



5th Management Plans Work Group Turf Breakout Meeting

January 23, 2020

Agenda

- I. Welcome
- II. Detailed Overview of Existing Golf Course Conservation Programs
 - a) Categories of Courses
 - b) Application Rates
 - c) Additions
 - d) Limitations/Exceptions
- III. Discussion of Direction for Development of Turf Conservation Programs for the 5th Management Plans
 - a) Areas for Simplification
 - b) Programs for Turf-Related Facilities that are not Golf Courses
- IV. Closing Remarks

How do we simplify?

- * Across AMAs?
- * Categories of Courses?
 - * Pre/Post
 - * Regulation/Non-regulation
- * Components of Application Rates?
- * Additions?
- * Limitations?
 - * 90ac
 - * AF/hole
 - * Water Surface
- * Consideration of other Turf Programs?

Overview of Existing Golf Course Conservation Programs



3MP Turf Program

- * Turf application rate based on Bermuda grass consumptive use
- * Incentive for using effluent
- * General structure and allowable additions vary by AMA
 - * Years
 - * Course type
- * Complexity
 - * Multiple categories of courses
 - * Multiple limitations/additions

Golf Courses – Application Rates (AF/ac)

3MP Application Rate Table:

Exceptions and limitations apply to individual line items and/or totals

Type of Landscaping	PrAMA	PhxAMA	PAMA	TAMA	SCAMA
Planted/Turf Acres	4.9	4.9	4.8	4.6	4.6
Historical Turf Acres		4.0			
Additional Turf Acres		3.0	3.0		
Historic Low Water Use Landscape		1.5	1.5		
Additional Low Water Use Landscape		1.5	1.5		
Total Low Water Use Landscape	1.5			1.5	1.5
Water Surface Area	5.5	6.2	6.2	5.8	5.8



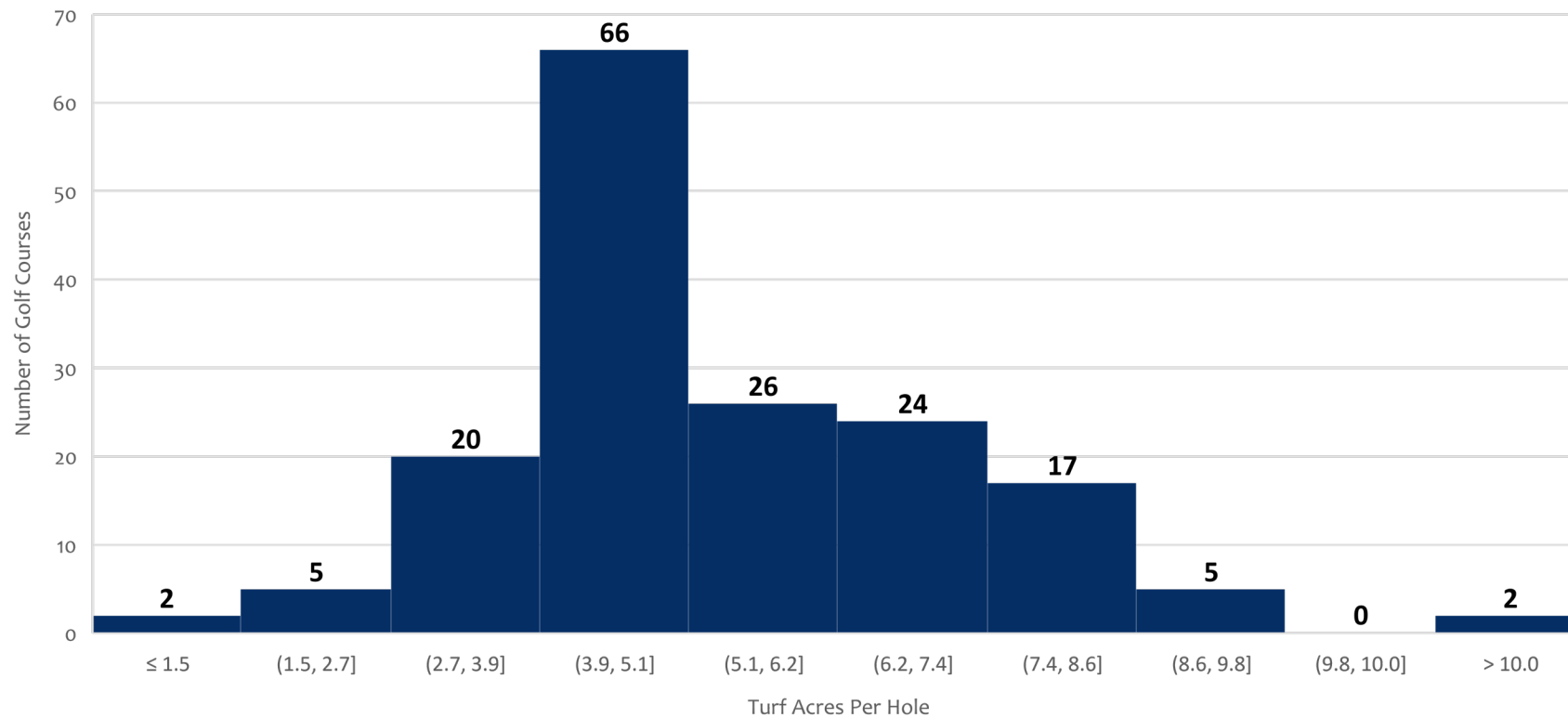
Turf/Planted Acres Application Rate (Proposed for Remaining 4MPs)

