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

Standard Report

11 November 2022

Disclaimer

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

Accreditations

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

EXECUTIVE SUMMARY

0.1 This report provides an initial assessment of the current supply and demand for provision of swimming pools in the Colchester Borough Council area (also referred to as Colchester, or the Borough).

0.2 This report has been prepared based on an assessment using the Sport England Facilities Planning Model (FPM) spatial modelling tool.

0.3 The key element to be taken from this report is that the supply of swimming pools currently available to the community in the Borough does not fully meet the demand from residents.

0.4 Most pool sites are operating well above a comfortable level of capacity to meet high levels of demand.

0.5 Some parts of the Borough, including some of the more deprived areas in the east of the town of Colchester, have low levels of access.

0.6 There is scope to increase capacity at some existing pools by extending their peak time opening hours. If this is not feasible, there is a case for new pool provision.

Key Findings

0.7 The key findings from the supply, demand and access assessment are as follows:

1. Colchester Leisure World, the single local authority site, provides 53% of the pool capacity in the peak period in the Borough.
2. There is potential to add capacity of 445 sqm by fully opening Colchester Leisure World and Corporal Budd VC Gymnasium in the weekly peak period.
3. Colchester residents' demand for swimming pools exceeds supply available within the Borough by 863 sqm of water.
4. Only 84% of the Borough demand is met.
5. Of the satisfied demand, 11% is met by pools outside the Borough.
6. Of the 357 sqm of unmet demand, the majority (74%) is due to residents living too far away from a pool. However, 26% is because the pools that residents can reach are too busy.
7. The best location for a new pool to meet the most unmet demand is to the east of Colchester town centre, just north of the University of Essex's Colchester campus.
8. Four sites are estimated to be operating at 100% used capacity at peak times and Bannatyne Health Club (Kingsford Park) is close to the Sport England comfort level.
9. The area to the east of Colchester town centre has the poorest access to supply.

Strategic Overview

0.8 The local authority provides the main swimming pool site at Colchester Leisure World, which provides more than half of the Borough's total swimming pool capacity. The site is well located in the main population area, and accessible from some of the more deprived areas in the town. Retaining and enhancing the capacity of this key site should be a priority.

0.9 The swimming pools are uncomfortably busy: four out of five sites are utilised at 100% capacity. This is influencing choice because residents have a less than satisfactory experience when visiting the sites. Colchester Leisure World and Corporal Budd VC Gymnasium do not open for the full peak period. Extending their opening hours would offset some of the demand. Therefore, the feasibility of opening these sites for longer should be explored.

0.10 Similarly, there are several main pools currently excluded because they are only available for private use (for example, Colchester Academy and Colchester County High School for Girls). Some of the unmet demand in the Borough could be offset if these sites were to make their pools available for community use at peak times.

0.11 The levels of reachable unmet demand in the Borough are high enough to justify additional pool provision. The highest levels being in the east of the Borough, which also draws in some of the unmet demand from neighbouring Tendring, indicating this will be a good location to meet the needs of both authority areas. Therefore, it is important to understand pool provision in neighbouring local authority areas and potentially jointly plan future pool provision.

Next Steps

0.12 Colchester Borough Council, in reviewing the findings of this report, may also wish to consider applying the evidence base to ensure that the benefits from the strategic direction being set by Sport England are realised.

0.13 It is important to reiterate that this is a one-year assessment and provides the evidence base as of now. The findings should be consulted on to provide a rounded evidence base and address the findings set out.

0.14 Given the strategic overview, the following will be significant:

- Projected population growth in Colchester and across the study area.
- Known committed changes in the current available supply of swimming pools.
- The impact of the proposed 8,500 home Garden Community on the Colchester/Tendring boundary where the highest levels of reachable unmet demand are currently located.
- Growth elsewhere in the Borough, particularly in locations where current capacity is unable to meet demand.

0.15 The current levels of high unmet demand together with the proposed major housing developments in and around Colchester should be assessed using longer-term local bespoke modelling available through Sport England's Facilities Planning Model (FPM). These assessments should include population projections covering the proposed housing growth areas with options for changing the swimming pool supply and assessing the collective impact this has on the future demand for swimming pools and its distribution. Such an evidence base can be applied in strategic planning and the Local Plan policy and can be used for securing inward investment.

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1. Introduction

1.1 This assessment uses Sport England's Facilities Planning Model (FPM) and outputs from the National Run using Active Places data as of March 2022.

1.2 The supply assessment is based on swimming pools being open and accessible for community use. If swimming pools are closed temporarily because of Covid-19 or for any other reasons, the local authority should inform Sport England Active Places Power via the contact us link at https://www.activeplacespower.com.

1.3 This standard run provides an initial assessment of the current supply and demand for provision of swimming pools in the Borough of Colchester. The assessment does not include population growth projections but is a baseline evidence base for swimming pool provision.

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

Context

1.5 This report should form part of a wider assessment of provision at local level, which then provides a rounded assessment and evidence base report. This should include other available information and knowledge from:

- A sports perspective, such as national sports governing bodies and other sports organisations.
- A local perspective from the local authority, the facility operator and local sports clubs.

1.6 The findings from this FPM standard report should be reviewed and applied with reference to the strategic direction being set by Sport England on:

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

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

Future Assessment

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

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

- Options for changes in supply – closure/new openings at the same or different locations and on different scales.

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

1.10 These future assessments can support the development of an evidence base in Local Plan policy, and, in combination with locally derived information and knowledge, can build the picture of provision within an area to inform a long-term evidence base for securing inward investment – grant aid applications, and prototype developments, for example, Sport England Leisure Local.

Report Structure, Content and Sequence

1.11 This report sets out the full findings under six assessment headings as follows:

- Supply – How many facilities are there and what is their capacity?
- Demand – Who wants to use the facilities?
- Satisfied Demand – How many people use the facilities? Where do people use facilities (inside and outside the authority) and how do they travel there?
- Unmet Demand – Who is unable to use the facilities and why? Is there insufficient capacity or are people too far away from the facilities?
- Used Capacity – How full are the facilities and where are people coming from (inside and outside the authority)?
- Local Share – Which areas have better or worse provision, considering the number of people who want to use them?

1.12 Each assessment heading has a table of main findings, followed by a full definition of these. Each key finding is numbered and in bold typeface. All tables include the findings for the neighbouring local authorities, together with regional and England-wide findings. This is because the assessments are based on catchment areas, and catchments extend across local authority boundaries.

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

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

1.15 The facilities excluded from the study, with explanations, are listed in Appendix **1**. The facility planning inclusion criteria and model parameters are described in Appendix **2**.

2. Swimming Pool Supply

Supply	Colchester	Babergh	Braintree	Maldon	Tendring	East Region	England
Number of pools	**8**	5	10	2	5	339	2,998
Number of pool sites	**5**	5	6	2	4	238	2,080
Supply in sqm of water	**1,765**	1,742	2,005	450	1,029	75,888	679,254
Supply in sqm of water scaled with hours available in peak period	**1,320**	937	1,989	386	981	63,177	581,644
Supply in visits per week in peak period	**11,547**	8,201	17,403	3,375	8,586	552,801	5,089,384
Average year built of all sites	**2005**	1990	2006	1993	1991	1990	1989
Average year built of public sites	**1991**	2004	2011	1991	1987	1990	1987

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

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

2.1 The modelling run includes eight individual swimming pools located at five sites in the Borough. The water space currently available for community use is 1,320 sqm in the weekly peak period.

