%	12%	35%
DERBY COLLEGE (JOHNSON BUILDING)	Main	35 x 20	690	4	2010		78%	18%	4%
DERBY GRAMMAR SCHOOL (RYKNELD SC)	Main	41 x 21	867	5	1985		65%	11%	24%
DERBY HIGH SCHOOL	Main	33 x 18	594	4	1990	2012	72%	11%	17%
DERBY MOOR ACADEMY	Main	33 x 18	594	4	1970		71%	10%	19%
LANDAU FORTE COLLEGE	Main	35 x 20	690	4	1992		65%	15%	20%
LITTLEOVER COMMUNITY SCHOOL	Main	33 x 27	891	5	1973	2012	77%	9%	14%
MURRAY PARK COMMUNITY SCHOOL	Main	27 x 18	486	3	1961		65%	7%	28%
NOEL-BAKER ACADEMY	Main	35 x 27	932	6	1960	2007	65%	12%	24%
	Activity	18 x 10	180						
SAINT BENEDICT A CATHOLIC VOLUNTARY ACADEMY	Main	27 x 18	486	3	1986	2004	77%	12%	12%
	Activity	18 x 10	180						
SPRINGWOOD LEISURE CENTRE	Main	33 x 18	594	4	1997	2009	77%	8%	15%
THE PAVILION (ROLLS-ROYCE LEISURE)	Main	35 x 20	690	4	1975	2010	68%	15%	17%
THE SHERWIN CLUB	Main	33 x 18	594	4	1987		45%	12%	44%
	Activity	18 x 10	180						
UNIVERSITY OF DERBY (KEDLESTON RD)	Main	40 x 35	1380	8	2015		77%	14%	10%
WEST PARK SCHOOL	Main	33 x 18	594	4	1970	2010	65%	8%	27%
	Activity	18 x 10	180						
WOODLANDS SCHOOL	Main	33 x 18	594	4	2005		78%	9%	13%
	Activity	18 x 10	180						

Note: Derby Arena has a 12-badminton court main hall, and it also has a further one badminton court space, so 13 courts in total. The assessment is based on the 12-badminton court main hall

2.9 Of the 15 sports hall sites which opened before 2000, nine have been modernised. Modernisation is defined as one or more of the sports hall floors being upgraded to a sprung timber floor, the sports hall lighting being replaced and upgraded, or the changing accommodation being modernised.

2.10 The **second key finding** is that the scale of the sports hall provision is extensive, with 11 of the current 26 individual sports halls being a four-court badminton sized sports hall. This size of sports hall can accommodate all indoor hall sports at the community level of participation and provide for club sport development. There are, in addition, seven sports

hall sites (35% of the total supply in 2021) which have more than four badminton courts; four venues have five badminton courts, one venue has six, one has eight, and one has a 12-court main hall.

2.11 These larger sports halls can accommodate multi-sports use at the same time. The eight- and 12-court venues also provide an events venue with a show court and spectator seating.

2.12 Returning to the four-badminton court sports halls, the dimensions vary because some education authorities consider dimensions of 33m x 18m as being sufficient for a four-court sized sports hall for curriculum use. However, Sport England and the National Governing Bodies for hall sports reviewed and set the size of a main four-court badminton sports hall at 35m x 20m. Halls below these dimensions do have the correct dimensions for the playing area but have limited space between the courts and for run-off space at the back of the courts.

2.13 Five of the 11 sports halls with a four-badminton court main hall have dimensions of 35m x 20m, and six have the smaller dimensions.

2.14 There are two three-badminton court sports halls, located at Murray Park Community School (opened in 1961) and Saint Benedict Catholic School (opened in 1986 and modernised in 2004).

Comparative Measure of Provision

2.15 A comparative measure of sports hall provision is badminton courts per 10,000 population, and Derby has 4.2 courts per 10,000 population in 2021. This increases to 4.3 courts in Run 2 when the Derby Cathedral School is included (see Table **2.3**).

Table 2.3: Badminton Courts per 10,000 Population for All Authorities 2021-2028

Courts per 10,000 population	RUN 1	RUN 2
Local Authority	**2021**	**2028**
Derby UA	**4.2**	**4.3**
Amber Valley	4.1	4.0
Erewash	2.8	2.8
South Derbyshire	2.3	2.1

2.16 In comparison to the neighbouring authorities, Derby has the highest provision in both years, followed by Amber Valley with 4.1 badminton courts in 2021 and four badminton courts in 2028.

2.17 The findings for East Midlands Region and England-wide in 2021 are both four badminton courts in 2021, and 3.9 badminton courts per 10,000 population in 2028.

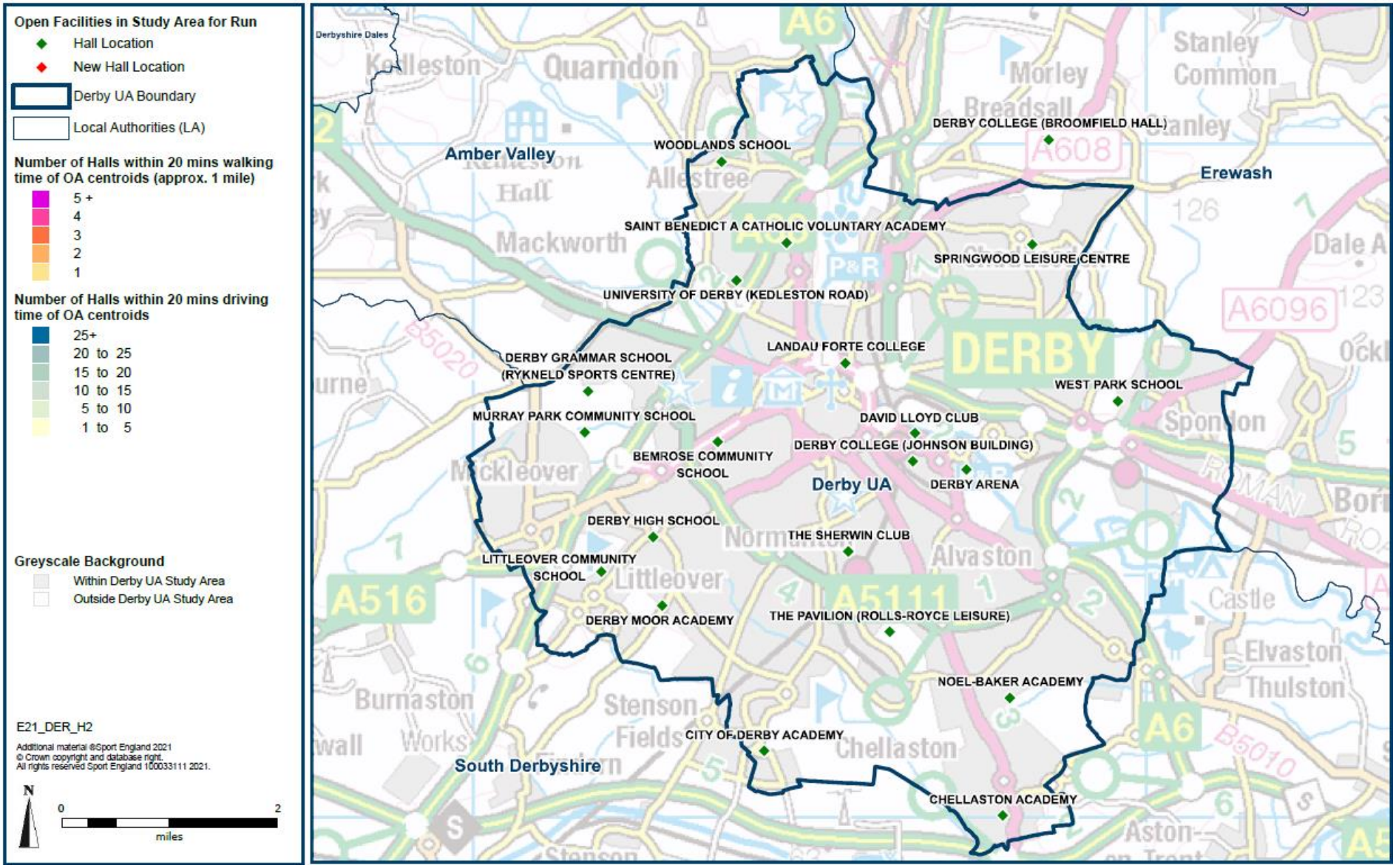
2.18 The findings on badminton courts per 10,000 population are set out because some local authorities like to compare their quantitative provision against other authorities and is not setting a standard of provision. The supply and demand for sports halls in Derby is based on the findings from all seven headings analysed in the report.

Sports Hall Locations

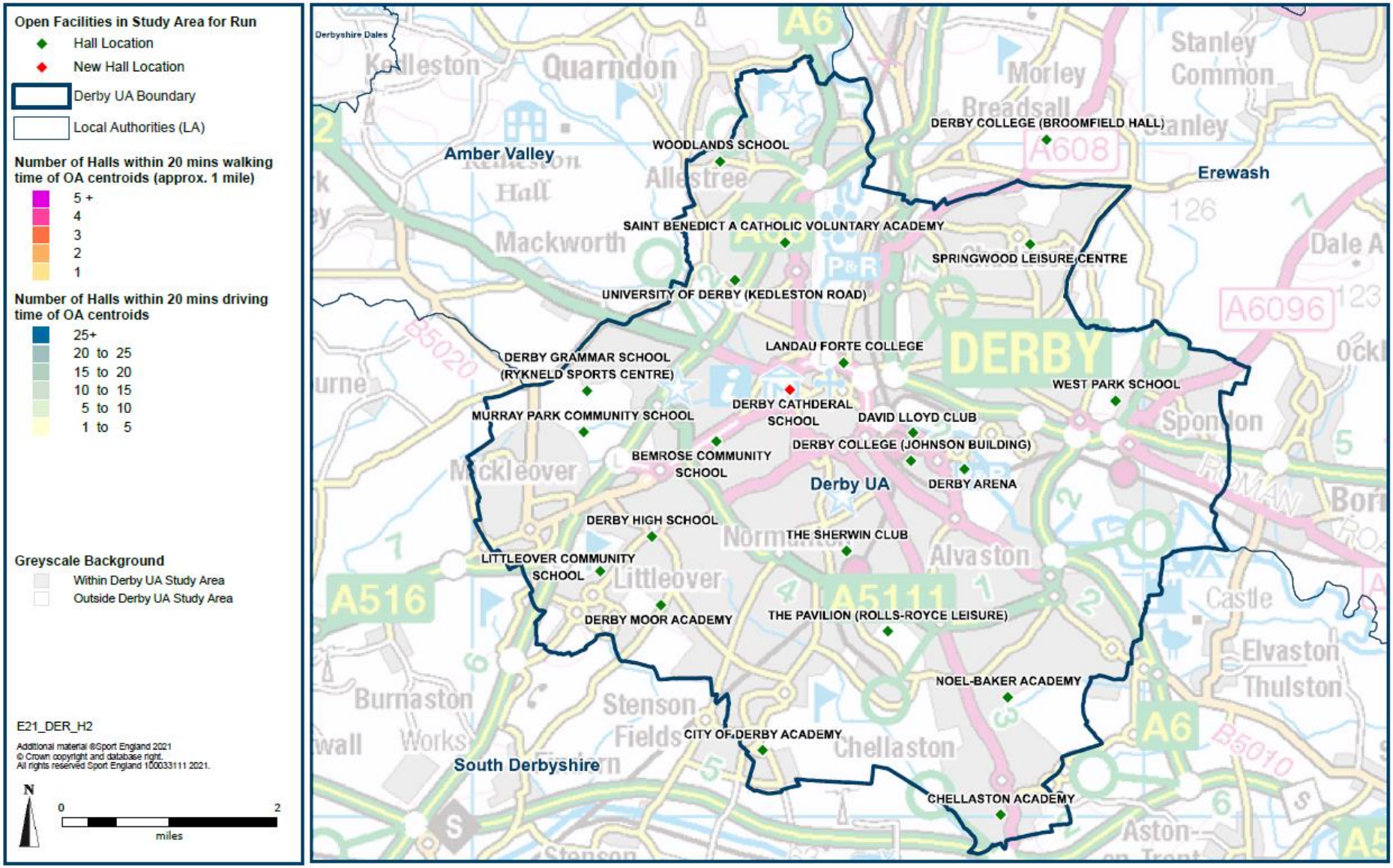
2.19 Maps **2.1** and **2.2** show the location of sports halls cross Derby in Runs 1 and 2. The Derby Cathedral School is added to the supply in Run 2, its location shown with by red dot. The maps for the sports hall catchment areas in relation to total demand, unmet demand, local share, and public transport are set out in subsequent sections.

2.20 There is quite an even distribution of sports hall sites across the city, except in the east, and there are no sports hall locations in the neighbouring local authorities along the eastern side of Derby. This may well influence how much of Derby's demand is located outside the catchment area of a sports hall and is further explained under the unmet demand heading.

Map 2.1: Run 1 Location of Sports Hall Sites Derby 2021



Map 2.2: Run 2 Location of Sports Hall Sites Derby 2028



3. DEMAND FOR SPORTS HALLS

Table 3.1: Demand for Sports Halls Derby 2021-2028

Total Demand	RUN 1	RUN 2
Derby UA	**2021**	**2028**
Population	259,308	263,418
Visits demanded – visits per week peak period	22,349	22,423
Equivalent in courts – with comfort factor included	76.7	77.0
% of population without access to a car	28.0	28.0

3.1 **Definition of total demand** – This represents the total demand for sports halls by both genders and for 14 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 number of badminton courts. The FPM parameters for the percentage and frequency of participation, for both genders and for different age bands, are set out in Appendix **2**.

