

MetroGIS: A Regional Collaborative of Local Governments pulling together for Spatial Data Management

Joe Francica, Wednesday, January 22nd 2003
Directions Magazine (www.directionsmag.com)

Summary: *Directions Magazine caught up with Randy Johnson at URISA this past year and he talked about the success of MetroGIS, which won the Exemplary Systems in Government award. Mr. Johnson is the Staff Coordinator for this collaborative that shares spatial technology resources in the Minneapolis-St. Paul region. Read this article to find out how one region of local governments is finding innovative ways to spread costs.*

DM: What factors, political or managerial, prompted you to consider bringing together a group of local governments to participate in a technology consortium?

Randy Johnson (RJ): Minnesota organizations have a long tradition, dating back to the 1960s, of cooperative development and use of GIS technology to address issues that significantly affect quality of life. This legacy aligned with two other key factors in the early 1990s to create a rich environment for the development of an ambitious regional geodata system collaborative now known as MetroGIS.

The first of these factors was a large drop in GIS-related hardware and software costs that occurred in the early 1990s when PC-based GIS emerged. Consequently, a number of local governments began to explore the benefits of GIS technology. State and regional government and six of the seven counties that comprise the Minneapolis-St. Paul metropolitan area had already made considerable investments. The result was a plethora of conflicting data access policies, inconsistent and time-consuming licensing requirements, and duplication of data development efforts. Where data documentation existed, it varied significantly in quality and format. Small pockets of collaboration began to emerge as the GIS community became increasingly aware of the duplication of effort and expense that was occurring.

The second of the initiating factors came in 1994 when the Metropolitan Council, a regional planning and service agency, recognized that it had a compelling business need for parcel-level data produced by others to accomplish its responsibilities. The Council also recognized the need to explore collaboration on a regional scale and, as such, accepted a leadership role and rose to the challenge of providing the primary financial sponsorship for the initiative. In

In August 1995, the Council hired me to pursue the relationships necessary to acquire the data it needed from others (cost recover for development expenses were the norm even for government to government transactions) and to do what I could to investigate the concept of pursuing a regional GIS. I had been a city planner for 20 years and had just completed overseeing implementation of a modest project-level GIS (the city was still using a DEC mini system for word processing). GIS brought the city its first PC and the beginning of having to deal with a whole host of standards, data acquisition, and technology cost-benefit issues.

In October 1995, I began what has become known as MetroGIS with two informational forums co-hosted by the Council and the Minnesota Land Management Information Center (LMIC) to answer two questions: a) Should a regional GIS initiative be pursued? and b) Would the community participate if the Council provided financing and staff support? The response was strongly in favor on both counts. In December 1995, a strategic planning forum was held, which officially launched the regional GIS initiative.

DM: What obstacles, if any, did you face in promoting the technology in order to receive funding for the consortium? How is funding managed today?

RJ: Obstacles/funding: The Metropolitan Council has from the beginning served as the primary sponsor for MetroGIS; providing the staffing and project funding which in amounts to over 3 million dollars thus far. The Council is a regional government with responsibilities for growth management planning, operation of the regional transit; parks and wastewater treatment systems, as well as the regional housing authority. The Council has taxing authority and a controversial authority to approve local government comprehensive plans. A core corporate objective of the Council is to foster collaborative solutions to regional problems/issues. MetroGIS was designed from the outset to provide a collaborative forum - all relevant and effected interested dominated by none - to improve government efficiency through collaborative use of the GIS technology and structured data sharing.

It is important to note that the \$3 million in Council resources that have been allocated to MetroGIS have been solely to support activities that foster collaboration. Data development is not included. MetroGIS relies entirely upon its stakeholders for data development. In 1998, MetroGIS received a \$100,000 NSDI Framework Grant to define a Fair Share Financial Model and Appropriate Organizational Structure for MetroGIS. After 14 months of study and dialogue, the MetroGIS Policy Board found that achieving MetroGIS's vision would definitely be in the public interest, but it also found that it was not feasible at that time or in the foreseeable future to implement a collaborative funding model based upon contributions from organizations receiving benefit from MetroGIS. The Metropolitan Council agreed to continue its role as primary sponsor of MetroGIS through 2003, with the understanding that the concept of a fair-share contribution model would be revisited for the 2004 budget. In October 2002, MetroGIS adopted its 2003-2005 Business Plan, which assumes that the Council will continue to serve as the primary sponsor. MetroGIS's 2004 budget request (3.25 FTE and \$85,000 in associated project funding) will be considered by the Metropolitan Council Spring 2003.

