



Driving the Remote View to the Local Desktop



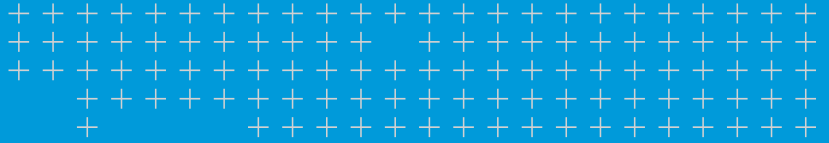
After choosing each day's route, the team first set a control point and collected two hours of data with a Trimble R10 GNSS receiver. To ensure they could accurately georeference the images, they set up the Trimble R10 at 40 km (25 mi) intervals.

How 3D mobile imaging systems are giving direction to challenging infrastructure problems

Quebec company uses Trimble technology to deliver on a complex project

Solution

- Trimble® MX7
- Trimble R10 GNSS Receiver



overview

Quebec's remote Basse-Côte-Nord (BCN) is a stunning 250-mile (400-kilometer) stretch of wild coast, home to 14 formerly self-sufficient communities and some of the oldest fishing villages in Canada. Its remoteness and tricky access has also made it a difficult region to routinely map. One Quebec company took on this challenge by acquiring Trimble's MX7 mobile mapping system, technology that would give its team the flexibility, ruggedness and most importantly, the portability to accurately capture and map the villages' road networks and infrastructure. Not only was it a success for this project, it has captured thousands of miles of new projects for the company.



Location
QUEBEC



In early 2016, geomatics company Trifide Group was tasked with acquiring 3D mobile mapping images of the roads in eight villages and five provincial airports within the BCN. The aim of the project was to collect georeferenced, 3D images of the selected villages and airports to enable government authorities to inspect the quality of roads, runways and taxiways from their desktops. Such detail would allow them to identify areas of damaged roads or runways and then prioritize and plan for badly needed maintenance and repair work. The catch was none of the eight villages are connected by roads and the only access is by air or boat. That made a portable imaging system essential.

"The compact size of the MX7 would make it easy for us to transport the unit by air or boat and install it on local vehicles," said Chantal Arguin, professional land surveyor and owner of Trifide. "And its ease of use and comprehensive imaging would allow us to handle the whole project with only two people."

On top of the logistical travel complexities of the project, Trifide was required to work around the tight schedules of each airport's traffic—no runways or taxiways could be shutdown to conduct the work.

INTO THE WILD

In October 2016, Trifide's two team leaders flew to Anticosti Island, the first—and most challenging—site of the BCN project. At 3,059 square miles (7,923 sq km), the team needed to contend with Anticosti Island's 188 miles (302 km) of unpaved roads—some nearly impassable. Choosing the most optimal route, they first set a control point and collected two hours of data with a Trimble R10 GNSS receiver. With control established, they mounted the MX7 and drove the island's main road at speeds of 25 mph (40 km/hr) as the MX7 captured a 3D image every 15 feet (5 m). To ensure they could accurately georeference the images, they set up the R10 at 25-mile (40-km) intervals,



The team prepares to capture the runway of Port Menier Airport on Anticosti Island with their Trimble R10 and MX7.



Before setting out, the team first set a control point and collected two hours of data with a Trimble R10 GNSS receiver.



A view of Vauréal Fall on Anticosti Island.



A church in the village of Mutton Bay near La Tabatière



In total, the MX7 collected 180,000 3D images in 11 days. Here is a view of the village of La Tabatière.

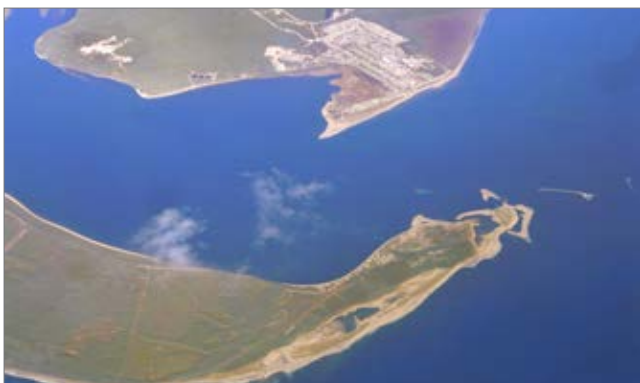


providing a precision of about 0.7 feet (20 centimeters) for the specific environment conditions.

In three days, the crew imaged the island's road network and its airport's runway and taxiway, and then flew back to BCN to map the remaining villages. In each location, the team established control with the R10, mounted the MX7 on their vehicle, and drove the roads. In total the Trifide team collected 180,000 3D images in 11 days.

After each day in the field, the team downloaded the images using Trimble's mobile image processing software and checked the imagery for clarity and precision. They then used the Applanix POSPac™ MMS software workflow to directly georeference all 180,000 images to meet the customer's GIS positional accuracy requirements.

The precise visualizations will enable authorities to inspect any segment of any road from their own distant office, and create targeted repair and maintenance programs.



Left top: The Trifide crew of Ginette Allen and Hélène Gagné stand in front of their rented, customized pick-up truck on Anticosti Island. Finding no car rentals on the island, they had to build a customized wooden rack and install it on the truck bed to provide a stable platform for the MX7. The man in the center is Herman Lavallée who rented them the truck.



Left middle: The view over the Quebec city of Sept-Îles en route to Anticosti Island.

Left bottom: A slice of the Anticosti Island landscape.

“With the rough state of the majority of the roads and the tight logistical timelines, we needed a rugged, reliable and lightweight system. We could attach the MX7 in minutes and with a 360-degree, high-resolution camera, we could capture all directions in one pass.”

– Chantal Arguin, PLS and owner, Trifide Group

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