3.2 The Derby population in 2021 is 259,308 people, and this is projected to increase by 1.6% to 263,418 people by 2028.

3.3 Derby's total demand for sports halls in 2021 is 22,349 visits per week in the weekly peak period, and this equates to a total demand for 76.7 badminton courts. The peak period is weekday evenings (five hours per day) and weekend days (eight hours per week day), plus one hour per weekday between 09:00 and 10:00.

3.4 Total demand is projected to increase very slightly to 22,423 visits per week in the peak period. This is equivalent to 77 badminton courts and is an increase of 0.4%.

3.5 The **third key finding** is that total demand is projected to remain virtually static and only increase by 74 visits in the weekly peak period up to 2028. This demand increase equates to less than half of one badminton court.

3.6 The most likely reason for the almost static demand for sports halls when there is a population increase of 1.5%, is that total demand for sports halls in 2028 is made up of (1) the resident population and (2) the growth in population between 2021 and 2028.

3.7 The ageing of the resident population between 2021 and 2028 will influence the demand for sports halls. It can mean that there are fewer people in the main age bands for hall sports participation (14-49 for males and 14-39 for females) in the second run year than in the first run year.

3.8 Therefore, the increase in demand for sports halls from population growth is offset by the ageing of the much larger resident population from 2021 to 2028. The modelling is based on the frequency of hall sports participation being unchanged between these years.

3.9 The changes in total demand for sports halls for all the authorities, expressed in numbers of badminton courts, is set out in Table **3.2**. Not surprisingly, given Derby has a much higher population than all the neighbouring local authorities, the demand for sports halls is much higher in both years.

3.10 In the neighbouring local authorities, as in Derby, the projected increase in demand is either static or very low, except in South Derbyshire where it increases by 7%.

Table 3.2: Total Demand for Sports Halls in Badminton Courts All Authorities 2021 and 2028

Total demand equivalent in courts – with comfort factor included	RUN 1	RUN 2
Local Authority	**2021**	**2028**
Derby UA	**76.8**	**77.0**
Amber Valley	36.6	37.3
Erewash	33.3	33.2
South Derbyshire	31.8	34.0

3.11 The location of the total demand for sports halls across Derby is set out in Map **3.1** for 2021 and in Map **3.2** for 2028, which includes the Derby Cathedral School sports hall.

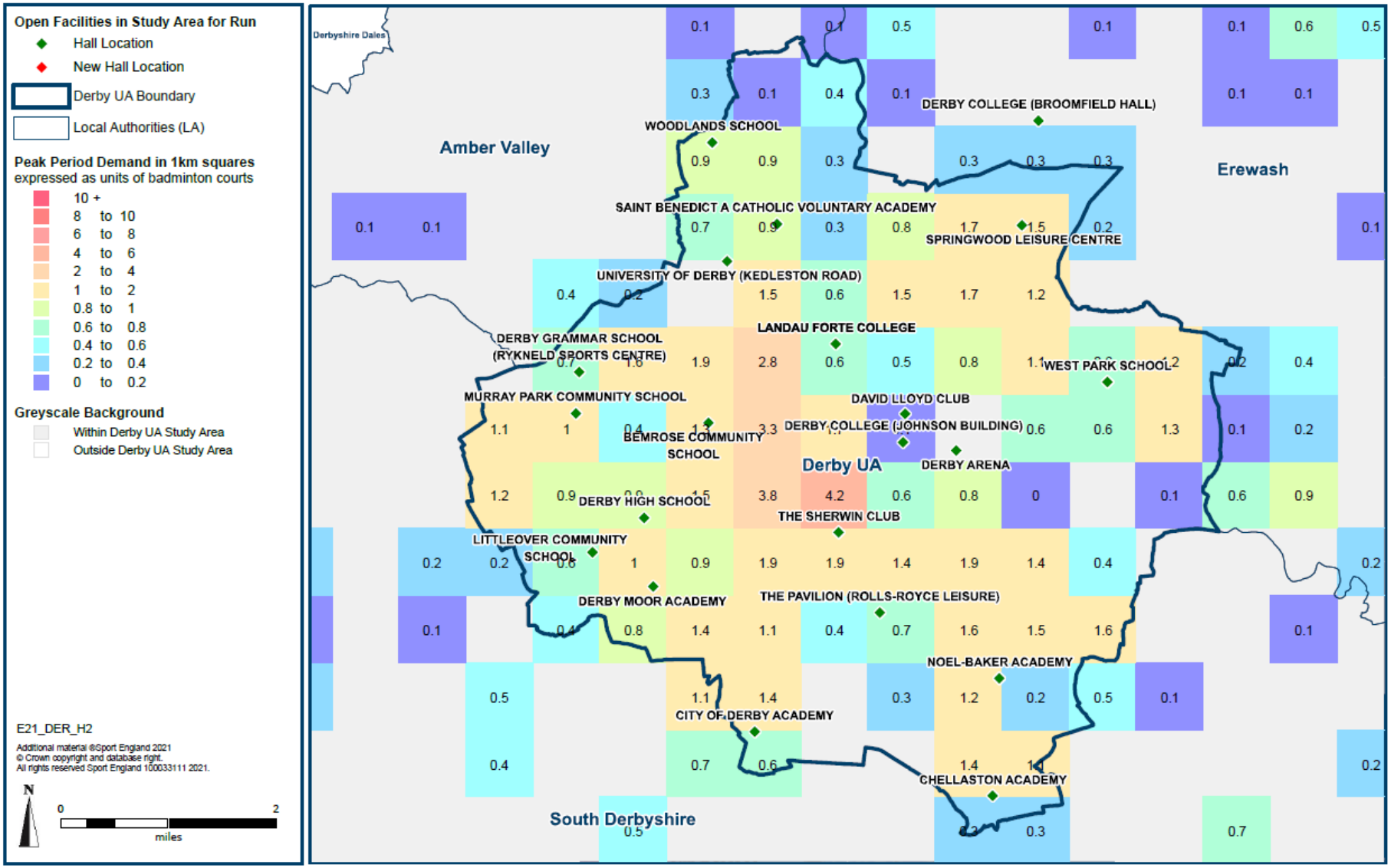
3.12 Demand values are expressed in numbers of badminton courts in 1km grid squares. The values are lowest in the blue squares, starting at no badminton courts; the mid-range values are shown in the amber squares; and the highest values are pale red with a maximum of 4.2 badminton courts of demand in Derby.

3.13 Demand for hall sports in both years is highest in the centre of Derby, specifically in the Rose Hill, Normanton, and Cavendish areas where it totals 15 badminton courts in both years. The Derby Cathedral School sports hall is located in this area in Run 2 and, therefore, access for community use will be important.

3.14 Demand is next highest in the Sinfin North and Allenton areas where it totals 7 badminton courts in both years. Demand is lowest in the north of Derby, and also in the east of the city, which is fortunate as there are no sports halls located in this area.

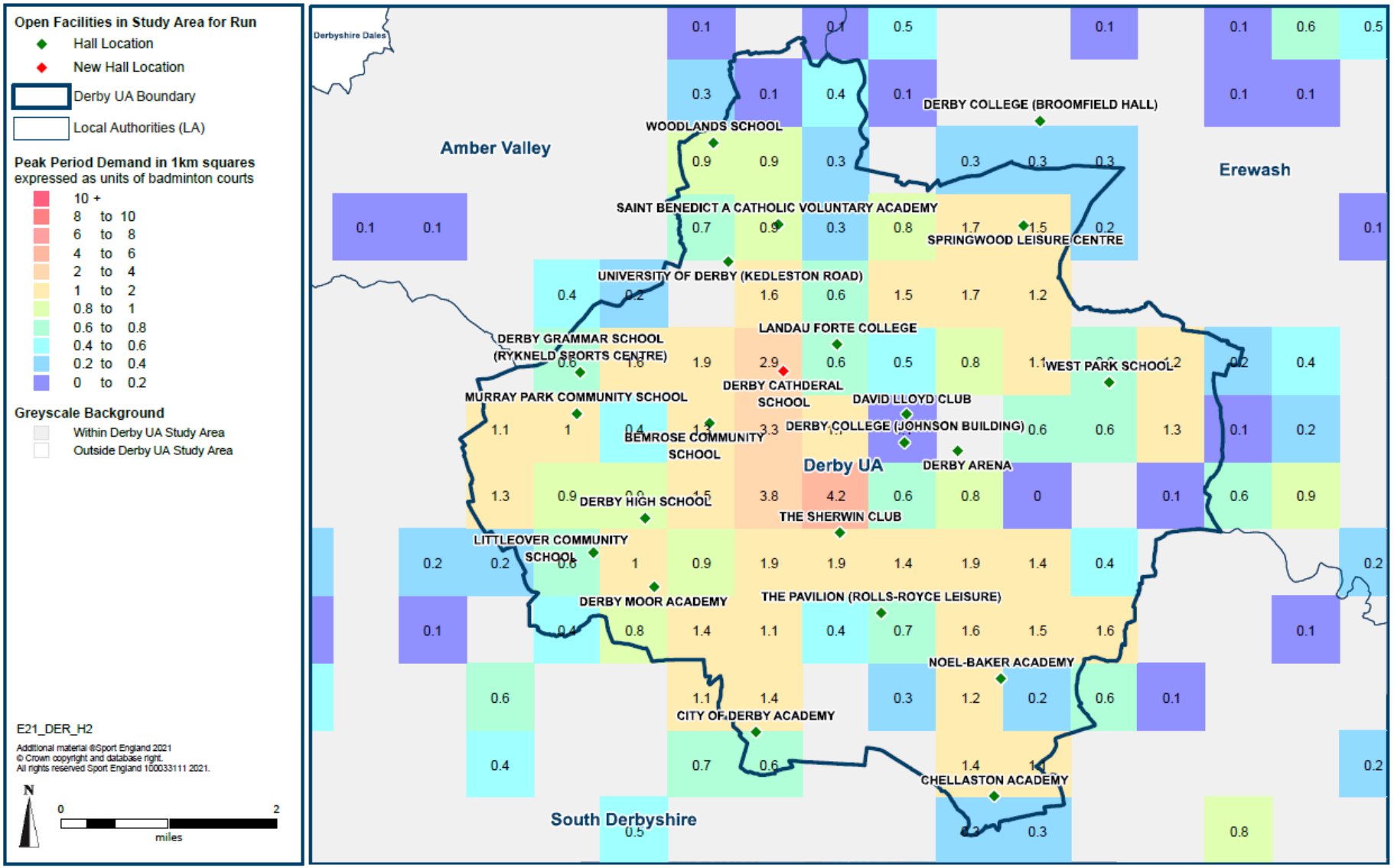
Map 3.1: Run 1 Total Demand for Sports Halls Derby 2021

Facility Planning Model peak period demand aggregated at 1km square grid (figure labels) and shown thematically (colours). Peak period demand at 1km square grid level expressed as number of badminton courts.



Map 3.2: Run 2 Total Demand for Sports Halls Derby 2028

Facility Planning Model peak period demand aggregated at 1km square grid (figure labels) and shown thematically (colours). Peak period demand at 1km square grid level expressed as number of badminton courts.



3.15 The findings on the percentage of the population who do not have access to a car is set out under the total demand heading. In Derby, 28.0% of residents do not have access to a car based on the 2011 Census findings. The East Midlands region average for this is 21.3%, and England-wide it is 24.9%.

3.16 If there is a high percentage of residents who do not have access to a car, as in Derby, then travel to sports halls by public transport and walking is higher. For these residents, a network of local accessible sports halls is important to encourage participation.

3.17 The FPM findings for 2021 are that 69% of all visits to sports halls by Derby residents are by car (up to 30 minutes' drive time), while travel to sports halls by walkers (up to 40 minutes' walk or 2 miles) is 17% of all visits, and travel to sports halls by public transport (30 minutes travel at half speed of car) is 14% of all visits.

3.18 The **third key finding** is that 31% of all visits, or nearly one in three visits to sports halls, are by walkers or people who use public transport.

3.19 To provide some guidance on how accessible the sports halls are by public transport, Map **3.3** shows the area of Derby that is within 5 minutes' walk of a bus stop (areas in grey) and 0-15 minutes' walk of a train station (purple areas) together with the sports hall locations. (Note: this map is only produced annually, and the latest map is for 2020).

3.20 As the map illustrates, nearly all sports hall sites have an area around them which is within 0-5 minutes' walk of a bus stop, and therefore access by bus travel appears to be good. There are four sports hall sites that are within/close to 0-15 minutes' walk of a railway station, and so access by train is not particularly good.

