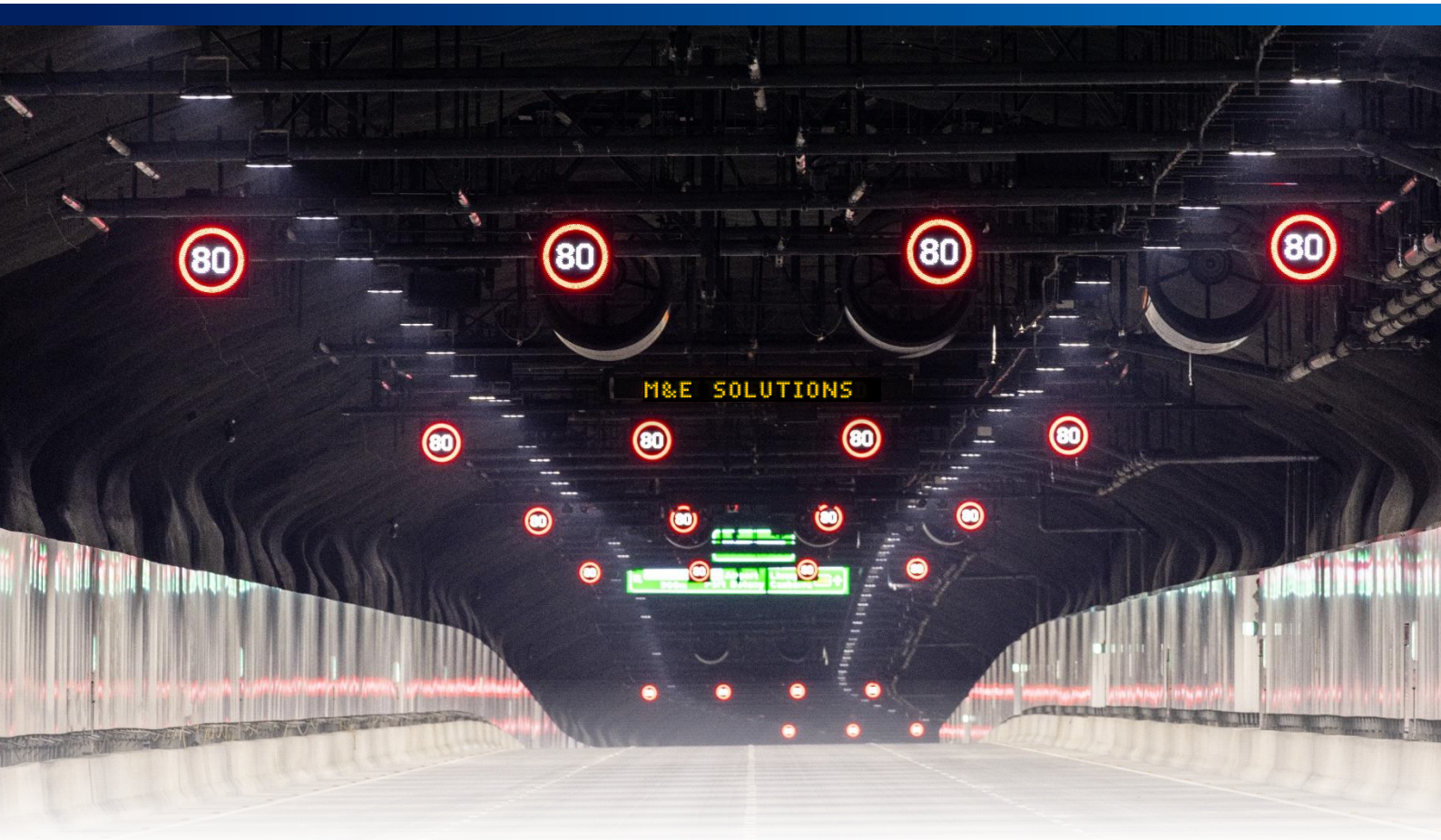
PRODUCT SHOWCASE

Credence

OMCS by M&E Solutions



M&E Solutions

ELECTRICAL & MECHANICAL ENIGNEERING | CONTROL SYSTEMS DESIGN | PROJECT DELIVERY & MANAGEMENT | COMMISSIONING

PRODUCT SHOWCASE

Innovating with Purpose.
Adding Value with Impact.

M&E Solutions at Western Sydney Airport (AeroWest JV)

We are M&E Solutions.

We deliver engineering solutions, purpose-built control and electrical and mechanical systems that are adaptable, efficient, and **built to perform**.

By staying **agile and focused**, we simplify complexity, reduce risk, and add value at every stage — from design through to commissioning.

Our solutions are engineered to respond to change and **scale with your needs**.

Efficiency, adaptability, value — wired in from day one.

50+ Handpicked Engineers, Specialists and Technicians

SYDNEY MELBOURNE BRISBANE ADELAIDE PERTH NEW ZEALAND

PRODUCT SHOWCASE

Credence

M&E Solutions

Industry Recognition

Core platform products are well-known and trusted in the industry. Globally deployed on over 15+ Motorways & Tunnels.

