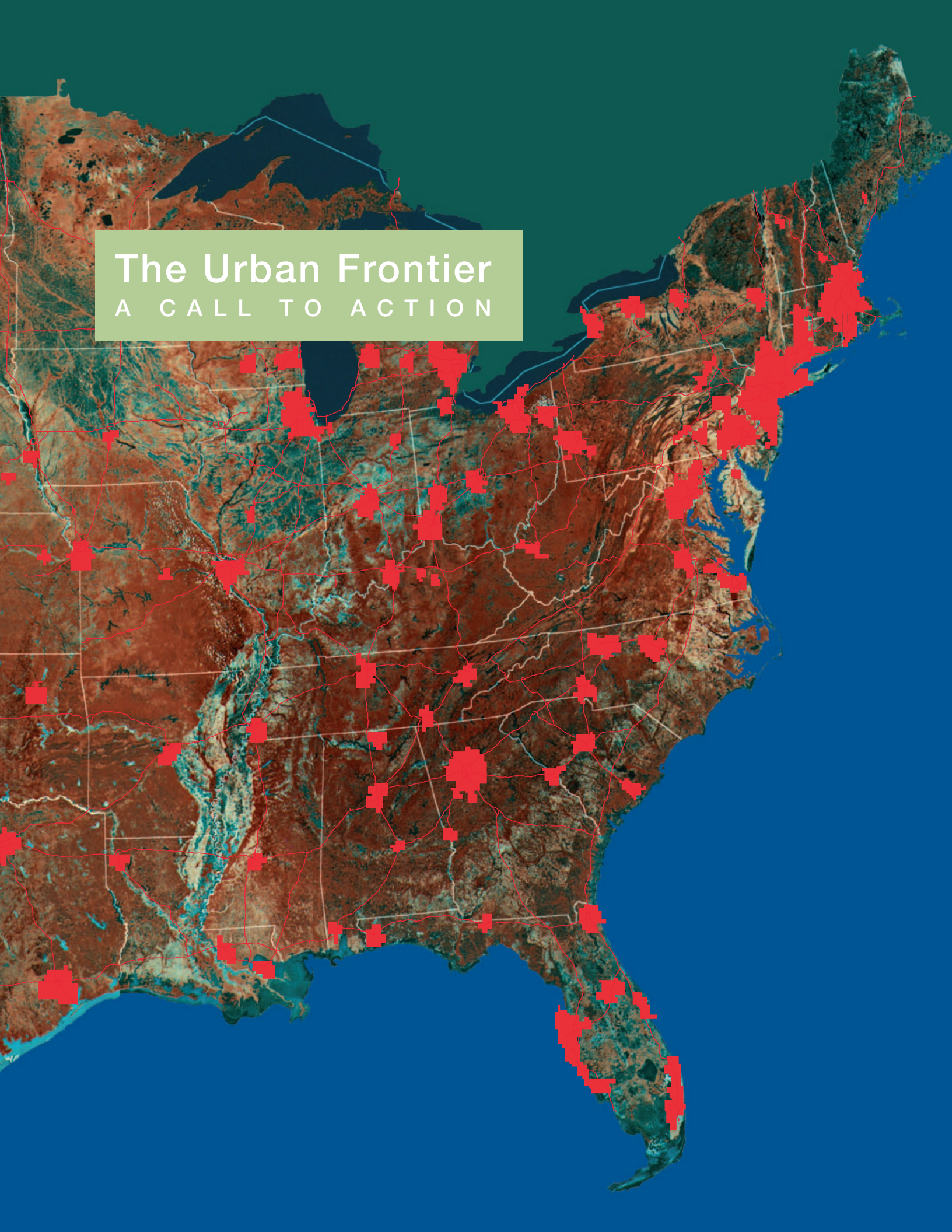

The Urban Frontier
A CALL TO ACTION

“The Urban Frontier: A Call to Action” is a publication of the Urban Areas Team of the Federal Geographic Data Committee.
September 2006

The Urban Frontier

A CALL TO ACTION

"... a geospatial data network can transform the way the cities and towns of a metropolitan region work together."

John Hickenlooper
Mayor of Denver

It is with great pleasure — and a strong commitment to its message — that I introduce "The Urban Frontier: A Call to Action." As a former geologist, I appreciate the power of maps and geospatial data systems. As a former small businessman, I understand the value that accurate and accessible data brings to strategic decision-making. As Mayor of Denver, I've seen firsthand how a geospatial data network can transform the way that cities operate and metropolitan regions work together.

Colorado is the hub of America's GIS industry, home to some 250 private companies with 11,000 employees in GIS-related industries. Within the City & County of Denver, one of every 62 City employees actively uses professional GIS software tools to do their job.

Denver's GIS program drives innovation across multiple departments' daily business operations. It has shown us new ways to improve water quality, control mosquitoes, and fight crime. It has helped us improve our emergency response time, decide where to locate fire stations, and cut trash removal costs. It has given us better analytical tools as we plan the city's future as well, supporting initiatives like Blueprint Denver, our long term vision for Denver's land use and transportation planning; Greenprint Denver, our sustainable development initiative; and our regional transit-oriented development plans.

Our GIS products and services also connect our many customers and constituents with the information and resources they need, using technology to help us deliver the highest level of customer service. Denver Maps (www.denvergov.org/maps) provides local residents, businesses, and visitors with convenient access to a variety of location-based images and information on the city's official web site. Designed to implement the Federal Rehabilitation Act Section 508 accessibility requirements to the greatest extent possible, Denver Maps now draws as many as 94,806 unique visitors and averaged 4,774 page views per day.

In Denver we've seen a tremendous return on our investments in our geospatial data network. It saves money and time, increases efficiency, accuracy, and productivity; promotes communication and collaboration; generates revenue, supports decision making, and improves resource management. Sometimes it is hard to imagine how we ever got by without it!

Our constituents deserve and expect value, effectiveness, and efficiency. As "The Urban Frontier" shows, a geospatial data network can be a powerful tool, helping us build the sustainable, productive, urban centers of the 21st century.

John W. Hickenlooper
Mayor, City and County of Denver

The Network Challenge

If a disaster were to cut across your region, would you know how find the information you'd need to respond effectively? What information would be critical, from your organization and from other jurisdictions? Does it exist? Is it compatible? Could you find it in time?

