

Best Practice Natural Turf Fields

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May 2021





**Dr Mick Battam
receiving award from
Minister Rob Stokes**

We have provided advice for:
2000 sports fields
25 Golf Courses
60 parks (Barangaroo, Hyde, Bot. Gardens)
5 Racetracks (Royal Randwick)



Primary authors

- Sporting field wear level calculator
- Lower Hunter turf best practice guide (written and with reviewers)



**Love Your Garden Program
(26,000 houses)**

Creating your healthy new lawn

Step 1: Choosing the right turf

Choosing the right turf is the first step in creating your healthy new lawn. Different types of turf have their own unique features. Use our comparison table to decide which type of turf is best for you.

The benefits of healthy natural turf:

- 30°C cooler than synthetic on hot days
- Contains 8% higher of carbon each year
- Can increase property prices by 5%
- Less runoff into stormwater drains
- Improves mental health and wellbeing

Turf Type	Unique Features	LAWN FOR LIGHT USE			LAWN FOR HEAVY USE		
		Full Sun	Partial Sun	Full Shade	Full Sun	Partial Sun	Full Shade
BUFFALO	• Acceptable with solar and some water, but can become greener in shade	☑	☑	☑	☑	☑	☑
COCKEY	• One seed • Some seeds can be grown in low grass • Wide range of weed control	☑	☑	☑	☑	☑	☑
KIKUYU	• Acceptable with solar and some water, but can become greener in shade	☑	☑	☑	☑	☑	☑
ZOYIA	• One seed • Some seeds can be grown in low grass • Wide range of weed control	☑	☑	☑	☑	☑	☑

Healthy home lawns

Sydney WATER

Best practice guidelines for holistic open space turf management in Sydney

Needs updating

Turf best practice guide

Fields are mostly only used:

Weekends 8:30 am to 5:30 pm	$9 + 9 = 18$
Fridays 5:30 pm to 10:30 pm	5
Mon-Thurs 4:00 to 9:00 pm	$5 + 5 + 5 + 5 = 20$
<hr/>	
	43 hours/week (if fully booked)

~90% of Sydney fields get <45 hours/week

BUT, usage hours are a poor measure of wear which depends on:

- Type of sport
- Age of players
- Number of players
- Size of field
- How well clubs spread wear
- Extent to which soil allows turf to be torn by sport
- Waterlogging (turf is more vulnerable to damage)

Case Study 1

Using the model developed by Dr Mick Battam, the highest wear levels in NSW are likely at Gymea Bay Oval



