



Research

Our dedicated research and development arm helps infrastructure owners and managers improve the design, safety, efficiency and sustainability of their assets.

Collaborative research

Our research and development team works extensively with academic and industry partners, leading, defining, bidding, coordinating and delivering cutting-edge international research projects, including H2020 European Framework, CEDR and PIARC funded projects.

Commercial research

Our team undertakes research and advanced analysis for private and public-sector clients. Our services cover the design, assessment and whole-life optimised management of new and existing infrastructure.

From maximising the service-life of road and rail infrastructure to finding optimal solutions for network efficiency projects, we drive innovations across a broad range of markets.

Consultancy

Our team helps organisations unlock greater value from their third-party and enterprise data, whether internal or external, structured or unstructured. In so doing, we create opportunities for them to make more robust decisions, uncover cost savings and get to know their customers better.

Expertise

Our researchers are experts in risk assessment, reliability analysis, forensic investigation and testing, structural analysis, statistical modelling, whole-life cycle optimisation management, structural health monitoring (SHM), and software tool development.

This broad expertise is applied across a range of markets, including civil infrastructure (bridges, buildings, transportation, and rail), network analysis (transportation, water, power, and communications) and the environment (water quality and protected species).



Projects

INFRALINC

Our researchers are leading this one-year project aimed at developing a design for a full-scale study to assess climate change risks for critical infrastructure (CI) in Ireland.

The project will examine different types of infrastructure and their interdependencies in terms of both the likelihood and potential consequences of one infrastructure failure on another. It will also consider cascading hazards wherein extreme events increase significantly over time and generate unexpected, secondary events of strong impact.

Risk-based geometric design

Our research and development team has been commissioned by Transport Infrastructure Ireland (TII) to develop a methodology for the analysis of geometry-related collision risk on Ireland's national route road network.

The project aims to develop a practical framework for quantitatively identifying locations of greatest risk to enable better prioritisation of investment funding. A similar methodology is currently being utilised to analyse the regional road network in Ireland.

Bridge and tunnel strikes

Funded by PIARC, our research and development team carried out a study to examine proven countermeasures, practices, and technologies to reduce the incidence of oversize vehicles striking bridges and tunnels along with effective processes for accurately reporting and tracking bridge strike occurrences. A cost-benefit analysis was used to demonstrate the methodology and to draw broad conclusions about effective mitigation measures.

Safe-10-T

Our research and development team participated in this EU-funded project aimed at developing a safety framework for critical road, rail and inland waterway infrastructure along the European TEN-T network. Novel machine learning applications were developed to use remotely monitored data to provide advanced real-time safety assessments of critical transport infrastructure assets. The main output consists of a decision support tool to be used by infrastructure owners and managers to inform strategic investment decisions regarding transport infrastructure.