

Lowe's builds a
better world
with AT&T and HydroPoint smart solutions



- **Business Needs** - Reduce the cost of irrigating store landscaping and decrease water waste
- **Networking Solution** - Smart irrigation system using AT&T Internet of Things (IoT) technology to connect control points and sensors to a climate analysis system that determines precise water needs
- **Business Value** - Saving water and avoiding carbon emissions by reducing the amount of water that is cleaned and pumped; reduced water irrigation costs and increased operational efficiency
- **Industry Focus** - Hardware and home improvement
- **Size** - \$68.6 billion in annual sales

About Lowe's

Lowe's is a FORTUNE® 50 home improvement company serving more than 17 million customers a week in the U.S., Canada and Mexico. With fiscal year 2017 sales of \$68.6 billion, Lowe's and its related businesses operate or service more than 2,390 home improvement and hardware stores and employ more than 310,000 people. Founded in 1946 and based in Mooresville, North Carolina, Lowe's supports the communities it serves through programs that focus on K-12 public education and community improvement. The company is deeply invested in helping people love their homes and communities.

The situation

Sustainability is important to Lowe's. The company has made significant progress in infrastructure modification and recycling, but it wanted to do more. In 2014, Lowe's set an ambitious goal of reducing its carbon emissions by 20% by 2020. In addition, because water is so scarce in many of the communities Lowe's serves, the company sought to reduce water use for store landscaping projects.

Solution

HydroPoint smart irrigation controllers and AT&T connectivity are helping Lowe's reduce water waste, save money and increase operational efficiency. With the irrigation controllers and AT&T IoT solutions, Lowe's can more precisely determine when and where to water. The solution is also helping Lowe's reduce the carbon footprint of the communities it serves, since cutting water usage with efficient irrigation systems also reduces the energy the local communities use to clean and pump water, and helps them avoid associated greenhouse gas (GHG) emissions.

A commitment to improve homes and communities

Lowe's has become an American success story thanks to a combination of putting the customer first, being a good corporate citizen, and stocking hundreds of thousands of items that people and businesses need. Last year, Lowe's and Lowe's Charitable and Educational Foundation gave more than \$39 million in charitable contributions, and every U.S. store completed at least one Lowe's Heroes volunteer initiative, in which employees work on projects to improve the communities in which they live and work.

Environmental stewardship is more than a philosophy at Lowe's, said Colleen B. Penhall, Lowe's vice president of corporate social responsibility. "We know that we have a responsibility to the customers and communities we serve to make their homes, neighborhoods and the environment better places to live, work and play," she said.



To this end, the company is deeply committed to using natural resources carefully, increasing its purchase of green power and working to spread energy awareness among its customers. It installed recycling centers in more than 1,700 U.S. stores to help customers responsibly dispose of rechargeable batteries, cell phones, compact fluorescent light bulbs and plastic shopping bags, and expanded its energy centers nationwide to provide a one-stop destination for energy-saving products.

Operating efficiently helps Lowe's preserve natural resources. Its mission statement on conservation and sustainability reads, in part:

"We believe building a healthier business and a healthier environment go hand in hand. Lowe's cares about how our company's activities impact

the Earth's ability to provide natural resources to future generations. For that reason, we continually examine opportunities to reduce our environmental impact while providing the products and services our customers have come to expect.”

New ways to drive efficiency

Lowe's officials understood that saving energy is a critical issue for their business, so they focused initially on projects that can cut costs while delivering environmental benefits. They made infrastructure investments in stores, installing variable fan drives, building management systems, LED lighting and high-efficiency HVAC units. The company achieved substantial energy savings through these investments and recycled more than 4 million pounds of materials that would have otherwise ended up in a landfill, but it wanted to do more.

The company also wanted to be sure it used water as effectively as possible. According to the EPA, as much as 50% of water used for irrigation is wasted due to evaporation, wind or runoff caused by inefficient irrigation methods and systems.¹ And because water conservation is critical to many of the communities Lowe's serves – especially those experiencing extreme drought conditions – it has focused on ways to reduce water use. “We're trying to preserve the planet's resources by using less water,” Penhall said.

Connected solution optimizes water use

After researching several water-saving options, Lowe's chose HydroPoint WeatherTRAK to help reduce water use in store landscaping. The

HydroPoint smart irrigation controllers use an AT&T IoT solution to control irrigation based on detailed climate analysis. Each controller has its own subscriber identification module (SIM) card, so each can be individually contacted to collect data and control watering.

