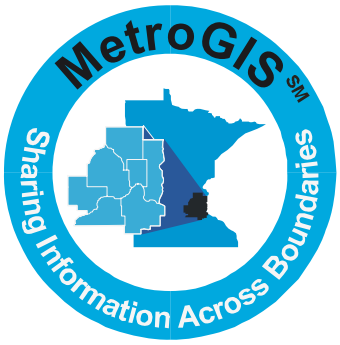

MetroGIS 2008 – 2011 Business Plan

October 17, 2007

(Succeeds 2003-2005 Business Plan Adopted on April 22, 2002)

Prepared by MetroGIS Staff Support Team with oversight and guidance from the MetroGIS Business Planning Oversight Team

Policy Board Action

(*October 17, 2007*)

Excerpt from meeting summary

6a) 2008-2011 MetroGIS Business Plan – Final Adoption

Business Planning Oversight Team Chairperson Read introduced the topic to the Board members. She recapped direction provided by the Policy Board at the April and July meetings including the vision and mission statements, guiding principals, core functions, preferences for expanding the scope of MetroGIS's functions, major activity areas for the next 3-5 years and a summary of the milestones in the Plan development process that began with the February 8, 2007 Strategic Directions Workshop.

Mission Statement Modification: Read then explained that the Coordinating Committee, in the course of refining the proposed strategies, recognized the need to modify the mission statement (drop the word "technology" following geographic information and drop capitalization of Metropolitan Area). Chairperson Reinhardt called for comment from the members. None was received.

Motion: Member Schneider moved and Member Pistilli seconded to approve the revised mission statement. Motion carried, ayes all.

Outreach Strategy Modification: Read then explained the Committee believes that outreach to increase awareness of services available through MetroGIS's efforts should be a priority activity but is concerned that this proposal not be found to be inconsistent with the Board's preference to postpone adding a marketing component to the Outreach Plan.

Member Schneider suggested that the program object be renamed "outreach and identification of opportunities" to address the Committee's concern.

Motion: Member Schneider moved and Member Egan seconded to remain the outreach program objective to include the language "and identification of opportunities". Motion carried, ayes all.

Operational Plan Components: Read then summarized the two priority next steps presented in the Operational Plan chapter of the Business Plan: define MetroGIS's role related to addressing shared application needs and a plan to secure additional technical leadership resources needed to achieve the scope expansions defined in the new Business Plan. Both recommendations are to be submitted to the Policy Board for consideration at the April 2008 Policy Board meeting. No modifications were offered to the proposed next steps.

There was not further discussion of the Business Plan other to recognize the Business Planning Oversight Team and staff for their considerable effort to capture the many ideas offered and effectively and efficiently work through differences.

(*Editor's Note: Agenda Items 5a and 5b were considered as if a single agenda topic. See Item 5b for the motions pertaining to both items*.)

b) 2008 Work Plan and Revised Budget Proposal

Coordinating Committee Chairperson Brown summarized the process by which the proposed 2008 program objectives were identified and proposed budget to support the proposed work objectives, as presented in the agenda report.

Chairperson Reinhardt recognized that the proposed work program as aggressive but necessary to maintain relevance with changing stakeholder needs. She also thanked the Business Planning Oversight Team, Coordinating Committee and staff for their considerable effort to maintain MetroGIS's relevance.

Motion: (*Editor's Note: Includes Agenda Items 5a)*

Member Egan moved and Member Schneider seconded to:

1. Adopt the 2008-2011 MetroGIS Business Plan, dated October 17, 2007, including the above-approved modifications.
2. Adopt the 2008 major work program priorities and 2008 expense budget for MetroGIS's "Foster Collaboration" function, as presented in the agenda report dated October 2, 2007. Motion carried, ayes all.

Motion carried ayes all.

Motion:
Member Pistilli moved and Member Egan second to:
1. Authorize a Request for Proposals for expert assistance to assist with hosting a forum through which to define MetroGIS's role related to addressing shared application needs and authorize up to $8,750 for this contract.
2. Authorize staff and leadership to make presentations to organizations that serve custodial roles to ensure they are comfortable with the expectations outlined in the 2008-2011 Business Plan.

Motion carried ayes all.

ACKNOWLEDGEMENTS

MetroGIS Policy Board
Commissioner Victoria Reinhardt, Chair, Ramsey County
Commissioner Jim Kordiak, Vice Chair, Anoka County
Commissioner Tom Workman, Carver County
Commissioner Tom Egan, Dakota County
Commissioner Randy Johnson, Hennepin County / Alternate Scott Simmer
Commissioner Joseph Wagner, Scott County
Commissioner Dennis Hegberg / Alternate Deputy Administrator Molly O'Rourke, Washington County
Councilmember Tony Pistilli, Metropolitan Council
Councilmember Terry Schneider, Association of Metropolitan Municipalities – Suburban Cities (Minnetonka)
Board member Roger Lake, Metro Chapter of MN Association of Watershed Districts
Board member Dan Cook, Technology Education Information Services (TIES)

MetroGIS Coordinating Committee
William Brown, Chair, Hennepin County (Alternate - Scott Simmer)
Ned Phillips, Rice Creek Watershed District (Vice Chairperson)
David Arbeit, MN Land Management Information Center
David Bitner, Metropolitan Airports Commission
Harold Busch, Association of Metropolitan Municipalities – City of Bloomington
Dick Carlstrom, Technology Education Information Services (TIES)
Gordon Chinander, Metropolitan Emergency Services Board
David Claypool, Ramsey County
William Craig, University of Minnesota – Center for Urban and Regional Affairs
Dave Drealan, Carver County
Jim Engfer, Association of Metropolitan Municipalities – City of St. Paul (Alternate - Steve Lorbach)
Rick Gelbmann, Metropolitan Council
Joella Givens, Minnesota Department of Transportation
Patrick Hamilton, CB Richard Ellis
Jane Harper, Washington County
Brad Henry, URS Corporation.
Jim Hentges, Scott County (Alternate. Jim Bunning)
Randy Knippel, Dakota County
Tim Loesch, Minnesota Department of Natural Resources
Allan Radke, Xcel Energy
Nancy Read, Metropolitan Mosquito Control District
Terese Rowekamp, Rowekamp Associates
John Slusarczyk, Anoka County
Mark Vander Schaaf, Metropolitan Council
Sally Wakefield, 1000 Friends of Minnesota
Ronald Wencl, United States Geological Survey

MetroGIS Business Planning Oversight Team (All Coordinating Committee Members)
Nancy Read, Metropolitan Mosquito Control District (Team Chairperson)
Randy Knippel, Dakota County (Team Vice Chairperson)
William Brown, Hennepin County (Chairperson, MetroGIS Coordinating Committee)
Rick Gelbmann, Metropolitan Council
Jane Harper, Washington County
Mark Vander Schaaf, Metropolitan Council
David Arbeit, Liaison with Strategic Planning Committee, Governor's Council on Geographic Information

Staff Support Team
Randall Johnson, MetroGIS Staff Coordinator (Project Manager)
Jonathan Blake and Trudy Richter, Richardson Richter & Associates, Inc.
John Bryson, University of Minnesota Hubert H. Humphrey Institute
Christopher Kline, Metropolitan Council, MetroGIS Administrative Technician
Tess Galati, Practical Communications, Inc.

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1
Business Plan Developent Overview 1
Major Challenges: 2008 and Beyond 1
Activity Areas and Strategies 2
Priorities: Next Steps 2
Conclusion 2

INTRODUCTION 3
What is Geographic Information? 3
What is Geographic Information System (GIS) Technology 3
What is the Value Using GIS Technology Collaboratively? 3
How is MetroGIS Making a Difference and Create Public Value? 4
Why a New Business Plan? 5
Why a 2008 to 2011 Time Frame? 5
What is the MetroGIS Business Planning Process and Philosophies? 5
What has MetroGIS Accomplished? 6
What Can MetroGIS Expect in the Future? 8

CHAPTER 1: POLICY FOUNDATION AND ORGANIZATIONAL STRUCTURE 9
MetroGIS Vision 9
MetroGIS Mission 9
Guideline Principles: The MetroGIS Operating Framework 10
Stakeholders, Customers and Contributing Participants 11
Primary MetroGIS Sponsor: Metropolitan Council 13
Organizational Structure 14
Organizational Support for Fostering Collaboration 15
Organizational Support for Creating Regional Solutions and Providing Access 16

CHAPTER 2: POLICY FOUNDATION 18
Responding to Shared Geogrphic Information Needs 18
Next-Generation Regional Solutions 19
Interoperability: Standards and Best Practices 20
Data Sharing: Access Agreements 20
DataFinder: Internet-Based Tool for Information Discovery and Access 21
Knowledge Sharing 23
Advocacy and Awarenesss 24
Performance Measuement 25

CHAPTER 3: CHALLENGES, STARATEGIES AND TACTICS 26
The Eight Major Activity Areas 26
I. Develop and Maintain Data Regional Solutions to Address Shared Information Needs 27
II. Expand Endorsed Regional Solutions to Include and Support and Development of Application Services 31
III. Facilitate Better Data Sharing by Improving Processes, Making More Data Available and Enlisting More Users 33
IV. Promote a Forum for Knowledge Sharing 38
V. Build Advocacy and Awareness of the Benefits of Collabortative Soltions to Shared Needs 40
VI. Expand MetroGIS Stakeholders 43
VII. Maintain Funding Policies That Make the Most Efficient and Effective Use of Available Resources and Revenues for System-Wide Benefit 45
VIII. Optimize MettoGIS Goverance and Organizational Structure 47

CHAPTER 4: OPERATIONAL PLAN 50
General Assumptions 50
Work Program Objectives 51
Conclusions and Next Steps 57

LIST OF FIGURES

Figure 1. Chronology of Major Accomplishments 7
Figure 2. Fostering Inter Organizational/Sector Collaboration 12
Figure 3. Components of Information 19
Figure 4. Data Sharing Activity Attributed to MetroGIS's Efforts 22

LIST OF TABLES

Table 1. Roles Affiliated with MetroGIS's Efforts 14
Table 2. Support in Fostering Collaborative Functions 16
Table 3. Priority Tactics to Achieve Defined Outcomes 52
Table 4. Current Support Expense for Foster Collaboration Function 56
Table 5. Add Supplemental Technical Leadership – Anticipated Maximum Expense 57

GLOSSARY 58

APPENDICES 62

A. "Concept Map" of Desired Policy Direction 62
B. Major Awards and Recognitions 64
C. Partnerships - Custodial Roles 65
D. MetroGIS Decision Making Process and Supporting Philosophy 67
E. Summary of Past Funding for "Fostering Collaboration" Function 71
F. Major Tasks and Reporting Responsibilities for Dedicated MetroGIS Staff 72
G. Status – Solutions to Priority Shared Information Needs 75
H. Core and Distinctive Organizational Competencies 76
I. Public-Private Partnership Opportunities: Beyond Government Users Partnerships Opportunities 77
J. Strategic Triangle – Requirements for a Sustainable Public Program 81
K. Summary of Work Programming Preferences (2008 and 2009) 84
L. Summary of February 8, 2007 Strategic Directions Workshop – *link only* 88
M. Executive summary for the June 1, 2006 Imagining Possibilities Forum – *link only* 88
N. Summary of the 2005-2006 Non-Government Partnership Investigation – *link only* 88

EXECUTIVE SUMMARY

MetroGIS, established in 1995, is an award-winning organization that serves the needs for geospatial information in the Twin Cities metropolitan region of Minnesota. The mission of MetroGIS is to "expand stakeholders' capacity to address shared geographic information technology needs through a collaboration of organizations that serve the Twin Cities metropolitan area." Relying entirely upon voluntary participation, MetroGIS realizes this mission by:

- Identifying and defining shared geospatial information needs
- Implementing collaborative regional solutions to address shared needs involving geospatial data, applications, standards and best practices
- Fostering widespread access and sharing of geospatial data, principally via its DataFinder.org website
- Fostering recognition of the value of geographic information system (GIS) technology as a core business tool
- Facilitating knowledge sharing relevant to the advancement of GIS technology

The collaborative efforts of MetroGIS enable users to more readily access and analyze geospatial data. These analyses are used by every public and private organization needing to understand relationships among such factors as employment pools, job opportunities, census data, land use patterns and transportation access. MetroGIS, therefore, benefits local, regional, statewide and federal government agencies; academic institutions and nonprofit organizations; utilities and private sector business interests. Because these entities are producers as well as users of geospatial information, they are natural collaborators in supporting the MetroGIS effort and participating in its evolution.

Over the past ten years, MetroGIS has served its stakeholders by:

- Reducing redundancies of effort to discover and access existing geospatial data
- Providing a forum for knowledge sharing
- Enhancing its stakeholders' capacities to improve service delivery through the use of geospatial data and technologies

Business Plan Development Overview

Development of the current business plan began on February 8, 2007, when 32 key stakeholders, representing a diverse range of organizations and areas of expertise within the MetroGIS stakeholder community, participated in an all-day workshop. The goal of the workshop was to provide policy direction to guide MetroGIS operations for the next three to five years. These leaders collectively identified emerging opportunities and agreed on key desired outcomes, guiding principles and high-level strategies. In an ongoing process of self-evaluation, stakeholders concurred that the direction and activities which have evolved over the past several years do result in substantive public value and should therefore continue into the future. They also agreed that, as opportunities emerge, MetroGIS must be prepared to direct its collaborative community to appropriate outcomes. This 2008-2011 MetroGIS Business Plan was developed to define actions needed to achieve the desired outcomes identified at the February workshop.

Major Challenges: 2008 and Beyond

MetroGIS leaders concurred that MetroGIS must address three new areas to ensure continued relevance to changing stakeholder needs:

- Expand solutions to shared geographic information needs beyond data-centric solutions to include applications and, if necessary, related infrastructure.
- When appropriate and on a project-by-project basis, seek ways to improve interoperability of geospatial resources with the jurisdictions that adjoin the Twin Cities metropolitan area.
- Seek opportunities to partner with more non-government interests to collaboratively address information needs they share with government interests.

These areas represent an expansion of the previous scope of MetroGIS. In the past, the organization's efforts have been limited to the data component of information needs. Its extent has been limited to governmental organizations. There has been no attempt, to date, to work directly with adjoining

jurisdictions to improve data interoperability. The expansions in scope envisioned in this business plan will have limited impact unless the accomplishments achieved by MetroGIS thus far are carefully maintained.

Activity Areas and Strategies
In expanding the scope of MetroGIS, this Plan recommends strategies and actions that respond to identified challenges. These actions are organized into eight major areas that align with eight specific outcomes. The actions and outcomes serve as the foundation for annual work programming to ensure that MetroGIS's key objectives are achieved. The activity areas are:

1. Develop and maintain regional data solutions to address shared information needs.
2. Expand regional solutions to include support and development of application services.
3. Facilitate better data sharing.
4. Promote a forum for knowledge sharing.
5. Build advocacy and awareness.
6. Expand MetroGIS stakeholders.
7. Maintain funding policies that make the most efficient and effective use of available resources and revenue for system-wide benefit.
8. Optimize MetroGIS governance and organizational structure.

Priorities: Next Steps
The most critical need for MetroGIS, in 2008 and beyond, is the development and support of applications necessary to more fully address shared information needs. Addressing this challenge will involve additional resources in the areas of technical leadership and stakeholder cooperation.
Immediate actions needed include:

- Sustaining past accomplishments, including engaged policy makers, participation in decision-making processes of knowledgeable and respected individuals representative of the stakeholder community, implemented regional solutions to shared information needs, DataFinder, performance measurement program, outreach, documentation of benefits to stakeholders from MetroGIS efforts, and a comprehensive and Internet-based institutional memory
- Defining the role of MetroGIS in application development and support and pursuing projects consistent with that role
- Securing additional technical leadership and support needed to address the changing needs of MetroGIS stakeholders

Conclusion
While MetroGIS has focused on building datasets and making information more easily accessible, its future lies in taking collaborative efforts to the next level so as to expand capacity among its stakeholders to leverage the benefits of utilizing GIS technology. This expansion of its role has implications for technical leadership and shared applications.

The maturation of MetroGIS as an organization is reflected in the new vision and mission statements that will guide its efforts into the future. The previous mission statement focused on improving access to "accurate, current, secure, of common benefit and readily usable data." The new statement recognizes MetroGIS's longstanding higher order role as that of facilitating capacity building in the evolving world of geographic information systems. It affirms that MetroGIS will "*expand stakeholders' capacity to address shared geographic information technology needs through a collaboration of organizations that serve the Twin Cities metropolitan area."*

INTRODUCTION

What is Geographic Information?

Geospatial, or geographic, information describes or relates to objects and intentions[1] that can be mapped. This includes objects and intentions that have a location on, above, or beneath the earth's surface. Most human activity depends upon geospatial information – on knowing where people, places, and things are located and understanding how they relate to one another--or simply finding our way across town. Geospatial information plays an increasingly important role in the daily routines of people and organizations throughout the world.[2] It is fundamental to carrying out numerous critical business functions, including making decisions on social or environmental issues, running elections and responding to emergencies. Information about people, places and things is also vital to an informed government and its citizens.[3]

Geographic, or geospatial, data is not the same as geographic information: it is, in fact, a component of it. Geographic information results from the analysis of one or more sources of geographic data. The analysis of geographic data and the creation of geographic information are often accomplished by using geographic information systems (GIS) technology.

What is Geographic Information System (GIS) Technology?

At its core, GIS technology is intended to provide a means to evaluate and visualize relationships among objects, features, occurrences and intentions that have a location, such as highways, parcels, natural features, and municipal boundaries. GIS technology[4] is therefore a useful tool for creating and maintaining geographic information.

All types of organizations--government, academic, nonprofit, utility, and private--use GIS technology to integrate and analyze data about people, places and things important to their decision-making and operations. For instance, use of GIS technology can assist organizations in such things as: planning for growth and change; monitoring patterns and trends in jobs, housing, and transportation systems; communicating with their constituents, in particular via the Internet. Beyond these examples, GIS Technology supports a vast array of other business functions and program needs.

What is the Value of Using GIS Technology Collaboratively?

Good decisions are based upon good information. In today's increasingly complex society, responding effectively to real-world problems requires easy access to geographic information produced by others. Many issues facing society and its institutions do not respect borders. Consider, for example, natural disasters, crimes, invasive species, and disease epidemics. Effective responses to these problems requires policy-makers, front-line emergency response staff and others, including the general public, to have ready access to current, trusted geospatial data and information that are specific and appropriate to the need.

Government and non-government interests alike have invested heavily in the collection of geographic data. In many cases, geographic data and information created by one organization is useful to others; however, using it to its full potential requires a commitment to working together. GIS technology is a naturally integrative tool designed to accomplish sharing of geospatial resources; however, it is a standards-driven tool. If there is a will to work together on collecting and managing geographic data, it is possible to collectively build a common base of geographic data, or framework data[5], that can be used by

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[1] Objects include such things as roads, buildings, and lakes. Intentions include such things as land development plans.

[2] Source: Executive Summary, June 1, 2006 Forum entitled "Imagining Possibilities: The Next Frontier for Geographic Information Technology", http://www.metrogis.org/specialevents/techpossibilities/FinalForumSummary_Web.pdf.

[3] Excerpt from "Understanding Our Geographic Information Landscape: A New Zealand Geospatial Strategy (A Coordinated Approach to Location Information)", p4, Jan. 2007.

[4] A GIS is a computerized database management system for the capture, storage, retrieval, analysis, and display of data defined by location.

[5] This philosophy is at the core of the purpose for the National Spatial Data Infrastructure (http://www.fgdc.gov/nsdi/nsdi.html) for the United Stares, which MetroGIS is a component. The United States' NSDI program is also a component of the Global Spatial

many organizations for many applications. Linking together data collected by several interests, but relating to the same location, requires an organizational commitment to work together and adhere to commonly acknowledged standards.

Attaining and sustaining such a framework of trusted, accurate, current, readily accessible and easy-to-use geographic data for the Twin Cities metropolitan area has been a goal of MetroGIS's efforts since its inception. Substantial progress has been made to reach this goal, but more work is needed to fully realize the potential of GIS technology. Notwithstanding the fact that more work is needed, substantial gains in efficiencies have been realized by MetroGIS participants through sharing of geographic data, knowledge and related infrastructure.[6] Benefits[7] that can accrue for organizations that elect to collaborate on shared geographic needs and opportunities include:

- Reduced data costs
- Improved data quality
- Minimized data conflicts
- Improved participant operations
- Leveraged technology investments
- Reduced project costs through collective bidding
- Strengthened commitment to standards
- Improved support for cross-jurisdictional decision making
- Strengthened working relationships fostering broader cooperation

How is MetroGIS Making a Difference and Creating Public Value?

MetroGIS, established in 1995, constitutes a mechanism through which organizations serving the Twin Cities metropolitan area achieve and sustain collaborative solutions to shared geographic information needs. Specifically, the role of the collaboration is that of capacity builder. MetroGIS provides the forum[8] and supports the mechanisms through which its stakeholders define shared geographic information needs and implement voluntary, collaborative solutions to address those needs. The results of these collaborative solutions, as well as the knowledge sharing that has been fostered in the course of seeking collaborative solutions, have resulted in significant organizational gains in efficiency, better understanding of the region and enhanced service delivery by the stakeholder organizations.[9] These outcomes constitute the creation of public value.

The strategy for long-term success requires MetroGIS efforts to continue to create public value.[10] To do so, MetroGIS must simultaneously sustain:

- A compelling statement of desired social outcomes that constitute its public purpose
- Endorsement of its public purpose by elected officials and managers affiliated with core stakeholder organizations
- Sufficient operational capacity to support agreed-upon solutions

The remainder of this document outlines the statements of desired outcomes that comprise the MetroGIS public purpose, as well as the "what," "how," and "who" of specific strategies to reach these outcomes. Abilities which enable MetroGIS to achieve and sustain desired outcomes that create public value are referred to as "core competencies."[11]

Data Infrastructure (GSDI) [http://www.gsdi.org]. MetroGIS has been recognized by individuals affiliated with the GSDI as a model for regional collaboration to address shared geographic information needs.

[6] MetroGIS seeks out testimonials from its core stakeholders as a component of its Performance Measurement Program. These testimonials can be viewed at http://www.metrogis.org/benefits/testimonials/index.shtml . More information about MetroGIS's Performance Measurement Program can be viewed at (http://www.metrogis.org/benefits/perf_measure/index.shtml).

[7] Source: *Lessons from Practice: A Guide to Organizing and Sustaining Geodata Collaboratives (2001)*, http://www.metrogis.org/documents/reports/lessons_entire.pdf.

[8] Since its inception, over 515 people, representing a wide variety of disciplines and organizations, have helped MetroGIS evolve to where it is today. The number of participants in MetroGIS's decision making increased by 10 percent (470 to 515), in the five years since the last Business Plan was developed in 2002.

[9] MetroGIS maintains a performance measurement program (http://www.metrogis.org/benefits/perf_measure/index.shtml). One of the elements of this program is comprised of testimonials from stakeholder organizations. Several testimonials to benefits realized through MetroGIS's efforts can be viewed at http://www.metrogis.org/benefits/testimonials/index.shtml.

[10] Refer to Appendix J for further information about the Strategic Triangle which further defines the three referenced components.

[11] Refer to Appendix H for more information about "core" and "core distinctive" organizational competencies.

Why A New Business Plan?

This Plan, which supersedes the 2003-2005 MetroGIS Business Plan, provides policy and strategic direction to guide major decision making for MetroGIS from 2008 through 2011. It includes detailed tactical priorities for annual work programming.

The MetroGIS Business Plan that was in effect when this Plan was under development was adopted in April, 2002, for the timeframe of 2003-2005.[12] In September, 2003, during a MetroGIS Coordinating Committee meeting, the first of several concerns and questions were raised that led the Committee to conclude in March, 2004, that a retreat, or special purpose workshop, should be hosted to define the desired direction for building capacity among the organizations that serve the Twin Cities metropolitan area through enhanced use of GIS. Planning was initiated during the summer of 2004 for a retreat, and a target date was set for winter 2005. In January, 2005, the new administration at the Metropolitan Council requested that the proposed retreat be delayed until the Council had a chance to evaluate MetroGIS's efforts relative to the Council's needs. The Council's evaluation concluded on June 28, 2006, with a strong endorsement of the benefit received from MetroGIS's efforts.[13]

The Strategic Directions Workshop that had been initially proposed for winter, 2005, was eventually hosted on February 8, 2007.[14] All 32 participants, representing the stakeholder organizations of MetroGIS, acknowledged the value of MetroGIS's efforts to their respective organizations and to the region as a whole. As a group, they also concluded that MetroGIS had evolved into an organization with more breadth than had been originally envisioned. Numerous ambitious goals and activities were identified.[15] Direction was provided to refine the MetroGIS policy foundation so as to reconcile the desired new opportunities with current practices. The reconciliation of these resulted in the general foundation for this Plan.

Besides outlining the foundation for MetroGIS, this Plan sets forth detailed strategies to achieve desired outcomes defined at the Strategic Directions Workshop, and it identifies the operational implications of those strategies. Development of these detailed strategies occurred over several months following the February 8 Workshop, and that development was overseen by the Business Planning Oversight Team.[16]

Why a 2008 to 2011 Time Frame?

The 2008 to 2011 timeframe relates to the fact that a new governor will be elected in November, 2010. Providing a Plan through 2011 ensures that newly elected and appointed leaders of stakeholder organizations will have an opportunity to become familiar with how MetroGIS is serving the region so they may better provide direction for the next MetroGIS Business Plan. This schedule ensures consistency during the transition period that follows elections while allowing the new leaders to continue the work of MetroGIS in accordance with the needs and directives they define.

What is the MetroGIS Planning Process and Philosophy?

Since the inception of MetroGIS, its leaders have envisioned outcomes in terms of their impact to the greater community. Their attention has always been on improving the quality of life of the region's citizens and improving the economic competitiveness of the region as a whole. To achieve these outcomes, MetroGIS's primary strategy has been to enhance the capacities of the institutions that serve the region, especially those of local and regional government, so they may more effectively carry out their respective responsibilities.

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[12] A summary of the key conclusions and direction agreed upon as part of the 2003-2005 MetroGIS Business and a link to the 2003-2005 Business Plan document may be accessed at http://www.metrogis.org/about/business_planning/index.shtml#part1.

[13] A summary of the Metropolitan Council's findings may be viewed at http://www.metrogis.org/about/affiliations/index.shtml#met_council.

[14] A summary of the February 2007 workshop and the subsequent dialogue to develop the policy foundation presented in this Business Plan may be accessed from the "Strategic Directions Workshop" Chapter of the webpage at http://www.metrogis.org/about/business_planning/index.shtml#StrategicDirectionsWorkshop .

[15] See Chapters 1 (Policy Foundation) and 3 (Challenges, Strategies and Tactics) and Appendix A for a product referred to as a "concept map" that illustrates the components of the strategy direction agreed upon.

[16] See the Acknowledgements (Page i) for a listing of the members of the MetroGIS Business Planning Oversight Team.

The community-focused underpinnings of MetroGIS's philosophy, as opposed to an inward organization-centric focus, were derived through the use of consensus building principles in its planning meetings. Participants have sought to identify tangible links between the technical world of geographic information technology and the public purposes that might be served if its capabilities were fully leveraged. The policy framework presented in this Business Plan and the consensus- building processes used throughout the existence of MetroGIS are derived, in large part, from principles used by community development professionals[17] in facilitating the setting of public policy. Building and sustaining credibility and trust among communities with diverse interests is at the core of these principles. Activities that result from these principles manifest the following:

- ***Stakeholder Focused:*** All relevant and affected interests participate in the visioning process, including those who have not yet recognized a compelling need to be involved.
- ***Collaborative and Educational:*** The visioning process is conducted in an atmosphere that allows for creative interaction among the various stakeholders.
- ***Compelling Public Purpose:*** Desired programs and strategies are intuitively aligned with a compelling public purpose.
- ***Consensus Based:*** Decisions that are critical to long-term success and sustainability are made by consensus. No single organization or faction can dictate policy.
- ***Multiple Leadership:*** Policy makers and managers from multiple key stakeholder organizations actively participate in consensus-building processes and advocate for the outcomes once adopted.

What has MetroGIS Accomplished?

MetroGIS provides a forum for organizations that serve the Twin Cities metropolitan area,[18] especially local and regional government,[19] to address their shared needs for geographic, or geospatial, information. Through MetroGIS's efforts, considerable progress has been made to implement multi-party or cross-jurisdictional solutions to address these needs. A chronology of major MetroGIS-related accomplishments[20] is provided in Figure 1 on the following page.

These accomplishments have been achieved through a multi-faceted approach and an organizational structure that relies upon locally-elected officials, representing the stakeholder community, to play a central role. The participation of these entities have resulted in solutions that build capacity among the stakeholder organizations through collaboration and leveraging of investments that have improved sharing of geographic information. As a result, MetroGIS's stakeholder organizations are able to carry out their responsibilities more effectively.[21]

Examples of these accomplishments are: MetroGIS stakeholders have adopted standardized data licensing and access policies; have agreed to adhere to data content standards; and have voluntarily assumed custodial responsibilities for each of eight endorsed regional datasets created through MetroGIS efforts. The community also now has ready access, via MetroGIS DataFinder, which is a single Internet access point, to over 160 geographic datasets produced by ten organizations.

Policy makers are more knowledgeable of the benefits of GIS technology and how cross-organizational

[17] The MetroGIS Staff Coordinator served as a practicing and accredited (American Institute of Certified Planners) city planner for nearly twenty years prior to assuming the MetroGIS Coordinator role. The Metropolitan Council's leadership recognized that creating and sustaining multi-organizational collaboration to foster data sharing was as much, if not more, about public policy and inter-organizational relationships as geographic information systems (GIS) technology and that the public policy skills of a city planner were desirable to foster building and sustaining support.

[18] At the time this Plan was adopted, the seven-county area (Anoka, Carver, Dakota, Hennepin, Ramsey Scott, and Washington) that makes up the statutory jurisdiction of the Metropolitan Council, the primary sponsor of MetroGIS, comprised the geographic extent of MetroGIS's governance.

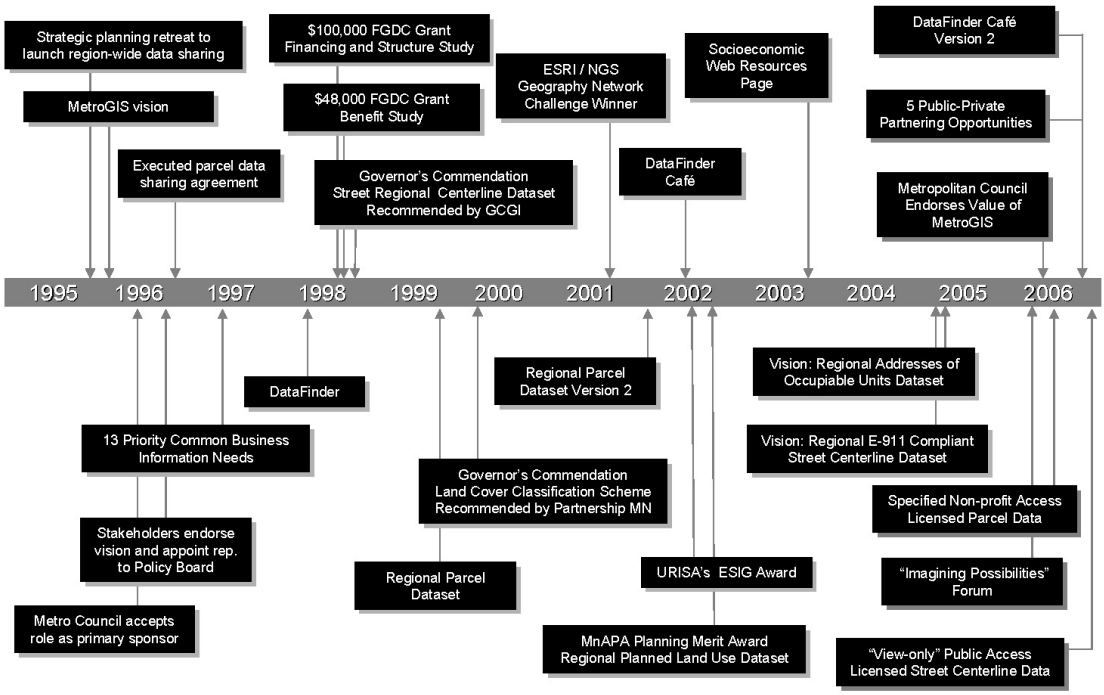
[19] Local and regional government interests were the main focus of MetroGIS's efforts from its creation in 1995 until the adoption of this Plan. MetroGIS leadership concluded that to act on a preference to achieve cross-sector partnering that the stakeholder focus should not be limited to local and regional government.

