

Forward Thinking City of O'Fallon, Illinois Embraces the Benefits of LIDAR



Chad Quinn, GIS Coordinator, City of O'Fallon

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Interview with Chad Quinn, GIS Coordinator, City of O'Fallon Illinois

Tell me about the City of O'Fallon (size, location, things you like about it and you think are special...).

The City itself is less than 15 miles squared with a population of 28,281 as of the 2010 Census. We are located in the St. Louis metropolitan area in Southern Illinois. We are close neighbors to Scott Air Force Base, and as such have a large contingent of military and retired military citizens. Our citizens are highly educated, and knowledgeable about City services.

What are some of the challenges facing the city?

We have several City facilities and sites, scattered throughout the City and surrounding areas that require high speed networking infrastructure. Due to cost issues with buried Fiber optics, the City has pursued using radio-based air fiber connections. Since these connections require direct line of sight, we are frequently assessing our clearances to various locations. The City maintains water, sanitary sewer, storm sewer, and streets with a minimal full time staff. Early on, it became clear to the Director of Engineering and Public Works management, that our systems to monitor, control, and manage the system had to be highly automated in order for staff to function at peak efficiency. As such, our GIS, asset management, and utility locate systems are highly integrated with each other for accurate reporting as fast dispatching.

Describe the role of GIS for the city as well as your role.

GIS has grown to integrate into many aspects of government. Our asset management system uses GIS services and feature classes to tie requests for service and work orders directly to asset management system. Our utility locate requests are also processed through our assets management system through a GIS-centric system. Last year, our public safety division upgraded their dispatch and data analysis systems to a GIS-centric workflow. Our fire department uses a mobile application to create fire pre-plans – having up-to-date information is important for public safety to accurately route and respond to incidents. We track our water and sewer utilities through systems that utilize GIS. Our Community Development department, formerly Planning and Zoning, uses GIS to track zoning and comprehensive plan changes, along with linking specific enabling ordinances directly to the GIS features.

Also, we have enabled most of our services to the public through our publicmaps.ofallon.org REST directory. This allows general citizens with the ability to consume map services directly, without the need for a data download request and guaranteeing our most accurate, freshest data is available. For developers, we have these services so that a business partner can easily integrate our GIS data and infrastructure into their project. The idea is that the City will be returned a better product if everyone has the most up-to-date information.

Case Studies

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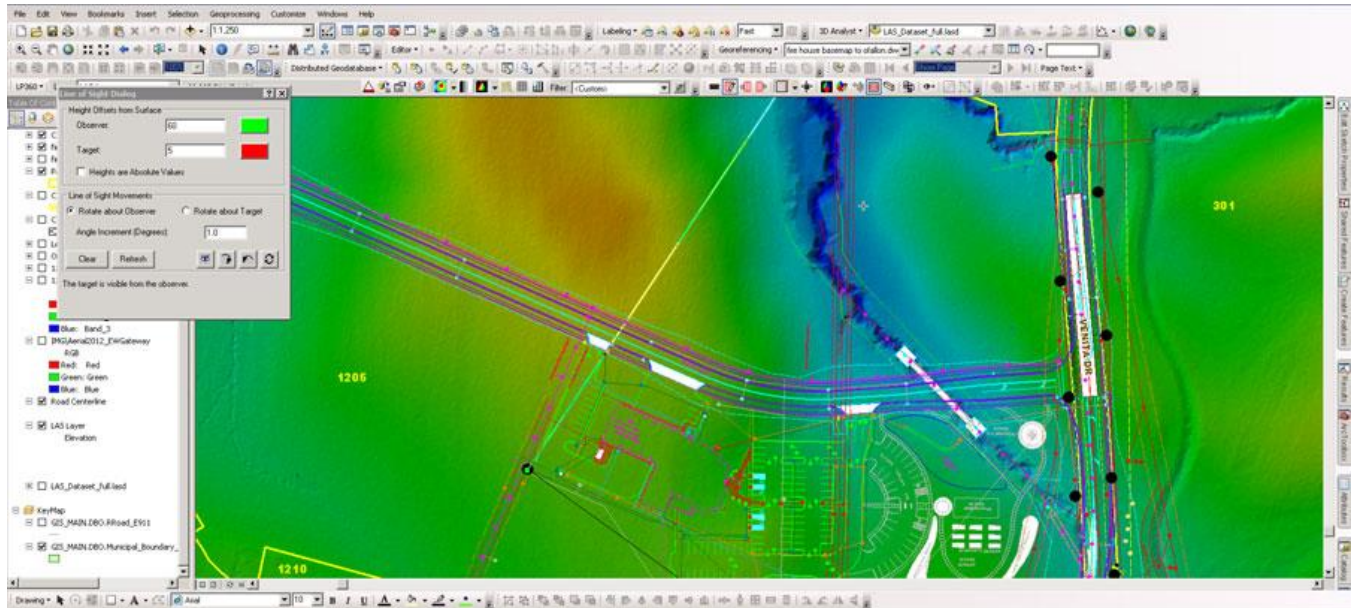