New Turf/Planted Acres Application Rate Calculation:

$$AF \text{ Per Acre} = \frac{\left(\frac{\text{Maximum AF Per Hole}}{5^x \text{ Acres Per Hole}} \right) * \text{Actual Acres Per Hole}^x}{\text{Actual Acres Per Hole}}$$

- * Formula which makes the application rate a function of the acres per hole:
 - * Less acres per hole translates to a higher application rate.
 - * x is a factor which determines the rate at which the application rate changes as the actual acres per hole changes.

Distribution of Turf Acres per Hole (Phx AMA)



Golf Courses – Application Rates (AF/ac)

4MP* Proposed Application Rate Table:

Exceptions and limitations apply to individual line items and/or totals.

Type of Landscaping	PhxAMA	PAMA	SCAMA
Planted/Turf Acres	4.75**	4.65**	4.45**
Historical Turf Acres	4.0		
Additional Turf Acres	3.0	3.0	
Historic Low Water Use Landscape	1.5	1.5	
Additional Low Water Use Landscape	1.5	1.5	
Total Low Water Use Landscape			1.5
Water Surface Area	6.2	6.2	5.8

*Prescott and Tucson AMAs have already adopted their 4MPs.

**At 5 planted/turf acres per hole. Refer to formula and application rate table for further detail.



Other Requirements/Limitations

(Fine Print*)

*Items listed here may apply in different ways or not at all across AMAs and across Golf Course Categories within an AMA.

- * Limit on acres eligible for Water Surface Area Application Rate
- * Limit on Turf + LWU combined allotments
- * Limit on allotment for additional turf and/or LWU acres

Other Additions

*Items listed here may apply in different ways or not at all across AMAs and across Golf Course Categories within an AMA.

- * Newly Turfed Area (Single year)
- * Revegetation (1-3 years)
- * Removed Acreage
- * Leaching
- * Lake Fill/Refill (Single year)

Categories of Courses

<u>Year Built</u>	Pre-198x	Pre-198x	Post-198x	Post-198x	1MP	Post-1991
<u>Length</u>	Non-Regulation	Regulation	Non-Regulation	Regulation	NA	NA
PrAMA	X		X			
PhxAMA	X	X	X	X		
PAMA	X		X	X		
TAMA	X				X	X
SCAMA	X				X	X



Discussion of Development of Turf Conservation Programs for the Fifth Management Plans



Management Plans

A.R.S. § 45-563 (A)

“The director shall develop a management plan for each initial active management area for each of five management periods... and shall adopt the plans only after public hearings... The plans shall include a continuing mandatory conservation program... designed to achieve reductions in withdrawals of groundwater.”