[20] See Chapter 2 for more information about these accomplishments.

[21] See http://www.metrogis.org/benefits/testimonials/index.shtm for testimonials nine to benefits to stakeholder organizations that have accrued through MetroGIS's efforts. In addition, the Metropolitan Council conducted an independent program evaluation of MetroGIS's efforts in 2005-2006 and unanimously concluded that MetroGIS's efforts are important not only to the Council but to the Region. See http://www.metrogis.org/about/affiliations/index.shtml#met_council for a summary of the Council's evaluation process and results.

collaboration can greatly enhance those benefits. Among the 160+ readily available datasets are eight regional solutions to address shared geographic information needs. These are hallmarks of MetroGIS efforts. Ten "best practices" have been endorsed by MetroGIS to facilitate improved access and usability of geographic data. MetroGIS also continues to provide an effective forum for sharing knowledge, identifying shared needs, implementing solutions to improve access and sharing better quality geographic data.

Figure 1. Chronology of Major Accomplishments



Tangible evidence of the capacity-building role played by MetroGIS and the public value created through its efforts include higher quality data at a lower cost, reduced redundancies of effort, and better understanding of the region through availability of better data and information. MetroGIS's collaborative policies, practices, and solutions to addressing shared information needs are also helping shape statewide geographic information policy.

The organizational processes used to achieve these accomplishments have been recognized as exemplary by officials with the National Spatial Data Infrastructure (NSDI), the Urban and Regional Information Systems (URISA) professional association, entities abroad responsible for sustaining Spatial Data Infrastructures in a multi-organizational environment, the Minnesota Governor's Council on Geographic Information and others. Recognition has taken the form of awards, grants and published papers. A complete list of awards and recognition is provided in Appendix B. The most prestigious of these are:

- Selection by the Open Geospatial Consortium (OGC) as its choice for a regional data distribution architecture to promote as a best practice
- URISA[22] selection for its 2002 Exemplary Systems in Government (ESIG) Award,[23] placing MetroGIS among the best programs considered from 2000 to 2005
- Grand prize winner of the ESRI/National Geographic International Geography Network Challenge (2001)

[22] Urban and Regional Information Systems Association (http://www.urisa.org) is comprised over 7000 individuals and organizations that utilize and develop geospatial technology.

[23] See http://www.metrogis.org/esig_2002.pdf for the application, which provides the information requested by URISA to evaluate MetroGIS's accomplishments against its expectations for ESIG recipients.

What Can MetroGIS Expect in Its Future?

Notwithstanding these important achievements and the need to sustain them, MetroGIS leaders have identified several challenges they believe need to be addressed to ensure continued relevance to stakeholder needs. This Business Plan defines concrete strategies to address these challenges during the period 2008 through 2011.

The vision, mission and guiding principles presented in this Plan are statements guiding the organization in order to achieve desired outcomes over the long term. On the other hand, the leaders recognize that strategies may changes to address unanticipated needs. For this reason, the strategies and tactics cited here are limited to the 3-year to 5-year timeframe that was the focus of discussion during development of this Plan.

This Plan addresses three new challenges:

- Expanding solutions to shared geographic information needs beyond data to include applications and possibly infrastructure needed to leverage the full capabilities of GIS technology
- Broadening participation both organizationally and geographically
- Enhancing understanding by policy makers of the value of using GIS technology as a core business tool and the value of collaborating to address shared geographic information technology needs

The core logic set forth in this Plan is comprised of the following key components:

- Aspirations regarding outcomes to result from MetroGIS's efforts
- Guiding principles to follow for decision-making and operations
- Major activity, or program, areas to pursue over the next few years
- Introduces the concept "organizational competencies" to sustain relevance and achieve desired outcomes

CHAPTER 1
POLICY FOUNDATION AND ORGANIZATIONAL STRUCTURE

MetroGIS functions much like a government organization in that its programs and services are available broadly beyond the organizational interests that are directly supporting them. As shown in Table 1, organizational interests benefiting from MetroGIS services substantially outnumber the organizations which have voluntarily assumed custodial responsibilities on behalf of the broader community. MetroGIS Operating Guidelines[24], in concert with its vision and mission statements, govern the responsibilities and composition of the leadership and supporting structure.

MetroGIS Vision

A vision statement has not previously been adopted by MetroGIS; however, in earlier stages of development, the organization did specify desired outcomes[25]: "improving participant operations, minimizing stakeholder expense and duplication of effort, and supporting cross-jurisdictional decision making."

The current vision statement describes MetroGIS as it is and as it will be: "Organizations serving the Twin Cities metropolitan area are successfully collaborating to use geographic information technology to solve real world problems."

In its principle role of capacity builder, the organization intends to continue to make varied and sustained contributions to citizens' quality of life. The efficient use of geospatial information and shared knowledge of best practices helps leaders to make better decisions regarding such things as: providing citizens a safe place to live and work; enhancing environmental systems and green space; improving housing and transportation systems. As MetroGIS stakeholders carry out the responsibilities resulting from their accepted strategies, the following outcomes inevitably result as benefits to the region's citizens and their leaders.

- They are better able to solve real-world problems.
- In solving these problems, they make better decisions.
- Because better decisions are made, regional economies are strengthened.
- Citizens are better informed regarding geophysical and geopolitical objects and events.
- Because of all these factors, citizens and their leaders are more likely to reach community goals.

MetroGIS Mission

MetroGIS, by adopting this Business Plan, adopts the following Mission Statement[26] to guide its efforts: *"The mission of MetroGIS is to expand stakeholders' capacity to address shared geographic information needs through a collaboration of organizations that serve the Twin Cities metropolitan area."*

MetroGIS exists to enhance the capacities of its principal stakeholders to carry out their responsibilities in the most effective and economical way possible. In other words, as stakeholders use the enhanced capabilities available to them through MetroGIS, they are better serve society's needs.

The mission statement serves as an operational purpose that works in concert with the MetroGIS vision statement and guiding principles. During the course of defining the strategic direction[27] for its future,

[24] See (http://www.metrogis.org/about/history/ops_guidelines.shtml to review MetroGIS's actual operating guidelines.
[25] See http://www.metrogis.org/about/history/mission.shtml for the original mission statements adopted by MetroGIS in February 1996.
[26] The previous Statement, which guided MetroGIS's efforts from 1996 to 2007, was found to be too narrow for outcomes desired for the next-generation of MetroGIS's efforts. This restatement of mission better addresses what a mission statement should address: who are we (MetroGIS); what do we do (expand capacity to address shared geographic information technology needs); where do we do it (Twin Cities metropolitan area); for whom (stakeholders); and how (through a collaboration of organizations). Refer to the Summary of the Strategic Directions Workshop for more information about why the mission statement was revised. It can be viewed at http://www.metrogis.org/about/business_planning/sdw/workshop_summary_%2007_0417.pdf.
[27] A major component in the development of this Business Plan involved evaluating the policy foundation that had guided MetroGIS's efforts since inception in 1996. Direction received at the Strategic Directions Workshop held on February 8, 2007

MetroGIS stakeholders recognized that MetroGIS has evolved into an organization with more breadth than was originally envisioned. The mission statement was therefore re-written and the salient points of the previously adopted mission were incorporated in the guiding principles.

The mission of MetroGIS embodies the core ideals upon which MetroGIS is to measure its performance. As a natural consequence of acting on its mission, the collaborative community of MetroGIS shall be accountable for achieving measurable results within the following outcome areas:

- Expanded resource availability through partnering
- More efficient use of resources through reduction of duplicative costs
- More efficient and effective core stakeholder operations
- Enhanced and broadened understanding of the region
- Expanded participation by users, contributors and jurisdictions adjoining the Twin City metropolitan area

Guiding Principles: The MetroGIS Operating Framework

As MetroGIS matured, its original mission statement, as well as several of the statements of operational policy, that guided its efforts became de facto guiding principles. The current guiding principles incorporate aspects of the original operational policy statements and mission statement. Significant modifications, shaded in the text below, represent enhancements of past practices.
These principles operate in concert with the current vision and mission statements to guide MetroGIS decision making and operations.

1. Pursue collaborative, efficient solutions of greatest importance to the region[28] when choosing among options.[29]
2. Ensure that actively involved policy makers set policy direction.
3. Pursue comprehensive and sustainable solutions that coordinate and leverage resources: i.e., build once, make available for use by many.
    - Leverage the Internet and related technology capabilities.
    - Value knowledge sharing as highly as data sharing.
    - Seek cross-sector (public, non-profit, academic, utility and for-profit) solutions, including data enhancements from many sources to serve shared geographic information needs when in the public interest.
    - Pursue interoperability with jurisdictions which adjoin the Twin Cities metropolitan area, seeking consistency with standards endorsed by state and national authorities.
4. Acknowledge that the term “stakeholder” has multiple participation characteristics: contributor of resources, consumer of the services, active knowledge sharer, potential future contributor, potential future user, continuous participant, infrequent participant.
5. Acknowledge that funding is not the only way to contribute: data, equipment and people are also valuable partnership assets.
6. Rely upon voluntary compliance for all aspects of participation.
7. Rely upon a consensus-based process for making decisions critical to sustainability.
8. Ensure that all relevant and affected perspectives are involved in the exploration of needs and options.
9. Enlist champions with diverse perspectives when implementing policies and carrying out activities.

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resulted in several policy modifications which both corroborated and refined current practices as well as set expectations for an expanding MetroGIS’s scope. The Workshop summary can be viewed at the URL provided in the previous footnote. Subsequent policy refinements were agreed on by MetroGIS Policy Board at its April 25 and July 25, 2007 meetings.

[28] Foster a community-focused philosophy regarding GIS return on Investment.

[29] On July 25, 2007, the Policy Board acknowledged that over time MetroGIS's practice had demonstrated value that was not fully grounded in policy. Over time, MetroGIS stakeholders have accepted custodial roles that have stretched their internal practices, thereby, achieving a community-centric outcome by voluntarily agreeing to assume support of custodial responsibilities for endorsed regional solutions that stretched their practices. When MetroGIS began, the policy was not to ask an organization to do anything for the community for which it does not have a perceived internal business need. Over time, it has been generally recognized that in order to achieve some regional solutions, organizations are generally willing to “stretch” their practices to achieve a greater regional benefit.

Stakeholders, Customers, and Contributing Participants

MetroGIS is a voluntary collaboration of organizations that serve the Twin City metropolitan area and that use GIS technology to carry out their business functions. MetroGIS is not a "membership" organization; the term "members" does not apply because all interests that serve the Twin Cities metropolitan area (government, non-profit and for-profit) are encouraged to participate in deliberations to identify shared needs and options to address those needs. All are also encouraged to take advantage of benefits that can be achieved by utilizing best practices, standards, tools, products, and services implemented via MetroGIS efforts.

To facilitate knowledge sharing and broad leveraging of resources to address shared needs, MetroGIS attempts to populate its committees and workgroups with individuals who are respected and knowledgeable representatives of local and regional government interests, state and federal agencies, non-profit, utility, and for-profit interests that utilize geographic information technology and serve the Twin Cities metropolitan area. Figure 2, on the following page, illustrates the community of interests active or potentially active in MetroGIS efforts, along with the relative contributions and benefits received from MetroGIS efforts.

In addition to the stakeholder categories shown in Figure 2, it is useful to consider the individual organizations, and areas within individual organizations, in terms of two distinct roles: "participating stakeholder"[30] and "customer". This distinction is important to understanding the outcomes and strategies set forth in this Plan. For example, it is the purpose of this plan increase participation in MetroGIS and involvement in collaborative efforts in addition to simply increasing the use of MetroGIS products.

Some customers are prospective participating stakeholders. The benefits they receive from MetroGIS efforts may be great enough that they could be encouraged to participate in the organization. MetroGIS leadership believes it is important to expand outreach efforts in an attempt to engage these consumers of MetroGIS's products and services to forge new partnerships and leverage new resources.

Expectations for participation by any particular organization differ depending on how critical that organization's involvement is to the sustainability of collaborative solutions to shared geographic information needs. When this Plan was adopted, 10 organizations had assumed 23 custodial roles in support of endorsed regional solutions.[31] In addition to assuming multiple custodial roles, the Metropolitan Council also has served as a contributing sponsor of the MetroGIS initiative, since it inception in 1995.[32]

Notwithstanding the critical roles played by the organizations that have assumed custodial roles, MetroGIS could not accomplish the goal of widely supported solutions to shared information needs without significant contributions of staff time that has been made by a wide variety of stakeholder organizations. These organizations have authorized their staff and policy officials to serve as advocates and/or advisors on a host of workgroups and on the MetroGIS Policy Board, Coordinating Committee and Technical Advisory Team. Since 1995, 515 individuals have participated in decision making as MetroGIS identified shared needs, developed regional solutions to shared needs, and continued ongoing dialogue to ensure implemented solutions would maintain their relevance.

The term "participant" also includes those who contribute data and web services that are not part of regional solutions but nevertheless are made available via DataFinder to other interests that may have a need for them. At the time of this writing, 18 organizations are distributing over 160 datasets via DataFinder.

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[30] When MetroGIS launched in 1996, the 300 local and regional government interests (several regional government agencies, including the Metropolitan Council, and nearly 300 cities, school districts and water management organizations) that serve the Twin City metropolitan area were recognized as the primary focus of MetroGIS's activities. This was the case until preparations began for development of this Business Plan. In those discussions, most notably at the February 8, 2007 Strategic Directions Workshop, MetroGIS leaders concluded that MetroGIS's stakeholder community should be expanded and that partnering opportunities to address shared needs should be sought with non-government entities that have an interest in working together.

[31] See Chapter 2 for more information about the 23 custodial roles supported at the time this Plan was adopted.

[32] In 1994, the Metropolitan Council officially recognized the need for improved sharing of geographic data among government entities that serve the Twin Cities metropolitan area. Refer to the document at http://www.metrogis.org/about/affiliations/index.shtml#met_council for more information about the importance of MetroGIS's efforts to Council.

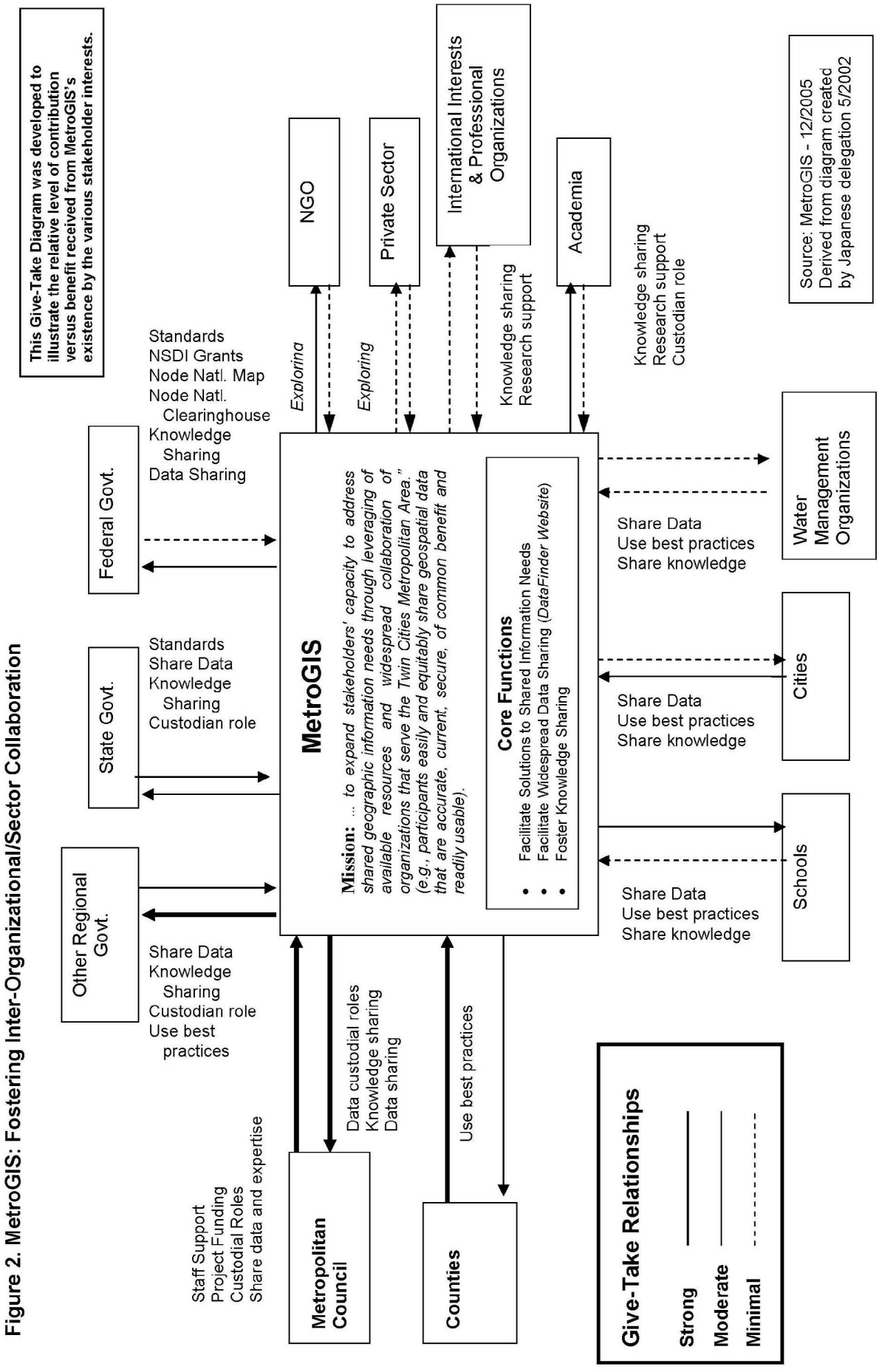

Figure 2. MetroGIS: Fostering Inter-Organizational/Sector Collaboration

Finally, "participation" may be one-time, intermittent, or continuous. Since involvement in MetroGIS's activities and adherence to desired best practices and standards is voluntary, representatives participate on the basis of an inherent self-interest to do so. The challenge has been, and will continue to be, to ensure that MetroGIS services and activities are relevant: that is, that they are serving a valuable purpose and creating public value. If relevance is not maintained, the ability to sustain a collaborative model based upon voluntary involvement will be lost, and along with it, efficiencies gained only through cross-organizational solutions to shared needs.

Organizations which assume one or more of the cited "participation" roles are referred to as "contributing participants."

The various roles are explained in Table 1 on the following page. These organizations are defined by one or more of the following: they have authorized their staff or policy makers to participate in some aspect of MetroGIS's decision- making; they have contributed financially as an organization; they have assumed custodial responsibilities in support of a collaborative solution. In many cases, a particular organization will participate in multiple ways (e.g., contributor, advisor, and custodian) in addition to being a consumer of services or products provided via MetroGIS efforts.

Primary MetroGIS Sponsor: Metropolitan Council

The Metropolitan Council has served as primary sponsor of MetroGIS since its inception in 1995. In 1994, the Metropolitan Council concluded that a parcel-based GIS was needed to support its business needs and that a collaborative approach with local government partners, in particular the seven counties within the Council's service area, would be the most prudent means to satisfy this need. The Council had also concluded that championing a regional solution to address shared GIS needs was consistent with its over-arching goal of fostering collaborative solutions with local government partners. In 2006, the Council reaffirmed its commitment[33] to supporting MetroGIS as a cost-effective means to obtain the data it needs from others. The Council concluded that MetroGIS would serve not only to address its own need for information, but would be important to addressing the needs of the region as a whole.

From 1995 through 2007, the Council had invested or approved over $2.7 million[34] to MetroGIS, which accounts for 77 percent of the $3.8 million[35] total investment required to support the MetroGIS function to "foster collaboration" during that same time period.[36] Major activities have included supporting, securing, and funding the following:

- needs discovery processes
- decision-making processes to define strategies to address those needs
- data sharing agreements
- business planning and work programming
- outreach and communications
- performance measurement reporting
- documentation of benefits
- special projects to enhance data quality and access

In addition to supporting these activities, which comprise the "foster collaboration" function, the Council has accepted custodial roles for MetroGIS DataFinder and several regional data solutions. Little of the Council's considerable investment would, however, achieve the efficiencies that have been realized without the partnerships that contributed resources have leveraged.[37]

[33] A summary of the process and results of the Council's 2005-2006 evaluation of the MetroGIS program can be viewed at http://www.metrogis.org/about/affiliations/index.shtml#met_council.
[34] See Appendix E for a summary of funding that has been provided to support the "foster collaboration" function since 1995.
[35] Support resources in addition to those provided by the Metropolitan Council include, grants, donations, and staff time contributed by other stakeholder organizations. See Appendix E for more information.
[36] These costs do not include the annual contribution for "foster collaboration" related activities by the Council for such things as computer hardware, software, Internet access, domain names, copying, legal advice, invoicing, and fund management. In previous Business Planning, this annual indirect contribution was estimated be in excess of $90,000.
[37] See http://www.metrogis.org/benefits/testimonials/index.shtml for an over view of stakeholder benefits that have been realized.

Table 1: Roles Affiliated with MetroGIS's Efforts

Category 1: *Stakeholder*	**Policy Direction and Support**
Collaboration Sponsors	Stakeholder organizations which provide financing and/or staff support for "foster collaboration" functions
Advocates	Employees or policy makers (elected officials) of stakeholder organizations that serve as members of a standing board or committee and provide oversight for operations and policy direction. These individuals also serve in the critical role as advocates for support of collaborative solutions by their respective stakeholder organizations and among their peers.
Category 2: *Stakeholder*	**Production and Maintenance (e.g., Services and Products*)***
Custodians	Stakeholder organizations that manage one or more components of an endorsed regional solution (includes data and applications)
Advisors/Project Contributors	Employees or policy makers of a stakeholder organization who participates in a topic-specific identification of shared needs and/or in the definition of a shared solution.
Contributors/ Producers *(Endorsed Solutions)*	Stakeholder organizations that maintain and provide data/web services publishers of data/web services via DataFinder, and or develop and publish availability of applications via centralized tool (e.g., ApplicationFinder) that are part of an endorsed regional solution(s).
Contributors/ Producers	Stakeholder organizations that perform any of the contributor/producer functions listed above, not for an endorsed for solution, but to share with other others who have a need.
Category 3: *Customer*	**Consumer**
Participating Consumers	Organizations or individuals that utilize services affiliated with MetroGIS efforts **and** participate in MetroGIS's processes to define needs, policies, and / or solutions
Non-Participating Consumers	Organizations or individuals that utilize services affiliated with MetroGIS efforts **but do not participate** in MetroGIS's processes to define needs, policies, or solutions.
Category 4: *Prospective*	**Prospective Beneficiary**
Prospective Participants and / or Customers	Stakeholder organization or individual not currently benefiting or participating in or consuming services made available by MetroGIS but has the potential to do so.

Organizational Structure

The MetroGIS organizational structure[38] is unusual in that it includes a Policy Board[39] comprised of elected and appointed officials[40] even though MetroGIS does not have legal or statutory status. MetroGIS stakeholders participate because they have concluded they can most effectively address inherent self interest through their participation. By design, the structure of MetroGIS resembles that of a local unit of government: It has a policy body of elected officials who are advised by commissions and committees, who are supported by a dedicated staff and who are focused on public policy that seeks the greatest public good.

The MetroGIS Policy Board, which first met in January 1997, provides policy direction for the MetroGIS organization. It is comprised of twelve officials, each representing the policy body of a core stakeholder organization or core stakeholder community: seven metropolitan counties; the Association of Metropolitan Municipalities (AMM) also known as Metro Cities; Metropolitan Chapter of the Minnesota Association of

[38] See http://www.metrogis.org/teams/org_structure.shtml for an illustration of MetroGIS's organizational structure.
[39] See http://www.metrogis.org/teams/pb/index.shtml for more information about the Board's roles, deliberations, and participants.
[40] In this case, "appointed official" refers to policy makers who are not elected (e.g., member of the Metropolitan Council appointed by the Governor.)

Watershed Districts (MAWD); Technology Information Educational Services, which is known as TIES and which serves school districts; and the Metropolitan Council.

The Policy Board is advised by the MetroGIS Coordinating Committee[41] and the Technical Advisory Team.[42] The Coordinating Committee is comprised of managers and administrators from the stakeholder organizations that serve the Twin Cities Metropolitan area: local, regional, state and federal government, non-profit, for-profit, utility and academic interests (see Figure 2 above). The primary role of this Committee is to recommend courses of action to the Policy Board concerning design, implementation, and operation of MetroGIS. It generally creates task-specific workgroups, comprised of individuals with appropriate expertise, to recommend technical strategies and mechanisms and to frame policies that relate to issues including: data access, data content, standards, applications associated with shared information needs and candidate organizations to assume custodial responsibilities.

If advice is needed in areas that are inappropriate for the creation of a task-specific workgroup, the Committee invites comment from the Technical Advisory Team. The Technical Advisory Team, comprised of technical staff affiliated with stakeholder organizations, otherwise generally functions as a structured forum for stakeholders to share knowledge about technical issues and opportunities.

As of October, 2007, through MetroGIS's efforts, ten organizations had assumed 23 distinct and coordinated roles to support three core functions: fostering collaboration, sharing knowledge, building awareness. A list of the roles assumed by each of these ten custodial organizations is provided in Appendix C. These custodial roles were defined by the MetroGIS community and each of the ten organizations voluntarily accepted responsibility for carrying out one or more of them. These ten custodial organizations are, in effect, functioning as a virtual enterprise through bundling operational capacity across participating organizations, as if they were departments within a single organization.[43]

Organizational Support for Fostering Collaboration

MetroGIS is as much about sharing knowledge and empowering advocacy for collaborative use of geographic information technology as it is about sharing specific geographic information and resources. The goal of broadly-supported solutions to shared geospatial needs cannot be achieved unless numerous individuals, representing all key affected organizational interests, are effectively involved. MetroGIS employs participatory and consensus-based processes[44] to build agreement on shared needs and develop practical responses to those needs. Achieving broad support also requires that the people engaged are respected by their peers and have real job responsibilities that relate to the skills and knowledge they contribute to MetroGIS.

Besides helping to define practical solutions, these individuals must take responsibility for building awareness regarding the importance of collaborative GIS. They must advocate for such collaboration as they communicate with the leaders of their respective organizations. The contributions of time, knowledge, and advocacy by key individuals are at the heart of MetroGIS's ability to implement and sustain solutions to address shared geographic needs. Collectively, this involves an annual investment of about 0.5 FTE, or the equivalence of $41,600[45], even though this figure does not show up on a year-end balance sheet.

To ensure sustainability, MetroGIS must continually support and nurture relationships among contributing participants, particularly those who serve as custodians. It must also encourage consumer-only organizations to become contributing participants. Without these efforts to expand participation, the work of many contributing participants is unlikely to be converted effectively into actions, and acceptance of

[41] See http://www.metrogis.org/teams/cc/index.shtml for more information about the Committee's roles, deliberations, and participants.
[42] See http://www.metrogis.org/teams/ta/index.shtml for more information about the Team's roles, deliberations, and participants.
[43] See http://www.metrogis.org/data/about/index.shtml for general information about shared information needs and endorsed regional solutions pursued via MetroGIS's efforts.
[44] See Appendix D for a summary of decision-support processes utilized.
[45] This estimate is based upon an average of $40 per hour (including a 1.26 multiplier for benefits) for the estimated 0.5 FTE of staff time contributed MetroGIS decision-making processes). Sources: 1) Hour wage estimate: Source: 2007 URISA Salary Survey - $60,050 (no benefits) is the average salary for GIS professionals who responded (technicians to GIOs) is $28.87 no benefits or $36.37 with benefits). As most of participants in MetroGIS's policy making are managers, an estimate of $40/hour was selected.

solutions is unlikely to be maintained over time. To be effective, this effort to nurture relationships requires ongoing and dedicated support, given the complexity of relationships within the MetroGIS community and the resulting breadth of shared needs.

The Metropolitan Council understood this need to continually foster collaboration when it assumed a sponsorship role for MetroGIS in 1995. The Council's contribution of staff support for MetroGIS's "fostering collaboration and knowledge sharing" function is one of 23 roles that have been assumed in support of MetroGIS. Without sustained support for this function, none of MetroGIS accomplishments would be possible and relevancy could not be sustained. Table 2 summarizes the components of the "foster collaboration" function and the contributions made by the Metropolitan Council[46] to support this function in 2007.

Table 2: Support for "Fostering Collaboration" Function in July 2007[47]

Resource	FTEs	Value	Organization
Staff/Policy Coordinator	1.00	$90,000	Metropolitan Council
Administrative Technician	.75	$41,250	Metropolitan Council
Technical Project Leads	.05 (as needed)	$4,500	Metropolitan Council
Non-Staff Project Funding	*N/A*	$86,000	Metropolitan Council
Total	**1.80**	**$221,750**	

Note: Value for staff support means salary plus benefits representing 26 percent of the base salary.

A portion of the Non-Staff Project Funding is used to supplement the skills and time of the dedicated staff to accomplish tasks associated with outreach, performance measurement, business planning and other special purpose projects. This arrangement has generally proven to be an effective way to achieve non-technical "fostering collaboration" program objectives.

Organizational Support for Creating Regional Solutions and Providing Access

Eight endorsed regional data-centric solutions[48] to address shared information needs and MetroGIS DataFinder, the current means to achieve one-stop Internet-based discovery and access, are supported in a manner similar to the "foster collaboration" function. Regional solutions are supported by one or more willing custodial organizations with the requisite resources. Particular organizations are considered as candidates for custodial roles when their internal business needs align with a specified desired regional solution. If there are multiple willing candidates, negotiations are entered into with each to determine which has the most appropriate resources to perform desired custodial roles on behalf of the broader community. If there is not a willing and able custodian candidate, work on the particular desired solution does not proceed.

As of the adoption of this Plan, ten organizations (seven metro area counties, Department of Natural Resources, Metropolitan Council, and University of Minnesota Population Center) have collectively assumed 21 separate roles required to support eight collaborative data-related solutions to shared

[46] The Council's commitment to provision ongoing support for MetroGIS, in particular the "foster collaboration" function, in accordance with it June 2006 Resolution of Support (see footnote #13) is expected barring any unforeseen circumstances.

[47] The previous 2003-2005 and 2000-2003 MetroGIS Business Plans did not distinguish MetroGIS-related support according in the same manner described in this Plan. The "foster collaboration" category is new to this Plan and does not include support for DataFinder. In the previous Plans, 3.25 full-time equivalent positions (FTEs), together with outsourcing to supplement in-house support expertise and resources was provided for what is now referred to as "foster coordination" function plus 1.25 FTE for support related to MetroGIS DataFinder. DataFinder support is now separated out as a defined custodial role and no longer lumped together with support provided for "fostering collaboration". During the Metropolitan Council's evaluation of the MetroGIS program during 2005-2006 (see Introduction - Primary Sponsor: Metropolitan Council), the current scheme was developed to more clearly communicate support provided by all organizations that have accepted MetroGIS-related roles and responsibilities.

[48] A listing of these eight regional solutions to shared information needs is provided in Chapter 3. Additionally, in Appendix C, the custodian for each of these solutions is identified.

information needs. The combined contribution of these custodians is estimated[49] to be approximately 20.6 FTE annually.[50] At a conservative estimate of $35/hour[51], this contribution of time amounts to $1.48 million per year. The custodial responsibilities for each regional data solution are defined in a "Regional Policy Statement" which was adopted by the Policy Board and is posted on the MetroGIS general website.[52] The practice of adopting a Regional Policy Statement for each endorsed regional solution is an extension of a concept promoted by the National Spatial Data Infrastructure referred to as "Framework Functions".[53]

The other current custodial responsibility involves support of MetroGIS DataFinder, an Internet-based application comprised of a suite of tools for discovery, browsing and downloading of geographic data. This suite of tools was developed,[54] through MetroGIS efforts, to make data discovery and access easier for data users in the MetroGIS stakeholder community. MetroGIS DataFinder is supported by the Metropolitan Council's GIS Unit. Two GIS Specialists share the responsibilities of day-to-day support for the DataFinder web application. This support equates to approximately 0.3 FTE[55] and an annual estimated value of $21,840.[56]

[49] An attempt was made during the development of the first MetroGIS Business Plan and subsequent development of MetroGIS's Performance Measurement Plan to accurately identify expenses involved in providing these custodial services. The conclusion was that due to the variety of business practices involved and lack of the required tracking data made, such reporting was impractical. On a positive note, each of their involved organizations has concurred they have an internal business need to support the subject custodial functions and, therefore, the actual cost is viewed as irrelevant to MetroGIS's accounting other than to acknowledge the importance of these contributions.

