ESRI/GIS MAPPING
CASE STUDY

HMB HELPS A LEADING NATURAL GAS AND ELECTRIC UTILITY COMPANY PURSUE THEIR MISSION TO KEEP CUSTOMERS SAFE.

By leveraging ESRI/GIS technology, our client is able create sophisticated, accurate and clear maps that improve customer safety.

The Challenge:

Safety. It's the most important word for our client who is constantly pursuing endeavors that help ensure their customers are nothing less than safe. With millions of feet of gas pipeline, valves, curb boxes, etc., across multiple state lines, the big question our client is actively working to provide a solution for is, "How do we know where all of our assets are with maximum accuracy?".

The Client

A Fortune 500 natural gas and electric utility company.

The answer is maps. However, the trouble with maps is they can be quickly become outdated. Construction personnel and field service technicians can't depend on map information to be reliable for a variety of reasons, so, when the time comes to dig somewhere, can they be certain where they're digging there isn't a gas line? You can image what happens if there is – and that isn't safe.

Our client's belief is that you can drive safety by creating better maps, and they partnered with HMB to help them work with ESRI/GIS technology to do just that.

The Solution:

For the ESRI/GIS technology program, we collaborated with our client to provide solutions around safety, improved records and asset tracking and traceability.

First, we had to figure out how to collect new, accurate data from the field to build new maps.

To do this, we leveraged high accuracy survey tools and software from Trimble. These tools allowed us to collect detailed asset information that was related to high accuracy location information. To get the best quality asset information possible, we worked with our client to create a customized user interface that captured the type of data their users were required to enter while using the language they were accustomed to seeing.

We also partnered with Trimble to create barcode parsing tool that could be used in the field to quickly and easily decode an industry defined barcode into the client's required asset information. The ability to automatically populate asset information instead of having to manually enter the data allows for increased productivity and more reliability in the data captured in the field. Without this step, field service technicians would have to fill out this information manually, which takes a lot of time.

Leveraging our client's existing data model, we created a new geodatabase that allowed for the level of asset tracking that was being added. We then used FME ETL tools along with custom .NET development to populate the data into our client's geodatabase.

Now that we had designed a home for this new data, we needed to get it there. Trimble exports needed to be extracted, translated, and loaded into the database, and the industry-leading software to do this is Safe's FME. Its ability to work with a myriad of data sources and perform spatial analysis allowed our client to leverage existing resources. In addition, FME Server hosted the translation scripts to allow users and automated processes ubiquitous access to the translation engine.

Our last step, before putting this new data in front of users, was to make sure the data was scrubbed errors and verified. We built automated data reviews into the FME to help doubly ensure quality data.

> There was a language gap challenge between construction field workers and office workers. To solve this we mapped the field lingo to the terminology office workers used so everything was translatable.

So, now that we have collected high accuracy data into our system, we now had to figure out how to get that data out to users in a way that was useful to them.

We relied our client's current distribution tools, Network Express and ArcReader, to provide updated map data to the field users. ArcReader DVDs are only updated monthly and entail a lot of overhead to manage. 3GIS Network Express allows for a real-time view of the data but required our client to provide rugged computers to their field people who used VPN to get access to the maps.

Mobilization was our client's next request. Using Collector and Survey 123 for ArcGIS we were able to allow access to the maps using a smart phone or mobile device. The incorporation of these products also allows for feedback on the maps directly from the field users eliminating mountains of paperwork.

> ArcGIS Collector made it easy for teams manage and set up maps in a customized way that made sense for their teams.

HMB's Impact:

- Premier ESRI/GIS partner since 2014
- Significant progress in data collection across multiple states
- Helped IT leadership understand how to ask the right questions to achieve results
- Our client is now identifying questionable areas where maps were wrong and accidents could potentially happen
- Field service workers are better equipped to more easily and more proactively report map inaccuracies and potential dangers
- Business now has easier to understand information to guide better safety decisions
- Overall, customer safety scores are improving

ESRI/GIS Technologies Used:

- **Trimble Cloud**
  – Amazon-hosted cloud accessed via REST API
- **.NET Integration**
  – Custom C# batch application to integration Trimble files with FME
- **Safe Software's FME**
  – Geospatial ETL
- **ESRI ArcGIS**
  – Mapping Applications
  – Built on Oracle databases
- **ArcPy**
  – Python-based library
- **ArcReader**
  – Burns data to DVD monthly
- **3-GIS Network Express**
  – Internal web application to view maps
- **ArcGIS Collector**
  – Mobile application to view maps
- **Survey 123**
  – Mobile application for surveys