Whole-of-Life Cost Savings

Reduced ownership costs by eliminating the need for lifelong lock-in with the original OMCS provider.

A Future-proofed, PLC built, COTS-based Operational Management & Control System

Credence

OMCS by M&E Solutions

Maintenance Options

The system can be maintained by the owner or a preferred integrator with minimal outages and asset user disruptions.

Expansion and Transition

Designed with distributed architecture, parallel testing capabilities, and minimal in-tunnel fieldwork.

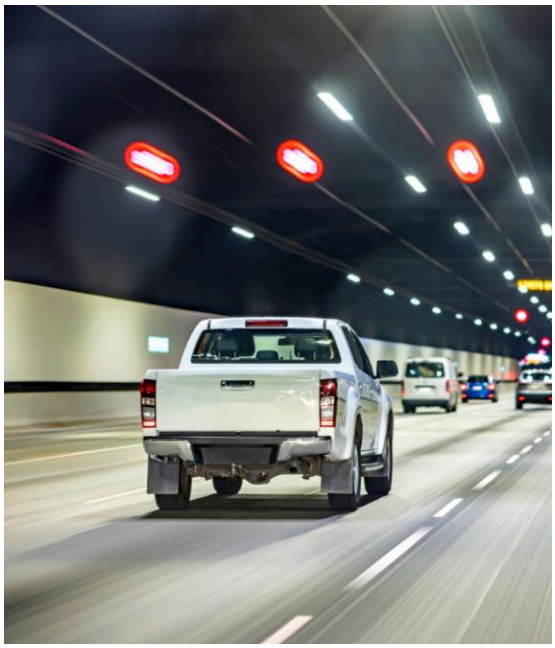
Engineered with **Safety**, **Security**, and **Assurance** as core priorities

Developed in accordance with AS/NZS 12207 and AS 61508-3:2011 standards.

Compliance to Transport for NSW specifications including TS902 and all OMCS standards

Embedded AVEVA Cybersecurity and M&E Solutions compliance to ISO45001.

Traffic Management



- **Incident Detection and Management:** Efficiently detect and manage traffic incidents to maintain smooth operations.
- **Travel Times:** Monitor and report travel times for better traffic flow management.
- **Traffic Monitoring:** Keep a close watch on traffic conditions in real-time.
- **Third-Party Notifications:** Integrate with third-party systems to send and receive notifications.
- **CCTV Management:** Manage and control CCTV systems for enhanced surveillance.
- **Motorist Communication Systems Integration:** Seamlessly integrate with systems that communicate directly with motorists.
- **GIS Maps:** Utilize GIS maps for a comprehensive spatial overview of traffic and plant operations.

Plant Management

- **Plant Control:** Control various plant systems efficiently.
- **Plant Monitoring and Diagnostics:** Monitor plant operations and diagnose issues promptly.
- **Fault Reporting:** Report faults quickly for immediate attention and resolution.
- **Fire Systems Interface:** Interface with fire systems to ensure safety and rapid response.
- **Emergency Management:** Manage emergency situations effectively.
- **Emissions Control:** Monitor and control emissions to adhere to environmental standards.

Platform Details

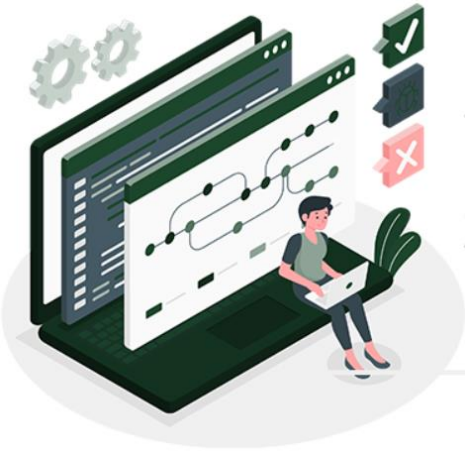
AVEVA System Platform

Globally deployed on 15+ Motorways & Tunnels

- Operations Management Interface: Interface designed for comprehensive operations management.
- Historian & Analytics: Advanced data logging and analysis capabilities.
- Communications Drivers: Robust drivers for effective communication across systems.
- Hardware Agnostic: Compatible with a variety of hardware solutions.
- Template-Based Engineering: Simplifies engineering tasks with reusable templates.
- Task and Role-Based Design: Integrates operations, engineering, maintenance, and corporate requirements.

Rockwell AB PLC

- Robust Functionality: Ensures all critical functionalities are managed within reliable PLCs.
- Extensive User Base: Benefit from a vast user and knowledge base for support and innovation.