Last week of soccer before amendment
40% turf patching per year



Thinnest areas



Spring recovery

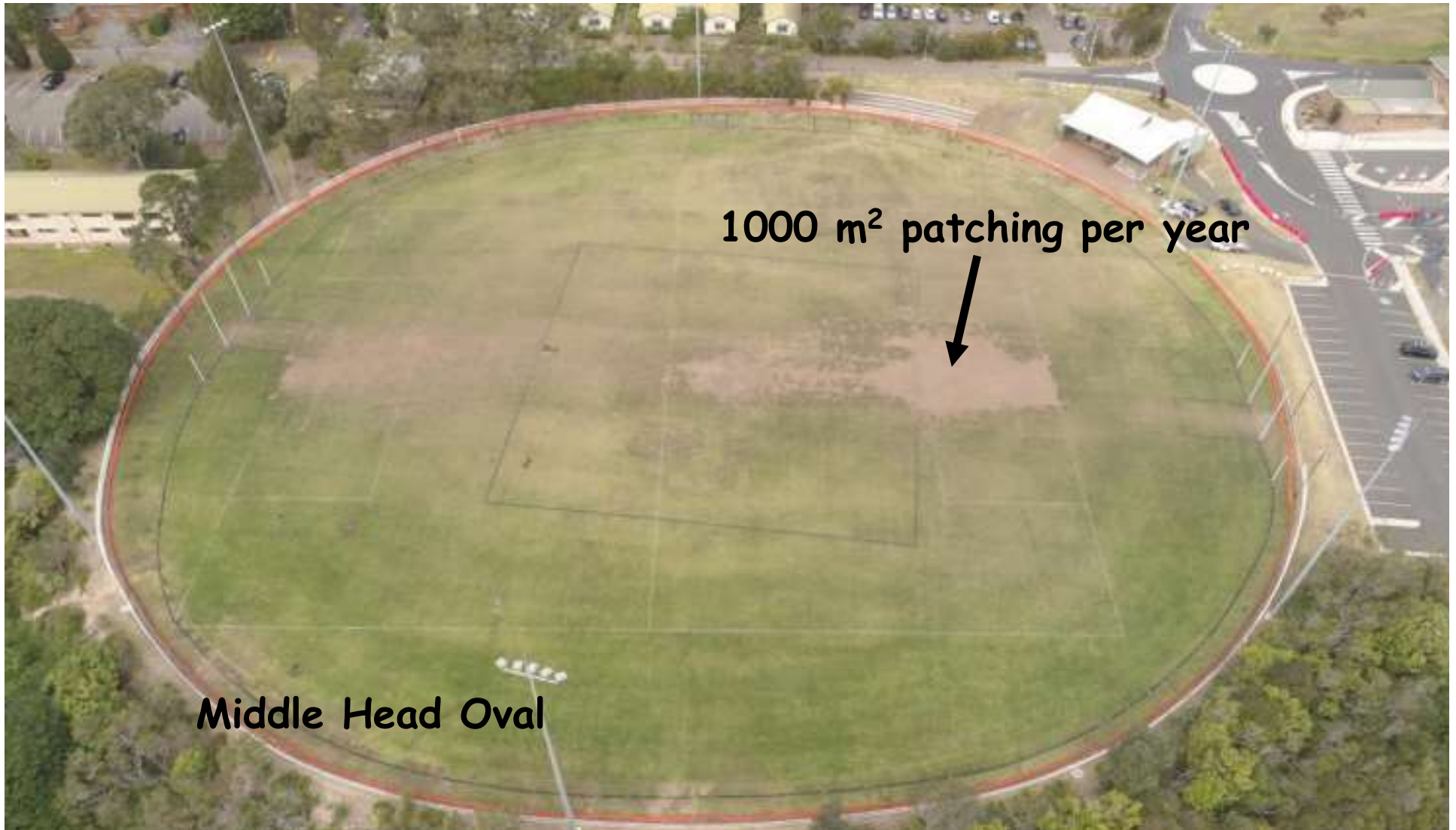


65 hrs/week

After amendment (last week of soccer season). Nil patching in >5 years
Fields will improve if council better maintained them
Synthetic would likely struggle with these levels of wear

Case Study 2

Middle head performed poorly and was considered for conversion to synthetic





Field was rebuilt according to best practice and easily survived the 2019 sport season (before COVID19) despite receiving 49 hours/week of winter use (soccer + AFL)



August 2019 (end of winter sport season)

Clubs love the field so much that the MPL team moved their home games here (usage now >55 hours per week)



August 2019 (end of winter sport season)

Dr Mick Battam is making 4 videos on sporting fields best practice that will be released in June 2021 (EPA project).

Middle Head Oval will be featured, with the Mayor, sporting clubs, environmentalist all participating (filming is complete)



August 2019 (end of winter sport season)

www.agenviro.com

www.peakwater.com.au

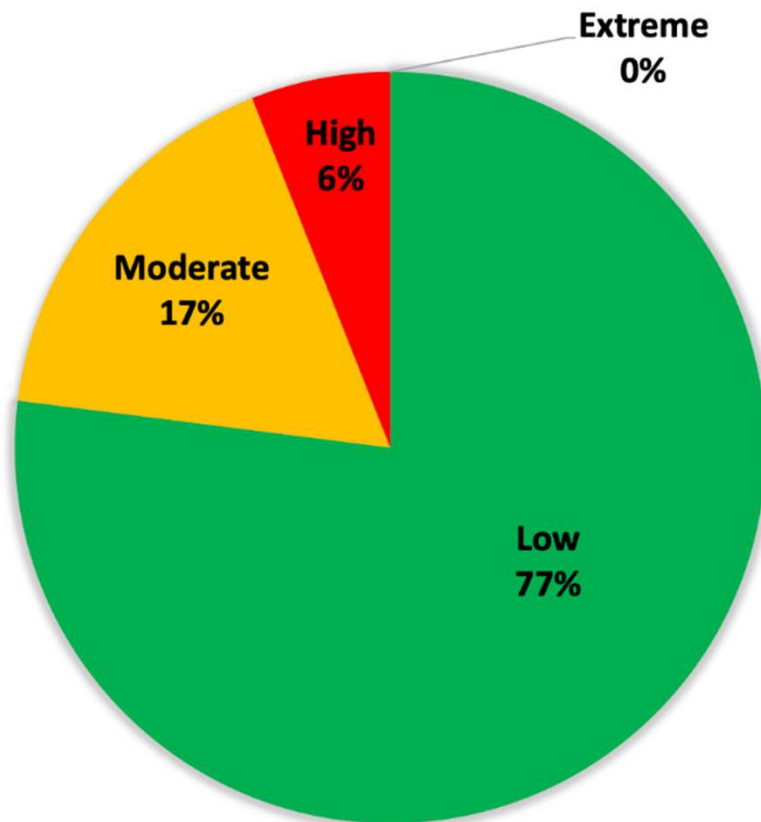
Lots of fields receive low levels of wear yet struggle



