

CUSTOMER STORY

Decarbonizing Street Lighting While Maintaining Safety Through Advanced Video Analytics

Client Profile

East Riding of Yorkshire Council leads a consortium of nine authorities across the UK in the ADEPT Live Labs 2 program, a three-year research and innovation project funded with £3.3 million from the UK Department for Transport. The council is addressing one of modern infrastructure's most critical challenges: simultaneously achieving ambitious decarbonization goals while maintaining the highest standards of public safety.



A site with newly-implemented pedestrian-only streetlights and 24/7 thermal camera safety monitoring

Challenge

East Riding faced an unprecedented challenge where two critical priorities were in direct conflict. Street lighting across the UK costs £2 billion annually and contributes significantly to carbon emissions, twenty streetlights produce the equivalent carbon emissions of driving a family car to the moon annually for 40 years. Yet British design standards specifically require lighting at conflict areas such as roundabouts, crossroads, and junctions, precisely where the council proposed removing lights.

The project aimed to replace traditional street lighting with lower-carbon alternatives including solar-powered illuminated road studs, highly reflective white lines, and improved visibility signage across 50+ miles of road. However, this exposed a critical gap: no existing monitoring system could capture comprehensive traffic data in complete darkness. Traditional video analytics relied on the very streetlights the project intended to remove.

The council needed continuous, granular data to establish baseline driver behavior, monitor real-time safety metrics after de-illumination, identify critical safety-related events and risk before crashes occurred, and reassure the public that safety was being monitored 24/7. As Karl Rourke, Project Manager of East Riding of Yorkshire, emphasized, "We're dealing with road safety. We're dealing with people's lives. So we have to be sure that the changes we make are safe for all road users."



Updated street lighting now features pedestrian-specific lights and solar-powered road studs on a high-capacity dual carriageway.



Solution

After evaluating multiple vendors, East Riding selected Transoft Solutions as a development partner willing to co-create an innovative solution. Where other companies demanded substantial upfront investment, Transoft recognized the mutual opportunity and committed to a true partnership model operating on fortnightly technical updates with team members across global time zones.

At the heart of the solution lies Transoft's TrafXSAFE Connect platform (the predecessor to VERALYTIX Live), featuring groundbreaking thermal imaging cameras capable of capturing detailed traffic data in complete darkness. The system was strategically deployed at 30 locations, streaming data in real-time 24/7 while building a comprehensive historical record for trend analysis.

TrafXSAFE Connect classifies all road users, including different vehicle types, cyclists, and pedestrians. It measures speeds, analyzes behaviors, captures interactions, identifies critical conflict events, generates conflict zone safety heatmaps, and captures 10-second video clips of critical conflicts. As Rourke explains, "Video capture is really quite crucial because we've changed the engineering on these sites. If we were to see a consistent pattern of near misses, we would look to see if that was an engineering problem that we'd induced as part of our designs."

As a second benefit, the thermal imaging approach addressed surveillance concerns by not recording facial imagery, license plates, or any other personal identifying data—focusing purely on movement patterns and safety metrics.



Results

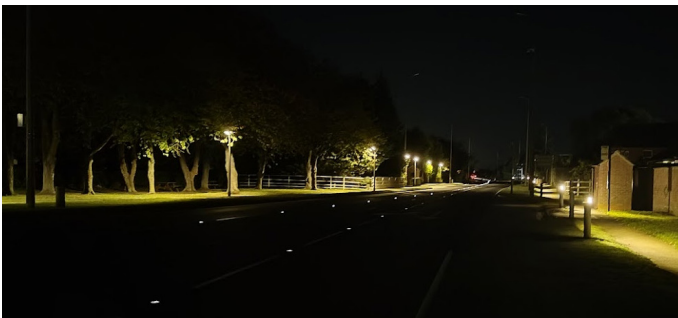
The data revealed compelling findings that validated the project approach. During baseline monitoring, TrafXSAFE Connect corroborated existing UK research showing drivers travel approximately 10 percent faster at night under street lighting. The system also confirmed that 80 percent of collisions occur during daylight hours and 80 percent are attributable to driver error rather than lighting conditions.

Following implementation, replacing street lighting with new equipment had no adverse impact on driver behavior at any de-illuminated test sites. Speed reductions of up to 10 percent were observed at conflict zones, with zero safety incidents attributed to the lighting changes. Rourke recalls, "That first night we switched off, I didn't sleep very much. The beauty of having the real time analytics coming through is I could go on there and I could see that everything was running okay."

The environmental and financial impacts proved equally impressive. The approach delivers 70-75 percent carbon savings and up to 80 percent whole-life cost savings compared to traditional street lighting. If extrapolated across the UK, the approach could eliminate nearly one million streetlights, saving over £250 million to UK public finances.

Public reception shifted from initial skepticism to strong support through transparent communication about the thermal imaging technology and 24/7 monitoring commitment. The project received a ministerial visit, has been shortlisted for multiple UK awards and won the Environmental Sustainability Award at the Highways Awards 2025, and attracted interest from local authorities nationwide.

With monitoring planned to continue for a minimum of three years, the project remains ongoing as the council gathers long-term data on seasonal variations and evolving driver behavior.



Reevaluated street lighting with solar-powered road studs and newly implemented pedestrian-only streetlights, lighting the sidewalks in Hayton village, while keeping light pollution to a minimum.

Impact & Scalability

The project challenges a fundamental assumption in highway design: that street lighting is necessary for safety at conflict zones. Rourke emphasizes the scalability: "I think it's hugely scalable, not only in the UK, but it's a project that you could pick up and just put anywhere in the world. Street lighting is common across the world, and it's common for a specific purpose across the world."

The solution requires only commonly available materials, strategic layout design, video analytics monitoring capability, and commitment to evidence-based decision-making. Multiple authorities are now positioned to become early

adopters, with interest spanning the UK, Europe, North America, and Australia.

Beyond street lighting projects, TrafXSAFE Connect's thermal imaging capability also supports:

- Remote rural junction analysis where power infrastructure doesn't exist
- Short-duration mobile deployments for collision investigation
- Rapid road safety evaluations without permanent infrastructure investment

In Summary

Rourke stresses that "decarbonization and road safety are equal partners in this project. Regardless of how much carbon we can save, if the road safety doesn't pan out, then the project has failed." The comprehensive TrafXSAFE Connect monitoring system became the biggest communications tool, reassuring the public that their safety was being monitored 24/7. It also provided assurance to project stakeholders, including road safety auditors, that road user behavior had not deteriorated and that overall traffic safety remained at an adequate level.

The project proves that with courage, partnership, and the right technology, local governments can achieve dramatic carbon reductions while maintaining or improving safety outcomes. By placing safety monitoring at the center of their decarbonization strategy through TrafXSAFE Connect, East Riding of Yorkshire Council ensured public trust and project viability, creating a blueprint for sustainable infrastructure that protects both today's road users and tomorrow's climate.



A pedestrian crossing area in Hayton Village remains lit to increase safety for vulnerable road users.



“ It had to be video analytics. No other type of system would have given us everything that we needed and particularly in relation to pedestrians and cyclists and the differentiation between all the categories that we needed. ”

— Karl Rourke, Service Manager for Street Lighting and Live Labs 2 Project Lead, East Riding of Yorkshire Council