As additional background information, for the most part, the problems faced by MetroGIS of the most substance have been organizational in nature. Once the organizational differences have been resolved the technical solutions have emerged. Initially, differences in GIS program maturity and level of investment between the seven counties were an obstacle to achieving MetroGIS's vision. The MetroGIS Interim GIS Data and Cost Sharing Agreement initiative was implemented to address these inconsistencies.

An ongoing topic of discussion for some of the organizations with a long-standing GIS presence in this area is MetroGIS's unconventional organizational structure and the amount of meetings, particularly in the early phases, held to collectively define solutions to common geodata needs and opportunities. Some would prefer to "just do it," but the majority have sided with the need to maintain a trusted, effective organizational structure capable of engaging all essential and affected interests, dominated by none. Significant effort has gone into evaluating organizational structure options and on two occasions the MetroGIS Policy Board has agreed that the current ad-hoc structure, with unprecedented active involvement of elected officials, is the most appropriate to achieve the vision.

Data access policies and procedures, and the time and effort required to participate in the forums and meetings, continue to receive attention. Significant progress has been made to streamline licensing procedures for parcel data. The Policy Advisory Team was dissolved in July 2001, reducing the number of meetings for the team members. The perception by some of a hidden agenda" on the part of the Metropolitan Council remains a concern, and efforts have and continue to be made to address it.

DM: What GIS systems are in place and how difficult is it to share data?

RJ: MetroGIS can not own data or equipment, hire staff, receive or expend funds on its own as it does not have legal standing. Its purpose is to provide a trusted forum through which its core stakeholders (local and regional government that serve the seven county Minneapolis St. Paul Metropolitan Area) can identify common geodata needs and agree upon collaborative voluntary solutions to those needs. All solutions are hardware and software

neutral. Interoperability is a primary objective. Many institutional and technical obstacles have been addressed to achieve the data sharing that is currently occurring. For instance:

1. Thirteen common business information needs have been identified and six solutions (regionally endorsed datasets) have been implemented. The native format for the primary data that are assembled into the regional solutions are generally produced with ESRI and Intergraph software.

2. Data sharing is occurring informally as it has for some time but it is now also occurring at a relatively robust rate via the centralized one-stop shop MetroGIS DataFinder (www.datafinder.org), averaging nearly 1000 download sessions per month. This rate of use is expected to increase sharply now that regionally endorsed datasets can be subset (cookie cut) for user specified areas of geographic interest via our state-of-the-art Internet based geodata download application called DataFinder Cafe, one of three components of DataFinder, and because WMS technology is embedded into Cafe's design. The use of WMS technology will eventually allow users of any software format to download needed data in a form that is readily useable.

DM: Do you, as a consortium, monitor data standards, such as those developed by the OGC and others, in order to promote interoperability among disparate GIS systems in place at each municipality in MetroGIS or within the state of Minnesota?

RJ: Yes. As noted above, interoperability is a key objective of MetroGIS. Endorsed regional datasets, which align with one another and are generally aggregations of data produced by multiple local units of government, and DataFinder are the main methods to achieve this goal. For instance, DataFinder incorporates leading edge WMS standards (some to employ WFS) and is a node of the National Spatial Data Clearinghouse, which is driven by standardized FGDC compliant metadata. We have also endorsed and incorporated into DataFinder, ISO's 19 Thematic Categories. The security module that is integral to DataFinder Cafe has been submitted to OGC for endorsement as a standard protocol by Syncline who developed it for us and who is active in the OGC community.

DM: Can you describe the "day to day" applications for which you use the technology to inform the public or other city officials?

