5th Management Plans Work Group
Turf Breakout Meeting

August 4, 2020
*New* Google Form Questionnaire

* Opportunity to provide input and feedback
* Questions are optional

Link to Questionnaire: https://forms.gle/kYhVsBtnJgvkAkzq7
I. Welcome
II. Recap of Previous Meetings
III. Proposed Golf Course Application Rate Calculation Method Discussion
   A. Differences Between AMAs
   B. Turf Allotment Proposal Calculator for Golf Courses
   C. Allotment Additions
IV. Other Turf-Related Facility Considerations for the 5th Management Plans
   A. Flex Accounts
   B. Effluent Adjustment
V. Initial Discussion of Application Rates for Non-Golf Turf Facilities
VI. Closing
Recap from Previous Meetings
5MP Turf Breakout - Progress

**Update from Past Meetings:**

* Detailed existing conservation programs
* Discussed goals for 5MP Conservation Program
  * Simplicity
  * Data-driven
  * Equitable
  * Groundwater Reductions
* **Today:**
  * Continued Discussion of 5MP Conservation Program for Golf Courses
  * Introduce Discussion of other turf-related facilities

**Next Steps for Future Meetings:**

* Evaluate conservation requirements for other turf-related facilities (parks, schools, HOAs, etc.)

**Next Meeting:**

10/22: Non-Golf Course Turf Facilities
Development of Turf Conservation Programs for the 5th 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.”
Fifth Management Plans

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

<table>
<thead>
<tr>
<th>Needs:</th>
<th>Wants:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• “Reduction in withdrawals of groundwater”</td>
<td>• Inclusion of realistic over-seeding practices</td>
</tr>
<tr>
<td>• Improved transparency through simplicity</td>
<td>• Update of Application Rates</td>
</tr>
<tr>
<td>• Balanced, reasonable</td>
<td>• Streamlining Categories/Additions/Limitations</td>
</tr>
</tbody>
</table>
### Proposed Method: Two Categories

**Phoenix AMA**

<table>
<thead>
<tr>
<th>Category</th>
<th>Under 5 Acres/Hole</th>
<th>Over 5 Acres/Hole</th>
<th>Reduce Withdrawals of Groundwater</th>
<th>Equitable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rate</td>
<td>Limit</td>
<td>Rate</td>
<td>Limit</td>
</tr>
<tr>
<td>Turf Category 1</td>
<td>5.84 AF/Ac</td>
<td>3.6 Acres/Hole</td>
<td>5.84 AF/Ac</td>
<td>2.8 Acres/Hole</td>
</tr>
<tr>
<td>Turf Category 2</td>
<td>4.22 AF/Ac</td>
<td>3.6 to 5 Acres/Hole</td>
<td>4.22 AF/Ac</td>
<td>2.8 to 5 Acres/Hole</td>
</tr>
<tr>
<td>Turf Category 3</td>
<td>0 AF/Ac</td>
<td>Not allowed</td>
<td>2.5 AF/Ac</td>
<td>5 Acres/Hole</td>
</tr>
<tr>
<td>Water Surface Acres</td>
<td>6.2 AF/Ac</td>
<td>If built after 1989, 0.14 Acres/Hole</td>
<td>6.2 AF/Ac</td>
<td>If built after 1989, 0.14 Acres/Hole</td>
</tr>
</tbody>
</table>

**Turf Category 1**: Overseeded acres  
**Turf Category 2**: Non-overseeded acres  
**Turf Category 3**: Acres in excess of 5 Acres/Hole or 90 Acres/18 Holes
## Proposed Method: Two Categories
Prescott AMA

