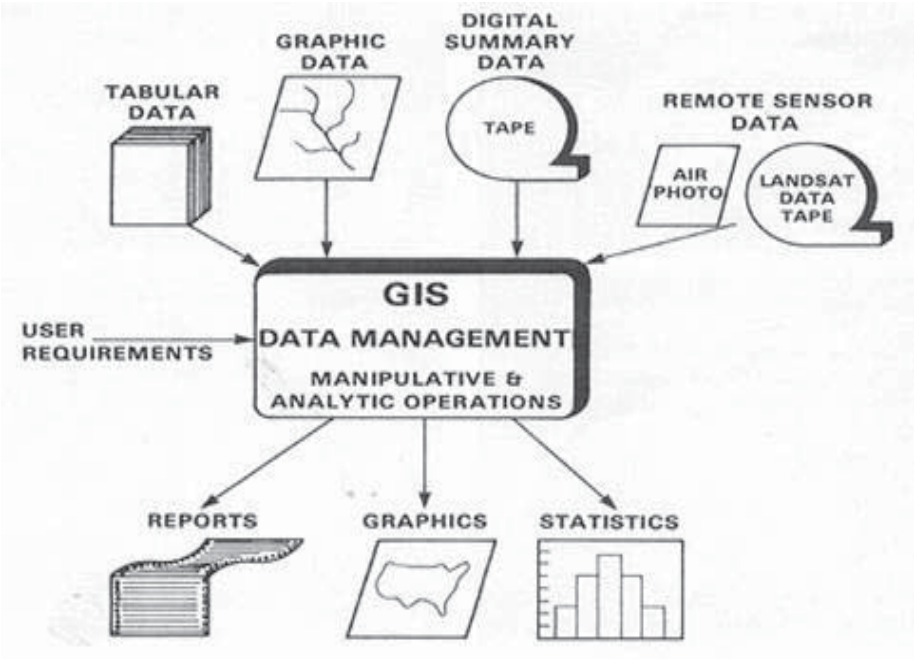
Development District Association of Appalachia April 2008

GIS Brings Economic Vitality to Appalachian Communities

Throughout the 410-county, 13-state footprint of the Appalachian Regional Commission (ARC), the network of 72 multi-county Local Development Districts (LDDs) provides invaluable leadership in fostering intergovernmental cooperation, promoting regional cooperation among local governments and implementing comprehensive strategies for community and economic development.

GIS can help an entrepreneur research and identify the perfect location to set up shop, provide the quickest and safest first responder routes, allow local governments to prioritize road and bridge repairs and a wide range of other services and programs aimed at enhancing local communities.

Within this mission, LDDs often play a central role in developing, analyzing and presenting the data and information needed to enhance and support regional and local planning and development efforts. As a result, LDDs are increasingly using Geographic Information Systems (GIS) to provide more in-depth data and mapping services, including through the use of interactive Web sites.



Courtesy of Northwest Alabama Council of Local Governments

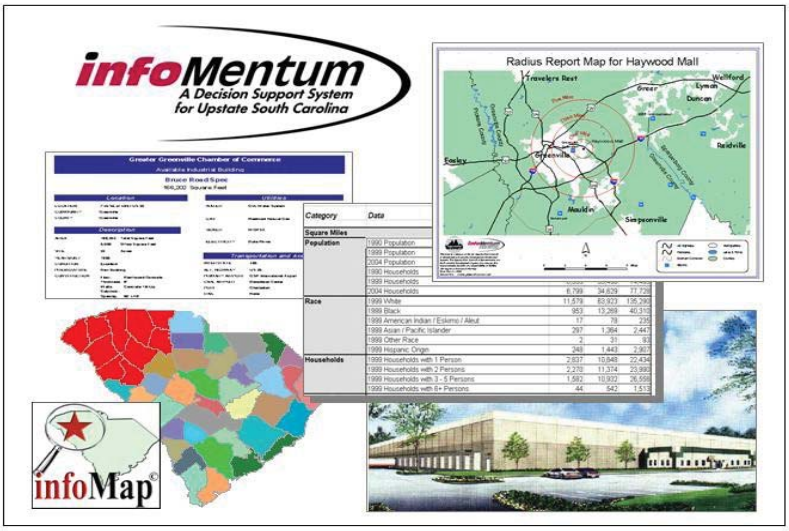
GIS technology gathers, stores and analyzes data which is compiled into digital maps that show information geographically and in layers, allowing users to add or take away various data as needed throughout the planning and decision-making processes. Around the nation and across Appalachia, LDDs are using it for an array of issues, such as transportation planning and public transportation routing, enhanced 911 services, land use, emergency evacuation routes, flood plain mapping, infrastructure inventory and planning, zoning, school bus routes, special service transportation routes, natural resource management, housing, tourism and economic development.

