Early Warning Notification System for City of Leon Valley

Final Report
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Leon Valley, Texas
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American Signal Corporation – Privately owned corporation that manufactures and distributes mass public alert notification systems. http://www.americansignal.com/

Huebner Creek – Natural creek located in Bexar County, Texas that travels through the incorporated City limits of Leon Valley and the City of San Antonio.

The City – Refers to the City of Leon Valley

VHF - stands for *very high frequency*, and occupies the lower end of the frequency spectrum.

The City of Leon Valley's new early flood/storm siren was installed at the Public Works building at 6429 Evers Rd. on March 9th, 2017. This new early warning system is provided in part through a flood protection grant from the Texas Water Development Board, and will better notify residents of impending flooding. This project will work in conjunction with, and update the existing *American Signal* siren (located along South of the City), and be more efficient by adding a remote activation feature. This feature allows Leon Valley's Firefighters and Police Officers to activate both sirens remotely, while in the field.

The primary purpose of the project was due to the change in the floodplain caused by upstream development along Huebner Creek. This change placed several hundred homes in the floodplain, in danger, and without a means to notify residents of an impending flood threat. Due to several factors, the City of Leon Valley faces a severe threat and high risk of flash flooding. In fact, the City of Leon Valley has experienced 52 flooding events in the last two calendar years, which included road closures, and on eight occasions, required home evacuations. The City of Leon Valley was previously equipped with one flood/alert siren located on the South side of the City. This siren could not be heard by the citizens that lived on the Northern portion of the City, that now found themselves in danger. The project allowed for the installation of a siren system added to the existing system that would work to communicate a hazard immediately to the citizens on the Northern portion of the City. Specifically, those residents that live along Huebner Creek.

The City of Leon Valley held a public meeting on June 7th, 2016 to discuss the addition of a new siren in this area of the City. A proposed new siren was met with unanimous approval by citizens and City Council. Again, a public meeting was held on March 7th, 2017 with unanimous approval, and the same on April 22nd.
The new siren system, which included a 50-ft. pole, antennae, radio system, and omni-directional siren was installed at the Public Works building located at 6429 Evers Rd. Leon Valley, Texas 78238, on March 9th. A Class II utility wood pole was selected due to the American National Standards Institute (ANSI) load ratings and circumference required for mounting. This includes a rating of 3,700 pounds load capacity and minimum circumference at the tip of 25 inches (reference ANSI Classification of wood poles). The height was selected to match the existing wood pole height on the South end of the City of Leon Valley.

The Model, American Signal T-121 Omni-Directional Siren was selected based on compatibility factors with existing American Signal siren system already owned by the City, and projected needed coverage based on needed decibel levels to reach target area of homes within the floodplain of the City of Leon Valley. The Siren system selected is mounted to the pole, and is an AC/DC Motor Controlled 121-UL Listed system with battery backup in the event of power failure. The batteries include a series of four (4) 12-volt batteries, through Tempest ™ 48vdc controls specifically for the manufactured system, mounted on the pole.

The Antennae system is a VHF radio system mast mounted to the same pole, that interfaces with the City of Leon Valley's existing VHF radio owned system through 35 ft. of coaxial cable, and a Kenwood ® VHF radio interface,

into a 30-watt VHF Kenwood ® 150-170 MHz mobile radio, also mounted to the pole. The system is activated and monitored for connectivity via transmission (Manual or remote through NexGen ® software) to the Universal controller, mounted on a computer rack at the Leon Valley Police Department.

The American Signal Omni-Directional Siren, model #T 121, and all supporting components were selected for compatibility and expansion of the existing American Signal system. The power supply was readily available at the City of Leon Valley Public Works facility, and could be activated through our existing system.
This project is an expansion and upgrade to our existing system. A software system was included called, NexGen ®, an application that is added to our department computers. Through this application, we are able to monitor the connectivity of the radio system to the siren system, and communicate directly to the Universal Controller, including activation. This can be done by simply clicking on the desired siren tone activation, then the "Activate" button. The American Signal Corporation is able to log into our system remotely and assist with any technical support as needed. The system is inspected and tested monthly by fire department staff, and confirmed audible and reports from citizens through social media.

The department distributed informational flyers about the new system and then successfully tested the system on May 3rd, with local media reporting. The community provided feedback through phone calls and social media, specifically those that live in the targeted area, even stating... "I can hear the siren now!! Thanks!", etc... all feedback was very positive, and immediately validated the intent of the project.

The methods and levels by which the siren is activated are identified within the department policy, SOP 2.08 Flood Emergency Response Plan. In this department policy, All City Firefighters and Police Officers understand that the highest ranking First Responder on scene uses pre-painted color markers at various locations near the creek to determine and guide actions. This system allows for discretion, to include monitoring of forecasted weather patterns, however the policy requires that the minimum stages are followed throughout a rain event. The stages are; Alert Stage (Sliver in color, an indication that everyone should be on heightened alert for flooding), Minor Stage (Yellow markers on pavement, and indicate that minor flooding is occurring, and to prepare for the potential for flooding), Moderate Stage (Indicated by Green markers on paved areas next to creek, and require the activation of the Flood Siren to "Flood Watch", notifying residents to prepare for evacuation), Major Stage (Indicated by Red markers on paved areas next to creek, which require the activation of the "Flood Warning" Siren sound, notifying residents to evacuate in low-lying areas). These colored markers correspond with an Engineered flood inundation map provided through the San Antonio River Authority, also provided within the SOP.

A description of the new siren system is provided on our City website, and the entire system is scheduled to test on the first Wednesday of the month at noon and is monitored for maintenance and controlled through the *American Signal Corp., Compulert NexGen* software system. The project was complete on May 3rd.

http://www.leonvalleytexas.gov/government/fire_and_ems/flood_warning.php

Luis Valdez, Fire Chief
City of Leon Valley