RJ: Not in specific terms. MetroGIS's stakeholder community - 7 counties, 191 cities, 59 school districts, 39 watershed districts, and several regional government interests - have collectively defined, via MetroGIS, their common information needs. MetroGIS then provides the forum to implement consensus-based policies and procedures, data characteristics needed to achieve the common information, and a central portal for access. The uses of the actual data by the core stakeholders could be in the 1000's. The Policy Board's next frontier is to seek collaborative solutions for commonly needed geo-applications that would run on top of endorsed regional datasets. A pilot project is tentatively scheduled to begin next month to identify and implement a few locally desired emergency preparedness related geodata applications that would also be relevant to the federal HSIP initiative.

MetroGIS's primary sponsor, the Metropolitan Council, is a major beneficiary of the community's collaborative geodata accomplishments, using the data to support its transit, growth management, wastewater treatment, and other business functions. The Council is now getting the data it needs from others for less cost and it takes less time to put the data to use once received due the implementation of regional data solutions for common information needs. Therefore, the Council has and hopefully will continue to be willing to finance the costs to maintain the collaborative structure fundamental to MetroGIS's success. The Council also supports MetroGIS because the collaboration has improved its relationship with many of the 191 cities in metropolitan area. In the past, there was more tension between the Council, with its growth management regulatory authority, and cities that want to determine how they should grow without interference from the Council and its responsibilities for maintaining the integrity of regional systems - aviation, land transportation, parks, and wastewater treatment. The Council involvement with MetroGIS has demonstrated that it can be a true partner to resolving regional needs, in turn, generating goodwill for the organization.

Additionally, several state and federal agencies, academic institutions, non-profits and for-profits are benefiting from MetroGIS's efforts to develop regional data solutions to common information needs and to distribute most of the resulting datasets without fee or licensure to anyone seeking access. Through MetroGIS's efforts, state and federal agencies and academic interests are now treated the same as local government interests concerning data that have access restrictions; no fees are required but licensure procedures must be satisfied. Data distribution is Internet-based and automated via MetroGIS's state-of-the-art data distribution mechanism. Agreements are in place that authorize the designated regional custodian organizations to assemble data provided by disparate primary producers, assemble the parts (not integrate) into the regional dataset, and distribute the regional dataset to the community.

Stakeholders (and others) are also using MetroGIS's general information web site to learn of endorsed best practices, regional data solutions, current and past projects, accomplishments, participants, lessons learned and tips for success, etc. This site is receiving an average of 3000 sessions/month with 6000 in October 2002.

DM: What costs are shared, if any, among the consortium members?

RJ: MetroGIS's philosophy is that its stakeholder organizations can bring data, people, equipment, and/or funds to the collaborative solution of common geodata needs. Dedicated staff and project funding to support fostering of collaborative activities is provided by the Metropolitan Council, as noted above, but the collaborative could not effectively function unless there is active participation in the deliberations by all of the key stakeholders, which is occurring.

For clarification, the term "members" does not apply to MetroGIS. Policies are adopted through a consensus-based representative process. Once the policies are in place all interests may participate or take advantage of them whether or not they are currently active. As noted above, there are no membership fees.

DM: Does the consortium maintain a budget and for what purpose is it used? Or, does each municipality pay into a fund to support a consortium management team?

RJ: A point of clarification: MetroGIS's core stakeholders include all forms of local government, as well as, a several regional government interests (around 300 in total). State and federal interests, although not core, are also actively involved, as are utilities, non-profits, and for-profits. To your specific question: No, each participant does not pay to fund the consortium (MetroGIS) operations. See the discussion above related to the Metropolitan Council's primary sponsorship of MetroGIS.

DM: What is the prevailing policy among the consortium members for "cost recovery" of data for sale to the public? Or, is the data free to public and private entities?

RJ: MetroGIS's primary focus is on the common information needs of its community (local and regional government interests that serve this seven county metropolitan region). State statute permits cost recovery for data development as well as for reproduction and distribution. The latter has never raised any concerns and as we have been moving to Internet distribution, these fees have been disappearing.

