



Enmapp provides pipeline construction monitoring and quality assurance to some of the world's largest energy companies.

User
Enmapp

Partner
Esri

Industry
Water, Wastewater

Challenge
Reducing expenses involved with field data collection for pipeline customers

Solution
Arrow 100 GNSS Receivers, Collector for ArcGIS®, iPhones

Legacy Technology
Legacy GPS units said they were submeter but were not accurate

Results
Enmapp adopted real-time field data collection, saved thousands, and passed savings on to customers

ENMAPP SAVES THOUSANDS BY SWITCHING TO EOS ARROW 100 AND TERRAGO EDGE ON IPADS

Enmapp is a leading pipeline services provider based in Calgary, Canada. As such, Enmapp provides clients with customized deliverables such as route planning surveys, daily construction reports, construction and maintenance scheduling, input to help meet environmental impact reduction regulations, and advising on industry standards for design, construction, operation, safety, and maintenance. Clients also use Enmapp's data for centerline mapping and weld mapping. Their services help keep pipeline organizations' costs within budget while providing project managers with insight into phase-specific work, which often stretches for months and hundreds of miles, and requires completion before season changes bring forbidding weather.

THE CHALLENGE

With the price of crude oil falling in 2014, and the price of natural gas not faring that much better, a trip through the oil patch showed production only where it was deemed economically viable. That push for economy extends throughout the production, construction and maintenance of pipelines. Oil and Gas Journal estimates it cost an average of \$6.57 million to build a mile of pipeline in 2014—double that of two years earlier! Inspection and maintenance could cost \$5,000-\$10,000 per mile. At stake are the loss of product and environmental damage that can be an energy company's nightmare.

In that difficult economic environment, Enmapp decided to update its data collection process to pass on savings to its customers. Their legacy data-collection devices (all-in-one GPS units) required time-consuming, manual post-processing at the end of the day, as well as recapturing data in certain cases.

THE PARTNER

TerraGo Edge is a mobile, cloud-based platform that combines intelligent, responsive smart forms for data collection with advanced GPS integration. This improves the speed, quality and efficiency for your field teams performing asset inspections, land surveys and other location-based field data collection projects. TerraGo Edge works in both online and offline modes with both smartphones and tablets and integrates seamlessly with leading geospatial systems.



Lance Fugate of Enmapp inspects pipeline construction using the Arrow 100, TerraGo Edge on iPad in Canada.

“The hardware savings are enormous with the new GPS kit at less than \$10,000, compared to the old kit, which was over \$70,000. But the ongoing reduction of labor costs is even more valuable over time.”

Lance Fugate, *Program Manager, Enmapp*

THE SOLUTION

Enmapp looked for commercial off-the-shelf (COTS) GPS data-collection options and considered building its own solution in house. However, the 2007 creation of the smartphone with GPS chips showed that there was an opportunity to use COTS smart devices with external GPS receivers. Initial tests showed that the accuracy may be good enough for industrial use. Furthermore, later iterations incorporated better GPS chips and antennas, along with the capability of utilizing more global GNSS constellations than just the U.S. GPS satellites. This prompted Enmapp to conduct a rigorous field tests of COTS GPS data-collection solutions.

The industry requirements accuracy were submeter and, in some cases, centimeter accuracy. By pairing commercially available iPads with an external GPS receiver, Enmapp could achieve this accuracy on familiar, affordable tablets. Enmapp ultimately selected iPads and paired these via Bluetooth with the external Arrow 100 GPS (GNSS) receiver. A crew downloaded the TerraGo Edge app and was in operation quickly, without needing extensive training, thanks to the ease of use of the iPads, Arrow 100, and Terrago Edge.

The accuracy was as good as that of the legacy all-in-one units and, in some cases, even better.

THE RESULTS

Savings started right away. To start, the lower upfront cost of the iPads, Arrow 100, and TerraGo Edge — combined with less time spent training crew members — resulted in a significant savings over the legacy GPS devices and workflow.

The iPad/TerraGo Edge/Eos Arrow 100 combination also generated real-time GPS data, which eliminated the need for post-processing at the end of the day. This, in turn, sped up the reporting process and the time Enmapp needed deliver work — including customized reports — to its customers. Their workflows, were altered and shortened thanks to the real-time flow of field data.