<table>
<thead>
<tr>
<th>Category</th>
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<tbody>
<tr>
<td></td>
<td>Rate</td>
<td>Limit</td>
<td>Rate</td>
<td>Limit</td>
</tr>
<tr>
<td>Turf Category 1</td>
<td>5.24 AF/Ac</td>
<td>3.6 Acres/Hole</td>
<td>5.24 AF/Ac</td>
<td>2.8 Acres/Hole</td>
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<tr>
<td>Turf Category 2</td>
<td>3.62 AF/Ac</td>
<td>3.6 to 5 Acres/Hole</td>
<td>3.62 AF/Ac</td>
<td>2.8 to 5 Acres/Hole</td>
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<tr>
<td>Turf Category 3</td>
<td>0 AF/Ac</td>
<td>Not allowed</td>
<td>0 AF/Ac</td>
<td>Not Allowed, to align with 4MP</td>
</tr>
<tr>
<td>Water Surface Acres</td>
<td>5.5 AF/Ac</td>
<td>If built after 1984, 0.14 Acres/Hole</td>
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</tr>
</tbody>
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**Turf Category 1: Overseeded acres**
**Turf Category 2: Non-overseeded acres**
**Turf Category 3: Acres in excess of 5 Acres/Hole or 90 Acres/18 Holes**
**Proposed Method: Two Categories**

**Pinal AMA**

<table>
<thead>
<tr>
<th>Category</th>
<th>Under 5 Acres/Hole</th>
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<th>Reduce Withdrawals of Groundwater</th>
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*Turf Category 1: Overseeded acres
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## Proposed Method: Two Categories
### Tucson AMA

<table>
<thead>
<tr>
<th>Category</th>
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<tbody>
<tr>
<td></td>
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<td>Limit</td>
<td>Rate</td>
<td>Limit</td>
</tr>
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<td>5.84   AF/Ac</td>
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<tr>
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<td>0      AF/Ac</td>
<td>Not allowed</td>
<td>0      AF/Ac</td>
<td>Not Allowed</td>
</tr>
<tr>
<td>Water Surface Acres</td>
<td>5.8    AF/Ac</td>
<td>If built after 1991, 0.14 Acres/Hole</td>
<td>5.8    AF/Ac</td>
<td>If built after 1991, 0.14 Acres/Hole</td>
</tr>
</tbody>
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- **Turf Category 1:** Overseeded acres
- **Turf Category 2:** Non-overseeded acres
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# Proposed Method: Two Categories

Santa Cruz AMA

<table>
<thead>
<tr>
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<td>Water Surface Acres</td>
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Turf Category 1: Overseeded acres
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Turf Category 3: Acres in excess of 5 Acres/Hole or 90 Acres/18 Holes
# PROPOSED 5MP TURF ALLOTMENT CALCULATOR FOR GOLF COURSES

<table>
<thead>
<tr>
<th>Enter Course Information In White Boxes Below</th>
<th>Proposed Allotment Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Turfed Acres</td>
<td>Course Category</td>
</tr>
<tr>
<td>Number of Holes</td>
<td>Turf Category 1 (AF)</td>
</tr>
<tr>
<td>Water Surface Acres</td>
<td>Turf Category 2 (AF)</td>
</tr>
<tr>
<td>Year Course Built</td>
<td>Turf Category 3 (AF)</td>
</tr>
<tr>
<td>AMA</td>
<td>Water Surface Area (AF)**</td>
</tr>
<tr>
<td></td>
<td>Total Proposed Allotment (AF)*</td>
</tr>
</tbody>
</table>

*Total Proposed Allotment does not account for any allotment additions or adjustments.*

**If water surface acres were added after a certain year, depending on the AMA, the course may not eligible for full water surface area allotment (see Proposal Description for more information).**

Last Updated: 7/30/2020
Questions & Comments

* Do you have any questions about the structure of the proposed 5MP turf allotment method for golf courses?
* Do you have any questions related to how the method would be applied in each individual AMA?
* Do you have any questions about the draft 5MP turf allotment calculator for golf courses?
* Other questions/comments?
Other Turf-Related Facility Considerations for the 5th Management Plans
### Effluent Adjustment

**4MP:**

Effluent Adjustment:

“For purposes of determining compliance with the maximum annual water allotment requirement, the Director shall count each acre-foot of direct use effluent or effluent recovered within the area of impact used at the facility for landscape watering purposes during the calendar year as 0.6/0.7 acre-foot of water.”