[50] See Appendix C for a breakdown of estimated in terms of FTEs involved in support of each implemented regional data solution.

[51] An assumption is made that the primary support for these regional solutions is provided by GIS professionals who are not managers and who are earning between $50,000 and $70,000 per year or between $29 and $41/per hour, including benefits (assumed to average 26 percent of salary), for an average of $35/hour. Source: 2007 URISA Salary Survey - $60,050 (no benefits) is the average salary for GIS professionals who responded (technicians to GIOs) is $28.87 no benefits or $36.37 with benefits).

[52] The links to each Regional Policy Statement are associated with each "Endorsed Regional Dataset" listed at http://www.metrogis.org/data/index.shtml.

[53] "*Framework: Introduction and Guide*". Federal Geographic Data Committee, 1997, p 32-42. http://www.fgdc.gov/framework/handbook/index_html.

[54] See http://www.metrogis.org/data/datafinder/index.shtml for a history of MetroGIS DataFinder development.

[55] See Table 2 and Appendix C for more information about the support provided by the Metropolitan Council.

[56] Same hourly rate assumption is used as documented in Footnote 50.

CHAPTER 2
CORE BUSINESS FUNCTIONS AND PERFORMANCE MEASUREMENT

MetroGIS leaders affirmed the importance of sustaining business functions already in place[57] and expanding the scope of work. The functions, as they were defined and carried out prior to 2007, are listed below. Enhancements to their scope are shaded.

- Facilitate development and implementation of collaborative, regional solutions to address shared information needs, involving geospatial data, applications, standards and best practices
- Facilitate widespread access and sharing of geospatial data, principally through the DataFinder.org web site
- Facilitate knowledge sharing relevant to the advancement of GIS technology
- Foster recognition of the value of geographic information system (GIS) technology as a core business tool

To ensure that business functions remain relevant in a changing environment, the MetroGIS Performance Measurement Program[58] establishes performance indicators and monitors progress toward achieving desired results. Continual monitoring of performance indicators provides information important to ensuring that MetroGIS reaches its goals and continues to be relevant to its stakeholder communities.

Challenges known to be associated with supporting these functions are cited in Chapter Three and along with recommended strategies to address these challenges and maintain relevance within an environment of changing needs.[59]

Responding to Shared Geographic Information Needs

Regional solutions are, by definition, comprehensive, sustainable and responsive to shared information needs. The Policy Board has endorsed collaboratively-developed solutions as best practices for the MetroGIS community.

The components of endorsed regional solutions have thus far been data-centric: They have focused on data content specifications and custodial responsibilities involved in capturing, documenting, managing, and distributing the resulting regional data solutions. Characteristics of these solutions are:

- They work together horizontally within a given data theme as well as vertically among themes to ensure interoperability. Achieving interoperability requires adherence to standards, MetroGIS standards are defined by the community via a consensus-based process and are adhered to voluntarily.
- Organizational, or custodian, roles and responsibilities relating to data capture, maintenance, documentation, and distribution are institutionalized among willing organizations with sufficient and appropriate resources to insure sustainability.
- Solutions are designed to be extensible in order to accommodate changing user needs.
- An attempt is made to include data enhancements from multiple sources to maximize leveraging of existing resources.

At the time of adopting this Plan, the MetroGIS Policy Board have endorsed eight regional solutions to shared geographic information needs, and these have been implemented. This was done through the

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[57] In 1999, the MetroGIS community identified eighteen functions believed to be appropriate for MetroGIS to support (Chapter 3 of the document at http://www.metrogis.org/about/business_planning/business_plan.pdf. Five of those eighteen functions were defined as "mission-critical" and they were translated into three core business services that have been the focus of MetroGIS's activities since that time.

[58] To review the Performance Measurement Plan and annual performance measurement report see http://www.metrogis.org/benefits/perf_measure/index.shtml

[59] Chapter 3 is organized according to eight major activity areas. Three of the four core functions discussed in this Section have a one-to-one relationship with a major activity area defined in Chapter 3. Components of the fourth core function – solutions to shared geographic information needs - are addressed by three of the major activity areas (I, II. and III). Major activity areas VII (funding policies) and VIII (optimize organization) do not have corresponding core functions, as they are more closely associated with guiding principles for the operation of the overall MetroGIS organization, as opposed to a definitive service.

replicable process illustrated in Appendix D.[60] The eight endorsed solutions address not only technical data requirements but also organizational roles and responsibilities necessary to sustaining the solutions and overcoming obstacles. They are as follows:

Regional Solutions Implemented

1. Census geography (1990 & 2000)
2. Land cover
3. MCD/county jurisdictional boundaries
4. Parcels
5. Unique Parcel IDs

Combined in a single dataset solution

6. Planned land use
7. Socioeconomic characteristics of areas
8. Street centerlines and address ranges

Regional Solutions In Progress

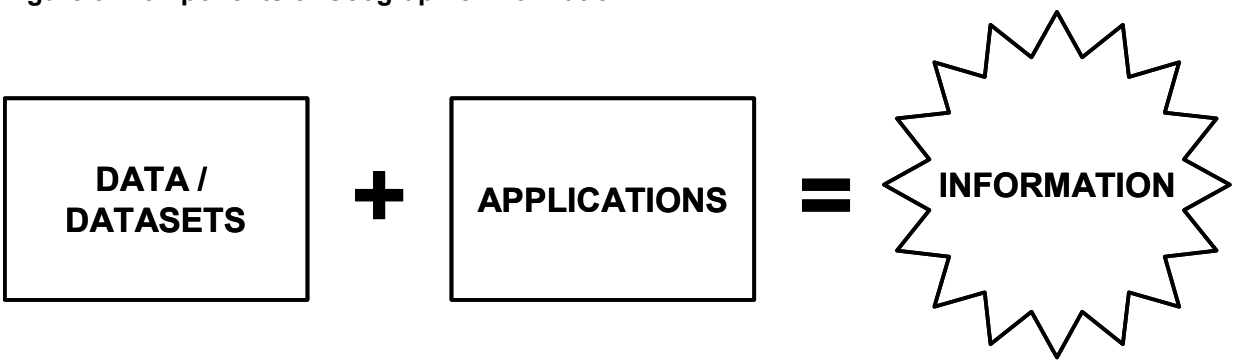
1. Address points for all occupiable units
2. Emergency preparedness
3. Existing land use
4. Highway and road networks (E911 compatible)
5. Lakes, wetlands, rivers
6. School jurisdictional boundaries
7. Water management organization jurisdictional boundaries

The status of regional solutions now in progress is outlined in Appendix G. Highlights include the addition, in 2002, of an Emergency Preparedness information theme. In April, 2005, we adopted a vision for the "Addresses of Occupiable Units" and "E911 Compatible Street Centerline" regional datasets, and work is in progress to address components of these.

Next-Generation Regional Solutions

To answer questions, data must be generally analyzed. Applications expedite analysis and convert raw data into information needed to support decision making. A simple illustration of this concept is shown in Figure 3.

Figure 3. Components of Geographic Information



Applications make data more accessible. When governmental units, businesses, non-profits and private citizens have access to geographic data via web-based applications, they can forego the tedious and costly process of obtaining source data and analyzing it in their own systems. For example, real estate

[60] See Appendices C and G for more information about these solutions. Also see http://www.metrogis.org/data/index.shtml for the following detailed information about each regional solution: How to obtain the dataset, Common information needs met by this dataset, Enhancements to the original dataset, History of the original dataset, Dataset specifications, Dataset standards/guidelines, Dataset roles & responsibilities, and Summary of organizational assignments.

query applications allow users to identify a property and to view attributes of that property online. Other applications allow users to create mailing lists from available geographic information.

The need to expand MetroGIS's regional data solutions to include applications and web-based services[61] was acknowledged with adoption of the 2003-2005 Business Plan, but little progress was made. A top priority from this point on is to seek not only to standardize geographic data but also to include applications, web-based service components, and possibly infrastructure to respond to particular information needs. Further, cross-sector partnering[62] will be pursued to the extent possible to implement these solutions. Known challenges are discussed in Chapter Three.

Interoperability: Standards and Best Practices

Regional responses to shared needs are premised upon standardization of data and practices by producers of geographic information. MetroGIS has long been committed to collaboratively defining and fostering voluntary adherence to standards and best practices so as to facilitate data sharing.
In addition to general standards and guidelines, MetroGIS adopted five content standards and five best practices[63] to improve the reliability and usability of geographic data. Stakeholder organizations are encouraged to incorporate these practices and standards into their daily GIS procedures so that geographic data, commonly produced by multiple interests, can be more easily shared.

Best Practices

1. Metadata Guidelines
2. Metro-Wide Coordinate System
3. Municipal Boundary Mapping Guidelines
4. National Standard for Spatial Data Accuracy (NSSDA)
5. Thematic Data Categories

Data Content Standards

1. Address Guidelines and Issues for Working with Address Data
2. County and Minor Civil Division Coding Exchange Standards
3. Minnesota Land Cover Classification System (MLCCS)
4. Regional Planned Land Use Coding Scheme and Dataset
5. Unique Parcel ID Guidelines

Data Sharing: Access Agreements

The initial driver for creating MetroGIS was a need to improve the sharing of geographic data important to organizations beyond the producer. Achieving this core function has involved pursuit of several different but complementary strategies[64] that are explained below. Each of these strategies seeks to improve the efficiency and effectiveness of each stakeholder organization in the provision of services it is responsible for supporting. Each is also targeted to commonly-recognized and shared information needs. In this context, "shared information needs" [65] refers to geographic information that is critical to society, whether or not it is utilized by MetroGIS's major stakeholder organization types.

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[61] See the Glossary for the meaning of the term "application" within the context of this Plan.

[62] The following principles were adopted by the Policy Board on January 18, 2006 to guide decision making related to partnering with non-government interests: 1)Value-added to public sector assets is encouraged provided it does not detract from the public sector objective. 2) Contribution of assets to a collaborative solution assumes all parties view the transaction as equitable and relevant to their needs. 3) Contributions can comprise of funds, data, equipment and/or people. 4) Equity is defined on an organization-by-organization basis and exists if the collaborative solution is more efficient than pursing the solution on one's own.

[63] See http://www.metrogis.org/data/standards/index.shtml for a description of each best practice, including information about when it was adopted or endorsed, where to obtain supplemental information, and a contact person.

[64] See Appendix D for an explanation of the process used to define shared information needs and collaboratively define solutions to them.

[65] The phrase "commonly-recognized information needs" was established at the February 8, 2007 Strategic Directions Workshop during discussion of desired modifications to the mission and guiding principles for MetroGIS (Part 3, page 12 of the document at (http://www.metrogis.org/about/business_planning/sdw/workshop_summary_%2007_0417.pdf). The participants agreed to retain the phrase "trusted, reliable, accurate, current, easily useable" but elected to modify the previous "of common benefit" component to provide more flexibility.

The tangible outcome sought, as defined at the outset of MetroGIS's efforts in 1996, was and continues to be "secure geographic information that is trusted, reliable, accurate, current, and easily useable" by organizations that serve the Twin Cities metropolitan area and who utilize this information. Fostering the execution of data sharing and access agreements, for data subject to licensure[66] and valuable to organizations other than the producers, has been a long-standing practice of MetroGIS. Agreements enacted via MetroGIS's efforts have not only streamlined access to the subject data but have also resulted in minimizing time, effort, and expense involved to acquire a license, including implementation of time-saving web-enabled access procedures. Key agreements follow.

Parcel Data Access Agreement[67]

An unprecedented eight-party agreement, brokered by MetroGIS between the Metropolitan Council and the seven Metro Area counties, was executed in December 2004. The agreement provides for a single license that allows users to access parcel data produced by each of the seven counties that comprise the Regional Parcel Dataset. The result is that, instead of obtaining seven licenses, data users may now obtain access to all seven counties' parcel data with a single license. This agreement has significantly reduced access time, legal reviews, and administrative processing. As of September, 2007, 110 licensees were accessing the Regional Parcel Dataset. This agreement is scheduled to expire December 31, 2008. Execution of a fourth-generation agreement is proposed as a top priority for 2008.

Street Centerline Data Access Agreement

The Council entered into a third-generation agreement with The Lawrence Group (TLG). The TLG Street Centerline Dataset is a critical component to implementing the endorsed regional solution relating to property location and routing-related shared information. This agreement provides access to the TLG dataset for three years, beginning January 1, 2007, and ending December 31, 2009. It also provides an unprecedented authorization process allowing licensees to include the data in web-based applications that can be viewed by anyone who wishes access, provided the user cannot download the source data in its native form. This authorization is expected to have significance in moving development forward for applications that run on licensed data. As of September, 2007, 196 licensees were accessing the Regional Street Centerline Dataset.

Other Efforts

Although formal agreements have not resulted, progress has been made to streamline access to parcel data by nonprofit and even for-profit organizations. The idea of offering access to non-profit interests that serve a local community development purpose resulted in each of the seven counties in the metropolitan area implementing this practice on a case-by-case basis.[68] The seven counties have also enacted significant reductions and have standardized fees for access to parcel data by non-governmental organizations.[69]

DataFinder: Internet-Based Tool for Information Discovery and Access

Creating comprehensive and sustainable regional solutions to address shared information needs has little value unless the user community can easily locate and access these solutions. This reality was recognized in 1997 as MetroGIS established its priorities.

The first version of MetroGIS DataFinder launched in 1998.[70] Support for this functionality has been among the core services provided by MetroGIS since its inception. The following objectives have guided management of DataFinder:

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[66] When this Plan was adopted, access to two regional datasets required licensure: parcel data (http://www.metrogis.org/data/datasets/parcels/index.shtml) produced by the seven Metro Area counties and street centerline data (http://www.metrogis.org/data/datasets/street_centerlines/index.shtml) produced by The Lawrence Group (TLG).

[67] This agreement represents the third generation of parcel data access agreements with Twin City metropolitan area counties. See http://www.metrogis.org/about/history/sharing.shtml for a summary of the major objectives attained with each version.

[68] See the sixth bullet under Accomplishments at http://www.metrogis.org/teams/pb/meetings/07_0117/07_0117_agendapacket.pdf.

[69] The most significant policy change resulted in agreement on a standard $.05/parcel parcel fee that can be reduced to $.01/parcel through a volume discount sliding fee. A centralized mechanism to receive parcel data requests, including a common licensing process and an E-commerce capability, was investigated but found to be cost-prohibitive. (See http://www.metrogis.org/data/datasets/parcels/history_pri/index.shtml#private2 for further information)

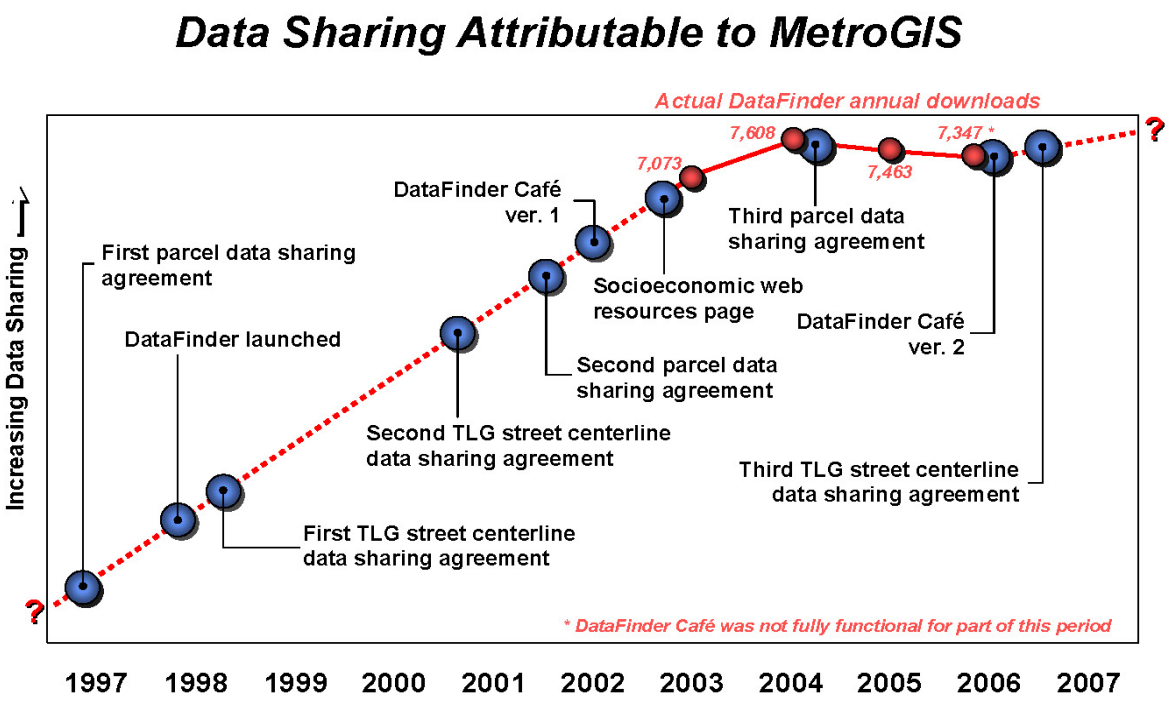
[70] See http://www.metrogis.org/data/datafinder/index.shtml for information about MetroGIS DataFinder development.

- Support a centralized Internet-based tool[71] through which users can search for and easily access geographic information pertaining to the Twin Cities metropolitan area. Include endorsed regional solutions as well a host of other geographic data which producers wish to make available to others.
- Maintain interoperability with the state of Minnesota's GeoGateway and the National Geographic Data Clearinghouse. MetroGIS DataFinder has been a registered node of the National Geographic Data Clearinghouse since 2001.

MetroGIS DataFinder (www.datafinder.org) provides an Internet-based application comprised of a suite of tools for discovery, browsing, and downloading of geographic data. Its features include standardized searchable metadata, support of Web Mapping and Web Feature Services in addition to source data, a tool (DataFinder Café[72]) that allows users to download user-defined components of geographic datasets, and interactive maps for online data browsing. The addition of the Café tool and support of Web Service technology have resulted in further improved efficiencies, so that the user can obtain and readily use geographic data produced by others.

MetroGIS stakeholder organizations can use DataFinder to both access and publish geographic data. Since April, 2005, when the 2003-2005 MetroGIS Business Plan was adopted, the number of datasets freely available via DataFinder has more than doubled, from around 70 to 162. Growth in data sharing attributable to accomplishments by MetroGIS is illustrated in Figure 4, below.

Figure 4. Data Sharing Activity Attributable to MetroGIS Effort's



We envision the next generation of DataFinder as an enhanced Internet-based tool designed to discover and access applications as well as datasets. These applications will analyze, or "run on," the geographic

[71] The original scoping statement used to guide development for the tool, which became known as MetroGIS DataFinder, was "identify mechanisms for indexing, describing, and accessing current, accurate, secure and usable geographically referenced graphic and associated attribute data."

[72] In 2002, the Café tool was added to DataFinder's capabilities and in 2006, the software platform that supports DataFinder Café was converted from the original custom-developed application to a commercially-supported product called GeoCortex, resolving support issues associated with the original platform. The conversion was paid for with a federal grant related the National Spatial Data Infrastructure program. Prior to selecting the GeoCortex solution, a collaborative solution was investigated with the Minnesota Land Management Information Center. In the end, MetroGIS decided not to pursue a dependency on the state for this capability.

data or web services accessible via DataFinder. This next-generation DataFinder will search for existing applications and web services hosted by others in much the same way that DataFinder searches for existing geographic data produced by others.
The "ApplicationFinder" capability was endorsed for prototyping by the MetroGIS Coordinating Committee at its December 2004 meeting. The concept moved to a formal testbed in 2006[73] with approval as a MetroGIS-funded Regional GIS Project under the direction of the Minnesota Land Management Information Center (LMIC). Another application-based endeavor approved as a 2007 Regional GIS Project involves investigating the potential for a regional geocoding service.

Knowledge Sharing

The MetroGIS Benefits Study[74] was conducted in 1999 to assess benefits attributed to MetroGIS's efforts. A conclusion of this study was that facilitating knowledge sharing is as important to MetroGIS stakeholders as MetroGIS efforts to improve data sharing. The continued belief in the importance of fostering knowledge sharing was evident, as well, in the results of the February 8, 2007, workshop at which this function ranked among the highest in priority for desired activities. Outcomes sought through fostering knowledge sharing include:

- Enhanced understanding of individual stakeholder GIS programs and capabilities through sharing knowledge about technology and proven practices among colleagues and peers
- Improved trust and mutual understanding within the community through frequent opportunities to communicate with colleagues and peers

A critical success factor associated with effective collaboration in a multi-organizational environment is the maintenance of a comprehensive and easily accessible institutional memory.[75] This requirement is met by the MetroGIS general information website at http://www.metrogis.org. The site contains information about all aspects MetroGIS's efforts, past and present. The MetroGIS support team places a high priority on documenting all activities and posting this information on the website. During the past year, the site recorded an average of 8,083 user sessions per month. This sharing of knowledge is also known to have contributed to initiatives beyond the Twin Cities metropolitan area. This fact[76] was discussed in the commendation of MetroGIS offered by the Minnesota Governor's Council of Geographic Information.

At each MetroGIS Policy Board meeting a demonstration of some facet of GIS technology is provided. Other activities to foster knowledge sharing about GIS technology and to support efforts to address shared needs include:

- Providing an information-sharing update as a standard component of each Policy Board, Coordinating Committee, and Advisory Team agenda
- Sharing information at workgroup meetings
- Disseminating information through broadcast emails
- Hosting and co-hosting educational forums, such as the June 1, 2006, forum entitled Imagining Possibilities: The Next Frontier for Geographic Information Technology[77]
- Routinely participating on committees of the Minnesota Governor's Council on Geographic Information
- Producing an annual report and articles for the quarterly Minnesota GIS/LIS Consortium newsletter
- Maintaining contact with officials across the nation and internationally who are working on matters relevant to MetroGIS

MetroGIS leaders affiliated with the Policy Board, Coordinating Committee and staff also participate in statewide and national efforts to achieve GIS coordination beyond the borders of the Twin Cities metropolitan area. Examples of such coordination include the active involvement of MetroGIS at the staff, committee, and board member levels in National Spatial Data Infrastructure (NSDI) Framework

[73] For more information about the project see Item 5a at http://www.metrogis.org/teams/cc/meetings/06_0628/Agenda06_0628a.pdf.
[74] See http://www.metrogis.org/benefits/studies/index.shtml for more information about the cited study.
[75] "*Lessons from Practice: A Guidebook to Organizing and Sustaining Geodata Collaboratives*", p. 59, Johnson and Budic, 2001. (http://www.metrogis.org/documents/articles/lessons_entire.pdf).
[76] See the summary of May 2007 meeting of Governor's Council on Geographic Information at http://www.gis.state.mn.us/Minutes/gn_07may.pdf
[77] See http://www.metrogis.org/specialevents/techpossibilities/index.shtml for a summary of the Imagining Possibilities forum.

Workshops; participating in the drafting committee that launched the National Geodata Alliance (GDA); serving on the initial GDA National Board of Trustees, and participating in several MN Governor's Council on Geographic Information workgroups. The results of knowledge sharing and networking efforts are also clear in the designation of MetroGIS as the first operational sub-state I-Team in the country.[78] Networking has resulted not only in the exchange of knowledge, but in successful applications for significant grant awards that contributed significantly to the maturation of MetroGIS prior to 2004. Collaboration and networking with interests beyond the Twin Cities by the support staff dropped off considerably after 2004 due to limited resources for travel.

MetroGIS's Outreach Plan, currently in effect, also emphasizes participation in county-based GIS users groups as an important means of fostering knowledge sharing that is valuable to improving organizational efficiencies.

Advocacy and Awareness

Effective communication within and beyond the stakeholder community ensures that present and prospective users of geographic information technology are aware of MetroGIS objectives, projects, products and services, and thus avoid duplicating effort. This outreach ultimately facilitates knowledge sharing and partnering to address shared needs.

The outreach strategy in effect when this Plan was developed was adopted by the Policy Board on April 11, 2001.[79] It set forth a number of mechanisms to communicate MetroGIS objectives and activities to various stakeholder interests. With the exception of publishing an annual report and distributing it widely, the tactics outlined in this strategy are targeted, for the most part, to organizations that already understand the value and potential of GIS technology, recognize the technology's inherent integrating capabilities and, more importantly, envision benefits that can be achieved by collaborating to address shared needs. These organizations have invested in and are routinely using GIS technology.

Limiting outreach to these organizations was due to two factors:

- MetroGIS's reason for being is to foster responses to shared information needs, not to improve understanding of benefits related to the use of the technology itself, which was acknowledged to be a function of other organizations, such as the Minnesota GIS/LIS Consortium.
- Limited resources resulted in a need to focus on those actively using the technology for their day-to-day business functions--those most likely to benefit from shared solutions and knowledge sharing. It was thought that prospective participants would not have sufficient understanding of the benefits that can be achieved through collaboration until they had experienced, first hand, problems resulting from their attempts to acquire and use geographic data produced by others to address their own in-house needs.

At its February 8, 2007, Strategic Directions Workshop, the MetroGIS leadership concluded that it is no longer a question of whether, but when, non-user organizations will leverage the capabilities of geographic information technology. They recognized that the public good would be served if more organizations participated in and subscribed to the outcomes fostered by the efforts of MetroGIS.

Accordingly, leaders agreed to expand the scope of MetroGIS outreach activities to include improving awareness and understanding among organizations that do not currently use geographic information technology, or use it sparingly. It was also agreed that "prospective participants" include not only government interests that serve the Twin Cities metropolitan area but non-governmental organizations that possess the potential for partnering to achieve geographic information technology solutions to problems shared by the government interests that comprise the MetroGIS community.

Discussion of challenges and strategies associated with this shift in policy are presented in Chapter Three.

[78] The I-Team Program of the Office of Management and Budget no longer exists. Its purpose was to provide an incentive and oversight to align geospatial resources controlled by federal agencies with those controlled by local government when the respective needs aligned. Similar objectives are now sought through a partnership between the Federal Geographic Data Committee (FGDC) and the National States Geographic Coordinating Council (NSGIC).

[79] See http://www.metrogis.org/about/business_planning/outreach.pdf for the plan document.

Performance Measurement

Since the creation of MetroGIS, its leadership has taken seriously the need to document benefits resulting from its efforts. In April, 2001, a formal Performance Measurement Plan[80] was adopted and methods were implemented to enable MetroGIS to measure progress toward the achievement of defined outcomes. MetroGIS chose to establish a Performance Measurement Plan because leaders recognized that MetroGIS had matured as an organization. Business planning had been established a blueprint for future activities, and there was a need to clarify what constitutes success for the organization.

Performance measures currently exist for three major outcome areas:

- Outcomes for data users: Ease of discovery of, and access to, current data
- Outcomes for data producers: Improved efficiency and staff time savings
- Community outcomes: Improved decision making and better service to the public

Ten measures, including both quantitative and descriptive criteria, are identified in the current Business Plan. Unfortunately, a practical technical means to capture data related to "Outcomes for Data Producers" has not been identified. Consequently, performance measures associated with DataFinder,[81] and testimonials provided by stakeholders benefiting from MetroGIS's efforts, have served as the primary measures of success in this area.

Performance measurement data are captured monthly by support staff to evaluate and track progress related to several measures. Anomalies discovered during analysis of these data, whether positive or negative, are shared quarterly with the Coordinating Committee for insight into possible explanations. An annual report is presented to the Policy Board, generally at the Board's January meeting, along with suggested program modifications to address issues or concerns that are discovered. Trends have been monitored on an ongoing basis since 2002.

The MetroGIS Performance Measurement Plan is scheduled to be updated following adoption of this Business Plan to ensure that performance measures are aligned with the desired outcomes set forth herein. The update process will leverage the work accomplished at the February 8, 2007 Strategic Directions Workshop. A deliverable of the Workshop was a "causal map"[82] that illustrates major desired outcomes and the strategies that MetroGIS leaders desire for MetroGIS. This "causal map" includes "secondary" outcomes which also serve as performance indicators. These indicators will provide the point of departure for the process of updating the current Performance Measurement Plan.

Finally, MetroGIS was recognized in a professional paper,[83] published in 2006, in which the authors conclude that MetroGIS's Performance Measurement program "can be considered an exemplar for spatial data infrastructure SDI control evaluation."

[80] The MetroGIS Performance Measurement Plan and the accompanying annual Performance Measurement Reports can be viewed at http://www.metrogis.org/benefits/perf_measure/index.shtml.

[81] For a full accounting of performance measures associated with the data available and use of DataFinder, see http://www.metrogis.org/benefits/perf_measure/index.shtml.

[82] A small version of the "causal or concept map" is provided in Appendix A for illustration purposes. The statements shown in "red" that are not "boxed in" are considered secondary outcomes that have utility as performance indicators, according to Professor John Bryson who facilitated the Workshop. They will be used to evaluate the need for new measures.

[83] "*Understanding How And Why Practitioners Evaluate SDI Performance*", Georgiadou, Rodriguez-Pabón, and Lance, 2006, Vol. 1, 65-104, International Journal of Spatial Data Infrastructures Research, http://ijsdir.jrc.it/research_articles/lance_georgiadou_bregt.pdf. The authors investigated twelve performance measurement programs from an international field of spatial data infrastructure initiatives. The MetroGIS Staff Coordinator was interviewed for this and a subsequent study conducted by Lance. Lance has expressed interest in assisting MetroGIS strengthen its performance measurement program when it is updated following the adoption of this Plan.

CHAPTER 3
ACTIVITIES: CHALLENGES, STRATEGIES, TACTICS

Eight major activity areas[84] have been identified as priorities for MetroGIS over the next three to five years, beginning in 2008. Each activity area is strategically aligned[85] with, and is essential to, achieving a specific desired outcome.

The eight activity areas are not listed in order of relative importance because simultaneous work on some aspect of each must occur to achieve desired outcomes. For ease of reference, we include the four-digit number that corresponds to the causal map found in Appendix A.

The Eight Major Activity Areas

1. Develop and maintain regional data solutions to address shared information needs. (5031)
2. Expand endorsed regional solutions to include support and development of application services. (5008)
3. Facilitate better data sharing by improving processes, making more data available, and enlisting more users. (5034)
4. Promote a forum for knowledge sharing. (5016)
5. Build advocacy and awareness of the benefits of collaborative solutions to shared needs. (5027)
6. Expand MetroGIS stakeholders. (5023)
7. Maintain funding policies that make the most efficient and effective use of available resources and revenue for system-wide benefit. (5005)
8. Optimize MetroGIS governance and organizational structure. (5007)

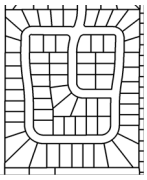
These activities will potentially lead to desired outcomes; however, outcomes are also influenced by challenges affecting MetroGIS's operations. These challenges include rapidly changing technology, growing expectations of those who use services provided by the stakeholder organizations, and an increasing need to collaborate in order to maximize limited resources.

The remainder of this chapter is devoted to identifying:

- Known challenges relating to the eight major activities
- Strategies intended to overcome challenges and effectively carry out each activity
- Tactics to be considered when developing annual work programs

The annual work programming process of MetroGIS is the primary vehicle for setting priorities for desired activities. The process involves defining tactics to implement strategies defined in this Plan. The process also serves as a means to ensure that activities derived from the strategies and tactics have the Policy Board's support. The Board may also, from time to time, request other endorsements before activities commence. Tactics that were identified during the development of the strategies are offered here as options to consider when engaged in annual work programming.

