

Seeing a Clearer Picture for Pipeline Construction with Pictometry® Imagery

TransCanada is one of North America's largest providers of gas storage – and its \$12 billion Keystone Pipeline project is the largest pipeline project in the U.S. When completed, the Keystone Pipeline will link Canadian crude oil to the U.S. running from Alberta, Canada to the Gulf of Mexico. To cost effectively manage construction of such an expansive pipeline, the company needed better visualization tools. They found them in Pictometry® aerial oblique imagery and analytic measuring tools.

Alignment sheets are commonly used in pipeline construction to provide land information, specs and visual information to contractors bidding on a proposed corridor. The imagery contained in these sheets is captured by helicopter and is costly to produce. More importantly, the visual information is very basic. To get better visual information for estimating, contractors typically travel proposed routes to see terrain on foot which is costly, time consuming and often results in an inaccurate understanding of the land.

"No one was looking at the sheets anymore," said Jesse Bajnok, project engineer for TransCanada. "We weren't providing contractors with information they could use or trust so we weren't getting bids that were as tight as we wanted them to be." In an industry where a single mistake can cost hundreds of thousands of dollars, Bajnok wanted to improve the visual information contained on the alignment sheets so contractors would refer to them for more consistent and tighter estimating.

A former colleague in the GIS field introduced Bajnok to EagleView for professional-grade Pictometry imagery and analytical tools. Better imagery would provide a solution to the alignment sheet dilemma and Pictometry's imagery was designed to give contractors the ability to see around a location as well as measure directly on the imagery. Using Pictometry Intelligent Images, for example, contractors





would be able to see the steepness of a river bank or see and measure a utility pole – both of which may not be visible in a traditional orthogonal, or overhead, image. Over time, better visual information could also lend itself to other sizeable operational savings as well.

Bajnok began working with EagleView to secure Pictometry imagery for Phase III alignment sheets. Within weeks, his team had the new imagery and had begun customizing measurement and annotation tools by working closely with EagleView engineers. The company’s approach for finding an alternative image source was determined by value which Bajnok defines as “affordable, easy-to-use, detailed and accurate imagery.”

Another aspect to this value requirement was a “recommended, flexible and single-source provider” for geo-based solutions who could “collaborate and customize a technology quickly and to spec.”

“We only had so much time and resources to put into this before we would have to move on,” said Bajnok. “We were looking to see progress and results. We were looking for value and we found it.”

Within weeks, EagleView had captured Pictometry imagery of a 1,400-mile corridor between the Canadian border and the Gulf Coast, tiled the orthogonal images and mosaiced those tiles into a video for GIS use. Three months into the project, Bajnok and EagleView had created a custom system that captured a 2,000-foot swath of corridor at six-inch resolution in a single pass.

Problem:

Construction bids for the pipeline project were not coming in on spec because imagery in the alignment sheets did not capture the required detail.


Solution:

Better imagery and easy-to-use analytical tools to provide improved intelligence about the terrain and corridor.

Result:

Bids received were more accurate and on spec, enabling the project to move forward. Today, hundreds of contractors are using a single, image-based decision tool analytics, verification, modeling and more.

Route videos using oblique imagery with shape files and labels were produced and a workable file format was created that would transfer information, specifically digital elevation models from Universal Pegasus GIS, for overlay onto Pictometry imagery. To deploy the imagery and allow users to measure and annotate, Pictometry Online* was customized for the linear project and navigation queries for Mile Post and Tract numbers were designed.

As a result, TransCanada contractors now have access to improved visual and analytical information about the project. This led to more accurate estimates that were in line with the project specs. The company is realizing additional benefits from the images and tools, such as improved monitoring of the pipeline radius and high consequence areas. The enhanced visual intelligence has also resulted in cost-savings by reducing the need for travel and providing the ability to better plan and target field inspections. 

*Pictometry Online has been upgraded to CONNECTExplorer™