City of Newport News

The City of Newport News, VA transforms improves efficiency with “Connected Irrigation” system - A Sierra Wireless® Remote Monitoring Solution



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A Sierra Wireless® Remote Monitoring Solution

CUSTOMER CRITICAL CHALLENGE

- Wide-scale deployment of sprinklers around the city required “in-person” monitoring and management
- Wanted to reduce “field trips” to monitor and manage system
- Wanted to increase number of systems without increasing headcount to manage
- Needed system to reduce “faults” (e.g. overflows)

SOLUTION

- Toro Sentinel® system connected via AirLink® gateways provides real-time information to operations about system and irrigation status

BENEFITS

- City has been able to scale irrigation systems without increasing monitoring and management resources
- Over-watering incidents have been eliminated
- System can be completely managed remotely

As part of its Environmental Management System, the City of Newport News hasinvested in technologies that have improved the efficiency of city irrigation systems,optimized the use of scarce human and water resources and enhanced the aestheticsof the entire municipal landscape.

Prior to 2010, the city irrigation specialist spent many hours each day visiting 16systems, programming controllers and making manual adjustments.

In 2010, the City began systematically upgrading irrigation systems – in parks andathletic fields, along roadways and on medians – to monitor rainfall and deliver waterautomatically. Using Toro Sentinel® systems supplied by STI (Smith Turf and Irrigation),the underground irrigation systems have been custom designed for their environs.Sprinkler heads in a variety of sizes and flow rates are linked together by undergroundpipes and attached to a controller to deliver exactly the amount of water required.Evapotranspiration or ET measures the sum of evaporation and plant transpiration,and this data is entered into a database for each zone and is used to determine whenwatering is needed. Rain buckets measure precipitation and tell the system how longto delay irrigation. With this comprehensive environmental data, the system becomesself-aware.

The system is also equipped with flow sensors to log water use data and detect leaks.For example if a sensor reads a high flow in a system, it will shut down that zone andtry again; if the system still sees excessive flow it will shut down that zone and sendan alarm to the Irrigation Specialist. These alerts ensure minimal water loss untilcorrective maintenance can be completed.

Data from each controller is uploaded to the central management software for thesystem every morning at 5:00 am, as irrigation is done overnight when absorption isoptimal. “The systems talk to us, and we talk to them,” said Daniel McGlynn, irrigationspecialist for the city. “By the time I arrive at 6:00 am I can review a summary of allsystems and determine any corrective action that may be required.”

“We had a situation in 2009 where a resident called to tell us about a sprinkler that hadbeen on for 3 days and had flooded a major roadway. That’s a huge waste of water andwe wanted to avoid situations like this”, said Douglas Kennedy, Superintendent of ParkFacilities Maintenance and Landscape Services.

Once a system is deployed, it is connected wirelessly to the City’s operations by acellular AirLink gateway from Sierra Wireless. The gateway is set up on each system toautomatically deliver the status of a system to a management program.The AirLink gateway is designed for industrial applications and rugged enough to beused outdoors.

STI is an exclusive distributor for the Sentinel system in a four state area and hasbeen the City’s partner in deploying this technology. They are experts in architectingthe systems and deploying the technology. The Sentinel system has been availablefor more than a decade, but prior to cellular technology, connecting the system to amanagement application was hard to justify. “We used to sell the systems with phonemodems, but they were unreliable and sensitive to lightning strikes. Once we found theAirLink gateway, system sales have taken off”, explained Todd Dovel, Smith Turf andIrrigation.

Life has changed quite dramatically for Mr. McGlynn. “I come to work at 6:00 amand by the time I arrive, I have a report on my computer of all irrigation that occurredovernight”, said McGlynn. “I used to have to visit each site regularly to program controlsand adjust the systems manually and we’ve doubled the number of systems deployedover the last 4 years. If not for the ability to remotely monitor and manage theirrigation we certainly would have had to hire additional resources to do this.”

Today the city has 26 systems ranging in sizes of 45 to 1200+ heads and theycontinue to deploy new zones. Over the past 4 years, they have more than doubled thetotal number of irrigation components being managed remotely.

“We don’t get any more calls about running water and the system enables us tooptimize the impact of watering. These systems include all kinds of components, fromdrip irrigation to spray heads with rotors that provide coverage from 5-65 feet. Wereally would have a difficult time trying to manage everything manually”, said Kennedy.

The Sierra Wireless gateways are packaged into each system and these are providedby Simple Com Tools, an authorized reseller. Simple Com Tools uses AirVantageManagement Services, the device management service from Sierra Wireless tomonitor the operations of each of the gateways in the system, and alerts STI if there isa problem.