

DENVER ZOO

DENVER, COLORADO

OVERVIEW

The Denver Zoo comprises 80 acres in total with approximately 40 irrigated acres. As is typical for a zoo, the irrigated areas represent a microcosm of the earth; climates include everything from sub-tropical to arid desert landscapes. In addition to the habitat areas, there are numerous pedestrian areas, walkways and multiple-use areas.

CHALLENGE

The Denver Zoo was looking for an irrigation system to standardize across the site. The system would have to be one that is “smart” and would be able to utilize daily ET calculations from a local weather station in order to save water.

With the addition or modification of habitats over the years, the Denver Zoo is constantly changing. They were looking for an irrigation system that could be used immediately with the existing sites, and one that could be integrated seamlessly with the new construction and renovations - while keeping all the capabilities.

In addition, the Denver Zoo is extremely strict about the visual ambiance of the site. This means no radio antennas for guests to see or to distract from the historical buildings, presenting a challenge for site communications.

SOLUTION

Signature recommended that the Denver Zoo utilize:

- CONSTELLATION[®] Professional central control
- CONSTELLATION[®] field controllers with patented peer-to-peer technology
- CONSTELLATION[®] field decoders

For Network Communications:

- License-free, digital radio
- Ethernet modem

For Remote Connectivity:

- Telephone land-line modem



Denver Zoo – Denver, Colorado

RESULTS

Cost Savings

With CONSTELLATION field controllers’ large zone capacity, the Denver Zoo was able to reduce the amount of field controllers to 6 from the previous 40 from a variety of models and manufacturers.

By standardizing on a single controller platform they are able to use “smart” technology like daily ET calculations for seasonal watering adjustments. This means less service points, less labor and much less water.

Do Anything ... From Anywhere[™]

With CONSTELLATION field controllers’ peer-to-peer communications, irrigation technicians can control, program, or adjust any program or field controller from any other controller across the zoo. No more driving back to the central or to the actual controller - saving time and money.

According to Alan Gray, Irrigation Technician in the Denver Zoo’s Horticultural & Irrigation Department, “During peak season, we have to walk throughout the zoo due to the high volume of pedestrian traffic. Being able to go to the nearest controller to make adjustments is a HUGE time saver for us!”

continued

Customized & Flexible Programming

The extensive programming capability of CONSTELLATION is another plus. Gray continues, "For *Predator Ridge*, we currently utilize about 20 programs for 30 zones. While some may consider this overkill, it gives us total flexibility on watering; allowing us to water the way the plant material exactly needs it and keeping a beautiful landscape. Besides saving water, it prevents overwatering and runoff, providing a cleaner and safer environment for the public."



Denver Zoo's Predator Ridge – Denver, Colorado

Expansion Potential & Hybrid Capability

The high capacity CONSTELLATION irrigation controllers allow for any expansions or modifications the Denver Zoo may undertake in the future. In addition, the CONSTELLATION platform allows for the use of hybrid systems, that is, the combination of traditional and decoder systems in a single field controller.

Continues Gray, "We have the standard 24 volt wiring to the older irrigated areas in the zoo, but in the new construction or renovation areas we are primarily using decoders. For example, for the irrigation renovation in *Primate Panorama*, we used 62 decoders that were tied into an existing CONSTELLATION controller; and that controller had 16 standard zones. The hybrid capability is a fantastic advantage for us as we expand and renovate the zoo."

Mixed Network Communications

The Denver Zoo is extremely strict about the visual ambiance of the site. This means no unsightly radio antennas for guests to see or to distract from the historical buildings. The communications network utilized by CONSTELLATION allows a mixed communications network; from Ethernet to digital radio all on the same platform, which allows for fewer antennas and minimum visual impact.

A Maintenance Radio in Every Phone

Another benefit of CONSTELLATION for the Denver Zoo is that they can use their cell phones as maintenance radios. From any phone they can manually run zones or troubleshoot sprinklers anywhere in the Zoo. According to Gray, "This is another tremendous tool for us. We use our phones constantly during spring start-up and fall winterization - and there is no reason to continually go back and forth to the controller."

Environmental Sensors: Water and Labor Savings

The CONSTELLATION Professional desktop software integrates with the Denver Zoo's existing weather station to automatically adjust run times. This saves water, labor, improves plant health and eliminates water runoff. Says Gray, "In the old days, we would easily spend 6 man hours every time we had to initiate a shutdown due to rain or to make seasonal adjustments to the irrigation schedules."

Real Life, Real Savings

Ultimately, the Denver Zoo has reaped the benefits of healthy landscapes, created a better environment for the animals and public, and saved water. The zoo estimates that, on average, they are **saving over one million gallons of water** each season with the CONSTELLATION system.

HORTICULTURE & IRRIGATION DEPARTMENT

Alan Gray, Irrigation Technician

PROJECT DATES

August 2004 to present (ongoing construction)

SIGNATURE PRODUCTS

- CONSTELLATION® Professional Central Control
- CONSTELLATION® Field Controllers
- CONSTELLATION® Field Decoders
- License-free, Digital Radios
- Ethernet Modem
- Landline Phone Modem

SIGNATURE DISTRIBUTOR

- DBC Irrigation Supply

"We are saving over 1,000,000 gallons of water each season with the Constellation system."

– Alan Gray, Irrigation Technician