

## Kurloo tracks invisible movement in hard to reach places to improve Safety & Maintenance Response



Learn More

### Background & Problem

Queensland Rail provides critical transportation infrastructure to support a vast number of industries across the state of Queensland, Australia. Queensland Rail discovered that some sections of the rail line on the Toowoomba Range were of higher geohazard concern (like rock falls) and required monitoring to effectively manage the risk.

As a critical connection for coal and grain from the region to the Port of Brisbane, closure or disruption has the potential to adversely impact industry and agriculture.

Queensland Rail needed to understand the risk to their network for long-term slope stability, to be able to put in place appropriate maintenance and disaster response programmes to keep the trains, and the many industries they support, moving.

### Solution

After consulting with geotechnical engineers and inspecting the site of concern, a Kurloo monitoring regime was devised which comprised of two monitoring works including the embankment and tilt of the rail at regular intervals.

To monitor slope stability at the hardest-to-reach points along the network, Kurloo sensors were placed on the embankment. These measured daily 3D displacement, reducing the need for manual intervention or measurement and better managing cost for Queensland Rail to acquire the data.

As more complex measurements were required to understand the risk, tiltmeters were spaced evenly along the track as well. This combined monitoring solution armed Queensland Rail team with long-term movement trends as well as movement directions of the slope.

#### CHALLENGES:

- Equipment cost and risk in extreme environment
- Safety due to hazardous terrain
- Maintaining continuity of service for essential industry transport

#### BENEFITS:

- Cost effective integrated monitoring system
- Confidence for timely decision-making
- Improved risk assessment & communication system

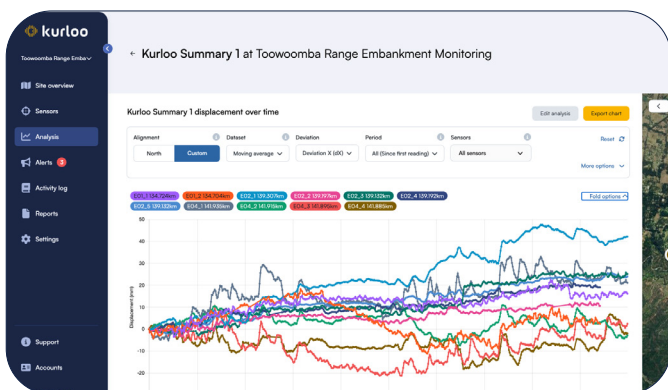


Kurloo x Queensland Rail: Toowoomba Slope Stability Project

## Accurate | Affordable | Autonomous



Overview of sensors in Kurloo Nest platform



Railway Site Overview Dashboard, Queensland, Australia

*During the more recent flood events, Kurloo provided daily reports and movement summaries to help inform management of the risks at this site. Queensland Rail has an ongoing emphasis on increased risk management on range profiles.*

**Kimberley Bracher**  
Senior Asset Maintenance Engineer  
Queensland Rail



## Benefit

Combining multi-disciplinary measurements, Kurloo is helping Queensland Rail reduce risks to economy, environment, natural resources & public safety.

Building a comprehensive data set helps Queensland Rail understand the underlying causes and impacts of geohazards -as well as their probability of occurrence. They can forward plan and allocate resources accordingly.

Queensland Rail is now able to lead the charge with the creation of new tools and methodologies which improve the assessment and communication of hazards, for better decision-making.

## Results

With Bureau of Meteorology (BoM) rainfall data integrated in the Kurloo Nest platform, Queensland Rail had near real-time insights about the impact of rainfall on the risk embankment at their fingertips.

Over time, Kurloo will provide Queensland Rail team with more information to help define better alerts and rates of change, potentially justifying the expansion of their monitoring efforts in key areas of interest or concern.



Kurloo x Queensland Rail: Toowoomba Slope Stability Project