GISTIC RESEARCH INC

SPATIALLY-INFORMED—TEMPORALLY-ENABLED

CASE STUDY

Enhancing NG911 Address Management Using FME

Client

Arizona 9-1-1 Program Office

The Background

The Arizona 9-1-1 Program coordinates the operations of seventeen independent 9-1-1 Call Centers across the State of Arizona. They have embarked on an upgrade from Enhanced 9-1-1 (E9-1-1) to NextGen 9-1-1 (NG9-1-1). As part of this effort, databases must be updated, transformed and quality assured so that the new system will perform reliably. TerraSystems Southwest (TSSW) was chosen as the prime consultant to lead this effort with Gistic as the database and FME sub-contractor.

The Challenge

Significant differences existed among the 17 Call Centers. These included a lack of consistent, reliable, local GIS/database expertise; different software and data maintenance procedures; different database schema and database layers; and incomplete documentation of data quality assurance and certification procedures.

How TSSW and Gistic Helped

To address these challenges, the project team organized and coordinated the work of a multi-jurisdictional technical team tasked with developing Arizona-compatible data schemas and procedures. We developed and tested an Arizona-standard schema for NG9-1-1 layers based on National Emergency Number Association (NENA) guidelines, and established a sustainable process for collecting, transforming, appending and quality assuring Call Center datasets on a bi-annual basis. We continue to assist the State in operating and refining this process and providing feedback to local data providers on any potential errors that are found during the process.

The Solution – the Address Trilogy

The technical solution is embodied in three products:

Address Parser – an FME-based address parsing application which parses a single address string into the seven NENA standard address elements. The purpose of this product is to standardize local addresses across the 17 Call Centers into a single standard format. Both desktop and server versions were developed.

- Supports CSV, Excel and the file-based GeoDatabase formats for input.
- Output includes the log file with summary statistics in addition to the parsed address data.
- Focus is on a very simple user interface that is easy to use.
- The parsing logic is contained in a separate Python script and is extensible without the need for an FME development background.

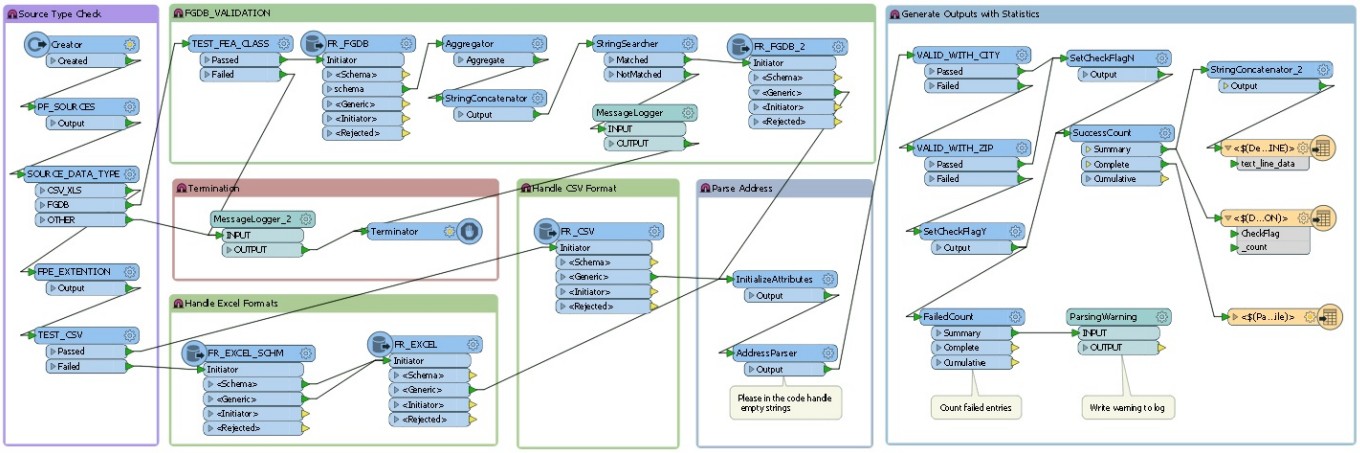

Figure 1. The main FME workspace of Address Parser

Contact Gistic Research, Inc | 2033 E Warner Road, Suite 106 | Tempe, AZ 85284 | bo.guo@gisticinc.com | www.gisticinc.com

Address Appender – an FME-based address appending application which transforms the 17 different 9-1-1 Call Center address databases and loads into a single, statewide feature class.