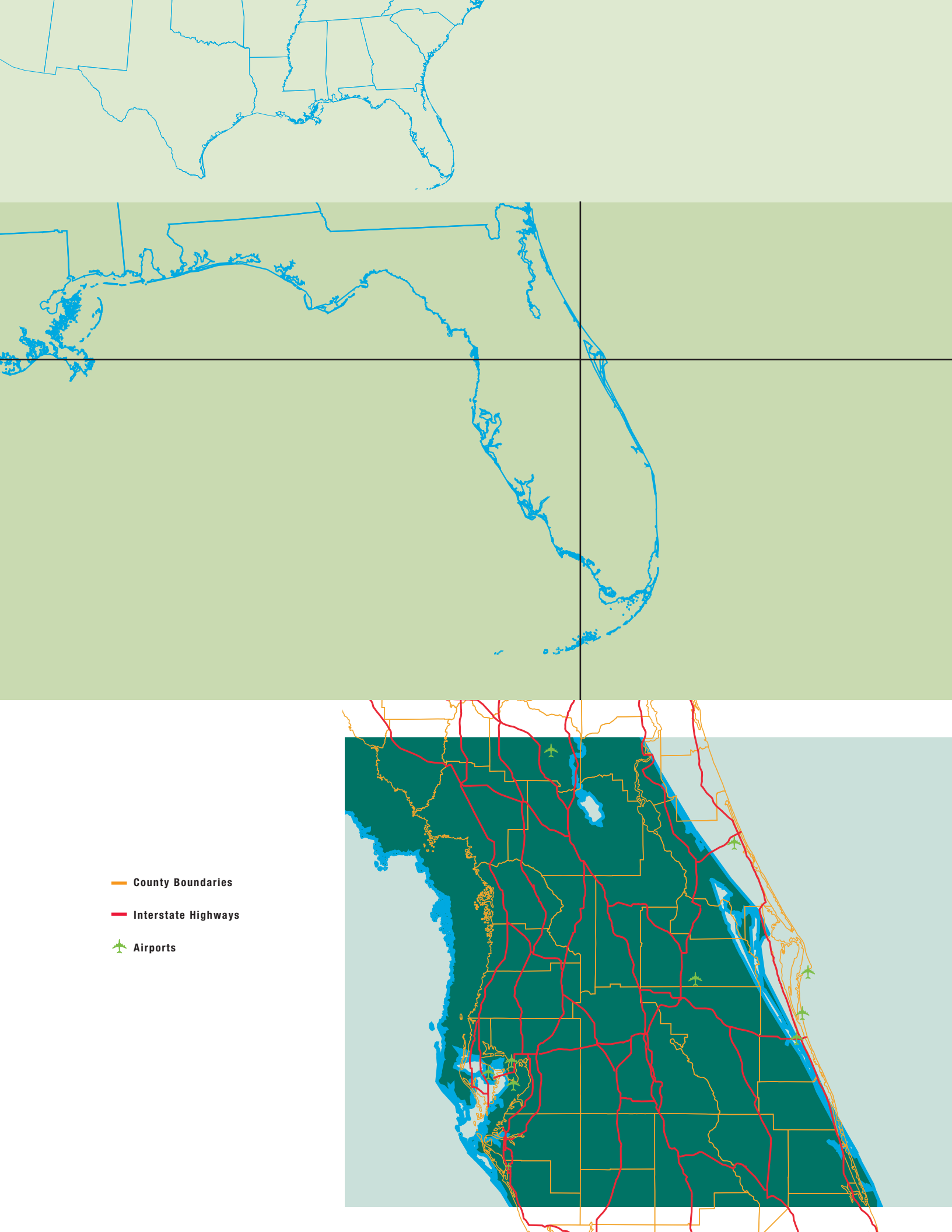
If a global company were interested in moving their headquarters to your area, how much information could you give them to promote your case? Could you highlight the economic, social, infrastructure, and environmental benefits of the region? Would you be able to respond quickly with a proposal — and with detailed follow-up answers to their questions?

The world has changed. The old boundaries of city and town are no longer relevant. Regions have become the geographical unit of operation and competition, the critical players in the ever-more-globalized economy.

Is your region prepared to compete on the national and international stage? Do you have the information tools you'll need to manage operations efficiently? To plan for the future effectively? To cope with the dizzying pace of change?

Good decisions depend on good information. Government managers and business leaders need data they can trust, accurate, reliable, and timely, easy to access and easy to use. But that's hard to find.

The challenge is organizational and political. Can we learn to think regionally and act cooperatively?


County Boundaries
Interstate Highways
Airports

Thousands of organizations spend billions of dollars each year producing and using geospatial data, from public officials at all levels of government to business and community organizations and members of the public at large. But they still don't have the information they need to solve critical problems.

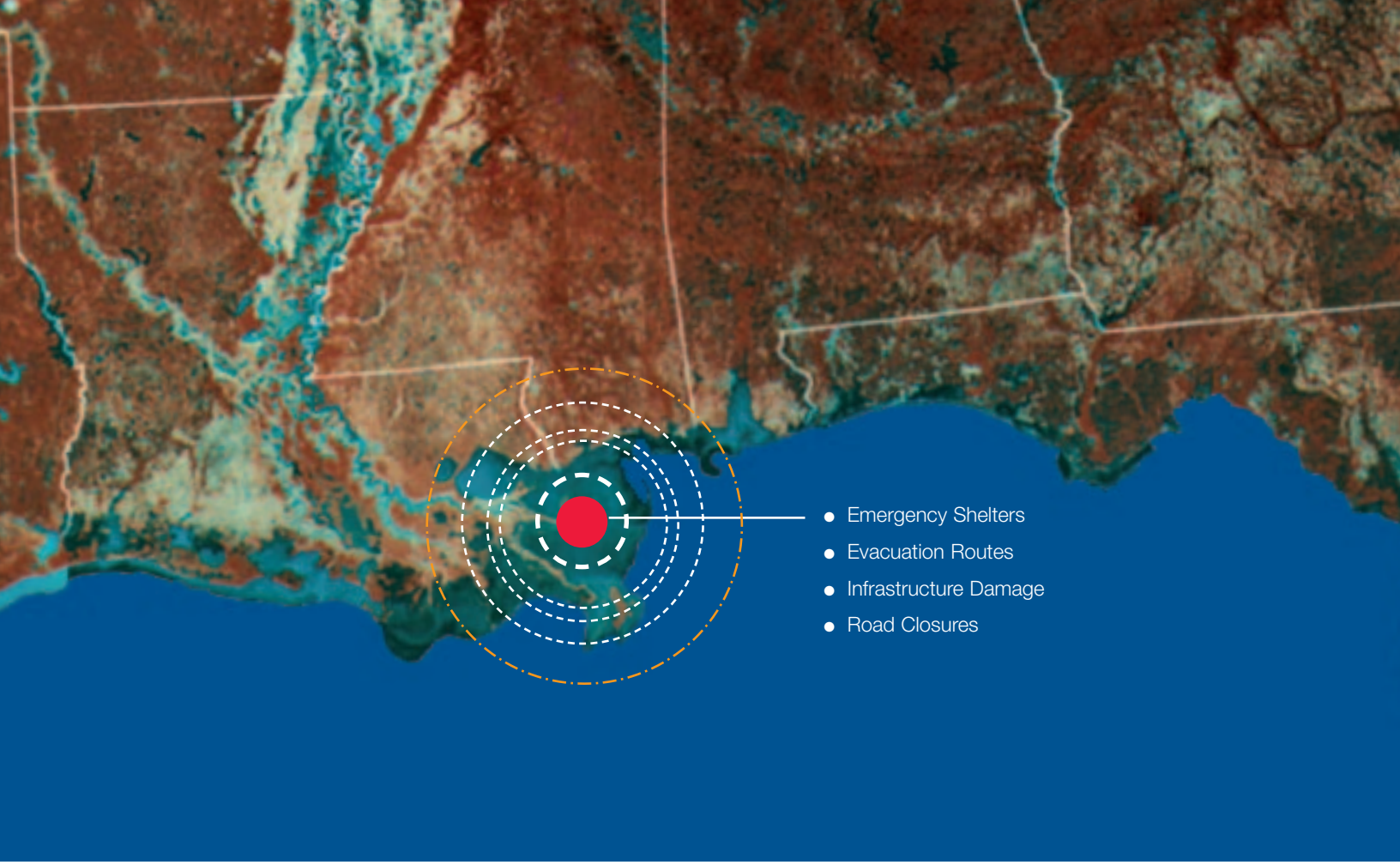
They may need more data than they can afford. Or they may need data from outside their operational area or jurisdictional boundary. Or they may find the data they need, but in an incompatible format. Meanwhile, the complexity of such issues as emergency preparedness and response, community social and environmental health, and development and business direction continue to grow, while our ability to respond lags behind.