LDDs are using GIS and related technologies to improve the delivery, planning and coordination of federal, state and local programs, as well as expand their services to private and nonprofit entities such as utilities, hospitals, schools and chambers of commerce. Most importantly, LDDs are using their institutional knowledge and capacity to bring advanced GIS services to small metropolitan and rural regions that previously lacked, by themselves, the financial and staffing support needed to establish and maintain a GIS program.

GIS as a Tool for Enhanced Decision-Making

Serving six counties in Upstate South Carolina, the **South Carolina Appalachian Council of Governments (ACOG)** is a partner in InfoMentum, a GIS-based tool that supports regional economic development. The partnership, which includes county governments, businesses and utilities throughout the Upstate region, has used InfoMentum to provide integrated research tools for business attraction since the mid-1990s.

According to Carol Andersen, ACOG Information Services Director, "The beauty of InfoMentum is that the diverse menu of regional geographic, demographic and economic information it provides allows end-users to create maps, tables and high quality graphics quickly and cost-effectively."



Customized GIS applications is one of the many features InfoMentum offers.

Andersen further states, "ACOG staff provides technical support, database design and maintenance, training, administration and marketing outreach services. This unique collaborative effort is funded annually by public and private investment."

Services provided by InfoMentum include customized GIS applications, an industrial properties database, fact finder database, special reports, technical assistance and InfoMap, a web-based interactive mapping tool.

In the western reaches of North Carolina, the **Isothermal Planning and Development Commission (PDC)** uses GIS to strengthen its professional and technical services for local governments and other partners within its four-county region. By using GIS software, the PDC's staff can depicit spatial data in a more visual context and perform more in-depth data analysis for local policy makers and partners. This has been especially beneficial with local land use, zoning and transportation planning initiatives.

Isothermal PDC's expanded use of GIS technology also helps them effectively plan programs and services that enhance economic development within their region.

Isothermal PDC is part of the North Carolina State Data Center's Regional Affiliate network of state and local agencies that work with the U.S. Bureau of the Census to provide the public with various data and information that is gathered from many sources including the U.S. Census Bureau. Through the network, the PDC provides demographic, economic and other data and maps to member governments and other interested parties who, in turn, use it as they make decisions on program services.

Information Services Coordinator Greg Christo says, "The ability to spatially analyze data allows Isothermal PDC to advise member governments as they debate enhancing or denying developments within the region."

GIS technology enables Isothermal PDC to look at development in a regional capacity to determine whether or not the project will be an improvement for the region and advise their members accordingly. Christo further states, "By providing information that is visual, quick and easily described on a map, GIS technology has helped Isothermal PDC respond proficiently to the needs of the local governments, residents and businesses in our region."

Local governments in the five-county region served by the **Northwest Alabama Council of Local**

Governments (NACOLG) seeking base maps, utility maps and land use maps often look to NACOLG's full service GIS program. Since its initial use of the technology in the early 1990s, NACOLG has broadened its scope in keeping with its local governments' demands and needs. Currently, the LDD is exploring new ways to make maps and data more user-friendly and easier to obtain.

NACOLG provides GIS mapping to local governments for planning commission meetings. They also use it to plot existing transportation routes for state highway and local officials, charting waterline system maps for area water departments, and show political boundaries for voting district or precinct maps.

Courtesy of Northwest Alabama Council of Local Governments

The technology allows NACOLG to effectively plan programs and services that enhance the region's community and economic development initiatives. For instance, GIS helps elected officials and site developers to better understand traffic flow, land use and optimal locations for new or expanding businesses. It also allows developers to track trends as they undertake new projects.