2.2 The swimming pools excluded from the study are listed in Appendix **1**.

Facilities Included in Colchester

Site	Operation	Facility Type	Dimensions (m)	Area (sqm)	Year Built	Year Refurb	Peak Hours	Total Hours	Site Capacity (visits per week in peak period)
Bannatyne Health Club (Kingsford Park)	Commercial	4-lane	20 x 8	160	2006		52.5	106	1,400
Bannatyne Health Club (Colchester)	Commercial	4-lane	20 x 8	160	2004		52	100.5	1,387
Colchester Leisure World	Public	6-lane Leisure Learner Diving	25 x 13 25 x 10 12 x 12 13 x 8	313 250 144 100	1991	2009	47 43.5 47 44.5	92 66 72.5 85	6,134
Corporal Budd VC Gymnasium	Other	8-lane	25 x 18	438	2008		12	12	876
David Lloyd	Commercial	4-lane	20 x 10	200	2016		52.5	110.5	1,750

2.3 Colchester Leisure World is the only local authority public swimming pool site in the Borough. It is a very large facility, with four separate pools providing 807 sqm of water space and a site capacity of 6,134 visits per week in the peak period.

2.4 **Key finding 1** is that Colchester Leisure World provides 53% of the pool capacity in the peak period in the Borough.

2.5 Three of the swimming pool sites are commercially owned and are 20m four-lane pools open for almost the full 52.5 hours in the weekly peak period. Bannatyne Health Club (Colchester) is just half an hour short of opening for the full 52.5 hours during peak periods as defined in the second light-blue box above.

2.6 The other pool available to the community is Corporal Budd VC Gymnasium, located in the south of Colchester town and built in 2008. This pool is owned by the Ministry of Defence and operated by private contractor Sodexo. The site has a large 25m eight-lane pool, but its opening hours are limited to just 12 hours a week during the peak period.

2.7 Colchester Leisure World's pools do not open for the full 52.5 peak-time hours. This, together with the limited opening of Corporal Budd VC Gymnasium, scales back the Borough supply during peak periods to 1,320 sqm of water.

2.8 **Key finding 2** is that there is potential to add capacity of 445 sqm by fully opening Colchester Leisure World and Corporal Budd VC Gymnasium in the weekly peak period.

2.9 Four of the five swimming pool sites are open for a large proportion of the off-peak hours, offering a good level of access during the daytime.

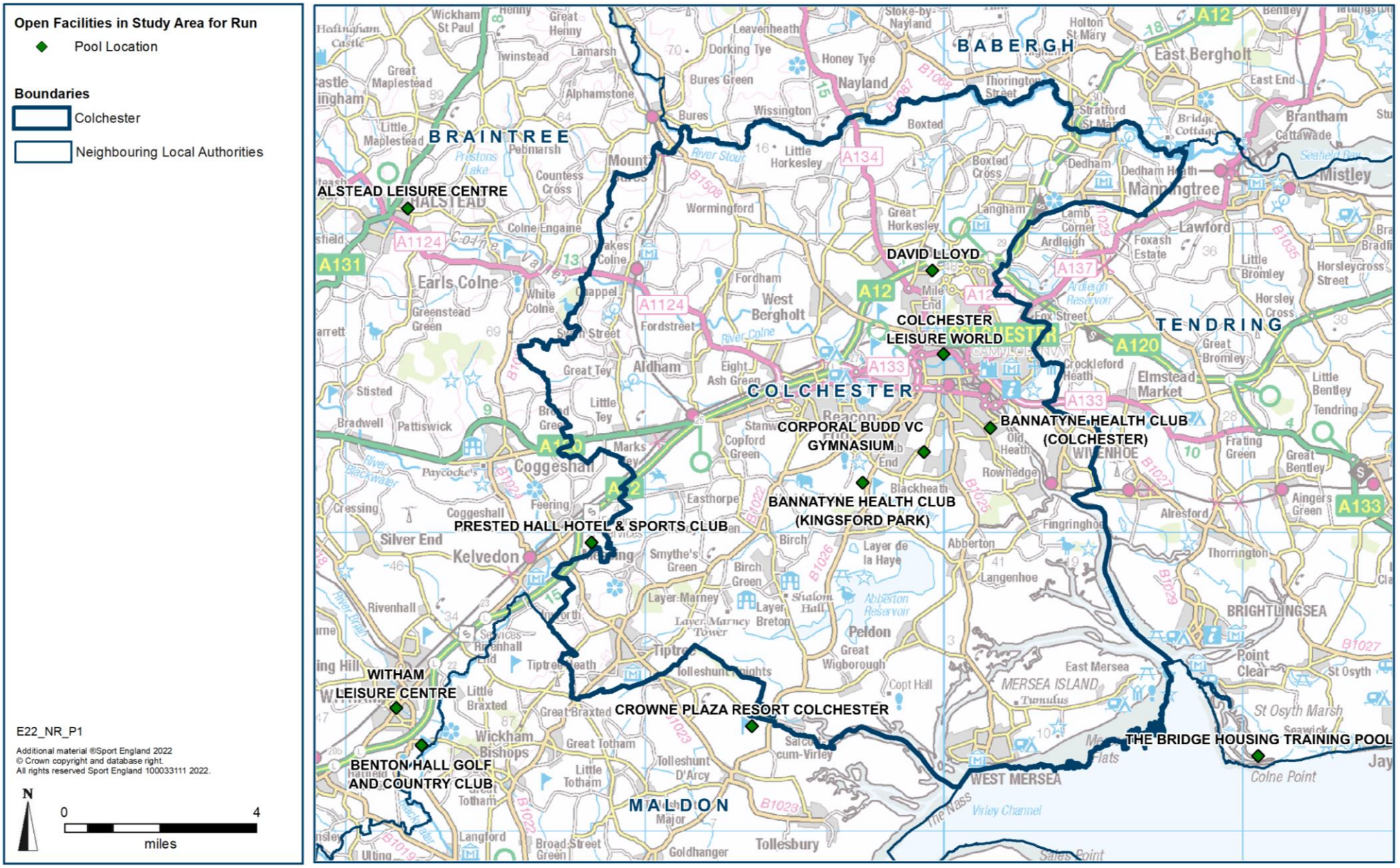
2.10 The average age of the swimming pool sites is 17 years, so the swimming pools are relatively modern. Four sites have opened in the last 18 years. Colchester Leisure World is the oldest, built in 1991, which makes it 31 years old, but it was refurbished 13 years ago.

Location

2.11 The locations of the swimming pools included in the study are shown as green diamonds in Map **2.1**.

2.12 The pool sites are clustered within the main town of Colchester. There are no pools in the smaller populated settlements of the Borough. The extent to which residents can access swimming pools both inside and outside the Borough is reported in the Exported Demand and Satisfied Demand sections.