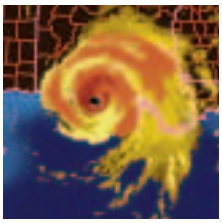
The development of regional geospatial information networks could solve those problems, creating a powerful tool for operations management, performance measurement, and strategic planning. Networks could give America a competitive edge in global markets, too, and strengthen citizen participation in our democracy back home at the same time.

Think of a geospatial information network as a wired marriage of maps and databases, a tool that lets public and private sector planners and managers visualize real-world phenomena in real time. Representing such key regional elements as land ownership and land use, infrastructure, transportation, waterways, and jurisdictional areas, the network integrates data from all types of organizations in all sectors.

Regional decision making depends on understanding how a region's resources and activities are distributed. The network provides that information in a form everyone can share — certified, standardized, and described according to a common protocol. Network information is spatially structured, providing easy, intuitive access based on location. It is flexibly structured, too: because it is related to geographic elements representing features in the real world, data can be accessed and used in any combination covering any geographic area.

Networks are built on a foundation of regional cooperation. Design, development, and operations all depend on collaborations that stretch beyond jurisdictional and organizational





Case Study:

Coping with Katrina

America's small but passionate community of GIS professionals was quick to respond to the crisis when Hurricane Katrina devastated New Orleans and the central Gulf Coast on August 29th of 2005.

Geospatial services had not been considered in anyone's disaster or post-disaster reconstruction planning. Instead they were developed in an impromptu volunteer mission that answered the region's cry for help.

Over 500 GIS experts volunteered their time and talent in the days immediately following the storm. Thirty-three where chosen, posted to four different missions to Mississippi and Louisiana, bringing an immediate application of GIS technology to help responders and decision makers.

What they found on the ground was an eloquent reminder of how critical the inability to access, share, and integrate data can be in an emergency, adding to the cost in time, money, and human lives.

The available data was good enough to convey big-picture conditions, like road closures and the location of emergency shelters. But there was no usable current address data available to help locate the missing, and no post-storm data imagery for disaster assessment. Maps were most in demand, and largely unavailable, along with such basic technology hardware resources as laptops, batteries, and cellphones.

Rebuilding efforts were likewise stymied by the lack of spatial data access and interoperability. Emergency personnel and relief workers struggled with incomplete data provided by the state, when access to local agency's data could have filled the gaps. Many workers were forced to compile their own data sets due to incompatibility of data from the state, regional, and local levels.

According to one planner engaged in the process, data incompatibility was "a major impediment to doing any kind of immediate post-event responsiveness." Officials lacked employment data to determine where jobs had been lost and what areas were able to support new jobs once residents began returning to the area. A lack of consistent data for railroad rights-of-way impeded efforts to reuse this land to link communities where bridges had been washed out.

"One lesson from Hurricane Katrina is clear — if the tactical alliances had existed for geospatial information resource sharing (data, software, and human capital), the recovery support effort would have moved faster, saving money and lives."

Twyla McDermott, Katrina relief volunteer

boundaries. Besides providing the most common data users need, the network simultaneously expands the amount of data available, establishing common procedures, technology, and guidelines for data integration and sharing, and supporting the institutional relationships and business practices necessary for ongoing collaboration.

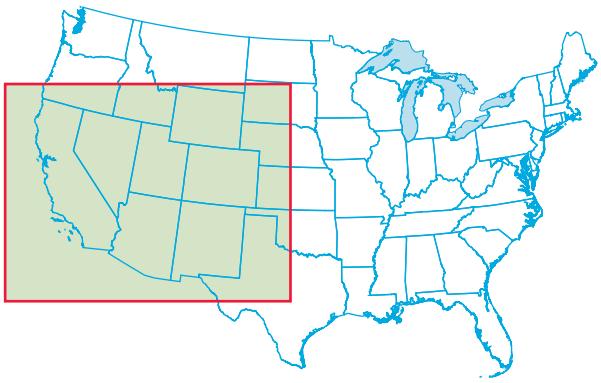
The beginnings of such regional collaborations are already in place. Some 40 percent of county and city agencies nationwide participate in geographic data coordinating councils. Over 80 percent of country and city agencies share data with other organizations. In Minnesota's Twin Cities, they've developed a data sharing system that helps government deliver services efficiently and keep decision making decentralized. In San Diego, collaboration has been growing for 40 years, developing the region's primary research, planning, and transportation tool.

Such success stories are far too rare, however. America's political and business leaders are just beginning to explore the possibility of shared regional data. Meanwhile, from Dublin to Mumbai to Shanghai, America's competitors are actively working to build their own information networks, hoping to capture a greater share of the global economic future.

