

2001 Public Safety and Law Enforcement Poster *return on investment*

Organization	Discipline	Problem	Solution Using GIS	Return on Investment
State of Illinois	Illinois State Police (ISP) Strategic Analysis and Mapping (SAM) Unit	A sharp increase in serious accidents on highways patrolled by ISP underlined the need to allocate police officers more effectively. For example, from 1995 to 1996, fatalities on the Dan Ryan Expressway increased 157 percent.	ISP GIS analysts examined traffic problems using ArcView GIS and developed more effective enforcement strategies that targeted specific areas and infractions.	Implementation of a vigorous enforcement strategy in 1997 dramatically reduced accidents 42 percent compared to the previous year and continued to decline. Fatalities during the first six months of 1998 were down 29 percent over the same period in 1997.
National Interagency Fire Center Boise, Idaho	<ul style="list-style-type: none"> Bureau of Indian Affairs Bureau of Land Management National Park Service U.S. Forest Service National Oceanic and Atmospheric Administration 	During the 2000 fire season, wildfires devastated the western United States, burning nearly the 7.26 million acres by mid-November. These agencies needed to track all activity by all agencies in order to deploy resources efficiently.	Within a two-week period, the Geospatial Multi-Agency Coordination Group (GeoMAC) developed an Internet-based GIS application that uses ArcIMS and SDE. The application lets public safety personnel receive real-time incident information and deploy resources.	GeoMAC integrates real-time infrared satellite imagery, displays of current incident-specific information, fuel types, current acreage, aircraft hazards, and other critical analysis information. This is the first system that includes information on all fires nationwide and lets users manage response on an up-to-the-minute basis.
City of Ontario, California	Fire Department	The department needed a more accurate and efficient method for inventorying fire hydrants and fire plugs.	Used GIS and GPS to quickly gather spatial and attribute data on hydrants and plugs.	Combining GPS and GIS increased the accuracy of data collection and eliminated data input. The data collection process developed by staff in District 6 required 35 hours and cost \$615. It resulted in data input cost avoidance of \$4,575, staff time reduction of four months, and improved the accuracy of the inventory by correcting the locations of 212 of the 942 hydrants.
City of San Jose, California	Police Department Crime Analysis Unit	During November and December 2000, a series of auto theft and auto burglary cases occurred in a select area of the City.	Analysis of the auto theft and auto burglary cases led to the development of maps and reports that helped determine hot spots and predict likely areas for future activity.	The Auto Theft Unit used crime analysis unit information to organize and implement surveillance of high-risk areas. Surveillance resulted in several arrests and ended the incidents.
City of San Jose, California	Police Department Crime Analysis Unit	Between October 2000 and January 2001, a series of more than 150 residential burglaries occurred in an area that encompassed three police jurisdictions.	Analyses of data from all involved jurisdictions involved were used to determine patterns in suspect movements between jurisdictions, day, time, and location probabilities as well as hot spots.	The crime analysis unit information was used by the burglary unit and other agencies to coordinate and implement undercover operations in high risk areas. Neighborhood canvassing of high and medium risk areas was conducted to raise crime prevention awareness.
Pierce County, Washington	Pierce County Superior Court	Officials at Pierce Superior Courts wanted to make mileage calculations for jurors more accurate and less costly and automate the process at the same time. Juror reimbursement is the largest expense of jury operations.	A GIS application was developed that calculated actual mileage driven by jurors rather than approximating mileage by using ZIP Code centroids. The new system cut costs and reduced juror complaints.	Using GIS data to calculate juror mileage reimbursement reduced juror mileage cost by 24 percent for an estimated annual savings at \$82,000. In the first six months of operation, juror complaints were down from an average of 25 to just one.
City of Lincoln, Nebraska	Police Department	The department needed to keep the public informed of crime statistics.	The department deployed an Internet-based GIS application that allows the public, newspapers, and police officers to retrieve crime statistics and maps.	The site draws between 50,000 and 60,000 visitors per month. A well-informed public energizes prevention strategies such as neighborhood watch, increases public support for law enforcement, and encourages citizens to pass on tips and information to the department.
