



Optima McDowell Mountain Village – Master Water Development Plan

Affix and sign professional registration seal. DSPM 6-1.202, ARS Title 32-142.

To: City of Scottsdale
 From: Mike Delmarter, PE
 Kimley-Horn and Associates, Inc.
 Date: September 2, 2022

PRELIMINARY Basis of Design Report

- ACCEPTED
- ACCEPTED AS NOTED
- REVISE AND RESUBMIT



Disclaimer: If accepted; the preliminary approval is granted under the condition that a final basis of design report will also be submitted for city review and approval (typically during the DR or PP case). The final report shall incorporate further water or sewer design and analysis requirements as defined in the city design standards and policy manual and address those items noted in the preliminary review comments (both separate and included herein). The final report shall be submitted and approved prior to the plan review submission.
 For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY aprichard DATE 9/21/2022

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Table 1: Proposed Domestic Water Demands

Building	Quantity		Average Day Demand Factor		Average Day Demand (gpm)	Max Day Demand (gpm)	Peak Hour Demand (gpm)
Building 1	278	du	0.27	gpm/du	75.06	150.12	262.71
Building 2	238	du	0.27	gpm/du	64.26	128.52	224.91
Building 3	209	du	0.27	gpm/du	56.43	112.86	197.51
Building 4	211	du	0.27	gpm/du	56.97	113.94	199.40
Building 5	209	du	0.27	gpm/du	56.43	112.86	197.51
Building 6	245	du	0.27	gpm/du	66.15	132.30	231.53
Restaurant	11,515	SF	0.00181	gpm/SF	20.84	41.68	125.04
Office Space	17,935	SF	0.000834	gpm/SF	14.96	29.92	52.35
Vertical Planter Boxes ¹	24,833	LF	150	gal/LF/yr	28.36	28.36	28.36
Roof Top Pools/Water Features ²	20,268	SF	1	in/day	1.16	1.16	1.16
Ground Level Landscape ³	229,600	SF	2.2	gal/mo/SF	46.12	46.12	46.12
Total					486.74	897.84	1,566.60

Include makeup water due to backwashing pools/spas in water demand calculations. DSPM Figure 6-1.2 Note 2.



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This Master Water Development Plan is to accompany the *Optima McDowell Mountain Village Preliminary Water Basis of Design Report (BODR)*, dated August 2022. The BODR states that the site will be developed in phases which will be determined during plan development.

During recent coordination with the City of Scottsdale, Kimley-Horn was tasked with detailing water demands by phase for the Development. Phasing has been proposed at a preliminary level and is shown in this plan. During plan development, changes in phasing will be documented in this plan and resubmitted to the City of Scottsdale.

WATER DEMAND SUMMARY

The proposed water demands for the Development were calculated using average day water demand factors shown in Figure 6-1.2 of *The City of Scottsdale Design Standards and Policies Manual (DSPM), Edition 2018*. Demands were generated for the following scenarios: Average Day, Maximum Day, and Peak Hour. Per the DSPM, the Average Day to Max Day peaking factor is 2.0 and the Average Day to Peak Hour peaking factor is 3.5. Additionally, a peaking factor of 6.0 was used for the restaurant demands per DSPM 6-1.404. B.3. See **Table 1** below with the resulting demands for each scenario.

Table 1: Proposed Domestic Water Demands

Building	Quantity		Average Day Demand Factor		Average Day Demand (gpm)	Max Day Demand (gpm)	Peak Hour Demand (gpm)
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Include makeup water due to backwashing pools/spas in water demand calculations. DSPM Figure 6-1.2 Note 2.

Discuss evaluation of offsite infrastructure and any implications for phased planning and construction per DSPM 6-1.200.

For facilities and appurtenances not identified in the DSPM, Kimley-Horn made the following assumptions:

1. Vertical Planter Boxes and Ground Level Landscape water use demand is based on actual meter readings at other Arizona Optima projects. Linear footage and location of the Vertical planter boxes is shown in Appendix F of the BODR. Irrigation is assumed to occur over a 6-hour period and peaked accordingly.
2. Calculations for the pool/water feature demand has been estimated using the known cumulative water surface area and a 1” daily evaporation rate that will need to be replenished with the domestic line. The demand for this element encompasses the pools, cold plunges, spas, and hydrotherapy amenities which will only be filled initially and not on a regular basis. A breakdown of the different amenities areas per building is provided in Appendix G of the BODR.
3. Landscape area excludes building area, hardscape, and artificial turf areas. Irrigation is assumed to occur over a 6-hour period a peaked accordingly

WATER DEMAND BY PHASE

The Project will be constructed in up to 3 phases with the current proposed phasing as follows:

- Phase 1 includes Buildings 2 and 3 with office space
- Phase 2 includes Buildings 1 and 6 with restaurant space
- Phase 3 includes Buildings 4 and 5

Each phase includes 1/3rd of the demand generated by the vertical planter systems, water amenities, and landscape areas.

Table 2: Proposed Domestic Water Demands By Demand

Building	Average Day Demand (gpm)	Max Day Demand (gpm)	Peak Hour Demand (gpm)
Phase 1 (Building 2&3)	160.86	296.51	499.98
Phase 2 (Building 1&6)	187.26	349.31	644.49
Phase 3 (Building 4&5)	138.61	252.01	422.12

See the attached exhibit that shows the site plan layout with the current proposed phasing at the time of this report submittal. This plan is supplemented by the Preliminary Water Basis of Design Report that gives a full analysis of the water demands of the Optima McDowell Mountain Village site and includes modeling of all of the above scenarios in the site’s final buildout condition. Should the phasing of the project change, this plan will be updated to reflect the updated water demands per phase and the full Preliminary Basis of Design Report will remain the same.

Include pool/spa backwash makeup water.