Single pane of glass visibility

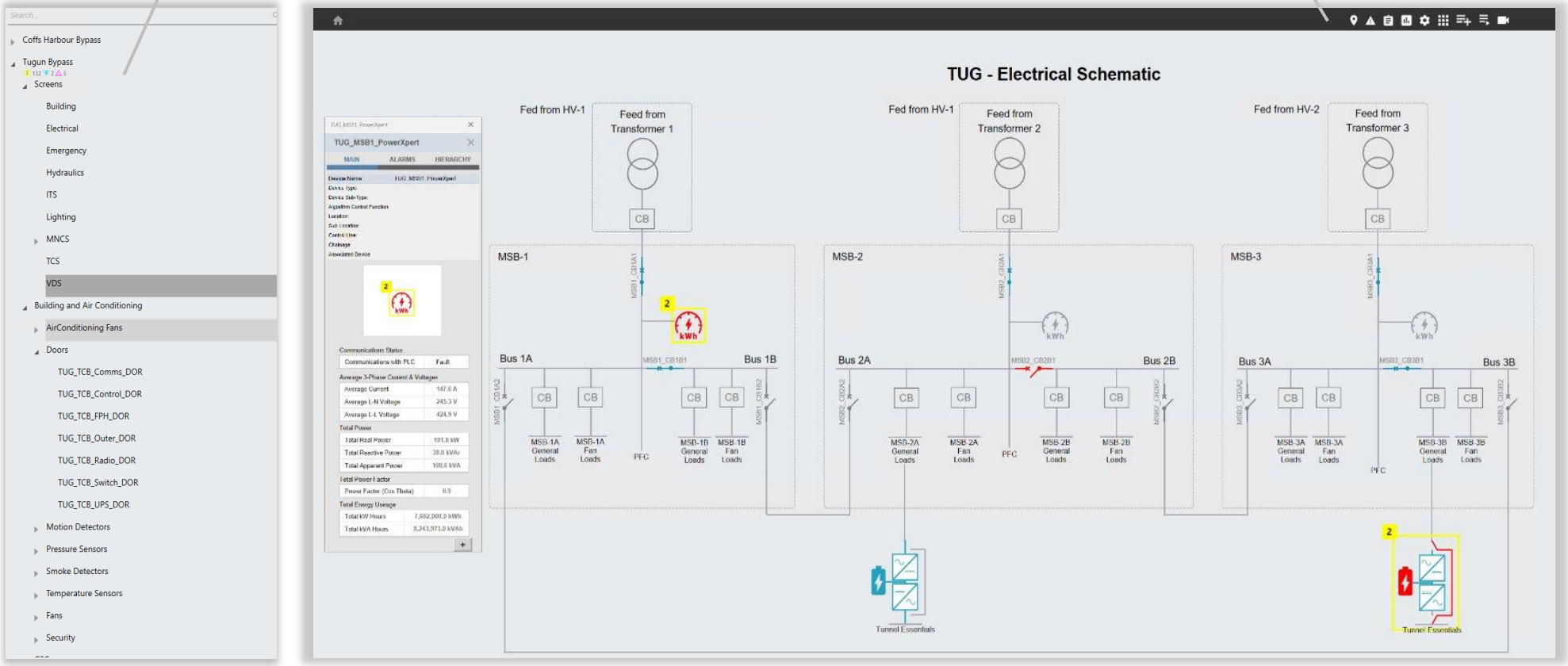
- Unified Operations Centre: From a single control room to a unified
- Drill-down multi-site operations performance visibility
- Consistent view of business across functional groups
- Hierarchies of linked objectives, KPIs, targets, plans, and alerts
- Real-time monitoring operational performance metrics
- Out-of-the-box integrated performance management *(industry-specific reports, metrics, analysis, and planning tools)*
- Enterprise Integration leveraging existing IT and OT infrastructure

Graphical User Interface – Screens

- Devices actively running are highlighted in aqua for intuitive visual status.
- Faulty devices are displayed in red to enable immediate identification and troubleshooting.
- Inactive elements use greyscale backgrounds for visual clarity.
- The color-coded system provides a clear and efficient operational overview.
- Visual cues facilitate prompt operator action.
- The interface design supports high performance and system reliability.