Map 3.3: Areas of Derby within 0-15 Minutes' Walk of a Railway Station (purple areas) and 0-5 Minutes' Walk of a Bus Stop (grey areas) 2020

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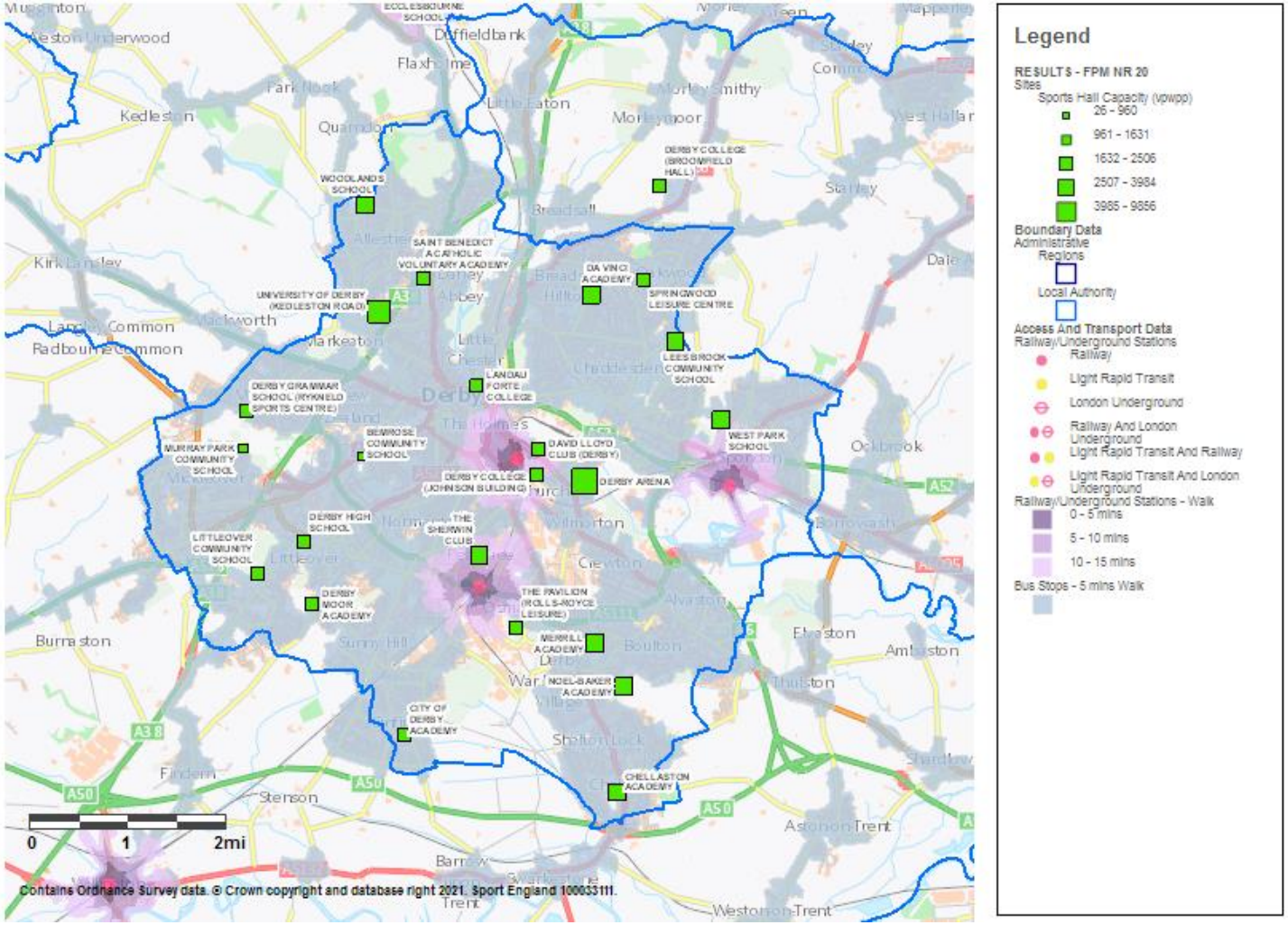


4. SUPPLY AND DEMAND BALANCE

Table 4.1: Supply and Demand Balance Derby 2021-2028

Supply/Demand Balance	RUN 1	RUN 2
Derby UA	**2021**	**2028**
Supply - Hall provision (courts) scaled to take account of hours available for community use	88.6	91.4
Demand - Hall provision (courts) considering a 'comfort' factor	76.7	77.0
Supply/Demand balance - Variation in courts provision available compared to the minimum required to meet demand.	11.9	14.4

4.1 **Definition of supply and demand balance** – This compares the total demand generated for sports halls within Derby with the total supply of sports halls within Derby. It therefore represents an assumption that all the demand for sports halls is met by all the supply of sports halls within Derby (Note: it does exactly the same for the other local authorities in the study area).

4.2 Supply and demand balance is not based on where the sports halls are located and their catchment area extending into other authorities, nor on the catchment areas of sports halls in neighbouring authorities extending into Derby. More detailed modelling based on the catchment areas of sports halls is set out under the satisfied demand, unmet demand and used capacity sections.

4.3 The reason for presenting the supply and demand balance is that some local authorities like to understand how their supply of sports halls compares with their demand for sports halls.

4.4 When looking at this assessment Derby's available supply of sports halls exceeds its demand in both runs; by 11.9 badminton courts in Run 1 and by 14.4 badminton courts in Run 2. The difference is greater in Run 2 because the Derby Cathedral School sports hall is added to the supply and demand for sports halls is virtually unchanged.

4.5 This assessment is based on the sports halls available for community use and, as set out in the Supply section, the total number of badminton courts in Derby is 110 in Run 1 and 114 in Run 2. The difference of 22 badminton courts in Run 1 against 23 in Run 2 is the unavailable supply of courts for community use aggregated across the venues.

4.6 It is not realistic or anticipated that all the unavailable supply could be made available, but it does indicate there is scope to make more use of the total supply.

Supply and Demand Balance Surrounding Authorities

4.7 The supply and demand balance for all the authorities in the study area is set out in Table **4.2** below. Demand exceeds supply in two authorities in both years; in Erewash by 8 badminton courts in 2021 and by 7.8 in 2028; and in South Derbyshire by 9.5 badminton courts in 2021 and by 11.7 in 2028.

4.8 Supply exceeds demand in Amber Valley by 7.6 badminton courts in 2021 and by 6.9 in 2028.

4.9 Overall, there is a near supply and demand balance across all the authorities in the study area; the available supply exceeds demand by 2 badminton courts in 2021 and by 1.8 in 2028.

4.10 Given the overall supply and demand balance across the study area, this indicates that the level of demand for sports halls which can be met is likely to be high, with high used capacity of the sports halls and low levels of unmet demand. These findings are examined under the next three sets of headings.

Table 4.2: Runs 1-2 Supply and Demand Balance for Sports Halls Across the Study Area 2021-2028

Variation in courts provision available compared to the minimum required to meet demand	RUN 1	RUN 2
Local Authority	**2021**	**2028**
Derby UA	**11.9**	**14.4**
Amber Valley	7.6	6.9
Erewash	-8.0	-7.8
South Derbyshire	-9.5	-11.7

5. SATISFIED DEMAND FOR SPORTS HALLS

Table 5.1: Satisfied Demand for Sports Halls Derby 2021-2028

Satisfied Demand	RUN 1	RUN 2
Derby UA	**2021**	**2028**
Total number of visits which are met visits per week peak period	20,630	20,810
% of total demand satisfied	92.3	92.8
Total Annual Throughput (visits per year)	1,664,346	1,688,430
% Of demand satisfied who travelled by car	69.1	68.5
% Of demand satisfied who travelled by foot	16.6	17.6
% Of demand satisfied who travelled by public transport	14.3	13.9
Demand Retained visits per week peak period	19,252	19,481
Demand Retained -as a % of Satisfied Demand	93.3	93.6
Demand Exported visits per week peak period	1,378	1,329
Demand Exported - as a % of Satisfied Demand	6.7	6.4

5.1 **Definition of satisfied demand** – This represents the proportion of total demand that is met by the capacity at the sports halls from Derby residents who live within the driving, walking or public transport catchment area of a sports hall. This includes sports halls located both inside and outside Derby.

5.2 Across both runs the Derby demand that can be met is very high and hardly changes, at 92.3% of total demand in Run 1 and 92.8% in Run 2.

5.3 The **fourth key finding** is that satisfied demand is extremely high, with over nine out of ten visits to a sports hall by a Derby resident located inside the catchment area of a sports hall. Also, there is sufficient capacity at the venues to meet this level of total demand.

5.4 The level of satisfied demand across the study area for Runs 1 and 2 is set out in Table **5.2**. In all the other local authorities the percentage of total demand which is satisfied is above 90% in both runs.

5.5 Satisfied demand is unchanged in Erewash at 91% of total demand in both runs, and in South Derbyshire at 94.6%, in both runs, while in Amber Valley it increases from 92.9% of total demand in Run 1 to 93% in Run 2.

5.6 These findings reflect the supply and demand balance findings that across the study area there is a near balance in supply and demand for sports halls, meaning that a very high percentage of demand can be met.

Table 5.2: Percentage of Satisfied Demand for Sports Halls Across the Study Area 2021-2028

% of total demand satisfied	RUN 1	RUN 2
Local Authority	**2021**	**2028**
Derby UA	**92.3**	**92.8**
Amber Valley	92.9	93.0
Erewash	91.1	91.0
South Derbyshire	94.6	94.6

Retained Demand

5.7 A subset of the satisfied demand findings show how much of the Derby demand for sports halls is retained at the sports halls located within Derby. This assessment is based on the catchment area of the venues and residents using the nearest sports hall to where they live at a sports hall located in Derby; this is called retained demand.

5.8 Table **5.1** shows that retained demand is very high, at 93.3% of total satisfied demand in 2021 and 93.6% in Run 2. The **fifth key finding** is that the location and catchment area of the Derby sports halls are very closely correlated with the location of the Derby residents' demand for sports halls, with over nine out of ten visits to a sports hall made by a Derby resident from within the authority.

Exported Demand

5.9 The residue of satisfied demand, after retained demand, is exported demand. Again, this is based on Derby residents travelling to and using the nearest sports hall to where they live, but at a venue located outside Derby. In Run 1, 6.7% of the Derby demand for sports halls is exported and met at sports halls in neighbouring local authorities, and in Run 2 it is 6.4% of Derby's total satisfied demand.

5.10 The destination and scale of the Derby exported demand for both runs in visits in the weekly peak period is set out in Table **5.3**. The Derby figures are for the Derby demand retained within the authority.

5.11 The largest export is to South Derbyshire, at 568 visits per week in the peak period in 2021 and 559 visits per week in Run 2. Exported demand to Erewash is next highest, at 383 visits per week in the peak period in 2021, reducing slightly to 375 visits in Run 2.

5.12 The exported demand figures are very low in relation to the Derby satisfied demand for sports halls retained within the authority.

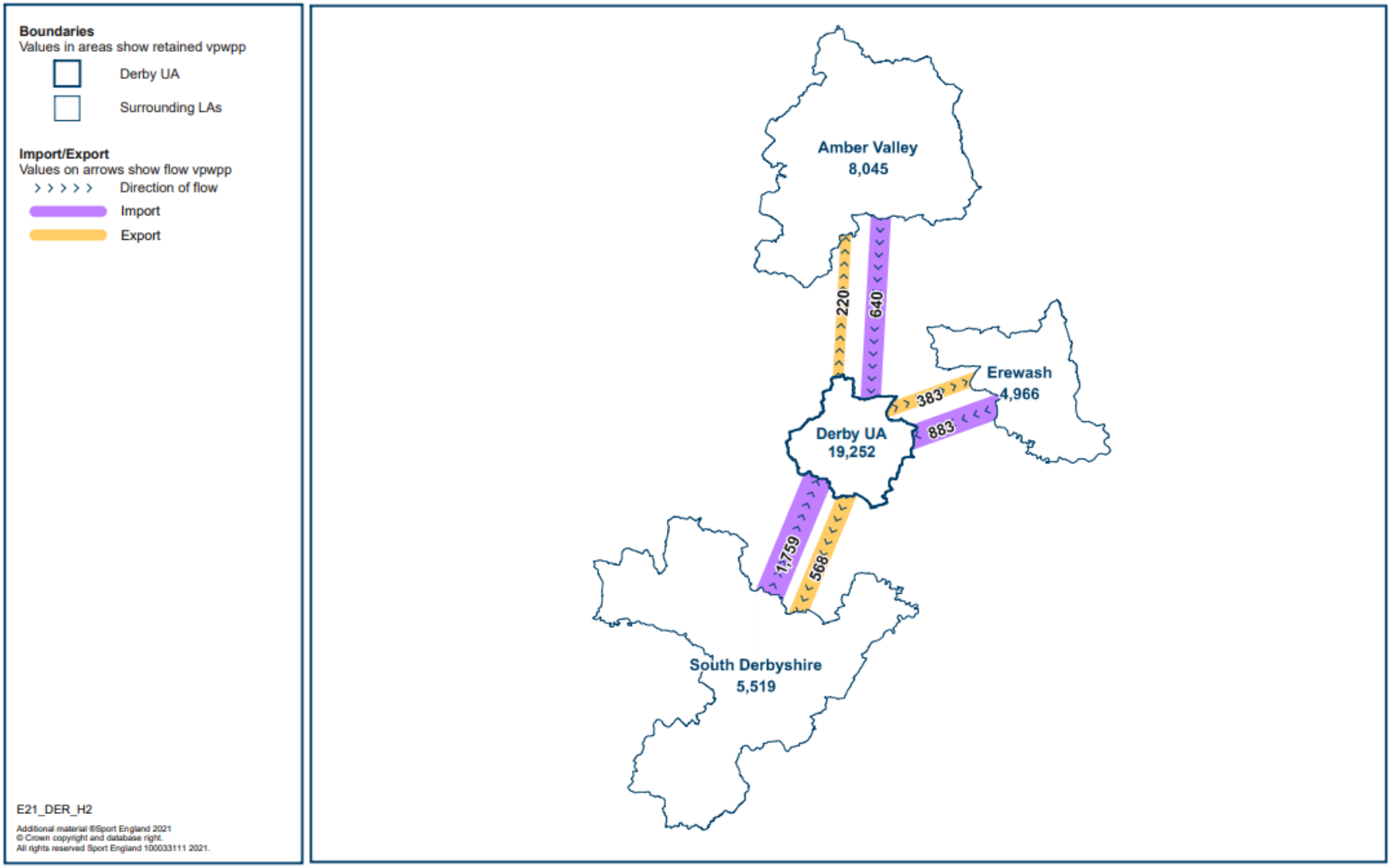
Table 5.3: Runs 1-2 Export of Derby Satisfied Demand for Sports Halls 2021-2028

Export (visits per week peak period)	RUN 1	RUN 2
Local Authority	**2021**	**2028**
Derby	**19,252**	**19,481**
Amber Valley	220	206
Erewash	383	375
South Derbyshire	568	559
Other	207	189

5.13 The findings in Table **5.3** can also be presented in map form and are provided in Map **5.1** for Run 1 and Map **5.2** for Run 2. The yellow chevron represents the number of visits that are exported and met in each of the neighbouring authorities. The figure in the Derby map represents the number of visits retained within Derby.