Map 2.1: Swimming Pool Locations in Colchester (2022)



3. Demand for Swimming Pools

Demand	Colchester	Babergh	Braintree	Maldon	Tendring	East Region	England
Population	**201,148**	93,627	153,266	66,219	151,370	6,346,769	57,145,158
Visits demanded in weekly peak period	**13,277**	5,901	10,051	4,192	9,466	416,859	3,755,908
Demand in sqm of water with comfort factor included	**2,183**	970	1,653	689	1,557	68,548	617,621
% of demand in the 10% most deprived LSOAs nationally	**0.9%**	0.0%	0.0%	0.0%	19.9%	3.8%	10.4%

Definition of total demand – This represents the total demand for swimming by gender and for six age bands from 0 to 80+ and is calculated as the percentage of each age band/gender that participates. This is added to the frequency of participation in each age band/gender to arrive at a total demand figure, which is expressed in visits in the weekly peak period and square metres of water. The FPM parameters for the percentage of participation and frequency of participation, for gender and for different age bands, are calculated from Sport England's Active Lives survey up to November 2019 and are set out in Appendix **2**.

3.1 The total demand for swimming pools by Colchester residents is 13,277 visits per week in the peak period, which equates to a demand for 2,183 sqm of water (with a comfort factor included).

3.2 **Key finding 3** is that Colchester residents' demand for swimming pools exceeds the supply available within the Borough by 863 sqm of water (see Swimming Pool Supply section).

Deprivation

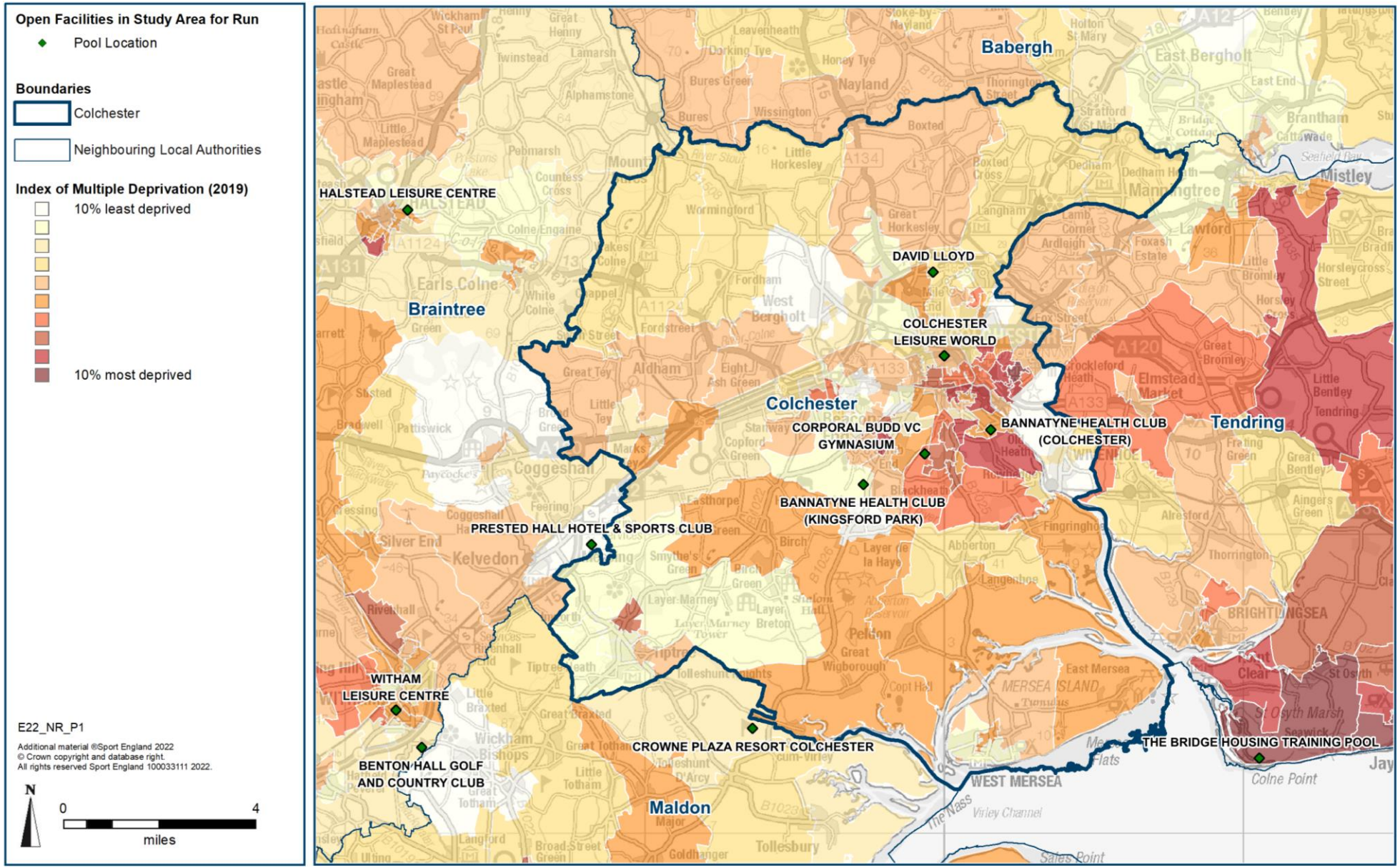
3.3 Only 1% of Colchester's demand is in the 10% most-deprived lower super output areas (LSOAs) nationally. Overall, Colchester ranks in the 50% least deprived of all local authorities. Therefore, the commercial pool sites are less likely to be affected by low affluence levels.

3.4 Deprivation ranges across the authority, as shown in Map **3.1**. Colchester's three commercial pools are located within areas of lower deprivation, although Bannatyne Health Club (Colchester) is close to some of the more deprived areas. Residents in these areas are more likely to visit Colchester Leisure World.

3.5 The Index of Multiple Deprivation (IMD) score is used in the FPM to limit whether people will use commercial facilities, such as Bannatyne Health Clubs and David Lloyd (see Appendix **2** for definition of IMD). A weighting factor is incorporated to reflect the cost element often associated with commercial facilities. The assumption is that the higher the IMD score (less affluence), the less likely the population of the LSOA would choose to go to a commercial facility.

Map 3.1: Deprivation in Colchester (2019)

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



4. Satisfied Demand

Demand from Colchester residents currently being met by supply

Satisfied Demand	Colchester	Babergh	Braintree	Maldon	Tendring	East Region	England
Number of visits met per week in peak period	**11,105**	5,066	9,015	2,977	7,123	368,580	3,395,242
% of total demand satisfied	**83.6%**	85.8%	89.7%	71.0%	75.2%	88.4%	90.4%
Number of visits retained per week in peak period	**9,862**	3,667	8,277	1,644	5,962	358,382	3,393,201
Demand retained as a % of satisfied demand	**88.8%**	72.4%	91.8%	55.2%	83.7%	97.2%	99.9%
Number of visits exported per week in peak period	**1,243**	1,399	738	1,333	1,160	10,198	2,042
Demand exported as a % of satisfied demand	**11.2%**	27.6%	8.2%	44.8%	16.3%	2.8%	0.1%

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

4.1 **Key finding 4** is that only 84% of the Borough demand is met. This is lower than satisfied demand in two of the neighbouring authority areas, and the regional and national averages. Maldon has the lowest satisfied demand in the study area, at 71%.