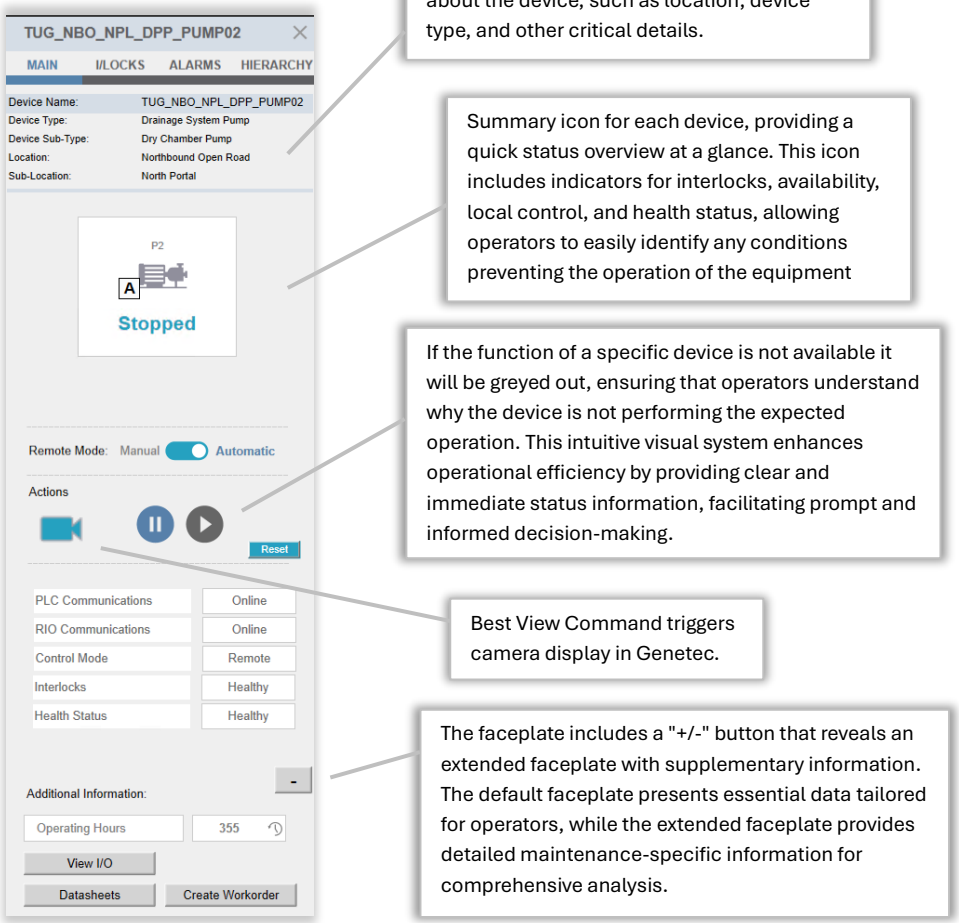
The navigation bar allows for easy search of devices and screens. Screens open as new tabs, enabling operators to seamlessly jump from one to another to view different systems

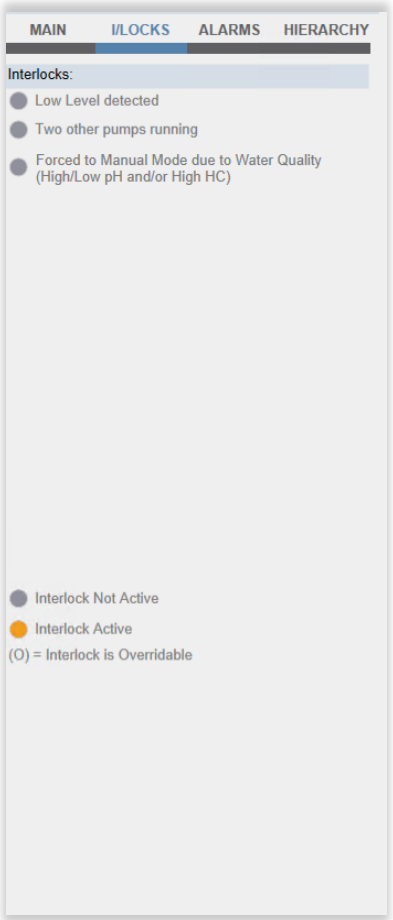
The menu bar provides quick access to key operational tools, including mapping, simulation, events, camera management, and traffic plans.

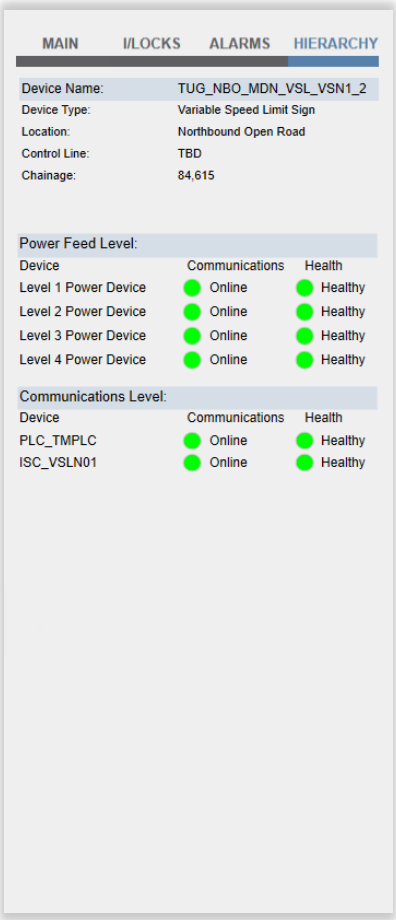


Graphical User Interface – Faceplates

- Each device features a detailed faceplate showing real-time status and key monitoring variables.
- The **Events tab** highlights active faults, alarms, and significant events for quick issue resolution.
- The **Interlocks tab** identifies conditions preventing device operation.
- The **Hierarchy tab** displays upstream communication and power supply dependencies.
- Together, these features enable effective monitoring, management, and troubleshooting of each device.