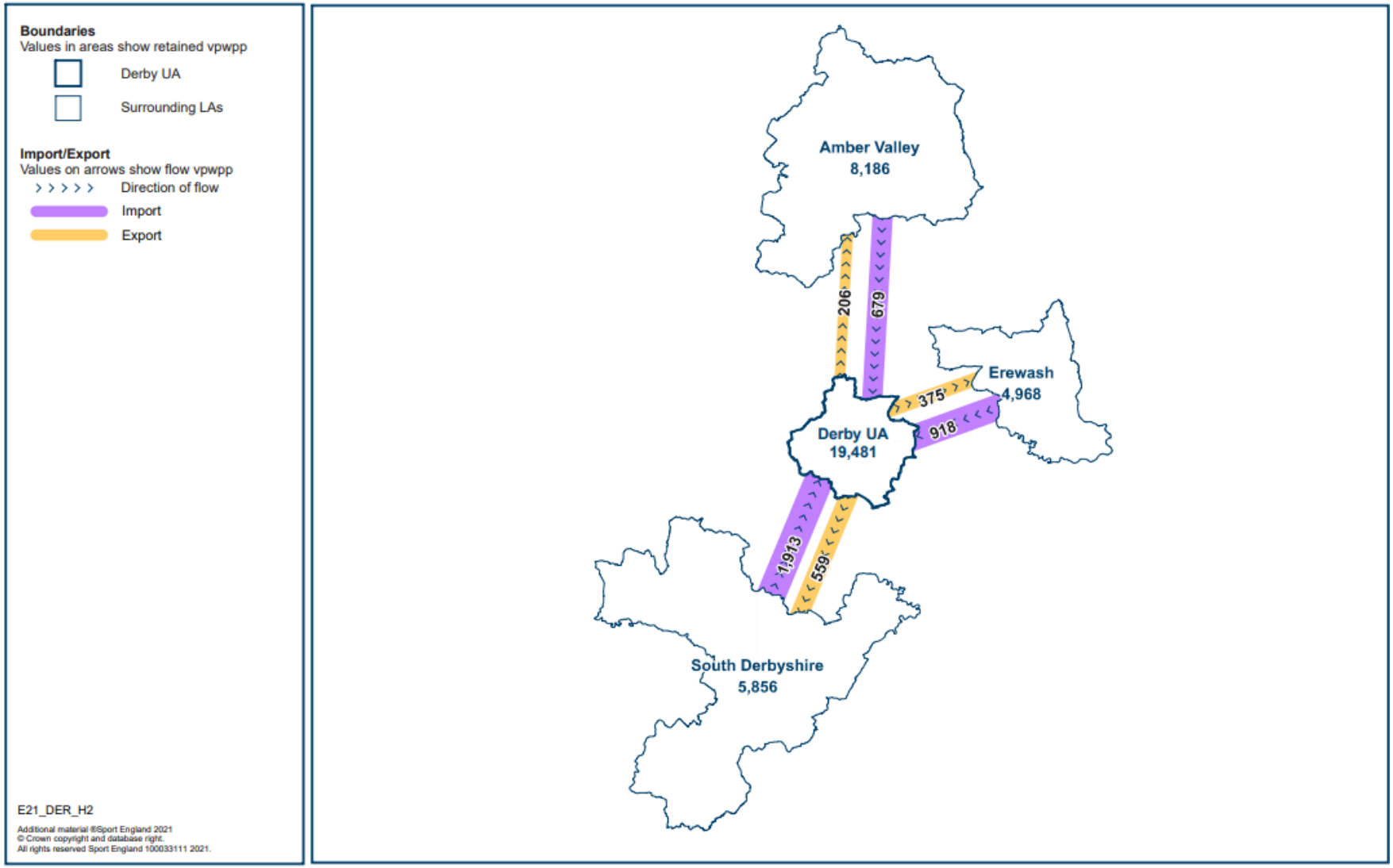
Map 5.1: Run 1 Export of Derby Satisfied Demand for Sports Halls in Visits 2021

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



Map 5.2: Run 2 Export of Derby Satisfied Demand for Sports Halls in Visits 2028

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



6. UNMET DEMAND FOR SPORTS HALLS

Table 6.1: Unmet Demand for Sports Halls Derby 2021-2028

Unmet Demand	RUN 1	RUN 2
Derby UA	**2021**	**2028**
Total number of visits in the peak, not currently being met visits per week peak period	1,719	1,613
Unmet demand as a % of total demand	7.7	7.2
Equivalent in Courts - with comfort factor	5.9	5.5
% of Unmet Demand due to:		
Lack of Capacity	10.4	11.5
Outside Catchment	89.6	88.5
Outside Catchment:	89.6	88.5
% of Unmet demand who do not have access to a car	87.7	86.6
% of Unmet demand who have access to a car	1.9	2.0

6.1 The **unmet demand definition** has two parts to it: demand for sports halls which cannot be met because (1) there is too much demand for a sports hall within its catchment area; or (2) the demand is located outside the catchment area of a sports hall and is then classified as unmet demand.

6.2 Derby total unmet demand is 7.7% of total demand in Run 1, which equates to 5.9 badminton courts. In Run 2 it is 7.2%, which equates to 5.5 badminton courts.

6.3 In terms of the two different types of unmet demand, nearly all of it is from definition (2), unmet demand located outside the catchment area of a sports hall. It is 89.6% of total unmet demand in Run 1, and 88.5% in Run 2.

6.4 The **sixth key finding** is that:

- In both years and both runs, unmet demand is low in both percentage and, more importantly, in the number of badminton courts, within a range of just 5.5-5.9 courts. For context, the available supply of badminton courts in Derby in Runs 1 and 2 is 88 and 91 badminton courts respectively.
- The vast majority of unmet demand is demand located outside a catchment, and within a range of 88.5% and 89.6% of total unmet demand.
- In both runs, unmet demand from lack of sports hall capacity is very low, and within a range of 10.4% and 11.1% of total unmet demand; this equates to less than one badminton court in both runs.

6.5 Unmet demand from definition (2) (demand located outside catchment) will always exist because it is not possible to achieve complete spatial coverage whereby all areas are inside the catchment area of a sports hall.

6.6 This is especially true for the 20 minutes/1-mile walking catchment area which, by definition, is a small catchment area. In addition, as identified in the Demand section (Table **3.1**), some 28% of Derby residents do not have access to a car and therefore either walk or use public transport to access a sports hall.

6.7 Residents who do not have access to a car and live outside the catchment area of a sports hall account for between 86 and 87% of the total unmet demand (penultimate row of Table **6.1**).

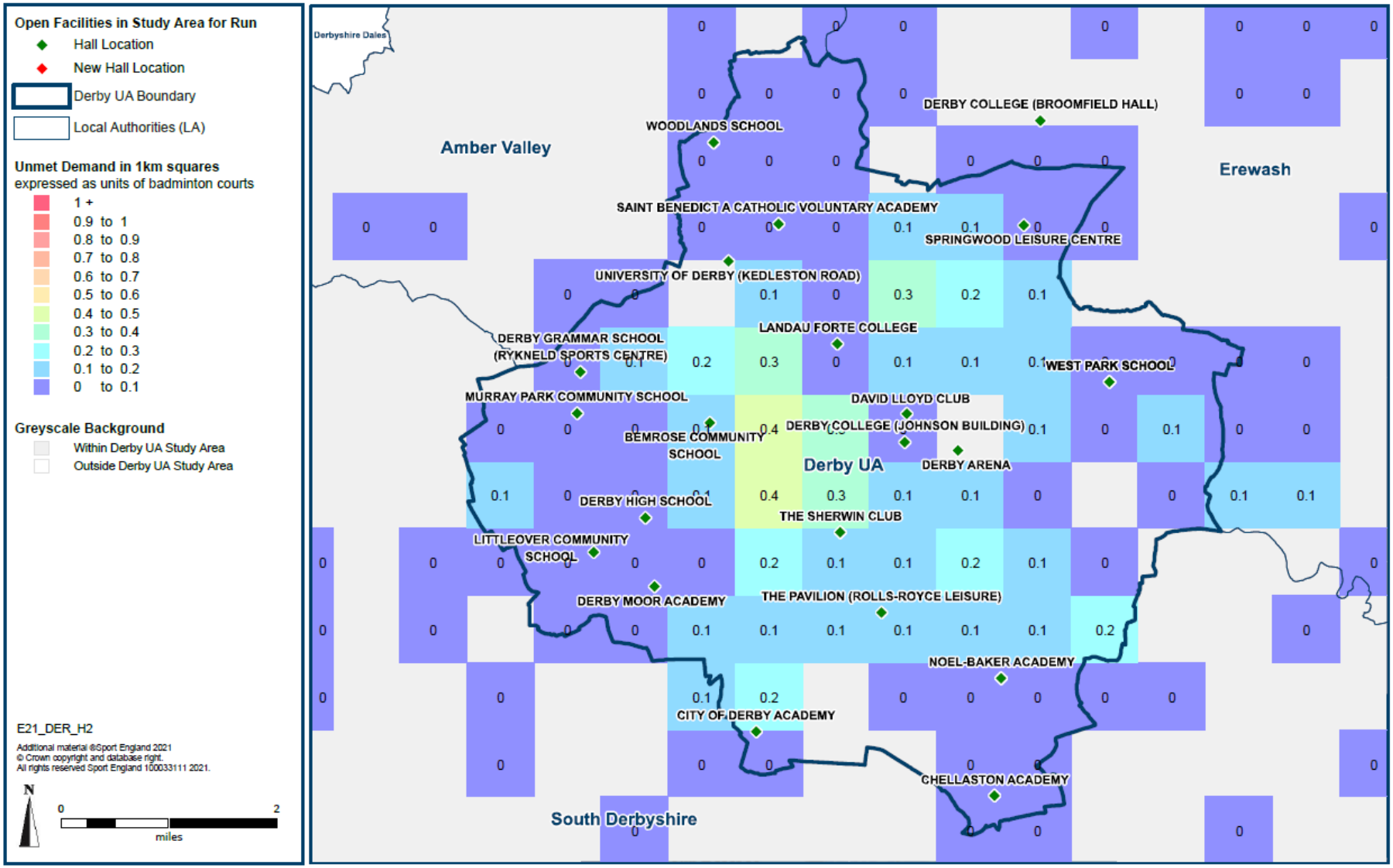
6.8 The locations of the unmet demand for Runs 1 and 2 are shown in Maps **6.1** and **6.2**. The unmet demand is shown in one-kilometre grid squares and expressed in units of badminton courts. The values for Derby range from no courts in the blue squares to 0.4 courts of unmet demand in the light green squares.

6.9 Unmet demand is highest in the California area where it totals between 1 and 2 badminton courts in both years. It is lowest on the periphery of the city on all sides, at less than 0.1 of one badminton court in the one-kilometre grid squares.

6.10 The values are very low because the total level of unmet demand across Derby is only between 5.5 and 5.9 badminton courts. The **seventh key finding** is that there is not a cluster of unmet demand in one location of sufficient scale to consider increasing the provision of sports halls and therefore improve accessibility for residents.

