

MONSOONS NO LONGER A THREAT TO RESIDENTS

Once again it is monsoon season in Arizona. This year the residents along Cactus Flower Drive in the City of Goodyear, are resting a little easier when the storm clouds come rolling into the Valley of the Sun. In the past, some of the residents along Cactus Flower Drive had experienced flooding in their homes during most of the storm events. The frequency and severity of these flooding incidents coincided with the construction of new development occurring upstream. In addition, this problem was magnified by the fact that the finished floors of the homes were below the curb elevation at the street creating a situation where the driveways to each home acted as spillways for the drainage to enter their property. The City of Goodyear decided to take a very proactive stance on this situation, and recently completed a study, and the design and construction of a project aimed at solving this problem.

The first phase of the project included the completion of a drainage study to evaluate the existing conditions. The study also identified construction alternatives with cost estimates that the City could



View of the concrete channel that sits below the grate and runs perpendicular to the roadway.

implement to alleviate the flooding problem for the Cactus Flower Drive residents. The goal of this study was to identify the best solution to protect the homes that were currently being flooded from the 100-year, 6-hour storm event. Many alternatives were studied, but the most cost effective solution was rather innovative and called for installing two "trench drains" in the roadway to intercept the drainage before it made its way down to the homes.

Phase two of the project was the design phase where plans,

specifications and contract documents were prepared for the trench drain alternative. The trench drains consist of a concrete channel under the roadway, perpendicular to the flow pattern of the road, which are then covered with grates capable of withstanding traffic loading. The grates are also safe for bicyclists to cross. These trench drains are capable of intercepting a large volume of drainage across the entire width of the road. This option replaced the need to install a long

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SCADA - Take Control of Your Future

The world is constantly changing, but not so much as during the last few years.

With recent security concerns and increasing environmental and federal regulations, technology has proven to be one of the most cost effective ways to meet the challenges. In automation, this is accomplished using Supervisory Control and Data Acquisition (SCADA), and may qualify for a Homeland Security Grant.

SCADA is a combination of computer-based equipment that monitors and controls a system. The first part is a central computer called a Programmable Logic Controller (PLC). The PLC is programmed to allow a system to perform functions automatically based on pre-determined criteria. Another part is the Human Machine Interface (HMI) that lets an operator interact with the system. The operator can see and

control the entire system from one place. Often there is a need for information to be brought from a remote location. This can be done using remote telemetry units (RTU).

Telemetry is the transfer of a system's information from one place to another. This can be accomplished with a hardwired communications connection like a telephone line or with radio frequency (RF), which is becoming very cost effective. RF uses signals transmitted through the air waves, and may be the only option for very remote sites.

A tank in a remote location could have an RTU installed to relay tank levels back to the PLC. This information could then be used to decide when to automatically start the pumps that feed water to the tank. The operator viewing the process through the HMI could decide to override the pre-determined level with



a new level at which the pumps should start. In addition, the chlorine residual, pH, turbidity, chemical feed rates, and flow rates can be stored for retrieval later to monitor water quality for security and regulations.

SCADA can be used in a variety of situations including well house and chlorination building controls, wastewater systems, pressurized irrigation systems, high pressure natural gas pipelines, traffic control, manufacturing, or anywhere control and management of resources and costs is needed.