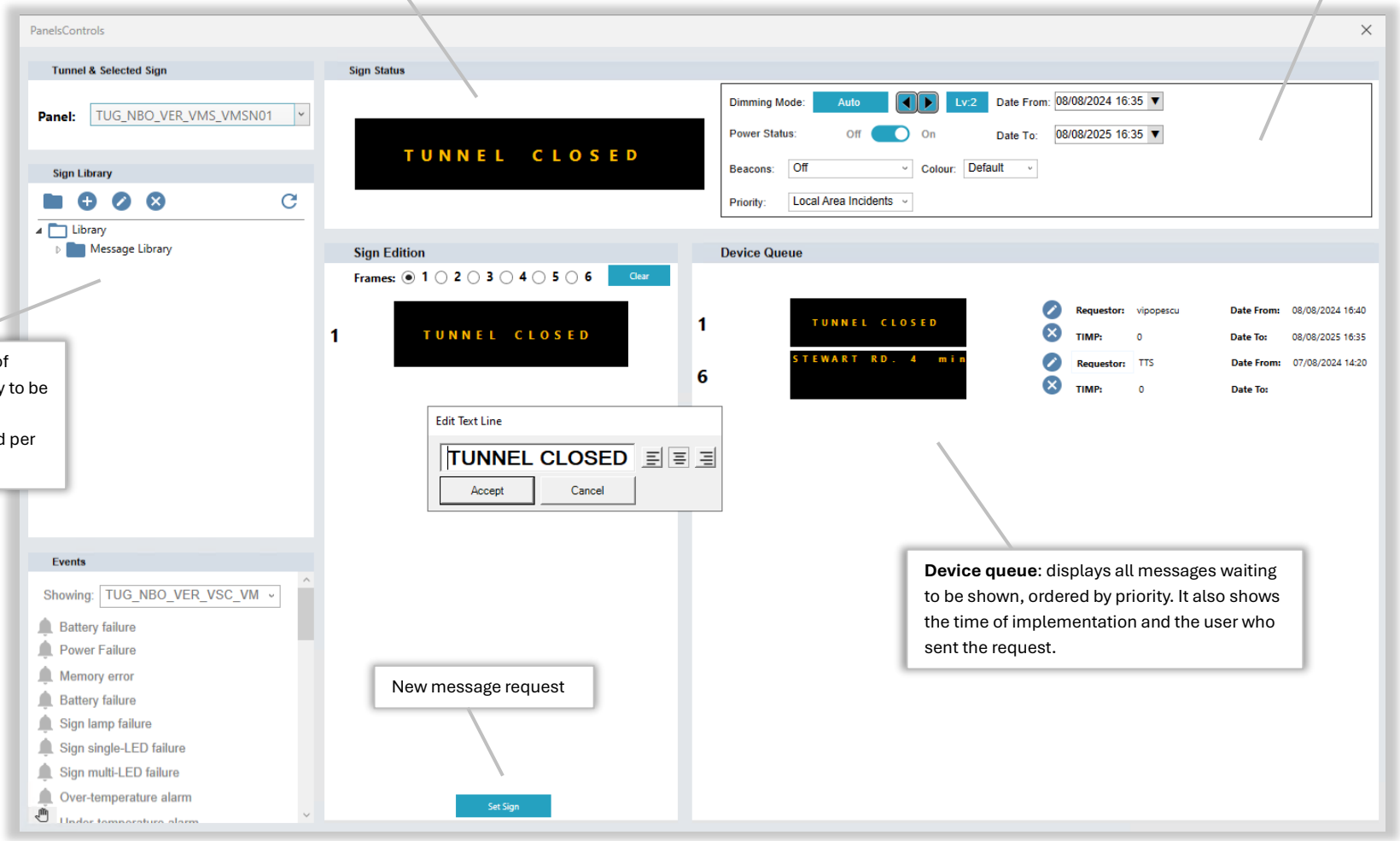






Graphical User Interface – Driver Advisory Signage Control

- A manual window is available to manage DAS devices per gantry, including CMS, VMS, TMS, ISLUS, LUS, and VSLS.
- Users can view and modify each device's message queue by deleting or editing entries.
- New messages can be selected for implementation.
- The window also displays current field feedback from each device.



Traffic Plan Management

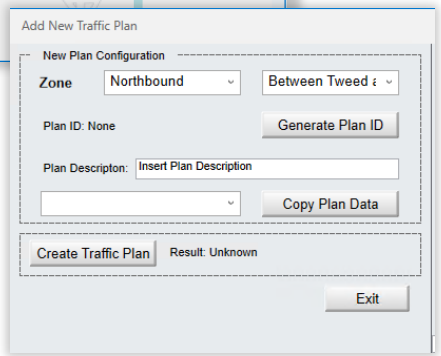
- A single window is provided for managing all traffic plans.
- Users can implement and unimplement traffic plans.
- Plans in the library can be edited, added, or removed.
- Access to these functions is based on user privileges.

