



Modernizing Mobility Operations with Unified Video and Control-Room Infrastructure

BACKGROUND

A major public utility and transportation operator wanted to modernize and expand its operational control capabilities to support a rapidly evolving mobility landscape. As the organization accelerated fleet electrification — now managing more than 100 e-buses — and introduced new multimodal and autonomous transport services, operational complexity and data volumes grew significantly. To maintain reliability and efficiency, the operator needed a future-ready control-room technology platform that would deliver real-time situational awareness across depots, vehicles, charging infrastructure, and emerging mobility concepts.

CHALLENGE

The customer's legacy CCTV, AV equipment, and fragmented monitoring tools could no longer support the demands of electric fleet operations or modern mobility services. The shift toward high-capacity charging, depot automation, autonomous transport pilots, and continuous fleet monitoring required better visibility, stronger cybersecurity, seamless integrations, and a highly scalable architecture. The operator needed a unified system capable of correlating video, alerts, vehicle data, and infrastructure telemetry in real time — without sacrificing reliability or operational continuity.

Key requirements included:

- Real-time situational awareness across depots, vehicles, and critical infrastructure
- Scalable architecture for fleet expansion and new mobility services
- High reliability and redundancy for uninterrupted public transport operations
- Integration with depot management, charging systems, fleet tracking, and autonomous vehicle platforms
- Strong cybersecurity and compliance

SOLUTION

To replace aging infrastructure and unify operations, the transportation operator deployed a comprehensive Black Box video and control-room platform.

What Was Replaced

- Outdated CCTV/AV systems
- Multiple standalone monitoring tools

New Black Box Infrastructure

- High-definition IP camera network (fixed + PTZ) across depots, charging stations, critical transit areas, and operational zones
- Redundant NVR/VMS platform for live monitoring, event correlation, alerts, and secure long-term archiving
- Control-room video wall solution visualizing live video, telemetry, fleet metrics, and incident feeds in one unified display
- Secure remote access for supervisors, depot managers, and field technicians

Integration layer connecting Black Box systems with:

- Depot management
- Charging infrastructure
- Fleet tracking and operational data
- Autonomous mobility platforms used in the project

The solution is installed in the main operational control center (video wall + operator consoles)

With the new workflow, operators view live video + operational data on the centralized video wall. System alerts automatically correlate issues (charging, vehicle faults, incidents) with relevant video. Teams instantly review recordings for investigations or to support field technicians. Autonomous and on-demand vehicles send telemetry and optional video for oversight and safety validation. Video-and-data reports support decision-making and long-term optimization.

This deployment directly supports the utility's broader digitalization, fleet electrification, and control-room modernization initiatives.

RESULTS

The solution meets core requirements for unified, real-time visibility across depots, charging systems, electric vehicles, and autonomous mobility. Scalable architecture allows simple expansion as the fleet and mobility footprint grow. Seamless integration consolidates video, alerts, performance data, and telemetry into one operational ecosystem.

Capabilities gained include faster incident response through immediate video verification; enhanced visibility into charging processes and depot activity; support for autonomous mobility pilots and remote supervision; secure access to recordings for audits, safety reviews, and training; and improved efficiency through remote troubleshooting and mobile access

The customer experiences higher operational safety, better, faster decision-making, and increased efficiency in fleet and depot management

In addition, now video is used for staff training, scenario simulation, and operational coaching. Field technicians save significant time via remote diagnostics. High reliability and stability of the video platform exceeded expectations. Modularity enables easy expansion as mobility strategy evolves. Future-proof foundation is established for autonomous and digital mobility services.

Black Box delivered full system design, engineering, and implementation, along with staff training and ongoing support. The scalable platform now supports fleet growth, new depots, and new autonomous corridors; enables future predictive maintenance initiatives; and provides a technical foundation for emerging mobility services and digital transformation.

Learn about [Control Room Solutions](#).