Retained Demand

4.2 A subset of the satisfied demand findings shows that much of Colchester residents' demand for swimming is retained at pools located within the Borough. This assessment is based on the catchment area of Colchester pools and residents in the Borough choosing to participate at these pools and is known as retained demand

4.3 Of the 84% satisfied demand for swimming in Colchester, 89% of this is met by pools within the Borough.

4.4 The model iteratively allocates demand to facilities using a set of distance decay functions and choice parameters. The model also considers the quality of a site based on its age and management, as supported by Sport England's research. Increasingly, there are other factors that influence which pools residents chose to use, such as other facilities being on the same site, for example, a gym or studio, ease of parking, or a swimming pool programme that provides activities at times when residents wish to participate.

Exported Demand

4.5 The residue of satisfied demand, after retained demand, is exported demand. This is based on Colchester residents who live within the catchment of a swimming pool located outside the Borough and use that swimming pool.

4.6 **Key finding 5** is that, of the satisfied demand, 11% is met at swimming pools outside the Borough. This is the equivalent of 1,243 visits in the weekly peak period compared to 9,862 visits retained in Colchester.

4.7 The data from the National FPM Run does not identify how much of Colchester's demand goes to which other local authority area or swimming pool, but only provides the total figure for exported demand. The destination of exported demand could be identified in a bespoke FPM run.

Travel Patterns

Accessibility	**Colchester**	Babergh	Braintree	Maldon	Tendring	East Region	England
% of population without access to a car	**19.5%**	13.4%	15.2%	11.7%	22.4%	17.7%	24.9%
% of total population within a 20-minute walk of a pool	**21.1%**	23.6%	21.6%	10.3%	17.0%	29.5%	37.7%
% of 10% most deprived population within a 20-minute walk from a pool	**0.0%**	0.0%	0.0%	0.0%	6.4%	1.3%	4.4%
% of demand satisfied when travelled:							
by car	**86.0%**	87.5%	86.1%	92.1%	86.3%	81.2%	73.1%
on foot	**5.5%**	8.1%	7.6%	4.2%	6.8%	10.7%	14.3%
by public transport	**8.5%**	4.4%	6.3%	3.7%	7.0%	8.1%	12.5%

Definition of accessibility – The FPM uses a distance decay function where the further a user is from a facility, the less likely they will travel. A description of the distance decay function is set out in Appendix **2**. The travel-time limits used are:

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

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

4.8 The percentage of the population without access to a car influences travel patterns to swimming pools. A low percentage means that there is likely to be a larger number of visits to swimming pools by car.

4.9 A total of 20% of Colchester's resident population do not have access to a car. The East Region and England-wide averages for population with no access to a car are 18% and 25% respectively.

4.10 For residents without access to a car, travel to swimming pools by public transport and walking becomes the choice of travel mode.

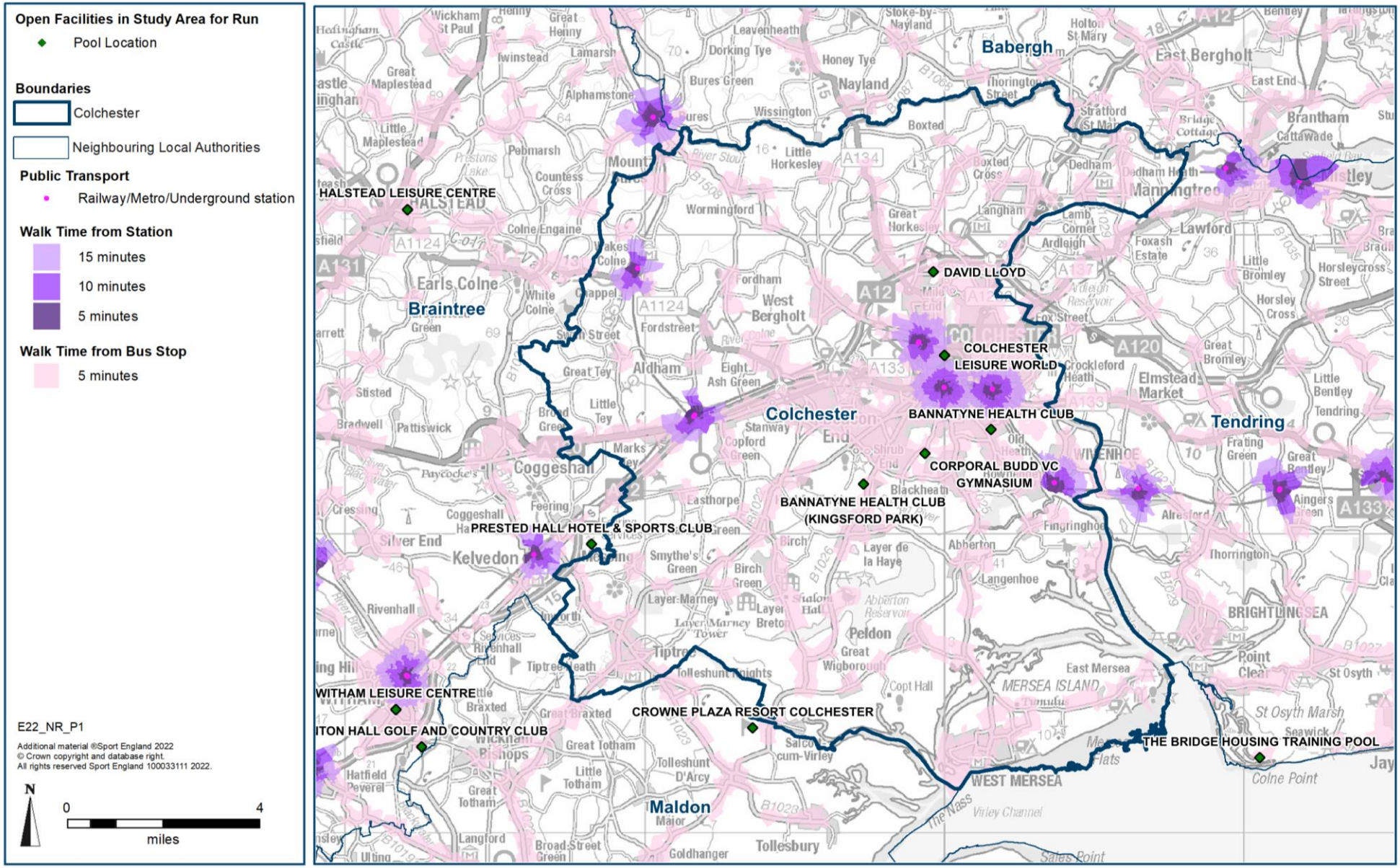
4.11 Most visits to swimming pools by Colchester residents are predicted to be by car (86%). Visits by public transport and on foot are much lower, at 9% and 6% respectively.

4.12 All the swimming pools are accessible by public transport as they are within a five-minute walk of a bus stop (pink areas in Map **4.1**). Only Colchester Leisure World is within a 15-minute walk of a railway station (purple areas).

