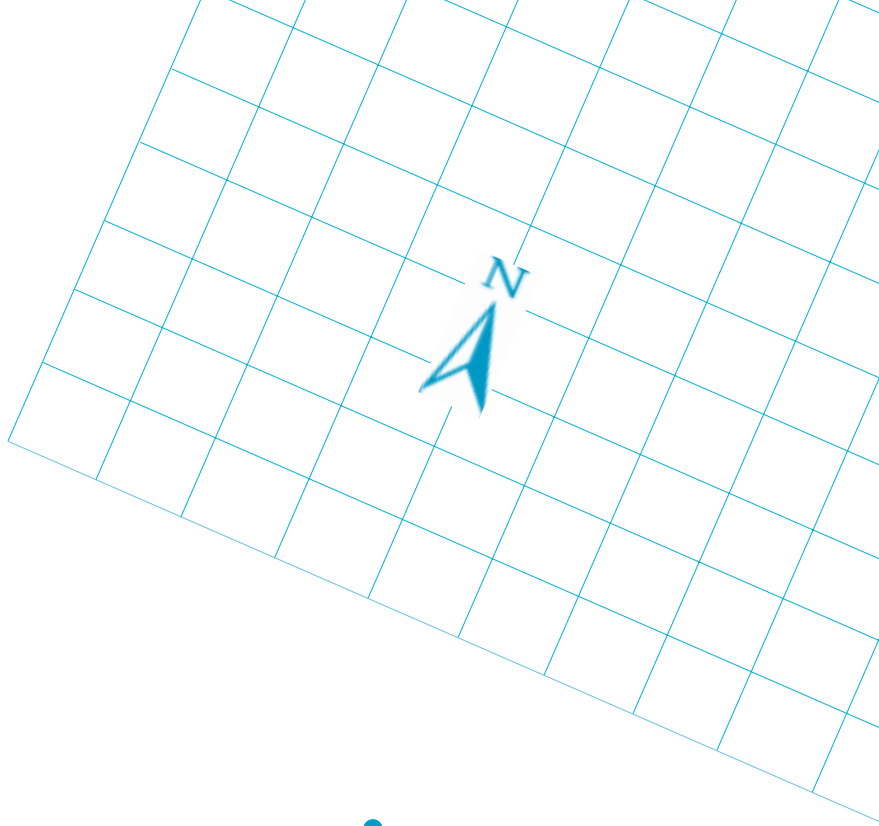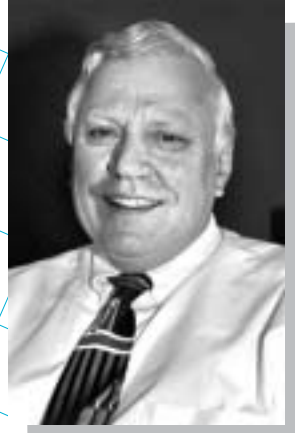# MetroGIS

*Sharing information across boundaries*

Citizens want value from government: effective, efficient services that demonstrate results. Sometimes, services are most effectively provided at the local level – fighting fires, educating children, maintaining streets, for example. But sometimes, services are more effectively and efficiently provided at a higher level.

Geographic information systems (GIS) technology and data are largely unknown or invisible to the average taxpayer. But geographic information systems are essential tools at all levels of government for delivering services as diverse as constructing sewers, preventing crime, monitoring airport noise, maintaining roads and siting schools. Geographic information systems store geographic features and information about these features (attributes) and quickly translate them into computer-generated maps, allowing multiple sets of maps and information to be viewed simultaneously. Geographic information systems help improve information management, efficiency, decisions, and ultimately, public satisfaction.

In order to maximize the benefit of GIS technology and minimize the costs, governments in the Twin Cities metropolitan area work together in a regional collaborative called MetroGIS. Their primary goal is to promote and facilitate GIS data-sharing in order to reduce data development and acquisition costs, improve data quality, leverage technology investments, promote best practices, and foster broader intergovernmental cooperation.