Figure 1 - LIDAR layer integrated into GIS environment, using Line of Sight tool

How is LIDAR important to the city?

LIDAR became important to the city early last year. There are several large building projects underway with the City, as well as street and water runoff studies that we wanted to analyze in some depth and with precision. Our portion of Illinois is fairly flat, so it was important to get ground contours at 6 inch intervals, with good accuracy.

What prompted the city to obtain LIDAR data?

Engineering need for LIDAR derived contours and terrain, plus the ability to derive a digital elevation model that could be used for engineering analysis and reporting. Looking ahead, we realized that with a highly accurate LIDAR point cloud, we could derive other products such as rooftop footprints for buildings, impervious surface slopes, and ground water runoff analysis. We were surprised that there was even more and valuable data to extract.

You recently purchased LP360. What are some of the reasons you selected LP360?

LP360 has complimentary integration into Esri ArcGIS was a major benefit. The tools are familiar to a GIS professional familiar with Esri's ArcGIS applications. Also, the clear speed by which the LP360 product can display whole area TIN, point cloud, and even overlay GIS data on LIDAR points is a compelling factor in its favor. Another factor is that the toolset allowed intuitive classification and had a good breadth of features. Lastly, the tools seemed to enable a user to focus on the task at hand, without a complicated set of parameters to know. This allows more casual users easier access to the product.

How are you currently using LP360 in your GIS work?

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We have derived contour intervals for engineering; we use the derived terrain for storm water runoff analysis and engineering purposes. We have a derived terrain dataset that we use for ground analysis, and use the full point cloud data for presentation maps.

