5th Management Plans Work Group
Turf Breakout Meeting
April 28, 2021
Additional opportunity to provide input and feedback on items discussed in the meeting

Questions are optional so you can choose what you’d like to provide input on

Responses will be posted anonymously on our 5MP Concepts Webpage

Please respond by 5/12/2021

Link to Google Form Questionnaire: https://forms.gle/YDenixCFAmBzk3648
I. Welcome  
   i. Drivers for the 5th Management Plans  
II. Recap of Previous Meetings  
III. Status and Timeline of 5th Management Plans  
IV. Proposed Program Updates  
   i. Updates to 5MP Golf Allotment Structure  
   ii. Presentation from Arizona Alliance for Golf  
   iii. Discussion  
V. Closing
Drivers for the 5th Management Plans
As Arizona transitions to a drier future, we must continue to promote a culture of conservation - one that enables the unbeatable quality of life and boundless opportunity we enjoy.

G U V E R N O R  D O U G  D U C E Y
S i g n s  A r i z o n a  D C P  L e g i s l a t i o n  ( 1 . 3 1 . 1 9 )
20 Years of Trending Towards Shortage

Lake Mead Elevation
2000 to 2023 (Observed & Projected)

Projected to be a mere .31' above Tier 2 shortage by 2023
**Tier 1 Shortage:**

**Drought Contingency Plan (DCP) Tiers**

- **DCP Tier Zero**
  - 1,090’

- **DCP Tier 1**
  - 1,075’

- **DCP Tier 2a**
  - 1,050’

- **DCP Tier 2b**
  - 1,045’

- **DCP Tier 3**
  - 1,025’

*Graphics are not to scale and serve only as a representation.*

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**Estimated elevation on Jan. 1, 2022: 1,050.31**

<table>
<thead>
<tr>
<th>Lake Mead Elevation</th>
<th>AZ 2007</th>
<th>AZ DCP</th>
<th>AZ TOTAL</th>
</tr>
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<tr>
<td>≤1025</td>
<td>480K</td>
<td>240K</td>
<td>720K</td>
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</table>

---

- Estimated 2022
- Potential 2023
## 2007 Interim Guidelines Shortage Reductions and Incremental DCP Contributions

### Lake Mead Elevation

<table>
<thead>
<tr>
<th>Lake Mead Elevation</th>
<th>AZ 2007</th>
<th>AZ DCP</th>
<th>AZ TOTAL</th>
<th>NV 2007</th>
<th>NV DCP</th>
<th>NV TOTAL</th>
<th>CA 2007</th>
<th>CA DCP</th>
<th>CA TOTAL</th>
<th>BOR DCP</th>
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<td>640K</td>
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<td>640K</td>
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<td>10K</td>
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<td>350K</td>
<td>100k</td>
<td>101k</td>
<td>171k</td>
<td>1,288k</td>
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<td>240K</td>
<td>720K</td>
<td>20K</td>
<td>10K</td>
<td>30K</td>
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<td>350K</td>
<td>350K</td>
<td>100k</td>
<td>125k</td>
<td>150k</td>
<td>275k</td>
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Recap from Previous Meetings

October 2019 - Present
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.”
5MP Turf Breakout - Progress

Update from Past Meetings:
* Detailed existing conservation programs
* Discussed goals for 5MP Conservation Program
* Proposed allotment calculation methods for golf courses and non-golf turf facilities

Today:
* Golf 5MP Proposal Packages

Next Steps:
* Submit final comments via questionnaire
  * https://forms.gle/YDenixCFAmBzk3648
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Next Meeting: TBD
5MP Turf Breakout - Progress

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Status and Timeline of 5th Management Plans
Estimated 5MP Timeline

new.azwater.gov/5MP

2020
MPWG
Program Analysis
Program Development

2021
Drafting
Document Structure & Content
Implementation & Strategy

2022
Promulgation
Present to GUACs and stakeholders
Conservation Programs become effective 1/1/2025
# 5MP Turf Breakout Subgroup: Potential Work Plan/Timeline

<table>
<thead>
<tr>
<th>Topic (5MP Turf Subgroup)</th>
<th>Meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golf Conservation Program</td>
<td>April</td>
</tr>
<tr>
<td>Other Items, as needed</td>
<td></td>
</tr>
<tr>
<td>Draft Regulatory Language Review</td>
<td>When available, 2&lt;sup&gt;nd&lt;/sup&gt; Half of 2021</td>
</tr>
</tbody>
</table>
Drafting Logistics

* All 5 Fifth Management Plans will be drafted simultaneously
  * Structure will largely match across AMAs
  * Time for AMA Customization
* Subgroups will reconvene as needed to review draft regulatory language