Many irrigation controllers only use temperature to determine irrigation patterns, a practice that can cause considerable overwatering. The HydroPoint Climate Center uses much more accurate climate information, analyzing more than 8 million weather data points from around the world each day. This includes more than 50,000 U.S. weather stations and hundreds of thousands of other data sources, from aircraft to radio buoys and weather sensors around the globe.

HydroPoint uses this data to develop a model that calculates temperature, wind, humidity and solar radiation for every square kilometer of the continental U.S. and every 100 meters of Hawaii. Using AT&T IoT connectivity, HydroPoint distributes this climate information to the smart irrigation controllers at Lowe's stores, optimizing the irrigation patterns.

HydroPoint solutions have proven to achieve 95% of conservation potential while reducing water use between 16% and 59%. More than 25 independent

HydroPoint solutions have proven to achieve 95% of conservation potential while reducing water use between 16% and 59%

studies have found that the solutions deliver maximum water savings, operational efficiency and risk reduction as compared to alternative solutions – saving four times more water than any other technology.

Impressive environmental and economic advantages

Lowe's officials saw the potential in the WeatherTRAK solution, and initiated a pilot program at a few hundred stores in 2013. It quickly became clear that the program generated robust savings.

While other systems are simply timer-based, AT&T and HydroPoint technology enabled Lowe's to water only when and where it was needed. "The HydroPoint system says, 'If you need five minutes, I'll water for five minutes. If you need 18 minutes, I'll water for 18,'" said Jay Clement, Lowe's divisional facilities director. "There's that give and take for what we're trying to do."



The technology enables Lowe's to customize its watering. "The system is set up to know what it's watering," Clement said. "Some stores just have plants, while other locations have turf and grass."

The impressive results for the environment and the company's bottom line at pilot sites compelled Lowe's to expand the program to more than 900 of its stores. "As the program expanded across the country, it became clear that having dependable and far-reaching IoT connectivity like the service we get from AT&T was critical to our success," said Clement.

Lowe's resolution to up the ante in its environmental efforts – with assistance from AT&T and the HydroPoint smart irrigation controller – has decreased the company's annual water bills by \$5 million and reduced water usage by more than 650 million gallons.

The solution also produced a second benefit – helping to reduce carbon dioxide emissions. Most water is cleaned and pumped before it is used, a process that can be very energy intensive. Reducing water usage with an efficient irrigation system also reduces energy and associated GHG emissions. And because most Lowe's stores use water from their local municipalities, they've created annual downstream greenhouse gas savings of more than 761 metric tons, which is like avoiding the use of more than 80,000 gallons of gasoline.

Helping people love where they live

Lowe's is pleased with the benefits its IoT solution has delivered. "We have a healthier landscape," Clement said, "since watering is done only when it's needed." Less water is wasted, he said, since using timer-based irrigation systems sometimes led to watering even when it was raining. And Lowe's appreciates the virtually real-time alerts it receives when a system issue arises.

The company is considering other smart solutions to support its sustainability initiatives, including new ways to identify water leaks. “We are committed to preserving our shared home, Earth, through sustainable practices, while doing the right thing,” Clement said.

In addition, as part of its corporate responsibility initiatives, Lowe’s has promised to increase the number of eco-friendly products available to customers, helping them save more than \$40 billion in energy costs through sale of ENERGY STAR products.

Penhall said the company takes pride in the progress it has made in its green initiatives. “We look forward to building on that momentum as we advance our efforts to meet all of our corporate responsibility

goals,” she said. “For us, innovation is critical. We’ve been working on this for years, so we’ve done most of the easy stuff.”

Added Penhall: “We need new ideas, new ways to think about these issues. By using technology to create greater control and visibility, we’re uncovering ideas that were impossible before. HydroPoint brings great intelligence and AT&T brings dependable and far-reaching connectivity that makes the whole thing possible. These types of leaps forward aren’t possible without the connectivity services that AT&T provides. From our environmental stewardship programs to community revitalization efforts, we reinforce our purpose of helping people love where they live each day.”

¹ <https://www.epa.gov/sites/production/files/2017-03/documents/ws-factsheet-outdoor-water-use-in-the-us.pdf>

©2018 AT&T Intellectual Property. All rights reserved. AT&T, AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All other trademarks are the property of their owners. Actual results and your experience may vary from those described in this case study. Information and offers subject to change. Please contact your sales representative for additional information. | 13860-102418