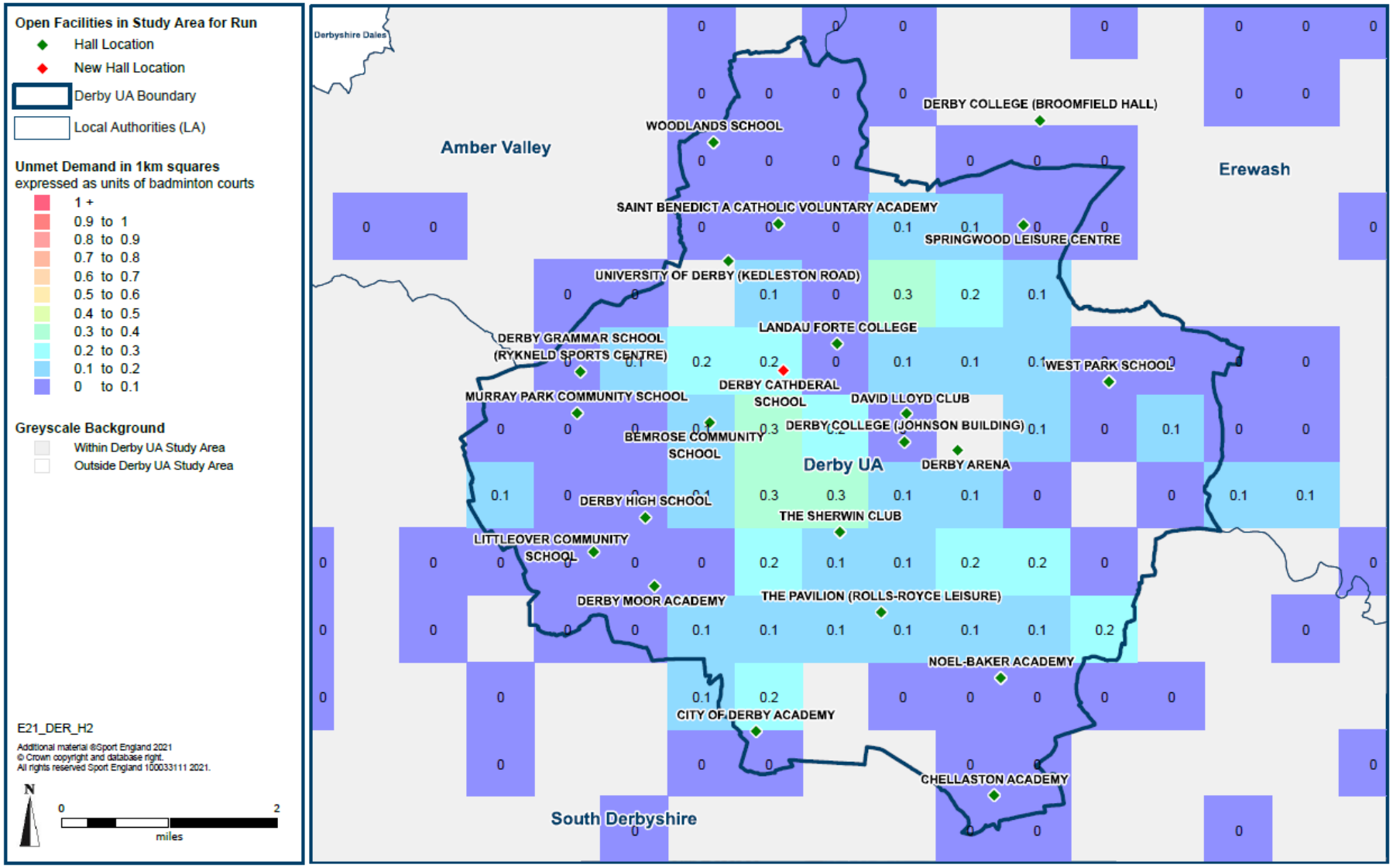
Map 6.1: Run 1 Unmet Demand for Sports Halls Derby 2021

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



Map 6.2: Run 2 Unmet Demand for Sports Halls Derby 2028

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



Car Drive Time Catchment Area for Sports Halls

6.11 It is possible to identify how many sports halls can be accessed by Derby residents based on where they live and a 20-minute drive time catchment area of the sports hall locations. This includes sports hall sites located in neighbouring authorities, and where the catchment area extends into Derby. These findings are set out in Map **6.3** for Run 2 which includes the Derby Cathedral School sports hall.

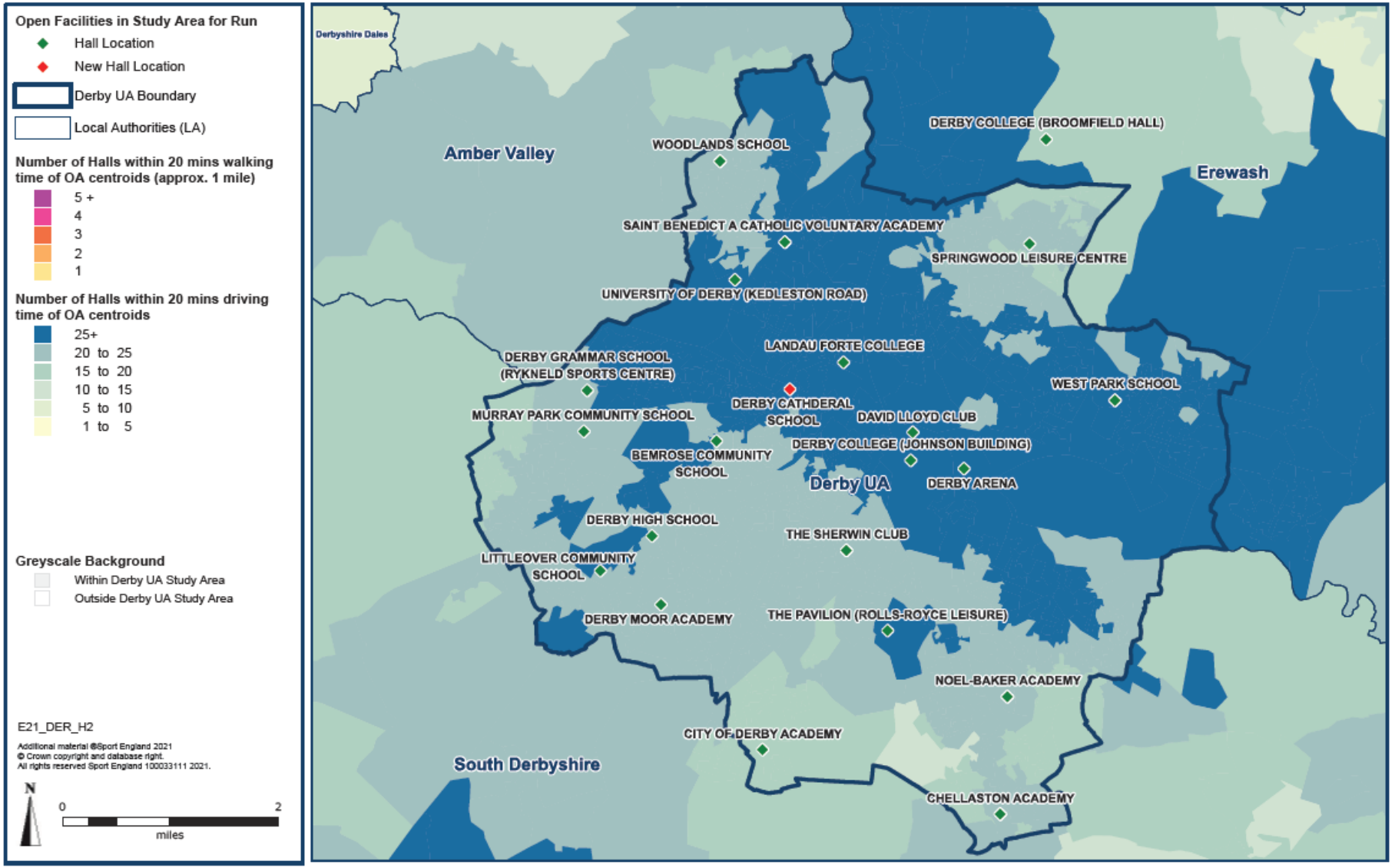
6.12 Residents living in the three shaded green areas have access to 5-10 sports halls (lightest green), 10-15 sports halls (mid green) and 15-20 sports halls (darkest green) based on the sports hall locations and a 20-minute drive time catchment area.

6.13 Residents living in the blue areas have the highest accessibility to 25+ sports halls based on the same criteria. There is a marked contrast with accessibility, this being highest in the northern half of Derby and lowest in the south of Derby.

6.14 The FPM finding is that 69% of all visits to sports halls by Derby residents in 2021 are by car.

Map 6.3: Run 2 Access to Sports Halls Based on the Car Travel Catchment Area 2028

Facility Planning Model catchments shown thematically (colours) at output are level expressed as the number of Halls within 20 minutes' travel time of output area centroid.



Walking Catchment Area for Sports Halls

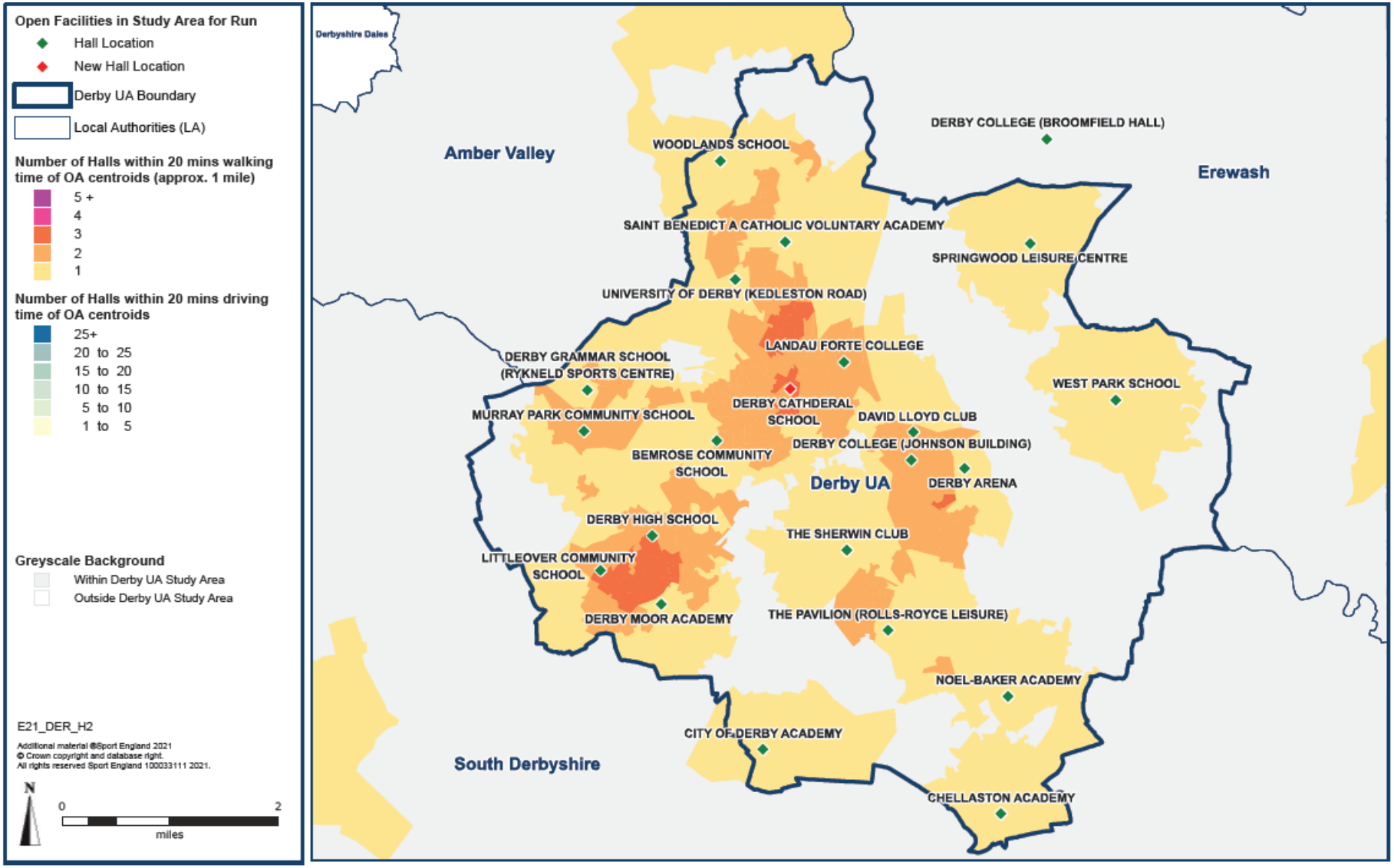
6.15 Mapping of a 20-minute/1 mile walking catchment area of sports halls is also possible, and this is set out in Map **6.4** for Run 2, which includes the Derby Cathedral School sports hall. By definition, this is a small catchment area, and residents in the area shaded pale yellow are inside the walking catchment area of one sports hall site.

6.16 Residents living in the areas shaded light orange are within the walking catchment area of two sports hall sites, and in the darker orange areas residents have access to 3 sports halls sites.

6.17 The FPM finding is that walking to sports halls by Derby residents represents 17% of all visits in 2021.

Map 6.4: Run 2 Access to Sports Halls Based on the Walking Catchment Area for Sports Halls 2028

Facility Planning Model catchments shown thematically (colours) at output are level expressed as the number of Halls within 20 minutes' travel time of output area centroid.



7. USED CAPACITY OF FACILITIES

Table 7.1: Used Capacity of Sports Halls Derby 2021-2028

Used Capacity	RUN 1	RUN 2
Derby UA	**2021**	**2028**
Total number of visits used of current capacity visits per week peak period	23,018	23,530
% of overall capacity of halls used	71.3	70.8
% of visits made to halls by walkers	15.2	15.8
% of visits made to halls by road	84.8	84.2
Visits Imported;		
Number of visits imported visits per week peak period	3,766	4,049
As a % of used capacity	16.4	17.2

7.1 **Definition of used capacity** – This is a measure of usage at sports halls and estimates how well used or full facilities are. The FPM is designed to include a 'comfort factor', beyond which the venues are considered too full. This assessment examines the time taken to set the sports hall up for different activities and access to the changing and circulation areas. In the model, Sport England assumes that usage of over 80% of capacity is busy, and that sports halls are operating at an uncomfortable level above that percentage.