NACOLG's GIS Coordinator Joseph Holt explained, "Using GIS throughout the region has been helpful in responding to population growth, traffic counts and land use. GIS technology enables us to more thoroughly and accurately address the needs of residents and local businesses."

Holt notes the challenges of keeping pace with constantly changing technology, coupled with the need to maintain current information from local governments in order for the technology to yield the most usable information. "A big challenge for us has been obtaining data from counties and municipalities, and we are working on a system to publish all of our maps over the Internet," says Holt.

The LDD is currently developing a data management function that will acquire tabular, graphic, digital and remote sensory (such as photos) data which will be analyzed and produced into reports – complete with graphics and statistics gleaned from the data. This will give the end user, typically a local town or municipality, highly accurate and timely information.

Mapping Local Infrastructure

Committed to supporting community development and planning within its eight-county region, the **Northwest Pennsylvania Regional Planning and Development Commission (Northwest Commission)** uses GIS software to gather, analyze and use various data.

According to Matt Gilara, Manager of Regional Planning, the Northwest Commission provides a full range of GIS services, ranging from data and mapping services to coordinating GIS training to providing on-site technical support. In addition, the group participates in GIS working groups within the region.

"Bringing together a dynamic group of GIS professionals and government entities has allowed the region to develop its resources, enhance services critical to each county, and broaden its use of the technology," reports Gilara. And the increasing acceptance of GIS as an effective tool is evident: In 2000, about half of the counties in northwest Pennsylvania utilized GIS, while today all eight counties have and use GIS technology.

The Northwest Commission believes strongly in coordinating efforts and sharing resources to improve communities, making them ready for residential and business growth. Toward this end, the Commission

uses GIS technology to gather and manage spatial data. Its Neighborhood GIS program utilizes infrastructure and expertise already in place at the regional level to allow for increased GIS capacity at the local government level. A GIS sub-committee for the Northwest Pennsylvania Emergency Response Group is currently creating a GIS enterprise system to aid the region in emergency preparedness and response.

Northwest Commission's GIS and marketing staff joined forces to create a regional infrastructure map to attract new businesses by displaying market regions and depicting various business cluster locations. They offer fee-based GIS services to businesses, allowing both private and public organizations to utilize GIS mapping for storing, analyzing and displaying data. The Commission also offers Internet-based GIS for entities lacking the software, hardware or personnel.

In an effort to unite GIS users in the region, the Commission created the Northwest Pennsylvania GIS User Group, a powerful network that shares ideas, resources and data and coordinates training. Open to any GIS user, the User Group acts as a vehicle for gaining a better understanding of GIS and related technologies, and to keep the GIS community updated.

The Northwest Commission is currently working with four counties on a parcel conversion project that will allow them to convert their paper tax maps to digital format. This data will eventually be made available to the public for economic development opportunities. Northwest Commission sees an increasing role for GIS in planning for the region. Gilara states, "Five years from now, GIS will be used readily to show various assets in the Northwest Commission's region such as water and sewer infrastructure, potential sites for businesses to expand or relocate, population trends, local government applications and broadband deployment."

Transportation Planning and Routing

The **Mid-Ohio Valley Regional Council (MOVRC)** in West Virginia serves eight counties and 22 cities and towns located north, south and east of Parkersburg along the Ohio River. MOVRC uses GIS for transportation planning by identifying travel needs, addressing transportation issues and planning for future projects in the region's metropolitan areas.

MOVRC staff use GIS to conduct environmental overview studies to identify historical sites, wetlands, geological features and endangered species habitats. Once these sites are identified and mapped, transportation planners use the maps throughout the road planning process.

GIS also helps in transportation modeling as MOVRC staff use it to forecast future traffic volumes by prioritizing transportation needs and showing how traffic volumes impact transportation throughout the region. MOVRC has recognized that GIS can integrate

Located in the northeast corner of Alabama and bordering Tennessee and Georgia, the **Top of Alabama Council of Governments (TARCOG)** serves 550,000 residents in five counties. TARCOG's Rural Planning Organization, part of a statewide system of 12 rural transportation planning entities created by the state in 2006, uses GIS to study transportation trends of state-maintained roads. TARCOG uses GIS to provide county-by-county reports showing traffic use patterns over time, as well as projected use and need into the future. TARCOG also uses GIS to coordinate human services transportation throughout the region. Staff create maps that show where various population groups (potential end-users of public transportation such as the elderly, disabled, low income or those without personal vehicles) reside and where they need to travel to (work, school, physician or hospital, shopping and other services). Analyzing the maps helps TARCOG staff determine how best to meet their transportation needs.

information from different sources and enable better and more efficient decision-making.