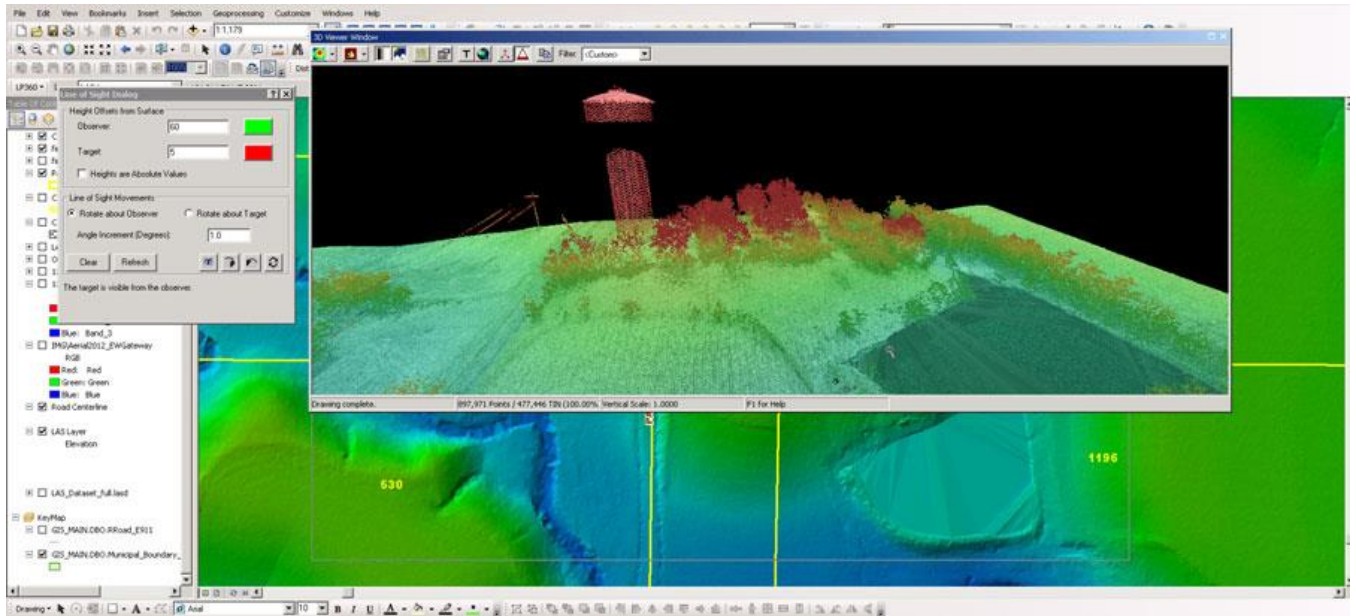


Figure 2 - Graphic from water runoff analysis

We also have made major use with the line of sight tools.

At Rohr Park, by State Street, just outside PW Compound, obstruction with Power

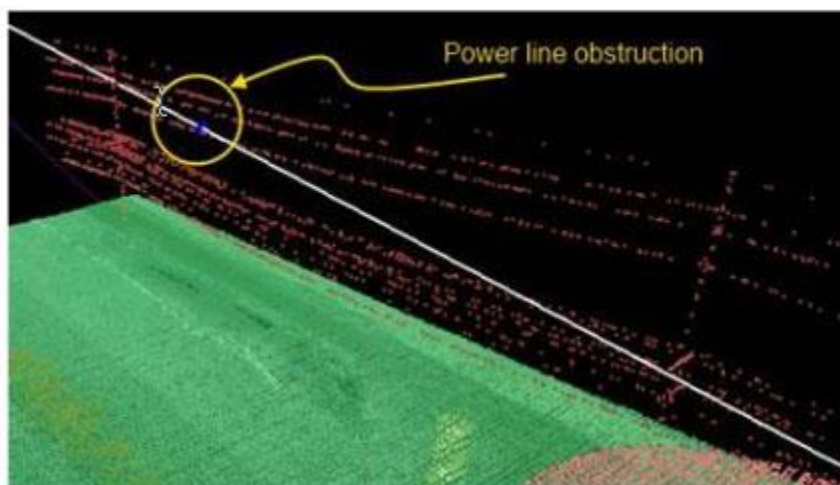


Figure 3 - Results of Line of Sight analysis

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If you could have one improvement in LP360 what would it be?

The ability to easily port LIDAR point cloud information, and DEM, TIN, and other derived products into a map service. I understand that LP360 has a server product, and we intend to look more into this application in the near future.

Chad Quinn has worked to provide geographic information systems (GIS) within local governments for the past 18 years. He has been serving the City of O'Fallon, Illinois for the past two years as GIS Coordinator. He currently works to augment and inform needs of the local community, including utilizing a high resolution dataset of LiDAR data that covers the City proper. From this data, Chad analyzes data such as line of sight paths for radio fiber connection, creates derived products for road topography and ground contours for engineering use, and uses LiDAR for building footprint extraction. When not leveraging the power of GIS and LiDAR, Chad enjoys spending time with his wife and six children.