*Citizens want value from government – effective, efficient services that demonstrate results.*

*"Organizations that are using GIS on their own are not getting the full benefit of the technology."*

**David Claypool**
Surveyor and Coordinator of GIS Operations
for Ramsey County
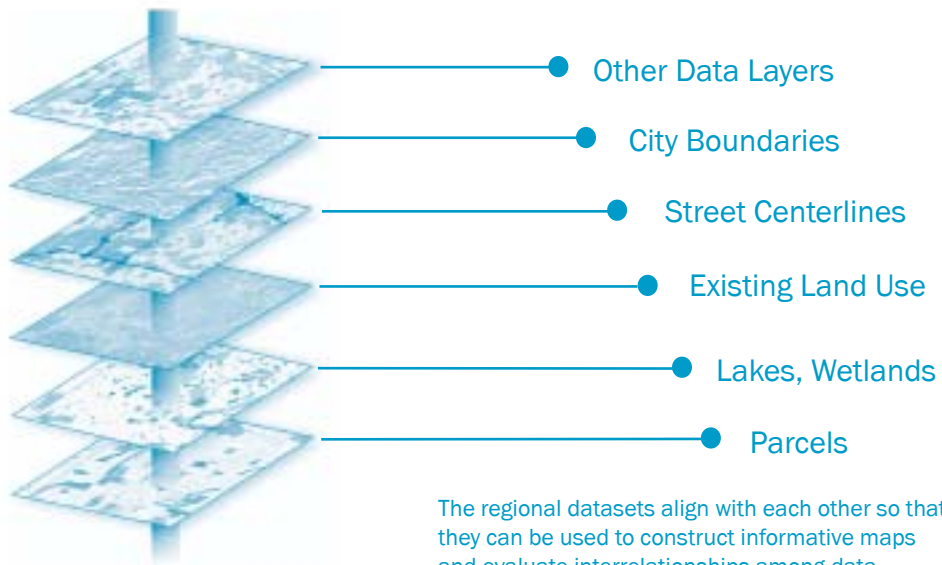MetroGIS Coordinating Committee Member

## The mission of MetroGIS

Provide an ongoing, stakeholder-governed, metro-wide mechanism through which participants easily and equitably share geographically referenced data that are accurate, current, secure, of common benefit and readily usable.

## MetroGIS: Sharing data, building trust

MetroGIS is a voluntary collaboration of government interests that serve the Twin Cities area. MetroGIS facilitates quick access to commonly needed data produced by a variety of local, regional, state and federal organizations, and assembly of local data into valuable and trusted regional datasets. To achieve this, MetroGIS stakeholders work together to create voluntary data standards that support data sharing.

By sharing data, organizations maximize the value of GIS and minimize the costs, especially where issues are complex or transcend jurisdictional boundaries. "Build once and share many times" is a motto reflecting the reality that because of MetroGIS, local and regional governments don't each need to build or assemble all their own data. Thus, the overall cost of government is reduced.

Data-sharing improves the quality of the data, as more users apply the data and provide feedback on discrepancies to producers. Regional datasets created with the cooperation of a variety of local data producers increase policy-makers' confidence in the data. Consequently, governments can focus on the decisions that need to be made rather than the accuracy and suitability of untested data.

Other Data Layers

City Boundaries

Street Centerlines

Existing Land Use

Lakes, Wetlands

Parcels

The regional datasets align with each other so that they can be used to construct informative maps and evaluate interrelationships among data.

## Meeting key business needs

Diverse MetroGIS stakeholders identify priority common information needs. In response, MetroGIS facilitates broadly supported policies and coordinates development, maintenance and distribution of regional datasets. Regional data solutions (covering the entire seven-county area) to 13 priority information needs thus far include:
◆ 1990 and 2000 census boundaries
◆ Land cover
◆ Municipal and county boundaries
◆ Parcels
◆ Planned land use
◆ Socioeconomic characteristics of areas
◆ Street addresses and locations (centerlines)

For example, each of the seven counties produces parcel data. The counties use different software, set up their parcel systems uniquely, and attach different attributes (i.e., supplementary information) to the parcel polygons (boundaries). Through MetroGIS, the parcel polygons, along with 55 commonly needed attributes, are assembled into one seven-county dataset structure that has uniform attributes in all counties. This significantly reduces the time and effort required by GIS users to acquire, reconcile and apply the data.

Another significant benefit of MetroGIS's efforts is that each of the regional datasets aligns with the others so they can be used immediately to evaluate interrelationships. For example, parcel data can be layered with other regional data–like land use, land cover and street addresses–to create complex maps and analyses with little data set-up time. In addition to the regional datasets already available, MetroGIS is developing several others. See **www.metrogis.org/data/index.shtml** for more information.

## Access data easily on Web-based DataFinder

Another significant achievement of MetroGIS is **www.datafinder.org,** an innovative web-based mechanism to expedite data discovery and distribution.

DataFinder includes a catalog that describes, in standardized format, a wide range of available geographic and associated attribute data about the region, some of which can be downloaded from the site. The data are easy to search for by theme, keyword or location. DataFinder is a node of the National Geospatial Data Clearinghouse, and shares standard theme names with the state and federal governments. Users may simultaneously search the Minnesota GeoGateway and other nodes of the clearinghouse.

