INTERGRAPH

Products Used:
- Oracle® Spatial data warehouse
- Intergraph GeoMedia® WebMap architecture

Key Benefits:
- Immediate access to a centralized data repository
- Time and departmental savings for HDOT personnel
- An example of how automation can benefit business processes

Profile:

Name – Hawaii Department of Transportation / Highways Division (HDOT)

Web site – www.hawaii.gov/dot/highways/index.htm

The mission of the HDOT Highways Division is to provide a safe, and efficient and accessible highway system through the utilization of available resources in the maintenance, enhancement, and support of land transportation facilities.

Size – The HDOT Highways Division services the highways of the six islands of Hawaii – Kauai, Oahu, Molokai, Lanai, Maui, and Hawaii.

A Statewide Highway Information System for Hawaii

Information Overload

The Hawaii Department of Transportation/Highways Division (HDOT), with many offices spread over a number of locations and islands, is responsible for highway planning, design, construction, maintenance, and operations. Complex processes such as planning new road proposals involve many stakeholders and multiple sources of information. To support these efforts, the HDOT manages a large collection of information for the state and federal highways. This data includes:

- Traffic station locations, which help determine traffic flow volumes
- Highway Performance Monitoring System (HPMS) data, a federally mandated system
- Highway inventory assets and attributes, such as guardrails, call boxes, and pavement types

The voluminous amounts of data collected led to a situation where the agency was "rich in data" but "information poor." In other words, the HDOT had enough data, but needed to organize it so specific information could be retrieved in a reasonable period of time to support decision-making processes. To achieve this goal, the HDOT partnered with Intergraph to provide efficient data access in support of their many work processes.

The Project Objectives:
- Organize highway data in a way that is easily retrievable to support timely decision-making
- Integrate all HDOT information technologies into a single point of access

The Solution:
The integration of HDOT's information technologies, such as relational database management systems, geographic information systems (GIS), Internet mapping, and global positioning systems (GPS), helped make information more accessible and improved the decision-making processes throughout the agency. This integration was accomplished through an enterprise Web environment, called the Highways GIS Portal.

A key objective of this project was to implement Web technology in as many application areas as technically feasible. Intergraph provided a solution that serves data from an Oracle spatial data warehouse to Intergraph GeoMedia WebMap architecture for client access. The Highways GIS Web site serves as an information portal that provides access to and analysis of highways data. The initial deployment of the project focused on data collected by the Planning and Design branches of the DOT, but promotes the widespread use of the Web portal by allowing new data, queries, and reports to be easily added.
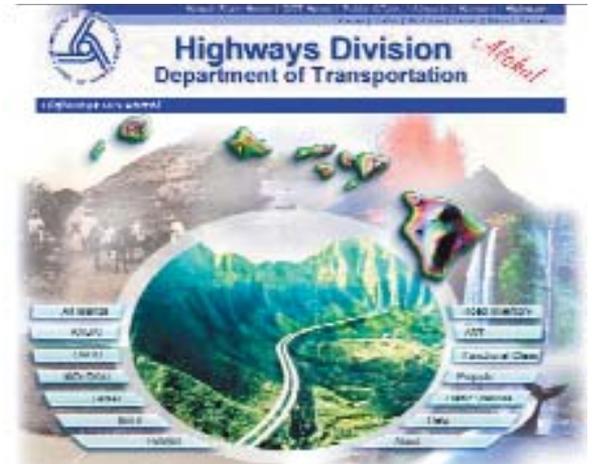
The Highways GIS Portal accesses many disparate data sources (e.g. MicroStation, ArcView, MGE, etc.), both internal and external to the Highways department, and transforms the data into HDOT's standard coordinate system, projection, and datum. This data is now available in real time for query, display, and analysis – with no prior translation required. Users can access this data via an interactive map (displayed using GeoMedia WebMap Professional), a database query, or a report.

A substantial amount of highways information contains date and time data. The Highways GIS Portal allows for simultaneous comparison of this information. For example, the Web site allows temporal comparison of the annual average daily traffic on various facilities across a span of several years.

The Portal software includes capabilities that summarize or aggregate information by various areas or land boundaries. For example, the Web site will summarize the mileage of roads in a census tract, legislative district, or within an individually defined boundary (i.e. circle or polygon).

Foundation Building – Now and in the Future

The Highways GIS Portal provides instantaneous access to a centralized data repository for users from all HDOT locations. Now, users can conduct their own research without having to involve other staff, saving time and departmental resources.

One unexpected benefit of the Portal is the effect it has had on future automation projects. Generally speaking, most areas within the HDOT organization were aware of the benefits of automation, but often found it difficult to visualize the way forward. The Highways GIS Portal serves as a successful example to users and allows them to envision how automation could benefit their workflows – and that understanding is the first step toward action!

Hawaii Department of Transportation

The Hawaii Department of Transportation (HDOT) was formed shortly after Hawaii became a state in 1959. It is comprised of three divisions – Airports, Harbors, and Highways – which are supported by ten departmental staff offices. HDOT is responsible for planning, designing, constructing, operating, and maintaining state facilities in all modes of transportation, including air, water, and land.

Intergraph Security, Government & Infrastructure

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