### History:

* In the past was a lower quality water/throwaway water, which was “underutilized”

* Value of effluent has changed
  * Advances in research, technology, and new uses of effluent/reclaimed water
  * ADHS 1972 Reclaimed Water Rules
  * 1989 Supreme Court Ruling
  * ADEQ 2001 Reclaimed Water Rules
  * ADEQ 2018 Recycled Water Rules
### Effluent Adjustment

A turf-related facility that uses effluent to meet 50 to 89 percent of its annual allotment or actual use (whichever is less) shall have each acre-foot of effluent counted as 0.85 acre-foot of water. Each acre-foot of effluent will be counted as 0.80 acre-foot of water if the amount of effluent used is equal to or greater than 90 percent of the facility's annual allotment or actual use (whichever is less).

<table>
<thead>
<tr>
<th>AMA</th>
<th>2MP Effluent Adjustment</th>
<th>3/4MP Effluent Adjustment</th>
<th>Proposed 5MP Effluent Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescott</td>
<td>0.8-0.85</td>
<td>0.6</td>
<td>0.8-0.85</td>
</tr>
<tr>
<td>Phoenix</td>
<td>0.8-0.85</td>
<td>0.6</td>
<td>0.8-0.85</td>
</tr>
<tr>
<td>Pinal</td>
<td>0.9-0.95</td>
<td>0.7</td>
<td>0.8-0.95</td>
</tr>
<tr>
<td>Tucson</td>
<td>0.9-0.95</td>
<td>0.7</td>
<td>0.8-0.95</td>
</tr>
<tr>
<td>Santa Cruz</td>
<td>N/A</td>
<td>0.7</td>
<td>0.8-0.95</td>
</tr>
</tbody>
</table>
Questions

* Should the effluent adjustment be tiered?
* Should the effluent adjustment be a flat number for all amounts of effluent use?
* Should the effluent incentive be different across AMAs?
* Other Questions/Comments?
Flex Accounts

4MP:
* “…a flexibility account shall be established for a turf-related facility with a beginning balance of zero ac-ft”
* “The maximum positive account balance allowed in the flexibility account of a turf-related facility after any credits … shall be calculated by multiplying the facility’s maximum annual water allotment for the calendar year for which the credits are registered by 0.2. If the account balance exceeds the maximum positive account balance... the balance carried forward shall be equal to the maximum positive account balance.”
* “The maximum negative account balance allowed in the flexibility account of a turf-related facility after any debits ... shall be calculated by multiplying the facility’s maximum annual water allotment for the calendar year for which the debits are registered by -0.2. If the account balance is less than the maximum negative account balance ... the balance carried forward shall be equal to the maximum negative account balance.”

5MP Proposal:
* Carry forward Flexibility Accounts
* Ensure correct annual limits of accounts
Allotment Additions

* Revegetation
  * Recommend removing: no more application rates for low water-use plants
* Newly Turfed Area
  * Single year, 1 AF/ac and no more than 5 AF/hole (PrAMA: 0.8 AF/ac and no more than 4 AF/hole)
  * Recommend removing
* Filling or Refilling Bodies of Water
  * Single year
  * Recommend keeping
* Addition for Leaching
  * Remains in effect as long as TDS remains high
  * Recommend keeping
Questions

* How should flexibility accounts be managed for the 5MPs?

* Comments regarding allotment additions and recommendations made?

* Other Questions/Comments?
Non-Golf Turf Facilities
Non-Golf Turf Facilities

4MP

* “… the maximum annual water allotment for a turf-related facility (any facility, including a school, park, cemetery, or common area of a housing development, with a water-intensive landscaped area of ten or more acres) that is not a golf course shall be calculated by multiplying the number of acres in existence within the facility … in each of the categories listed …, by the applicable application rate listed … then adding together the products plus any allotment additions …”

* Application Rate Categories:
  * Turfed Acres
  * Water Surface Area
  * Low Water use

5MP Potential Modifications:

* Different application rates for different uses
* Consideration Total Acres of Landscape vs Acres of Turf
Questions

* Do you have ideas for potential methods to modify the non-golf turf facilities conservation program?

* Other Questions/Comments?
Closing Comments
Update from Past Meetings:

* Detailed existing conservation programs
* Discussed goals for 5MP Conservation Program
  * Simplicity
  * Data-driven
  * Equitable
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Next Meeting:

10/22: Non-Golf Course Turf Facilities
Questions?

managementplans@azwater.gov

Management Plans Work Group:
new.azwater.gov/5MP

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