

Enhancing Rail Crossing Safety with LiDAR & Geospatial Intelligence



Proactive

Risk management replacing reactive investigation across one of North America's largest freight networks


Automated

Obstruction detection at highway-rail crossings — eliminating slow, manual data review processes entirely

Real-Time

Geospatial safety monitoring through interactive microapps powered by LiDAR and Google Earth Engine

SERVICES

-  AI Solutions
-  Data Engineering
-  Platform Engineering
-  Experience Design

TECHNOLOGY

-  Geospatial Analytics
-  Smart Data Architecture
-  Machine Learning Pipeline
-  Predictive Analytics

Enhancing Rail Crossing Safety with **LiDAR & Geospatial Intelligence**

THE CHALLENGE

A major Class 1 railroad operating one of the largest freight networks in North America relied on LiDAR technology to monitor highway-rail crossings for potential obstructions. While the sensors generated large volumes of valuable data, reviewing that information required a manual analysis process that was time-consuming and difficult to scale.

Object Computing integrated LiDAR data with Google Earth Engine and built a suite of interactive microapps that transformed how this information was used — providing a visual, geospatial interface that allowed teams to quickly identify crossing conditions and prioritize safety responses.

The new system replaced slow manual reviews with automated analysis, enabling the railroad to move from reactive investigation toward proactive risk management across its entire crossing network.

THE SHIFT

BEFORE An extensive rail network relied on a manual, time-consuming data review process to identify obstructions at highway-rail crossings.

AFTER Proactive risk management with rapid, automated identification of safety issues at crossings across the entire network.

BRIDGE Interactive microapps integrating LiDAR data with Google Earth Engine for real-time geospatial safety monitoring.

WHAT WE BUILT

FEATURES Interactive microapps integrated with LiDAR sensor data and Google Earth Engine for geospatial crossing analysis.

ADVANTAGES Automates the detection of crossing obstructions, removing the need for slow, manual data reviews across thousands of locations.

BENEFITS Enables proactive risk management and ensures safety consistency across one of North America's largest freight networks.



Engineered to **evolve.**

Three decades of mission-critical systems, engineered for performance and agility.

Let's Talk - hello@objectcomputing.com