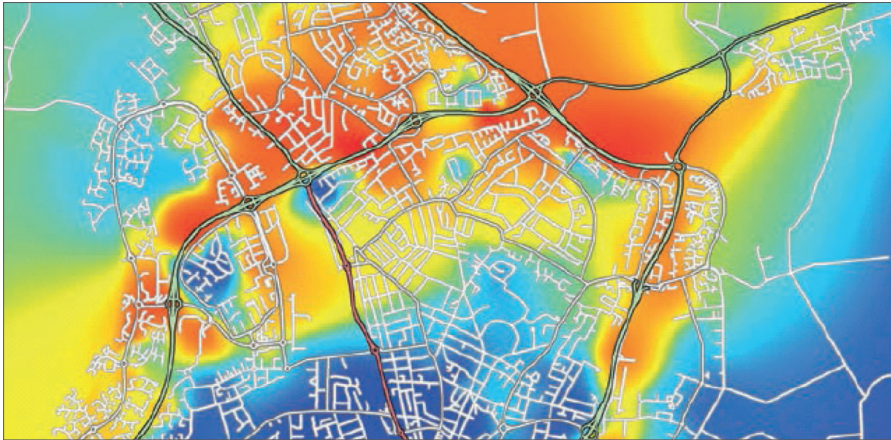


Optimisation

ORH Approach



KEY BENEFITS

- Proven approach successfully applied for hundreds of emergency services
- Identify optimal sites for stations and standby points
- Highlight the best locations within a local area
- Take account of specific targets, objectives or operational constraints
- Practical support for implementation

Optimising response locations for emergency services

THE CHALLENGE

Identifying and evaluating optimal locations for stations and resources is a highly complex procedure. For an example scenario where an emergency service wants to place 20 resources across 15 stations, there are over 1.4 billion potential combinations to consider. If the service is not restricted to existing locations, the numbers become astronomical. Some of the questions that emergency services need to answer include:

- Where is the optimal site to relocate an old station, merge existing stations or build an additional station?

- How many locations are required to meet response standards?
- Where should stations be located to meet future demand?
- What is the optimal balance between stations and standby points?

ORH'S APPROACH

ORH's unique and powerful program, OGRE, optimises the locations of sites, quickly determining which options best achieve the objectives. In order to do this it uses a sophisticated genetic algorithm to assess configurations.

ORH designed OGRE to answer a range of optimisation questions, taking account of issues that are specific to each emergency service. The bespoke optimisation process addresses the following:

- **Response standards:** minimise average response times or maximise the number of incidents within specific timeframes?
- **Risk factors:** assess coverage to incident locations or apply a risk-based approach that can include multiple factors?

- **Resources:** the types of vehicle that contribute to coverage, and whether multiple responders are required?
- **Restrictions:** are there any fixed current locations, and can new sites be located anywhere within the area?

To deliver solutions, ORH's experienced consultants work closely with clients to specify their requirements, understand the constraints and iteratively develop outcomes. Using simulation modelling, we fully test all potential options to quantify the impacts on response times and vehicle workload.

The outcomes from the process include:

- Service-wide maps to identify optimal sites and compare to current response locations.
- Detailed impacts on response performance and vehicle workload.
- Site-search maps that highlight the best options for potential sites within the local area.



"ORH determined optimum locations for new and existing fire stations using accurate modelling tools, and helped us to identify the most efficient use of our resources,

Assistant Chief Officer,
UK Fire & Rescue Service



Emergency
Service Planning
Data Sheet

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