Case Study 3

Despite 77% of fields in the lower Hunter receiving low wear, more than half the fields were in bad condition

Sport wear levels



Lower Hunter

Field condition



5% Good



31% Acceptable



23% Poor



41% Very poor

The most common reasons why the lower Hunter fields struggle were soil related

Item	% of Fields
Hardness and compaction	54%
Weeds	51%
Water repellency	46%
Waterlogging	34%
Lack of topsoil depth	34%
Soil layering	27%
Unevenness & lack of traction	25%

This is not surprising as soil science is its own profession and the vast majority of greenkeepers, consultants and contractors cannot perform basic soil diagnostic tasks

Case Study 4

Unirrigated field that receives almost no wear yet struggles to maintain healthy turf in areas where imported soil (common mix used by industry) has been used



Another unirrigated field where the soil was determining the condition of field which receives low levels of wear



The grants programs are part of the problem

Given the importance of soils for good outcomes and the lack of soils knowledge in the industry, what chance do club volunteers (most have no skills) have of getting it right!



**Outcome of bad advice from inadequately skilled consultant
(wrong turf cultivar, no soil amendment)**

The grants programs should provide funding so clubs to obtain advice from an independent, qualified expert that does not provide conflicted advice. Conflicted advice can arise from persons or parties who

- Sell products (chemicals, soil, turf)
- Sell construction services (slit drainage, irrigation, field reconstruction)
- Are related to people selling products or construction services



Contractor swapped turf cultivar and here is the outcome

The grants programs often provide inadequate funding to amend fields correctly even though it typically costs 10 to 20% more to do the job right. As a result:

- Cheapest bid often gets the job**
- Contractors take shortcuts**

This is made worse as most contractors lack fundamental soil knowledge



Case Study 5

Ewen Park struggled due to waterlogging, but also had other issues the club were unaware of (poor soil and wrong turf type).



Club got a grant to install slit drainage, so the field was then able to used more often (less cancelled games).





The club's intent was honourable, but due to lack of knowledge and potentially bad advice from contractor the field had to be reconstructed

Installing slit drains without first amending the soil and the turf is akin to laying the bathroom tiles before doing the waterproofing

Ewen Park was rebuilt correctly in 2015 and has survived without turf patching for the past 5 seasons.

