Plan for Playing Pitches

Appendix NA4

Match and Team Equivalents

March 2015
Introduction and overview

1.1 Comparing whether a grass football or rugby pitch is being over, or under-used relative to its ‘carrying capacity’ is critical to assessing pitch quality and supply. As a simple overview, the following factors have been taken into account.

Match Capacity:

• The assessed quality of pitch - measured in terms of an estimate of the number of games (or comparable activity, like training) that can be played on it every week without undue wear and tear.

• Where the pitch is located, and whether this will impact on the number of community team games that it might be able to accommodate each week without undue wear and tear.

Match Equivalents:

• The number of games played on a given pitch and by whom on a regular basis.

• The amount of training and associated activity taking place on a pitch on a regular basis.

Comparison:

• Comparing the above to establish whether a pitch is being over or under-played. As appropriate (for multi-pitch sites) the scores for each pitch can be added together to provide an aggregate comparison for the site.

In more detail

1.2 In more detail the following must be taken into account.

Match Capacity

1.3 In order to come to an informed judgment on this the following have to be taken into account:

• The type of grass pitch(es) under consideration - is it an adult pitch; junior/youth pitch; or, a mini-soccer pitch?

• The assessed pitch(es) quality - Good, Adequate, Poor. This will affect the number of matches that can be absorbed each week without undue wear and tear.

1.4 Both the Football Association (FA) and the Rugby Football Union (RFU) have provided guidance in this regard. For football the FA have stated that “the following guidance on the number of match equivalent sessions a week that a natural grass pitch is likely to be able to regularly accommodate, based on an agreed quality rating, without adversely affecting its current quality”: (The guidance from the RFU is explained towards the end of this Appendix).
<table>
<thead>
<tr>
<th>Agreed pitch quality rating</th>
<th>Adult Football</th>
<th>Youth Football</th>
<th>Mini Soccer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>3</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Standard</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

(N.b. Matches have different time-lengths, depending on the age-group concerned. In the model used to estimate capacity and usage for this study it is possible to incorporate this time dimension. However, for this study the values for match hours have been switched off/neutralized).

1.5 The number of community team games that a pitch can absorb will also be influenced by such factors as whether it is located in a public park or on a school site. For example, a pitch on a school site might, technically, be of good quality. However, if that pitch is also used by the school for its own activity, the number of games that it can absorb from ‘external’ community use will be reduced. Where situations like this have arisen on school sites, they have been taken into account- in most cases this has involved factoring in 1 x school game each week (thereby reducing the actual capacity to absorb community teams games by 1 match per week). A worked example illustrates this situation later in this Appendix.

1.6 Where local information exists to allow for a more precise allowance to be made in this regard, it has been taken into account and referenced in the site-overviews contained in Section 4.

1.7 Match Capacity is therefore calculated by:

a) Identifying the number of match equivalent sessions that can be absorbed each week by a pitch of a given type and quality (see table);

b) Discounting the figure resulting from a) as appropriate to reflect factors (such as school use of pitches) that will add to the wear and tear, and reduce the capacity for community team matches;

c) As appropriate aggregating figures from b) for multi-pitch sites to produce a figure for the site as a whole. (On the larger sites this could produce three figures for adult, junior/youth, and mini-soccer pitches).

**Match Equivalents**

1.8 Generally speaking it is easy to estimate the number of actual matches played on a given pitch/site. The number of teams who use a given pitch/site on a regular basis is usually known. Assuming each team plays at home every other week allows the number of matches to be estimated.

1.9 However, to estimate Match Equivalents requires the calculations to take into account training activity for which grass pitches might be used. To start with, a good level of knowledge about the training patterns and venues of local teams is required. Many teams, in fact, will not use their grass pitch for training- some will use AGPs, and others may use marginal land off the playing pitch surface(s). Where alternative
venues/surfaces are used, the impact of training is excluded from the calculations. There will also be some teams that do not train at all.

