

I. Executive Summary

Dibble Engineering (Dibble) has been contracted by the Sedona–Oak Creek Airport Authority (SOCAA) to prepare a fire protection water system master plan for the airport. Fire protection water service to buildings at the Sedona Airport (Airport) are currently divided between SOCAA and the Oak Creek Water Company (OCWC). The Airport desires to consolidate the fire protection water service at the Airport and be the fire protection water system provider for all existing and future developments on Table Top Mountain (Airport Mesa). Potable water to the Airport Mesa is currently provided by OCWC.

This report provides recommendations for infrastructure improvements at the Airport to enable SOCAA to provide an adequate fire protection water system for existing and new developments at the airport.

The SOCAA existing fire protection system includes a 35 gallon-per-minute (GPM) well, an 88,000-gallon water storage tank and a 1,050 GPM booster pump system. This system provides fire protection water service to the terminal building, Mesa Grill and adjacent buildings, and aircraft Hangars D1 and D2. The OCWC system is a separate system that includes fire hydrants that provide fire protection to the Sky Ranch Lodge.

Dibble conducted a site visit to document existing infrastructure, to perform hydrant flow testing, and to determine current fire flow requirements for the existing buildings. This information was used to prepare a hydraulic model of the existing water system. Several iterations of the hydraulic model were performed to develop improvements recommendations that the SOCAA can implement based on need and development opportunity. The recommended improvements are categorized and described below. The improvement recommendations are grouped and hydraulically modeled such that the improvements progressively build upon each other. This means that the immediate improvements are required as part of the intermediate improvements and the intermediate improvements are required as part of the build-out improvements.

- A. Immediate Improvements: Improvements that are needed based on existing life-safety concerns within the current SOCAA fire protection system. The existing SOCAA fire protection system does not meet the current fire flow or storage requirements for the buildings at the site and immediate improvements are recommended.

- B. Intermediate Improvements: Improvements that are needed to consolidate the fire protection system based on existing development. These improvements will enable the SOCAA to assume fire protection water system responsibility for the existing hangars instead of being divided between SOCAA and OCWC.

- C. Long Term or Full Build-out Improvements: Improvements that support the future development and build-out of the airport master plan.

A summary of the recommended improvements is included in **Table 1**.

Table 1: Capital Improvement Recommendations

PRIORITY	DESCRIPTION	CONCEPTUAL COST
A – Immediate	Recommended Immediate Improvements include: 150 kW Generator for backup power Additional 100,000 gallons of storage Upsize 1,200 feet of water main	\$1.1M
B – Intermediate	Recommended Intermediate Improvements include: Retrofitting existing buildings with automatic sprinkler systems or fire walls VFD Booster Pump System Fire protection system water main extension and fire hydrants	\$1.4M
C – Long Term or Full Build-out	Recommended Long Term Improvements include: Fire protection system water main extensions and fire hydrants	\$725k

Dibble recommends that SOCAA proceed with the immediate improvements for the SOCAA fire protection system to provide back-up power, provide additional storage capacity, and upsize 1,200 feet of existing 6-inch & 8-inch diameter water mains to 12-inch diameter.

Dibble also recommends proceeding with intermediate improvements to extend fire protection service to the existing buildings that are not currently within the SOCAA fire protection system and do not have adequate fire protection service.

After immediate and intermediate improvements are completed then further development of the Airport Mesa can commence as needed. The long-term improvements can be made to extend the SOCAA fire protection system to protect all future and existing buildings on the Airport Mesa based on growth and development.