➢ Goal: Publication of Initial Drafts in early 2022
Proposed Program Updates
## Goals

**Increased conservation**

(“reductions in withdrawals of groundwater”)

- Improved simplicity & transparency
- Improved data & realistic application rates
- Improved administration, communication, & enforcement

**Equity**

Balanced – lighter impact on those who are already more efficient & not too severe on those who are less efficient
Allotment Design
Allows each course flexibility to manage allotment

Allotment Structure

* Calculation to set a total allotment for a facility
* Total allotment is a water budget
  * Facility can use water within their allotment, as they see fit
  * Allows for management flexibility
  * Flex accounts accommodates year to year variability

Allotment Variables

* Acres of
  * Total Turf
    * Overseeded Turf
    * Non-Overseeded turf
  * Low water Use
  * Water Surface
* Application Rate and Assigned Efficiency
## PART 1: Allotment Method

<table>
<thead>
<tr>
<th>Turf Category</th>
<th>Rate</th>
<th>Potential 5MP Golf Course Categories</th>
<th>$C_1^*$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>&lt;90 acres</td>
</tr>
<tr>
<td>Overseeded Turf</td>
<td>5.84 AF/Ac</td>
<td>Up to 65 acres</td>
<td></td>
</tr>
<tr>
<td>Non-Overseeded Turf</td>
<td>4.22 AF/Ac</td>
<td>65-90 acres</td>
<td></td>
</tr>
<tr>
<td>Additional Turf</td>
<td>2.5 AF/Ac</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>LWU</td>
<td>0.74 AF/Ac</td>
<td>Up to 1Ac/Hole</td>
<td></td>
</tr>
</tbody>
</table>

### Potential 5MP Categories
- C1*: <90 acres
- C2*: 90+ acres

### Overseeded Turf
- Rate: 5.84 AF/Ac
- Up to 65 acres
- Up to 50 acres

### Non-Overseeded Turf
- Rate: 4.22 AF/Ac
- 65-90 acres
- 50 to 90 acres

### Additional Turf
- Rate: 2.5 AF/Ac
- None
- Up to 5 AF/Hole

### LWU
- Rate: 0.74AF/Ac
- Up to 1Ac/Hole

---

## PART 1: Results

<table>
<thead>
<tr>
<th>Aggregate Change from 4MP</th>
<th>Courses Currently Using Groundwater</th>
<th>All Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 3.1%</td>
<td>- 2.2 %</td>
<td></td>
</tr>
<tr>
<td>- 2,214</td>
<td>- 2,128 AF</td>
<td></td>
</tr>
</tbody>
</table>

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## PART 2: Effluent Adjustment
* No Changes from 4MPs

## PART 3: Allotment Additions
* Minor Changes
  - Update to low water use application rate
  - Newly turfed areas cannot increase previous total turfed acres

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*Acreages shown are for an 18-hole course and would be adjusted for courses with a different number of holes.*
### PART 1: Allotment Method

<table>
<thead>
<tr>
<th>Turf Category</th>
<th>Rate</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overseeded Turf</td>
<td>77.5% efficiency @ 6.036</td>
<td>Up to 75 Acres *</td>
</tr>
<tr>
<td></td>
<td>AF/Ac</td>
<td></td>
</tr>
<tr>
<td>Non-Overseeded Turf</td>
<td>77.5% efficiency @ 4.36***</td>
<td>75 to 90 Acres *</td>
</tr>
<tr>
<td></td>
<td>AF/Ac</td>
<td></td>
</tr>
<tr>
<td>Additional Turf</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>LWU</td>
<td>0.74AF/Ac</td>
<td>Up to 1 Ac/Hole</td>
</tr>
</tbody>
</table>

### PART 1: Results

<table>
<thead>
<tr>
<th>Aggregate Change from 4MP**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Courses Currently Using Groundwater</td>
</tr>
<tr>
<td>-1.8%</td>
</tr>
<tr>
<td>-1274 AF</td>
</tr>
</tbody>
</table>

**Acreages shown are for an 18-hole course and would be adjusted for courses with a different number of holes.**

***This application rate was previously written as 4.5 AF/Ac in error. The results listed incorporated 4.36AF/Ac and have not been updated.***
## April Proposal Package

Phoenix AMA

### PART 1: Allotment Method

<table>
<thead>
<tr>
<th>Turf Category</th>
<th>Rate</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overseeded Turf</td>
<td>77.5% efficiency @ 6.036 AF/Ac</td>
<td>Up to 70 acres*</td>
</tr>
<tr>
<td>Non-Overseeded Turf</td>
<td>77.5% efficiency @ 4.5 AF/Ac</td>
<td>70 to 90 acres*</td>
</tr>
<tr>
<td>Additional Turf</td>
<td>NONE</td>
<td>NONE</td>
</tr>
<tr>
<td>LWU</td>
<td>0.74AF/Ac</td>
<td>Up to 1Ac/Hole</td>
</tr>
</tbody>
</table>