City of Lincoln, Nebraska	Police Department	Police managers discovered an 80 percent increase in the number of larcenies over the previous year. The theft of gasoline from self-service pumps was the major cause of this upswing.	Thematically mapping incidents at individual addresses revealed that a group of two-dozen stations and convenience stores were particularly hardest hit.	Using crime data, officers organized problem-oriented policing projects that worked with businesses to prevent this type of crime through increased staffing, video surveillance, and other policies. A newspaper article based on this information motivated a Nebraska State senator to introduce a bill that increases penalties for this offense.
Fort Collins, Colorado	Emergency Operations Center GIS Department	A 500-year-magnitude storm hit the City of Fort Collins in July 1997. The situation required immediate response to aid flood victims both during and after the flood.	Because GIS was part of normal City operations, Fort Collins was prepared to respond quickly and be proactive during the emergency.	GIS and emergency operations staff established an intelligence center so that city, state, and federal government workers could get to work immediately. Staff produced about 1,000 maps with detailed information that helped speed damage assessment and gain national disaster area status so relief funds were available within 10 days.
City of Hemet, California	Fire Department	The City needed specific emergency response data so that it could apply for a grant and fund the purchase of life saving apparatus.	Mapping historical incident response data showed an increase in call volume due to a larger jurisdiction caused by annexations and recent development.	The City received a \$22,450 grant from the California State Office of Transportation Safety for the purchase of a Hurst Tool.
City of Hemet, California	Fire Department	The department needed to justify and site a new fire station.	Compiling GIS-generated emergency response statistics for four years and mapping the average response times and volumes based on station demonstrated the need for a new fire station and helped site it.	Funding for the new fire station that will lower response times and provide emergency services to the west side of town was approved.
City of Hemet, California	Fire Department	The department needed to locate noncompliant vacant properties and notify property owners as part of the City's weed abatement program.	Joining parcel base and local tax assessment records identified all vacant properties within the City so that fire personnel could field check for compliance and notify noncompliant property owners.	A 60 percent time savings was realized as compared to past practices, and better response from property owners was obtained.
City of Hemet, California	Police Department	The number of burglaries increased in a specific police beat in the City.	Each burglary incident in the affected beat was mapped by relative National Crime Information Center (NCIC) code and that information was joined with information from the registered offender database.	The case was solved when a recently paroled individual fit the profile and was located within a specified radius of reported incidents.
City of Frederick, Maryland	Police Department	An older upscale area of the community was experiencing an upswing in the number of burglaries.	Using ArcView with the ArcView extensions, crime incidents were mapped and compared to historic crime patterns for previous months. These maps showed that the same person or persons were perpetrating the series of crimes.	A crime analyst had determined the probable zone for the burglars' next strike. A few nights later, while jumping over a security fence, the burglar was caught red-handed as he leaped into the arms of an officer who had been positioned in the predicted area.
Marin County, California	Fire Department Fire and Advanced Life Support	Some citizens were concerned that certain houses were being saved in preference to others during the Marin area fires. Community conflict resolution was needed.	At a town hall meeting, fire personnel displayed the fire model depicting homes, aerial images, and models of the hillside that showed the slope, aspect, and fuel types in the area as part of a demonstration of how the fire spread.	By learning more about fire operations, the community was reassured that the tactics deployed saved as many homes as possible.
Montgomery County, Maryland	County Fire and Rescue Department of Information Systems and Telecommunications	The department needed to determine if existing fire stations provided adequate coverage and acceptable response times.	GIS let the department examine the fire and rescue squads' response times in relationship to the fire stations and a five-mile radius of aggregate population figures. This process helped determine what percentage of the population was actually covered, where stations overlapped areas of response, and most importantly, where gaps existed.	The studies revealed that the rapidly growing area of Clarksburg-Germantown needs not one but three additional stations to meet the minimum standards for response time.