Another DataFinder component, the Café, uses web mapping services to display and distribute geographically referenced data. The tool allows users to search for available geodata and view it online with or without GIS software. In addition, it allows users to:
◆ Define a geographic area of interest, large or small;
◆ Select the data themes and attributes they want; and
◆ Select the data format in which they want the data delivered, and download it.

DataFinder advances data sharing in the region and beyond by promoting and facilitating access to data from a wide range of data producers. It benefits data producers by minimizing their data distribution effort and expense.

## MetroGIS by the numbers

**500+** — People involved in MetroGIS through Policy Board, committees, forums, etc. since 1995.

**157** — Number of licensed users of the MetroGIS/TLG Street Centerline dataset.

**1,272** — Average monthly unique visits* to DataFinder **(datafinder.org)** website.

**634** — Average monthly downloads* from DataFinder.

**169** — Metadata records on DataFinder.

**6.5%** — Percent increase of metadata records from previous year.

**132** — Downloadable datasets on DataFinder.

**6%** — Percent increase in downloadable datasets from previous year.

**6,293** — Average monthly visits* to **metrogis.org** website.

**33%** — Percent increase in website visits from previous year.

**9 of 13** — Number of stakeholder priority business information needs addressed to date by MetroGIS-endorsed regional data solutions.

**25** — Organizations sharing custodial responsibilities for regional data solutions.

**9** — Standards, guidelines and best practices adopted by MetroGIS.

Potential uses of geospatial data. **infinite**

*October 2003 - September 2004

## Organization and funding

MetroGIS accomplishes its mission through a voluntary, unincorporated collaboration of diverse stakeholders, which has been organized as follows:

◆ A 12-member Policy Board reviews recommendations and sets policy for the organization. It approves agreements, commitments and budgets. The board comprises elected officials from local and regional government organizations that have endorsed and are participating in MetroGIS. The officials represent city, county, school, watershed, and regional interests.

◆ A 25-member Coordinating Committee provides a forum to discuss MetroGIS design, implementation and operations. It defines goals and issues for strategic issues teams, and makes recommendations to the Policy Board. Members come from federal, state, regional, county and municipal governments; school and watershed districts; nonprofit agencies; the private sector; and academic institutions.

◆ A Technical Advisory Team fosters knowledge sharing related to GIS technology in the MetroGIS community and reviews technical issues brought to it by the Coordinating Committee, MetroGIS work groups and MetroGIS staff.

◆ Special purpose work groups recommend technical and organizational strategies and mechanisms to address issues related to data access, content and standards.

◆ MetroGIS stakeholders meet periodically to undertake strategic planning, update the organization's business plan and address unresolved issues.

For more information on how you can get involved, check **www.metrogis.org,** or contact MetroGIS Coordinator Randall Johnson at **651-602-1638** or **randy.johnson@metc.state.mn.us**.

The Metropolitan Council has been the primary financial sponsor of MetroGIS, while other organizations have volunteered staff time, data and related resources to accomplish the ongoing work of the collaboration.



## Leading the nation

MetroGIS stands as a model for other regions. In 2002, the Urban and Regional Information Systems Association (URISA) recognized MetroGIS with its prestigious Exemplary Systems in Government Award for Enterprise Systems.

In making the award, the international professional organization noted that, "MetroGIS has brought many units of regional and local governments together in order to create a comprehensive geodata system and a collaborative environment for its members to communicate and benefit from one another. These efforts, and the wealth of datasets and ease of access from a web-based interface, make the system an exemplary one that others can learn from and replicate."

MetroGIS has also received awards from:
◆ The Minnesota Chapter of the American Planning Association
◆ The ESRI/National Geographic Society's Geography Network Challenge
◆ The Minnesota Governor's Council on Geographic Information

MetroGIS is regularly featured in national and international publications for its exceptional accomplishments in geospatial data collaboration. MetroGIS was a cover story for the magazine GeoWorld, and is featured in publications in the U.S., Japan and Australia about spatial information management and data-sharing. In 2004, MetroGIS was chosen by the Open Geospatial Consortium as its top U.S. example of local/regional data distribution architecture.

Many people involved in MetroGIS also participate with the Minnesota Governor's Council on Geographic Information and several national GIS data-sharing initiatives and organizations. This involvement deepens the region's knowledge pool and is helping to build larger networks of data-sharing to enhance the economic, environmental and social progress of the region, state and nation.

## Benefits are shared widely

The activities of

MetroGIS improve

government service

delivery at all levels.

