

# Accurate road weather data for remote roads

## Case Study



### The client:

Shetland Islands Council  
Roads Service

### Vaisala solution:

GroundCast

RWS200

### THE CHALLENGE:

#### Essential connections in a remote region

More than 1,000 km of roads connects homes and businesses on the group of islands known as Shetland. As the northernmost region of the United Kingdom, Shetland also depends on safe roads to connect them to the rest of the world. The Shetland Islands Council Roads Service maintains the road network year-round, which can range from wet and windy conditions to mild frost. The Council's fully-trained professionals complete all maintenance in-house, and have long depended on their road weather station network based on Vaisala technology to get accurate information on current conditions.

Some of the most remote areas of the network are the most challenging. Blind curves and hilly topography create gaps in measurement visibility. The Council has addressed these areas by deploying personnel early in the morning to

inspect these road sections manually – a time-consuming process that can waste fuel if the roads are clear, or waste material if the roads don't truly need it.

### THE APPROACH:

#### A simple solution to road weather observations

Now, Vaisala GroundCast sensors are bringing the Shetland Islands Council Roads Service the road weather data they need from the most remote corners of the network which are not close to their current road weather stations. A simple and cost-effective solution, the Council installed several GroundCast sensors where they measure real surface temperature plus road temperatures from different depths.

*"Before we put in GroundCast sensors, we had drivers getting up at 5 a.m. to check conditions in the most remote parts of the road network. Now, we can reduce the number of inspections needed – a quick glance of the parameters with a laptop is sometimes all we need to make the best road treatment decisions. We've always trusted Vaisala technology for accurate weather data, and this is a great way to supplement our road observation network."*

*Neil Robertson  
Road Network Engineer*

With GroundCast in place, the Council has easy access to surface temperature and state, how much treatment material is already on the road surface, and the temperature at depths of -6 cm (-2.4 in) and -30 cm (-1 ft). All of these parameters help them to make accurate treatment decisions.

#### **THE RESULTS:**

##### **Optimized maintenance and staff time**

Maintaining every corner of the road network is no longer a guessing game. Before, staff would get up before dawn to check the most remote and problematic parts of the road. Today, they can check conditions from a laptop, reducing the number of inspections needed. GroundCast makes it easy to save time and resources because the Council has more information on which road sections need treatment.

With GroundCast sensors filling in the road weather observation gaps, the Shetland Islands Council Roads Service plans to take their road weather insights to the next level with Vaisala Wx Horizon. With weather modelling developed specifically for use in transportation, Wx Horizon provides graphical, tabular and map visualizations, alerting and notifications, 72-hour enhanced road weather forecasts and 10-day atmospheric forecasts.

#### **Why Vaisala?**

Vaisala's weather and environmental technologies take every measure for unrivaled road network awareness – keeping roadways safe and efficient in any season.

Our instruments and intelligence are built on 85+ years of innovation and are known as the gold standard for precision and reliability. We understand how accurate data and insights do even more by driving sustainable road operations and climate action. Our holistic approach provides customers with end-to-end simplicity, valuable partnership, and a comprehensive portfolio that is constantly evolving.

As recognized experts in transportation, we continue to channel our curiosity into new ways of making roadways safer and more efficient than ever.