4.13 It should be noted that, while residents in the pink areas on the map can access public transport, it does not mean they can reach a swimming pool within 20 minutes via a combination of walking and public transport. Also, in rural areas the service may not be regular.

Map 4.1: Walking Access to Public Transport in Colchester (2022)

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



5. Unmet Demand

Demand from Colchester residents not currently being met

Unmet Demand	Colchester	Babergh	Braintree	Maldon	Tendring	East Region	England
Number of visits unmet per week in peak period	2,172	835	1,037	1,216	2,344	48,279	360,666
Unmet demand as a % of total demand	16.4%	14.2%	10.3%	29.0%	24.8%	11.6%	9.6%
Equivalent in sqm of water with comfort factor included	357	137	170	200	385	7,939	59,308
% of unmet demand due to:							
Facility too far away:	74.4%	84.4%	99.8%	99.8%	77.2%	86.4%	88.4%
Without access to a car	59.1%	46.5%	70.1%	27.0%	51.2%	56.1%	69.0%
With access to a car	15.3%	37.8%	29.8%	72.8%	26.0%	30.4%	19.4%
Lack of facility capacity:	25.6%	15.6%	0.2%	0.2%	22.8%	13.6%	11.6%
Without access to a car	13.9%	2.8%	0.1%	0.0%	7.6%	5.4%	8.3%
With access to a car	11.6%	12.9%	0.1%	0.2%	15.2%	8.2%	3.3%
% of 10% most deprived demand unmet	0.3%	0.0%	0.0%	0.0%	5.6%	0.8%	1.6%

Definition of unmet demand – This has two parts: demand for swimming pools that cannot be met because:

1. There is too much demand for any particular swimming pool within its catchment area and there is a lack of capacity; or
2. The demand is located too far away from any swimming pool and is then classified as unmet demand.

5.1 Colchester's unmet demand is 16% of total demand; this equates to 2,172 visits per week in the peak period.

5.2 **Key finding 6** is that, of the 357 sqm of unmet demand, the majority (74%) is due to residents living too far away from a pool. However, 26% is because the pools that residents can reach are too busy.

5.3 The highest levels of unmet demand are in Colchester town. The high levels of reachable unmet demand in this area could justify new pool provision if additional capacity cannot be offered by the existing pools in the Borough.

5.4 Residents who do not have access to a car account for 79% of the demand that is too far away from a facility.

5.5 Of unmet demand due to lack of swimming pool capacity, just over half the residents do not have access to a car.

5.6 Unmet demand outside a catchment will always exist because it is not possible to achieve complete spatial coverage whereby all areas of an authority are inside a catchment for

residents without access to a car. In a borough like Colchester, with rural areas outside the main town, there will be many areas that are not within the walking or driving time of a pool.

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

Geographical Distribution

5.8 Unmet demand is highest in the central and eastern areas of the urban area of Colchester area between Colchester Leisure World and Bannatyne Health Club (Colchester). While this only reaches a maximum of 13 sqm of water per square kilometre, 19% of the Borough's unmet demand is clustered within six square kilometres (see orange squares in Map **5.1**).

Meeting Unmet Demand

5.9 Analysis of the spread of unmet demand shows the level of unmet demand that would be met by a potential new facility in any given location. This 'reachable unmet demand' is calculated for each one-kilometre grid square (figures shown in Map **5.2**).

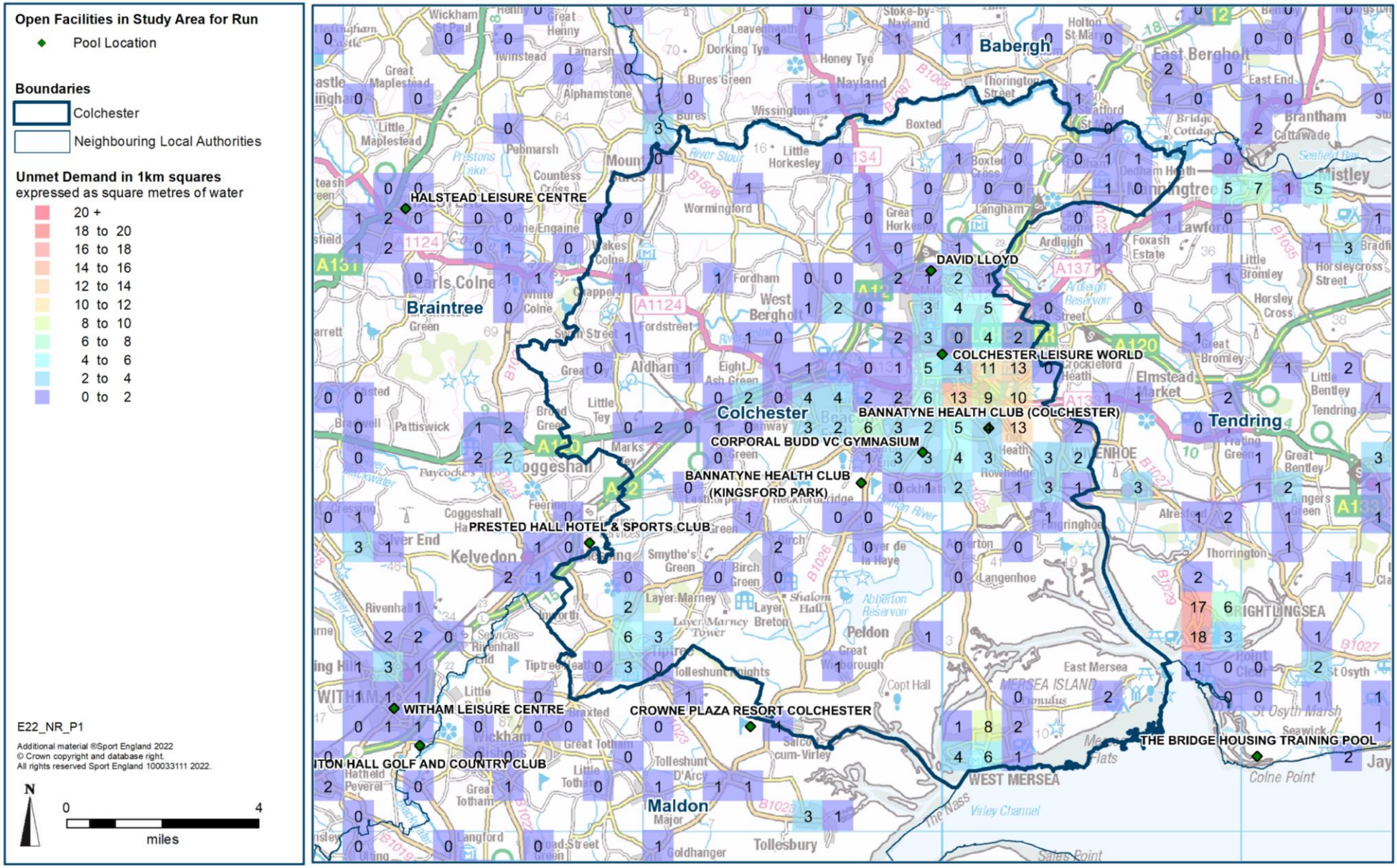
5.10 The level of reachable unmet demand is highest in the same area as the highest unmet demand, where up to 167 sqm of unmet demand is reachable. Levels of more than 100 sqm of reachable unmet demand can be found right across Colchester town and also in the west of Tendring District.