Following is a sample of

organizational profiles that

demonstrate how MetroGIS-

coordinated data-sharing helps

governments save scarce resources,

improve communication with the public,

foster broader cooperation and ultimately,

make better decisions. For additional and

expanded testimonials, visit

http://www.metrogis.org/benefits/testimonials/index.shtml.

### Metropolitan Council

The Metropolitan Council coordinates planning in the Twin Cities area and operates regional services, including wastewater collection and treatment, transit, and housing assistance to low-income individuals and families.

### Primary uses of GIS

GIS is an integral tool for the Council's work, both in planning and operations. A small sample of Council GIS uses include:
- Working with local governments on development plans.
- Making more accurate growth forecasts.
- Planning additional wastewater collection capacity needs.
- Mapping transit routes.
- Siting affordable housing.
- Notifying the public about sewer construction projects, public meetings and other matters.

### Impact of MetroGIS

The Council's investment in MetroGIS is a big money-saver for the Council, according to Council GIS Manager Rick Gelbmann. For the Council to achieve the same level of data availability and quality without MetroGIS, it would be spending many times its current GIS budget, he said.

Over the nine years since the birth of MetroGIS, the credibility of the Council with local governments has increased greatly, for several reasons:
- MetroGIS regional data solutions allow for more accurate and sophisticated regional growth planning.
- The quality and quantity of mission-critical data available through MetroGIS makes it much easier for the Council to communicate with citizens, local communities and regional policy-makers.
- MetroGIS is highly participatory; local governments help set priorities, and develop standards and policies. They share ownership in the results.
- The Council's investment in MetroGIS generates good will from local governments, especially those that use street centerline, parcel and other regional datasets in their day-to-day operations.

An additional benefit of MetroGIS is DataFinder. It boosts Council productivity by easing data access and decreasing staff time spent helping GIS users across the region.

### Technology, Information and Education Services (K-12 Schools)

Technology, Information and Education Services (TIES) is a cooperative of 37 Minnesota school districts, most of which are located in the Twin Cities area. TIES offer products, services and training in five major areas: technical services, student information and administration, systems software support, transportation, and learning and technology.

### Primary uses of GIS

TIES provides GIS consulting and services to its member districts for a variety of purposes, such as:
◆ Plan future facility needs, including siting new schools.
◆ Alter school attendance boundaries.
◆ Analyze demographic trends.
◆ Map transportation routes.
◆ Communicate with the public.

### Impact of MetroGIS

"MetroGIS is a great investment for this region," said Dick Carlstrom, GIS consultant for TIES. MetroGIS makes it possible for schools to apply the tremendous advantages of GIS technology by providing free access to critical data that most districts could otherwise not afford. For example:

◆ As a result of declining enrollment, the Mounds View School District faced the closure of one to three schools starting in fall 2005. The district undertook a critical public information campaign to inform and involve parents and other district residents in the decision. TIES created a series of maps to illustrate the various school closure scenarios being considered by the school board. The maps, which used street address, parcel and other data furnished by MetroGIS, were posted on the district's web site and handed out at public meetings.

abc ①②③
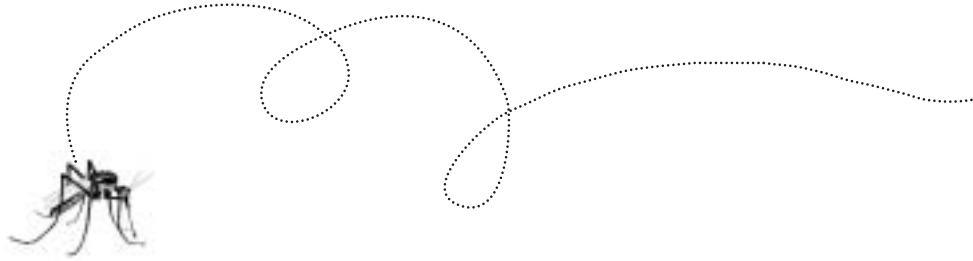
## Metropolitan Mosquito Control District

The mission of the Metropolitan Mosquito Control District is to promote health and well-being in the Twin Cities area by protecting the public from disease and annoyance caused by mosquitoes, black flies and ticks in an environmentally safe manner.

### Primary uses of GIS

The District uses GIS to generate maps for its 175 field inspectors, whose job is to locate and treat mosquito-producing areas. The maps contain orthophotos, street centerline, parcel, wetlands, woodlands, and street catch-basin data.

### Impact of MetroGIS

Data acquired through MetroGIS have dramatically reduced the time and cost to the District of making field maps. Prior to using GIS and MetroGIS data, staff spent thousands of hours each winter painstakingly updating the maps by hand, and would only finish about one-fifth of them each year. Now the district's entire set of maps can be updated in about one week's time.