1.10 However, where teams are known to use a grass pitch for training, or where there is a good likelihood of this being the case in the absence of hard evidence, some informed assumptions need to be made about; the size of training squads; and, the regularity of training sessions. The relevant assumptions made are as follows:

- For teams that are known (or likely) to train, the adult and junior/youth training squads equate to 1.5 teams (on the basis that training squads tender to be larger than the match day teams (there being competition for places). However, in the darker months and unless pitches are floodlit teams will not be able to train during weekday evenings, and so will either train off-site, or not at all. For this reason the above factor of 1.5 for the training squad size has been reduced to 0.75 to reflect this pattern.
- For mini-soccer teams training squads are the same size as the match day teams.
- Each squad trains once a week.

1.11 Match Equivalents are therefore calculated by:

a) Multiplying the number of teams of the relevant age group by a factor that represents ‘home and away’ play (usually a factor of 0.5)

b) Multiplying the number of training squads of the relevant age-group by the training squad size;

c) Adding the resultant figure from a) to that from b)

d) As appropriate aggregating figures from c) for multi-pitch sites to produce a figure for the site as a whole. (On the larger sites this could produce three figures for adult, junior/youth, and mini-soccer pitches).

Over-marked pitches

1.12 One of the pitfalls in applying this method is that not all grass pitch surfaces are dedicated for use by a given age-group. The most obvious examples are where mini-soccer and junior youth teams play their matches and/or train on pitches set-out for adult play, but may also be temporarily over-marked for use by younger age groups-this is where modelling a situation without the injection of some commonsense interpretation becomes dangerous. The current Sport England Playing Pitch Strategy Guidance does offer some suggestions as to how such situations should be addressed in calculating the amount of use relative to capacity. However, it has been extremely difficult, at best, to apply these suggested approaches and incredibly time-consuming.

1.13 The issue arises because, clearly, teams and squads from different age-groups will not impact upon the playing surface to the same extent. For example, a mini-soccer team using an over marked adult pitch for its own matches and training would not exert anywhere near the same amount of wear and tear as an adult team undertaking comparable activity. If the time and resources were available it would be possible to aggregate up the cumulative wear and tear on a pitch caused by use by teams/squads of varying ages. However, resources and time are not infinite and, in any event, the marking out and use of pitches for the younger age-groups can be very transitional, such as to make such an exercise often ‘out-of-date’ before it has been completed.
1.14 Within the GIS modelling that has been used to underpin this particular study, it has been possible to introduce ‘loading’ factors to reflect the above situations, and this perhaps is worth reviewing and modifying if the model continues to be run and updated. Currently, a factor of 0.25 is added to mini-soccer teams. For example, if there are 4 mini-soccer teams using the site, this results in $4 \times 0.25 = 1$ adult equivalent team. This allows for the wear and tear wrought by mini-soccer teams to be kept in proportion relative to older, larger, and heavier teams. A similar loading factor of 0.25 could be used for training squads (although note the comments below).

1.15 Within the GIS modelling there are fields that can be used to reflect the numbers and sizes of mini-soccer training squads (as with adult and youth/junior squads). However, local evidence indicates that the very large majority of mini-soccer teams train on AGPs or sports halls, and not on their match pitches. Therefore these fields have not been used for the Plymouth Needs Assessment.

1.16 Ultimately, the best approach is the use common sense in viewing the calculations by relating to what is observed and recorded on the ground. If, for example, mini-soccer activity is outstripping notional pitch capacity, but if there are no mini-soccer pitches recorded on site it will generally be because the teams are playing on a non-dedicated playing surface.

**Worked Example A**

*A multi-pitch site in local authority control*

1.17 The site contains 3 x adult and 2 x junior/youth pitches deemed to be in standard condition.

1.18 The site is the home of 8 x adult and 4 x junior/youth teams. 6 of the adult teams play on Saturday PM and 2 on Sunday AM. The 4 junior youth teams play all play on Saturday AM. 4 of the adult teams train on their home pitch, as do all of the 4 junior teams.

