

# CUSTOMER SUCCESS STORY



**SCOTTISH**  
**FIRE AND RESCUE SERVICE**

Working together for a safer Scotland

Identifying current  
and future  
community risk

**CACI**

DO AMAZING  
THINGS WITH DATA



## Highlights

- Household Acorn profiles
- GIS-led modelling
- Identifying vulnerability and risk factors
- Modelling for future service design
- Community-specific priorities

## About the Scottish Fire and Rescue Service

The Scottish Fire and Rescue Service (SFRS) is the world's fourth largest fire and rescue service, committed to ensuring the safety and wellbeing of the people of Scotland. Formed from a merger of eight legacy regional services in 2013, the national SFRS organisation delivers frontline services from three strategic hubs and a network of local stations and appliances.

In addition to providing fire prevention and protection services, SFRS also responds to emergency incidents including road traffic collisions, rope rescue, water rescue, hazardous materials and flooding as well as working with partner agencies to keep communities safe.








# The challenge

## Household insight for tailored prevention and protection



Communities, infrastructure, and demographics are continually evolving. SFRS needed accurate and reliable data evidence to support continual improvement within the service.

Strategic Analyst Damien Griffith explains: “We wanted to improve our GIS resources to help us understand and improve our understanding of current and emerging community risk. Challenges like an aging population, increased wildfire risks and environmental concerns are well-known at a high level. We wanted to look in detail at how they affect our communities in different areas and how we should organise our resources to address their needs.

“

Our board is forward-looking and convinced of the value of data insight. They were keen to have a demographic model of Scotland now and in five years to support strategy and planning that will drive the effectiveness of our services for the people of Scotland.

”



# The solution

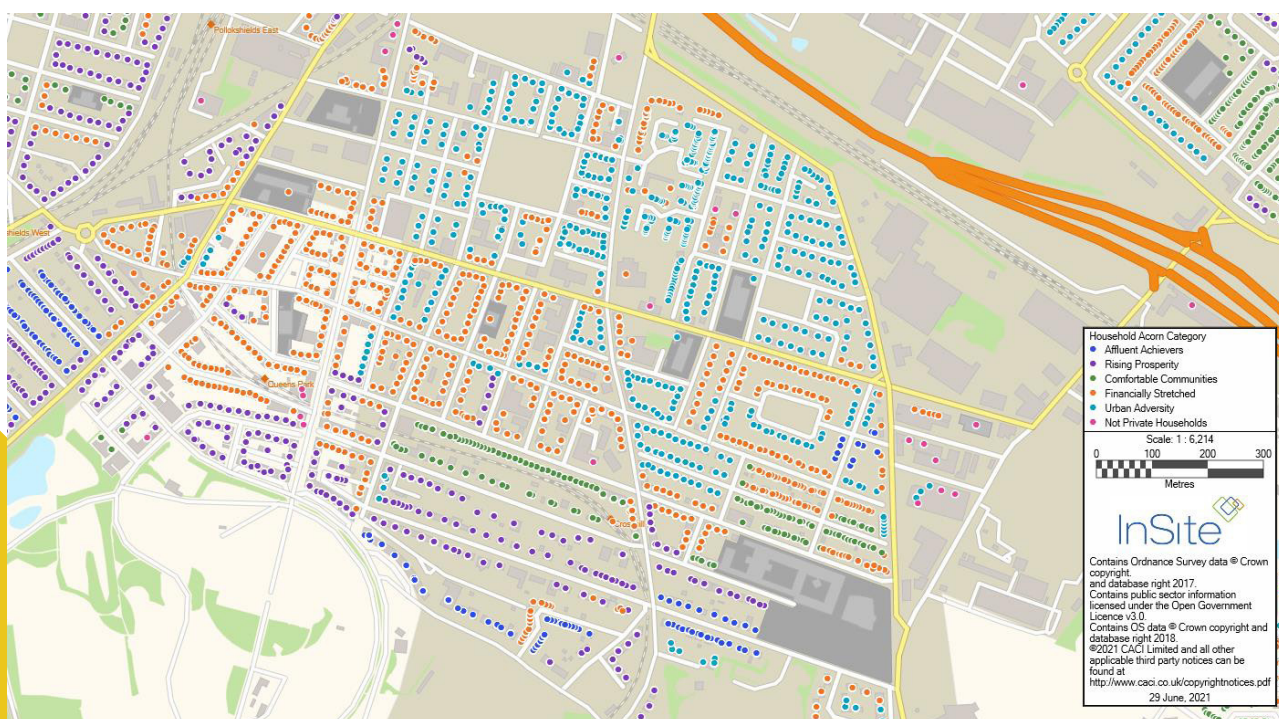
## Identifying priorities by connecting incident data with vulnerable properties

CACI provided SFRS with its Acorn and Household Acorn consumer segmentation tool, supported by advice on how best to use it for delivering targeted insights and outcomes.

Damien says, “We use a GIS approach, combining geographic information from the Ordnance Survey’s AddressBase (Gazetteer) with social and demographic data drawn from the Acorn datasets. Using the unique property reference enables us to match Acorn housing types with our own data for five years of fire incidents. We look at these together to identify patterns of risk and vulnerability.

“We feed all the information into a geodatabase and carry out a great deal of analysis. At the moment we’re working with the Mathematics department of Edinburgh University to help us refine our models and algorithms, using regression and statistical modelling.

“We’re now working to build in location analysis and physical evidence. For example, locating building types such as high-rise blocks and adding environmental data for factors like flood risks.”





# The benefits

## Accurate, actionable risk metrics for operational and strategy planning

“We now have risk metrics for every one of 6,976 data zones in Scotland,” says Damien.

SFRS asks incident response teams to complete a record at the scene, but it’s often not possible to obtain all the information for a comprehensive report at the time. With the Acorn datasets, SFRS can identify the house type and analyse 450,000 household incidents attended in the last five years, to support the modelling and help identify future FRS community risk and associated demand.

The reporting shows the most vulnerable household types in each area. Damien adds, “Some of the risk factors are common sense, but the data analysis has revealed hidden vulnerabilities beyond the expected areas of deprivation. For example, asset rich retirees and the affluent elderly may suffer from dementia or be susceptible to trips and falls.

“With this modelling, we can predict risk both nationally and at a small area level. The granular detail in the Acorn datasets shows us at a street level where we need to target prevention, protection and response, including risk assessment by home visits.



Our community risk model means we can measure risk in every type of community and location – from very rural to densely urban. This will allow us to assess whether our people, stations and appliances are located in the right places. We can predict where we may need specialist resources in the future, like wildfire teams, and continually respond to changing demographics and infrastructure in our diverse, modern society.







Acorn data reveals different needs in the community that aren't picked up by the Government's Scottish Index of Multiple Deprivation (SIMD) data. Our CACI colleagues are great at solving problems for us and helping us get the most from the data. They know the emergency services sector and understand our priorities.

We're proud to be using this data in a way that shows other Fire and Rescue Services how they too can gain value from it to protect the most vulnerable people in society. We all want the same thing: to understand current and future needs in our communities and to plan and manage our resources to keep everyone safe and secure.

Damien Griffith, Strategic Analyst,  
Scottish Fire and Rescue Service





To find out more about how CACI can help you support your community, please get in touch:

Stewart Eldridge  
Head of Public Sector Data



| Call 020 7605 6164

| Email [seldridge@caci.co.uk](mailto:seldridge@caci.co.uk)

| Web [caci.co.uk](http://caci.co.uk)

**CACI**