- Speeds up the statewide append process..
- Flags potential errors using content logic and lookup tables which will lead to improved data quality from local sources over time.

Address Editor – a web application EMAP (EMergency 911 Address Portal) under development is for the evaluation and update of address point locations and attributes. Achieving high performance and superior user experience was the key objectives in managing over 3.7 million data points with varying degrees of quality.

- Allows any authorized user in the State to make suggested edits to the location and/or attributes of any address point.
- Automates the data review and feedback process for the local data provider; expands the potential data review audience.
- Requires no special GIS software or license to participate in the improvement of address data across the State.
- EMAP is developed in Angular JS and Openlayers at the frontend with MS SQL Server at the backend. The vector geometries are stored in SQL Spatial format.

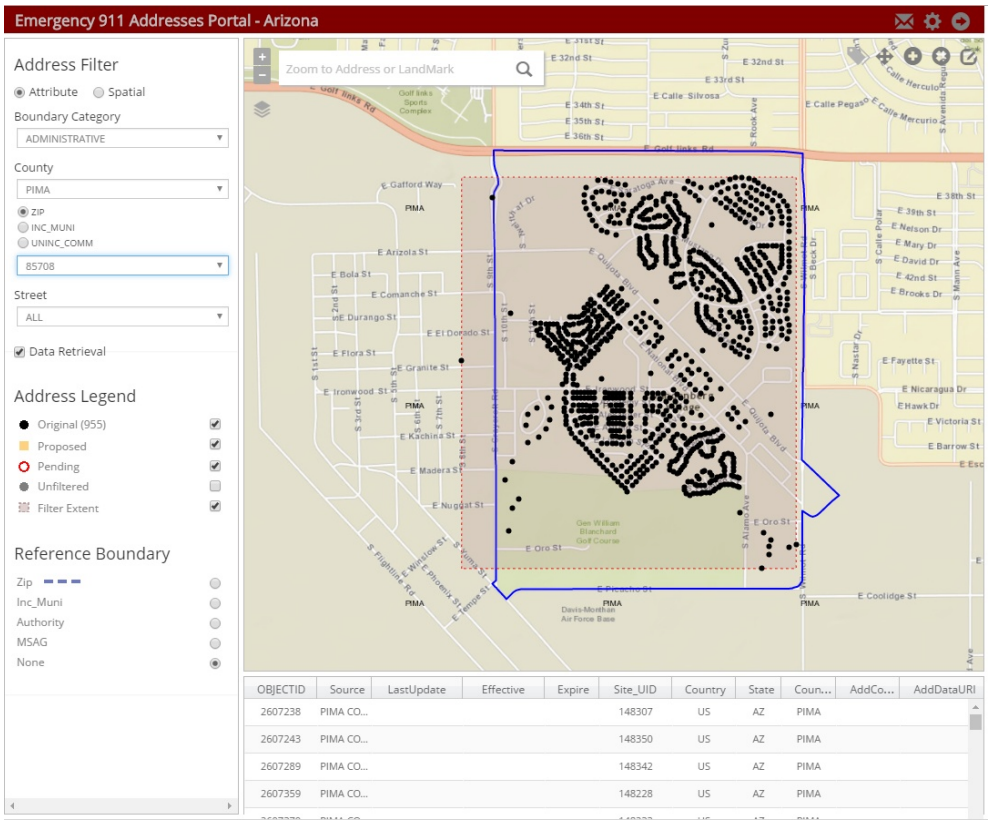

Figure 2. EMAP allows users of different privileges to explore and/or update the statewide address database with ease and consistency.

The Address Parser has been tested and is now in production. The Data Appender and Address Editor are in advanced stages of testing and should be finalized by the end of the summer.

Why TSSW and Gistic?

TSSW was hired for its extensive track record of managing complex GIS conversion projects and its expertise in GIS application software. TSSW is an authorized Esri business partner. Gistic was added to the team for its expertise in FME, RDBMS, system architecture and application development. Gistic is an authorized FME solution provider.

TerraSystems Southwest: Howard Ward – hlward@terrasw.com
Gistic Research, Inc: Bo Guo – bo.guo@gisticinc.com

Technologies

The following technologies were utilized in the NG9-1-1 Data Management project:

- FME Desktop, FME Server
- MS SQL Server (SQL Spatial)
- ArcGIS
- Python, OpenLayers, Angular JS