The challenge for America is not technological. The building blocks of data and network wiring are already largely in place.

The challenge is not financial, either. Geospatial networking consistently demonstrates a significant return on even modest investments, winning operational costs savings that dwarf expenditures.

Instead the challenge is organizational and political. Can we learn to think regionally — and to act cooperatively? It takes vision to see the opportunities we could share beyond our borders and boundaries, and leadership to build the network of collaboration, alliance, and partnership necessary to make that vision real.



The Regional Imperative

You don't see the boundary lines of 9 different counties and a dizzyingly varied 101 cities when you fly over the San Francisco Bay. You see one region, climbing up the hills from the water's edge, sharing common circumstance and a common fate.

Everyone shares the same wind and fog. The tremors that rattle down the San Andreas Fault don't stop at jurisdictional boundaries. Everyone shares the same transportation infrastructure of highways and bridges and BART, the same watershed, the same necklace of parkland and open space. Commercially interdependent, they share a regional economic climate, too, and a regional reputation.

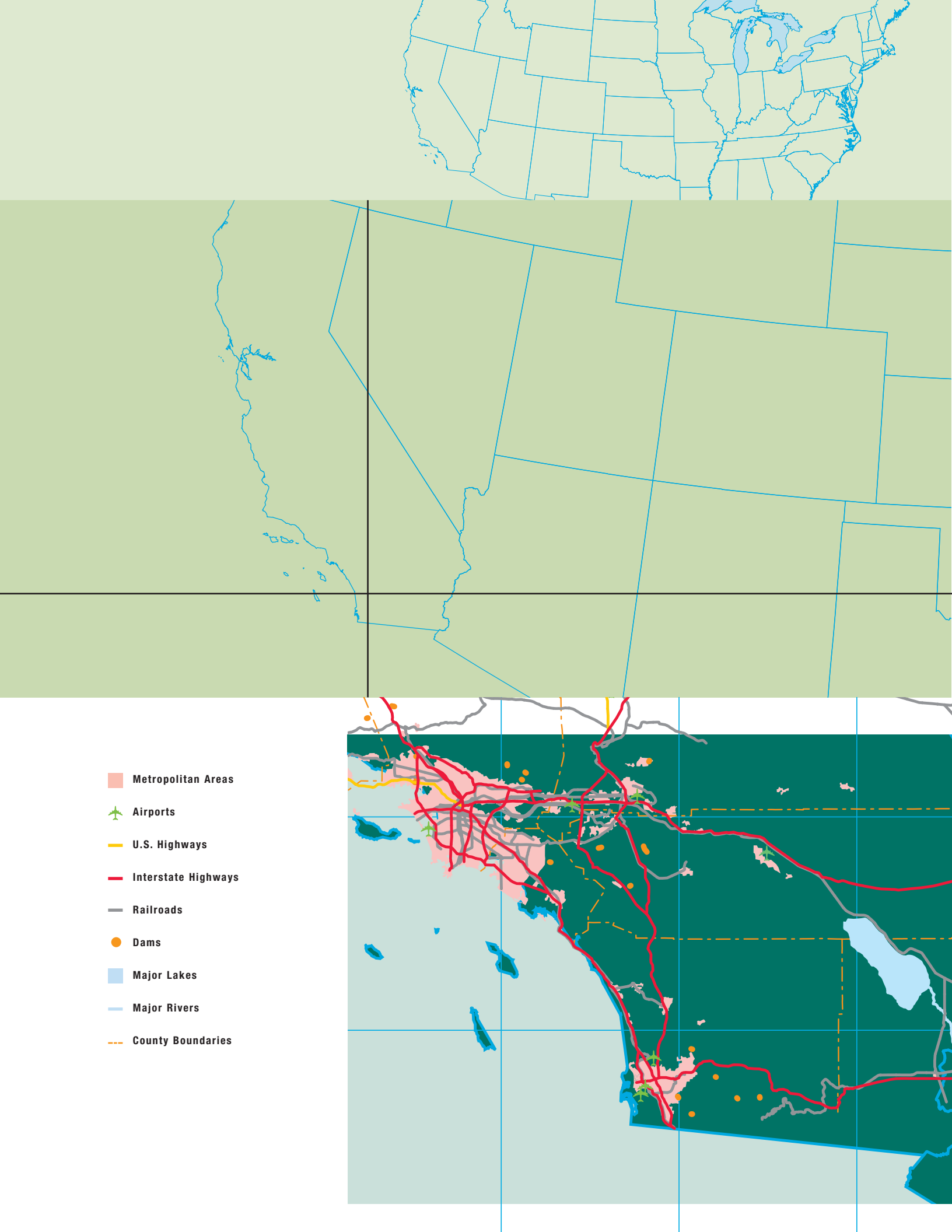
The same is true for all of America's major metropolitan areas. They are large-scale landscapes, a dynamic nexus of natural and built environments and social and economic systems, best understood from a regional perspective.

The critical issues they face are regional. How will they cope with sprawl, traffic snarl, and smog? Create sustainable development that preserves open space and community character? Build the reputation and strengths to thrive in the ever-more-competitive new market economies?

The solutions will have to be regional, too. To survive and thrive in the 21st century they will need to think differently about traditional organizations and jurisdictions and learn to work cooperatively for their common benefit.

"Local governments are banding together out of necessity to find ways to work together, realizing that they can serve constituents better by working in a cooperative and collaborative way across regional lines."

Christopher Gates, President, National Civic League


Metropolitan Areas
Airports
U.S. Highways
Interstate Highways
Railroads
Dams
Major Lakes
Major Rivers
County Boundaries

Case Study:

SANDAG

Even after 40 years, the San Diego Association of Governments (SANDAG) remains a work in progress. Originally launched in 1966 as a voluntary joint powers initiative, SANDAG has grown to become the region's primary research, planning, and transportation agency. As of 2003, SANDAG has been a state-mandated agency, responsible for a number of regional priorities.

Governed by a Board of Directors composed of mayors, council members, and a county supervisor from each of the region's 19 local governments, SANDAG serves as a forum for collaborative regional decision making. Its mandate encompasses the full gamut of regional issues, including growth management, transportation and traffic management, environmental management, housing, open space, air quality, energy, fiscal management, economic development, recycling, hazardous waste management, habitat conservation planning, and criminal justice. By building consensus through collaborative planning, resource collection and allocation, and performance measurement, SANDAG streamlines the region's planning approach and ensures that it is both comprehensive and coordinated.

SANDAG's most critical resource is information. Researchers, demographers, geographers, statisticians, and economists work to analyze the steady stream of data collected from across the region. That data, in turn, is offered online through a comprehensive library of databases, mapping applications, and publications.

