



NGIS



DFES
Department of Fire &
Emergency Services



Case Study: Empowering Emergency Services with a Custom Offline Routing Solution

CLIENT

Department of Fire and Emergency
Services (DFES), Western Australia

INDUSTRY

Emergency Services

CHALLENGE

In emergency response, seconds count, and delays can mean the difference between life and death. For DFES, effective navigation is essential, especially when working in remote regions or during disasters where internet connectivity is unavailable. Existing mapping solutions were not designed for the complex, custom needs of emergency services. DFES required a fully offline, accurate, and up-to-date road network with the ability to route around road closures, construction zones, and other hazards.

OBJECTIVES

- Deliver a customisable, offline-capable routing solution for emergency services across Western Australia
- Integrate seamlessly with DFES's mobile field devices and dispatch/GIS systems
- Ensure regular updates to reflect changes in road conditions and restrictions
- Support emergency-specific routing logic, including restricted access and POI data

THE NGIS APPROACH

NGIS partnered with DFES and HERE Technologies to build a fit-for-purpose solution using cutting-edge spatial tools, including ArcGIS Pro and FME. NGIS led the technical implementation, from processing raw road data to deploying a reliable offline network.

SOLUTION HIGHLIGHTS

- HERE Technologies' offline-capable data was chosen for its flexibility, quarterly updates, and support for custom attributes.
- NGIS downloaded and processed the WA-specific HERE dataset, including roads, POIs, and restrictions.
- A custom Network Dataset was built using ArcGIS Pro, including emergency-specific routing logic and real-world constraints (e.g. road closures, construction).
- The final product was deployed across DFES mobile and internal GIS systems, delivering full offline routing functionality in the field.

IMPACT

- Reliable offline routing: No internet required, ideal for field operations.
- Avoids under-construction or closed roads: Reduces delays during emergencies.
- Fully integrated: Seamlessly connected to DFES dispatch and mobile systems.
- Future-proofed: The department can update and maintain the network internally.

OUTCOME

NGIS delivered a powerful geospatial solution that transformed how DFES navigates and responds to emergencies. This project is a prime example of how custom geospatial technology can have life-saving impact when paired with the right data, tools, and expertise.