7.2 The **eighth key finding** is that in Run 1 the sports halls as an authority-wide average, are estimated to be 71.3% full at peak times in 2021; this decreases slightly to 70.8% in Run 2. Across Derby there is an estimated 9% of working headroom before the Sport England benchmark of 80% of sports hall capacity used at peak times is reached.

7.3 The estimated used capacity for each sports hall site does vary from the Derby-wide average, and the findings for each site are set out in Table **7.2**.

Table 7.2: Runs 1-2 Used Capacity of the Derby Sports Halls 2021-2028

Utilised Capacity	RUN 1	RUN 2
Individual Sites	**2021**	**2028**
Derby UA	**71**	**71**
BEMROSE COMMUNITY SCHOOL	100	100
CHELLASTON ACADEMY	78	81
CITY OF DERBY ACADEMY	69	73
DAVID LLOYD CLUB (DERBY)	42	39
DERBY ARENA	100	100
DERBY CATHDERAL SCHOOL	-	100
DERBY COLLEGE (JOHNSON BUILDING)	76	78
DERBY GRAMMAR SCHOOL (RYKNELD SPORTS CENTRE)	49	47
DERBY HIGH SCHOOL	100	100
DERBY MOOR ACADEMY	54	56
LANDAU FORTE COLLEGE	100	92
LITTLEOVER COMMUNITY SCHOOL	61	48
MURRAY PARK COMMUNITY SCHOOL	32	34
NOEL-BAKER ACADEMY	41	39
SAINT BENEDICT A CATHOLIC VOLUNTARY ACADEMY	58	54
SPRINGWOOD LEISURE CENTRE	100	100
THE PAVILION (ROLLS-ROYCE LEISURE)	80	65
THE SHERWIN FOOTBALL CLUB	100	100
UNIVERSITY OF DERBY (KEDLESTON ROAD)	70	71
WEST PARK SCHOOL	51	47
WOODLANDS SCHOOL	40	41

7.4 The estimated used capacity for each sports hall site varies from the authority-wide average for several inter-related reasons:

- **Firstly**, public leisure centres have (1) the highest accessibility for both sports club and public use; (2) they are available for daytime use, which is not possible at education venues during term time; and (3) the operators actively promote hall sports and physical activity participation, with a programme of use which reflects the activities and times that customers want to participate. For all these reasons, the public leisure centres have a draw effect, and the used capacity findings for Springwood Leisure Centre is estimated to be 100% (see Table **7.3** for more detail of demand re-distributed after initial allocation).
- **Secondly**, the used capacity of a sports hall depends on the hours available for community use. The vast majority of sports halls in Derby are sports halls located

on school, college, or higher education sites. Access to sports halls for community use will be determined by the policy of each education provider. Some schools, colleges and higher education institutions actively promote community use. At higher education venues there is little differentiation between student and wider community use, with community access based on a membership system. Other education venues, notably secondary schools, let out the sports halls to sports clubs or community groups on a termly basis, or for even shorter periods.

- A sports hall on an education site which is only available for a few hours a week, and with an irregular pattern of use, is very different from a public leisure centre sports hall with a full programme of use. Also, education venues will provide for use by sports clubs or community groups and not for recreational pay and play.
- The estimated used capacity for the education venues varies considerably. This ranges from 32% in the weekly peak period at Murray Park Community School, which is located in an area of low demand for sports halls (see Maps **3.1** and **3.2**), to 100% at three education venues; Bemrose Community School, located in the area of highest demand for sports halls, Derby High School and Landau Forte School.
- **Thirdly**, the amount of demand in the catchment area of sports halls is considered. If there are sports hall locations where the catchment areas overlaps, as in Derby, especially in the centre and centre west of the authority (Map **2.1**), then the demand is shared between venues, and this contributes to the used capacity at each venue.
- **Fourthly**, the quality and range of the offer (along with the age and condition of a sports hall) are considered. These features are all of increasing importance to customers and impact on participation levels. Desirable features include a modern sports hall with a sprung timber floor, good quality lighting, modern changing rooms, and other facilities on site such as a studio and/or a gym.
- Residents may travel further to use a sports hall with this all-round offer, rather than participate at the sports hall located closest to where they live. Nearly all of the education sports halls have a low estimated used capacity in the weekly peak period, with Derby Moor Academy (opened in 1970) at 54%, Murray Park Community School (opened in 1961) at 32%, Noel-Baker Academy (opened in 1960 and modernised in 2007) at 41%, and West Park Academy (opened in 1970 and modernised in 2013) at 51%.
- **Fifthly**, if the nearest sports hall venue for residents in neighbouring authorities is a sports hall located in Derby, and these residents use these venues, this becomes part of the used capacity of the Derby sports halls. In 2021 16.4% of the used capacity of the Derby sports halls is from outside the authority, and this increases to 17.2% in Run 2 (Table **7.1**).

Sports Halls with 100% of Capacity Used

7.5 When the model finds that a sports hall is estimated to be full, it tries to re-allocate demand to other sports halls in the same catchment area. This is an iterative process and continues until there is no more capacity at the other sports hall sites to absorb demand.

The demand that remains is known as 'demand re-distributed after initial allocation', and the findings are set out in Table **7.3** in the final column.

Table 7.3: Run 2 Demand Re-distributed After Initial Allocation 2028

Name of Site	Type	Dimensions	Area	No of Courts	Site Year Built	Site Year Refurb	% of Capacity Used	% of Capacity Not Used	Demand Redistributed after initial allocation
DERBY							**71%**	**29%**	**-434**
BEMROSE COMMUNITY SCHOOL	Main	41 x 21	867	5	1950	2015	100%	0%	13
CHELLASTON ACADEMY	Main	35 x 20	690	4	1998		81%	19%	153
	Activity	18 x 10	180						
CITY OF DERBY ACADEMY	Main	41 x 21	867	5	2008		73%	27%	73
DAVID LLOYD CLUB (DERBY)	Main	35 x 20	690	4	1998	2010	39%	61%	74
DERBY ARENA	Main	59 x 36	2106	12	2015		100%	0%	-1,056
DERBY CATHEDRAL SCHOOL	Main	35 x 20	690	4	2022		100%	0%	-709
DERBY COLLEGE (JOHNSON BUILDING)	Main	35 x 20	690	4	2010		78%	22%	150
DERBY GRAMMAR SCHOOL (RYKNELD SC)	Main	41 x 21	867	5	1985		47%	53%	58
DERBY HIGH SCHOOL	Main	33 x 18	594	4	1990	2012	100%	0%	68
DERBY MOOR ACADEMY	Main	33 x 18	594	4	1970		56%	44%	66
LANDAU FORTE COLLEGE	Main	35 x 20	690	4	1992		92%	8%	193
LITTLEOVER COMMUNITY SCHOOL	Main	33 x 27	891	5	1973	2012	48%	52%	50
MURRAY PARK COMMUNITY SCHOOL	Main	27 x 18	486	3	1961		34%	66%	18
NOEL-BAKER ACADEMY	Main	35 x 27	932	6	1960	2007	39%	61%	113
	Activity	18 x 10	180						
SAINT BENEDICT A CATHOLIC VOLUNTARY ACADEMY	Main	27 x 18	486	3	1986	2004	54%	46%	102
	Activity	18 x 10	180						
SPRINGWOOD LEISURE CENTRE	Main	33 x 18	594	4	1997	2009	100%	0%	176
THE PAVILION (ROLLS-ROYCE LEISURE)	Main	35 x 20	690	4	1975	2010	65%	35%	147
THE SHERWIN CLUB	Main	33 x 18	594	4	1987		100%	0%	-231
	Activity	18 x 10	180						
UNIVERSITY OF DERBY (KEDLESTON RD)	Main	40 x 35	1380	8	2015		71%	29%	273
WEST PARK SCHOOL	Main	33 x 18	594	4	1970	2010	47%	53%	100
	Activity	18 x 10	180						
WOODLANDS SCHOOL	Main	33 x 18	594	4	2005		41%	59%	84

7.6 In terms of converting the number of visits to badminton courts, the capacity of a four-badminton court sports hall available for community use in the weekly peak period equates to 1,472 visits in the weekly peak period, and 368 visits for one badminton court.

7.7 Derby Arena is a 12-court sports hall and is located inside the cycle track. It is accessible to Derby residents through membership and pay and play. According to the data it is available for community use for 46 hours in the weekly peak period. The 1,056 visits which remain after demand is re-distributed equates to between two and three badminton courts.

7.8 Derby Cathedral School is a four-badminton court sports hall scheduled to open in 2022. It is located in an area of high demand for sports halls and is the only increase in sports hall supply in the study area. It will have the highest attraction weighting of any sports hall and, according to the data, will have 31 hours of community use in the weekly peak period when it opens. The 709 unallocated visits equate to between one and two badminton courts.

7.9 These findings might suggest there is a need to increase the supply of sports halls to address these findings, however, it is important to remember two things:

- Sports halls as an authority-wide average are estimated to be 71% full at peak times in 2021 and this decreases slightly to 70.8% in Run 2. Across Derby there is an estimated 9% of working headroom before the Sport England benchmark of 80% of sports hall capacity used at peak times is reached.
- The total number of badminton courts in Derby is 110 in Run 1 and 114 in Run 2. The number of badminton courts available for community use in Run 1 is 87 (rounded to the nearest court), increasing to 91 in Run 2 (rounded). Aggregated across the venues, there are 22 badminton courts (rounded) in Run 1, and 23 in Run 2, which are unavailable for community use. This unavailable supply represents 20% in Run 1 and 21% in Run 2 of the total supply of badminton courts and is a significant difference between the total supply and the available supply of sports halls for community use.

7.10 The **ninth key finding** is that there is enough supply to meet the demand for sports halls in 2021 and projected forward to 2028. The issue is the distribution of demand, which is increasing usage at certain venues, together with the unavailable supply. The intervention is to try and manage the programming of sports halls and increase access to some of the education venues to achieve a more even distribution of demand.

7.11 It is recognised this is not an easy intervention, given that education venues are owned and managed by each individual educational institution. However, it is a more effective way of addressing the distribution of demand issue than increasing the supply at certain venues where there is most demand.

Imported Demand

7.12 Imported demand is reported in this section because, if residents in the neighbouring local authorities use the nearest sports hall to where they live and it is a sports hall site in Derby, then it becomes part of the used capacity of the Derby sports halls (Table **7.1**).

7.13 The levels of imported demand from each authority in Runs 1 and 2 are shown in Table **7.4**. The largest imported demand in the weekly peak period in both runs is from South Derbyshire, at 1,759 visits in Run 1 and 1,913 visits in Run 2. The figures in the Derby rows represent the usage of Derby sports halls by Derby residents.

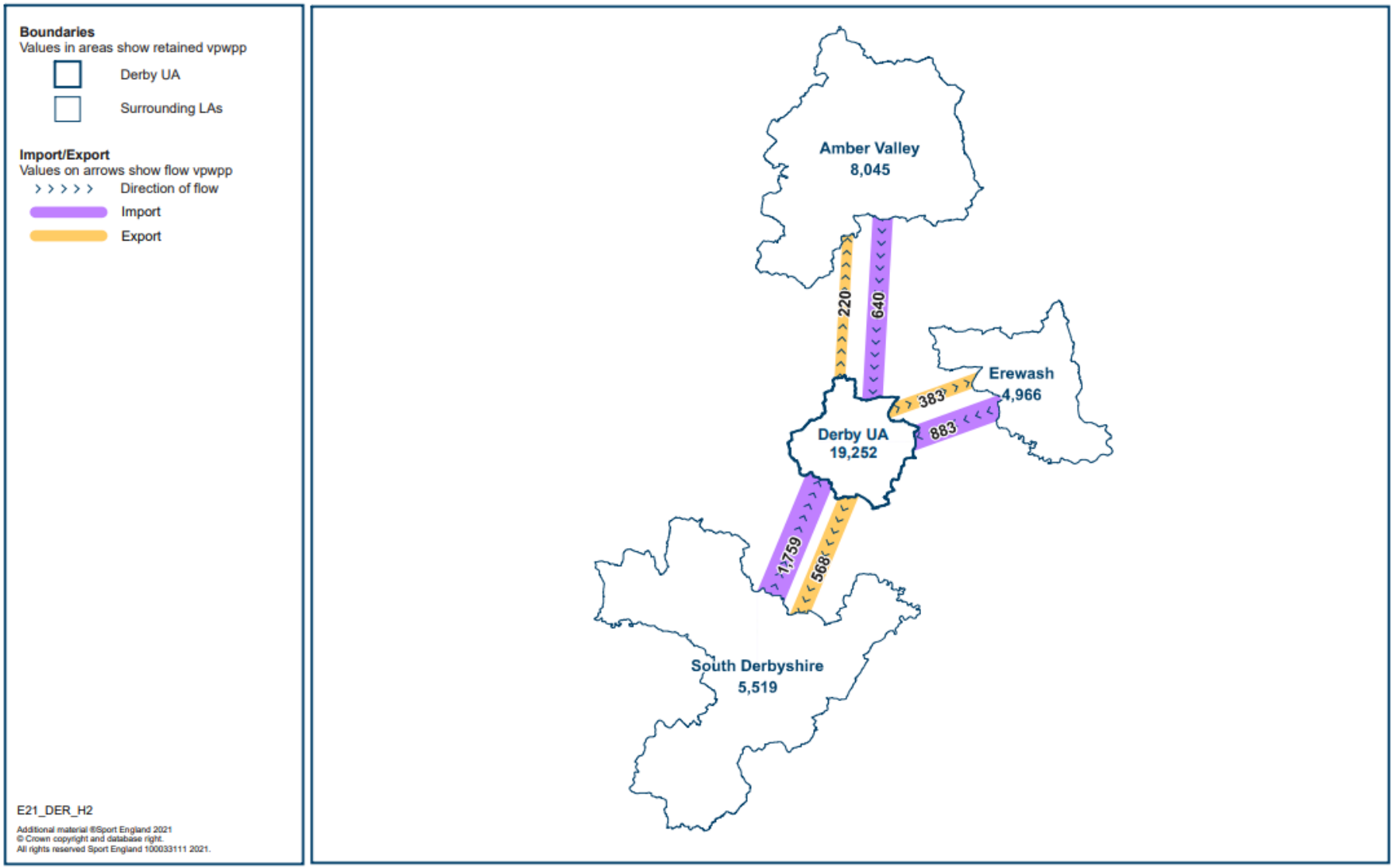
Table 7.4: Runs 1-2 Imported Demand for Sports Halls in Derby 2021-2028

Import (visits per week peak period)	Run 1	Run 2
Local Authority	**2021**	**2028**
Derby	**19,252**	**19,481**
Amber Valley	640	679
Erewash	883	918
South Derbyshire	1,759	1,913
Other	484	540

7.14 The same data is shown in map form for each run in Maps **7.1** and **7.2**. The purple chevron includes the number of runs imported from each authority, and the figure inside the Derby map is the used capacity of sports halls in visits by Derby residents.