### PART 1: Results

<table>
<thead>
<tr>
<th>Aggregate Change from 4MP</th>
<th>Courses Currently Using Groundwater</th>
<th>All Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 3.1%</td>
<td>- 1.3%</td>
<td></td>
</tr>
<tr>
<td>- 2,248</td>
<td>- 1,207 AF</td>
<td></td>
</tr>
</tbody>
</table>

### PART 2: Effluent Adjustment

* Change to 0.75 for all AMAs

### PART 3: Allotment Additions

* No change from February proposal
  - Update to low water use application rate
  - Newly turfed areas cannot increase previous total turfed acres

*Acreages shown are for an 18-hole course and would be adjusted for courses with a different number of holes.*
### Examples
(Phoenix AMA, 18-Hole Course)

<table>
<thead>
<tr>
<th>Course</th>
<th>Course size (Turfed Acres)</th>
<th>4MP Allotment</th>
<th>February Proposal Allotment</th>
<th>Alliance Proposal Allotment</th>
<th>April Proposal Allotment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>65 acres</td>
<td>357 AF</td>
<td>378 AF (12%)</td>
<td>413 AF (16%)</td>
<td>413 AF (16%)</td>
</tr>
<tr>
<td>B</td>
<td>97 acres</td>
<td>487 AF</td>
<td>510 AF (5%)</td>
<td>549 (13%)</td>
<td>540 AF (11%)</td>
</tr>
<tr>
<td>C</td>
<td>125 acres</td>
<td>589 AF</td>
<td>567 AF (-4%)</td>
<td>534 (-9%)</td>
<td>526 AF (-11%)</td>
</tr>
<tr>
<td>D</td>
<td>152 acres</td>
<td>701 AF</td>
<td>567 AF (-18%)</td>
<td>543 (-23%)</td>
<td>535 AF (-24%)</td>
</tr>
<tr>
<td>E</td>
<td>62 acres</td>
<td>436 AF</td>
<td>391 AF (-13%)</td>
<td>403 AF (-8%)</td>
<td>403 AF (-8%)</td>
</tr>
</tbody>
</table>

Percentages reflect change from 4MP Allotment
Allotment Calculator

**FEBRUARY PROPOSED 5MP TURF ALLOTMENT CALCULATOR FOR GOLF COURSES**

**Enter Course Information In White Boxes Below**

<table>
<thead>
<tr>
<th>Total Turfed Acres</th>
<th>Course Category</th>
</tr>
</thead>
<tbody>
<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>Low Water Use Acres</td>
<td>Turf Category 3 (AF)**</td>
</tr>
<tr>
<td>Year Course Built</td>
<td>Low Water Use Acres (AF)</td>
</tr>
<tr>
<td>AMA</td>
<td>Water Surface Area (AF)**</td>
</tr>
</tbody>
</table>

**Proposed Allotment Information**

| Total Proposed Allotment (AF)* | 0.00 |

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**APRIL PROPOSED 5MP TURF ALLOTMENT CALCULATOR FOR GOLF COURSES**

**Enter Course Information In White Boxes Below**

<table>
<thead>
<tr>
<th>Total Turfed Acres</th>
<th>Turf Category 1 (AF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Holes</td>
<td>Turf Category 2 (AF)</td>
</tr>
<tr>
<td>Water Surface Acres</td>
<td>Low Water Use Acres (AF)</td>
</tr>
<tr>
<td>Low Water Use Acres</td>
<td>Water Surface Area (AF)**</td>
</tr>
<tr>
<td>Year Course Built</td>
<td>Total Proposed Allotment (AF)*</td>
</tr>
<tr>
<td>AMA</td>
<td>Choose AMA</td>
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</tbody>
</table>

**Proposed Allotment Information**

| Total Proposed Allotment (AF)* | 0.00 |

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Last Updated: 4/20/2021

https://new.azwater.gov/5MP/plans-concepts
Presentation Arizona Alliance for Golf

Katie Prendergast, Horizon Strategies
Jessica Pacheco, Horizon Strategies
Rob Collins, Paradise Valley Country Club
Bri Kenny, Troon
Discussion
Closing Comments
Update from Past Meetings:
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Next Meeting:
TBD
MPWG Subgroups

{All meeting info is available at new.azwater.gov/5MP/meetings}

MPWG

Subgroups:
- Ag (5/19/2021)
- Muni (TBD)
- Industrial (TBD)
- Safe-Yield Technical (TBD)
- Turf (TBD)

Breakout
Questions?

managementplans@azwater.gov

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

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