

Southwest Research Institute® (SwRI®) analysts and engineers develop and integrate technologies to enhance existing transportation management systems. SwRI has experience in using data mining techniques to unveil important trends and relationships hidden in transportation data warehouses.

DATA WAREHOUSING

SwRI has many years of experience and possesses in-depth expertise in warehousing intelligent transportation system (ITS) data. SwRI understands the complexities involved in assessing the types, sources, and uses of information needed by multiple organizations with different missions, and is well positioned to assist diverse groups in arriving at a common solution.

Data that could be considered are:

- Traffic speed data
- Rainfall data
- Holidays and special events
- Device information
- System configuration information

Possible scenarios that could be analyzed are:

- Effect of weather on traffic flow and incidents
- Effect of special events on traffic flow and incidents

DATA MINING

SwRI has demonstrated the potential for mining large volumes of ITS data acquired by a traffic management center (TMC) using a visualization-based approach.

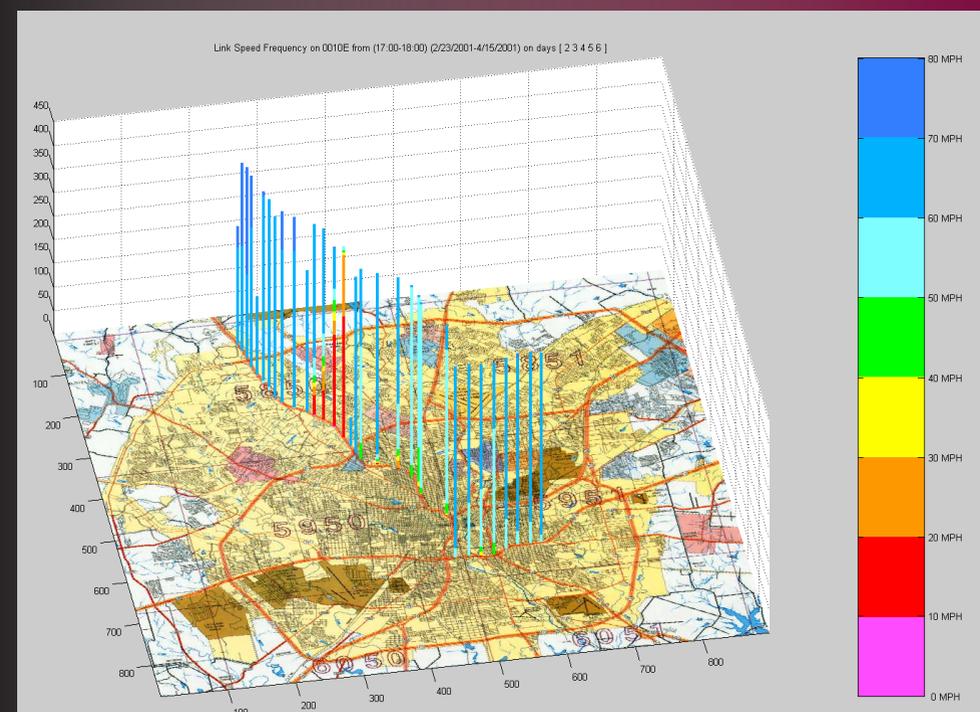
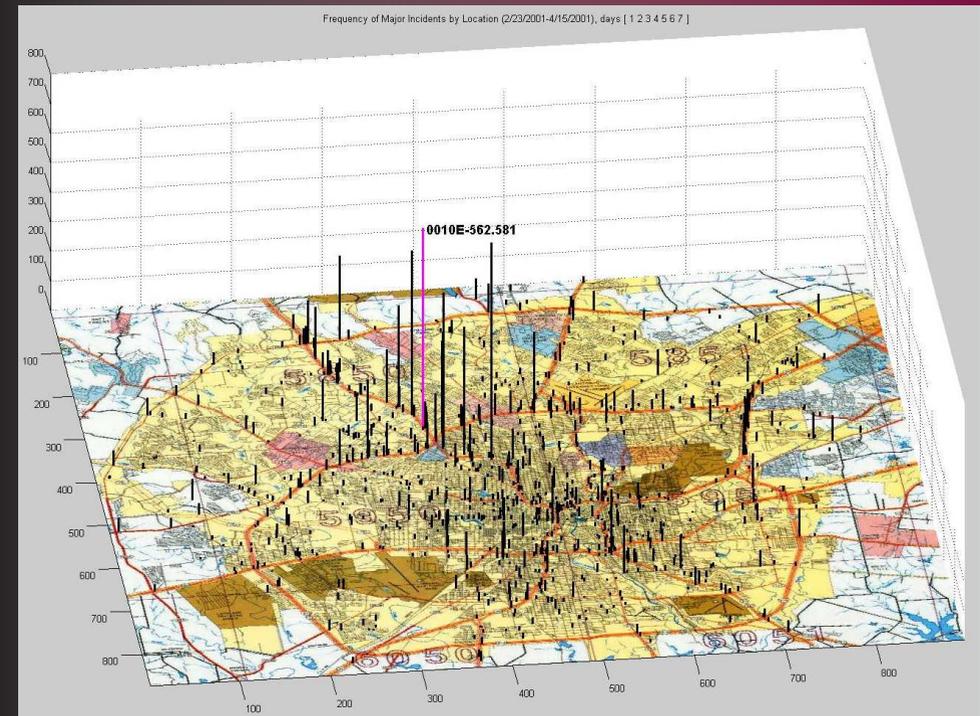
Types of ITS data that could be mined are:

- Speed by lanes and links
- Lane volume and occupancy
- Incidents by type and location
- Dynamic message sign (DMS) and lane control signal (LCS) text
- Sensor status

Insights provided from time-stamped archived data are potentially useful for:

- Planning
- Maintenance
- Operation
- Cost/benefit analyses

Because visualization is a powerful tool for gaining useful insights into massive amounts of data, ITS and weather data are rendered using visualization methodologies. These visualizations are based on the premise that the most useful insights will be gained by examining ITS data as they are related across space and time. For this reason, SwRI has designed and implemented a graphical user interface (GUI) that facilitates mining of ITS data.



Top: Locations of major incidents showing cumulative durations

Bottom: Map showing color-coded speed data on I-10 East during afternoon rush hour

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Southwest Research Institute® is an independent, nonprofit, applied engineering and physical sciences research and development organization using multidisciplinary approaches to problem solving. The Institute occupies 1,200 acres in San Antonio, Texas, and provides more than 2 million square feet of laboratories, test facilities, workshops, and offices for more than 3,100 employees who perform contract work for industry and government clients.

ITS DATA WAREHOUSING AND DATA MINING

**We welcome your inquiries.
For additional information, please contact:**



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and the public through innovative
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