[84] These eight major activity areas were identified as priorities for MetroGIS at the February 8, 2007 Strategic Directions Workshop.
[85] See Appendix A for an illustration (causal map) which depicts each of the major program areas and their relationship with major desired outcomes. This "map" also depicts secondary outcomes which serve as potential performance indicators.



I. Develop and Maintain Regional Data Solutions to Address Shared Information Needs

This is a core function of MetroGIS and a primary focus of efforts to date. Activities include conducting an extensive exercise to identify common needs (adopted May, 1997[86]), facilitating development of datasets to meet those needs, establishing custodial and maintenance plans, and streamlining licensing for two datasets. Accomplishments include implementation of eight endorsed regional data solutions.

Development of the following seven regional solutions is in progress:

- Address points for occupiable units
- E911-compatible roads
- School and water management district (2)
- Existing land use
- Lakes, Wetlands and Rivers (Hydrography)
- Emergency preparedness features

Best practices and data content standards, an essential foundation for combining regional data, have also been developed or are in development. For the parcel and street centerline regional solutions, common license agreements have been negotiated with the producers to facilitate ease of access.

The list of shared information needs has not been updated since 1997, except for the addition of emergency preparedness-related data in 2002. Appendix G outlines the progress made on each information need, and it shows organizational needs and priorities that have changed since the needs were established. No progress has been made on two previously identified shared needs, and work on seven others is in progress.

Challenges

Ensuring that regional data solutions reflect current user information needs and priorities is critical to keeping participants involved in MetroGIS efforts. This means that: (1) existing endorsed regional data solutions need to be sustained and kept relevant to user needs; (2) obstacles which have slowed progress need to be resolved; (3) emerging needs must be dealt with in a timely manner.

Challenges Relating to Existing Endorsed Regional Solutions

1. ***Custodians***: Ensuring they can continue to fulfill their roles.
2. ***Users***: Keeping solutions consistent with current needs, identifying and implementing enhancements in a timely manner.
3. ***Maintenance***: Keeping data current and involving more users in upkeep. For example, non-government interests suggested an Open Source Data Model to allow them to contribute to and share parcel data.[87]
4. ***Licenses and Access Agreements Relating to Parcel and Street Centerline Data***: Securing extensions or new agreements before existing agreements expire is critical to ensuring that users' access is not interrupted. Negotiations to establish the next-generation agreements are pending in 2008 for parcels and in 2009 for street centerlines. In the past, negotiations leading to these agreements focused on intellectual property issues. A major focus of upcoming negotiations will doubtless be finding ways to diminish legal exposure through licensing

[86] In 1997, thirteen information needs were defined as "common priority information needs". During deliberations to refine the MetroGIS policy foundation presented in this Plan, the term "common" was changed to "shared".

[87] See Appendix I, Item 2. Proposed by non-government interests to allow them to "contribute and share" parcel-related data.

protections while meeting a growing user demand,[88] particularly for web-based access. These agreements are important vehicles to sustaining relevance to stakeholder needs.

5. ***Technology***: Remaining current with changing options for capture, documentation, management, and distribution of geographic data and incorporating improvements.

Challenges Relating to Regional Solutions Now Underway

Solutions already implemented required a single regional custodian that was easily recognized and willing to accept the assignment. Solutions that have not been implemented, on the other hand, require a significant time commitment from many, including both skilled technical leadership and leadership to address organizational issues that must be overcome to sustain technical solutions. Challenges include:

1. ***Custodians***: Lack of a willing organization to investigate options or lack of a willing organization to implement a solution that has been identified.
2. ***Perceived Benefits and Participant Support***: Complex collaborative solutions require substantial advocacy and demonstration of benefits to secure prospective partners as well as substantial time to develop the needed support to proceed. Such challenges have been posed in at least three cases: the data solution underway for addresses of occupiable units, also known as address points; solutions attempted for existing land use; emergency preparedness information.
3. ***Management and Facilitation***: MetroGIS has always provided staff support for workgroups to enable members to share knowledge without spending time on project management. Support included technical staff on a project basis and policy/logistics staff on an ongoing basis. This model began to break down a few years ago when both technical aspects of solutions and stakeholder relationships grew increasingly complex. Projects now need to be managed, but relying on workgroup members to support project management seems to be an unreasonable expectation.
4. ***Technical Support***: Adding applications and related infrastructure to regional solutions is increasingly important and difficult for participants and staff to accomplish on a part-time basis. A major impediment to moving forward is the lack of technical coordination and leadership support to research options, support workgroups, and offer practical solutions. Individuals with the needed skills exist within the community, but they have not had time to assume leadership roles to conduct the requisite complex investigations. For the past few years, MetroGIS's "Facilitate Collaboration" support budget has recognized 0.05 FTE[89] for Technical Project Leadership.[90] This support has been provided by Council staff on an "as time permits" basis for projects deemed by the Council to be beneficial to its operations. This level of technical leadership support is insufficient to meet expanding MetroGIS needs.[91] Outsourcing can be an option for project-based needs, but it is not an effective means to sustain ongoing support.

Challenges Relating to New Information Needs, Priorities, and Technologies

1. ***Updating Needs List***: The community's information needs list has not been updated even though users' information needs have changed.
2. ***Effect of Applications***: The support paradigm of organizations assuming defined custodial roles may be changing. Organizations may make valuable contributions by either maintaining parts of datasets through an application or by contributing components of applications.
3. ***Expanding Geographic Area Covered***: "Regional" solutions that meet all users' needs may be expected to include areas outside the seven-county metropolitan region.

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[88] For example, a request for unlicensed access to the regional parcel dataset by the Legislative Auditor's Office in May 2007 raised serious questions that will need to be addressed.

[89] See Chapter 1- Organizational Support for Fostering Collaboration.

[90] In response to the Metropolitan Council's need to reduce its overall budget for 2001, a decision was made to modify support it provided to MetroGIS by eliminating the position of MetroGIS Technical Coordinator when the incumbent left the Metropolitan Council. This individual had provided technical support to special purpose workgroups and helped define courses of action suitable for MetroGIS. Other technical staff associated with the Council's GIS Unit absorbed the majority of these support roles. At that time, several solutions to shared information needs were in progress and were covered under the reorganization. The preference to expand the scope of regional solutions to include applications had not been recognized.

[91] This 0.05 FTE does not include the significant support commitment for DataFinder or any of the data custodian roles that have been accepted by the Metropolitan Council. The 0.05 FTE is strictly for exploring and fostering collaborative solutions to shared geospatial needs.

4. ***Identifying and Implementing New Solutions***: This process often takes a year or more once a need is identified: it can move only as quickly as participants have the resources to move it.
5. ***Fostering Information Technology Solutions***: As applications are pursued, there will be a growing need to define processes to foster appropriate solutions to address the inevitable infrastructure needs that are critical to implementing application-based solutions.
6. ***Perception of Data as Infrastructure***: Increased awareness that data are a component of infrastructure—that they are an information utility--must develop to secure the resources necessary to sustain long-term maintenance in a manner similar to life cycle funding for water and communication utilities.

Strategies

The strategies discussed here have been endorsed by the Policy Board as an aspect of adoption of this Business Plan.

1. **Maintain relevancy of regional solutions:** Seek feedback from data users and producers to maintain relevance to changing user needs and to leverage resources not available when the solutions were implemented.
2. **Continue work on solutions underway:** If current "in-progress" solutions are still considered a high priority, examine impediments and seek ways to achieve implementation. Use MetroGIS's proven practices to define shared needs, data content requirements, and custodial roles and responsibilities; secure willing custodians; and engage policymakers of essential stakeholder organizations.
3. **Consider endorsing regional datasets developed by others:** Consider regional endorsement of datasets developed by others, including non-profit and for-profit interests, associated with shared information needs. Establish procedures and criteria to guarantee quality and interoperability with other endorsed regional datasets.

Tactics

Though this is not an exhaustive list, it is documentation of the tactics identified during development of the strategies. These tactics are listed here to ensure they are not overlooked when developing annual work programs. All but one of the statements, number 5, has been fully corroborated as appropriate for MetroGIS's efforts. It is preceded by a double asterisk (**) and requires additional refinement before pursing enactment.

1. **Conduct a survey to re-assess old priorities and identify new ones:** Conduct an assessment of participant interests in 2008, and periodically thereafter, to determine the next generation of shared information needs and priorities for MetroGIS to address. This assessment should offer recommendations about continuing to include the Land Regulations and Rights to Property priority shared information needs defined in 1997. This assessment should also be conducted in conjunction with an assessment to define potential shared application opportunities (Chapter 6.2) that leverage and build upon collaborative solutions to the data component of shared information needs.
2. **Secure timely renewal of data access agreements:** Complete negotiations for data sharing and access agreements in a timely manner to avoid interruption of stakeholder access to critical data resources.
3. **Encourage feedback among users and producers:** Conduct periodic surveys to identify issues and related best practices with regard to access to existing agreements, licenses and procedures; pursue modifications as needed. Continue the established practice of MetroGIS co-hosting, with regional custodian organizations, Peer Review Forums for users of each regional solution every three to five years. Forums are essential for sharing ideas on how to improve solutions that are currently implemented or in progress, and to raise questions about such issues as data content, access and custodial responsibilities. Through forums, we can create ways to ensure that solutions maintain their relevance with changing user needs, and we can leverage resources not available when the solution was implemented.
4. **Support designated custodians**: Encourage and support organizations that have accepted regional and local custodial roles to fulfill their responsibilities, such as responsibilities to offer forums and monitor updates. Every two or three years, interview primary and regional custodians for a particular regional solution to identify concerns and resolve issues so as to avoid negative user impacts.

5. **Investigate potential for less formal licensing**: Investigate ways to transition from formal data licensing agreements to "shrink wrap" formats and, if possible, to transition to waivers or disclaimers based upon statutory language[92] pertaining to publicly-produced data.[93]
6. **Investigate access to licensed data via web applications**: Continue to pursue policy and procedure modifications to allow "licensed" data, which are components of an endorsed regional dataset, to be utilized in web-based applications accessible by the public, perhaps on a view-only basis.
7. **Use performance measures:** Analyze Performance Measurement reports to detect potential user satisfaction issues, seek underlying causes, and implement appropriate solutions.
8. **Support county data producers workgroup:** Continue to rely upon the County Data Producers Workgroup to help evaluate access policies and procedures concerning parcel data. This includes periodically working jointly with non-government interests to review the current demand for parcel data, consider whether it and other licensed geographic data should be distributed through MetroGIS to interested non-government entities and, if so, establish procedures and practices to do so. (This tactic is related to Tactic 3, Activity Area VI.)
9. **Remain informed of changing stakeholder needs and preferences**: Through various knowledge-sharing methods, ensure that members of the Policy Board, Coordinating Committee, leadership of workgroups, and support staff remain knowledgeable of current stakeholder needs and preferences as those needs and preferences relate to implemented regional solutions. Identify those needs which possess opportunity to address in shared solutions.

[92] For example, Chapter 466.03, Subd. 21 of Minnesota Statutes.

[93] There are over 200 licensees of the regional parcel and street centerline datasets. In the event that agreement can not be reached to renew the agreements that govern access to these data and set the guidelines for licensees, there will be significant downside consequences for numerous business functions supported by these data. If the rigor of the current licensing procedures can be eliminated this problem can be averted. The substantial investment of staff resources involved in negotiating these agreements could also be put to other priority needs.

II: Expand Endorsed Regional Solutions to Include Support and Development of Application Services

This topic area was identified as an emerging need in the previous Business Plan. Several of MetroGIS's stakeholder organizations have also started independent or collaborative activity in this area. Examples of these independent activities include the parcel access application work of Dakota, Scott and Carver Counties, the OpenMNND project, and the M3D project.

In endorsing this activity, the Policy Board recognized that related infrastructure will also need to be developed so as to leverage the capability of regional datasets.

Challenges

1. **Expanding Expectations:** With high-quality geographic data easily accessible, more people are finding ways to utilize geospatial data to improve decision-making. Technology and user expectations have changed with increased interest in direct access to information through the Internet or through enterprise applications as opposed to obtaining a dataset and manipulating it on an organization's own GIS system. MetroGIS stakeholders are increasingly expected to develop applications and web services to meet these changing user needs. This change has elevated the topic of shared application needs to the ***highest priority*** for MetroGIS. However, the rapidly changing technology, much of which is not commonly understood by those asked to develop and adopt policy for shared needs, has made it difficult to define a plan of action.
2. **Difficulty Defining Shared Application Needs:** Efforts to explore the role of MetroGIS in the world of applications, such as the regional mailing label application, have not been successful. The reason for this lack of success is due, in large part, to the lack of a comprehensive needs assessment.[94] An effective mechanism is needed to identify shared application needs, develop technical application solutions, and define custodial roles and responsibilities to support those solutions. To date, efforts to apply the needs assessment process used in the past to identify shared information needs have not worked in this new environment.

Strategies

1. **Develop a Clear Understanding of the role of MetroGIS Relative to Shared Applications**:[95] A policy framework is in place to guide MetroGIS in its pursuit of collaborative solutions to shared application needs.
2. **Pursue Public-Private Partnership Opportunities:** For application needs shared by government and non-government interests, pursue partnership opportunities to support collaborative solutions which build upon the recommendations submitted to the Policy Board in the fall of 2006 by the "Beyond Government Users Partnership Opportunities" Workgroup. This recommendation is outlined in Appendix I.
3. **Foster Integration with State Infrastructure:** Seek out opportunities to participate in Minnesota's Spatial Technology Infrastructure planning to advocate for addressing regional needs. In particular, seek ways to leverage MetroGIS's investment in data discovery and distribution tools.

[94] The process used 1996-97 to define shared information needs has not worked to define shared application needs. See http://www.metrogis.org/data/about/index.shtml#identify_needs for information about how MetroGIS defined its initial set of shared information needs and an explanation of those initial priorities.

[95] At its July 25, 2007 meeting, the MetroGIS Policy Board acknowledged that pursuing shared applications has the potential to establish operational interdependencies among organizations and that the strategy should be pursued with the understanding that the risks and rewards will be considered on a case-by-case basis.

Tactics

Though this is not an exhaustive list, it is documentation of the tactics identified during development of the strategies. These tactics are listed here to ensure they are not overlooked when developing annual work programs.

1. **Study examples of cooperative application development**: As a component of developing a Plan to define and address "Shared Application" needs, leverage as test beds previous similar projects to identify policy and technical needs related to collaborating on shared applications or services. Projects to be tested include, but are not limited to: the M3D application[96]; the Geocoding Web Service 2007 Regional GIS Project[97]; the OpenMNND project; the Governor's Council projects (e.g., service broker); the discontinued regional mailing label-maker application. This testing should investigate such areas as intellectual property rights, view-only access to licensed data, effect of web services on dependencies of one organization upon another and Data Practices Act issues. This study should also be used to raise the level of understanding of the technologies involved.
2. **Agree on a policy framework for addressing shared application needs:** Following the assessment called for in Tactic 1, pursue agreement on a policy framework to direct the actions appropriate for MetroGIS in its pursuit of solutions to shared application needs. The policy framework should address such questions[98] as:
    a. What types of shared application-related activities and responsibilities are appropriate for investing MetroGIS resources? For example, should MetroGIS invest in fostering standards, fostering best practices, assisting with prototyping applications and web services, defining shared needs, or all of the above?
    b. Should "shared services" be viewed as building blocks for applications?
    c. Should priority be given to applications that broaden access to data?
    d. What role should MetroGIS play regarding securing infrastructure critical to implementing a preferred solution to a shared application need?
    e. Should leading edge web-based solutions, such as GeoWeb, be pursued as solutions to shared stakeholder application needs?
3. **Identify shared stakeholder application needs, and develop a tactical plan to address them:** Perspectives of both inter- and intra-sector communities that comprise MetroGIS's stakeholder community should be included. In other words, MetroGIS should include communities within a single sector, such as counties, as well as communities across sectors. This assessment should be conducted in conjunction with Tactic 1, Activity Area VII, titled "Reassess Old and Identify New Shared Priorities." Deliverables of the assessment[99] of the role of MetroGIS pertaining to Applications should:
    a. Incorporate ideas offered by the Beyond Government Users Workgroup outlined in Appendix I.[100]
    b. Identify existing applications and services that can be shared among stakeholders.[101]
    c. Promote shared services as a building block for applications.
4. **Host educational forums:** MetroGIS may wish to host facilitated forums to which recognized experts are invited to share market and technology trend information with the MetroGIS community. Expert input will be useful in defining and refining MetroGIS's application-related efforts.
5. **Foster coordination among stakeholders:** Investigate the potential of developing and hosting a web-based "message board" or "clearinghouse" where project managers may post information about application development projects as a means to attract prospective partners and/or leverage lessons learned from others.

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[96] See http://w3.pppl.gov/m3d/index.php for a complete project description. The M3D site was developed with a $590,000 federal grant.

[97] See the report for Agenda Item 5a at http://www.metrogis.org/teams/cc/meetings/07_0627/07_0628_packet.pdf.

[98] These topics were identified by individuals at the February 8, 2007 Strategic Directions Workshop but were premature to discuss as policy components for an applications strategy.

[99] MetroGIS may wish to consider retaining a well-qualified expert to facilitate defining application-related needs that are shared by MetroGIS's stakeholder community. The consultant-assisted process used in 1997 to define shared information needs should be reviewed for applicability to the current need for a policy foundation and tactical plan to address shared application needs. .

[100] The Policy Board recognized at its July 25, 2007 meeting that MetroGIS does not have the staff resources or expertise to conduct to an assessment of non-government application needs. As such, the Board concluded that a "Non-government Coordinating Committee" should created, which would develop application development options to share with MetroGIS as prospective collaborative projects. This Non-government Coordinating Committee would be deferred to as a vehicle through which to address policy concerns related to data sharing.

[101] Leverage the results of the "Service Broker" 2006 Regional GIS Project that was in progress during development of this Plan.

III: Facilitate Better Data Sharing by Improving Processes, Making More Data Available, and Enlisting More Users

This activity speaks to the need to make more data available and recruit more users. It also indicates the need to improve processes, as well as data completeness, accuracy and currency.

The facilitation of data sharing has always been a core function of MetroGIS. Data standards and agreed-upon standardized formats have allowed creation of many region-wide datasets that are easy to use across boundaries. They have also made local data easier to use with other datasets. Metadata is routinely provided that allows other users to interpret data attributes and usability. The DataFinder tool was developed and is maintained to support another core MetroGIS function: enabling one-stop, Internet discovery and access to geospatial data useful to other interests. Currently there are over 160 datasets available through DataFinder. The DataFinder tool, together with standardized formats, makes it easy to move data from producers, process it, and use it to support business needs. For the two regional datasets with restricted access, data sharing agreements were developed and implemented with the seven counties regarding access to parcel data and with The Lawrence Group regarding access to street centerline data. Through these agreements, we were able to eliminate fees for government and academic users. Progress has also been made to improve access to parcel data by non-government interests.

Challenges

The facilitation of data sharing continues to be a challenge due to the ever-expanding production of and need for geospatial data, the wide variety of producers and users, changes in data and information delivery technology, and issues associated with intellectual property rights for both public and private producers. Each of these issues is discussed in more detail below.

1. **Expanding Data Available:** MetroGIS would like DataFinder to be widely recognized as the premier “marketplace” for data related to the Twin Cities metropolitan area. Public, private and non-profit organizations have been encouraged to make their datasets available through DataFinder. Although DataFinder and its DataFinder Café component can greatly streamline access, the number of datasets and organizations publishing data via DataFinder has not appreciably increased over the past few years, and no non-government interests currently publish their data via DataFinder. Many organizations apparently do not understand the benefits or take the time needed to prepare the necessary metadata. Multiple producers are required to meet unresolved shared information needs, and this also adds complexity to the process of reaching data sharing agreements and implementing solutions. Expanding available data will require a coordinated multi-faceted effort including outreach, policy support, user involvement and technical support of DataFinder and/or equivalent tools that make it easy for producers to submit datasets and/or services, and make it easy for users to find them.
    a. Maintaining DataFinder’s relevance and usability requires a significant commitment of resources, including skilled technical support that must stay current on state-of-the-art capabilities. Challenges include, but are not limited to:
    b. A rapidly changing hardware and software environment for distribution and use of geographic information
    c. Issues related to expanding the breadth of publishers and number of datasets published via DataFinder
    d. Maintaining a user-friendly environment while addressing the broad range of stakeholder needs
    e. The increasingly blurry boundary between need for access to the geographic data file versus an image of the data (Web Service) which, in turn, has implications for data access policies and security requirements

2. **Increasing Number and Variety of Producers and Users of MetroGIS's Services and Products:** With adoption of this Plan, the main users have expanded from the original target of government agency GIS staff. The community of users now includes non-profit and private organizational users, private citizens, and users who have less experience with GIS technology. The pool of users and producers is expected to expand as more users understand the benefits of participation and as access becomes easier for general users through links to applications and services. This challenge takes on a broader meaning with the adoption of this Plan and the accompanying desired outcome of expanding the MetroGIS's stakeholder community. MetroGIS's leadership recognizes that progress to address access impediments of non-government interests to data produced by government is critical to forging partnerships with these interests and is important to improving data quality and integrating a wide range of public and private sector data into applications. This merging of data and applications will require more levels of service than anticipated in the past. Exploration of the concept of an "Open Data Source Model," as suggested by the Beyond Government Users Workgroup (Appendix J), also holds promise to expand both data available for sharing and diversity of contributors.
3. **Changing Data/Information Delivery Technologies:** "Sharing data" once meant being able to download a copy of an entire dataset to use in your own GIS system. Recent advances in web services allow users to link directly to a data source and view the most up-to-date data and images on demand as this is delivered to a web or desktop application through a Web Mapping Service (WMS), Web Feature Service (WFS)[102] or other proprietary web service. The DataFinder tool needs to be able to provide users with links to data in whichever format the data is available. A related challenge is the lack of capacity of some stakeholders to host web services in-house. A better understanding of such deficiencies and available capacities across the community is needed to accurately define collaborative options.
4. **Issues Related to Intellectual Property Rights and Access to Use:** The primary challenge related to intellectual property rights is streamlining processes for accessing currently restricted data (parcels, street centerlines) or new restricted datasets such as those developed by private producers, while respecting the producing organizations' cultures and objectives. If an organization does not believe it benefits from data sharing, then mitigation of policy barriers related to data privacy, cost recovery, and licensing constraints is unlikely. Although significant progress has been made to streamline access authorization processes for government and academic interests, there is room for improvement for other users. MetroGIS leadership has directed that similar advances be achieved for non-government interests.
   New web-services technologies have created opportunities to provide non-licensed users who are unable to "download" licensed endorsed regional parcel and street centerline datasets in its native form the ability to view them as images. This technical capability is blurring the lines as to what constitutes access in terms of traditional data licensing requirements. In other words, technical capabilities are driving the need to reassess legal data access requirements. Among the complexities that result is the need to implement a means to allow licensed users secure use to the data files for applications that are merely viewable by the general public. Other challenges may include selecting the forms in which data will be shared so it will serve as many users as possible without unduly expanding support requirements. We must also define and implement a means to coordinate, document, process and maintain multiple data forms.

Strategies

1. **Maintain DataFinder as a core function:** Continue to support DataFinder as a core function of MetroGIS and promote its benefits to the producer and user communities.
2. **Foster a marketplace for geospatial resources beyond DataFinder:**[103] Seek to establish a geospatial resources marketplace, beyond that currently provided by MetroGIS DataFinder, to expand both the entities involved in the sharing and the subjects of the sharing. Establish this marketplace as the premier source of geographic data, information, applications, and services for the metropolitan area, and involve all sectors, data producers and data users, connecting those with resources with those who have a need for those resources. This marketplace would

[102] See the Glossary for definitions of these terms.
[103] At its July 25, 2007 meeting, the MetroGIS Policy Board concluded that it is an appropriate activity for MetroGIS to assume a leadership role in the creation of a "geospatial marketplace", acknowledging that the value received by the parties must be determined, on a case-by-case basis, to be equitable whether involving funds, barter, or a combination.

encourage producers to share samples of their products and services with prospective users and encourage flexibility in acquisition methods such as bartering, subscriptions, or differential pricing based on level of detail.

3. **Resolve producer and user concerns:** Continue to proactively mitigate differences between data producer concerns and user preferences so that barriers and impediments to effective distribution of quality geographic data readily to interested users, in the form needed, are minimized.
4. **Pursue data interoperability beyond the Twin Cities Metropolitan Area:** On a project-by-project basis, work with entities located within neighboring counties and with organizations that require others to report information.[104] The purpose of developing these working relationships includes the aspiration to encourage use of data standards and best practices for developing and delivering accurate, current and well-documented geographic data so as to improve interoperability with data resources maintained by organizations that serve the Twin Cities metropolitan area, in particular with endorsed regional solutions. These experiences, results and lessons learned should also be shared with the Governor's Council on Geographic Information for its use in fostering statewide standards and best practices.

Tactics

Though this is not an exhaustive list, it is documentation of the tactics identified during development of the strategies. These tactics are listed here to ensure they are not overlooked when developing annual work programs. All but two of the statements have been fully corroborated as appropriate for MetroGIS's efforts. The two tactics preceded by a double asterisk (**) require additional refinement before pursing enactment.

1. **DataFinder Management Plan:** A management plan should be developed to ensure MetroGIS DataFinder continues to maintain its relevance as a one-stop trusted mechanism providing reliable data to address stakeholders' business needs. The following topics, which are not listed in order of importance, should be addressed in this plan:
    a. Maintain relevance to needs of custodians, producers and users: Ensure DataFinder continues to address the needs of the stakeholder community by detecting potential user satisfaction issues through the means listed below, attempting to identify underlying causes, and implementing appropriate remedies in a timely manner.
        1) Continue the established practice of MetroGIS co-hosting a Peer Review Forum every three to five years with the custodian of each regional solution. In this case, the custodian is the Metropolitan Council which hosts DataFinder.
        2) Conduct interviews with organizations that publish geographic data on DataFinder to identify any issues, such as secured access, they may have with the publication procedures. Seek to resolve such issues in a timely manner.
        3) Leverage Performance Measurement Reporting results to detect potential user satisfaction issues. Attempt to identify underlying causes, and implement appropriate remedies in a timely manner.
        4) Consider providing electronic means through which stakeholders, including both data users and producers, can identify issues or concerns regarding the functionality of DataFinder as well as the data holdings. This includes examining the possible value of developing web forum activities that use collaborative workspace tools such as wikis and weblogs.
        5) Explore technology and procedural innovations that demonstrate potential for improving responsiveness to user requests and reducing support requirements.
    b. Improve producers' awareness and use of DataFinder: Expand outreach and marketing efforts and proactively encourage academic, non-profit and for-profit producers of geographic data in the Twin Cities area to publish data via DataFinder by informing them of the benefits that can be realized by doing so.
    c. Increase data published on DataFinder by small area data producers: Investigate ways to foster publication of data via DataFinder by small area producers such as addressing

[104] Examples: Land Use plans, Storm Water Management plans, Emergency Services plans, Census data/geography, Land Development plans.

authorities, cities, watershed districts and school districts.

d. Increase use of DataFinder by data users: Expand outreach to inform prospective users of geographic information of the data assets that are available via DataFinder and the benefits associated with using endorsed regional datasets.

e. Integrate DataFinder with "ApplicationFinder": Consider the need to seamlessly integrate DataFinder's functionality with ApplicationFinder a high-priority design requirement.[105]

2. **Explore the concept of a "Geospatial Marketplace":** Develop a tactical plan to refine and foster the concept of establishing a "Geospatial Marketplace." The following ideas are offered as prospective activities for MetroGIS to consider.

   a. **Define Geospatial Marketplace: Beginning with the concept outlined in the Strategy 6, above, reach agreement among affected parties on a clear definition of the meaning and scope of "Geospatial Marketplace." The components of this concept may include:

      1) *Listing data in a directory, even if full metadata are not available.* Promote a "metadata lite" approach to supplement metadata associated with data available via DataFinder. This would allow potential data contributors to describe their data holdings easily in a basic format and to post those descriptions in a searchable catalogue so others can be apprised of the data's existence and be provided contact information so they can seek further information. Reducing metadata requirements could encourage smaller organizations to publish data holdings. A web application called "RAMONA"[106] (see www.nsgic.org) is already being used by other states for this.

      2) *Including links to private data available, either free or for purchase.* Non-government interests may be encouraged to participate, and possibly share data, if they are made aware of the existing policy that private data producers are encouraged to post metadata on DataFinder to let people know about their data or application products or to find resources for developing applications. This policy should be more broadly advertised to raise the awareness of such non-government interests.

      3) *Including links to private applications or web sites that provide free or paid access to public data.*

   b. **Investigate Open Source Data Model: Investigate the potential of implementing an Open Source Data Model for endorsed regional data solutions. Such a model would become a means to permit organizations other than the custodian to tie data to the "official" regional solution as well as identify anomalies in the "official" source. A core group of users, operating under the auspices of MetroGIS, could be responsible for assessing or rating incoming data changes. All user submissions would be kept in a separate, fully documented, data warehouse for use by others.[107]

   c. Advertise availability of help for metadata creation: Continue efforts to increase awareness of available assistance to produce metadata and expand the target audience beyond local and regional government (e.g., find ways to encourage data producers to provide access to more data).

   d. Promote expanded web services and applications: Encourage more producers to make their geographic data available via web services and applications.

   e. Investigate non-desktop application solutions: Investigate applications and web services, such as commercial GIS software, that are not part of the standard desktop suite.

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[105] See Tactic 4 below and Chapter 2 – DataFinder: Internet Based Tool for Information Discovery and Access for more information about the ApplicationFinder concept.

[106] To some adopting the RAMONA concept to catalyze growth in data available via DataFinder may seem like heresy (e.g., It's Metadata or nothing). MetroGIS has a precedent for supporting a limited form of metadata with the Socioeconomic data guide (http://www.datafinder.org/mg/socioeconomic_resources/index.asp). Endorsing this concept would appear to be a prudent means to encourage smaller organizations (e.g., smaller cities) and others to contribute to a data directory.

[107] A recommendation of the "Beyond Government Users" Workgroup. See Appendix I, Item 2 for further information. The Policy Board at its July 25, 2007 meeting also encouraged the Coordinating Committee to investigate a partnership with the real estate industry to leverage access to their parcel related data resources in a way easily combinable with data produced by the counties.

3. **Address obstacles to sharing data:** Seek mutually acceptable solutions to barriers. Examples of such barriers are: security for licensed or otherwise sensitive data; multiple uncoordinated license procedures; liability concerns related to cross-sector sharing of data, applications, and/or services; cost recovery practices; inconsistent, overly restrictive practices and policies involving government and non-government interests. With regard to cost-recovery practices, seek out credible research findings to aid with the resolution of barriers. For example, seek research that shows whether the presence of cost recovery policies[108] negatively impacts data sharing of importance to the region.
4. **Implement "ApplicationFinder":** Implement the ApplicationFinder concept[109] to facilitate the sharing of applications and web services among stakeholders, and establish policy guidelines such as those identified in previous studies. Leverage knowledge and products from projects now in process under the direction of the Governor's Council on Geographic Information to: identify existing applications and services that can be shared among stakeholders; prototype a web-based Service Broker application to provide a user-friendly means to discover existing applications and utilize them (2006 MetroGIS funded Regional GIS Project on Applications).
5. **Seek integration of MetroGIS policy into statewide geospatial policies:** Encourage and foster statewide adoption of principles that underpin MetroGIS efforts and obtain ideas from state officials about methods they believe could improve effectiveness at the regional level.[110]

[108] At its July 25, 2007 meeting, the Policy Board concurred that tangible and intangible benefits realized by the producing organization and accruing to the region should be included in the considerations when deciding cost recovery policy. It was also agreed that the central question is "does the presence of cost recovery policies inhibit sharing of data / collaboration to achieve shared needs".

[109] See the summary of Agenda Item 5g at http://www.metrogis.org/teams/cc/meetings/04_1215/min.pdf for further information about what is now referred to as the "ApplicationFinder" concept.

[110] Recommendation of the Beyond Government Users Workgroup. See Appendix I, Item 1 for further information.

IV: Promote a Forum for Knowledge Sharing

Facilitating knowledge sharing among those affiliated with the use of geographic information technology has been a core function of MetroGIS's since its inception.