Recovery of data development expenses is a long standing practice for county government for their parcel, contour and planimetric data (the latter two are not currently among the common information needs of the entire MetroGIS community and therefore I have little knowledge of their individual policies). However, the counties have agreed to make their parcel data available to government and academic users that serve the metro area free of charge, subject to execution of a license that prohibits redistribution. The Metropolitan Council has decided to make its geodata available free without licensee to anyone who wishes access with the exception of orthoimagery which is available free of charge to only to government free of charge.

Via the MetroGIS forum, the counties are currently evaluating the appropriateness of their current parcel data related fee structure for non-government interests. In the past two years significant progress has been made to standardize their licensing processes and their fee structures. Two years ago, private interests would have paid over \$450,000 for parcel data for the entire seven county area; not surprisingly little was sold. Today, the fee would be about \$48,000 and still few purchases, so the counties are again reviewing their fees.

With the exception of a proprietary addressable street centerline Dataset, all other regionally endorsed datasets and upwards of 90 other datasets pertaining to this region are available free of charge, without licensure, via MetroGIS DataFinder (<http://www.datafinder.org>).

DM: What municipal departments are most active in using GIS technology and how are you promoting the need to share resources among "like" departments in adjoining municipalities?

RJ: Again as a point of clarification, MetroGIS's focus is not solely on municipalities, as point of fact, the major beneficiaries from a data user perspective are those which have jurisdictions crossing multiple counties (school districts, watershed districts and regional governments). Data producers are also benefiting from the ability to post their data on the robust DataFinder tool - avoiding the need to build a tool of their own and by reducing the amount of manual time spent to respond to data requests.

In addition, when MetroGIS hosts forums to define desired characteristics of data to address the community's common information needs or to identify enhancements to solutions that are in place, we strive to bring a diverse mix of professional perspectives. Community development; public works; public safety; natural resources; human resources and education; transportation and communication are present, which also represent all of the MetroGIS's core governmental perspectives (city, county, watershed, school district, and regional) as well as state and federal interests.

These forums have resulted in improved informal working relationships that build trust and understanding. Understanding of the needs of others and their perspectives results in more cooperation and an ever broadening sphere of cooperation that started with 20 visionaries in 1995 that were willing to champion the collaborative cause within their respective spheres of influence.

In addition to the forums mentioned above, we produce an annual report that is mailed to over 4000 individuals and targeted at the chief elected and chief administrative officials for each of the 300+ local and regional organizations that are MetroGIS's core focus. We also make a point of presenting at a variety of state and regional professional conferences to summarize the benefits of participation.

DM: On a daily basis, what takes most of your time?

RJ: In general terms, facilitating and fostering collaboration to address desired improvements to DataFinder and implement regional solutions to the community's common information needs. More specifically, major consumers of my time include:

- Planning/overseeing strategies for forums and special projects to continually broaden understanding and support for MetroGIS's objectives,
- Preparation for Policy Board, committee and workgroup meetings
- communicate with the chairs to insure the topics are what they want to talk about, preparing staff memos for each topic (frame the problem/opportunity, state the action requested, identify pros and cons of options and offer proposed recommended courses of action).
- Documenting projects/activities - final reports, meeting summaries, updating the web site
- Communication with key interests beyond the region regarding related geodata initiatives

- I-Teams, GeoSpatial One Stop, The National Map, Minnesota Governor's Council on Geographic Information activities, and attempt to connect with other collaborative participants that are engaged in similar area aggregation activities, which was my primary reason for responding to your questions.

DM: What are your long-range goals for deploying this technology in helping the consortium to be a better-managed region?

RJ: The ultimate goals of MetroGIS are:

- 1) Institutionalize geodata collaboration among government interests that serve the Metro Area
- 2) Measurably improve government effectiveness to:
 - a) Achieve livable community goals,
 - b) Enhance their residents quality of life, and
 - c) Improve their economic competitiveness

As noted above, our next frontier is to provide leadership to address common application needs of the core stakeholder community related to the community's priority information needs for which regionally endorsed datasets are in place.