"At the Mid-Ohio Valley Regional Council, we believe that providing GIS services to our members, many of whom are too small to afford the technology or the staff to maintain their own system, is an important service," says Fred Rader, MOVRC Director of Community Development. "We have recently provided each of the counties in our region with software to read and manipulate maps and data created by our staff. Over time, the technological capabilities at the local level will grow, and we will be there helping each step of the way."

Safe Water Supply

In March 2006, the **West Alabama Regional Commission (WARC)** launched a rural water system mapping initiative to aid local governments grappling with water line breaks and repairs. While many large water lines are mapped by the engineering companies who install them, smaller lines are typically installed by the water departments themselves to save money. These lines are often not mapped, causing problems when lines are in need of repair or replacement, resulting in longer delays in returning water to customers and increasing the chance for water to be wasted.

With grant support from ARC, WARC selected 14 water systems from three of the most economically distressed counties in their region—Bibb, Hale and Pickens—for mapping. Over a two-year period, several college interns assisted WARC's full-time staff members with data collection procedures.

They located and mapped water meters, fire hydrants, water tanks, pump stations, lines and control valves. The data were used to create and provide water system maps for the three counties.

Counties, cites and towns enjoy this free resource. Fire departments have requested maps of fire hydrants in their jurisdiction, so they can locate the closest hydrant. WARC was also able to supply a trial GIS program for the area water utility companies to use in future mapping and locating projects.

Mayor Dennis Stripling of Brent and WARC Planner Melissa Mayo display a map of Brent's water system.

According to WARC Planner Melissa Mayo, "The maps produced as a result of this project have been extremely useful to the water system employees – they will save time, energy and money across the board by assisting responders from water departments to locate lines and features more quickly and efficiently."

GIS Aids Emergency Preparedness and Response

Recognizing that small local governments often lack the financial resources and staff expertise to use the latest technology applications as they design emergency vehicle and evacuation routes, the **Buffalo Trace Area Development District (ADD),** which serves five counties in Kentucky, recently launched a GIS Subscription Service for GIS use throughout the region.

Using GeoSync XG, a GIS viewing software, the Buffallo Trace ADD provides GIS data to local governments, special districts, water districts, health departments and others. The group maintains the local data layers from each agency, distributes the shared data to all users in each agency, and provides technical support and data maintenance to ensure accuracy among other user agencies. This annual data subscription program allows smaller, rural counties to use GIS for a low-cost fee.

The software allows users to search by a wide variety of fields within the GIS layers, including addresses, account numbers and water and sewer line sizes. According to GIS Manager Kevin Cornette, "The software is easy to use, and allows each government office – from

the County Judge to the County Property Valuation Administration officer to 911 Dispatch offices to the Sheriff – to access the same map data and have uniform usage of the data across county offices."

The easy-to-use interface allows local government staff to utilize GIS information daily to make a variety of informed decisions on issues such as homeland security and emergency response. The program is designed to provide subscribers with GIS data and map updates on a monthly basis. "Maps and data published by the LDD with the software allows local officials to easily access the GIS data for planning and decision-making purposes," adds Cornette.

In rural southwestern Virginia, the **Mount Rogers Planning District Commission (PDC)** serves a six-county region. The PDC provides maps and information to its local governments and others in the region to submit with grant applications. Mount Rogers also provides zoning and land use, tax parcel data, aerial photography and topographic maps to local governments for their daily operations as well as special projects. Using Global Positioning Systems (GPS), they are able to update E-911 maps for their local governments on a weekly basis.

BTADD GIS Technician and staff from the Maysville City Utility Department locate and take GPS locations of manholes for the City Sewer System.