Challenges

Significant progress has been made to enhance knowledge sharing among users of geographic information technology. Challenges to sustaining this environment include:

1. To sustain relevance, MetroGIS's leadership must remain in touch with stakeholders' changing needs. Effective knowledge sharing is critical to monitoring changing needs.
2. As the community of users of geographic technology expands, the small group, face-to-face support methods used in the past to facilitate knowledge sharing may not be effective or even possible.
3. Human resources dedicated to MetroGIS are not adequate to support proactive sharing of knowledge with organizations such as the Governor's Council on Geographic Information, adjoining counties, and the URISA community whose jurisdictions are beyond the Twin Cities metropolitan area.
4. New efforts are needed to expand knowledge sharing beyond GIS professionals. This poses a different set of challenges:
    a. It is difficult to identify and target activities to a group of potential users.
    b. It is difficult to craft an understandable message targeted to the non-GIS Professional.
5. Sharing knowledge with leadership of other geospatial collaboratives located beyond the region, and in particular beyond Minnesota, who are pursuing similar collaborative objectives, is important to leveraging lessons learned. Such knowledge sharing is as important to sustaining the effectiveness of MetroGIS as is fostering sharing of geographic information among MetroGIS constituents. Sharing among collaboratives tends to focus on issues of process and organization while sharing among constituents tends to focus more on data and technology. Knowledge sharing with colleagues beyond Minnesota has been infrequent due to logistic and cost constrains.

Strategies

Strategies to sustain an effective knowledge sharing environment include:

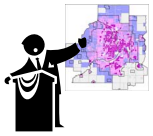
1. **Remain informed about geospatial market and technology trends:** Through various knowledge sharing methods, ensure that members of the Coordinating Committee, leadership of workgroups, and support staff remain knowledgeable of technology and market trends as they relate to achieving and maintaining collaborative solutions to address shared geospatial needs.
2. **Improve leadership's understanding of technology:** Continue to arrange for a GIS technology demonstration at each Policy Board meeting, principally to help the Board members better understand the benefits that can be realized through collaborative solutions. Arrange for demonstrations to the Coordinating Committee and Technical Advisory Team that help the members better understand emerging technologies and opportunities relevant to high-priority needs.
3. **Depend upon workgroups:** Continue to rely upon workgroups to define shared needs and develop recommended courses of action.

Tactics

Though this is not an exhaustive list, it is documentation of the tactics identified during development

of the strategies. These tactics are listed here to ensure they are not overlooked when developing annual work programs.

1. **Engage respected participants**: Continue to attract and recruit respected and knowledgeable individuals with diverse perspectives and a willingness to actively participate by serving on the MetroGIS's Policy Board, Coordinating Committee, Technical Advisory Team and special purpose workgroups.
2. **Foster dialogue on organizational and technical topics**: Foster knowledge sharing activities relating to organizational and technical topics important to MetroGIS's success through various methods, including co-hosting forums with organizations with similar objectives, such as the GIS/LIS and the Governor's Council on Geographic Information. Invite recognized experts to share their insight on topics important to achieving MetroGIS's vision.
3. **Maintain liaison relationships:** Continue to maintain liaison relationships with organizations and individuals who have similar objectives. Seek out relationships that may result in greater technical resources from state and federal governments.
4. **Leverage user groups:** Continue to attend and participate in local GIS user group meetings and activities as a means to share information about MetroGIS's efforts and to gain understanding of needs, activities and opportunities important to these groups' members.
5. **Pursue electronic tools:** Develop methods and tools to foster electronic exchange of ideas, feedback and consensus building capable of effectively substituting for, as well as augmenting, face-to-face meetings.



V: Build Advocacy and Awareness of the Benefits of Collaborative Solutions to Shared Needs

In the past, outreach to non-users of GIS technology was, for the most part, a passive and limited activity, in large part because the ranking of functional priorities set forth in the previous Business Plan declared marketing of MetroGIS data products and services to be an unfunded low priority.[111] Due to MetroGIS's finite resources, past outreach efforts were also targeted toward local and regional government leaders in the Twin Cities metropolitan area. Additionally, past outreach messages focused on the benefits of knowledge sharing and collaboration rather than the value of GIS technology per se.

Challenges

Encouraging advocacy and building general awareness of the benefits of GIS technology, and specifically MetroGIS's role to foster solutions to shared needs, has been identified as a goal for the next three to five years. The focus of this effort will be substantially broader than in the past. Known challenges to proactively marketing MetroGIS to prospective users include:

1. Developing an outreach program and message that resonates with leadership of organizations that have not yet recognized the value of geographic information technology or the value of collaborating to address shared needs.
2. The optimization and utilization of GIS solutions is constrained by the degree to which state agencies and policymakers currently support use of GIS technology and collaborative approaches. Therefore, MetroGIS efforts need to achieve strategic alignment with similar efforts at the state level. MetroGIS needs to develop messages that effectively improve understanding that use of GIS technology is a cost-effective way to conduct business in today's high-tech world and that cross-organization collaboration is necessary to fully realize the capabilities of this technology. These messages must be disseminated among the leaders of prospective participant organizations and of the state of Minnesota.
3. Improving awareness to a broader audience could come at the expense of knowledge sharing among entities currently using geographic information technology and participating in MetroGIS efforts. MetroGIS must find a balance between marketing to a broader audience and keeping current MetroGIS stakeholders informed.
4. Existing human and supporting resources are insufficient to engage in a proactive marketing program aimed at increasing awareness of and participation in MetroGIS without significantly impacting other high-priority activities.
5. Passive communication media, such as the annual report and articles in the GIS/LIS newsletter, continue to be produced, but generally not more often than quarterly, due to a lack of sufficient resources to commit to greater frequency. Outsourcing has proven to be an effective way to supplement staff resources for writing newsletter articles, the annual report and promotional materials. However, for most outreach activities, such as communicating with representatives of other organizations, a day-to-day working knowledge of MetroGIS operations is needed.

Strategies

1. **Improve understanding of benefits:** Develop advocacy messages to improve awareness and understanding, among policymakers and managers throughout the broad community, of tangible and intangible benefits to their organizations that result from participating in MetroGIS.
2. **Encourage leadership to assume advocacy roles:** Encourage knowledgeable members of the Coordinating Committee and Policy Board to advocate for MetroGIS among leaders of

[111] See Appendix A of the 2003-2005 Business Plan at http://www.metrogis.org/about/business_planning/bplan_0305.pdf.

their organizations and of their peers' organizations. Develop "packaged" materials to support this effort.

Tactics

Though this is not an exhaustive list, it is documentation of the tactics identified during development of the strategies. These tactics are listed here to ensure they are not overlooked when developing annual work programs. All, with the exception of tactic number one, have been fully corroborated as appropriate for MetroGIS's efforts. Tactic number one requires additional refinement before pursuing enactment.

1. ****Expand the MetroGIS Outreach Plan to include a marketing component[112]:** MetroGIS's expanded Outreach and Marketing Plan should include messages to address the topics that follow and identify audiences to whom it will target these messages. The expanded Plan should also identify any desired modifications to current message delivery methods listed in Tactic 2, below. Clarification of the objective of the new "marketing" focus, as opposed to past "outreach" efforts,[113] should be sought from the Policy Board and Coordinating Committee prior to drafting the expanding Plan.
    a. Benefits of adherence to standards
    b. Benefits of collaboration to address shared geospatial needs
    c. Appreciation for what is possible and what GIS technology is capable of doing
    d. "Because of GIS we can do___." (*Provide examples in the expanded Plan.*)
    e. "Because of MetroGIS we can do___." (P*rovide examples in the expanded Plan.*)
    f. Strategies to support and engage Policy Board, Coordinating Committee and Technical Advisory Team members to communicate these messages of advocacy to their peers at conferences and during day-to-day activities.
    The purpose of this expanded Plan is to "build a case" for participating in MetroGIS efforts by:
        - Improving understanding among government leaders that the use of GIS technology is a cost of effectively doing business in today's high-tech world and that cross-organizational coordination is necessary to fully realize the capabilities of GIS technology
        - Increasing awareness among stakeholders not currently participating in MetroGIS of the services available and promoting participation
        - Promoting the benefits of the use of GIS technology in addition to promoting the benefits of collaborating to address shared geospatial needs
        - Expanding participation by non-government interests
2. **Use varied outreach methods:** Promote increasing awareness of MetroGIS's goal to build capacity among its participating stakeholders, using methods that include:
    a. Making presentations at conferences and forums hosted by stakeholders
    b. Submitting articles for publication in newsletters and journals supported by other organizations[114]
    c. Hosting or co-hosting informational and educational forums
    d. Preparing an annual report and accompanying information brochure and distributing them widely to leaders of current and prospective participants
    e. If the members regard as useful, continuing to include an Information Sharing Report with agenda materials for each Policy Board and Coordinating Committee meeting and continuing to encourage Board and Committee members to submit items and sharing insights from conferences and other activities in which they have participated
    f. Participating in interviews and responding to requests for information
    g. Conducting surveys

[112] The Policy Board concluded on July 25 that expanding the Outreach Plan to include a Marketing component is premature until the desired messages are agreed upon. From a programming perspective, seeking resources to work on this project is less important to defining MetroGIS's role regarding applications and collaborative opportunities with non-government entities.

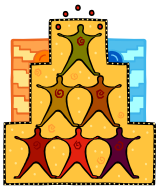
[113] See http://www.metrogis.org/about/business_planning/outreach.pdf for the high-level outreach objectives defined with the 2001 adoption of MetroGIS's Outreach Plan.

[114] Continue to leverage the GIS/LIS Consortium's newsletter to share information with the geospatial community (http://www.mngislis.org/displaycommon.cfm?an=1&subarticlenbr=69). Also, seek out opportunities to submit articles to newsletters supported by other organizations affiliated with stakeholder interests.

3. **Leverage electronic tools:** Develop methods to foster electronic exchange of ideas so as to capture ideas about collaborative opportunities in the feedback from prospective participants as well as to offer ideas about MetroGIS's philosophies, objectives, priorities, etc.
4. **Leverage user groups:** Continue to leverage GIS user groups[115] as an outreach mechanism.
5. **Target professional organizations:** Survey Policy Board, Coordinating Committee and Workgroup members to identify prospective organizational and professional groups that bring together managers and policy makers from broad constituencies and which are appropriate for targeting MetroGIS's marketing efforts. Examples of such groups are the Association of Metropolitan Municipalities (AMM), Association of Minnesota Counties (AMC), and the Minnesota Chapter of American Planning Association (MnAPA).
6. **Maintain web-based institutional memory**: Continue to maintain a complete, accurate, easily accessible and current web-based institutional memory of all aspects of MetroGIS efforts, including opportunities for participation, a library of past activities and accomplishments and current projects. The current site was developed in 2001. Organizational refinements are warranted to improve the ease with which desired information can be located.[116]

[115] User Groups that support staff have routinely informed of MetroGIS's efforts and attended meetings of to learn of topics of local interest are listed at http://www.metrogis.org/about/affiliations/co_user_groups.shtml.

[116] Links to numerous documents and pages posted on the current site are embedded in this Plan and other documents. As such, changes to the current web site must be accomplished in a manner that does not break these links.



VI: Expand MetroGIS Stakeholders

Local and regional governments that serve the Twin Cities metropolitan area have historically been the primary focus of MetroGIS efforts. This Plan broadens the scope to proactively seek participation from non-government interests and coordination beyond the geography of the Twin Cities metropolitan area.

Challenges

MetroGIS's leadership understands that the ability to sustain MetroGIS efforts depends upon a broad community of interests actively participating in achieving solutions to shared needs. The challenge is to convince those organizations that can contribute resources and expertise of the benefits of participating in MetroGIS. The following five constituencies are targeted in an attempt to gain their active participation in MetroGIS beyond just using MetroGIS products and services.

1. Non-government entities that may be willing to provide resources needed to address shared needs. In addition to addressing inter-sector data-sharing concerns, .resolving liability concerns for partnering among public and non-public entities is anticipated to be a focus.
2. Municipal governments which are potential contributors to and beneficiaries of MetroGIS solutions but which do not currently partner with MetroGIS.
3. Departments and interests within current stakeholder organizations that do not fully utilize or participate in collaborative GIS solutions.
4. Organizations that have data or resources to contribute to regional solutions but that are not currently engaged.
5. Jurisdictions adjacent to the Twin Cities metropolitan area[117] that may have a need to share data resources. Addressing this need should involve dialogue with the Governor's Council on Geographic Information to define a suitable boundary between the need for statewide policies and MetroGIS's stakeholder preferences for interoperability with entities located within adjoining counties.

Strategies

1. **Seek representative workgroup participants**: Encourage representatives from both participating and prospective constituencies to participate in MetroGIS workgroups charged with defining needs and recommending courses of action to address shared needs.
2. **Engage in ongoing dialogue:** Establish ongoing dialogue with key contacts within each target constituency.
3. **Foster acceptance of custodial roles:** Develop strategies to achieve voluntary acceptance of custodial roles by organizations not currently engaged but which have business needs similar to those needed to address a particular desired regional solution. For example, a workgroup may conclude that organization X's business is closely associated with the desired custodial roles for a particular solution, but the leaders of the candidate organization do not recognize a clear benefit to their organization of accepting the custodial role.

Tactics

Though this is not an exhaustive list, it is documentation of the tactics identified during development of the strategies. These tactics are listed here to ensure they are not overlooked when developing annual work programs.

[117] Staff contacts were established in Chisago, Goodhue, and Wright Counties, primarily through participation in activities of the Governor's Council on Geographic Information. These talks have not as yet resulted in any active projects to achieve interoperability of data resources.

1. **Develop targeted outreach strategies**: Develop detailed strategies[118] to reach the five groups listed above and any others subsequently identified. Develop key messages, specific tactics and target implementation dates. The goals of this outreach are: to improve the understanding of the benefits of GIS technology: to expand collaboration to address shared geospatial needs among managers and policymakers affiliated with prospective participating organizations; to seek such organizations' participation at an appropriate level.
2. **Seek to involve more entities in data maintenance**: Move toward more user involvement in data maintenance while maintaining data quality, both to expand users' stake in a solution and to improve the quality of the data itself. Explore options such as an "open source data model" and multiple simultaneous update transactions suggested by the Beyond Government Users Workgroup (Appendix I).

[118] This effort should be coordinated with Tactic 1, Activity Area V (Expand Outreach Plan to Include a Marketing Component).

VII: Maintain Funding Policies That Make the Most Efficient and Effective Use of Available Resources and Revenue for System-Wide Benefit

Since the inception of MetroGIS, its desired outcomes have been to improve the efficiency of stakeholder operations and to foster cross-jurisdictional decision support. The current view of this role recognizes a need to approach the topic from a system-wide perspective, as opposed to an organization-by-organization perspective.

Challenges

1. In accordance with MetroGIS's guiding principles, stakeholders' decision to participate in MetroGIS and abide by its policies and practices remains voluntary. Therefore, achieving widespread stakeholder compliance will require overcoming a variety of cultural, funding and personal obstacles related to resource allocation.
2. A straightforward metric to assess the relative benefit of a particular collaborative course of action, taking into account tangible and intangible impacts, does not exist. Consequently, such decisions rely to a great extent on manager intuition, experience and commitment to the greater good.
3. Internal organizational structures that do not provide coordinated oversight of GIS technology use within an organization can hamper that organization's ability to create policy from the perspective of what is best for the entire enterprise. This lack of cross-department perspective hampers assessment of options from the perspective of what achieves the greater good.
4. Individuals representing organizations that produce data may include policymakers, managers, GIS technical staff, planners, IS staff and others. This variety of viewpoints further complicates the assessment of what achieves the greater good.
5. Certain organizations may be well-suited to perform a function for the benefit of the greater good, but lack resources or direct business need to perform that function.
6. Redundancy in data maintenance has been reduced by implementing regional data solutions but, to date, no attempt has been made to leverage resources beyond the public sector. The potential of leveraging non-traditional sources of geographic data and related applications to address shared information needs is unknown.

Strategies

1. **Develop measures of public value**: Continue to seek out potential measures, as part of the MetroGIS's Performance Measurement Program, which can assist with evaluation of options according to their relative public value.
2. **Seek ways to leverage economies of scale**: Leverage buying power of the region by aligning technical specifications and purchasing schedules to pursue volume discounts and grant funding. This will create incentives for collaboration while helping participant organizations justify related GIS activities.
3. **Foster a community-focused philosophy regarding GIS return on investment**: Foster acceptance of a common philosophy among leaders of stakeholder organizations that public investment in GIS technology should be justified in terms of increasing regional economic development potential, improving decision-making, and improving the quality of life for residents. It should not be justified solely on the basis of cost recovery.

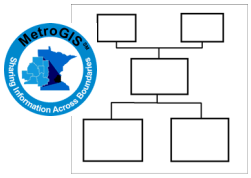
4. **Advocate for legislative funding initiatives**: Advocate for legislative funding initiatives that are aligned with identified shared needs of the MetroGIS community.[119]

Tactics

Though this is not an exhaustive list, it is documentation of the tactics identified during development of the strategies. These tactics are listed here to ensure they are not overlooked when developing annual work programs.

1. **Investigate potential for creation of cost sharing partnerships for data acquisition**: Investigate the potential of creating a regional cost sharing partnership for data acquisition (e.g., planimetric, topographic, orthoimagery), as well as possible sharing of application and infrastructure costs, to leverage economies of scale for contracts and federal grants.
2. **Investigate open source data model**: Investigate the potential of an open source data model, as offered by the Beyond Government Users Workgroup (Appendix J), as a means to reduce redundancy in data maintenance activities.

[119] The Policy Board concluded in its discussion on July 25, 2007 that it is appropriate for MetroGIS to advocate, on a case-by-case basis, for Legislative funding initiates initiated by others that would be of value to achieving outcomes desired by MetroGIS. The Board did not, however, believe it appropriate for MetroGIS to serve as a "clearinghouse" to coordinate proposals initiated by its stakeholder interests related to investments in GIS technology.



VIII: Optimize MetroGIS Governance and Organizational Structure

MetroGIS's organizational structure, although unconventional, has been found to be well-suited to achieve the functions and outcomes defined for MetroGIS.

Challenges

MetroGIS exists because those participating in its governance and activities recognize that their respective organizations benefit from the collaborative solutions implemented through MetroGIS's efforts. They recognize that, because of MetroGIS collaborative efforts, their staff members are more productive in carrying out their professional responsibilities.

Known challenges to maintaining this needed involvement include:

1. Involving a wide variety of stakeholder organizations as active MetroGIS supporters.
2. Maintaining a diverse community of champions at the policy, management and technical levels who make it a priority to participate in MetroGIS's activities and are committed to ensuring MetroGIS's continued relevance and success.
3. Nurturing the public policy underpinnings of the MetroGIS organization to sustain its legitimacy among policymakers.
4. Sustaining an effective mechanism to accomplish cross-jurisdictional cooperation, collaboration, and oversight as stakeholder organizations increase interdependencies related to the use of web services and maintenance of geographic data.
5. Maintaining political support among stakeholders who serve as custodians or fulfill other roles essential to MetroGIS's success. Broad understanding of the benefits accrued is needed not only regarding their respective organizations but the region as a whole. For example, the advocacy of two Policy Board members was instrumental in assisting with the Metropolitan Council evaluation of MetroGIS in 2006, an intensive process that led to Metropolitan Council recertification of its relationship with MetroGIS.
6. Emphasizing to current and prospective participants the productivity gains realized and public value created by participating in MetroGIS.
7. Renewing the support of the Metropolitan Council each year during the Council's annual budget process. Changes in Council direction could occur in the future as a result of changes in the composition of the Council[120] or the Council's continuing need to weigh its investment in MetroGIS alongside other budget priorities
8. Ensuring that sufficient staff support with appropriate skills is maintained to effectively carry out the responsibilities of the "foster collaboration" function. Such staff will need to understand MetroGIS objectives and needs, and will require in-house capabilities as well as resources to secure assistance through outsourcing. For example, outside assistance may be required for communications, performance measurement and business planning, as well as other technical and topical areas.
9. Maintaining an effective and appropriate organizational structure. Is the current voluntary, ad hoc governance and participation model the best choice now that inter-organizational dependencies are likely to increase via shared services? Should legitimacy, via legislative mandate, be sought? How may we best expand support resources available for "fostering collaboration" to accomplish desired expansions in scope, including the expansion of a

[120] Members of the Metropolitan Council are appointed by the Governor of Minnesota. A substantial number of the 17 member Metropolitan Council often change following election of a new governor.

stakeholder base, outreach and marketing efforts and regional solutions to include applications? Are the agendas such that the Policy Board and/or Coordinating Committee may want to consider an alternate-month meeting schedule or addition of an Executive Committee?

10. Providing for effective transitions in leadership, staff and committees means that we must ensure that there are willing and able leaders poised to take over as others retire or move on to other responsibilities.
11. Securing and sustaining sufficient cross-organizational operating capacity for endorsed regional solutions.
12. Improving the regional voice at the state and national levels. Regional entities have business needs to assemble data and information across jurisdictions which is a fundamental driver for interoperability and collaborative solutions. However, widespread regional collaboration beyond the Twin Cities metropolitan area is occurring only sporadically.

Strategies

1. **Leverage the concept of organizational competencies:**[121] Ensure that MetroGIS's core and distinctive organizational competencies are maintained, well understood and central to operations and decision-making. Specifically, these competencies are: maintaining broad support among policy makers; achieving cost-effective collaborative solutions to shared geospatial needs; sustaining a stakeholder-governed organizational structure consistent with desired outcomes. Similarly, implement appropriate remedies to address needed competencies.
2. **Maintain policies and initiatives relevant to current needs**: Occasionally corroborate that efforts supported by MetroGIS are perceived by the stakeholder community as relevant, effective and timely to addressing shared geospatial needs.
3. **Maintain broad stakeholder support:** Sustain a broadly supported, stakeholder-governed organizational structure which recognizes the need for representation by all relevant and affected parties on the Policy Board and Coordinating Committee as well as the special purpose workgroups. Occasionally update stakeholder analysis to identify any desired Board or Committee changes important to sustaining support and effectively leveraging existing resources for the broadest public good.
4. **Ensure orderly transitions in leadership**: Identify critical leadership roles and proactively seek successors with appropriate skills and commitment to achieving the vision of MetroGIS.

Tactics

Tactics to sustain MetroGIS's relevance should include, but not be limited to, the following polices and practices. Though this is not an exhaustive list, it is documentation of the tactics identified during development of the strategies. These tactics are listed here to ensure they are not overlooked when developing annual work programs. :

1. **Regularly update polices and plans**: Every three to five years, update the MetroGIS Business Plan to ensure consistency and pertinence to changing shared stakeholder needs. Pay special attention to: the organizational competency component; related plans such as Performance Measurement, DataFinder Management, and Outreach and Marketing; MetroGIS's Operating Guidelines. Specifically, ensure that MetroGIS policies and strategies possess:[122]
    a. A compelling public purpose
    b. Support by policy makers of all critical stakeholder interests
    c. Sufficient operational capacity
2. **Maintain an effective organizational structure**: Maintain an organizational structure consistent with guiding principles and capabilities needed to achieve major desired outcomes.
3. **Manage transitions in leadership**: Develop and maintain a succession plan in which current and prospective leaders are identified at the policy, management, and technical levels within organizations critical to the long-term success of MetroGIS. This Plan should provide a proactive program to ensure that individuals interested in assuming MetroGIS

[121] Refer to Appendix H for an explanation of the concept of organizational competencies and efforts made define them for MetroGIS.

[122] These practices or qualifications are the elements of the "Strategic Triangle" of effective public programs. See Appendix J for more information.

leadership roles have adequate skills to carry out the requisite responsibilities. Opportunities should also be created for the next generation of leaders to assume responsibilities in preparation for their potential next step.

4. **Maintain effective involvement of government interests**: Strengthen the involvement of city and other local government entities through user groups, or other methods, based on what works best for each interest community.
5. **Maintain effective involvement of non-government interests**: Create effective ways for non-government interests to effectively partner with government interests to address shared geographic information needs.
6. **Maintain effective staff support**: Evaluate support needs and desired skill sets and proactively address gaps in a timely and systematic manner. This evaluation should include a written professional and organizational development plan.
7. **Maintain effective workgroups**: A key to long-term success is engaging talented and respected representatives from the various interest communities to volunteer their time and talents to participate on workgroups charged with formulating policies and projects to address issues and opportunities important to the community. The goals of maintaining a broadly participatory and consensus-based process can not be achieved without the talented and passionate individuals who care about serving the public good.
8. **Have clear objectives for liaison relationships**: Define expectations for relationships with state and national entities with objectives similar to those of MetroGIS.
9. **Maintain participatory and consensus-based processes**: Develop policies fundamental to the long-term success of MetroGIS through broadly participatory processes consistent with the guiding principles. These include achieving consensus among all relevant and affected parties and relying upon workgroups comprised of stakeholder representatives as a principle means of supporting decision making.
10. **Maintain effective outreach:** Maintain an effective outreach campaign to ensure current and prospective participants understand MetroGIS's mission and services.
11. **Respect participant time constraints**: Use communication options that respect MetroGIS stakeholders' time constraints.
12. **Nurture advocates:** Develop advocates for MetroGIS, both technical and policy-oriented, focusing on individuals and organizations that understand and support the MetroGIS mission.
13. **Document and demonstrate benefits:** Demonstrate producer and user benefits through a variety of actions, including updating and implementing the Performance Measurement Plan.

CHAPTER 4
OPERATIONAL PLAN

General Assumptions

In formulating the MetroGIS 2008-2011 operational plan, the Policy Board rested on certain assumptions regarding the continuance of a demand for MetroGIS products and services, the availability of resources for the operation of MetroGIS as an organization and the stability of elements of its organizational structure. Key assumptions follow.

Assumption 1: Continuance of Demand

- The scope of MetroGIS services will be expanded to maintain relevancy to stakeholder needs because expansion is critical to long-term sustainability.
- Expansion of MetroGIS services that best serves the Twin Cities metropolitan area is comprised of: development of applications to meet regional information needs; partnering with non-government organizations; expanding and improving interoperability of geospatial data to include governmental entities adjoining the Twin Cities metropolitan area.
- MetroGIS will share with the Governor's Council on Geographic Information the results and lessons learned from its efforts to improve data interoperability with its stakeholders and with organizations adjoining the Twin Cities metropolitan area. This sharing will foster the recognition that enactment of statewide policies regarding interoperability is needed.
- MetroGIS output will continue to result in substantial stakeholder efficiencies. This output is comprised of regional solutions to shared information needs, a one-stop interface for data discovery and retrieval, support of knowledge sharing and documentation of benefits derived through collaboration.
- Organizations serving the Twin Cities metropolitan area will continue to recognize that their shared needs for geographic information are most effectively addressed through collaborative efforts.
- Both the need and opportunities to collaborate will take on added importance as more stakeholders embrace the value of using GIS technology.

Assumption 2: Stakeholder Involvement and Funding

- The Metropolitan Council will continue to serve as the primary sponsor of MetroGIS's "foster collaboration" function.
- Organizations that have accepted custodial roles will continue to serve in those roles.
- Inter-organizational and cross-organizational partnerships and cost-sharing arrangements will continue to be sought for research and development projects and solutions.
- MetroGIS will continue to rely on its stakeholder organizations for development of geographic data and related infrastructure. The pace of development will be set largely by these contributing participants.
- Respected individuals with appropriate skills and expertise, representing all relevant and affected parties, will continue to participate actively in MetroGIS's decision-making process.

Assumption 3: Dedicated Staff Support

- Staff support at least at the level currently provided is required to continue support of functions that were in place prior to adoption of this Business Plan.
- Consulting services continue to play an important role to supplement the skills and expertise of support staff.
- The desired scope expansions defined in this Plan, including the addition of applications to regional data solutions, partnering with non-governmental entities, and improving interoperability of geospatial data with entities adjoining the Twin Cities metropolitan area, cannot be accomplished without additional technical support.
- The additional technical support needed must include competencies in strategic visioning, project management, technical assistance, technical facilitation, programming, technical writing and communications/outreach. The diversity of these competencies may dictate seeking support through multiple sources.

- Dedicated support resources cannot achieve the outcomes defined in this Plan without the active participation of stakeholder representatives who possess appropriate competencies.

Assumption 4: Continuance of MetroGIS Organizational Structure

- Policy makers affiliated with organizations important to the long term success of MetroGIS will continue to play an active role in guiding MetroGIS and advocating for its accomplishments among their peers.
- The MetroGIS Policy Board will continue to provide valuable policy guidance and leadership for MetroGIS and will play a key role in achieving the objectives set forth in this Plan.
- The Coordinating Committee will continue to offer valuable advice to the Policy Board on matters concerning the operations of MetroGIS.
- No organizational restructuring is advisable at this time. However, as MetroGIS pursues the expanded activities set forth in this Plan, particularly the expansion of stakeholder participation, the organizational structure will be revisited to ensure all relevant and affected parties are appropriately represented.

Highest Priority: Expand Regional Solutions to Include Applications

Throughout the process of developing this Business Plan, MetroGIS stakeholders consistently identified the need to expand regional solutions to include applications as the most critical shared need facing the MetroGIS community.

Reaching this goal requires technical leadership and coordination resources that are not currently available. In addition, until MetroGIS defines its role relative to addressing the need for shared applications, the extent of technical leadership and coordination required over the long term cannot be defined. Therefore, an interim solution is needed to ensure that tangible progress is made on a solution to this top priority need while, at the same time, the long term need for technical leadership to sustain the expanded role is being defined. The following recommendations are offered to ensure that progress on defining a MetroGIS role relative to shared application needs while, at the same time, long-term Technical Leadership staff needs are being defined.

Recommendations Regarding Pursuit of Adding Applications and Technical Leadership

1. Assign both short-term planning and identification of longer-term needs to a newly created Technical Leadership Steering Workgroup. The members of this workgroup will be affiliated with stakeholder organizations, will individually possess strong technical expertise relevant to geospatial applications, and will collectively recognize technical leadership and coordination skills desired long-term for a dedicated support resource.
2. Direct the new Technical Leadership Steering Workgroup to convene immediately to define MetroGIS's role relative to shared applications. Initial plans call for a facilitated one-day forum with two major components: 1. knowledge sharing about applications and levels of service integration, and 2. identification of activities appropriate for MetroGIS to initially champion, and the technology and leadership needs associated with those activities. The Workgroup would use the forum results to develop an action plan regarding Technical Leadership needs. This process is intended to minimize the costs of time and funding used for planning, so that more available resources may be used directly to address application needs of stakeholders.
3. Achieve Policy Board endorsement of an action plan for both short- and long-term not later than April, 2008, in order to ensure consideration of costs by affected stakeholders during their 2009 budget deliberations.

Work Program Objectives

Carrying out the actions outlined in this section is necessary both to maintaining accomplishments that currently provide public value and to achieving the expansions defined in this Plan. As noted in the assumptions listed above, the actions associated with achieving the desired expansions in the scope of MetroGIS require technical support resources beyond those currently available.

This Plan will be of limited value unless concrete actions are taken to overcome challenges and implement agreed-upon strategies to achieve desired outcomes. As such, an objective of this business planning process was to identify tactics which, when implemented, will yield the greatest value in maintaining relevance to stakeholder needs. These thirty-four tactics are listed below in Table 3. They are sorted according to the eight major activity areas presented in the previous chapter and listed according to their relative priority.

The timing of the actions indicated by these tactics and those tactics associated with the overall strategies listed in Chapter Three will be a function of the developing annual work programs. The work plan for 2008 is expected to be adopted at the same time as this Plan.