SANDAG information serves governmental agencies at all levels, private businesses, and nonprofit organizations. Data is designed to help planners and decision makers visualize real-world phenomena in near-real time. Downloadable, sorted by city, county, ZIP code, census tract, Metropolitan Statistical Area, and subregional area, it is available as a biweekly report, an annual report, and a custom-designed Web report.

Like most of America's metropolitan regions, San Diego faces significant transportation, housing affordability, and environmental-protection challenges. SANDAG is giving the region's individual jurisdictions a way to address those challenges together, through the Regional Comprehensive Plan that focuses on "smart growth," encouraging local actions that follow recommended policies, and financing strategies that support the RCP.

The spread of population and economic activity beyond America's core cities began when President Eisenhower launched the interstate highway system more than 50 years ago. Suburban expansion was accelerated by the construction of urban beltways, with new satellite employment centers and edge cities to follow, limited only by the economies of the long-haul airport and the amount of time people were willing to spend commuting to work. More recently, reinvestment in core cities has strengthened their importance in the larger metropolitan region, compounded by the return of empty-nest baby boomers into rapidly gentrifying urban neighborhoods.

A region's economic health and vitality, environmental sustainability, and social equity depend on the complex interplay among environmental, biological, built, social, historical, and economic factors. Parts affect each other and the whole in expected and unexpected ways. Road design may change neighborhood demographic and employment patterns, for example; or a lack of green space may impede economic development. One jurisdiction's attempts to control growth may just push it to a neighboring jurisdiction.

Phenomena at the regional level compound each other, with cumulative effects that further shape the region. For example, regional demand and resources attract businesses and development that, in turn, create regional qualities that attract additional businesses and development. Jurisdictions that organize and operate as regions can take advantage of this cumulative effect, attracting further regional benefits.

Federal policy makers are beginning to recognize the importance of a regional perspective. New Homeland Security funding shifts the focus from jurisdictional spending to regional initiatives. Federal land and water use policies are clearly regional, too, while the Environmental Protection Agency (EPA) requires that individual jurisdictions create a metropolitan solution to air quality problems or risk losing federal transportation dollars.

Local policy makers see the same regional imperative. They understand the regional nature of their problems and the need for regional solutions. But before they can work they need to find a way to make sure they share the same picture of the facts on the ground and can develop a way to coordinate their responses effectively.

They need, in short, a network.

Regional Collaboration

"The winners in the New Economy will be the regions that learn to work together to relieve traffic congestion, build affordable housing, preserve open space, and promote economic development. If government is going to be effective in this new age, it is going to have to start thinking regionally." Robert M. Hertzberg, Speaker Emeritus of the Assembly, California

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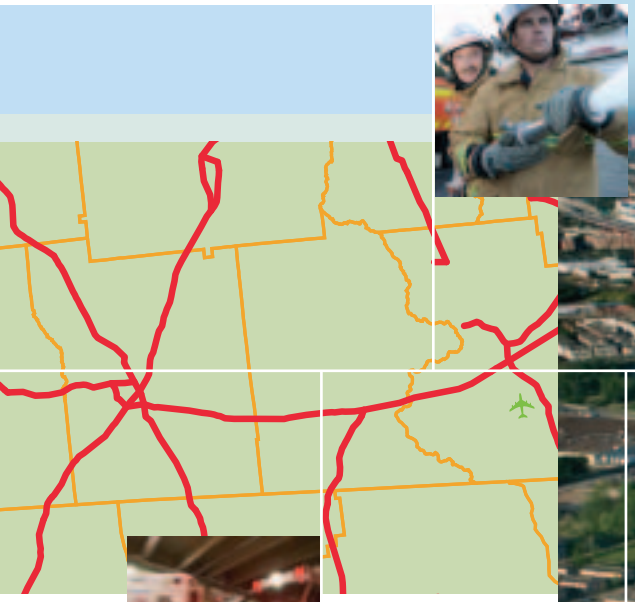
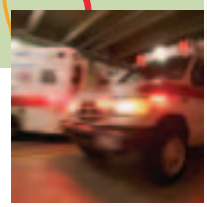
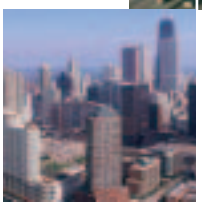




