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# LAND INFORMATION *Bulletin*

from the National Consortium for Rural Geospatial Innovations  
South Georgia Regional Development Center



## Damping High Fire-Insurance Rates

### *GIS Helps Improve Fire Insurance Rating in Valdosta, Georgia*

*Fire departments in Lowndes County and the city of Valdosta, Georgia are blowing their own horns, thanks to an up-to-date database that helps reduce fire insurance rates while greatly improving the efficiency of fire-fighting and other emergency-response departments. These improvements are a direct result of a comprehensive geographic information system (GIS) database that was developed with guidance from the National Consortium for Rural Geospatial Innovations–South Georgia (RGIS-SG) and the South Georgia Regional Development Center (GIS-SG/SGRDC).*

Although death and taxes are inevitable, high insurance premiums are not. The incentive to reduce fire insurance rates while promoting fire-fighting efficiency in Lowndes County, Georgia and county seat Valdosta was behind recent efforts to improve emergency-services data and management. It began several years ago with a comprehensive geographic information database, constructed with assistance from the National Consortium for Geospatial Innovations (RGIS-SG) and South Georgia Regional Development Center (SGRDC). They directed GIS activities and oversaw procedures for data collection and warehousing. Since then, these data have made their way onto desktops and have led to savings in fire insurance premiums for county residents and businesses.

Municipalities in the state of Georgia receive a fire insurance rating by the Insurance Services Organization (ISO), an independent agency that supplies fire protection ratings to insurers. A number rating from one to ten is assigned to a community; this rating plays a key role in determining residential and commercial insurance rates for that community and its citizens. A low rating number (such as 3) indicates a community is well prepared to fight and prevent fire damage. A high number (such as 9) would indicate that fire protection may be inadequate.

The ISO rating system works by assessing a community's ability to meet three criteria: water supply, communications and, of course, fire departments' capabilities to prevent and/or suppress fires. While individual fire departments deserve much credit for their hard work in keeping insurance rates down, the relatively recent use of geographic



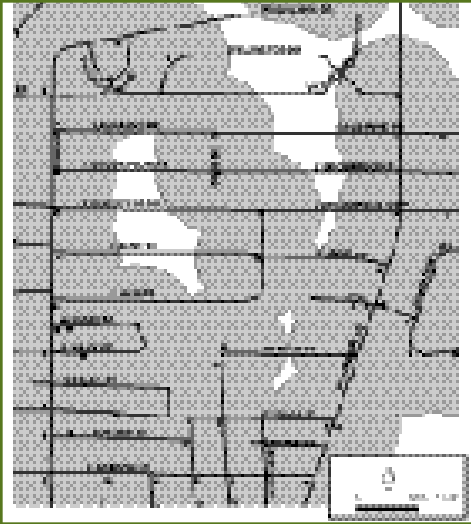
information systems (GIS) to streamline data management for emergency services has made a significant difference in improving rates and efficiency.

### Water, Water, Everywhere

For obvious reasons, the location and placement of hydrants throughout a community is important. With GIS at their disposal, fire departments chose to have existing hydrant locations digitized as a starting point. Staff at SGRDC used paper maps, which the departments had maintained through the years, as source documents. Although seemingly a small task, developing a single, comprehensive database of these hydrant locations has made a significant difference in community ISO scores. But that was just the beginning. From there, maps were generated illustrating any "holes" in the hydrant network for future consideration (see map). This allowed community planners, emergency management personnel and utilities directors to locate areas in need of improvement.

Other water-related factors that ISO inspectors consider are the regular service of hydrants and the volume of water that can be pumped from these outlets. Again, a geographic information database helps to improve the score by including the most recent service date and service condition for each hydrant. From this information, future service schedules can be generated. Not only does this make maintenance easier and more structured, it also demonstrates foresight and efficiency on the part of fire departments and is certain to improve a community's standing in the inspector's eyes.

Fire hydrant locations with 500-foot service areas



City of Valdosta fire station locations with one-mile service areas



### Where's the Fire?

If citizens in these Georgia localities ever wonder how long it would take for a fire truck to get to their house, they can rest easy. Thanks to the network functions of a GIS, fire chiefs can now detect inefficiencies in service and identify neighborhoods that may not be as well served as desired. For instance, a 1.5-mile driving distance (from the station) might be the maximum at which a station feels it can effectively serve. By allowing the GIS to calculate drive distances and displaying them, the areas of "less than desirable" service can be targeted for improvement. This strategy, in conjunction with other factors, has resulted in re-locating one fire station within the city of Valdosta, and has helped in site selection for a newly constructed station.