Plan filtering menu

Viewing a plan: Operators can view and modify traffic plans stored in the PLC library before implementation by clicking on desired plan. Content will be displayed in top grid for preview. Operator will be able to edit plan prior to implementation

Result Preview: Operators can preview the traffic plan results considering other requests and their priorities, receiving notifications of any interlocks.

Add: Used to add a new plan to the library.



Implement: The Traffic Plan Manager assesses, and queues plans based on priorities, checking for invalid values and interlocks. Operators are prompted to address any issues identified.

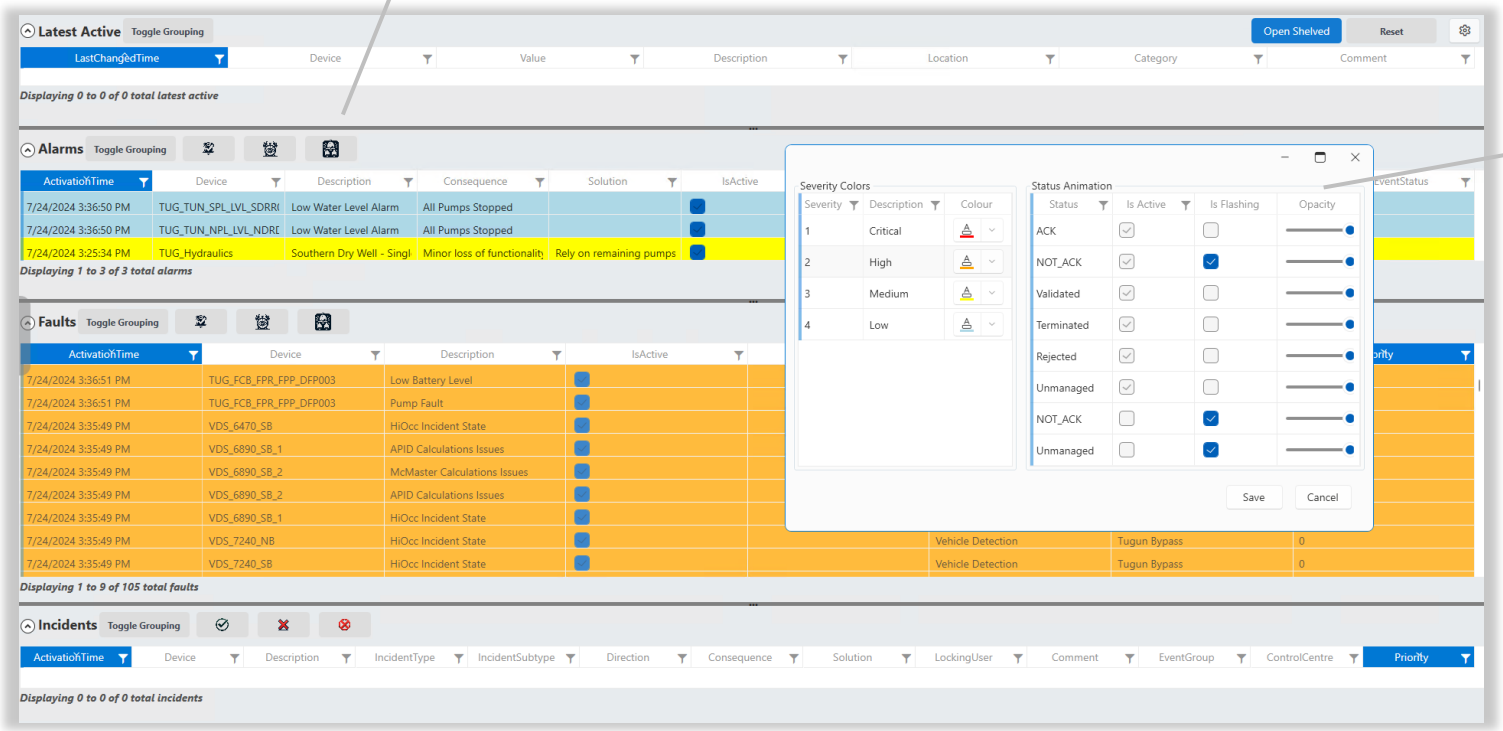
Un-implement: The process for un-implementing follows the same validation as implementation, ensuring any interlocks are addressed before removing the plan from the queue.

Event Management

- The faceplate displays all active events for a device.
- The event banner uses alarm suppression and considers communication and power supply hierarchy to highlight relevant information.

- Credence categorises events into three types:
  - **Faults:** Indicate abnormal conditions or defects at the component, equipment, or sub-system level; require maintenance support.
  - **Alarms:** Signal operational issues needing operator attention; may result from abnormal process values or unavailable device events.
  - **Incidents:** Safety-critical events (e.g. gas leaks, fires) requiring immediate action; trigger automatic pop-up alerts on operator workstations.

