



# CRITICAL INFRASTRUCTURE MONITORING

PROTECTING THE  
FOUNDATIONS  
OF SOCIETY



Critical infrastructure provides essential services that most take for granted. It's only when things go wrong that people notice.

When key infrastructure breaks down, we lose the power to run our homes, the water we drink, transportation, access to goods and services, and the communication systems necessary to contact friends, family and emergency services. With technology that allows for smarter infrastructure management, the city can avoid infrastructure problems — and respond much faster when they do occur.

## PRIVATELY OWNED, YET STILL A PUBLIC SAFETY ISSUE

From power grids to telecommunication exchanges, roads, bridges, sanitation and water supply facilities, service interruptions can have significant impact on the community. That's why it is important to ensure that every element of critical infrastructure is well-managed.

While nearly 85 percent of America's critical infrastructure is owned or operated by the private sector,<sup>1</sup> constituents still look to local governments to ensure uninterrupted service. The key challenges lie in stakeholder collaboration and making sure that information flows freely, so that conditions can be monitored and issues addressed promptly.

## BETTER MANAGEMENT IS WITHIN YOUR GRASP

Thanks to readily available technology and widespread connectivity, it is now much easier and less expensive to monitor and manage critical infrastructure than in the past. Today, we can rely on embedded sensors in structures such as bridges and power plants to identify potential dangers, reducing the need for visual inspections. At a remote location such as a dam outside of regularly patrolled areas, networked IP-based surveillance cameras and wireless communications offer an effective and inexpensive way to monitor infrastructure that just a few years ago would have required several employees at the scene.

Proactive infrastructure management depends heavily on actionable information. By integrating and using real-time data from environmental and infrastructure sensors, governments can make smarter use of infrastructure assets and municipal resources to improve service to citizens. Enabling real-time communications, analytics and process optimization can help to forecast utility supply and demand, foresee the need for emergency services and optimize utility capacity, all while doing a better job of protecting infrastructure on which the community depends.

## COMMUNITIES THAT THRIVE, PHYSICALLY AND ECONOMICALLY

Smarter management of critical infrastructure delivers important benefits — extending the life of aging infrastructure, improving efficiency and protecting the community — but there's also an important economic aspect. Driven by the need to deliver uninterrupted service — whether it's spotting impending failure of a key asset, keeping unauthorized individuals away from restricted areas or coping with an emergency — public-private partnerships are essential. When a municipality takes the lead, it can gain a reputation as a valuable partner that attracts business and development to the community.

The sensors, communications networks and data management platforms that help protect critical systems are wise investments in the future of your community. Lay the groundwork today, and the smart city of tomorrow can become a reality.

<sup>1</sup> <https://riskcenter.wharton.upenn.edu/critical-infrastructure/>