

OFF-GRID LIGHTHOUSE CONNECTIVITY

Connecting On The Fringe

Our nation is full of wide open prairies, mountain valleys, and remote coastal areas where internet connectivity is often difficult obtain. While the average business resides in urban population centers where cellular and broadband connectivity options are plentiful, there are those that operate in areas along the fringe. For them, it's not as simple as calling the local cable company to get their organizations online. They need the purpose-built cellular routers and high-powered antenna assemblies USAT is uniquely equipped to provide.



Case Overview | PRESERVING AMERICAN HISTORY

Since the year 1994, the people at the American Lighthouse Foundation (ALF) have worked to restore, maintain, and preserve historic sites across the east coast. Their mission is to positively impact the lives of others by bringing culturally irreplaceable resources to life.

While restoring the Race Point Light Station along the coast of Cape Cod in Provincetown, MA, they found reliable connectivity elusive. Without access to power lines or broadband services, they needed creative solutions to both power and connect their site.

Located 2.3 miles from the nearest road in an area known for protected species of birds, running power lines or entrenching broadband cables wasn't an option. It would be too costly, and would disturb the integrity of the site. They needed off-grid power solutions and robust long-range communications equipment to get their site powered up and online.

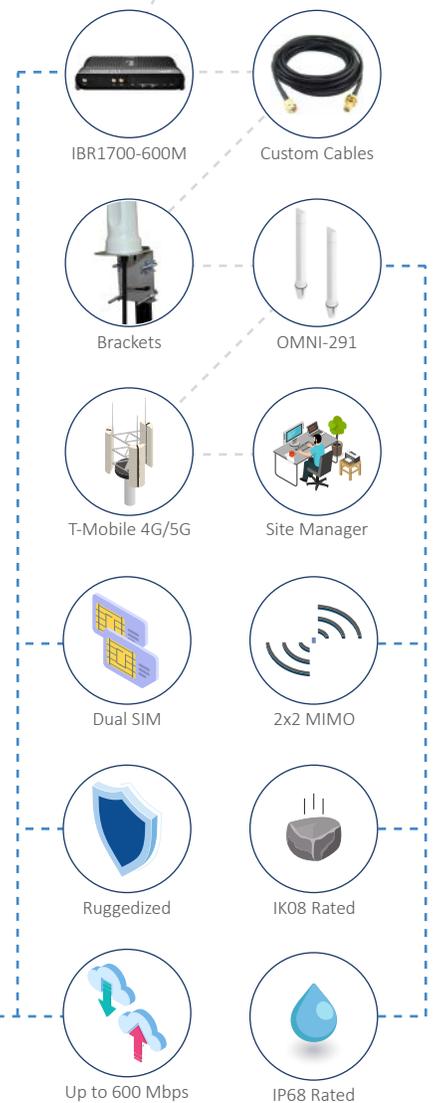
Challenges Faced | FINDING RELIABLE CONNECTIVITY

Their first problem was power. The ALF team was able to brilliantly engineer a solution for that via photovoltaic arrays, DC power converters, and battery storage. For their problem with internet connectivity, they reached out to the team at USAT.

Cellular reception around the site was virtually nonexistent. They needed help identifying the best carrier network in the area and selecting the connectivity devices they would need to boost signal strength and maintain constant connectivity at the site.

They needed to connect various devices, both wirelessly and via direct lines. They planned to use wireless thermostats, cameras, smoke detectors, and carbon monoxide monitors that all functioned on Wi-Fi. Additionally, they needed to directly connect the point-of-sale systems within their gift shop, and the P2P cameras outside of it.

The solutions USAT engineered would need to be capable of withstanding all the elements the wind and sea regularly threw at them, while being robust enough to handle all these different points of connectivity.



USAT can provide your off-grid facilities the end-to-end communications solutions they need to support the success of your remote operations.

Carrier Networks | [CONNECTING TO THE STRONGEST SIGNAL](#)

The ALF team at the lighthouse used various carriers for their personal cell phones, yet no one seemed to be able to connect. USAT has a series of representatives at all major cellular carriers, and was able to pinpoint the carrier that had the most solid and reliable signal in their area. In this case, it was T-Mobile. The solutions we provided would need to be able to utilize their network to ensure a strong and stable connection.



Coastal Antennas | [POYNTING OMNI-291 ANTENNAS](#)

OMNI-291's are high-performance omni-directional, marine, and coastal antenna. The ultra-wide band covers all modern LTE frequencies including those of T-Mobile, with excellent balanced gain guaranteeing signal reception almost everywhere along the coast. They are built tough, able to withstand wind, water, and impacts, making them ideal for volatile coastal deployments. We helped ALF procure and install two such antennas atop their lighthouse to enable 2x2 MIMO operation.

Cellular Endpoints | [RUGGEDIZED CRADLEPOINT ROUTERS](#)

The Cradlepoint IBR1700 is a rugged 5G ready networking platform designed to provide persistent connectivity across a range of commercial applications, including near-shore communications. With an IP64 rating and MIL-STD-810G and SAEJ1455 certifications for shock, vibration, and humidity, this device can withstand punishing conditions and a wide range of temperatures. Ideal for this humid coastal deployment.



Field-Tested Results | [SEAMLESS COMMUNICATIONS](#)

Not only did we help the ALF team select, provision, and activate their new hardware through our extensive DevProv+ suite of services, but also custom cut and crimped cabling to their exacting requirements, provided rapid on-site installation, and are available for ongoing hardware support. The lighthouse and it's various devices for video security, smoke detection, CO₂ monitoring, environmental controls, and retail POS, experienced near instant connectivity.

CONTACT ONE OF OUR SOLUTIONS ENGINEERS TODAY

