

As participation rates in sport increase, there has been much discussion in relation to benchmarks for sports ground usage and capacity.

The capacity of a sports ground is the maximum level of traffic / usage that the site can sustain without resulting in a major decline in the turf and surface condition that renders the site unsafe or 'unfit for purpose'.

In basic terms this can be compared to the agricultural measure of 'how many sheep per acre?'. If we over stock our land we will kill it, likewise if we over-use our turf we will destroy it. No matter how much resource or expertise we put into maintaining our turf, it is all wasted if don't manage usage.

Sports Ground Usage

As an industry we have struggled to come to terms with the complexities involved in measuring ground usage rates and determining the capacity of a sports ground.

Factors that must be considered in determining ground usage include;

- **Allocated hours** – How many hours per week is the ground is allocated to a club?
- **Actual hours** – How many hours per week is the ground actually used by a club?
- **Number of games** – What is the number of competitive games played on a ground per week?
- **Length of game (time)** – How many hours is the ground is used for competitive games?
- **Number of teams** – How many teams use the ground for training?
- **Number of training sessions** – How many training sessions per week?
- **Length of training (time)** – How long are the training sessions?
- **Number of people** – How many people in a game, training squad?
- **Age group / level of competition** – What is the grade of competition, senior / junior? What is the wear impact of the age group?

In reality, no one of the above factors will give an accurate measure of sports ground usage that can be applied or compared across a number of grounds. Whilst it is not an exact science, it is a combination of all these measures that provide an indicative, reasonable measure of sports ground usage.

The question is – What is a reasonable measure of sports ground usage that can be applied across different sports grounds and different codes of sport?

Allocated Hours per Week

Too often, the basic metric of '**allocated hrs per week**' is used to measure usage rates of a sports ground. This rating system suggests the following benchmarks as appropriate.

Sports Ground Usage Benchmarks (Allocated hours)

Low Usage	Moderate Usage	High Usage
< 10 hrs per week	10 – 20 hrs per week	> 20hrs per week



Data in relation to allocated hours is relatively easy to acquire from Council or sports clubs. However it does not take into consideration the other important factors such as number of teams, number of games, the actual length of the time the sports ground is being used or the number of people using the ground.

For example, if we have 2 similar community sports grounds used for AFL football, both could have a moderate usage rate of 15 hrs per week, however SG 1 may have 14 junior and 8 senior teams whilst SG 2 has only 5 junior and 2 senior teams.

Sports Ground Usage – Allocated hrs Vs # Teams

Metric	Sports Ground 1	Sports Ground 2
Allocated hrs per week	15	15
Usage rating	Moderate	Moderate
# junior teams	14	5
# senior teams	8	2
Realistic usage rating	High	Moderate

The level of usage at SG 1 is actually approximately three times higher for SG 1 compared to SG 2 even though allocated hrs and the usage rating are the same. Realistically the usage rating for SG1 is High.

‘Allocated hours per week’ is not a meaningful metric and should be avoided as a measure of sports ground usage.

Person Hours per Week

A more reasonable measure of sports ground usage, takes into consideration the number of competition games, training sessions and length (time), and number of participants, to give a measure of ‘average person hours per week’. A wear factor can be applied to account for the different impact of junior and senior teams.

Different sporting codes and venues have different playing field sizes which result in varying wear impacts. The same number of person hours usage will have a higher impact on a smaller playing field. In order to standardise information so that comparison can be made for different sporting codes and venues the measure or ‘sports ground usage index’ used to assess sports ground usage is **metres square per person hour per week (m²/phr/wk)**. This metric has been developed as it reflects the number of hours the ground is used, the number of persons using the ground per week and the size of the field.

Data in relation to the number games, number of registered teams can be accessed from published game fixtures and training data can be based on reasonable assumptions of squad numbers and training session duration.

Whilst the modelling can be complex, the measure of ‘average person hours per week’ is a meaningful metric that can be converted to an index, ‘metres square per person hour per week’ (**m²/phr/wk**) which can be compared across different sized grounds or sporting codes.



The **IPOS – Sports Ground Usage & Capacity Model**, has been developed according to the above principles. Having used this model over many community sports grounds, benchmarks have been developed for Low, Medium and High usage. The Tables below illustrate the benchmarks for AFL football and soccer, with the usage data converted to an index for comparison.

