

## **Colorado Springs Utilities Integrated Water Resources plan – An application of Multi-Objective Robust Decision Making**

### **Abstract**

The complexity of municipal water supply planning is increasing significantly with factors such as climate change, infrastructure vulnerability, demand uncertainty, and changing social values to name a few. This complexity and deep uncertainty requires a robust framework for planning and decision making. Here a multitude of future situations and potential solutions can be processed and evaluated simultaneously based on different objectives while accounting for the associated uncertainty. Generally, this can be referred to as Robust Decision Making (RDM). There is growing interest in using Multi-Objective Evolutionary Algorithms (MOEA) as a tool in a RDM process to help assess complex system tradeoffs for water utility planning. The most notable U.S. example is Colorado Springs Utilities (CSU) Integrated Water Resources Plan (IWRP) completed in early 2017.