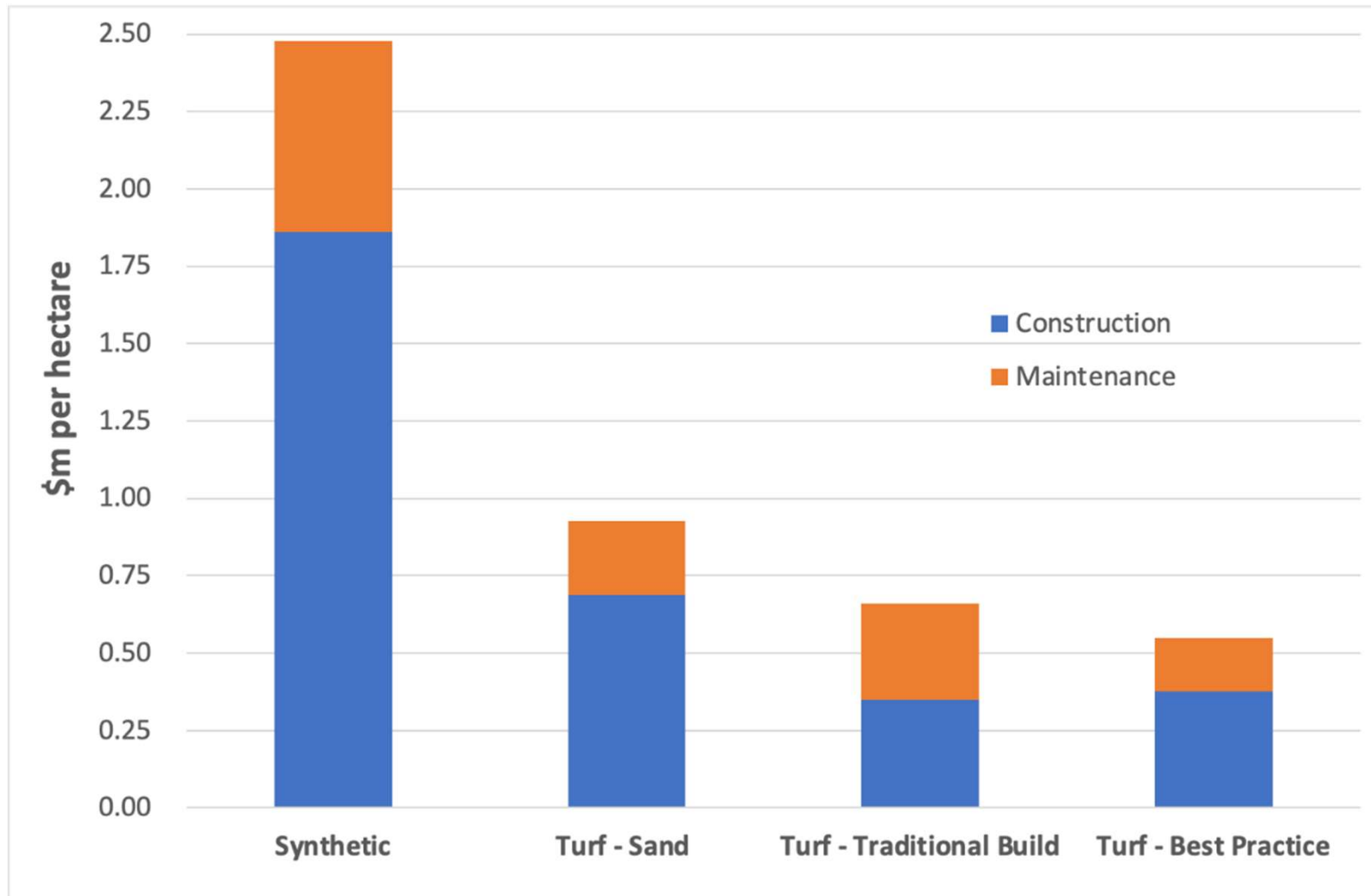
Clubs in nearby Councils have requested their fields be amended in a similar manner (its not a recipe, each site has unique issues)



