

Intergraph Solutions for Critical Infrastructure Protection and Disaster Management

For utilities, pipelines, communications companies, and government entities that operate transmission, distribution, and transportation networks as well as other infrastructure, critical infrastructure protection (CIP) and disaster management are serious concerns. Being able to communicate exactly where facilities and resources are located, as well as dispatching, guiding, and tracking the movement of emergency personnel to a specific location, are fundamental to effective collaboration and response.

Consider a scenario involving an electric-powered infrastructure. After a failure of the electric network at a critical location, other systems soon fail. Sewage pump stations running on standby cease to operate, cash machines fail, and the banking industry soon collapses. Simulations have shown that our economy will turn into a cash-only economy. Protection of the electric network and other critical infrastructure is vital.

During a disaster and emergency response scenario, many organizations – city, state, federal, private, and non-profit – must pool resources and work together. Fundamental is the ability to quickly access and combine geospatially enabled data in disparate formats from diverse sources. This capability enables rapid analysis of information and Web sharing of informative maps, providing the footing for geospatially enabled enterprise data integration. Public information and interdepartmental activities can be viewed and coordinated more easily with a map. For example, images and features of a landbase can be combined with water, sewer, electric, gas, and communications infrastructure layers to deal with massive utility outages. This kind of mapping effort streamlines collaborative field operations between utilities and government agencies.

Intergraph's GeoMedia® WebMap provides direct, real-time access to geospatial data warehouses. GeoMedia WebMap's sophisticated architecture lets organizations provide data and access to a variety of groups enterprisewide – via an intranet or the Internet. With the power of geographic information system (GIS) analysis on a Web server, all clients with an Internet browser have access to advanced spatial analytical capabilities, performing real-time GIS analysis. In addition, the full GeoMedia family of products offers support for key Open Geospatial Consortium, Inc. (OGC®) standards like Web Map Service and Web Feature Service, which can facilitate direct access to the data stores of multiple departments and organizations.

GeoMedia's open architecture derives its power from its ability to access and manipulate data in its native format – without translating or converting it. This ensures:

- Access to many different GIS data formats at one time without requiring translation
- "Live" access to ("on-the-fly" transformation from) different coordinate systems, projections, and data
- Ability to view data from these different formats and/or projections in one view
- Ability to analyze data sources with respect to one another even if they are from different formats and/or projections
- Ability to work with "real-time" data (e.g. traffic volumes, temporary route blockages, water/tidal levels, current service vehicle locations, and so forth)

Effective critical infrastructure protection (CIP) and disaster management pose a significant challenge for data collection, management, translation, integration, visualization, and data communication. The challenge is to use and understand heterogeneous information sources with their many differences, such as scale/resolution; dimension (2D/3D); classification and attribute schemas; chronological aspects – real time or dated; and spatial referencing systems.

Intergraph is helping our customers develop CIP-related applications via commercially available software solutions that:

- Support the storage of geospatial data alongside conventional data in industry-standard databases.
- Provide tools for making data from these integrated data stores available to decision makers via the Web.
- Leverage that data to respond to emergencies via real-time resource monitoring and management.



CUSTOMER SUCCESS STORIES

HAWAIIAN ELECTRIC COMPANY (HECO)

Participating in a recent oil spill drill, HECO achieved measurable benefits by implementing a geospatial analysis and enterprise Web environment that could assist in oil spill and other disaster response. GeoMedia WebMap met the oil spill response need of quickly showing the incident area and various features in the vicinity. During the drill, a sensitive life-reporting tool was developed. When the user defined a polygon, which could be located around a spill incident, the tool found all sensitive life within the polygon and displayed a report. An environmental expert previously generated this kind of report in 30 minutes because it involved coordinating disparate data. With all data spatially referenced and electronically managed by GeoMedia WebMap, the same quantity and quality of sensitive life reporting was returned in under a minute. HECO also used GeoMedia WebMap to display new and dynamic information, such as response crews and equipment.

As a result of the drill, HECO's enterprise Web site was declared appropriate for providing supporting graphics and query results during the following dramatic situations:

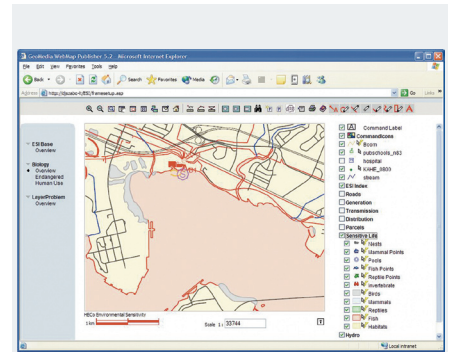
- Response to oil spills on land and in water and response to disasters, such as a hurricane or tsunami
- Critical infrastructure protection

MAUI ELECTRIC COMPANY (MECO)

At MECO, Intergraph's mobile resource management (MRM) solution brings together multiple sources of information, including land base maps for Maui, Lanai, and Molokai; locations of electric network assets; and real-time location of the company's 70 vehicles for monitoring and management of field resources. MECO's Construction, Maintenance, Meter Read, Collections, and Trouble Dispatch crews use the system for status and location monitoring.

Chris Reynolds, superintendent, of MECO, commented on the viability of the new system, "With the MRM application in production, MECO will be able to improve response by determining the location of available resources for the job, and address safety concerns for locating vehicles in case of accidents. We expect to enhance overall customer service for all types of work, crisis situations, as well as routine operations."

Using Intergraph's IntelliWhere® TrackForce, MECO is monitoring the location and activity of mobile workers who repair electric infrastructure. When an urgent job arises, the system recommends the most appropriate workers for the task based on their location, availability, vehicle type, and equipment. In the near future, MECO will use IntelliWhere TrackForce to raise alarms when field crews have spent too much time within hazardous areas.



Intergraph solutions support CIP by enabling non-expert users to quickly render layers of digital geospatial data into informative maps for critical analysis and decision making.



GeoMedia WebMap met HECO's oil response need of quickly showing the incident area and various other features in the vicinity.

ABOUT INTERGRAPH

Intergraph Corporation is the leading global provider of spatial information management (SIM) software. Security organizations, businesses, and governments in more than 60 countries rely on the company's spatial technology and services to make better and faster operational decisions. Intergraph's customers organize vast amounts of complex data into understandable visual representations, creating intelligent maps, managing assets, building and operating better plants and ships, and protecting critical infrastructure and millions of people around the world.

