

NELSON-ATKINS MUSEUM OF ART

Kansas City, Missouri

Project Purpose

The purpose of the irrigation central control design was to take a comprehensive look at the layered irrigation systems and develop a water management and savings strategy for the entire Nelson-Atkins Museum of Art campus. The design encompasses six separate existing irrigation systems, designed at different points in time over the last 22 years, covering a total of 22 acres. The owner contracted with the irrigation professional to evaluate the existing irrigation system equipment and infrastructure, and provide central control upgrades for the campus.

A primary goal of the project was to outline and design a systematic approach to landscape irrigation efficiencies. Significant cost savings are possible through decreased operating costs and labor costs. Improvement strategies were analyzed to determine financial and maintenance impacts of lifecycle decisions.

Special Factors

The special design challenge was hydraulically modeling the entire system and connecting all mainline segments. Hydraulically modeling the irrigation system identified a few locations where segments of mainline needed to be upsized.

The irrigation and water management design stresses reduction of landscape water consumption through the use of central-control irrigation software and climate-based sensing equipment, monitoring and sensing moisture thresholds within the existing soil profiles and reducing maintenance and repair costs by upgrading delivery and distribution equipment.

Water management plays an important role at the museum, relating to the positive image and public perception of the facility, and will continue to remain a priority for museum management.



Role of Irrigation Consultant

The Irrigation Consultant provided:

- The primary and only consultant services involved in system analysis and design.
- As-built contractor drawings and detailed initial walking survey to verify existing system performance conditions. The depth of the analysis was unique and illustrated by the difficulty of obtaining accurate irrigation data and inventory.
- Analyses for each existing system for efficiency, condition and capacity.
- Construction documents for the implementation of a central-control irrigation system. Using innovative design strategies such as soil moisture sensing, flow sensing, and climate-based sensing, this project will be a benchmark central control irrigation design.



Significance

The Nelson-Atkins Museum of Art needed a consistent program to evaluate future irrigation expansion projects, while conserving and reducing existing water use and labor costs. The irrigation professional was involved with the design of the original irrigation system for the Henry Moore Sculpture Garden 22 years ago, and has remained the museum's irrigation designer since.

The museum grounds have significantly different water requirements, which are a direct relationship of the soil profiles throughout the site, including narrow profile green roof soils, engineered sand-based soils, and native topsoil areas.

The significant challenge that the irrigation professional faced was maintaining the function and integrity of a highly programmed public landscape space.