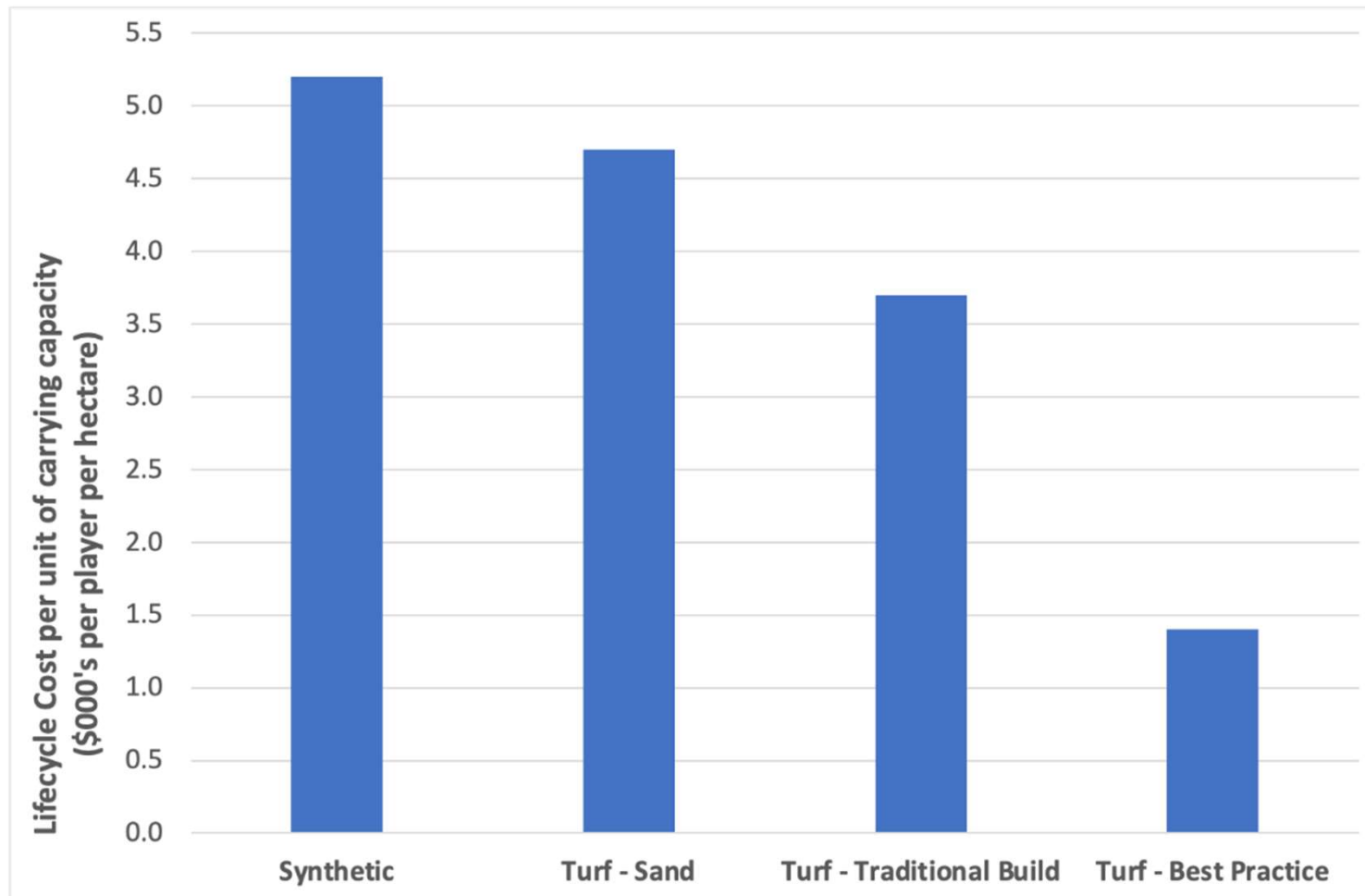
NB: Turf would hold better colour if council applied adequate fertiliser

Lifecycle cost analysis was performed by Dr Paul Lamble. Best practice natural turf fields typically:

- cost 10% more to construct but are cheaper to maintain
- far more cost effective then synthetic



Lifecycle cost per unit of carrying capacity were far superior for natural turf sporting fields constructed according to best practice



Additional economic benefits of natural turf

Study by Balmoral Group (2019)

- Avoided Costs of Cooling (\$330/ha pa)
- Carbon Sequestration (\$3/ha pa)

In essence:

- Synthetic – Pay \$2.5m/ha to lose benefits
- Best Practice Turf – Pay \$600k/ha to obtain benefits

But wait...there's more

Balmoral Group Study (2019)

Willingness to Pay Value of sports field turf

\$180,000 to \$315,000 per hectare per year

So now there is an opportunity to consider funding mechanisms to reflect the value of sports field turf to the community



So why isn't everyone adopting best practice?

Many players, fragmented responsibilities, with some parties having conflicts of interest:

Federal Government

State Government

Local Government

Water Utilities

IPART

Peak Sporting Bodies

Clubs and Community
Groups

Peak Industry Bodies

Contractors

Consultants

Product suppliers

Case Study 6

Olds Park receives low to moderate use, but struggled due to multiple issues. It was reconstructed in a similar manner roughly every 5 years



Field was reconstructed according to best practice and easily made it through the winter sport season.



Its survived 4 winter sport seasons, but will go backwards if council don't apply adequate fertiliser and weed control

The field recovers easily in the Spring



Follow good advice → Healthy Soil → Great field → Happy club
→ Good amenity and economic outcomes

THE END

Questions?

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