



Case Study

“Without this cost-effective data interoperability tool, we would have needed to double our team to accomplish what we did with a few people’s effort. In fact, we estimate the money saved in our first year alone is nearly one-million dollars.”

– Cindy Tuttle,
SAWS GIS Manager

Key Facts

Industry: Utility

Solutions: Esri® ArcGIS® Data Interoperability Extension (powered by FME®)

Problem: Significant data interoperability issues challenged the success of a major data integration project.

Results: Ended lengthy data-conversion stall, converted myriad data to GIS; and saved one-million dollars.

Summary

San Antonio Water System (SAWS) needed to create an integrated and automated environment to easily update and maintain accurate map, network, operations and account data across the organization. Using Esri’s ArcGIS Data Interoperability (DI) extension, based on Safe Software’s FME technology, SAWS triumphed over significant data conversion challenges - and reaped one million dollars in data management savings - to develop a Web-enabled GIS that provides both a seamless view of SAWS service area and the core datasets for an asset management system. The new system allows personnel to better schedule work assignments, correct discrepancies in the customer billing system and analyze their customer base to identify new business opportunities.

The Organization

SAWS provides water and wastewater services to about one million customers and maintains more than 9,000 miles of water and sewer mains. SAWS also manages the nation’s largest recycled water delivery system, distributing about 29 million gallons of recycled water per day through more than 100 miles of pipeline.

The Situation

SAWS had accumulated layers and layers of data specific to SAWS’ network assets and service locations. However, the information was in disparate databases and myriad formats, creating a perfect breeding ground for data duplication and inaccuracies. In addition, none of the datasets were tied to accurate spatial locations. SAWS recognized the lack of a seamless connection among mission-critical data and the ability to spatially view and analyze assets was making it difficult for personnel to maintain a high level of service and plan for business growth. To gain operational and financial efficiencies, SAWS initiated the development of an enterprise-wide GIS and an asset management system to provide an integrated and automated environment to easily update and maintain accurate asset, operations and financial data across the organization.

The Challenge

To successfully develop a better data management solution, however, GIS professionals needed to first clean SAWS’ spatial data stores to ready the core layers to ultimately create a GIS and harmonize data flows. In particular, they needed to validate, combine and geographically visualize the account data held in mainframe tables, billing data from separate mainframe tables, operations tabular data in another database and hundreds of Microstation-based water/sewer map layers stored in another database. That not only uprooted notable data interoperability challenges, it magnified the problematic nature of not having precise spatial representations of customers’ addresses.

Initially, SAWS’ GIS team began manually weeding through hundreds of Microstation map and attribute layers and account tables to tie asset locations, asset attributions and customer service points to 500,000 addresses, one point at a time. After two years of this laborious process, it became clear that the GIS department needed to find a more expeditious, cost-effective way to resolve these data interoperability issues.

The Solution

SAWS’ GIS team chose Esri’s ArcGIS Data Interoperability (DI) extension, powered by Safe Software’s FME technology, to serve their data conversion, transformation and development needs. Within 30 days of implementing DI, the team had successfully transformed a two-day data-manipulation task into a five-minute exercise, and proved that DI would be the “do more, with less” tool they required for success.

To ensure the central data layers were ready for operational applications, the project team applied the DI to validate the initial data clean-up and rectify any discrepancies, as well as create the framework to easily update and integrate new customer address accounts and service points. For example, historically the Microstation-based sewer and water drawings made it difficult to readily identify which sewer lateral line belonged to which sewer connection point or its exact geographic location. Using DI, they designed an automated

"point snapper" workflow, triggering the software to automatically snap a sewer service point to its correct lateral line, along with all the relevant attribute information. In three days, the tool corrected and moved 211,000 sewer lateral points, saving two GIS professionals eight months of work.

A similar process was customized for spatially correcting and linking sewer laterals to their downstream manholes - a task that would not have even been considered possible with previous software tools. With DI, the team accurately tied each lateral to its relevant manhole and transformed annotations into precise and consistent spatial references attributed to each lateral/manhole asset. In two days, the tool populated the GIS with nearly 171,000 sewer lateral measurements.

Once the DI had readied the GIS data, the team used it to create three customized quality assurance/quality control workflows. Every week the tool checks SAWS' sewer, water and address/service point data layers for any data discrepancies and automatically alerts the GIS team to any problem areas.

The Results

With SAWS once insurmountable data conversion issues solved, the GIS now supports several operational applications and functions including an automated work-order module that enables personnel to seamlessly integrate service requests and automatically generate corresponding work orders. The GIS will also serve the core data for more automated business tasks such as permitting and customer service.

What They're Saying

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"This FME Extension for ArcGIS has truly allowed us to be much more productive in much less time with far fewer people, and with much higher quality results. We have significantly reduced labor efforts, and we now have a seamless environment to analyze our business with far better intelligence." **Larry Phillips, Planner, SAWS.**

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