Table 3. Priority, Scheduling and Resource Needs for Implementing Tactics

Work Program Item (## added 9/12/07 by Coordinating Committee.)	**Overall Rank** [123]	**Suggested Program Year**	**Requires Additional Technical Support**	**Comment**
I. Develop and Maintain Regional Data Solutions to Address Shared Information Needs				
a. Execute Next-Generation Parcel Data Sharing Agreement. Current agreement expires 12/08. (*Also Areas 3 and 6*)	1	2008		An annual fee has been paid with previous agreements to help counties automate the process of translating data into regional database format.
b. Execute Street Centerline Agreement. Current agreement expires 12/09. (*Also Areas 3 and 6*)	2	2009		An annual data maintenance fee has been paid with previous agreements.
c. Adopt Best Practices to Provide View-Only Access to Licensed Data Via Applications (*Also Area 6*)	5	2008*		*This is a component of Activities 1a and 1b.
d. Conduct second generation identification of shared information needs (Related to Activity 2a - Shared Application Need Assessment).	6	2009	X	This is the anticipated next step (late 2008 or 2009) following agreement on an application- sharing policy framework--Activity 2a.
e. Make substantive progress to achieve vision for next-generation (E911 Compatible) Street Centerlines dataset. (*Also Areas 3 and 6*)	8	2009	X	Comment from survey: "Requires management and policy leadership from MESB and involvement of PSAPs."
f. Decide next steps for emergency preparedness regional solution. (*Also Area 6*)	9	2009	X	Evaluate lessons learned from Phase I efforts
g. Make substantive progress to achieve the vision for Addresses of Occupiable Units dataset. This includes implementation of a web-editing application to foster participation by smaller entities. (*Also Areas 3 and 6*)	13	2008	X*	In progress: *Mark Kotz, Metropolitan Council, is currently filling the technical leadership (TL) role. Depending upon the Council's perception of benefit received, other leadership resources may be needed.

[123] The overall priority ranking reflects the results of a survey of Coordinating Committee and Technical Advisory Team members in August 2007. The proposed work program year reflects the final recommendation of the Coordinating Committee. See Appendix K for an ungrouped listing of relative priority.

h. Achieve regional solution for jurisdictional boundaries such as school districts and water management organizations.	20	2009		This is dependent upon ability to secure regional custodian commitments.
i. Investigate partnering opportunities with non-government Interests. (*Also Areas: 2, 3, and 7*)	28	2008	X?	**This is a top priority of the Policy Board.** Assume Staff Coordinator will be the initial contact. As relationships are established, work with Technical Leadership.
Conduct Peer Review Forums. Candidates include: Parcels, Existing Land Use, Socioeconomic Web Resources Page, Hydrology Street Centerlines.	32	2009+	X	Purpose: Invite suggested enhancement to regional solutions to ensure continued relevance to stakeholder needs.
II. Expand Endorsed Regional Solutions To Include Support And Development Of Application Services				
##Secure technical leadership and coordination resources needed to accomplish desired expansions in scope. (*Also Area 8*)	N/A	Begin 2007 2008	X	**This is the highest priority next step.** A plan needs to be in place by April, 2008. Board prefers to secure needed resources by mid-year.
a. Develop policy framework and plan for shared applications and begin implementation (e.g., define the range of sharing options and those appropriate for MetroGIS).	3	Begin 2007 2008	X	**This is a top priority in moving toward an expanded scope.**
b. Apply lessons learned from Geocoding Pilot Project.	10	2008*		*This is a component of Activity 2a.
c. Implement ApplicationFinder. (*Also Area 6*)	11	2008	X	LMIC's 2007 Service Broker project will define parameters important to implementation.
d. Pursue web-based "message board" to facilitate partnering on shared application needs.	16	2008?	X	Pursue after, or with, development of ApplicationFinder (Priority 11).
III. Facilitate Better Data Sharing by Improving Processes, Making More Data Available, and Enlisting More Users				
a. Establish working relationships with jurisdictions adjoining the Twin Cities metropolitan area to improve data sharing and interoperability. (*Also Area 6*)	4	2008	X	Assume the Staff Coordinator will be the initial contact. As relationships are established, work in concert with Technical Leadership.
b. Advocate for MetroGIS's efforts in development of statewide geospatial polices.	14	Ongoing		
c. Develop a management and support plan for DataFinder which incorporates tactics suggested in this Business Plan. (*Also Area 6*)	24	2009	X	Implement after Activities 8f and 8g.
d. Investigate enhancements to DataFinder. (*Also Area 6*)	30	2009?	X	Implement after Activities 3c, 8f and 8g, if a need is identified.

e. Explore creation of Geospatial Marketplace, including Metadata "lite" directory to supplement catalogue in DataFinder, and investigate the potential for an "open source data model." (*Also Area 6*)	31	2008 metadata "lite" component	X	This is ongoing as specific data models are considered.
f. Investigate impact of cost recovery policies on the ability to achieve desired data sharing. (*Also Areas 1 and 6*)	34	?		This is best addressed within the context of a practical, as opposed to a theoretical, situation.
IV. Promote a Forum for Knowledge Sharing				
a. Host or co-host educational forums. (*Also Area 2*)	7	2008?		Need to decide purpose of forums
b. Leverage electronic tools.	12	Ongoing		This is a component of the "fostering collaboration" function: "Facilitating sharing of knowledge relevant to the advancement of GIS technology among stakeholders"
V. Build Advocacy and Awareness of the Benefits of Collaborative Solutions to Shared Needs				
a. ##Update the Outreach Plan. Focus on ensuring stakeholder awareness of regional datasets and DataFinder, not on increasing participation in the MetroGIS organization.	N/A	Fall 2007		Added on 9/12/07. The Coordinating Committee concluded the existing Outreach Plan should be updated, as it has not been updated since adopted in 2002.
b. Develop briefing materials to support leaders' advocacy for benefits of collaboration among their peers. (*Also Area 6*)	17	2009		Implement after shared application role is defined.
c. Expand MetroGIS Outreach Plan to include a marketing component and begin implementation. (*Also Area 6*)	33	2009		Board direction July, 2007: Not sure if "marketing" is appropriate. Once shared applications role is defined, reassess need and purpose. Leverage marketing expertise possessed by stakeholders before consultant assistance is considered.
VI. Expand MetroGIS Stakeholders				
a. See III(a) "Working relationships with adjoining jurisdictions."				Expands relationships beyond metropolitan area
b. See I(f) "Next steps for emergency preparedness solution."				Expands types of users
c. See I(g) "Addresses of Occupiable Units."				Expands types of users, in particular with cities
d. III (e) "Geospatial Marketplace				Expands relationships with non-government users

VII. Maintain Funding Policies that Make the Most Efficient and Effective Use of Available Resources and Revenue for System-Wide Benefit				
a. Advocate for legislative funding initiatives valuable to outcomes defined by MetroGIS. (*Also Area 6*)	15	Ongoing		Implement as opportunities arise.
b. Update Performance Measurement Plan (e.g., measures of public value) to align with Business Plan.	21	2008		Pursue this after shared applications-related policies and roles are in place.
c. Investigate creation of a partnership, or joint powers body, to expedite cost sharing on shared data acquisitions, applications, etc. (*Also Area 6*)	25	2009	X	Seeks to streamline management and spending of funds (contracting and intellectual property rights) where multiple organizations are involved.
d. Foster community-focused philosophy regarding GIS return on investment	26	Ongoing		This has been moved to Guiding Principles. Candidate performance measure.
VIII. Optimize MetroGIS Governance and Organizational Structure				
a. ##Ensure accomplishments are maintained while continuing support of foundation activities for traditional "foster collaboration" function.	N/A	Ongoing		The Coordinating Committee concluded on 9/12/07 that continued support of these ongoing activities functions should be articulated as a priority need.
b. ##Secure technical leadership and coordination resources needed to accomplish desired expansions in scope. (*Also Area 2*)	N/A	Begin 2007 2008	X	**Highest Priority Next Step** A plan needs to be in place by April, 2008. Board prefers to secure needed resources by mid-2008.
c. Develop a Leadership Succession Plan and ensure adequate support.	18	Begin2007 2008		Retirements are pending for key management and political leaders.
d. Update operating guidelines to align with this Plan.	19	2009		Pursue after Outreach (Priority 33a) and Performance Measurement Plans (Priority 21) are updated.
e. Update Performance Measurement Plan (measures of public value) to align with the this Business Plan. Implement Performance Measurement Plan.	21	2008	X?	Pursue once applications-related policies and roles are decided.
f. Evaluate stakeholder participation relative to needs to achieve current regional objectives.	22	2009	X	Pursue after "shared applications" implementation is underway. This is also a component of Activities 8g, 8h, and 8i.
g. Conduct Participant Satisfaction Survey.	23	2009		Pursue after "shared applications" implementation is underway (Activity 2a, Priority 3).
h. Seek reaffirmation of role expectations by key stakeholders (i.e., sponsors and custodians).	27	Begin 2007		The Coordinating Committee concluded on 9/12/07 that this action should involve presentations to key participants to clarify role expectations. There is no formal endorsement to be requested.

i. Conduct an evaluation of "Organizational Competencies" once Technical Leadership resource need is addressed and a plan for addressing shared applications is in place.	29	2009 (2008, time permitting)		Following adoption of "shared applications" plan, and resolution of current technical leadership support needs, complete the work to apply "organizational competencies" concepts fostered by Professor John Bryson, University of MN, to MetroGIS's Business/Work Planning efforts. Work on this management tool had to be postponed until the competency resources and needs related to applications are established.

The MetroGIS "Foster Collaboration" Budget
The following support resources and non-staff expenses are included in the Metropolitan Council's 2008 budget which has been accepted for public hearing. Final adoption by the full Metropolitan Council is scheduled for December, 2007, after adoption of this Plan. Without consideration for inflation, the budgeted resources are sufficient to maintain the status quo for MetroGIS efforts.

A firm cost to secure the additional technical leadership and coordination support resources needed to achieve the desired scope expansion is not available. In this Business Plan, we have recommended that a proposal be submitted by April, 2008.

Table 4. Current Support Expense for "Foster Collaboration" Function

Support Resource	FTEs	Expense *Salary + Benefits **Non-Staff Funds	Custodian Organization
Staff/Policy Coordinator	1.00	$90,000*	Metropolitan Council
Administrative Technician	.75	$41.250*	Metropolitan Council
Technical Project Leads	.05 (as needed)	$4,500*	Metropolitan Council
Non-Staff Project Funding [(1)]	*N/A*	$86,000**	Metropolitan Council
Total	**1.80**	**$221,750**	

A firm estimate of non-staff project costs cannot be finalized until MetroGIS's role regarding the development of shared application needs has been defined. For illustration purposes, if the supplemental technical leadership expertise were to be filled by the single support position of Technical Coordinator, the annual cost to do so in 2007 dollars is estimated to be $85,500 more than supporting the status quo.

This assumes no other changes to the program. The current Technical Project Lead expense of about $4,500 (see Table 4) would be replaced by the Technical Coordinator cost of approximately $90,000, depending on the actual responsibilities defined for this position. The result is a net increase of approximately $85,500 annually (see Table 5 on the next page).

Table 5. Add Supplemental Technical Leadership – Anticipated Maximum Expense (2007 dollars)

Support Resource	FTEs	Expense *Salary + Benefits **Non-Staff Funds	Custodian Organization
Staff Coordinator	1.00	$90,000*	Metropolitan Council
Technical Leadership / Coordination	*(TDB)***	*$90,000+ Est.*[1]	*TBD*
Administrative Technician	.75	$41,250	Metropolitan Council
Technical Project Leads (*replaced by technical Coordinator)*	*N/A*	*N/A*	
Non-Staff Project Funding	*N/A*	$86,000	Metropolitan Council
Total	**1.75 *to* 2.75**	**$307,250+**	

[1] Specific responsibilities cannot be fully defined until the MetroGIS's role related to shared applications is defined. For discussion purposes, an estimate of cost for a full time position is offered.

Conclusion and Next Steps

Throughout the development of this Plan, MetroGIS leaders, representing the stakeholder community, have recognized the substantial benefits that have been realized through MetroGIS efforts. They have affirmed that maintaining the relevance of past accomplishments is a priority. As importantly, leaders have concurred that MetroGIS must broaden its scope and take on new and demanding roles.

Unanimously, they agreed that the top priority is to "expand regional solutions to include applications." Other priority expansions discussed in this Business Plan include broadening participation in MetroGIS by pursuing strategic partnerships with non-government entities. In particular, the leaders aspire to partnerships that will secure cost-effective data and applications solutions that address shared needs for information and that improve data interoperability with jurisdictions adjoining the Twin Cities metropolitan area. To reach these goals, additional technical leadership must be secured.

The first step in addressing the desired scope expansions defined in this Plan, while maintaining services that are in place, is to define clearly MetroGIS's role in the world of applications and to begin pursuing actions in accordance with that agreed-upon role. Defining this shared applications role will also lay the groundwork for securing the technical leadership and coordination resources needed for MetroGIS to deliver on the key objectives set forth in this Business Plan.

So as to minimize any loss of momentum gained at the February 2007 Strategic Directions Workshop, work should begin immediately, relying upon a short-term workgroup that is comprised of individuals with strong technical understanding of geospatial applications and is supported by existing dedicated staff. This workgroup is charged with recommending:

1. The initial role of MetroGIS in addressing shared application needs
2. Specifications for the additional technical leadership resources needed to carry out the expanded scope defined in this Plan

Once these recommendations are endorsed by the Policy Board and related resources are secured, we can expect rapid and substantive progress on priority actions associated with each of the eight major activity areas summarized in this chapter (i.e., shared applications, interoperability with adjoining jurisdictions). In the meantime, currently supported collaborative solutions and services will continue to be supported, providing public value through widespread improved capacity among stakeholder organizations to more effectively support the services they are charged to deliver.

GLOSSARY

Each of the following definitions is offered in an attempt to provide a common understanding of terminology important to MetroGIS's efforts.

Application: a term used to describe a mechanism for creating information from data. By one definition, an application is a "program or web mapping service designed to perform a specific function directly for the user." Applications are also referred to as "software". Examples include word processing software, database programs, and mapping tools.

Combination of computer software (e.g., web services, computer program, or script) used to query, combine, analyze, and/or print visualizations of geospatial data to address a particular business information need.

A computer program used for a specific task or purpose, such as accounting or land use planning.

The use of GIS technology to solve problems, automate tasks, and/or generate information within a specific field of interest. For example, a common agricultural application of GIS is determining fertilization requirements based upon maps of soil chemistry and previous crop yields.

Best Practice or Best Management Practice: A recognized reference or method related to developing, documenting, managing, sharing, distributing or utilizing geographic data or applications which promotes consistency among the producers and increased interoperability of the data among the users. A refection of what the community has learned about what works.

Broker: A Broker utilizes a structured catalog to act as a searchable registry of datasets or services, providing information about resource availability and access instructions. Using a simple browser interface, consumers query the broker, find datasets or services and then directly interact with the resource providers. Conceptually, this is similar to conducting a Google search, then linking to the information of interest. The broker function facilitates enforcement of requisite standards and protocols, as well as possibly providing authentication (security) services. The FGDC Clearinghouse and Geospatial One-Stop (GOS) sites provide examples of some Broker capabilities. The Clearinghouse provides a single point of contact regarding available resources while maintaining statistics on clearinghouse node availability. GOS tests metadata documents for standards compliance as part of its metadata harvesting function. (Source: *Minnesota state GIS enterprise conceptual architecture design***"**; Minnesota Governor's Council on Geographic Information white paper; March 23, 2005; http://www.gis.state.mn.us/pdf/MNGISConceptualArchitectureDesign.pdf ; definition extracted from pp 4, 5 & 11.

Business Information Need: Information needed to accomplish a business task that is a derivative of geospatial data. (I need to know the owner of a parcel of property and how to contact them, I need to know which community a particular property is located within, I need to know the drainage outlet for a particular wetland.)

Catalog: A Catalog is a collection of Catalog Entries that is organized to assist in the discovery and retrieval of datasets or services, which are of interest to the user. (Source: "*The OpenGIS Abstract Specification; Topic 13: Catalog Services; version 4";* Open GIS Consortium; 1999; http://www.opengeospatial.org/standards/as ; p8)

Catalog Entry: Describes or summarizes the contents of a set of geospatial data or a service, and is designed to be queried. A Catalog Entry is usually a subset of the complete metadata for the described geospatial dataset or service. (Source: "*The OpenGIS Abstract Specification; Topic 13: Catalog Services; version 4";* Open GIS Consortium; 1999; http://www.opengeospatial.org/standards/as ; p8)

Consensus: The preferred means of decision-making by MetroGIS. Consensus is attained when all parties are either in favor of or can tolerate particular outcomes of a decision.

DataFinder: DataFinder is a one-stop-shop for discovering geospatial data pertaining to the seven county Twin Cities metropolitan area. Its primary function is to facilitate sharing of GIS (Geographic Information

System) data among organizations serving the Twin Cities metropolitan area of Minnesota. DataFinder provides metadata describing GIS data sets, many of which can be directly downloaded or used via map services.

DataFinder Café: The DataFinder Café is an interactive tool for viewing and downloading GIS datasets. It allows users to download datasets by custom geographic extents or selections. The Café also allows users to browse GIS datasets, print maps, and save mapping sessions for later use or for sharing with others.

Data standard: A statement of what data should be recorded, how data should be recorded, and how data should be supported by a system in order to retain its full meaning. A data standard should enable consistency and predictability in recording of data; and facilitate its interoperability and use. (Adapted from http://www.willpowerinfo.myby.co.uk/cidoc/guide/guideglo.htm.

A well defined set of properties or specifications for measuring acceptability, quality or accuracy for a specific type of data which is accepted as correct by custom, consent, or authority that facilitates the creation, use, or dissemination of such data. (Adopted from Black's Law Dictionary)

Endorsed regional solution: The MetroGIS Policy Board endorses desired specifications for geospatial data needed commonly by the MetroGIS data-user community, following a broadly participatory and replicable process. These commonly needed data are referred to as "regional data". The Policy Board also endorses roles and responsibilities for primary and regional custodians of these data and seeks out agreements with specified organizations to carry out the desired tasks. In addition, endorsement of a regional dataset involves guidelines for access, content, and distribution of the dataset. (Source: http://www.metrogis.org/data/index.shtml.)

Geocoding (also known as Geo Referencing): Geocoding refers to the assignment of real world coordinates to geographically reference data using an appropriate Geographic dataset.
Examples: Geocode a street address: Take an address, such as 123 Main Street and compare it to a GIS street dataset. In this scenario, the resulting point (x,y) will be interpolated along a street segment with the name "Main" and with a range of addresses such as 100-200.

Geocoding service: A service (normally provided via the web, or as a desktop application) on that allows the user to geocoding.

Geographic Data (also known as geospatial data): This type of data has two major components: spatial and attribute. The spatial component ("feature") can be a point (fire hydrants), line (street centerlines) or polygon (parcels). All have a location in the form of map (X, Y, and sometimes Z) coordinates. The attributes of a spatial "feature" describe the feature (fire hydrant – diameter of pipe), street center (functional class of the road), and parcels (name of the property owner).

GeoWeb: The Geospatial Web or **GeoWeb** is a merging of geographical information with the Internet. This merger is creating an environment where searches can be based on location as well as keywords. (i.e. "What is located here?")

The GeoWeb is currently characterized primarily by geo-browsers such as Google Earth, NASA World Wind, Google Maps, Windows Live Local and Yahoo Maps. Geo-browsers have been major a factor in raising awareness of the importance of geography and location as a means to index information. The impact of the GeoWeb will likely be similar to Google Search and have similar impact on the organization and function of the Internet. (Source: Adapted from Wikipedia.)

Geographic Information System (GIS) Technology: A GIS is a computerized database management system for the capture, storage, retrieval, analysis, and display of data defined by location.

Infrastructure: The word infrastructure is used to promote the concept of a reliable, supporting environment, analogous to a road or telecommunications network. Spatial data infrastructures facilitate access to geographically-related information using a minimum set of standard practices, protocols, and specifications. Spatial data infrastructures are commonly delivered electronically via the internet. (Source: Australian Spatial Data Infrastructure at http://www.anzlic.org.au/infrastructure.html.)

Interoperability: Capability to communicate, execute programs, or transfer data among various functional units in a manner that requires the user to have little or no knowledge of the unique characteristics of those units ISO 2382-1. "The ability for a system or components of a system to provide information portability and interapplication, cooperative process control. Interoperability, in the context of the OpenGIS Specification, is software components operating reciprocally (working with each other) to overcome tedious batch conversion tasks, import/export obstacles, and distributed resource access barriers imposed by heterogeneous processing environments and heterogeneous data." (Source: Open Source Guide, via OGC glossary)

MetroGIS (www.metrogis.org)**:** is an award-winning geospatial collaborative organization serving the Twin Cities metropolitan area in Minnesota, USA. Relying upon voluntary participation, MetroGIS's primary functions focus on fostering: a) development and implementation collaborative regional solutions to shared information needs (geospatial data, related applications, standards and best practices), b) widespread sharing of geospatial data, principally via its DataFinder.org web site, c) the value of geographic information system (GIS) technology as a core business tool, and d) knowledge sharing relevant to the advancement of GIS technology. Beneficiaries of MetroGIS's collaborative efforts include a wide variety of local and regional government interests, as well as, numerous state and federal government, academic institution, nonprofit organization and business interests.

Distinguishing Characteristics include:

- Unincorporated organization - *no mandate or legal standing.*
- Cannot own data, receive, or spend funds- *rely on stakeholders.*
- Elected officials comprise the Policy Board
- Consensus-based decisions on matters fundamental to success.
- Voluntary compliance for endorsed policies/procedures.
- Forum to foster collaboration on a breadth of shared geospatial program needs - *more than just data.*

Metropolitan area: Generally, the service area of the Metropolitan Council of the Twin Cities of Minnesota, USA. This area encompasses the seven counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington. Government entities within this area are represented on the MetroGIS Policy Board. Projects to improve data interoperability can involve jurisdictions that adjoin the Twin Cities metropolitan area.

Metropolitan Council: The Metropolitan Council is the regional planning organization for the seven-county Twin Cities metropolitan area (Minnesota, USA). It runs the regional bus and light rail system, collects and treats wastewater, manages regional water resources, plans regional parks, and administers funds that provide housing opportunities for low- and moderate-income individuals and families. The 17-member Council governing body is appointed by and serves at the pleasure of the governor.

Mn Governor's Council on Geographic Information (GCGI): Helps coordinate geographic information system activities among all levels of government in Minnesota. The council's 18 members are appointed annually by the Commissioner of the Department of Administration and are drawn from state agencies, federal and local governments, higher education and the private sector. (Source http://www.gis.state.mn.us/about.htm)

National Spatial Data Infrastructure (NSDI): The National Spatial Data Infrastructure (NSDI) is defined as the technologies, policies, and people necessary to promote sharing of geospatial data throughout all levels of government, the private and non-profit sectors, and the academic community.
The goal of this Infrastructure is to reduce duplication of effort among agencies, improve quality and reduce costs related to geographic information, to make geographic data more accessible to the public, to increase the benefits of using available data, and to establish key partnerships with states, counties, cities, tribal nations, academia and the private sector to increase data availability.
(Source: http://www.fgdc.gov/nsdi/nsdi.html)

Open Source Data Model: A concept offered by the Beyond Government Users Workgroup (Opportunity 2, Appendix I) and patterned after the philosophy that underpins open source software. GIS user communities (both public and private) could cooperatively agree to post all corrections and improvements

to feature geographies and attributes in exchange for less restrictive uses for the data, including incorporation of images into web-based applications.

Open Source Software: Users are typically granted free access to the latest version of the application code and agree to share improvements they make to the software. The process is self-policing, meaning that a dedicated core of users undertakes a careful review of code changes to ensure that the software remains secure and reliable. The result of this collaboration of users is the very fast and affordable development of high quality technologies and software products.

Peer Review Forums: Facilitated group events are which users of a particular regional solution are invited to participate to sharing ideas on how to improve the solution, including but not limited to data content, access and custodial responsibilities. Through these events, MetroGIS identifies ways to ensure that solutions maintain their relevance with changing user needs, and leverage resources not available when the solution was implemented.

Service Broker: (Also See "Service" and "Broker" and "Service"): A Broker manages information about datasets and services. Extending the definition then, a Data Broker deals exclusively with datasets (e.g., DataFinder). A fully functional Service Broker must be capable of dealing with both. (Chris Cialek, Mn Land Management Information Center.)

Services: Reusable, self-contained collections of executable software components. They may be pieces of software that can play in different operating systems, networks and application frameworks. A service is not bound to a particular program, computer language or implementation. They are the building blocks for creating highly integrated and distributed application systems. (Source: "*The OpenGIS Abstract Specification; Topic 13: Catalog Services; version 4"*; Open GIS Consortium; 1999; http://www.opengeospatial.org/standards/as ; p9.)

Shared Business Information Need: Information needed to carry out the business of more than one organization.

Spatial Data Infrastructure (SDI): Relevant base collection of technologies, policies and institutional arrangements that facilitate the availability of and access to spatial data. A spatial data infrastructure provides a basis for spatial data discovery, evaluation, download and application for users and providers within all levels of government, the commercial sector, the non-profit sector, academia and the general public. (Source: Australian Spatial Data Infrastructure at http://www.anzlic.org.au/infrastructure.html.)

Stakeholder: The term "stakeholder" incorporates several types of existing and potential affiliations with MetroGIS ranging from user of its services (customer) to contributing participant to perspective user and prospective participant.

Succession Planning: Development of strategies to accomplish successful transitions in leadership roles critical to MetroGIS's long term success (e.g., committees, staff support, and advocates within critical stakeholder organizations).

"View only" Access: View-only access means data is displayed as a map, graphic or summary table and one or more label fields may be included in the display. A user may print out or save the displayed information. A user is not able to download in part or in its entirety the data set, its features nor attributes used to create the displayed information.

Web Service: A software component accessible via the Internet for use in other applications. Web services are built using industry standards such as XML and SOAP and thus are not dependant upon any particular operating system or programming language, allowing access to them through a wide range of applications.

Web Feature Service (WFS): A type of Web Service that permits a client (information requestor either manual or computer-to-computer) to request and access, view, edit, combine, analyze, and save locally geospatial as if it were hosted locally.

Web Mapping Service (WMS): A type of Web Service that permits a client (information requestor either manual or computer-to-computer) to request and obtain a rendered, projected, cartographically-styled ***map image*** for use in a computer environment, which can be viewed on its own or in conjunction with other geospatial data. The geospatial data from which the "image" is created by the WMS cannot be edited but it can be combined with other WMS data as well as geospatial data stored locally. In addition, a WMS is a virtual copy of the source geospatial data, meaning that when the client computer is shut off the "image" is no longer available. (Source: OGC)

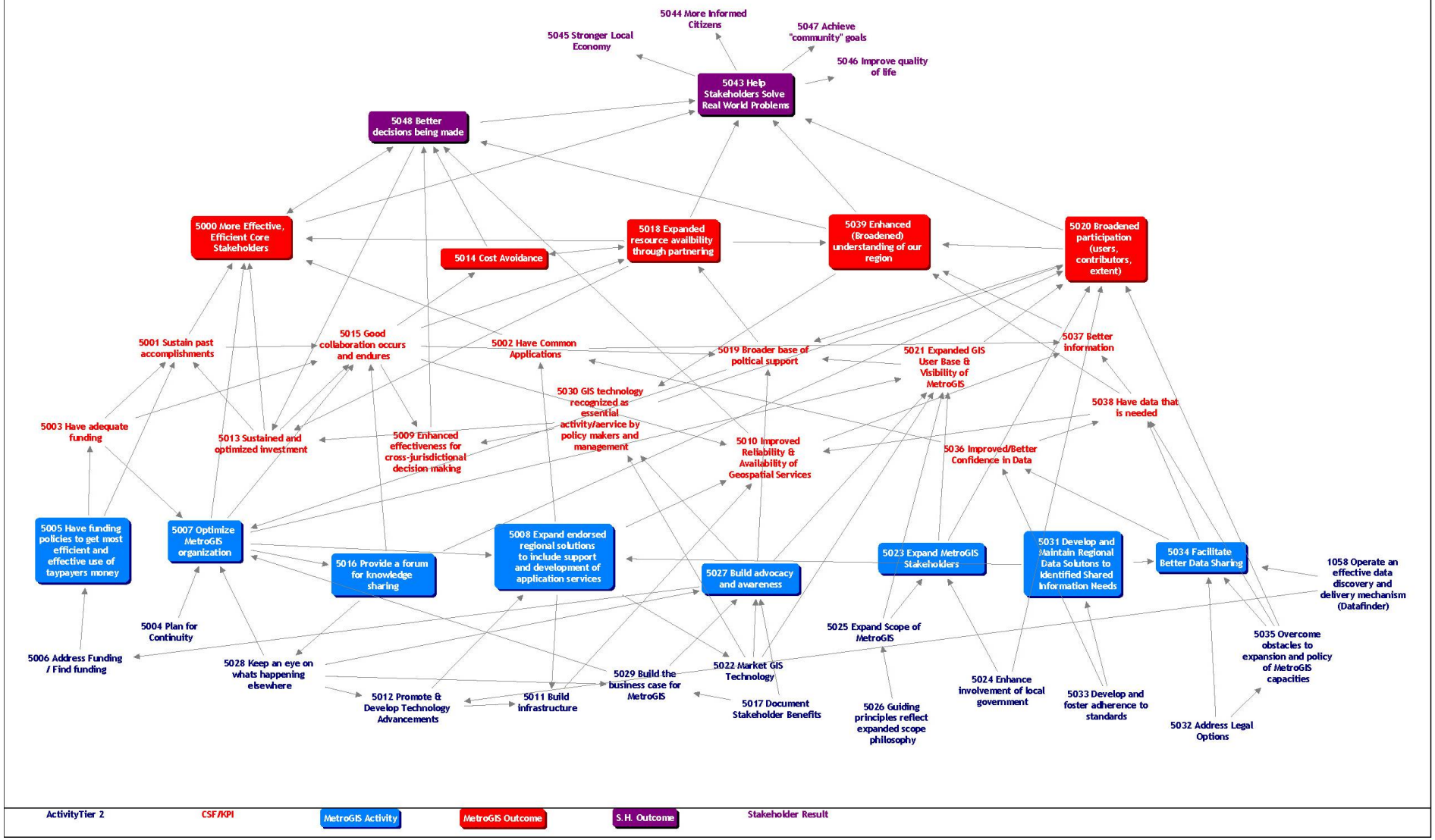
Web services: Web services enable computer systems on any platform to communicate over corporate intranets, extranets, and across the Internet with support for end-to-end security, reliable messaging, distributed transactions, and more…" (Source: Microsoft Developer Network)

APPENDIX A
"CONCEPT MAP" OF DESIRED OUTCOMES AND ACTIVITIES FOR METROGIS

The "Concept" or "Causal Map" presented on the following page illustrates the results of the MetroGIS Strategic Directions Workshop held on February 8, 2007. A larger version of this "map" can be accessed from Appendix G of the Workshop Summary document at http://www.metrogis.org/about/business_planning/sdw/workshop_summary_%2007_0417.pdf.

Following the Workshop, refinements were made to the "maps" created at the Workshop to arrange and highlight key statements for illustrative purposes. No changes in the actual content of the statements were made. Subsequently, Policy Board approval was received for a "Works in Progress" policy foundation derived from this "causal map". The April approval was sought to insure support existed before work was initiated to reach agreement on strategies and tactics to achieve the desired outcomes. The starting point for development of the strategies presented in this Plan was also the "concept maps" created at the February workshop. An iterative development and comment process was then used to refine the high-level direction received at the workshop into the detailed strategies and tactics presented in this Plan.

"Subgoal" statements presented on this "concept map" will also serve as the starting point to update MetroGIS's Performance Measurement Plan. These "subgoal" statements are those statements in red located between the Goals/Outcomes shown in solid red and the eight Major Activity Areas shown in solid blue.