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Fifth Management Plan



Possible framework for redesign of the Turf Conservation Program under the 5MP

Any changes/additions here?

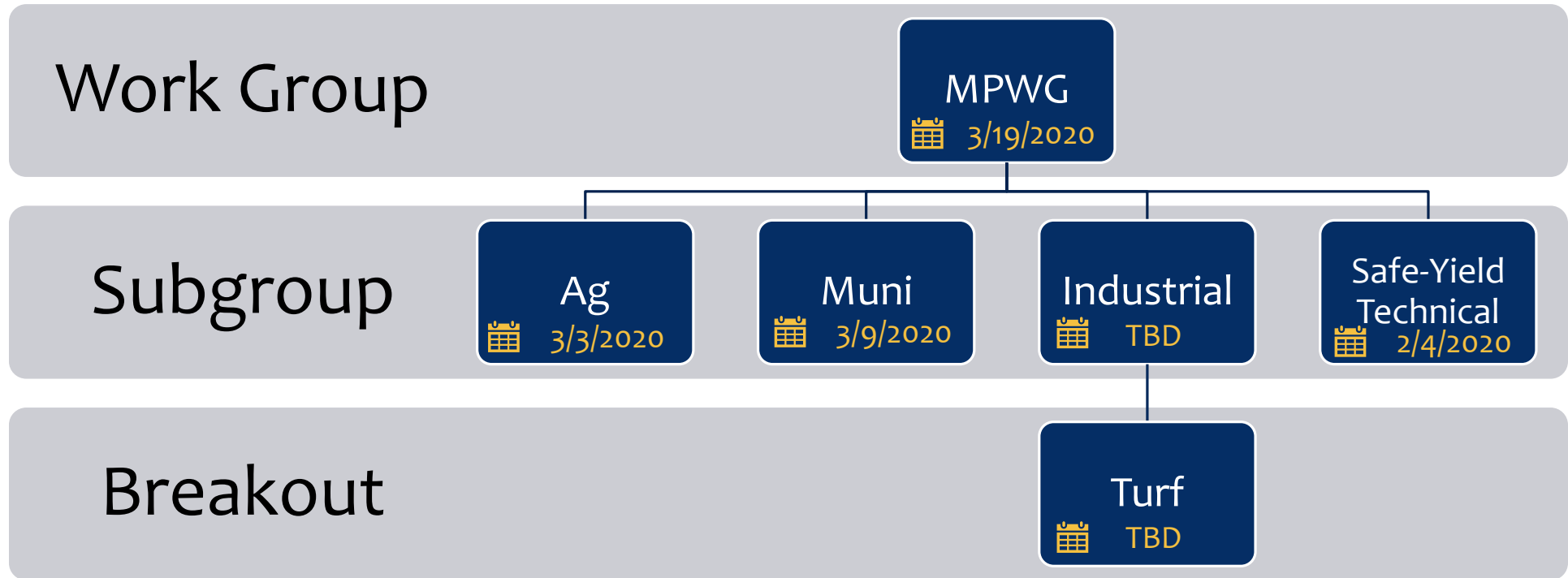
Needs:

- “Reduction in withdrawals of groundwater”
- Improved transparency through simplicity
- Balanced, reasonable

Wants:

- Inclusion of realistic over-seeding practices
- Update of Application Rates
- Streamlining Categories/Additions/Limitations

MPWG Subgroups



Questions?

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Management Plans Work Group:
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Full Text of Management Plans:
new.azwater.gov/ama/management-plans