The street centerline dataset available through MetroGIS has lowered costs and greatly increased the accuracy of the field maps. Another big time-saver is the regional parcel dataset. Before MetroGIS made it available, District Technical Services Leader Nancy Read spent weeks acquiring and reconciling parcel data from each of the seven counties. Now she can simply download what she needs from DataFinder. The parcel dataset is an important tool for quick identification and notification of homeowners at risk when a resident has been diagnosed with mosquito-borne LaCrosse encephalitis.  The parcels and streets are also essential for the District's response to West Nile virus, providing a base for mapping street catch-basins that could hold water and harbor larvae of the mosquito vectors of this disease.
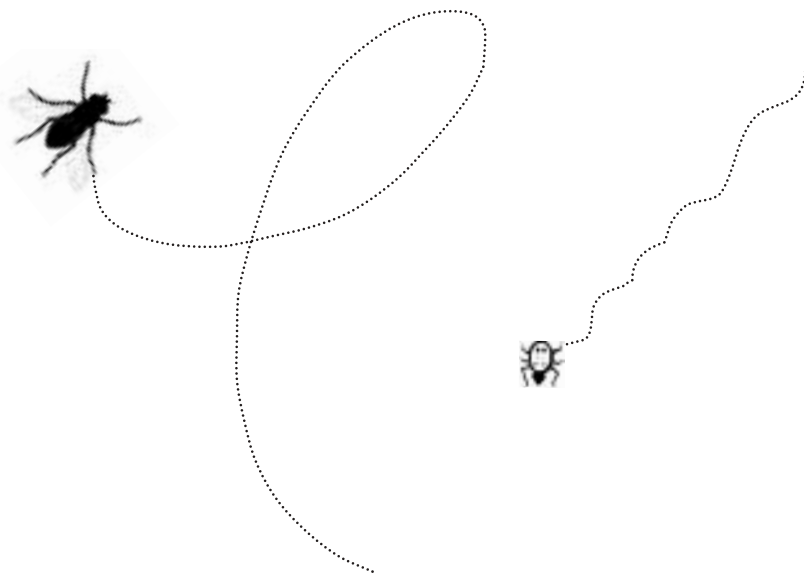
## SRF Consulting Group

Private companies working for the public sector pass along the benefits of MetroGIS to their clients. One example is SRF Consulting Group, of Plymouth, which provides planning, design and in-construction services for government clients.

### Primary uses of GIS

All projects within the seven-county Twin Cities metropolitan area undertaken by SRF employ a variety of geospatial data made available through MetroGIS. These data are incorporated into a variety of maps and figures to convey pertinent information and concepts in reports, presentations and open-house materials. Datasets frequently used in SRF projects include street centerlines, transit routes, parcels, planned land use, orthophotos, soils, land cover and others.

### Impact of MetroGIS

SRF Consulting Group often undertakes complex studies involving multiple jurisdictions. MetroGIS DataFinder and the Data Café data distribution tool quickly and nearly effortlessly provided SRF with accurate, up-to-date and seamless data covering the multiple jurisdictions. "GIS and MetroGIS data is the quickest, most effective and least expensive technique to produce the highest quality analysis," according to Bob Diedrich, Senior GIS Specialist with SRF.

In particular, the 2020 Planned Land Use dataset has "revolutionized our planning practices," said Diedrich. "This data saved considerable time and effort in identifying and analyzing future development patterns during a recent river crossing study. Before this data became available, we used paper maps for future land use patterns. We saved our government clients many dollars throughout the project, not to mention that the foundation of the analysis is more reliable and accurate."

## Riley-Purgatory-Bluff Creek Watershed District

The Riley-Purgatory-Bluff Creek Watershed District is responsible for water resources planning and protection in a 46-square-mile area located largely in the communities of Minnetonka, Chanhassen and Eden Prairie.

### Primary uses of GIS

Geospatial data are critical for a great deal of the district's work, which includes erosion control permitting, flood prevention, and water quality monitoring and prediction. Among the data used by the district are parcels, planned land use, orthophotos, soils and land cover. For example, the MetroGIS planned land use dataset is used in computer models that can help predict the quantity and quality of surface-water flows in 2020.

### Impact of MetroGIS

Regional datasets available through MetroGIS "save our government clients time and money because we don't have to generate or search out the data," explains Tim Anderson, a GIS Specialist with Barr Engineering, a consulting firm that works with watershed districts. "DataFinder makes getting the data really quick and easy."