1.19 Match Capacity is therefore calculated as follows:

   a) Identifying the number of match equivalent sessions that can be absorbed each week by a pitch: in this case 2 per adult pitch and 2 per junior pitch (FA guidance).

   b) As the pitches are not on a school site there is no need to discount education use. Although the site is a public recreation ground, other activity tends to be just local dog walkers, and children using a playground, so nothing that would materially impact upon the quality of the surface (other than possible dog-fouling).

   c) Multiply the pitches by the match equivalent sessions: in this case for adults $3 \times 2 = 6$; and, junior/youths $2 \times 2 = 4$.

   d) The Match Capacity for the site is therefore 6 matches for adult football, and 4 matches for junior football.

1.20 Match Equivalents are therefore calculated as follows:

   a) Multiplying the number of teams of the relevant age-group by a factor that represents ‘home and away’ play (usually a factor of 0.5): in this case 8 adult teams $\times 0.5 = 4$; and 4 junior teams $\times 0.5 = 2$.
b) Multiplying the number of training squads of the relevant age-group by the training squad size: in this case it is known that the two adult Sunday teams don’t train; and two adult Saturday teams train on an AGP elsewhere. All four junior/youth teams train on their home pitch, on-site: so, in this case 2 adult squads x 0.75 = 1.5; and 4 junior/youth squads x 0.75 = 3

c) Adding the resultant figures from a) to those from b): in this case for adults 4 + 1.5 = 5.5; and, for juniors/youths 2 + 3 = 5

d) The Match Equivalents for the site are therefore 5.5 for adults; and, for 5 for juniors youths

<table>
<thead>
<tr>
<th>Overall calculation of site capacity v use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adult</strong></td>
</tr>
<tr>
<td>Site match capacity: 6</td>
</tr>
<tr>
<td>Site match equivalents: 5.5</td>
</tr>
</tbody>
</table>

From the above, it can be seen that the adult pitches are being used just below their notional capacity, and the junior/youth pitches are being over-used.

**Worked Example B**

**A multi-pitch site on a school site**

1.21 The above scenario of pitches and teams is repeated, but transposed onto a school site. The school has a policy of allowing its pitches to be used by community teams at the weekend. However, the pitches are also used by school teams during the week, and this impacts upon their quality, and their notional capacity for community use. Under b) of the calculation of match hours capacity under Example B must take into account school activity. The notional capacity of the pitches to accommodate community games therefore drops from 2 games to 1 game per adult and junior/youth pitch.

1.22 If everything else remained the same above would have the effect of halving the capacity of pitches for community use. As below.

<table>
<thead>
<tr>
<th>Overall calculation of site capacity v use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adult</strong></td>
</tr>
<tr>
<td>Site match capacity: 3</td>
</tr>
<tr>
<td>Site match equivalents: 5.5</td>
</tr>
</tbody>
</table>

**Use by rugby**

1.23 The above approaches have been used in a near identical way for rugby, in assessing notional pitch capacity and comparing it with estimated usage. The only differences are in relation to:

- The match equivalent estimates recommended by the RFU and presented in the below table;
- For training the RFU have advised that 2 teams training each on half a pitch every week should equate to 1 match equivalent/week; and,

- The inclusion of mini-rugby squads and sizes in the calculations, given that most clubs’ mini-teams train on-site. The ‘loading factors’ are the same used for mini-soccer (i.e. 0.25).

<table>
<thead>
<tr>
<th>Drainage</th>
<th>Maintenance Standard (M1)</th>
<th>Maintenance Good (M2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Inadequate (D0)</td>
<td>0.5</td>
<td>2</td>
</tr>
<tr>
<td>Natural Adequate (D1)</td>
<td>1.5</td>
<td>3</td>
</tr>
<tr>
<td>Pipe Drained (D2)</td>
<td>1.75</td>
<td>3.25</td>
</tr>
<tr>
<td>Pipe and Slit Drained (D3)</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.5</td>
</tr>
</tbody>
</table>