In urban settings, driving distances certainly have to be viewed in the context of actual drive times as affected by such factors as traffic congestion. Rural environments, however, don't necessarily need to weigh traffic factors so heavily. The functionality of a GIS has removed much of the guesswork when it comes to strategically locating fire departments, as well as police substations, EMS stations and other emergency responders.

### Can We Talk?

Another condition for attaining an ideal fire ranking is a community's ability to communicate effectively during emergencies. Typically, fire departments share the burden

and benefits with other emergency responders when it comes to the management of communications. This demands cooperation and input from other agencies in the city or county for improved fire ratings. A geographic information system is well suited to complete a few critical tasks to ensure maximum benefit with regard to dispatching and communication infrastructure.

When designing or enhancing a wireless communications network, the proper location of radio towers is imperative. Ample property research and terrain analysis can pay off in big ways. Insufficient groundwork can lead to unnecessary overlap in service or voids in radio service. Using the communities' GIS data and analysis techniques, RGIS-SG/SGRDC has aided the emergency management center in efficient tower placement by identifying high/low lands, property owners and market values as well as possible interference from geographic or man-made features. The production of maps and database files were, of course, part of the process.

Another contribution GIS has been able to offer toward communication efficiency is address-range information for the county's computer-aided dispatch system. A system of notification exists in Lowndes County and Valdosta, which allows GIS technicians working at South Georgia RDC to know the instant a new road has been constructed and/or accepted by the city or county. Roadway information such as name, low/high and left/right address-range information, attainable speeds and other data are entered as attributes to the new road centerline. This information is also incorporated into the community's Master Street Address Guide (MSAG), which is a database that assists in proper call routing and efficient dispatching once an emergency call is made to the 911 Center. Without the GIS foundation for accurate call routing and response, not only would ISO ratings be affected, but more importantly, the risks of damage and loss of life from fire would increase.

### **Benefits of Using GIS for Firefighting and Emergency Response Services in Lowndes County, Georgia**

- **Potential for reducing fire risk and saving lives**
- **Improved communication and cooperation among all emergency responders**
- **More accurate routing of emergency vehicles improves efficiency**
- **Saves businesses and homeowners money in insurance premiums**

### **Saving Dollars and Lives**

Saving lives and preventing damage are ultimately what counts no matter what any ranking system might indicate. However, good ratings also mean insurance savings for Georgia citizens. For example, a commercial structure, such as a restaurant, valued at \$240,000 is insured for 90% of that value, which is \$216,000. The city of Valdosta currently holds an ISO rating of 3 (remember, a low number rating is good!). In terms of insurance payments, fire insurance will cost this business about \$4,200 per year. If the city rated a class 4 rating, then this same business would pay approximately \$250 more per year for the same insurance. That is a more than a 6% increase. When you apply that 6% savings to every business in the city, that adds up to a large savings for the community. A respectable ISO rating can also be used to lure prospective residents and industry to a city or county, ultimately yielding financial and quality-of-life benefits.

### **At the End of the Day ...**

After all is said and done, fire service is like any other emergency service in the sense that timing and preparation can be everything. Though no GIS database will ever be able to stop fires from happening, it can give firefighters more of the tools and advantages

## About RGIS

The National Consortium for Rural Geospatial Innovations–South Georgia (RGIS-SG) is located on the grounds of the South Georgia Regional Development Center in Valdosta, Georgia. It is a USDA program designed to promote the use of geospatial information and technologies by communities in rural America. RGIS–SG is dedicated to helping communities understand the concepts and benefits of using geospatial data as well as assist the communities in all aspects of GIS development.

they need to get the job done. Now, thanks to GIS and other technologies, the art of fighting fires has become more of a science. It is this scientific approach to firefighting that allows governments and their departments to score favorably against the "measuring stick" used by ISO inspectors and insurers. By using this science, communities like Valdosta and Lowndes County, Georgia not only save money, but they also hold a distinct advantage in firefighting and other emergency services.

## Software and Data

The GIS software of choice for Lowndes County and Valdosta, Georgia includes ESRI's ARC/INFO 8, ArcIMS, ArcView and ArcExplorer as well as AutoCAD Map. Data are available to users in many different formats and are maintained in native ARC/INFO format. Data are shared across a Windows NT environment.

For more information, contact Chris Strom or Vance Roberts, Rural Geospatial Innovations-South Georgia, 327 W. Savannah Ave., Valdosta, Georgia 31601; 912-333-5277 (phone), or e-mail: [cstrom@sgrdc.com](mailto:cstrom@sgrdc.com), [vroberts@sgrdc.com](mailto:vroberts@sgrdc.com)



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**RGIS–SG**  
**327 W. Savannah Ave**  
**Valdosta, GA 31601**