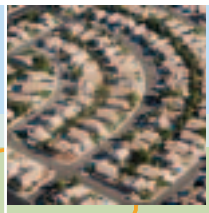
HEALTH

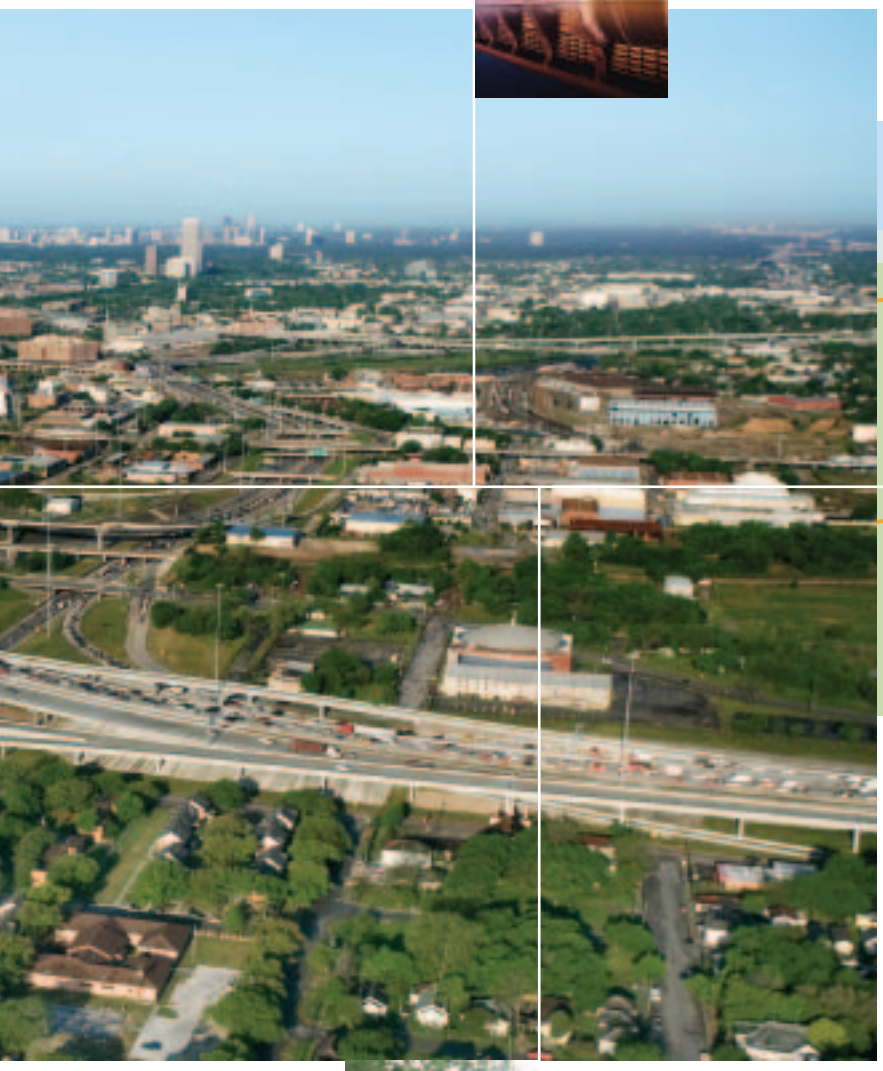


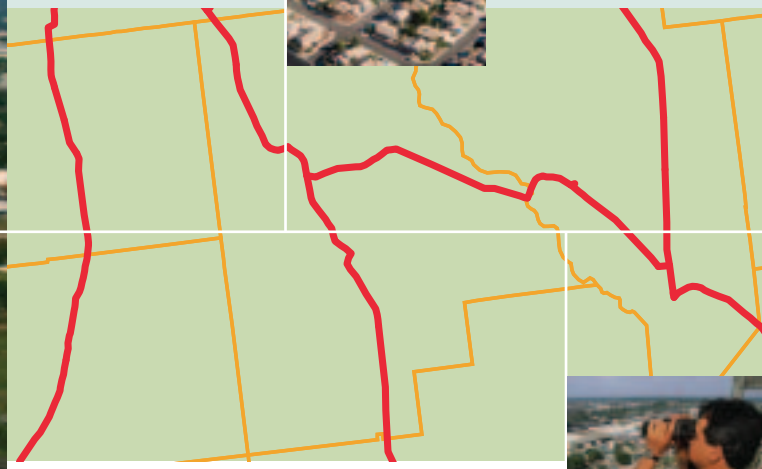
ECONOMIC DEVELOPMENT

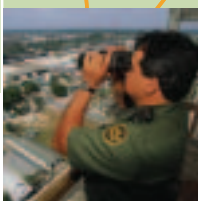
NATURAL RESOURCES

SOCIAL INCLUSION

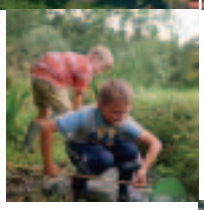






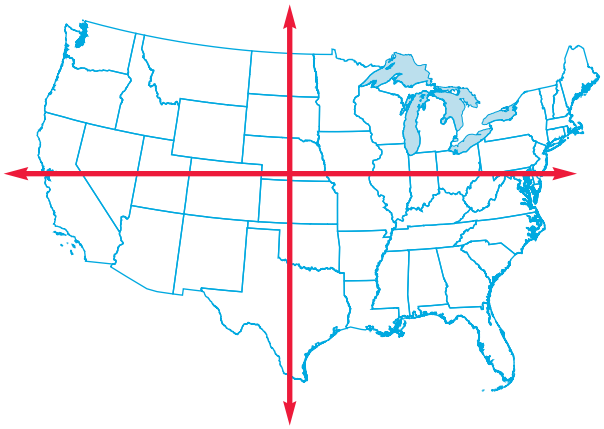


HOMELAND SECURITY



ENVIRONMENT

TRANSPORTATION



Beyond Boundaries

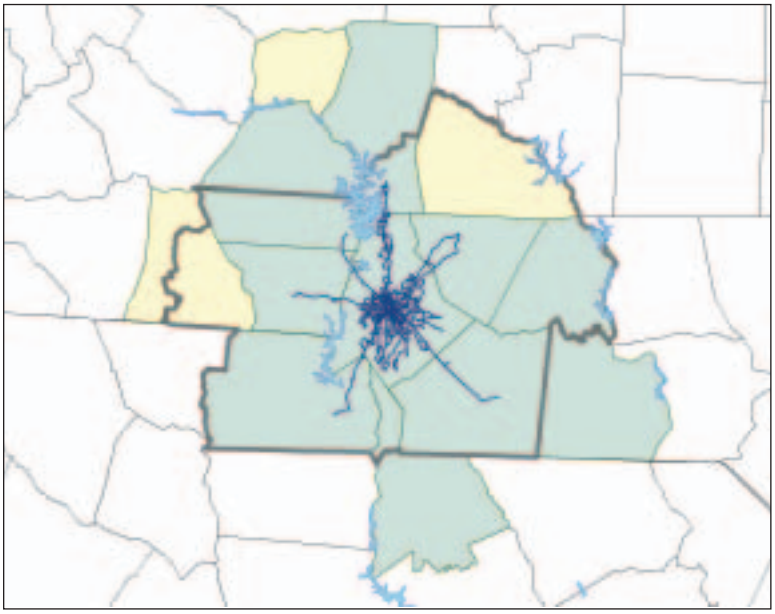
The benefits from a regional geospatial information network far outweigh the costs, even in the short term. Conforming to common standards may cost those who have developed standards of their own already. And setting up the partnerships necessary for collaborative data sharing takes a significant investment of time and effort. But savings come quickly, as networked partners eliminate redundancy and spread the costs of producing and maintaining accurate data among themselves.

Just as importantly, the network creates performance benefits as the region's elected officials, public administrators, and business and community leaders learn to work with their new tool. With instant access to reliable information that stretches seamlessly across jurisdictional boundaries, they can manage day-to-day operations more efficiently and plan for the future more effectively.

Take a metropolitan area in which local governments, their customers, state and federal agencies with facilities in the area, and public utilities all need high-resolution geospatial information for their operations. A network gives them contemporary and consistent data for decision making, and helps them avoid confusion caused by differences in the vintages, common attributes, and other characteristics of the base data. That lets them mobilize their resources more efficiently, whether for daily service delivery or emergency response.

"City and county governments are quite often too large to deal with problems at the neighborhood scale, and too small to deal with problems demanding regional solutions."