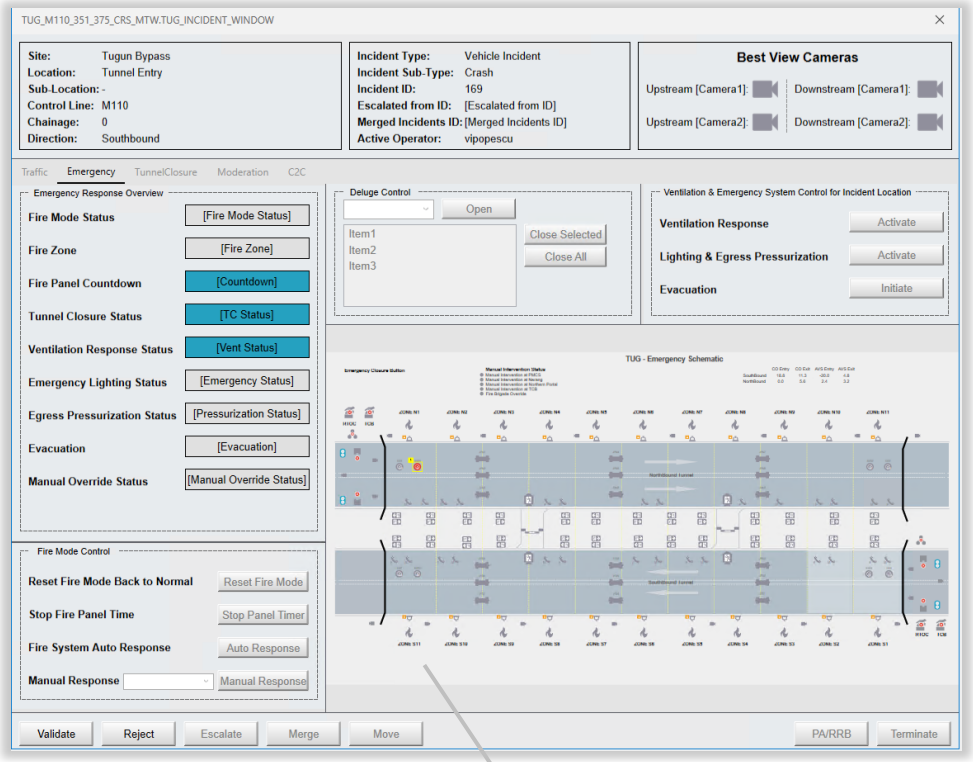
Events are grouped into sections containing alarms, faults, and incidents, shown in order of priority, with a primary section for any event active in the last two minutes. Depending on the user's role, each section can be hidden.



Each user can customize the colour, opacity, and flashing behaviour of events according to their preferences. These settings are stored individually for each user, ensuring they are retained upon subsequent logins.

Event Management (cont.)

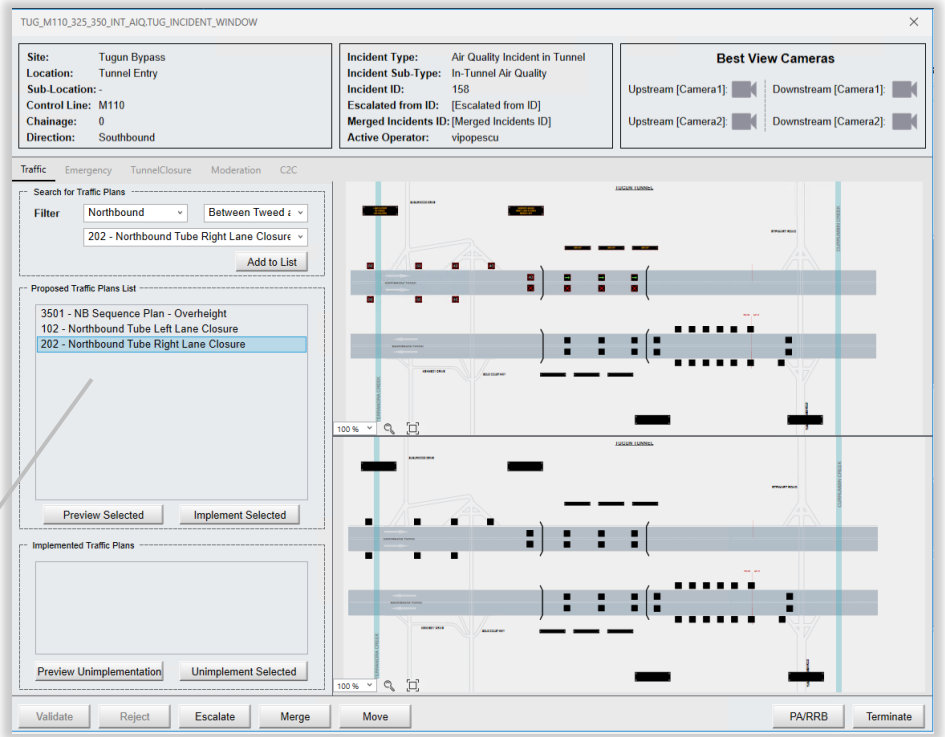
- Events are shown on both the device faceplate and the Events Banner.
- Events are sorted by priority and activation time.