5044 More Informed Citizens
5045 Stronger Local Economy
5047 Achieve "community" goals
5046 Improve quality of life
5043 Help Stakeholders Solve Real World Problems
5048 Better decisions being made
5000 More Effective, Efficient Core Stakeholders
5014 Cost Avoidance
5018 Expanded resource availbility through partnering
5039 Enhanced (Broadened) understanding of our region
5020 Broadened participation (users, contributors, extent)
5001 Sustain past accomplishments
5015 Good collaboration occurs and endures
5002 Have Common Applications
5019 Broader base of poltical support
5021 Expanded GIS User Base & Visibility of MetroGIS
5037 Better information
5030 GIS technology recognized as essential activity/aervice by policy makers and management
5038 Have data that is needed
5003 Have adequate funding
5013 Sustained and optimized investment
5009 Enhanced effectiveness for cross-jurisdictional decision making
5010 Improved Reliability & Availability of Geospatial Services
5036 Improved/Better Confidence in Data
5005 Have funding policies to get most efficient and effective use of taypayers money
5007 Optimize MetroGIS organization
5016 Provide a forum for knowledge sharing
5008 Expand endorsed regional solutions to include support and development of application services
5027 Build advocacy and awareness
5023 Expand MetroGIS Stakeholders
5031 Develop and Maintain Regional Data Solutons to Identified Shared Information Needs
5034 Facilitate Better Data Sharing
1058 Operate an effective data discovery and delivery mechanism (Datafinder)
5004 Plan for Continuity
5025 Expand Scope of MetroGIS
5035 Overcome obstacles to expansion and policy of MetroGIS capacities
5006 Address Funding / Find funding
5028 Keep an eye on whats happening elsewhere
5029 Build the business case for MetroGIS
5022 Market GIS Technology
5024 Enhance involvement of local government
5033 Develop and foster adherence to standards
5012 Promote & Develop Technology Advancements
5011 Build infrastructure
5017 Document Stakeholder Benefits
5026 Guiding principles reflect expanded scope philosophy
5032 Address Legal Options
ActivityTier 2
CSF/KPI
MetroGIS Activity
MetroGIS Outcome
S.H. Outcome
Stakeholder Result

APPENDIX B
MAJOR AWARDS AND RECOGNITIONS

Major Awards/Recognitions

2006: MetroGIS's Performance Measurement Program declared an "exemplar SDI control evaluation" example among an international field of Spatial Data Infrastructure programs. *SDI And E-Governance: A Quest for Appropriate Evaluation Approaches.* URISA Journal, p9, 2006, Georgiadou, Y., Rodriguez-Pabón, O., and K.T. Lance.

2005: Server Architecture Models for the National Spatial Data Infrastructure (NSDI) – *MetroGIS named best regional practice.*

2005: Recognized as a successful Spatial Data Infrastructure (SDI) among an international field in Creating Spatial Data Infrastructures, ESRI Press, pp. 139-143, Masser. In her review of this book, Dr. Zorica Budic states - "In the U.S. case, the author (Ian Masser) zeros in on one of the most successful (if not the most successful) examples of joint multiparty ventures in sharing core data sets – MetroGIS, a stakeholder-governed cooperation among seven counties in Twin Cities metropolitan area." URISA Journal, vol. 17, no. 2, 2005, Budic.

2005: URISA named MetroGIS among Best ESIG Awards 2000-2005.

2002: URISA's[124] prestigious Exemplary Systems in Government (ESIG) Award[125] – *MetroGIS's Efforts as a Whole*

2002: MnAPA Planning Merit Award – *Regional Planned Land Use Dataset*

2001: Grand Prize ESRI/National Geographic Society's Geography Network Challenge – *Web Mapping Services*

2000: Partnership Minnesota Cooperative Public Service Award – *Land Cover Classification System*

1998: Mn Governor's Council on Geographic Information Exemplary GIS Project Award – *Regional Street Centerline Dataset*

Major Grant Awards

2001:	FGDC Web Mapping Service Grant	$18,700
1998:	FGDC Framework Demonstration Grant (*Define Appropriate Organizational Structure and Fair-Share Financial Model*)	$100,000
1998:	FGDC Benefits Study Grant	$48,000

Major Articles/Publications

2006: *Implementing SDIs through Effective Networking: the MetroGIS Geospatial Data Collaborative.* (GEOInformatics Journal, 9(6), pp 50-53, 2006: Masser and Johnson)

2005: *White Knights of Spatial Data Infrastructure: The Role and Motivation of Key Individuals.* (URISA Journal, 16(2), 2005, pp 5-13: Craig).

2005: *Server Architecture Models for the National Spatial Data Infrastructures (NSDI).* (Open Geospatial Consortium, Document Number 05-030, 2005)

2005: *Minnesota MetroGIS Geospatial Data Collaborative.* (Special URISA Journal, Best ESIG Awards From the 1st Half of the Decade, vol. 17, no. 2 (2005) 41-45: Landkamer).

2002: *Collaborative Web-Enabled Data Distribution – The MetroGIS Experience.* (National URISA Conference: Kotz and Slaats)

2001: *Lessons from Practice: A Guidebook to Organizing and Sustaining Geodata Collaboratives.* (GeoData Alliance Publication: Johnson)[126]

1999: *The MetroGIS Initiative: A Model for GIS Collaboration.* (U.S. House of Representatives: Chairperson Reinhardt and Johnson)

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[124] Urban and Regional Information Systems Association (http://www.urisa.org) is comprised of over 7000 individuals and organizations that utilize and develop geospatial technology.

[125] See http://www.metrogis.org/esig_2002.pdf for the application, which provides the information requested by URISA to evaluate MetroGIS's accomplishments against its expectations for ESIG recipients.

[126] The MetroGIS Staff Coordinator co-authored this guidebook to help prospective geographic data collaborations organize and improve communication among existing collaboratives. It is a compilation of case studies and research findings relating to establishing and sustaining a successful geographic data collaborative. Johnson took a leave absence from his duties as MetroGIS Staff Coordinator to produce this document while serving as a visiting researcher at the U.S. Geological Survey's Headquarters in Reston, Virginia from July to September 2001. The GeoData Alliance published the guidebook in Sept. 2001.

APPENDIX C
PARTNERSHIPS – CUSTODIAL ROLES

As of this writing, ten organizations had assumed 23 custodial roles defined by MetroGIS to achieve regional solutions to shared geospatial needs. There are follows (these roles are long term and institutionalized and are therefore distinguished from one-time grants that have been received to evaluate options and define solutions:

Function	Regional Custodian (*Lead Support*)	Supporting Roles
Fostering Collaboration (Foster regional solutions and related best practices, Communications, etc)	**Metropolitan Council:** Provide staff and funding to support *(about 1.8 FTE)*	**City, county, school and watershed district, regional, state and federal government; academic; and non-government interests:** Participate in decision-making to establish policies and best practices that are politically and financially sustainable. *Over 570 individuals, representing a variety of professional expertise and government functions from the entire stakeholder community, have participated in MetroGIS's efforts. Representing an average annual contribution of about .5 FTE*
	a) Strategic and business planning, b) Performance measurement reporting, c) Coordinate process to implement regional solutions to priority common geospatial-related information needs, d) Outreach and communication with stakeholder community, e) Advocacy with other interests, especially state and federal initiatives, with similar objectives.	Authorize and encourage their technical and management staff and elected officials to actively participate in workgroups, committees, and the Policy Board to reach broadly supported and sustainable regional solutions to identified common geospatial related needs. .
DataFinder (www.datafinder.org **)**	**Metropolitan Council:** Provide lead staff and funding to support: (*about 0.3 FTE)*	**Primary:** Each organization (below) that serves as a Regional Custodian for a MetroGIS Endorsed Data Solution **Participating:** Any organization that wishes to serve its data via DataFinder *(Estimate support expense not currently available)*
	a) Support the foundation web server and related software b) Manage the day-to-day operations (e.g., update metadata, resolve hardware/software problems) c) Monitor user satisfaction and facilitate identification of desired community priorities for enhancements	Provide metadata in appropriate format for each dataset to be searchable and accessible via DataFinder. . *(Estimate of support expense not currently available)*

Endorsed Regional Data Solutions ***(As of July 2007)***	Regional Custodian[127] (*Lead Support*)	Supporting Roles
Census Geography	**Metropolitan Council:** Created 1990 and 2000 datasets that align with streets and parcels	**In cooperation with the U.S. Census Bureau and The Lawrence Group**.
Jurisdictional Boundaries – MCD/County	**Metropolitan Council:** Reassemble updated data quarterly into regional dataset	**Each of the seven counties**
Land Cover	**Department of Natural Resources:** Reassemble dataset as new or updated data submitted.	**Over 30 government and non-government interests** that have agreed to submit data in a standardized format
Parcels	**Metropolitan Council:** Reassemble updated data quarterly into regional dataset and manage licensing per agreement with counties.	**Each of the seven counties**
Planned Land Use	**Metropolitan Council:** Update dataset quarterly with approved Land Use Plan Amendments	**Cities and counties responsible for comprehensive planning**
Socioeconomic Characteristics ***Web-based Search Resource***	**University of Minnesota:** Monitors the website for broken links, and maintains currency of information on the site.	**Passive Sources: Various local, state, and federal organizations** - *no attempt to request data in any special forma*t
Street Centerlines – with address ranges	**Metropolitan Council:** Manage licensing and distribution of quarterly updates per agreement with TLG (data owner)	**Primary (*contractor*):** The Lawrence Group who works with counties and others to maintain the data currency, completeness and accuracy.
Estimated support provided to manage and maintain for Regional Data Solutions	*Metropolitan Council: 0.9 FTE* *Other Partners: 19.7 FTE*	

[127] A detailed listings of the actual custodial roles responsibilities can be viewed form links at http://www.metrogis.org/data/index.shtml .

APPENDIX D
METROGIS DECISION MAKING PROCESS[128] AND SUPPORTING PHILOSOPHY
(January 2006)

Major Types Of Decisions

Stakeholders, in particular, local and regional government, collaboratively acting as if a single enterprise to:

- Approve and advocate for a mission and guiding principals that provide clear focus for the purpose and desired outcomes of MetroGIS's efforts.
- Approve collaborative priorities and related major program objectives.
- Endorse a statement of common priority geospatial information and related technology needs.
- Endorse regional solutions to common geospatial needs, including:
    - Data content standards
    - Custodian roles and responsibilities
    - Best practices

Supporting Philosophy

Accepted Truths

- All core stakeholders (local and regional government entities) can improve the effectiveness of their service delivery, information management, decision support, and responsive to their constituents through use of geospatial technology.
- All core stakeholders have geospatial needs common to other core stakeholders.
- No organization is capable or has a business need to support all of the components needed to effectively address common geospatial needs of the local and regional government community that serves the Twin Cities metropolitan area.
- Working collaboratively, as a virtual single enterprise, to address common geospatial needs minimizes expenses for the taxpayer by reducing redundancies and providing a mechanism to effectively leverage existing investments.
- MetroGIS is not a project, with a definable end. Rather, it is a systems approach that requires ongoing monitoring and enhancement of established processes to maximize efficiencies for a host of functions and responsibilities core to the existence of government entities serving the metro area.
- A broadly collaborative system can not be sustained without trust in and respect for the underlining collective decision-making processes.

Defining Characteristics - MetroGIS Organization

- Forum to foster collaboration on a variety of common geospatial program needs - *more than just data.*
- Unincorporated organization - *no mandate or legal standing*.
- Can not own data, receive, or spend funds- *rely on stakeholders*.
- Elected officials comprise the Policy Board – *political reality check and elevate issues to matters of appropriate public policy.*
- Consensus-based decisions on matters fundamental to success.
- Voluntary compliance with endorsed policies/procedures.
- Implementing the NSDI Area Integrator concept - *vertical interoperability of regionally endorsed data solutions.*

Guiding Maxims – MetroGIS Organization

- All relevant and affected interests, dominated by none.
- Active involvement of elected officials public policy reality check

[128] This document was complied by MetroGIS Staff Coordinator for an NSDI Partnership Training Initiative in January 2006. It was also used as background information for the Metropolitan Council's 2005-2006 evaluation of MetroGIS (see Chapter 1 – Primary MetroGIS Sponsor: Metropolitan Council.)

- Investments made by one government interest ought to be leverageable by other government interests. (*Knowledge sharing and consensus solutions improve leveragability*)
- Never ask a stakeholder to do something for the community for which they do not have an internal need and capabilities. (*Organizations determine for themselves **that** it is more cost effective to participate in a voluntary, collaborative environment than to address their geospatial needs on their own*.)
- Funding is not the only way to contribute - data, applications, equipment and people - are also valuable partnership assets.

Guiding Principals - MetroGIS Organization

- Secure broad support for vision and policies - engage knowledgeable and respected participants
- Build once, share many times (data and applications). *Requires consensus standards*!
- Widespread sharing of the data improves data quality and ultimately decision support
- Focus on priority common business information needs
- Participation in related state and national initiatives results in valuable knowledge sharing and partnership opportunities - part of something bigger.
- Source data can not be changed when assembled into regional solutions.

Decision Making Processes

General

- The Policy Board and the Coordinating Committee are keepers of the process – insuring that method used to arrive at decisions critical to long-term success comply with guiding principals.
- Voluntary cooperation is critical to implementation of regional solutions, thus consensus-based decision making is the norm. If non-compliance with a desired best practice or policy will have a negative consequence on the broader community, the issue must be resolved to the satisfaction of all core stakeholders before endorsed as a regional solution.
- The actual decision rules can be viewed at http://www.metrogis.org/about/history/ops_guidelines.pdf.

Organizational – Mission/Purpose, Functional Priorities, Major Program Objectives

- Substantive business/strategic planning efforts have been undertaken on three occasions resulting in the mission statement, organizational structure, many of the current guiding principals, as program objectives. These initiatives resulted in Business plans for 2000-2003 and 2003-2005 in addition to this Plan (more about these plans can found at http://www.metrogis.org/about/business_planning/index.shtml.
- To foster credibility and trustworthiness, the processes have been broadly participatory and multi-faceted. A workgroup of the Coordinating Committee, representative of the broad community, was also responsible for overseeing each Business Planning initiative.
- Once solutions to shared needs are defined, they are implemented and monitored for user satisfaction. Improvements are made over time to remain responsive to common user needs.

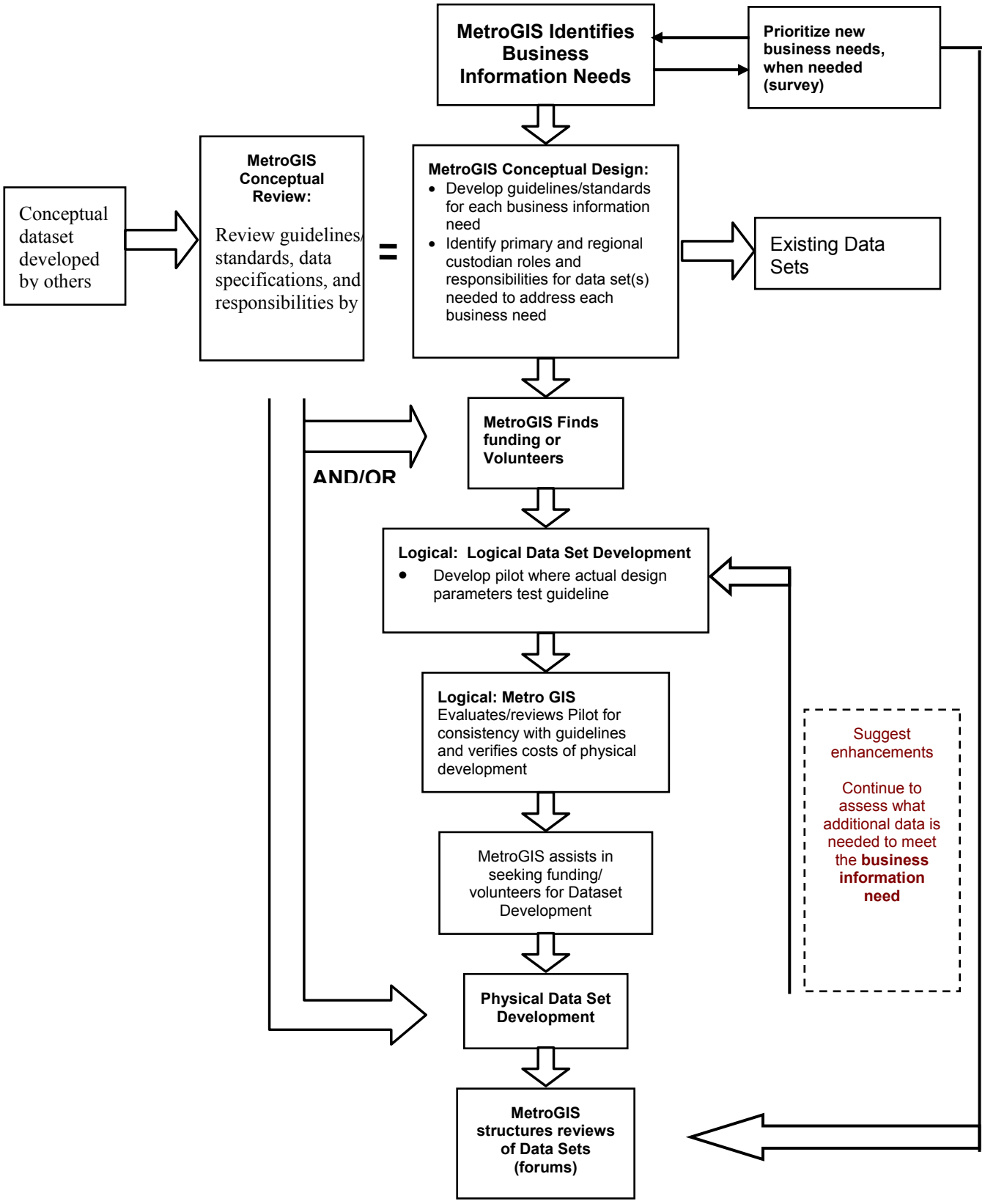
Regional Solutions to Shared Geospatial Needs - Data, Applications, and Standards

- A broadly participatory, multi-faceted process was used to define high-level shared information needs. As of June 2007, thirteen such shared information needs guided MetroGIS's efforts.[129]
- On an information need-by-information need basis, a broadly participatory process is used to agree upon desired specifications for each regional solution (data content, application functionality, access policy, standards, and best practices) and custodial roles and responsibilities, secure a custodian(s) to perform the desired roles, and establish desired access policy. A schematic of the process is provided on the next page. (More information about the process itself can be reviewed at http://www.metrogis.org/data/about/index.shtml).
- MetroGIS's primary focus since its outset has been to address shared information needs of the 300+ local and regional government entities serving the Twin Cities metropolitan area. A schematic of major categories of stakeholder relationships sought to address these shared needs is provided Figure 2, in Chapter 2.4.

[129] See http://www.metrogis.org/data/about/index.shtml for additional information about common/shared information needs and the processes used by MetroGIS to identify and address them.

In short, endorsed best practices (e.g., adherence to standards and knowledge sharing) must be acceptable to those entities which the community wishes to employ them and those organizations performing critical support for regional solutions (e.g., maintenance of primary data, assembly into regional datasets, data distribution, and foster collaboration) must be comfortable they are receiving benefit greater than if they were to go it alone. Trusted, broadly representative processes for needs identification and decision-making to implement equitable solutions are fundamental to sustaining such long term collaboration.

Business Information Needs Process



APPENDIX E

Costs to Support Fostering Collaboration Function

(Last Updated September 28, 2007)

Expense Category	1995 *Actual*	1996 *Actual*	1997 *Actual*	1998 *Actual*	1999 *Actual*	2000 *Actual*	2001 *Actual*	2002 *Actual*
Staff Salary and Benefits	$24,000	$96,400	$116,100	$112,900	$128,500	$128,500	$100,600	$101,500
Professional Services/Special Projects	$3,800	$13,600	$73,200	$69,790	$98,700	$88,830	$36,400	$107,985
Pilot Data Sharing Projects	$0	$43,700	$15,000	$0	$5,000	$0	$0	$0
Data Sharing Agreement	$0	$200,000	$145,900	$132,200	$58,800	$43,800	$43,800	$48,100
Other Non-Staff Operating Costs	$3,000	$57,600	$37,000	$32,900	$28,200	$6,300	$10,000	$10,700
Total	**$30,800**	**$411,300**	**$387,200**	**$347,790**	**$319,200**	**$267,430**	**$190,800**	**$268,285**

	2003 *Actual*	2004 *Actual*	2005 *Actual*	2006 *Actual*	2007 *Approved 7/07*	Total	%
Staff Salary and Benefits	$104,400	$110,800	$112,000	$113,100	$120,833	**$1,369,633**	**43.3%**
Professional Services/Special Projects	$19,462	$25,776	$22,751	$9,931	$53,000	**$623,225**	**19.7%**
Pilot Data Sharing Projects	$0	$0	$0	$40,500	$14,000	**$118,200**	**3.7%**
Data Sharing Agreement	$48,100	$49,000	$28,000	$28,000	$28,000	**$853,700**	**27.0%**
Other Non-Staff Operating Costs	$6,900	$2,856	$3,368	$516	$1,000	**$200,340**	**6.3%**
Total	**$178,862**	**$188,432**	**$166,119**	**$192,047**	**$216,833**	**$3,165,098**	**100.0%**

APPENDIX F
MAJOR TASKS AND REPORTING RESPONSIBILITIES FOR DEDICATED METROGIS SUPPORT STAFF

MetroGIS *Staff* (Policy) Coordinator (*Last Updated- May 2007*)
1.00 FTE (Employed by Metropolitan Council)

Work Direction and Priorities
The MetroGIS Staff/Policy Coordinator works under the general direction of the MetroGIS Policy Board and Coordinating Committee to achieve desired outcomes for MetroGIS's efforts. The Coordinator also works closely with several policy and management level stakeholder representatives who serve in positions of leadership critical to MetroGIS's success.

Reporting Responsibilities
The MetroGIS Staff/Policy Coordinator is accountable to the MetroGIS Policy Board, as well as, to the Metropolitan Council, which serves as a primary sponsor of MetroGIS. The Coordinator is a direct report to the Council's GIS Manager.

Major Responsibilities - Tasks
1. Manages and lead support for MetroGIS's Strategic Planning, Policy, Organizational Development and Operations, including identifying the pursuing strategic relationships (individuals and organizations) important to MetroGIS's long term success.
2. Manages and lead support for MetroGIS's GIS Data Sharing Agreement and Licensing Initiatives.
3. Manages MetroGIS's Performance Measurement Reporting Program.
4. Manages MetroGIS's Outreach and Communication Activities.
5. Represents MetroGIS in efforts with similar objectives (e.g. National Spatial Data Infrastructure (NSDI), MN Governor's Council on Geographic Information), at hearings concerning metro area, state, and federal policy development, and other activities as the opportunity arises relevant to MetroGIS's efforts.
6. Serves as project manager for strategic projects.
7. Provides work direction to Council GIS Unit staff whose staff assist with staffing MetroGIS, including the MetroGIS DataFinder manager, the MetroGIS Administrative Technician, GIS Data Management Coordinator concerning MetroGIS responsibilities, and other Council GIS Unit staff assigned to MetroGIS on a project-by-project basis.
8. Collaborates with Council management to secure funding and agreements necessary to MetroGIS' success.
9. Monitors GIS activities of stakeholders and maintains active liaison relationships with strategic partners, members of the MetroGIS Policy Board, and members of the Coordinating Committee

Expanded MetroGIS Technical Leadership and Coordination (*See Chapter 4)*
(Target of 1 FTE)
Host Organization: TBD

The following preliminary technical responsibilities and competencies are suggested as those necessary to effectively achieve the next-generation outcomes defined for MetroGIS's efforts, specifically scope expansions involving: applications, partnering with non-government, and data interoperability with jurisdictions that adjoin the Twin Cities metropolitan area. MetroGIS's role related to addressing shared application needs should be defined before finalizing these responsibilities. These responsibilities need not be supported by a single person or organization. Technology may also be able to address components of these responsibilities.

This support role would also expand upon and assume the "technical support" that has been provided by the Metropolitan Council staff in the past related to the "foster collaboration" function but would have not an impact or diminish in any way the Council's current Regional Custodian roles for support of DataFinder or the regional data solutions for which it has accepted responsibility.

Responsibilities Sought for Expanded Technical Leadership / Coordination Support Role

1. Manage implementation of technical aspects of collaborative solutions (data, applications and infrastructure) to shared information and related geospatial technology needs, with an emphasis on insuring interoperability of endorsed regional datasets.
2. Maintain a current understanding of technology advancements related to addressing geospatial information needs of the stakeholder community.
3. Increased frequency and amount of support for ongoing satisfaction monitoring (custodians and users) of implemented solutions to shared geospatial needs.
4. Work closely and coordinate with staff of government and non-government stakeholder organizations to define and implement technical aspects of collaborative solutions to shared geospatial needs.
5. Provide additional support needed for the MetroGIS Technical Advisory Team to function as more than a three-time a year knowledge sharing vehicle.
6. Timely support for task-specific workgroups and more opportunity to research and refine ideas to guide development and refinement of solutions to shared needs.
7. Serves as project manager for technical projects, including project planning, data development, testing of applications, and coordinating volunteer support.
8. Serves as central point of contact for inquiries related to MetroGIS technical services and processes.
9. Provide expanded assistance to MetroGIS (Policy/Staff) Coordinator for: Outreach and advocacy for services available through MetroGIS's efforts, support of the MetroGIS Policy Board and Coordinating Committee, Business Planning activities, negotiation of agreements, support of Performance Measurement Reporting, frame policy obstacles that must be resolved to achieve desired technology solutions, ….

What Knowledge, Skills, Abilities Desired

1. Knowledge of current trends in GIS technology including geospatial data and applications, standards, metadata, web-based technology, and the principals of the NSDI.
2. Knowledge of Library Science and technical writing concepts and practices, especially as related to Information Systems and the Web
3. Experience supporting committees or boards comprised of members with varying points of view.
4. Problem solving in a consensus environment involving varied organizational and professional perspectives.
5. Experience with inter-organizational implementation and management of GIS technology, including needs assessments, database design, standards development, and web-based applications.
6. Understanding of the organizations and community of GIS professionals that serve the seven county Twin Cities metropolitan area.
7. Ability to effectively explain complex technical concepts to non-technical managers and policy makers.
8. Ability to write clear, concise, and logical reports and to make clear verbal and written presentations.

MetroGIS Administrative Technician

0.75 FTE (Employed by Metropolitan Council)

Work Direction and Priorities

The MetroGIS Administrative Technician receives work direction from the MetroGIS Policy Coordinator.

Reporting Responsibilities

Work Direction is provided by the MetroGIS Staff (Policy) Coordinator who coordinates with the Metropolitan Council GIS Manager concerning non-MetroGIS support tasks.

Major Responsibilities - Tasks

1. Oversees the timely assembly and distribution of agenda materials and meeting support.
2. Supports MetroGIS's Performance Measurement Program, serving as the primary support for capturing the source data and entering into the worksheets for analysis.

3. Coordinates, under the general direction of the Staff Coordinator, data licensing procedures, including assigning passwords and updating data security information for MetroGIS DataFinder.
4. Responsible for ensuring the MetroGIS Internet site (www.metrogis.org) is current (does not draft text but is responsible for posting updated materials and maintaining the calendars, etc.)
5. Schedules meetings with and events and interact with managers and elected officials on a regular basis.
6. Coordinates with Finance to ensure timely payment of bills and receipt of funds.
7. Maintains MetroGIS contact database.

APPENDIX G
STATUS OF ENDORSED REGIONAL DATA SOLUTIONS[130] TO PRIORITY COMMON (SHARED)[131] INFORMATION NEEDS

In May 1997, the MetroGIS Policy Board approved thirteen "common priority information needs" to guide and focus its efforts to improve organizational efficiencies through data sharing.

Rank	Shared Information Need (Short Title)[132]	Endorsed Regional Data Solutions (*Operational*)[133]	Regional Data Solutions (*In progress*)
1	Jurisdictional boundaries	• MCD/county	• School Districts • Water Management Organizations
2	Street addresses	• Regional Street Centerlines with address ranges • Regional Parcel Dataset	• Address points (all occupiable units)
3	Land use (planned)	• Regional Planned Land Use	
4	*Rights to property*[(a)]		
5	Parcel boundaries	• Regional Parcel Dataset (includes Unique Parcel Identifiers)	
6	Lakes, wetlands, etc	• Regional Land Cover	• Lakes, Wetlands and Rivers
7	Land use (existing)		• Existing Land Use
8	Census boundaries	• 1990 geography • 2000 geography	
9	Where people live	• Regional Street Centerlines with address ranges • Regional Parcel Dataset	• *Address points (all occupiable units) (also Street Centerlines)*
10	*Land regulations*[(a)]		
11	Highway/road networks		• Highway and Road Networks (E911 Compatibility)
12	Socioeconomic characteristics of areas	• Socioeconomic Characteristics of Areas	
13	Unique Parcel identifiers	*See Regional Parcel Dataset*	
n/a	Emergency Preparedness (Added 2002 following 9/11/01 attack)		• Emergency Preparedness
	TOTALS (*Counted Once*)	**8**	**7**

[(a)] *No work has begun on these 2 information needs because no organization has been identified/ volunteered to lead the process to define data content requirements and custodial responsibilities.*

[130] The major components of an endorsed regional solution include: data content standards, custodial roles and responsibilities to maintain the solution, and acceptance of the custodial responsibilities by a willing organization with sufficient operational capacity. With the adoption of this plan, regional solutions are expected to begin to include elements of application needed to utilize the regional data solution to answer the driving shared information need.

[131] As a matter of polity the term "common" was changed to "shared" at the February 8, 2007 Strategic Directions Workshop.

[132] See http://www.metrogis.org/data/statements.shtml for the "long title" and more information about each need.

[133] The term "operational" means regional data solutions that have been endorsed by the Policy Board as of July 2007. Once operational, improvements are pursued to maintain relevancy to changing stakeholder needs. Activity to pursue improvements is not recognized in this chart. Each of the operational solutions is also available for downloading via MetroGIS DataFinder (www.datafinder.org) also with over 160 other datasets available to be shared.

APPENDIX H
CORE AND DISTINCTIVE ORGANIZATIONAL COMPETENCIES

One component of the 2008-2011 business planning process was an attempt to analysis of MetroGIS's organizational competencies, the skills and abilities that enable an organization to perform its core business functions. This analysis was recommended by Professor John Bryson of the University of Minnesota's Humphrey Institute, who provided strategic planning guidance to the business planning team.

The products of the Business Planning Oversight Team's analysis were initially described in a brief chapter on MetroGIS's current and needed competencies and a matrix demonstrating the relationship between individual strategies and the corresponding competencies required to execute those strategies. However, the Team ultimately determined that while MetroGIS is in the process of determining its role related to addressing shared application services, it would be premature and ultimately impossible to offer a "final" review of the competencies issue. Depending on future decisions relating to MetroGIS's role in applications, there may be newly identified needed competencies in a number of fields, including but not limited to technical leadership and inter-organizational (or cross-jurisdictional) coordination.

Consequently, a decision was made to remove these materials from this Business Plan and to revisit evaluation of organizational competencies after MetroGIS's role related to shared applications is defined.

These materials have been consolidated into a single document to ensure none of this work is lost. This document can be can be found at http://www.metrogis.org/about/business_planning/org_competencies.pdf.

APPENDIX I
BEYOND GOVERNMENT USERS PARTNERSHIP OPPORTUNITIES
(To address shared geospatial needs)

The purpose of MetroGIS's "Beyond Government Users" initiative was to investigate opportunities for partnering between non-government and government interests which serve the metropolitan area to address common geospatial-related needs. The following "opportunities" were identified through a process that began with a forum[134] in November 2005. The forum was then followed by workgroup process through which several participants[135] of the forum refined those opportunities they believed to be the best and most achievable. Summaries of each of the following opportunities are provided in this Attachment:

- ***Foster Statewide Adoption Of Principles That Underpin MetroGIS*** (*See Chapter 3, I*)
- ***Foster An Open Source Data Model*** (*See Chapter 3, III*)
- ***Implement ApplicationFinder Concept*** (*In progress*)
- ***Foster a Marketplace For Geospatial Resources*** (*See Chapter 3, III*)
- ***Expand Policy Board Membership To Include Non-Government Interests*** (*See Chapter 3, VI*)

Each of these proposals, to the extent currently conceived, is consistent with the Evaluation Criteria identified by the Policy Board at its January 2006 meeting:

- Value-added to public sector assets is encouraged provided it does not detract from the public sector objective.
- Contribution of assets to a collaborative solution assumes all parties view the transaction as equitable and relevant to their needs.
- Contributions can comprise of funds, data, equipment and/or people.
- Equity is defined on an organization-by-organization basis and exists if the collaborative solution is more efficient than pursing the solution on one's own.