Tom Radulovich, Board of Directors, Bay Area Rapid Transit



City Service Areas
(by county)

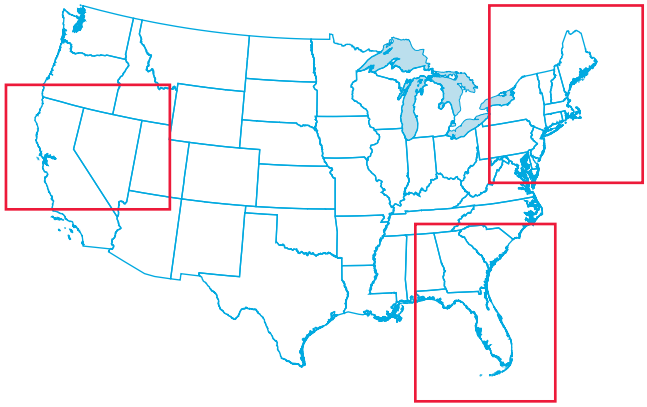
- **Transit - 7 counties**
- **Fire - 14 counties**
- **Police - 11 counties**
- **Transportation - 11 counties**

The network supports organizational analysis and decision making across a wide cross-jurisdictional or organizational area as well. A regional transportation planning project can use base data supplied by the localities it spans, for example. Local, state, and federal agencies can respond quickly to a natural disaster by combining data. A county can use watershed data from beyond its boundaries to plan its water resources. State agencies can better track the ownership of publicly held lands by working with local governments' parcel data. State and local governments can more easily comply with federal reporting requirements.

The network helps direct healthy growth across the region, reducing the negative impact that jurisdictions' independent decisions and competing interests could have on each other and on the community as a whole. It helps planners get ahead of the curve, creating an information advantage that lets them make their choices proactively, not reactively. The result is a better place to live, work, and do business; a region that works, with improved civic services and an enriched quality of life. The region will be stronger economically as well – leaner and more flexible – and better able to respond to the accelerating pressures of national and international competition.

The numbers are pretty good, too. A 2005 study by consultants Booz Allen Hamilton calculated the ROI when an organization developed geospatial interoperability standards and network system architecture and data management strategies. The risk-adjusted ROI measured 119%, based on savings to investment. In other words, for every $1 spent, $1.19 was saved on operations and maintenance costs.

Similarly impressive results have been recorded across the country. The Oregon Geographic Information Council (OGIC) estimated their ROI was 14:1 on an original investment of $500,000 spent to support statewide coordination of geographic data and technology, along with an overall government cost avoidance of around $40 million based on the total cost of the data and the number of user agencies that would normally have duplicated the effort. The Michigan Geographic Framework project found three different state departments each maintaining a statewide geospatial data map, each costing $10 million over a five-year time frame. Integrating that data into a single data map captured $18 million in savings, and created a richer and more detailed information source usable by everyone in the state at the same time.



Designing the Future

There is a broad range of approaches to regional geospatial information network design. Since much of the necessary information already exists, the simplest is just to start putting that data online, accessible to anyone. But while this keeps costs low, it ignores issues like data redundancy, data background, and security, along with questions of cost and ownership.

The alternative at the other end of the spectrum is to go full bore, building an integrated network that includes data vetting, elimination of duplication, security, and cost and fee considerations. But this approach involves a longer, more difficult, and more expensive effort than most governmental organizations can launch in today's budget climate.

The strategy most often successful is to start modestly, with low-cost, low-risk steps that promise rapid payback. Building a network works best as an iterative process. You learn as you go, step by step, building incrementally from initial successes toward more active developmental participation.

Network development depends on the willing cooperation of scores of local, regional, state, and federal government agencies; private sector companies; educational institutions; and nonprofit organizations, working collaboratively. Operations have to be kept flat and decentralized, and managed without hierarchy. Strong leadership and relationship-building skills are critical.

It may take years for a regional geospatial information network to reach its mature potential. But the rewards are immediate, and grow as the network grows.

"MetroGIS gives citizens what they want — better government for lower cost."

Victoria Reinhardt, Chairperson, MetroGIS Policy Board and Ramsey County Commissioner

Would-be network leaders have to develop a compelling vision of regional collaboration that all the stakeholders can share, and then develop a regional plan with strategies and goals to make that vision real. Once the network is launched, they need to lead the collaborative development of organizational structures, operational environments, orderly communication methods, decision making, and other governance processes; develop and maintain policy and funding support for the effort among senior executives and other influential parties; and provide a legal foundation for contracts, liability, and other issues.

Participation in the network is wholly voluntary, and development is evolutionary, so continual stakeholder outreach and education are essential. Potential stakeholders are often at different stages of operational maturity and network sophistication; they may need to be educated about data sharing processes and payoffs or shown the value of ongoing cooperation with neighboring competitors. The attention, endorsement, and support of public officials and senior policy makers must be cultivated and maintained, but the voluntary nature of their interest, turnover among policy participants, and issues competing for their attention make this task difficult. Organizations may need to change their policies and practices to take better advantage of the network. Policy development activities can educate executives about the implications of these practices and rally support for changes.

It may take years for a regional geospatial information network to reach its mature potential. But the rewards are immediate, and grow as the network grows, adding new components as it improves and evolves. As more organizations participate the data pool will widen and deepen, spreading further resource savings and operational benefits.

The civic rewards grow at the same time. The network can strengthen both individual jurisdictions and a region as a whole. Each jurisdiction can be more self-reliant knowing they have access to the best information available. The region as a whole is strengthened when neighbors share the experience of working together for regional competitive advantage.

The network can strengthen our democracy, too. Over the past decades many Americans have become increasingly distrustful of government, cynical about both its capabilities and its intentions. The current methods of community planning are particularly suspect. Beyond the pro forma "public hearings," public planning seems to offer little opportunity for meaningful public participation.

The network could change that. It could give the interested public the tools and systems they would need to understand the planning choices and make the decisions, letting those most affected once again have a voice in the process.

Case Study:

Minneapolis-St. Paul

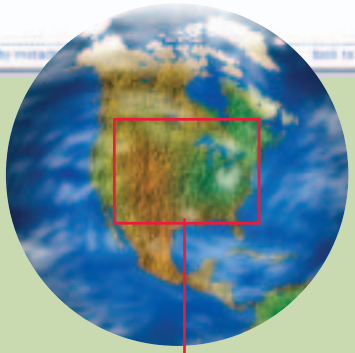
Minnesotans know what they want from government. They expect value for their tax dollars: a government that delivers services efficiently, keeps decision making decentralized, and lets the voters have a voice in the process.

