PAPE-DAWSON ENGINEERS

Engineering and Mapping a Major Water Pipeline Using GIS

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Topic Category: Hydrology/Waterline

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Presenter's Biography

Michael Garza has been a GIS manager for over fifteen years with the past three and a half years for Pape-Dawson Engineers in San Antonio, Texas. After graduating from Texas State University his first experience in GIS was working for a Utility conversion company where he was promoted to the title of conversion manager. He then went on to work for the City of San Antonio in the planning department and after a year was promoted to a GIS manager position for the City's Public Works Department. While there he created one of the first GIS Right-of-Way management web based permitting systems in the nation. Michael has been selected as the subject matter expert on several multi-government comities and system integration projects. He has recently designed the GIS integration for a major water line project that will cross multiple counties and involves several different stake holders.

Abstract

The Vista Ridge project consists of the design of a major water pipeline that will bring water from Burleson County down to Bexar County. This pipeline will cross seven counties and roughly 500 parcels and parcel owners to help supplement water to the dwindling Edwards Aquifer in Bexar County.

The state of Texas has been in a drought since October 2010 and as of June 2014, 70 percent of Texas is still in drought conditions.* It is estimated that San Antonio, the seventh largest municipality in the U.S., grew by 6.6% between 2010 and 2015, and is projected to grow an additional 6.34% through the year 2020. That will take the City of San Antonio to almost 2 million residences by 2020. (Source: San Antonio Economic Development Foundation)

When the Vista Ridge project was first awarded to Pape-Dawson Engineers the first issue that was mentioned was "how are we going to coordinate and collaborate information between two engineering firms, San Antonio Water Systems, the financial backers, biologist, surveyors, environmentalist, engineers, and land acquisition members?" The answer was GIS. Pape-Dawson developed multiple GIS websites using Flex, the WebApp Builder, ArcGIS online, and the ESRI collector app to allow for multiple agencies to securely log in and collect data in real time. A GIS Operations Dashboard was also created to allow the Project Managers to track the progress and status of the project.

The way a project of this size was handled in the past was by the land acquisition person carrying around a folder for each parcel of land they were to visit. Inside that folder was a paper map of the parcel along with land owner information and all the necessary contracts. Now, the survey team can use their iPads, while in the field, to see if the land acquisition team had already received a signed right of entry (ROE) form from the parcel owner before they tried to access and survey the land. We even attached the signed copies of the ROE's to each parcel and thematically represented them by a status of, those that have been signed, not signed, or still pending. The surveyors, geo technical engineers, and environmentalist all started attaching their images and reports to their respective points as well. The need for carrying folders of paper maps and confidential contracts was eliminated.

*Energy and Environment Reporting for Texas (https://stateimpact.npr.org/texas/tag/drought/)