

# City of Peoria Municipality

Getting the most impact for GIS technology investments



## PROJECT AT A GLANCE

### Project Type

Operational utility solutions

### Location

Peoria, Arizona

### Number of Customers

150,000

### Applications

Provide a graphical, data-rich environment that displays the information utilities need for maximum reliability and efficiency

### Software Implemented

Fiber Manager

Conduit Manager

## CUSTOMER BENEFITS

- Less time and resources to maintain
- Increased accuracy of information
- Highly configurable and easily adapted for multiple uses



Located northwest of Phoenix, Peoria, Arizona, is a dynamic desert city of more than 150,000 people. The one-time farming community, originally founded by settlers from Illinois, was one of the nation's fastest-growing cities during the recent boom. The city stretches across 176 square miles of the beautiful Sonoran desert, and includes Lake Pleasant, the state's second largest lake.

Within the City of Peoria, the traffic engineering division is responsible for: establishing traffic engineering standards; reviewing traffic impact studies; making pavement marking and signing plans; conducting traffic investigations; and representing the city on various transportation committees, such as MAG, AZTech, Valley Traffic Engineers Committee, and others. Most importantly, as part of managing its growth, the city's traffic engineering division oversees the construction of traffic signals and proper traffic control through the operation of a fiber telecommunications network.

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Ron Amaya, assistant city traffic engineer

## Challenges

In 2009, the City of Peoria deemed fiber an essential asset, and required accurate documentation of its fiber optic network. Tracking of this asset was requested by the geographic information system (GIS) department, IT department, and the city’s traffic engineering division. At that time, the fiber data was held in various types of CAD drawings, spreadsheets, word processing documents, and even hand-drawn sketches. In addition, any updated information was based on human memory. To add to its complexity, the fiber data was mainly buried underground for weather-related and regulatory reasons. As the city grew, it realized that it needed to do more to improve its operations and system troubleshooting. It also wanted a better way to manage information tied to its conduits.

“We had a growing fiber infrastructure and all of our information was on different types of media, such as drawings and as-builts. We were looking to capture all of this information and document it in one central location,” explained Assistant City Traffic Engineer Ron Amaya.

The city needed an integrated system with mapping and database capabilities to identify cable information, such as fiber counts, cable types, cable length, length source, conduit size, and usage and splicing details of all fibers. It also required the ability to trace a fiber down through its splice points.

As part of its expanding telecommunications needs, the city also wanted a better way to manage underground facilities and to track cabling and conduit capacities. This meant having the ability to associate underground fiber cables with specific ducts in a duct bank, being able to display cross-sections of conduits, and showing the location of the fiber cables within it.

A few times during construction, excavation workers had cut into fiber optic cables, causing disruptions to various communications networks. Consequently, the city had to resplice or reroute data from destroyed fiber optic cables to intact cables and networks.

This required checking for alternative routes and the capacity to take on the additional load. “We needed documentation of everything we were doing out in the field in case something was down and we needed to know what route it had taken to get there,” Amaya said.

## Solution

In 2009, to meet these goals, City of Peoria selected Schneider Electric’s Fiber Manager. This solution allowed the city to be able to manage its fiber assets, trace the fiber network and troubleshoot issues more quickly.

Fiber Manager is an extension of ArcFM Enterprise GIS, which is based on the Esri ArcGIS® platform.

ArcFM GIS provides a graphical, data-rich environment that displays the information utilities need for maximum reliability and efficiency. Developed as a complete enterprise solution for an entire organization, it offers a map-centric, intuitive way to model, design, maintain, and manage facility and land based information.

Organizations that manage outside plant fiber optic networks need robust tools for mapping related assets, establishing fiber-level connectivity, and building traceable circuits in a network. Fiber Manager is designed to allow editors to quickly and intuitively create, connect, and manage fiber optic systems within a GIS. The solution comes with an integrated toolset that provides users with editing, connectivity, analysis, and reporting capabilities. Fiber Manager can also help accurately locate faults when

they happen by using OTDR traces on the most up-to-date version of the network model.

By adding Conduit Manager, an extension to the ArcFM GIS Solution, the city was also able to better manage its underground facilities using sophisticated, intuitive functions to accurately track where cables are located and placed in conduit. “We have an array of conduits out there. It’s important for us to know where those conduits are, because it could potentially cause a bottleneck. This tool has helped us know which types of conduits and sizes are out there, and where exactly they are located,” explained Amaya.

Conduit Manager is an integrated set of tools and dialogs that add, annotate, and maintain the underground infrastructure of the telecommunications network system. Schneider Electric Conduit Manager provides functionality to define an underground system with duct banks, trenches, conduits, cross-sections, underground cables, and underground access structures. Internals of underground structures such as manholes and vaults are also fully supported. Once the underground system is built, users can leverage the tracing queries to determine duct availability based on various criteria.

### The Bottom Line

With a concerted effort from the traffic engineering division, IT department, and the GIS department within it, together with federal funding administered by the Arizona DOT, Schneider Electric Fiber Manager was successfully implemented at the City of Peoria.

“The implementation went smoothly. Working with the Schneider Electric staff was very pleasant. They were always willing to help, and they actually went up and above what they were asked to do to ensure a successful implementation,” said Amaya.

The strength of Fiber Manager’s flexible data model to manage any network out-of-the-box enabled the team to configure the data model and tracing functions to meet specific traffic needs. Apart from the fiber optic cable, conduits, slack loops, and devices, the data model’s flexibility was adapted to

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incorporate features such as communication vaults, traffic signal and node cabinets, as well as wireless links. This enabled the city to store its fiber network and conduit information in a single geodatabase for easier viewing and customized reporting. In addition, Schneider Electric’s Connection Manager tool provided the city with a graphical view of the connections for splices and ports, improving communications and efficiency.

The data model was also configured to include devices supporting both optical and electronic ports — accurately reflecting objects in the real world. All of this was possible due to the flexibility of Fiber Manager. Schneider Electric’s end-to-end solution also included data digitization that covered more than 54 miles of fiber and over 1,040 devices.

Aside from general fiber tracing capabilities such as OTDR outage tracing and fiber availability tracing, Schneider Electric’s flexible data model was also able to support the city’s need to handle loopbacks by tracing through patch locations in order to view the entire fiber connectivity, end to end.

“We can see long-term benefits — increased accuracy due to one centralized database and elimination of hard copies,” said Amaya. “With Fiber Manager, we now have one big picture instead of numerous smaller pictures. It has helped us achieve efficiencies that were not previously possible.”