The Mount Rogers PDC also uses GIS maps to update floodplain information. Staff use GIS software to create and analyze flood mapping data for use in the Pre-Disaster Hazard Mitigation Plan that was submitted to the Virginia Department of Emergency Management. Using scanned images of FEMA flood maps, they geo-referenced the images behind their existing planimetric data and tax parcels where available. This allowed them to estimate the total value of land and property inside the floodplain to calculate potential financial damage as a result of a 100-year flood event. Having these files made data and information gathering much faster and easier.

Located along Mississippi's eastern border, the **Golden Triangle Planning and Development District (PDD)** provides GIS services to a seven-county region. They recently implemented an E-911 emergency response plan in two of their counties that uses the mapping service to respond to emergencies. Upon receipt of a 911 call, directions are provided on-screen to the dispatcher, along with an aerial photo of the exact area where the call was placed. A map provides the shortest routes to the emergency for fire, police and emergency medical personnel.

Golden Triangle Manager of GIS and Remote Sensing Dr. David Bandi states, "Even if you are new to the fire or police department, the GIS mapping system makes it very easy to follow the directions and get to the emergency in the shortest amount of time." The PDD is currently working on providing the service to all seven counties within their region.

Golden Triangle is also part of a partnership between the **Mississippi Association of Planning and Development Districts (MAPDD)** and the Mississippi Forestry Commission (MFC) to produce a statewide process for preparing Wildfire Prevention Plans and Fire Cause Analysis Plans. This partnership allows the PDDs with the most at-risk counties to develop statewide forest fire protection plans. It is aimed at eliminating the occurrence, frequency and magnitude of forest fires. The use of GIS technology helps to facilitate the plans, which require an extensive amount of knowledge regarding data collection and planning processes.

Planning for the Future

GIS use has progressed from a single-focus planning tool (for such issues as land use and transportation planning) to increasingly being used regionally to enhance comprehensive economic development strategies. It is projected that GIS may be used for multi-LDD or multi-state regions, enabling LDDs to share both costs and data. As more regions switch to flat files for database structures, more opportunities for data sharing will exist.

"As one of the fastest growing industries, GIS can have a profound impact on economic development," states Brian Schrantz, systems architect with EMA, Inc. "It can create new and more job opportunities, better planning at a more finite level and more data availability. It can also serve as an attraction for businesses and residents to come to the region and take advantage of what the technology will offer."

Remaining familiar with best practices and receiving proper training ensures that LDDs know of changes and advances in GIS. Schrantz states, "It is important that LDDs utilize programs and organizations who can serve as a 'clearinghouse of expertise,' lend assistance, and serve as a conduit of information and program suggestions."

Schrantz notes, "While keeping GIS analysts and specialists employed at smaller organizations can be a challenge, colleges and even secondary schools are offering more GIS courses and programs, and the field is expected to continue to grow. As this trend continues, regional organizations like LDDs will be able to move forward with GIS technology in their regions."

What is an LDD?

Local development districts are multi-jurisdictional planning and economic development organizations that provide administrative, professional and technical assistance to local governments and citizens throughout Appalachia. LDDs have accomplished a range of tasks that benefit their regions:

- Between 1990 and 2005, LDDs administered almost 7,700 grants and projects totaling more than $5.5 billion in pass-through and programmatic funds
- LDDs' combined business development loan portfolio invested more than $368 million in gap financing for businesses and entrepreneurs from 1995 to 2005
- LDDs made more than 2,550 business loans and leveraged an additional $1.1 billion from the private sector in underserved regions and for companies and entrepreneurs struggling to secure financing
- Almost 60,000 jobs have been created or retained, and 96,000 workforce clients were prepared to contribute to the region's economy, as a result of LDD programs from the mid-1990s to 2004
- During the same time period, 2.3 million seniors benefited from aging programs funded at $425 million and administered by LDDs in parts of the region
- Since their inception, LDDs have helped thousands of citizens and hundreds of businesses recover from natural disasters across the region

The Development District Association of Appalachia (DDAA) is a membership organization of the 72 local development districts (LDDs) serving the 410 counties of the Appalachian Region. The DDAA works to strengthen LDDs and their member governments and to provide leadership to support the Appalachian Regional Commission's (ARC's) federal-state-local partnership.

Learn more at www.ddaa-ldd.org.

This publication was developed with support from ARC to DDAA under contract number CO-10694-90-302.

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