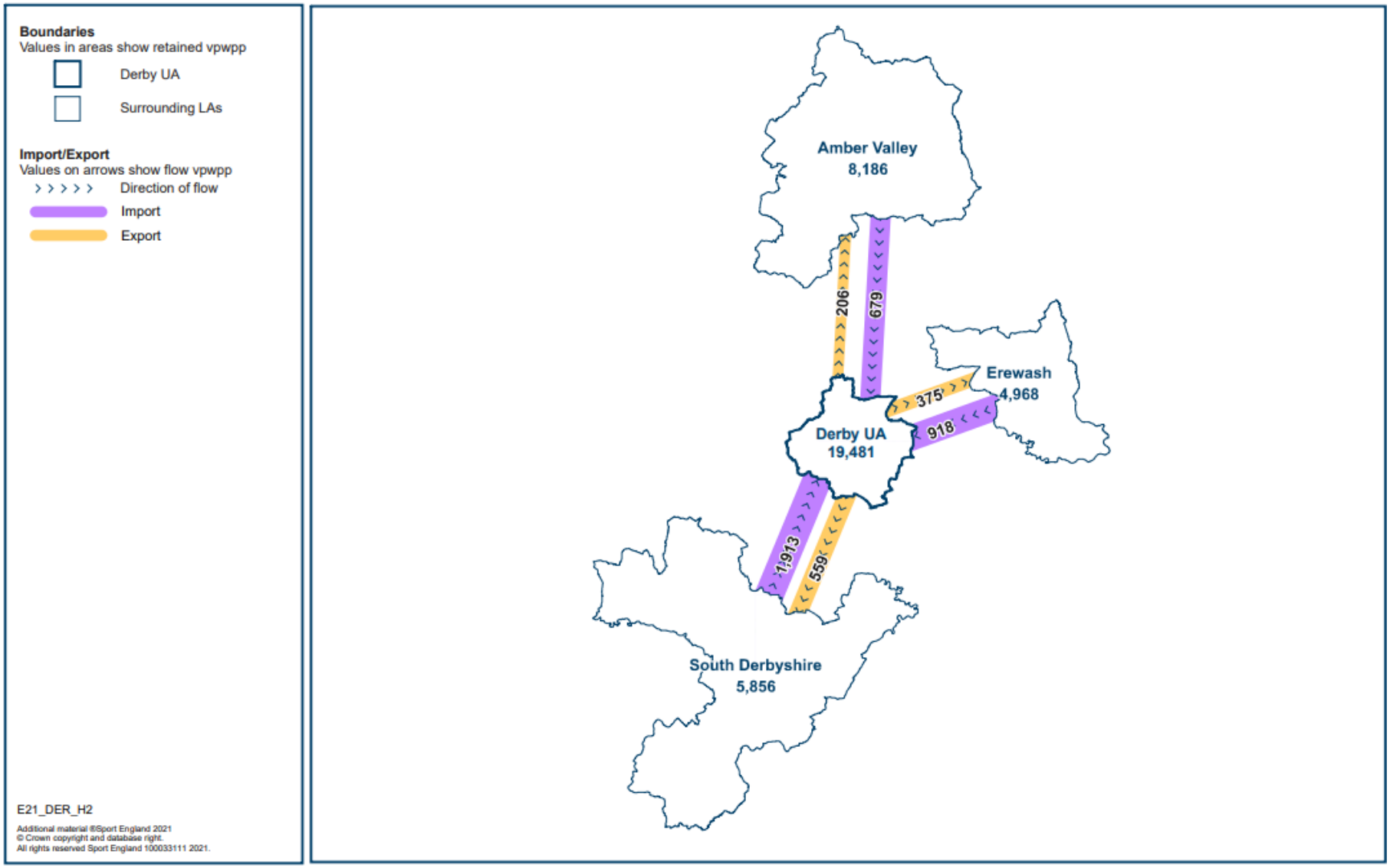
Map 7.1: Run 1 Source and Levels of Imported Demand in Visits to Derby Sports Halls 2021

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



Map 7.2: Run 2 Source and Levels of Imported Demand in Visits to Derby Sports Halls 2028

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



8. LOCAL SHARE OF FACILITIES

Table 8.1: Local Share of Sports Halls Derby 2021-2028

Local Share	RUN 1	RUN 2
Derby UA	**2021**	**2028**
Local Share: <1 supply less than demand, >1 supply greater than demand	0.65	0.58
Score - with 100 = FPM Total (England and also including adjoining LAs in Scotland and Wales)	92.9	100.0
+/- from FPM Total (England and also including adjoining LAs in Scotland and Wales)	-7.1	0.0

8.1 **Local share** has quite a complicated **definition** – it helps to show which areas have a better or worse share of facility provision. It considers the size, availability, and quality of facilities, as well as travel modes. Local share is the available capacity that can be reached in an area, divided by the demand for that capacity in the area. Local share decreases as facilities age.

8.2 A value of 1 means that the level of supply just matches demand, while a value of less than 1 indicates a shortage of supply and a value greater than 1 indicates a surplus.

8.3 Local share is useful for assessing 'equity' of provision and to show how access and share of sports halls differs across Derby based on population and the sports hall supply. It is an equity measure to identify where local share is highest and lowest.

8.4 The intention is to identify the areas where residents have the least share of the supply of sports halls and to then consider how their access can be increased to the supply of sports halls.

8.5 In both runs, Derby's local share is below 1, at 0.65 in Run 1 and 0.58 in Run 2. The distribution of local share varies across Derby, and the findings are shown in Map **8.1** for Run 1 and Map **8.2** for Run 2.

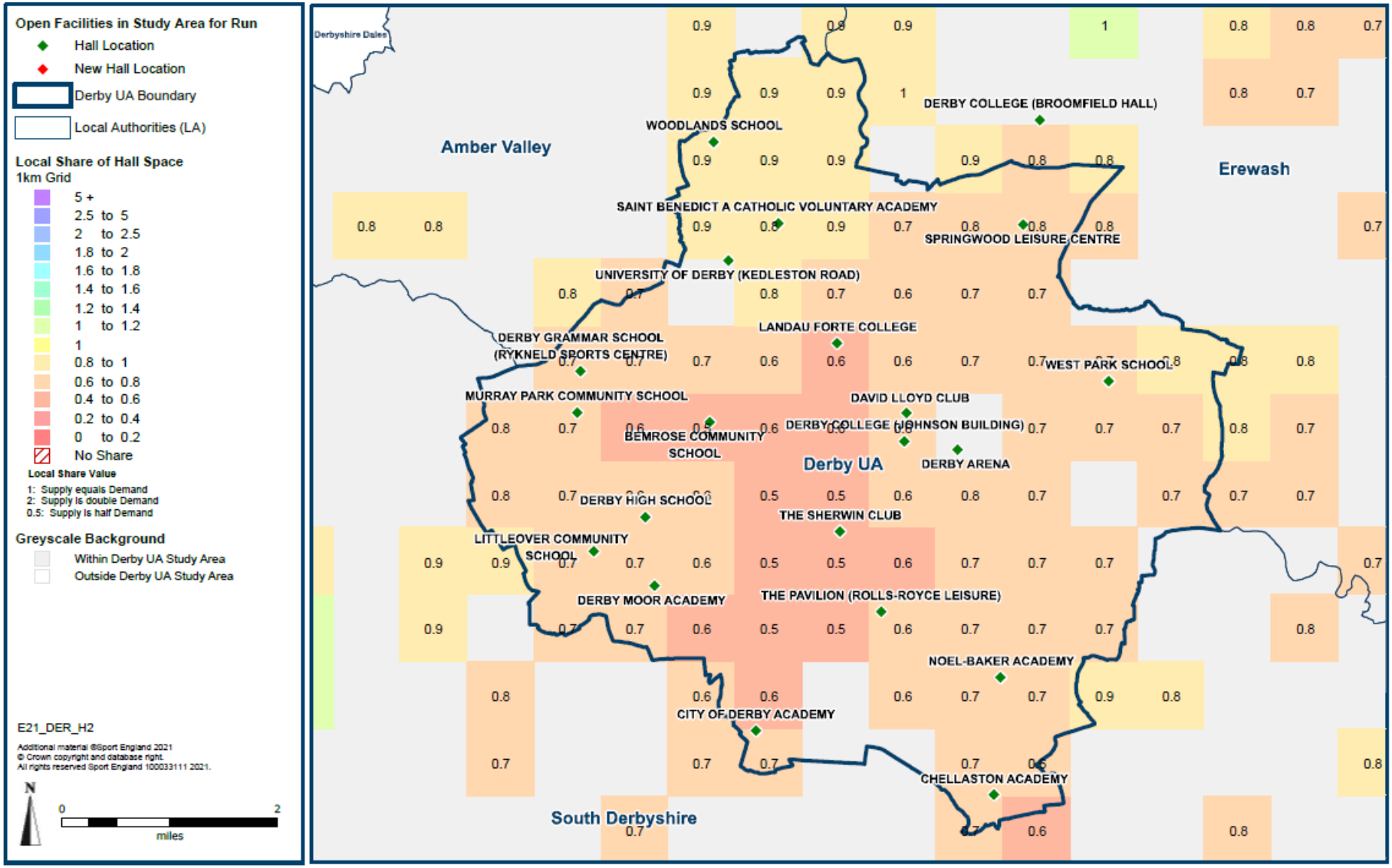
8.6 In both years, local share is lowest in the area shaded pale red, which have values of between 0.4-0.6. This increases in both number of squares and area in Run 2. It is likely these are the areas of highest population density within Derby and, while they also contain the highest number of sports halls, demand is greater than supply resulting in a lower local share of sports halls in these areas.

8.7 The reverse is the case on the periphery of Derby. Here there are sports hall sites but most likely these areas also a lower population density, resulting in a higher local share in the squares shaded pale orange with values of between 0.6-0.8. The north of Derby has the highest local share in both years, shown by yellow squares and will values of 0.8-1.

8.8 To reiterate, the intention is to identify the areas where residents have the least share to the supply of sports halls, and to then consider how their access to the supply of sports halls can be increased.

