# Routeware

## Waste Management Company Streamlines Data Collection Using Sierra Wireless® AirLink® Gateways - A Sierra Wireless® Mobile Data Solution




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### CUSTOMER CRITICAL CHALLENGE

- In-vehicle waste hauling operations system needed connectivity for waste management solution

- Required reliable, consistent connectivity for real-time data transmission and twoway communication

**SOLUTION**

- Thousands of in-vehicle waste management solutions deployed with AirLink®gateways for management of data communications

**BENEFITS**

- Secure, reliable “always on” and “always aware” connectivity through ALEOS® intelligence
- AirLink Software Suite for easy configuration, remote management and troubleshooting
- Plug-and-play re-deployment if vehicles are retired or temporarily out of service
- Military Specification Certified for high performance in harsh waste truck conditions

Routeware has transported the waste industry into the 21st century by streamliningprocesses and helping its customers to streamline and improve routing, leading tobottom-line cost savings and revenue increases.

## Business Challenge

Routeware began in 1999 by developing a simple in-vehicle computer solutionintended to help the waste industry transition from a paper-based to an electronicbaseddata transmission and management system. The initial solution consisted ofa custom-designed computer and proprietary operating system that stored dataentered by waste vehicle drivers throughout the day. These drivers would end theirday at a centralized location where they would download the stored data for use withbilling, scheduling and other operations applications.

“In the beginning, to download data from the unit, we had a 4x4 post with a

boom anda retractable cable. The driver would pull the cable through his window and plug it intoa port on the dashboard,” explained Steven Kaufman, founder and senior vice presidentat Routeware. “Eventually we moved to 802.11 to remove the need for a physicalattachment, but we were still subject to a variety of problems, such as limited rangeand the need for line-of-sight with the on-board system’s antenna.”

Since the initial solution was conceived a decade ago, the product has gone throughsignificant evolution. For instance, the on-board computer, once the main focus of thesolution is now simply “a means to an end.” According to Kaufman, the system’s mainvalue is its ability to offer control over a hauler’s three key assets: vehicles, drivers and routes.

In early 2007, when Routeware moved from its proprietary operating system toa Windows®-based touchscreen tablet, they introduced rewritten touchscreenapplications capable of communicating with a variety of peripheral devices, such as onboardcameras used to resolve billing and collection disputes. Additionally, Routewareintroduced an operational dashboard application that allows fleet managers anddispatchers to track a broad range of route, driver and vehicle statistics (such as speedand location) in real-time. All of these were built around the integration of cellular modems into the revamped system.

“Having access to real-time data makes a difference every moment a truck is in thefield,” said Kaufman. “Once cellular coverage started to expand and cellular technologybecame more reliable, we were able to take advantage of greater communicationopportunities.”

## Sierra Wireless AirLink® Solution

When searching for a reliable in-vehicle cellular solution, Routeware turned to valueaddedsystems integrator Feeney Wireless, who recommended the Sierra WirelessAirLink gateways to provide reliable uptime and data transfer speeds, precise GPSinformation and robust remote configuration and management capabilities.

“We tried another brand of modem, but had significant quality and connection issues.There is no more difficult vehicle to build electronics for than a garbage truck,” saidKaufman, who cites idle vibration, the nature of truck contents, the duration of avehicle’s service and extreme temperature as factors that can erode a product’sreliability. “We have customers nationwide and in Canada, and we needed a solutionthat could withstand Wisconsin winters, as well as Texas summers.”

AirLink gateways are compact, intelligent and fully-featured mobile communicationsplatform that includes a high-precision GPS receiver and rich, embedded intelligenceprovided by ALEOS® embedded intelligence. ALEOS simplifies installation, operationand maintenance of any solution and provides “always-on” and “always-aware”connection management. ALEOS also ensures persistent network connectivity and,in conjunction with the AirLink Software Suite of management software, allows foreasy setup and configuration and provides extensive remote management capabilities.Because AirLink gateways are certified for the MIL-STD 810 series of standards issuedby the United States Army’s Developmental Test Command, the intelligent device isalso rugged enough to perform in the harsh field environment to which waste industryvehicles and drivers are regularly exposed.

Feeney Wireless provided Routeware with configuration support and was able toacquire the necessary gateways within a short lead time. The integrator also madeoptimization recommendations to help drive the Routeware solution to the next level.

“Feeney Wireless has provided us with great support,” said Kaufman. “They arrangeactivation services with providers, have worked on initial device configuration and haveprovided us with their overall technical expertise.”

Routeware has also taken advantage of the AirLink gateway’s input/output (I/O) portcapabilities to manage the flow of transactions from other peripherals, such as thepreviously referenced on-board camera, which connect to Routeware’s in-vehiclesystem. As Kaufman described, AirLink is “more than just GPS and data transmission;it’s an I/O ‘traffic cop’ that routes all of the complex inputs we have flowing through our system.”

**Results**

Routeware uses AirLink devices as one of the core elements in its in-vehicle wastemanagement system and currently has thousands of systems deployed throughoutNorth America. Even though the communications device has a higher up-front costthan Routeware’s original modem choice, Routeware has never regretted its decisionto upgrade because of the solution’s unmatched performance quality and overall lowercost of ownership.

Kaufman describes Routeware’s quality decision as central to a customer’s return-oninvestment(ROI) decision and links the company’s solution expansion plans directlywith Sierra Wireless.

“When we upgraded to the AirLink device, all of the connection problems we

werehaving just disappeared, along with many of the customer complaints about cellularcommunication difficulties,” said Kaufman. “The Sierra Wireless product worksseamlessly with our system and has proven itself to be extremely reliable in the field.We are thrilled with our decision to switch to the AirLink product line.”

Routeware’s waste management system utilizing the Sierra Wireless AirLink gatewayrunning on both EVDO Rev A and HSUPA-based cellular networks provided thefollowing benefits:

- ***Reliable, on-demand communication***
  – ALEOS intelligence provides the “alwayson”and “always-aware” access to real-time two-way communication required for critical mobile data applications.

- ***Rugged form factor***
  – MIL-STD 810 certified for high performance in the harshest ofenvironmental conditions.

- ***Fleet management***
  – GPS tracking provides ability to acquire vehicle information,such as location and speed, without interruption.

- ***Peripheral management***
  – Advanced I/O port capabilities enable management ofdata transmission from multiple peripherals.

- ***ROI and quality***
  – Unmatched performance and durability helps Routeware createthe high-quality product it has committed to provide its customers.

- ***International presence***
  – AirLink products are certified in Canada and abroad,allowing Routeware to deploy in other countries as opportunities arise.

- ***Product support***

– Sierra Wireless and its resellers stand behind their product andwork together to provide reliable, quality solutions.