Sports Ground Usage Rates (Person Hr per week) (AFL - 16,000 m ²) (Usage Area - 13,000 m ²)		Score	Comment
>650	1	Extremely High Usage	
360 - 650	2	High Usage	
250 - 360	3	Moderate Usage	
185 - 250	4	Moderate - Low Usage	
< 185	5	Low Usage	

Sports Ground Usage Rates (Person Hr per week) (Soccer - 8,000 m ²) (Usage Area - 7,000 m ²)		Score	Comment
>350	1	Extremely High Usage	
200 - 350	2	High Usage	
140 - 200	3	Moderate Usage	
100 - 140	4	Moderate - Low Usage	
< 100	5	Low Usage	

Ground Usage Rates (M ² per Person Hr per week)		Score	Comment
<20	1	Very High	
21 - 35	2	High	
36 - 50	3	Moderate	
50 - 70	4	Low	
> 70	5	Very Low	

Sports Ground Capacity

Having determined a reasonable measure of sports ground usage, we now need to consider how this relates to the capacity of the ground to cope with the different usage levels.

The factors that directly impact on the capacity of a sports ground include;

- **Usage rates**
Number of competition games / training schedules
- **Participation rates**
Number and grade of registered teams (senior/junior) / number of participants
- **Type of usage / sporting code**
High impact (football/rugby) / low impact (Cricket/Athletics)
- **Sports ground quality & condition**
Construction specification / maintenance regimes / turf species and quality / surface quality
- **Weather conditions**
Season (winter/summer) / Temperature / Rainfall

A score is allocated from 1 – 5 to each factor, with 1 indicating significant impact and 5 indicating minimal impact on ground condition. Capacity is rated as a score out of a total of 25. Based on this model, sports ground capacity benchmarks have been developed as follows;

Sports Ground Capacity	Total Score	Comment
Low Capacity	<13	Sports ground is significantly impacted by use and has little capacity for increased use.
Medium Capacity	13 - 17	Sports ground is impacted by use but it able to cope with current usage. Monitor impacts.
High Capacity	>17	Sports ground has little impact from current use and could cope with increased usage given current conditions.



Sports Ground Usage & Capacity Summary

Rather than reporting only on ‘allocated hours’ of use, we need to consider all the factors that influence usage levels and report on meaningful measures such as actual ‘person hours’ of use, the number of people actually using the ground. Overlay this with agronomic, climatic and type of activity assessments and we are able to report and objectively compare the usage and capacity of sports grounds, as in the IPOS summary below;

Sports Ground Usage / Capacity - Summary

[Back](#)

FROM TO
 Year: Year: Location:

Location	Club Name	Sporting Code Winter	Year	Teams Junior	Teams Senior	Teams Total	Games Junior	Games Senior	Games Total	Total Adj. Person hrs per week	Ground Area (m ²)	Total m ² per person hr per week	Usage Rating Description	Total Adj. person hrs per season	Ground Capacity Score	Ground Capacity Rating Description	Details
Aldridge Oval	Aldridge Football Club	Football - Australian Rules	2015	7	4	11	51	39	90	431	14,600	33	High	10,129	12	Low	
Bryce Oval	Bryce Football Club	Football - Australian Rules	2015	7	5	12	53	53	106	509	20,100	39	Medium	12,122	14	Medium	
Mawson Oval	Mawson Football Club	Football - Australian Rules	2015	7	4	11	52	41	93	433	16,700	38	Medium	10,270	14	Medium	
Mitcham Oval	Mitcham Football Club	Football - Australian Rules	2015	4	4	8	28	28	56	333	19,000	57	Low	8,003	18	High	
Moffat Oval	Moffat Football Club	Football - Australian Rules	2015	7	5	12	48	38	86	470	14,500	30	High	11,114	13	Low	
Notting Hill Oval	Notting Hill Football Club	Football - Australian Rules	2015	10	6	16	67	55	122	619	15,000	24	High	14,637	13	Low	

The sports ground usage and capacity analysis is conservative and based on validated data. Results are indicative, but meaningful, and can be used to compare usage levels and capacity between sports grounds for planning purposes or to determine management strategies for a given venue.

There are many variables that may further impact on capacity that may be unknown or not measured. These include the impact of

- Unstructured community use,
- Unauthorised structured use,
- Intensive localised training under lights and near the club rooms,
- localised intense rainfall events.

There will always be a need to inspect, monitor the performance of the sports ground and liaise with sports clubs or associations to ensure grounds are ‘fit for use’ for the designated activity.