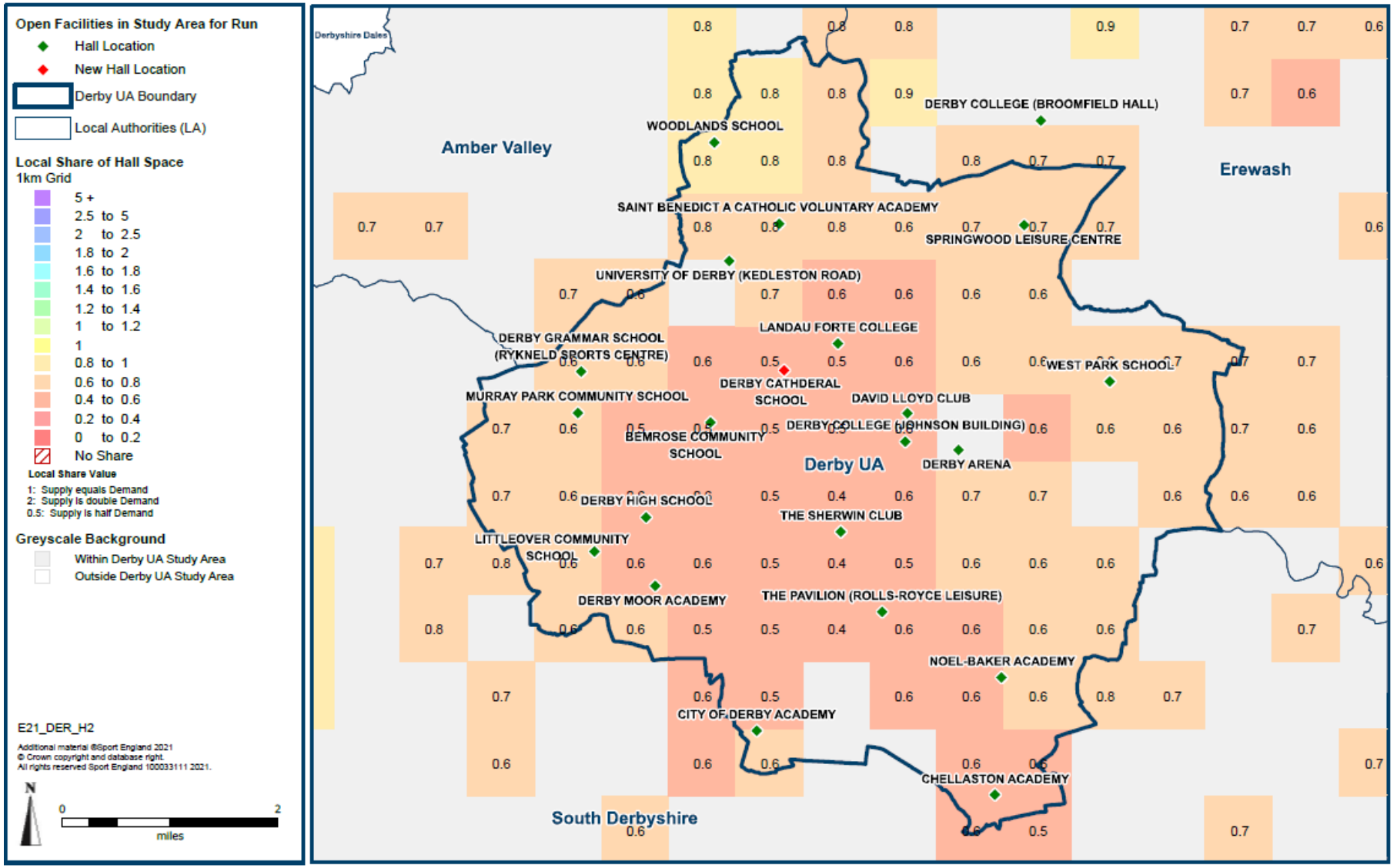
Map 8.1: Run 1 Local Share of Sports Halls Derby 2021

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



Map 8.1: Run 2 Local Share of Sports Halls Derby 2028

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



9. APPENDIX 1: SPORTS HALLS IN THE STUDY AREA INCLUDED IN THE ASSESSMENT

Derby Sports Halls (Runs 1-2)

Name of Site	Type	Dimensions	Area	No of Courts	Site Year Built	Site Year Refurb	Car % Demand	Public Transport % Demand	Walk % Demand
DERBY							**72%**	**12%**	**16%**
BEMROSE COMMUNITY SCHOOL	Main	41 x 21	867	5	1950	2015	59%	12%	29%
CHELLASTON ACADEMY	Main	35 x 20	690	4	1998		82%	8%	10%
	Activity	18 x 10	180						
CITY OF DERBY ACADEMY	Main	41 x 21	867	5	2008		77%	9%	14%
DAVID LLOYD CLUB (DERBY)	Main	35 x 20	690	4	1998	2010	93%	7%	0%
DERBY ARENA	Main	59 x 36	2106	12	2015		79%	17%	4%
DERBY CATHDERAL SCHOOL (Open Run 2)	Main	35 x 20	690	4	2022		52%	12%	35%
DERBY COLLEGE (JOHNSON BUILDING)	Main	35 x 20	690	4	2010		78%	18%	4%
DERBY GRAMMAR SCHOOL (RYKNELD SPORTS CENTRE)	Main	41 x 21	867	5	1985		65%	11%	24%
DERBY HIGH SCHOOL	Main	33 x 18	594	4	1990	2012	72%	11%	17%
DERBY MOOR ACADEMY	Main	33 x 18	594	4	1970		71%	10%	19%
LANDAU FORTE COLLEGE	Main	35 x 20	690	4	1992		65%	15%	20%
LITTLEOVER COMMUNITY SCHOOL	Main	33 x 27	891	5	1973	2012	77%	9%	14%
MURRAY PARK COMMUNITY SCHOOL	Main	27 x 18	486	3	1961		65%	7%	28%
NOEL-BAKER ACADEMY	Main	35 x 27	932	6	1960	2007	65%	12%	24%
	Activity	18 x 10	180						
SAINT BENEDICT A CATHOLIC VOLUNTARY ACADEMY	Main	27 x 18	486	3	1986	2004	77%	12%	12%
	Activity	18 x 10	180						
SPRINGWOOD LEISURE CENTRE	Main	33 x 18	594	4	1997	2009	77%	8%	15%
THE PAVILION (ROLLS-ROYCE LEISURE)	Main	35 x 20	690	4	1975	2010	68%	15%	17%
THE SHERWIN CLUB	Main	33 x 18	594	4	1987		45%	12%	44%
	Activity	18 x 10	180						
UNIVERSITY OF DERBY (KEDLESTON RD)	Main	40 x 35	1380	8	2015		77%	14%	10%
WEST PARK SCHOOL	Main	33 x 18	594	4	1970	2010	65%	8%	27%
	Activity	18 x 10	180						
WOODLANDS SCHOOL	Main	33 x 18	594	4	2005		78%	9%	13%
	Activity	18 x 10	180						

Sports Halls in the Neighbouring Local Authorities (Runs 1-2)

Name of Site	Type	Dimensions	Area	No of Courts	Site Year Built	Site Year Refurb	Car % Demand	Public Transport % Demand	Walk % Demand
AMBER VALLEY							**81%**	**9%**	**10%**
ALFRETON LEISURE CENTRE	Main	35 x 27	932	6	1974	2008	85%	10%	5%
	Activity	30 x 15	450						
BELPER LEISURE CENTRE	Main	33 x 18	594	4	1974	2016	83%	7%	11%
	Activity	18 x 10	180						
DAVID NIEPER ACADEMY	Main	27 x 18	486	3	2016		79%	9%	12%
ECCLESBOURNE SCHOOL	Main	33 x 18	594	4	2013		81%	6%	13%
	Activity	18 x 17	306						
GENESIS FAMILY ENTERTAINMENT CEN.	Main	33 x 18	594	4	2002	2013	85%	10%	5%
RIPLEY LEISURE CENTRE	Main	35 x 20	690	4	2007		77%	8%	14%
SWANWICK HALL SCHOOL	Main	33 x 18	594	4	2013		83%	9%	7%
THE HAYES CONFERENCE CENTRE	Main	27 x 18	486	3	2005		84%	10%	7%
THE RIPLEY ACADEMY	Main	27 x 18	486	3	2018		75%	8%	17%
	Activity	18 x 10	180						
WILLIAM GREGG VC LEISURE CENTRE	Main	33 x 18	594	4	1980	2007	78%	8%	13%
EREWASH							**78%**	**10%**	**12%**
DERBY COLLEGE (BROOMFIELD HALL)	Main	35 x 20	690	4	2013		90%	9%	1%
KIRK HALLAM COMMUNITY ACADEMY	Main	33 x 18	594	4	2011		78%	10%	12%
	Activity	18 x 10	180						
SANDIACRE FRIESLAND SC	Main	35 x 20	690	4	1974		79%	10%	11%
THE LONG EATON SCHOOL	Main	35 x 20	690	4	2006		78%	10%	13%
	Activity	18 x 10	180						
TRENT COLLEGE	Main	33 x 18	594	4	1979	2003	72%	10%	19%
WEST PARK LEISURE CENTRE	Main	35 x 20	690	4	1972	2006	78%	9%	12%
WILSTHORPE COMMUNITY SCHOOL	Main	35 x 20	690	4	1974	2004	71%	10%	19%
SOUTH DERBYSHIRE							**86%**	**7%**	**8%**
ETWALL LEISURE CENTRE	Main	34 x 27	918	6	2009		93%	5%	2%
	Activity	17 x 9	153						
GRANVILLE ACADEMY	Main	27 x 18	486	3	2020		78%	7%	15%
GREEN BANK LEISURE CENTRE	Main	35 x 27	932	6	1978	2015	83%	7%	10%
	Activity	18 x 17	306						
PINGLE SCHOOL	Main	32 x 18	576	4	2000		76%	8%	16%

10. APPENDIX 2: MODEL DESCRIPTION, INCLUSION CRITERIA AND MODEL PARAMETERS

Included within this appendix are the following:

- Model Description
- Facility Inclusion Criteria
- Model Parameters

Model Description

1. Background

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

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

2. Use of FPM

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

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

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

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

3. How the Model Works

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

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

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

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

3.5. This survey information is combined with other sources of data to provide a set of model parameters for each facility type. The original core user data for halls and pools comes from the National Halls and Pools survey undertaken in 1996. This data formed the basis for the National Benchmarking Service (NBS). For AGPs, the core data used comes from the user survey of AGPs carried out in 2005/06 jointly with sportscotland.

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

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

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

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

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

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

4. Calculating Demand

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

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

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

[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. Calculating Supply Capacity

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

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

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

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

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

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

6.1. The capacity of sports halls is calculated in the same way as described above, with each sports hall site having a capacity in VPWPP. In order for this capacity to be meaningful,

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

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 of the actual main hall. For example, a hall may be marked out with 4 courts, when it has space for 5 courts. As the model uses the 'courts' as a unit of size, it is important that the hall's capacity is included as a 5 'court unit' rather than a 4 'court unit'.
- The model calculates the capacity of the sports hall as 'visits per week in the peak period' (VPWPP), and then uses this unit of capacity to compare with demand, which is also calculated as VPWPP. It is often difficult to visualise how much hall space there is when expressed as VPWPP. To make things more meaningful, this capacity in VPWPP is converted back into 'main hall court equivalents' and is noted in the output table as 'Hall Space in Courts'.

7. Facility Attractiveness – for Halls and Pools Only

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

7.2. Attractiveness weightings are based on the following:

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

- Management and ownership weighting – halls only: Due to the large number of halls being provided by the 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 weighing factor is incorporated within the model to reflect the cost element often associated with commercial facilities. For each population output area the Indices of Multiple Deprivation (IMD) score is used to limit whether people will use commercial facilities. The assumption is that the higher the IMD score (less affluence), the less likely the population of the OA would choose to go to a commercial facility.

8. Comfort Factor – Halls and Pools

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

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

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

8.4. The comfort factor is used in two ways:

- Utilised capacity – How well used is a facility? 'Utilised capacity' figures for facilities are often seen as being very low at 50-60%; however, this needs to be put into context with 70-80% comfort factor levels for pools and halls. The closer utilised capacity gets to the comfort factor level, the busier the facilities are becoming. You should not aim to have facilities operating at 100% of their theoretical capacity, as this would mean that every session throughout the peak period would be being used to its maximum capacity. This would be both unrealistic in operational terms and unattractive to users.
- Adequately meeting unmet demand – the comfort factor is also used to increase the number of facilities needed to comfortably meet unmet demand. If this comfort factor is not applied, then any facilities provided will be operating at their maximum theoretical capacity, which is not desirable as noted previously.

9. Utilised Capacity (Used Capacity)

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

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

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

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

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

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

10. Travel Times Catchments

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

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

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

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

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

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

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

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

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

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

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

Facility Inclusion Criteria

Sports Halls

The following inclusion criteria were used for this analysis:

- Include all operational sports halls available for community use, ie, pay and play, membership, sports club/community association.
- Exclude all halls not available for community use, ie, private use.
- Exclude all halls where the main hall is less than three courts in size.
- Include all 'planned', 'under construction, and 'temporarily closed' facilities only where all data is available for inclusion.
- Where opening times are missing, availability has been included based on similar facility types.
- Where the year built is missing assume date 1975[4].

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

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

Model Parameters

Halls Parameters

<table>
<tr><td>At One Time Capacity</td><td>32 users per 4-court hall,
15 users per 144 square meters of activity hall.</td></tr>
<tr><td>Catchment Maps</td><td>Car: 20 minutes
Walking: 1.6 km
Public transport: 20 minutes at about half the speed of a car

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

Frequency per Week</td><td>
<table>
<tr><th>Age</th><th>0-15</th><th>16-24</th><th>25-34</th><th>35-44</th><th>45-59</th><th>60-79</th></tr>
<tr><td>Male</td><td>20.4</td><td>16.7</td><td>13.9</td><td>11.6</td><td>10.2</td><td>7.3</td></tr>
<tr><td>Female</td><td>24.5</td><td>17.8</td><td>17.1</td><td>15.3</td><td>15.1</td><td>12.1</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>0.65</td><td>0.95</td><td>0.93</td><td>0.84</td><td>1.00</td><td>1.14</td></tr>
<tr><td>Female</td><td>0.74</td><td>1.20</td><td>1.21</td><td>1.07</td><td>1.18</td><td>1.01</td></tr>
</table>
</td></tr>
<tr><td>Peak Period

Proportion in Peak Period</td><td>Weekday: 9:00 to 10:00, 17:00 to 22:00
Weekend: 08:00 to 16:00
Total: 46 hours

62%</td></tr>
</table>