



The Computerworld Honors Program

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Final Copy of Case Study

Status:

Laureate

Year:

2013

Organization Name:

Lehigh Hanson, Inc.

Organization URL:

www.lehighhanson.com

Project Name:

Cadman Ready Mixed Concrete Fleet Navigation & Water Meters

Please select the category in which you are submitting your entry:

Sustainability

Please provide an overview of the nominated project. Describe the problem it was intended to solve, the technology or approach used, how it was innovative and any technical or other challenges that had to be overcome for successful implementation and adoption. (In 300 words or less.)

With some experts estimating that up to 36% of the total U.S. waste stream originates from construction activity and construction-related vehicles in operation, a small increase in efficiency or reduction of waste in the construction industry can have significant contributions to environmental sustainability. Lehigh Hanson, Inc., one of the largest construction materials companies in North America, is committed to reducing the impacts of its operations on the environment and operating in an ecologically responsible manner. In 2012, the company began a project focusing on improvements to a fleet of ready-mixed concrete trucks operated by Cadman, Inc., its subsidiary in Washington state. Ready mixed concrete is a key component of many construction projects. In its

simplest form, ready mixed concrete is a mixture of cement, water and aggregates. Transporting ready mixed concrete to a job site can be challenging since the mixture of materials cannot be allowed to harden before it arrives at the delivery address. The company overhauled the 12-year-old navigation systems in its 80 trucks in the state, outfitting them with Trimble Vehicle Gateway 850 (TVG850). The TVG850 combines GPS, wireless 3G, WiFi and Bluetooth capabilities to deliver real-time location information to fleet managers and drivers. Trimble drum rotation sensors and water-add meters were installed to measure the quality of the material being delivered. Lehigh Hanson then integrated this real-time vehicle data with its CommandAlkon dispatch software, allowing the company's fleet managers to route each truck to the closest and most available concrete dispatch point at that moment. As a result, Lehigh Hanson's trucks spend less time idling and burning fossil fuels due to better fleet utilization and automated turn by turn directions. In addition, the new water-add meters allow the company to optimize its use of raw materials.

When was this project implemented or last updated? (Please specify month and year.) Has it incorporated new technologies and/or other innovations since its initial deployment? (In 300 words or less.)


This project was implemented entirely in 2012. It was piloted across five trucks beginning in August, and the project was formalized in October for rollout across the entire Washington fleet based on the success of the pilot. The retrofitting of the fleet and data integration took approximately 45 days to complete, and the last of the 80 trucks came online in December 2012.

Is implementation of the project complete? If no, please describe the project's phases and which phase the project is now in. (In 300 words or less.)

The project is complete in the state of Washington. This effort is organized into multiple projects, organized around Lehigh Hanson geographical locations. Due to the positive results, it will be expanded to other states in additional phases.

Please provide at least one example of how the technology project has benefited a specific individual or organization. Feel free to include personal quotes from individuals who have directly benefited from the work. (In 300 words or less.)

The four months of pilot program data and roughly 30 days of full rollout data have delivered significant benefits: 1. Due to the real-time navigation and routing capabilities of the new system, Lehigh Hanson drivers increase their level of safety while on the road and spend less time: idling as the driver manually plots his route to and from the job and dispatch sites; waiting in line at the plant as



mixer trucks are loaded with concrete; and driving to and from the job and dispatch, now that the most efficient route is plotted automatically. To date this has resulted in a savings of: 3 minutes per driver per day, or four full hours daily across the fleet; \$60,000 per year in reduced fuel bills, vehicle maintenance costs and driver time; and reduced use of fossil fuels, most of which are burned at 0 MPG while the trucks idle, and other petroleum-based products including tires, oil and grease. 2. With the installation of the water add meters and the more efficient routing, the ready mixed concrete arrives on the jobsite with the exact moisture content specified for the job, which in turn has reduced the amount of cement in each mix by 10 pounds per yard of concrete. The tangible benefits are: Our customer gets a superior product that exactly matches their specifications; our company saves \$50,000 in raw materials expenses annually; and by optimizing the use of raw materials, the company offers a more environmentally sustainable product. 3. By phasing out the 12-year-old navigation systems used in the truck cabs prior to this project, Lehigh Hanson will save over \$70,000 annually in maintenance labor and end-of-life spare parts. Lehigh Hanson expects to recoup 100% of its investment in just six quarters of operation.

Would this project be considered an innovation, a best practice or other notable advancement that could be adopted by or tailored for other organizations and uses? If yes, please describe that here. (In 300 words or less.)

The reduction in fossil fuels and raw materials isn't exclusive to Lehigh Hanson. The reason that this project is being submitted to Computerworld Honors is that with the investment of some additional technology, similar results can be achieved by other companies within the same industry. If everyone in the construction industry committed to reduce their fossil fuel consumption by a few minutes a day and use fewer raw materials to deliver a higher quality product, the benefits would be tremendous and the project would pay for itself in just a few years' time. This is a win-win situation for the company, the customer, the industry and the environment.