5.11 **Key finding 7** is that the best location for a new pool to meet the most unmet demand is to the east of Colchester town centre, just north of the University of Essex's Colchester campus. This would also be a good location to meet the current unmet demand in Tendring.

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

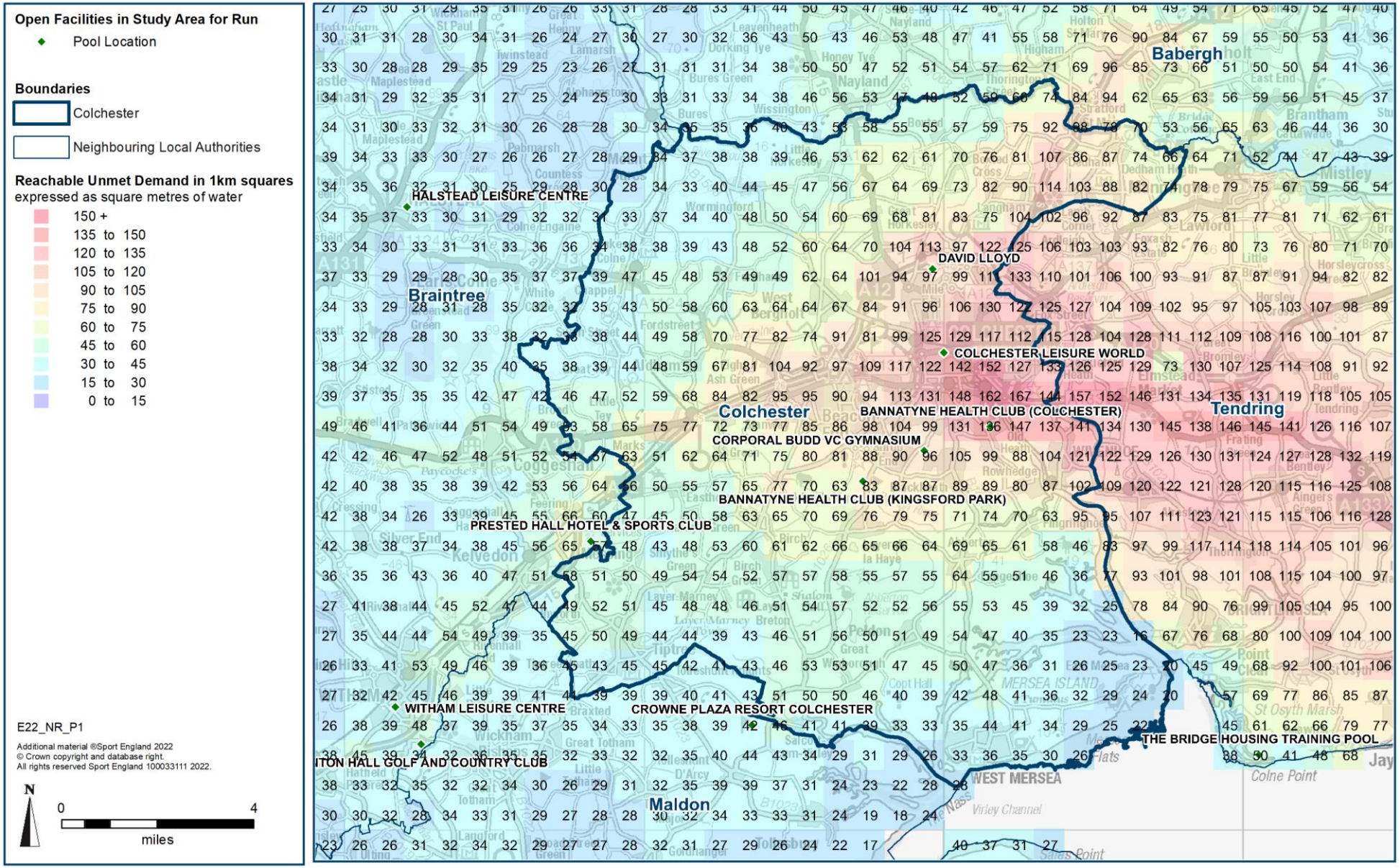
Map 5.1: Unmet Demand for Swimming Pools in Colchester (2022)

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



Map 5.2: Reachable Unmet Demand for Swimming Pools in Colchester (2022)

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



6. Used Capacity

How well used are the facilities?

Used Capacity	Colchester	Babergh	Braintree	Maldon	Tendring	East Region	England
Total number of visits used of capacity	**11,112**	4,548	10,916	1,913	5,962	371,112	3,395,436
% of overall capacity of pools used	**96.2%**	55.5%	62.7%	56.7%	69.4%	67.1%	66.7%

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

6.1 The overall estimated used capacity of the swimming pools in Colchester is 96% in the weekly peak period. Used capacity is higher in Colchester than in neighbouring districts, and the regional and national averages. Tendring has the second-highest used capacity, at 69%.

Used Capacity of Individual Sites

Site	Operation	Area (sqm)	Year Built	Year Refurb	Weight Factor	Peak Hours	Total Hours	Site Capacity (visits per week in peak period)	% of Capacity Used
Bannatyne Health Club (Kingsford Park)	Commercial	160	2006		90%	52.5	106.0	1,400	**69%**
Bannatyne Health Club (Colchester)	Commercial	160	2004		87%	52.0	100.5	1,387	**100%**
Colchester Leisure World	Public	313	1991	2009	72%	47.0	92.0	6,134	**100%**
Corporal Budd VC Gymnasium	Other	438	2008		93%	12.0	12.0	876	**100%**
David Lloyd	Commercial	200	2016		99%	52.5	110.5	1,750	**100%**

6.2 **Key finding 8** is that four sites are estimated to be operating at 100% used capacity at peak times and Bannatyne Health Club (Kingsford Park) is close to the Sport England comfort level, at 69% used capacity. Therefore, in the peak period, these swimming pools are too crowded.

6.3 Variation in the estimated used capacity of sites is primarily caused by the interaction of the following factors (more detail is provided in the subsequent paragraphs):

- Type of site operator (public/commercial/other).
- The hours available for community use.
- The scale of the swimming pool site.

- The level of demand within the travel-time limit from the site and reachable from other pools.
- The age of the pool and its 'attractiveness' weighting.
- Imported demand.

6.4 Public leisure centres have higher used capacity because of their 'draw effect', as follows. Public leisure centres:

- Are accessible for public use and swimming club use.
- Have extensive opening hours and are proactively managed to encourage and support swimming participation and physical activity.
- Unlike commercial swimming pools, do not require payment of a monthly membership fee.
- Provide all the activities for learn to swim, recreational swimming, lane and fitness swimming, and swimming development by clubs.

6.5 Commercial swimming pools provide recreational swimming through membership and may also operate a swim school. They have extensive hours available to the membership.

6.6 The hours available for community use will influence the estimated used capacity of the swimming pool sites.

6.7 It is important to consider the scale of the swimming pool site when looking at estimated used capacity and not just the percentage figure in isolation.