The Incident Management Window will also have the capability to implement and unimplement plans. A pre-selection of plans will be shown to the operator based on the location and type of incident. Additionally, dynamic plans tailored to the specific location will be displayed.

Priority levels include:

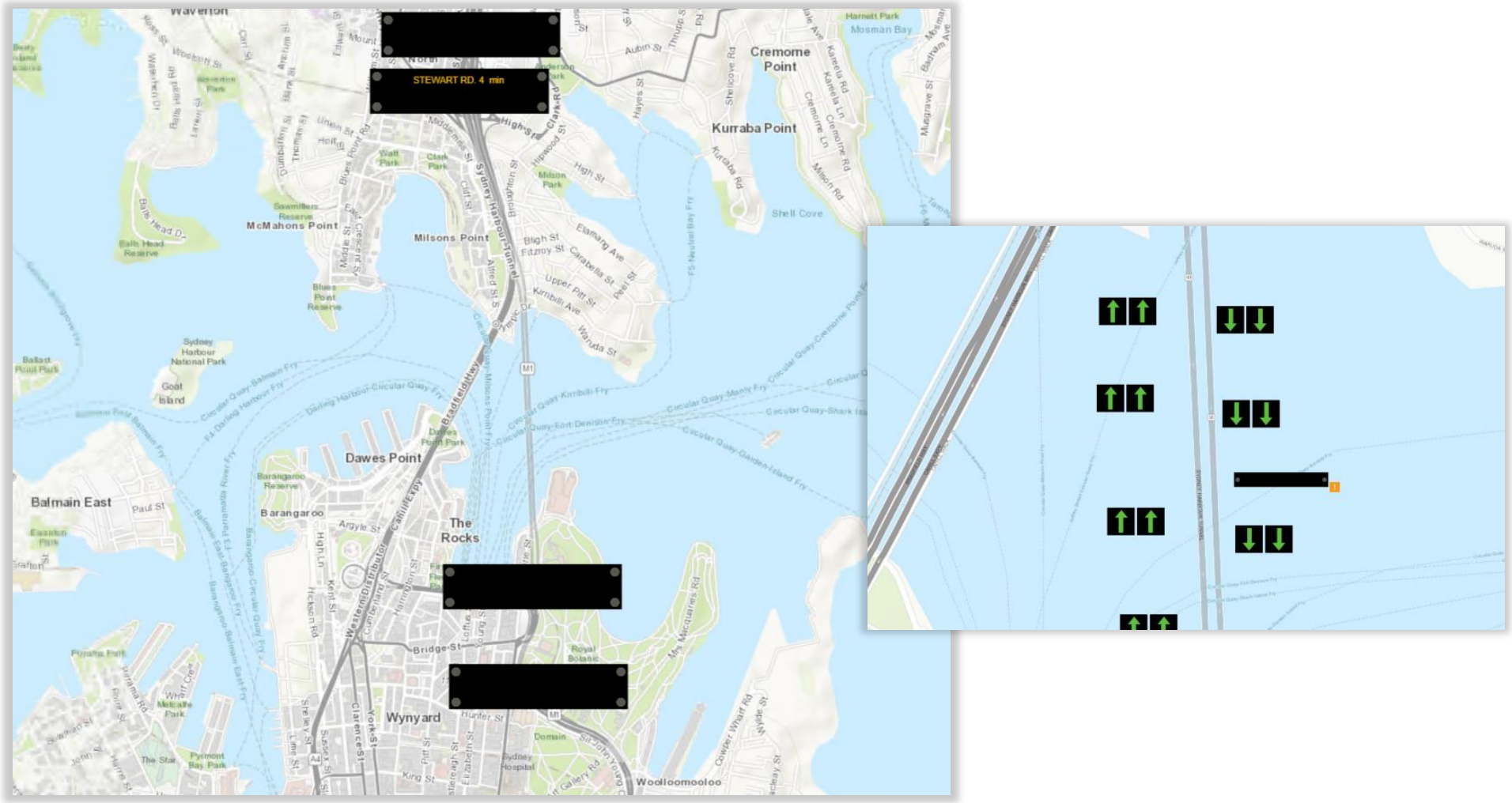
- **Severity 1 (Critical):** Major safety risks requiring immediate action.
- **Severity 2 (High):** Issues affecting automatic tunnel operations.
- **Severity 3 (Medium):** Operational issues without immediate threat.
- **Severity 4 (Low):** Informational only, with no operational impact.



The Incident Management Window tab is used to manage emergency situations, such as a fire in the tunnel. It provides easy access to plant equipment essential for handling incidents, including emergency lighting, ventilation, and fire suppression systems.

Geographic Information Systems and Representation

- High performance GIS functionality; supports multiple views - “Street View”, “Satellite View”, “Terrain View” or other custom views.
- GIS functionality works using online maps and offline maps.
- Full control: Zoom, Scroll, Layer Reveal and other usability features for complete control



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