1. Foster Statewide Adoption Of Principles That Underpin MetroGIS
Leader drafter: Will Craig (Version 2, October 23, 2006)

What: MetroGIS was built on the principle that data should be shared among all stakeholders – at least governments and academia. It has facilitated sharing with the help of the Metropolitan Council as a regional custodian of data, self-defined standards, common licenses, and the DataFinder website. Equally importantly, MetroGIS has provided a forum for stakeholders to work together to identify problems of common interest and their solutions. Ways need to be explored to encourage similar principles and activities in Greater Minnesota.

Example: The Minnesota Department of Natural Resources has a very tough time getting local parcel data in central Minnesota, for two reasons: 1) lack of data standards and 2) every county has a unique licensing process. Local school and watershed districts have similar difficulties. Counties have a hard time both enforcing their license agreements and getting their data used by relevant stakeholders. Common access agreements would aid DNR as well as local school districts. Moreover, data standards would allow counties to share data with each other.

Why MetroGIS Cares: Many Metro entities straddle the metro/collar fringe, including E911. Other people working on similar goals might provide solutions we could use. Their endorsement of our efforts gives us gratification and glory.

Why Private Sector Cares: Business activities and opportunities do not stop at jurisdictional boundaries. This includes utilities and others.

[134] A summary of the event can be viewed at www.metrogis.org/teams/pb/meetings/06_0118/forum_summary.pdf .
[135] The Workgroup was comprised of John Carpenter, Excensus; Jason Johnson, Welsh Companies; Sally Wakefield, 1000 Friends of Minnesota; and Will Craig, U of M CURA

Potential Options:

- State provides resources similar to what Metropolitan Council did for MetroGIS.
- MetroGIS and Governor's Council develop and market standard parcel license.
- Private sector is involved as the provider of parcel mapping services (e.g., ProWest has contracts with many counties for developing and supporting parcel mapping)
- Regional Development Commissions, where they exist, play the role of Metropolitan Council.
- Grassroots GIS user groups take the lead. The Pine-to-Prairie User Group may be the prime example. A nascent County GIS Directors group appears to be forming.
- More formalized cooperatives, something like the Central Minnesota Regional Technical Advisory Committee, which is developing a common portal for five counties and the City of St. Cloud.

2. Foster an Open Source Data Model for MetroGIS
Lead Drafter: John Carpenter (Version 1, November 1, 2006)

What: The linear pattern of GIS data development that characterized the early years of MetroGIS has changed. There is now a robust marketplace of public and private sector GIS application developers and users in the Twin Cities. With this growth has come an increasing interest in building upon parcel base data sets obtained through MetroGIS and the originating counties. They view the parcel geographies, for example, as a unique and stable backdrop for constructing various kinds of map overlays. In addition, property and land use attributes can be of considerable value in development of various kinds of GIS overlay products. In the course of developing these applications, developers are also discovering ways to augment and improve the source data based on other sources of information at their disposal.

At present, licensing restrictions do not permit parcel geographies to be incorporated into web-based applications and few if any of the improvements to the parcel attributes are finding their way back to the source data sets. Ways need to be explored to encourage collaborative development and sharing this area.

The Open Source software development model would seem to offer a well-accepted framework for collaborative public/private data sharing and data improvements in the Twin Cites GIS community. In this framework, users are typically granted free access to the latest version of the application code and agree to share improvements they make to the software. The process is self-policing, meaning that a dedicated core of users undertakes a careful review of code changes to ensure that the software remains secure and reliable. The result of this collaboration of users is the very fast and affordable development of high quality technologies and software products.

How this could work: By applying the Open Source Data Model concept to parcel development, for example, the GIS user communities (both public and private) in the Twin Cities might cooperatively agree to post all corrections and improvements to the parcel geographies and attributes in exchange for less restrictive uses for the data, including incorporation parcel base raster images into web-based applications. A core group of users, operating under the auspices of the MetroGIS, would be responsible for assessing or rating incoming data changes. All user submissions would be kept in a separate, fully documented data warehouse for use by others. The counties would still have responsibility for ensuring the accuracy and reliability of the parcel data sets, but would be able to draw upon any of the contributed changes.

Why MetroGIS Cares: Building an active, collaborative base of GIS data user is at the core of the MetroGIS mission. Given limited public sector budgets and the growing interest and resources of non-public users, adoption of the Open Source development model seems not only reasonable, but essential.

Why Private Sector Cares: There is a significant cost to GIS application developers in reprocessing property and land use data sets to incorporate new construction changes, correct errors, or to fill-in missing field entries. Many of these costs are repeated each time an update is produced. Collaboration offers the potential to significantly reduce many of these costs.

Potential Benefits:

- Improved data quality and timeliness.
- Expanded access to parcel data for GIS application developers willing to return new or enhanced data sets deemed of value to others.
- Reduced costs for development and updating of core data sets.
- Expanded uses and market place exposure for parcel-based data that in turn increases the perceived public value and demand of this information.
- Implement effective ways to integrate data from multiple sources
- Investigate potential for processes to post suggested corrections for consideration by the custodian.
- Implement a process(es) to return improved data to the data stream.

3. Implement ApplicationFinder Concept

The Workgroup concluded that the Regional GIS Project funded December 2006 and entitled "Geospatial Services Directory and Broker" is consistent with the intent of the November 2005 Forum participants and, therefore, the objective to foster consideration of this opportunity has been satisfied.

The in-progress pilot project calls of the Mn Land Management and Information Center (LMIC), in conjunction with the Metropolitan Airports Commission, to develop and implement a directory of shared geospatial web services and software components and tools for the MetroGIS stakeholder community. Specifically, the following capabilities will be developed:

- **A Catalog of Geospatial Services.** The catalog will be initialized with data produced from the Governor's Council on Geographic Information (GCGI) Shared Geospatial Services survey.
- **Catalog Maintenance, Query and Search Tools.** A user interface that provides catalog maintenance, query, and search functions similar to those developed for the MN Geographic Data Clearinghouse.
- **Shared Service Use Demonstration.** An application broker that demonstrates the interactive use of LMIC's Open Geographic Consortium (OGC)-compliant Web Mapping Services (WMS) Image Server as an example of a hosted shared service that directly supports applications meeting MetroGIS business needs.
- **Geospatial Toolkit Library.** An on-line repository for applications and software code that is available to MetroGIS member organizations.

4. Foster a Marketplace for Geospatial Resources

Lead Drafter: Entire workgroup (August 29, 2006)

What:

This opportunity builds on the "Opportunity 2: Foster an Open Source Data Model for MetroGIS". Realization of a geospatial resources marketplace concept could greatly enhance geospatial data and application access options, with acquisition arrangements ranging from bartering to subscriptions. The marketplace should place special attention to fostering outsourcing of application needs, as well addressing the preferences of some users who will want to bring an application in-house to experiment with the code and functionality themselves. Another focus should be on applications and web services that are not part of the standard desktop suite (e.g., commercial GIS software).

How This Could Work/Example

To fully achieve the potential of the open source data model, the various sectors/interests need to better understand the geospatial resources of others and what might be valuable to their needs. A series of ***focus groups*** among the various interests is suggested to identify potential connections. All interests should be invited to participate, regardless of their current capabilities as their ability to contribute may not be readily identifiable at this time. Topics that should be explored include data produced and used as well as capabilities to use and produce geospatial products. The goal should be to expand the user community (market), not close it down when budget constraints exist or are pending.

Why MetroGIS Cares/Why Private Sector Cares

- Expanded access to the geospatial data resources would facilitate application development that, in turn, would create opportunity for the public and non-public sectors to leverage for their particular needs.
- Maintaining trust in data accuracy, completeness, and availability are critical components to achieving the fundamental objectives of MetroGIS - minimizing duplication of effort and broad leveraging of existing resources.
- Public-private leveraging of existing investments provides opportunities greater than either sector can achieve on its own.
- Expansion of the user base (regional data solutions) expands potential partnerships to pursue collaboratively other next-generation enhancements valuable to all.
- A distributed system of producers of property related data is suggested that creates a one-stop access point for parcel-related data produced by government and non-government interests alike.

Potential Options
TDB

5. Expand Policy Board Membership To Include Non-Government Interests
Lead Drafter: Entire workgroup (August 29, 2006)

What:
Amend the Operating Guidelines to expand Policy Board membership and include one of more senior officials from non-profit and for-profit interests valuable to achieving MetroGIS's vision and objectives.

Example
Expand the current eleven-person Policy Board, which is comprised of representatives from city, county, water management district, school district and regional governmental interests, to include one or more senior non-profit and for-profit officials.

Why MetroGIS Cares
Participation of leadership from the non- and for-profit communities on the Policy Board could result in collaboration opportunities valuable to government community that might not otherwise be identified. For instance, the presentation to the Policy Board in April 2006 by Professor Shekhar (http://www.metrogis.org/teams/pb/meetings/06_0419/Shekhar_presentation.pdf) has resulted U. S. Bank Corporation's investigating working the MetroGIS to address its emergency management needs.

Why Private Sector Cares

- Leverage investments to jointly address opportunities important to non-government as well as the MetroGIS communities.
- Improve efficiencies and service delivery
- Improve communication between the sectors concerns geospatial needs and opportunities.

Potential Options
TBD

APPENDIX J
STRATEGIC TRIANGLE REQUIREMENTS FOR A SUSTAINABLE PUBLIC PROGRAM

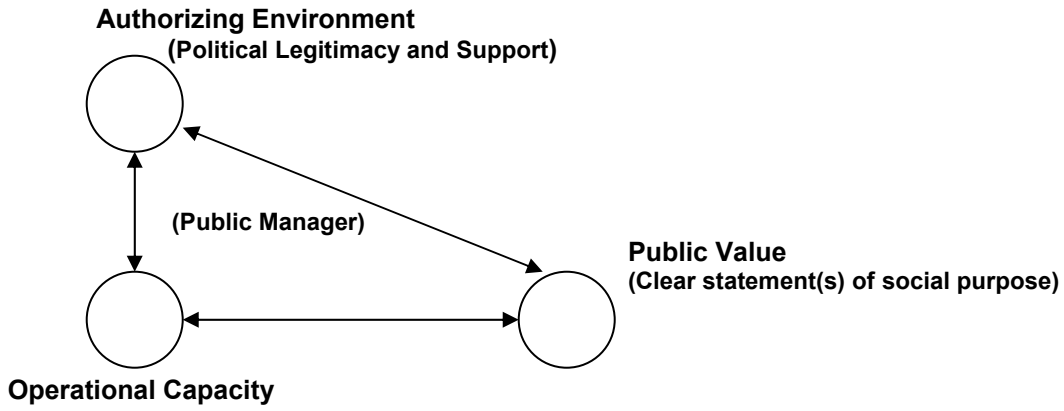
Excerpt from an article written by Randall Johnson, MetroGIS Staff Coordinator, in November 2005, following his participation in the Kennedy School of Government's "Innovations in Governance" Executive Education Program. The Staff Coordinator was invited to share MetroGIS's efforts as a case study[136] for examination during this week-long program.

Overview of Strategic Triangle and How MetroGIS's Governance Structure Aligns

The Strategic Triangle is an analytic tool developed to assist public sector managers identify governance weaknesses that need to be resolved for partnership initiatives to flourish. This tool was the central focus of the Innovations in Governance Program. Several case studies were used to highlight the importance of each of the three core elements, which are illustrated in Figure 1, below, and assist the participants analyze their respective governance challenges.

MetroGIS's governance structure was called attention to because it possesses elements of all three core components required for success. MetroGIS's governance structure was also called out as an example of a successful initiative because it is now facing changes in its environment that require thoughtful attention to insure the desired public value continues to be attainable.

Figure 1: Strategic Triangle



Source: "*Creating Public Value: Strategic Management in Government*", Mark H. Moore, Harvard University Press, 1995.

Examples of polices/actions pursued by MetroGIS, which align with each component of the Strategic Triangle, are as follows:

1) Public Value Sought – Substantive Policy
   The goals of MetroGIS's efforts seek are to 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 for purposes of:
   - Improving participant operations.

[136] The challenge statement submitted by the Staff Coordinator for selection to the program was selected as a case study for the program because MetroGIS is an existing organizational structure created expressly to address shortcomings in conventional governance through the bundling of operational capacity across several organizations to address shared needs. In addition, MetroGIS's governance structure was called out because it possesses elements of all three components required for long-term success in an environment where bundling of organizational capacity across multiple organizations must occur to successfully achieve the desired end.

- Minimizing stakeholder expense and duplication of effort.
- Supporting cross-jurisdictional decision making."

(Source: MetroGIS Mission Statement - *adopted February 1996*)

Public value created through MetroGIS's efforts include:

- Support of effective regional solutions to common information needs create public value through improved organizational efficiencies for all stakeholders by substantially reducing time and effort required manipulation data prior to use. Secondly, moving the dialogue from debate over data sources to substantive policy needs and opportunities creates efficiencies that in turn create public value. (See Attachment A for a listing of the regional solutions that are in place. They involve 10 organizations, which are voluntarily performing 23 distinct support roles.)
- Support of a user friendly, one-stop, Web-based tool for discovery and access to geospatial data creates public value through improved organizational efficiencies for all stakeholders by substantially reducing time and effort required to find existing data produced by others and obtain it. In addition, data producers improve efficiencies by streamlining there data distribution support needs.
- Support of a forum for knowledge sharing creates public value by minimizing costly duplication of effort and improves trust and professional working relationships which, in turn, fosters an enabling environment for innovation critical to long term effectiveness.
- Secure data sharing agreements, which foster wide spread use of commonly needed geospatial data without fees for access, creates public value by encouraging the leveraging of existing investments thereby minimizing costly duplication of effort and fostering improved data quality through anomaly identification from many perspectives.
- Secure common licensing and related data access procedures creates public value by minimizing costly legal review and expediting of access to needed data.

2) Authorizing Environment – Securing Political Legitimacy and Support:
   - In 1996 the initial MetroGIS Resolution of Support was adopted by all core stakeholders endorsing the current mission statement and creating the Policy Board composed of policy makers representing all essential interests.
   - Via two Business Planning initiatives (2000-2003 and 2003-2005) core stakeholders unanimously set collective direction and guiding principals to address common geospatial needs.
   - MetroGIS's Operating Guidelines were unanimously adopted by Policy Board setting collaborative policy making expectations.
   - MetroGIS's Performance Measurement Program seeks to insure that performance toward established public value-based objectives is continually monitored and modifications are made, as needed, to maintain relevancy to core stakeholders.
   - Quarterly Policy Board meetings have been held for ten years and there has never been a meeting cancellation. Three of the initial members continue to serve.

3) Operational Capacity – Partnerships That Bundle Operational Capabilities Across Organizations:
   - Implementation of coordinated regional solutions, which are supported by several stakeholders as if a single enterprise, is recognized as a practical and cost efficient way to address numerous common needs that can not be met by any single organization.
   - Voluntary acceptance of community-defined custodial roles and responsibilities for regional solutions by organizations both willing and able fosters an ethic of interdependence and cooperation, as well as, results in the best available data practices at the least cost to the taxpayer.
   - Positive feedback from the participants of the November 15, 2005 Beyond Government Users Forum to seek partnering suggestions from non-government entities is a sign of MetroGIS's maturity and a realization that further effectiveness to achieve common needs may be possible by partnering beyond the government community.

Reasons For Attending the "Innovations in Governance" Program

Participation in the "Innovations in Governance" Program was pursued ….to obtain constructive criticism and ideas for improving MetroGIS's governance structure, in particular, with regard to:

1. Appropriateness and Effectiveness of MetroGIS's Current Organizational Structure (policy makers from all core stakeholders establishing policy from a regional best practice perspective, as opposed to the perspective of any single stakeholder). *Public value sought*: Secure and sustain several multi-party partnerships to bundle operational capacity across organizations and support, as a coordinated enterprise, regional solutions to common geospatial needs; the ultimate purpose being to achieve public value that can not be otherwise achieved.

2. Equity Among Support Contributions. *Public value sought*: Insure that stakeholder contributions in support of regional solutions endorsed by MetroGIS are fairly borne by willing organizations with capacity and internal need (partnerships to secure needed operational capability across organizations). (See Attachment A for a listing of the 23 MetroGIS defined custodial responsibilities that are currently being supported by 10 different organizations.)

Reflections on Constructive Criticism and Ideas Received

Prior to attending this program, the Staff Coordinator and others among MetroGIS's leadership believed that …assuring equity among the participants required an economic model/quantitative solution by which contributions could be measured across the participating organizations ands documented as equitable.

During the discussion of the MetroGIS case study, it became apparent that such a quantitative analysis model does not exist. Most believed that the current qualitative approach (testimonials) to documenting benefit should continued to be the primary focus. ….. The key concept, whether measured qualitatively or quantitatively, is ….that if an organization has a business need to perform a particular function that is also important to the community and the benefit to the organization and community that is received for cooperating with others equals or exceeds the cost of supporting that role(s), then by definition, equity is achieved and, as importantly, reallocation of tax dollars from one organization to another is avoided, thereby also minimizing the overall cost to the tax payer.

Constructive criticism received during discussion of MetroGIS's case study which the participants concurred should receive attention:

1) Clearly articulate why each custodian can or cannot justify continued participation [support regional solution(s)] in accordance with the current organization-centric equity evaluation policy, (*Editor's note: Philosophy endorsed in this 2008-2011 Business Plan*.)
2) Insure that all key stakeholders are clear that an organizational structure, capable of brokering and sustaining numerous inter-organizational partnerships to bundle operational capacity as if a single enterprise, is critical to achieving MetroGIS's vision, (*Editor's note: Philosophy endorsed in this 2008-2011 Business Plan*.)
3) Resolve the dilemma posed by the current staffing model, whereby dedicated program staff are caught in the middle between advocating for the community as a whole and insuring the organization that pays the salary is at all times completely satisfied. The tension created by this dual reporting situation constricts staff's effectiveness to aid in the resolution of differences. (*Editor's note: This concern was resolved with the Metropolitan Council's adoption of a resolution of support for MetroGIS IN June 2006*.)

APPENDIX K
SUMMARY OF WORK PROGRAMMING PREFERENCES (2008 AND 2009)
(August 2007 Survey)

SUMMARY OF COORDINATING COMMITTEE SURVEY RESULTS - AUGUST 2007

PRIORITY PREFERENCES FOR 2008-2009 WORK PROGRAMMING

Major Activity Areas (Defined in 2008-2011 MetroGIS Business Plan)

1. Develop and Maintain Regional Data Solutions to Address Identified Shared Information Needs.

2. Expand Regional Solutions To Include Support And Development Of Application Services.

3. Facilitate Better Data Sharing.

4. Promote a Forum for Knowledge Sharing.

5. Build Advocacy and Awareness.

6. Expand MetroGIS Stakeholders.

7. Maintain Funding Policies That Make The Most Efficient And Effective Use Of Available Resources And Revenue For System-Wide Benefit.

8. Optimize MetroGIS Goverance and Organizational Structure

Types of Supplement Support:

Ten **support categories are listed in the attached sheet**. Anticipated needs for support resources in addition to those currently available are noted below, by type.

Activity #			**Survey Results - *15 Respondents***			**Supplemental Support**	
Strategy=S# Tactic=T#	***Strategies/Tactics*** - (Defined in 2008-2011 MetroGIS Business Plan).		**(1 very low-5 very high)**				
Tie to Plan	(Three ***bold-italicized*** items - priorities of Policy Board for 2008)	**Rank**	**Priority**	**Participation**	**Anticipated**	**Comments**
Not Ranked-Past Practice (A1.S1, A1.T7, A1.S7, A3.T5, A4.T3, A5.S1, A5.T4, A5.T6)	Per Conclusion at Strategic Directions Workshop - Continue traditonal ongoing "foster collaboration" support activities *(e.g., foster knowledge sharing; liaison with efforts, in particular at the state and national levels; monitor effectiveness of regional solutions that in place, ensure decision-making processes are meaningful, productive, and a good use of participants' time; document benefits of MetroGIS's efforts via testimonials; report on performance measures; maintain currency of metrogis.org website, and produce annual report and other outreach materials.)*					Ongoing
A1.T2	Execute Next-Generation Parcel Data Sharing Agreement – current agreement expires 12/08. (Also Areas 3 and 6)	1	4.5	3.5	10?	An annual fee has been paid with previous agreements to assist counties automate process to translate data into the regional database format.
A1.T2	Execute Street Centerline Agreement current agreement expires 12/09. (Also Areas 3 and 6)	2	4.3	3.3	10?	An annual data maintenance fee has been paid with previousd agreements.
A2.T2 & A2.T3	***Develop Policy Framework and Plan for Shared Applications (e.g., define a framework for the range of options appropriate for MetroGIS's efforts regarding shared application needs) and Begin Implementation.***	3	4.3	3.3	2, 9, 3	***Top Priority- expanded scope***
A3.S4	***Establish working relationships with jurisdictions adjoining Twin Cities Metropolitan area to improve data sharing and interoperability. (Also Area 6.)***	4	4.3	3.3	2	***Top Priority - expanded scope*** Assume the Staff Coordinator will be the initial contact and as relationships are established work in concert with the Technical Leadership
A1.T6	Adopt Best Practices to Provide View-Only Access to Licensed Data Via Applications (Also Area 6.)	5	4.1	3.1		*Components of Activities (#1) & (#2)
A1.T1	Conduct 2nd generation identification of shared information needs (related to Activity 2a - Shared Application Need Assessment).	6	4.1	3.1	2, 9, 3	Anticipated Next Step (late 2008 or 2009) following agreement on application sharing policy framework - Activity (#3)
A2.T4 & A4.T3	Host/Co-Host Educational Forums	7	4.1	3.1	2?	Need to decide purpose of forums (e.g., supplement current needs)
A1.S2	Make substantive progress to achieve vision for Next-Generation (E911 Compatible) Street Centerlines dataset (Also Areas 3 and 6)	8	4.0	3.0	2, 4, 6	Comment from survey - Requires management and policy leadership from MESB and Involvement of PSAPs
A1.S2 & A1.T9	Decide next steps for emergency preparedness regional solution. (Also Area 6)	9	4.0	3.0	2, 4, 3	Evalution of lessons learned from first phase
A2.T1	Apply lessons learned from Geocoding Pilot Project	10	4.0	3.0	N/A*	*Component of Activity (#4)
A3.T4	Implement ApplicationFinder. (Also Area 6.)	11	4.0	3.0	2, 3, 5	LMIC's Service Broker project, expected to be complete by Nov. 2007, is anticipated to define parameters important to implementation
A4.T5 & A4.T3	Leverage electronic tools	12	4.0	3	3	Ongoing
A1.S2	Make substantive progress to achieve the vision for Addresses of Occupiable Units dataset. Includes implementation of a web-editing application to foster participation by smaller entities. (Also Areas 3 and 6.)	13	3.9	2.9	2*, 4, 3	*Mark Kotz (Metropolitan Council) is currently filling the leadership (#2) role. Depending upon the Council's perception of benefit received other leadership resources may be needed.
A3.T5	Advocate for MetroGIS's Efforts in Development of Statewide Geospatial Polices	14	3.9	2.9		Ongoing

A7.S4	Advocate for Legislative funding initiatives valuable to outcomes defined by MetroGIS. (Also Area 6)	15	3.9	2.9		Ongoing - As the opportuntity arises
	Strategies/Tactics - (Defined in 2008-2011 MetroGIS Business Plan)		**(1 very low-5 very high)**		**Supplemental Support**	
	(Three ***bolded-italized*** items - priorities of Policy Board for 2008)	**Rank**	**Priority**	**Participation**	**Anticipated**	**Comments**
A2.T5	Pursue web-based "message board" to facilitate partnering on shared application need	16	3.7	2.7	5, 2	Should be pursued after or in conjuction with implementation of Application Finder- Activity (#11)
A5.S2	Develop briefing materials to support leadership advocacy for benefits of collaboration among peers. (Also Area 6)	17	3.7	2.7	9?	
A8.S4 & A8.T3	Develop a Leadership Succession Plan and insure adequate support.	18	3.7	2.7	9?	Retirement pending for mangement and political leadership
A8.T1	Update Operating Guidelines to Align with Next Generation Business Plan (e.g., Definition of Participant)	19	3.7	2.7		Pursue after Outreach (#33a) and Performance Measurement Plans (#21) are updated
A1.S2	Achieve regional solution for jurisdictional boundaries – school districts and water management organizations	20	3.6	2.6		Need to secure regional custodian commitments to proceed
A7.T1 & A8.T1	Update Performance Measurement Plan (measures of public value) to align with the Next-Generation Business Plan and Implement.	21	3.5	2.5	9	Pursue once applications-related policies/roles are decided
A8.S2, S3, T4 & T5	Evaluate stakeholder participation relative to needs to achieve current regional objectives	22	3.5	2.5		After application's plan in place and Component of Activity (#23)
A8.T1, T4 & T5	Conduct Participant Satisfaction Survey	23	3.5	2.5		After "shared applications" implmentation underway (#3)
A3.T1a	Develop a management and support plan for DataFinder, which incorporates tactics suggested in new Business Plan. (Also Area 6)	24	3.5	2.5	2, 3	After Activities (#23) and (#22)
A7.S1 & A7.T1	Investigate creation of a partnership entity (e., joint powers body) to expedite cost sharing on shared data acquisition needs, application solutions, etc. (Also Area 6)	25	3.4	2.4	2, 4, 3	
A7.S3	Foster a community-focused philosophy regarding GIS return on Investment. (Also Area 5)	26	3.4	2.4		Moved to Guiding Principles - Ongoing.
A8.S3 & A8.T1	Seek reaffirmation of role expectations by key stakeholder (e.g., sponsors and custodians)	27	3.4	2.4		Modified by Committee 9/12/07. Clarify expectations with key stakeholders (custodians) as opposed to seeking formal endorsement of Plan as originally suggested by staff.
A1.S3	***Investigate Partnering Opportunities with Non-Government Interests. (also Areas: 2, 3, and 7.)***	28	3.3	2.3	2?	***Top Priority Top Priority - expanded scope Address in 2008.*** Assume the Staff Coordinator will be the initial contact and as relationships are established work in concert with the Technical Leadership.
A8.S1 & T1 &A8.T6-12	Conduct an evaluation of "Organizational Competencies" once the Technical Leadership resource need is resolved and a Plan for MetroGIS's role regarding shared applications is in place.	29	3.3	2.3	9	Following adoption of "shared applications" plan and current technical leadership support needs are resolved, complete work to apply "organizational competencies" concepts fostered by Professor John Bryson, University of MN to MetroGIS's Business/Work Planning efforts. Work on this management tool had to be postponed until the competencies (haves and needs) related to applications are established.
A3.T1a	Investigate Enhancements To DataFinder. (Also Area 6.)	30	3.3	2.3	3	After Activity (#24) and Activities (#23) and (#22), if a need is identified.
A3.T2 & A7.T2	Explore creation of Geospatial Marketplace, including Metadata "lite" directory to supplement catalogue in DataFinder, and investigation of the potential for an "open source data model". (Also Area 6)	31	3.3	2.3	3, 2	Consider starting with "metadata lite". Open source data model concept – ongoing effort as data models are considered
A1.T3	Conduct Peer Review Forums – (Candidates include: Parcels, Existing Land Use, Socioeconomic Web Resources Page, Hydrology and Street Centerlines.)	32	3.2	2.3	2, 4, 3	Purpose – invite suggested enhancement to regional solutions to ensure continued relevance to stakeholder needs
A5.T1, A5.T5	Expand MetroGIS Outreach Plan to Include a Marketing Component and Begin Implementation. (Also Area 6).	33	3.1	2.1	9?	Board direction July 2007 – Not sure if "marketing" is appropriate. Once shared applications role is defined, reassess need/purpose. Leverage marketing expertise possessed by stakeholders before consultant assistance is considered
A1.T5 & A3.T3	Investigate impact of cost recovery policies on ability to achieve desired data sharing (Also Area 6)	34	2.9	1.9		Best addressed within the context of a practical as opposed to a theoretical situation

#	Major Types of Support - "Foster Collaboration" Function		
	(Samples of major responsibilites by support Type)		**Current Resource**
1	Leadership - Policy/Organizational: Clear understanding of MetroGIS's breadth of activities and objectives, understanding of stakeholder operations, strategic and business planning expertise, and skills to accomplish performance measurement, project management, outreach, achieve consensus, and clearly frame issues and offer appropriate courses of action		MetroGIS Staff Coordinator (Randall Johnson)
2	Leadership-Technical: Clear understanding of MetroGIS's breadth of activities and objectives, understanding of technical resources available in the community and coordinates their application to address shared needs, technical visioning, project management, effectively translate techncial obstacles into appropriate courses of action		*Look to Community on a project basis*
3	Technical Assistance: Provides advice, research, develop standards, orgasnizae and define systems, etc. on a project basis,		*Look to Community on a project basis*
4	Technical Facilitator: Possesses technical knowledge and expertise to sufficent to facilitate agreement on technical options, explanation of issues one-on-one and in group settings.		*Look to Community on a project basis*
5	Programmer: write code, application development		*Look to Community on a project basis*
6	Technical Writer: Effectively organize, record and summarize technically-oriented group processes, research findings, and strategies agreed upon.		*Look to Community on a project basis*
7	Communciations-Outreach: Prepares news releases, developes annual report, interviews stakeholders to document benefits, edits publications		Consultant - Jeanne Landkamer
7	Adminstrative-Logistics: Meeting logistics, distribution of meeting materials, meeting summaries, procurement, processing of payments, and expense tracking		MetroGIS Administrative Technician (Christopher Kline)
8	Adminstrative-Technical: Maintains currency of web site, captures performance measurement data in form appropriate for analysis, administers data licenses, leverage web and related office technologies		MetroGIS Administrative Technician (Christopher Kline)
9	Consultant: Specialized support to Supplement staff and resources in the community, as needed		*Request As Needed - Subject to Available Foster Collaboration Budget*
10	Funding: Resources to conduct research, develop and pilot projects, etc. (Non Consultant cost)		*Request As Needed - Subject to Available Foster Collaboration Budget*

SUMMARY OF SURVEY COMMENTS
(by Major Activity Areas)

1. Develop and Maintain Regional Data Solutions to Identified Shared Information Needs.

Regional data solutions remain the core of MetroGIS.

Add: Interview all custodians to determine if they are following through with their responsibilities and if they have any suggested changes or improvements.

We will only be able to participate in any of these activies to extent we have time and they meet our business needs. Such Catagories include: e, g, h and j and maybe others.

2. Expand Regional Solutions To Include Support And Development Of Application Services.

The understanding of what Application Services really are needs to be clarified so that folks are on the same page. I see a lot of unproductive conversations happening because this isn't understood.

Message Board is a good idea providing the shared application function would exist. We already have web based functions through agreements with such as our users group and not much resource to help build any other system. Our business need is currently being fulfulled.

3. Facilitate Better Data Sharing.

I'm not sure what is meant in (b) by "Advocate for MetroGIS's Efforts." I do support statewide policies and will be involved in pursuing them. Question (e) is really two different questions; I don't know how to interpret it but answered anyway as it's required.

Serve GIS Data in public access format (i.e. KML)

Any impact study that puts the major workload (burden) on the County and is not of a County Business Need, is not desirable.

4. Promote a Forum for Knowledge Sharing.

MetroGIS does provide a forum, whether or not special events are held. Also, note other venues for knowledge sharing are equally important.

5. Build Advocacy and Awareness.

It's not clear to me where "outreach" ends and "marketing" begins. Are we informing or selling? That said, I don't really know what a "Marketing Component" would be.

APPENDIX L

SUMMARY
FEBRUARY 8, 2007
METROGIS STRATEGIC DIRECTIONS WORKSHOP

http://www.metrogis.org/about/business_planning/sdw/workshop_summary_%2007_0417.pdf

APPENDIX M

SUMMARY
JUNE 1, 2006 FORUM
IMAGINING POSSIBILITIES:
NEXT FRONTIER FOR GEOGRAPHIC INFORMATION TECHNOLOGY

http://www.metrogis.org/specialevents/techpossibilities/index.shtml.

APPENDIX N

SUMMARY
2005-2006 INVESTIGATION
NON-GOVERNMENT / GOVERNMENT PARTNERSHIP OPPORTUNITIES
(*Shared Information/GIS Technology Needs*)

http://www.metrogis.org/about/business_planning/index.shtml#Prep1

Related Plan Documents

1. Performance Measurement Plan Update
2. Outreach and Marketing Plan Update
3. Leadership Succession Plan
4. DataFinder Management Plan
5. Geospatial Marketplace Plan