6.8 For swimming pools located close together the demand that can reach these sites is shared between the venues, and this contributes to the level of used capacity at each.

6.9 In order to assess their comparative attractiveness to customers, all the swimming pool sites in the model are weighted to reflect their age, condition and whether they have been modernised. The Colchester pool sites, being relatively modern, are all weighted highly in this regard.

6.10 While all the factors outlined above could affect the estimated used capacity by site, in Colchester the demand from residents is so high in comparison to the supply of pools available that the used capacity is at maximum levels.

6.11 In most studies there is scope to address a high used capacity finding by increasing the peak hours at some pool sites, thereby reducing the average used capacity finding.

6.12 Colchester Leisure World does not currently open for the whole peak period (47 hours of the 52.5 hours of peak time) and capacity could be increased at this large pool site if the opening times were extended. It should be noted that while the impact of this would bring the used capacity down it would still mean the pools operate above the 80% comfort factor. Corporal Budd VC Gymnasium is only open for 12 hours a week and capacity

could be increased more significantly if these hours were extended in the weekly peak period.

Imported Demand

Imported Demand	**Colchester**	Babergh	Braintree	Maldon	Tendring	East Region	England
Number of visits imported per week in peak period	**1,250**	880	2,639	269	0	12,730	2,235
Demand imported as a % of used capacity	**11.2%**	19.4%	24.2%	14.1%	0.0%	3.4%	0.1%
Difference between visits imported and exported	**7**	-519	1,902	-1,064	-1,160	2,532	194

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

6.14 Imported demand to Colchester pools is modelled as being 11% of the used capacity, equivalent to 1,250 visits per week in the peak period.

Import/Export Balance

6.15 Colchester's levels of imported and exported demand are very similar. The Borough is a very small net importer of demand, at only seven visits per week in the peak period.

7. Local Share of Facilities

Equity share of facilities

Local Share	Colchester	Babergh	Braintree	Maldon	Tendring	East Region	England
Local Share: <1 supply less than demand, 1> supply greater than demand	**0.77**	0.89	1.27	0.99	0.86	0.97	1.00
Water space in sqm per 1,000 population	**9**	19	13	7	7	12	12
Non-commercial water space in sqm per 1,000 population	**6**	19	9	4	7	10	10

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

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

- A value of 1 means that there is enough quality supply reachable by the demand.
- A value of less than 1 indicates a shortage of quality supply that can be reached by the demand.
- A value greater than 1 indicates a surplus of quality supply that can be reached by the demand.

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

7.3 Borough-wide, Colchester has a local share of 0.77. This indicates a shortage of quality supply that can be reached by the demand. Colchester has the lowest local share in the wider study area. The East Region and England-wide averages are 0.97 and 1.00 respectively.

7.4 Local share is highest around Tiptree, where values above 2 indicate that the demand can access twice the required quality supply (see blues squares in Map **7.1**).

7.5 **Key finding 9** is that the area to the east of Colchester town centre has the poorest access to supply. Values as low as 0.44 indicate that the demand in this area has access to less than half the required quality supply.

Comparative Measure of Provision

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

7.7 Based on this measure, Colchester's share of supply is 9 sqm of water per 1,000 population. This reduces to 6 sqm if the commercial pools are excluded.

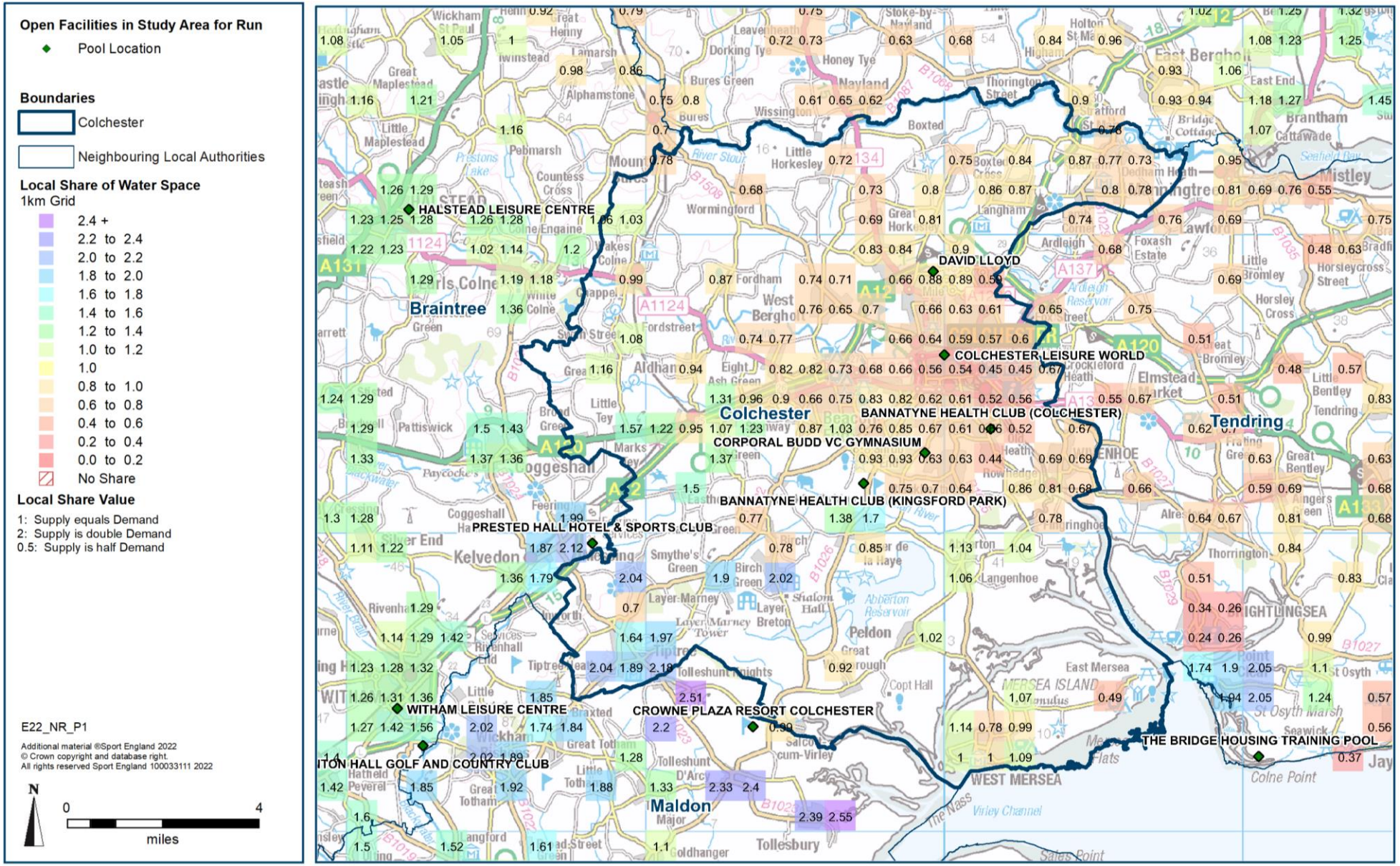
7.8 With the commercial pools included, Colchester has the third-lowest share of supply after Tendring and Maldon, which have 7 sqm of water per 1,000 population. The East Region and England-wide averages are 12 sqm of water per 1,000 population.