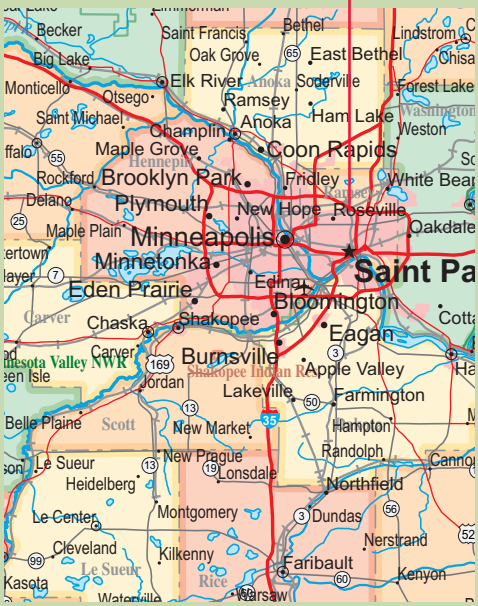
MetroGIS, the award-winning regional geospatial information network serving Minnesota's seven-county Twin Cities metropolitan area, helps governments across the region meet those expectations.

The mission at MetroGIS is to "provide an ongoing, stakeholder-governed, metrowide mechanism through which participants easily and equitably share geographically referenced data that are accurate, current, secure, of common benefit and readily usable." Better information management builds better operational performance and more effective decision making at both the individual jurisdiction and regional levels. Those improvements, in turn, lead to lower-cost service delivery, more efficient planning — and, ultimately, to higher public satisfaction.

Would-be users click on http://www.datafinder.org, a one-stop source for geodata, accessible with or without GIS software. Over 180 metadata records are searchable via DataFinder by way of 18 standard metadata themes. Over 75% of these data sets can be downloaded in their entirety or by way of self-selected geographic subsets of the data. Most of the data sets can also be accessed as a Web Mapping Service. There is no fee for access, with the exception of the regional parcel street and centerline datasets. Free access to these data sets is restricted to government and academic interests following licensure. However, government and academic interests throughout the country qualify for free access.

More significantly, eight of the downloadable data sets are endorsed by MetroGIS as regional solutions to common information needs. They are interoperable both vertically among one another and horizontally across the seven-county Minneapolis-St. Paul metropolitan area allowing the data to be put to immediate use by avoiding significant set time. As important, each of them also complies with agreed upon community-defined content standards. Willing organizations, with appropriate operational capacity, maintain these data sets in accordance with agreed upon roles and responsibilities established by MetroGIS, providing a trusted environment for sharing these commonly needed foundation data sets.





Getting Started

The time to start developing a regional geospatial information network is now. Every year of delay is another year of unnecessary expenditures, less efficient operations, and less effective planning.

Everyone who participates in a network wins. You benefit from access to data gathered by other participants, and they benefit from access to yours. Shared use lets you defray some maintenance costs, too, and keeps your own data fresh.

Early adapters win the most. They gain market advantage through the development of new data, services, and expertise, along with a reputation for innovation and leadership. By sitting in on a network's early stages they win a significant voice in how the network is developed and organized as well.

Take a look at your Geographic Information System (GIS) first. You may already be creating your data in a form that is network-ready. If not, it is a change worth making, capable of improving your own GIS development and operations today and positioning you for network participation tomorrow. Look, too, at the GIS experience of your peers. A vast library of GIS "best practices" has been built over the past 20 years. Available online, it can steer you toward needs-appropriate development strategies.

"The sooner you begin to participate in a regional geospatial data network, the sooner you will realize the benefits. Start now."

Ivan B. DeLoatch, FGDC Staff Director

Data sharing is the next step. Review the commonly needed data sets for the participants in your GIS effort. Do you have multiple participants creating different versions of the same information? Replacing data redundancy with shared access to one common data version will save manpower and budget for everyone involved. That shared savings, in turn, can become the basis for further cooperation — and the foundation for a larger data sharing community that can work and learn together.

Need help? The Federal Geographic Data Committee (FGDC) is leading an on-going effort to build national network capability, facilitating cooperative development efforts by public and private sector organizations across the country. They can steer you toward potential resources in your geographic and application areas of interest through geospatial data publications and papers, associations, and meetings. Local, regional, state, and other federal agencies are organizing development operations in many parts of the country, too. Many have funding or staff assistance available for the development of geographic data.

Connect with the public administrators and elected officials who are leading the push to create geospatial information networks in other regions. They are a passionate and committed group, with much to teach from hard-won experience. Your path is sure to be different from theirs, but you will surely face many of the same obstacles they have faced. What can you adopt from their best practices, and how can you adapt them for your community?

This is an exciting time to be building a geospatial information network. The necessary tools are all at hand. The business model is clear. And the potential rewards are huge, for individual regions and for the nation as a whole. Are you ready to play your part?

For Further Information

The community of GIS professionals is growing in both size and effectiveness, and offers several sources to help potential practioners find best practices, contacts, books, and journal articles.

Some of the leaders include:

Alliance for Regional Stewardship
www.regionalstewardship.org
The mission of the Alliance for Regional Stewardship is to foster collaborative multi-sector regional stewardship as a means for advancing economic, social, and environmental progress, while maintaining a sense of place, in America's metropolitan regions.

Brookings Institution, Metropolitan Policy Program
www.brook.edu/metro/
The Metropolitan Policy Program was launched in 1996 to provide decision makers cutting-edge research and policy analysis on the shifting realities of cities and metropolitan areas.

Federal Geographic Data Committee
www.fgdc.gov
The Federal Geographic Data Committee (FGDC) is an interagency committee that promotes the coordinated development, use, sharing, and dissemination of geospatial data on a national basis.

Open Geospatial Consortium
www.opengeospatial.org
The Open Geospatial Consortium, Inc. (OGC) is a nonprofit, international, voluntary consensus standards organization that is leading the development of standards for geospatial and location-based services.

PLACEMATTERS
www.placematters.org
Placematters, an initiative of the Orton Family Foundation, is a living laboratory where a national network of creative practitioners come together to learn, share, inspire, and seed innovation in place, collectively elevating the art and science of planning for vibrant and sustainable communities. Here you'll find up-to-date information on our annual conference and connect to a growing community of people, resources, and online tools for learning and collaboration.

PolicyLink
www.Policylink.org
PolicyLink is a national nonprofit research, communications, capacity building, and advocacy organization working to advance a new generation of policies to achieve economic and social equity from the wisdom, voice, and experience of local constituencies.

Urban and Regional Information Systems Association (URISA)
www.urisa.org
The Urban and Regional Information Systems Association (URISA) is a nonprofit association of professionals using GIS and other information technologies to solve challenges in state/provincial, regional, and local government agencies. URISA is considered to be the premier organization for the use and integration of spatial information technology to improve the quality of life in urban and regional environments.

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Additional copies of “The Urban Frontier: A Call to Action” are available online at: **http://www.fgdc.gov/library/whitepapers-reports/index_html**