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

7.10 The supply and demand assessment for swimming pools in the Borough is based on the findings from the previous five headings analysed in this report.

Map 7.1: Local Share of Swimming Pools in Colchester (2022)

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



Appendix 1: Facilities Excluded

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

Site	Facility Type	Comments
Atlantis Health And Beauty Spa	Learner/Teaching/Training	Too Small
Best Western Marks Tey Hotel	Main/General	Too Small
Broomgrove County Infant & Junior School	Lido	Lido
Colchester Academy	Main/General	Private Use
Colchester County High School for Girls	Main/General	Private Use
Colchester Royal Grammar School	Lido	Lido
David Lloyd (Colchester)	Lido	Lido
Essex Outdoors Mersea	Lido	Lido
Everlast Fitness Club (Colchester)	Main/General	Too Small
First Strokes Swim School	Main/General	Too Small
Fitness4Less (Colchester)	Main/General	Too Small
Friars Grove Primary School	Lido	Lido
Kingswode Hoe School	Lido	Closed
Lexden Racquets & Fitness Club	Learner/Teaching/Training	Too Small
Lexden Springs School	Learner/Teaching/Training	Private Use
Lexden Springs School (Closed)	Learner/Teaching/Training	Closed
Milldene Primary School	Lido	Lido
Parsons Heath C of E Primary School	Lido	Lido
St Mary's School	Lido	Lido
Stanway Primary School	Lido	Closed
Tiptree Heath Primary School	Lido	Lido
Waldegraves Holiday Park	Lido	Lido
You Fit Health Club (Colchester)	Main/General	Too Small

Appendix 2: Model Description, Inclusion Criteria and Model Parameters

Included within this Appendix are the following:

- Model Description
- Facility Inclusion Criteria
- Model Parameters

Model Description

1. Background

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

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

2. Use of FPM

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

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

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

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

3. How the Model Works

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

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

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

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

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

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

- Active Lives
    - For the adult survey, this data is collected by an online survey or paper questionnaire on behalf of Sport England. Each annual sample includes about 175,000 people and covers the full age/gender range. Detailed questions are asked about over 200 specific sports categories in terms of participation and frequency.
    - For the children and young people survey, this data is collected through schools with up to three mixed ability classes in up to three randomly chosen year groups completing an online survey.
- National Benchmarking Service
    - This is a centre-based survey whose primary purpose is to enable centres to benchmark themselves against other centres. Sample interviews are conducted on site. The number of people surveyed varies by year depending on how many centres take part. 10,000 swimmers and 3,500 sports hall users are surveyed per year. This data is used for journey

times, establishing proportions of particular activities in different hall types, the duration of activities and the time of activity (peak period).

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

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

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

4. Calculating Demand

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

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

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

5. Calculating Supply Capacity

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

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

[1] For example, it is estimated that 7.72% of 16–24-year-old males will demand to use an AGP 1.67 times a week. This calculation is done separately for the 12 age/gender groupings.
[2] Census Output Areas (OAs) are the smallest grouping of census population data and provide the population information on which the FPM's demand parameters are applied. A demand figure can then be calculated for each OA based on the population profile. There are over 171,300 OAs in England. An OA has a target value of 125 households per OA.

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

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

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

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

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

6.2. The reason for this is that the HSC is the 'court' equivalent of all the main and activity halls capacities; this is calculated based on hall size (area) and whether it is the main hall or a secondary (activity) hall. This gives a more accurate reflection of the overall capacity of the halls than simply using the 'marked courts' figure. This is due to two reasons:

- In calculating the capacity of halls, the model uses a different 'At-One-Time' (AOT) parameter for main halls and for activity halls. Activity halls have a greater AOT capacity than main halls – see below. Marked courts can sometimes not properly

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

reflect the size of the actual main hall. For example, a hall may be marked out with 4 courts, when it has space for 3 courts. As the model uses the 'courts' as a unit of size, it is important that the hall's capacity is included as a 3 'court unit' rather than a 4 'court unit'.

- The model calculates the capacity of the sports hall as 'visits per week in the peak period', 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 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.

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

8. Comfort Factor – Halls and Pools

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

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

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

8.4. The comfort factor is used in two ways:

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

9. Utilised Capacity (Used Capacity)

9.1. 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.

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

9.3. 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

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

10. Travel Times Catchments

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

10.2. The Ordnance Survey (OS) MasterMap Highways Network Roads has been used to calculate the off-peak drive times between facilities and the population, observing any one-way and turn restrictions which apply and taking account of delays at junctions and car parking. Each street in the network is assigned a speed for car travel based on the attributes of the road, such as the width of the road, the geographical location of the road, and the density of properties along the street. These travel times have been derived through national survey work, and so are based on actual travel patterns of users. The road speeds used for inner and outer London 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 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 90% of all visits, both by car and on foot, are made within 20 minutes. Hence, 20 minutes is often used as a rule of thumb for the catchments for swimming pools and sports halls.

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

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

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

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

Facility Inclusion Criteria

Swimming Pools

The following inclusion criteria were used for this analysis:

- Include all operational indoor swimming pools available for community use, i.e., pay and play, membership, sports club/community association.
- Exclude all pools not available for community use, i.e., private use.
- Exclude all outdoor pools, i.e., lidos.
- Exclude all pools where the main pool is less than 20 metres in length, or the area is less than 160 square metres. If the principal pool is a leisure pool with an area less than 200 square metres, then all pools on the site should be excluded.
- Include all 'planned,' 'under construction, and 'temporarily closed' facilities only where all data is available for inclusion.
- Where opening times are missing, availability has been included based on similar facility types.
- Where the year built is missing assume date 1975[4].

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

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

Model Parameters

Pools Parameters

<table>
<tr><td>At One Time Capacity</td><td></td><td>0.16667 per square metre = 1 person per 6 square meters</td><td></td></tr>
<tr><td>Coverage Maps</td><td></td><td>Car: 20 minutes
Walking: 1.6 km
Public transport: 20 minutes at about half the speed of a car

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

Frequency per Week</td><td></td><td>
<table>
<tr><th>Age</th><th>0-15</th><th>16-24</th><th>25-39</th><th>40-59</th><th>60-79</th><th>80+</th></tr>
<tr><td>Male</td><td>14.5</td><td>6.9</td><td>10.4</td><td>8.6</td><td>5.4</td><td>1.6</td></tr>
<tr><td>Female</td><td>16.2</td><td>10.2</td><td>13.8</td><td>11.8</td><td>7.7</td><td>1.5</td></tr>
</table>
<table>
<tr><th>Age</th><th>0-15</th><th>16-24</th><th>25-39</th><th>40-59</th><th>60-79</th><th>80+</th></tr>
<tr><td>Male</td><td>1.09</td><td>1.03</td><td>0.86</td><td>1.01</td><td>1.30</td><td>1.73</td></tr>
<tr><td>Female</td><td>1.10</td><td>0.96</td><td>0.82</td><td>1.00</td><td>1.17</td><td>1.28</td></tr>
</table>
</td><td></td></tr>
<tr><td>Peak Period

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

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