Last updated
January 31, 2007

METROGIS
BACKGROUND INFORMATION PACKET

IN PREPARATION FOR

STRATEGIC DIRECTIONS WORKSHOP
FEBRUARY 8, 2007

Note to Participants: ***Please keep in mind that the purpose of the Strategic Directions Workshop is to set clear policy direction ("whats and whys") to guide MetroGIS's efforts for the next 3-5 years. The "hows" will be addressed in the Business Plan Update process that will begin immediately following the February 8th Workshop.***

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I. HISTORICAL OVERVIEW – A DECADE OF FOSTERING COLLABORATION

Accomplishments: MetroGIS's beginnings date back to a Strategic Planning Retreat held on December 14, 1995. Since that time, there have been a number of significant achievements through the efforts of MetroGIS. These efforts and achievements have resulted in an environment where data sharing and collaborating to achieve to solutions to common needs are the norm among government interests that serve the seven county, Twin Cities Metropolitan Area. The following achievements are among the more significant:

#	Date	Accomplishment
1	Dec 1995	Metropolitan Council and LMIC co-hosted the Strategic Planning Retreat that launched the data sharing initiative that became known as MetroGIS.
2	Feb 1996	Adopted MetroGIS vision
3	Jun 1996	Metropolitan Council accepted role as primary sponsor of MetroGIS
4	Summer -Fall 1996	All ten other essential stakeholder interests: a) Endorsed MetroGIS vision b) Appointed a representative to serve on the MetroGIS Policy Board.
5	Dec 1996	Executed first in a series of data sharing agreements through which government and academic interests access parcel data, without fee, via a single standardized license.
6	May 1997	Endorsed thirteen priority common business information needs
7	Apr 1998	Launched MetroGIS DataFinder – one-stop data discovery and delivery tool
8	Sep 1998	Awarded $100,000 NSDI grant. Fair-Share Financial Model and Appropriate Organizational Structure for MetroGIS.
9	Oct 1998	Received Certificate of Commendation for an Exemplary GIS Project from Governor's Council on Geographic Information (GCGI) for Regional Street Centerline solution.
10	Oct 1999	Implemented Regional Parcel Data solution.
11	Oct 2000	Received the 2000 Partnership Minnesota Cooperative Public Service Award for Regional Land Cover solution
12	Aug 2001	Received Grand Prize for Web Services Development, International Geography Network Challenge, National Geographic Society/ESRI
13	Jan 2002	Implemented significant enhancements to the Regional Parcel Dataset
14	Oct 2002	Received 2002 MnAPA Planning Merit Award for an Outstanding Planning Tool for Regional Planned Land Use Data solution.
15	July 2002	Launched DataFinder Café to support user-customized data downloading
17	Oct 2002	Awarded URISA's National Exemplary Systems in Government for MetroGIS's efforts, as a whole.
16	Oct 2003	Implemented Socioeconomic Web Resources Page
17	Apr 2005	Adopted ambitious visions adopted for: a) Regional Addresses of Occupiable Units Dataset b) Regional E911-Compliant Street Centerline Dataset
18	Dec 2005	U.S. Census Bureau agreed to use endorsed street centerline data for TIGER products.
19	Summer 2006	Agreement-in-principle for non-profit access to parcel data, without fee
20	June 1, 2006	Hosted "Imagining Possibilities: The Next Frontier for Geographic Information Technology" forum. (Keynoted by four national and internationally recognized speakers and attended by nearly 250 people.)
21	Oct 2006	Identified five public-private partnering opportunities to address common geospatial needs and opportunities.
22	Oct 2006	Completed DataFinder Café reconstruction
23	Dec 2006	Executed agreement to continue access to TLG Street Centerline dataset which establishes first policy for view-only, public Internet access to licensed data.

Current Statistical Highlights:

(**Average counts for 2006*)

500+	People involved MetroGIS decision making through Policy Board, committees, workgroups and forums, since 1995.
8	Number of priority business information needs addressed by MetroGIS-endorsed regional data solutions.
10	Organizations sharing custodial responsibilities for regional data solutions.
9	Standards, guidelines and best practices adopted by MetroGIS.
272	Number of licensed users of the MetroGIS/TLG Street Centerline dataset.
175	Downloadable datasets on DataFinder.
205	Metadata records searchable on DataFinder.
1,310	Average monthly unique visits* to DataFinder website (www.datafinder.org).
612	Average monthly downloads* from DataFinder website.
6,938	Average monthly visits* to general information website www.metrogis.org.

Potential uses of geospatial data - **infinite**

Note to Participants of the February 8, 2007 Strategic Directions Workshop: Prior to the Workshop you are encouraged to review the nine 1-2 page testimonials that have been produced and the 2006 MetroGIS Performance Measurement Report. The findings for each of the ten performance measures and testimonials provide insight that may be valuable during the workshop discussions. The 2006 Performance Measurement Report can be viewed at http://www.metrogis.org/benefits/perf_measure/index.shtml . The nine testimonials can be reviewed at http://www.metrogis.org/benefits/testimonials/index.shtml .

II. OVERVIEW OF METROGIS'S PURPOSE AND FUNCTIONS

What and Who Is MetroGIS?

MetroGIS's mission, since its inception in January 1997, has been:[3]

> *"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."*

MetroGIS seeks to accomplish this mission through voluntary collaboration among its primary stakeholders which are the Metropolitan Council, other regional government agencies, and nearly 300 counties, cities, school districts and water management organizations which serve the seven-county, Minneapolis-St. Paul Metropolitan Area and who use GIS technology as a tool to perform their business functions.

In addition, participation and coordination are also sought with state and federal governments; academic institutions; nonprofit organizations and businesses to achieve common needs. The diagram presented in Attachment A illustrates the relative relationship for each major stakeholder organizational type concerning their respective estimated levels of participation in and benefit from MetroGIS's efforts.

What Is MetroGIS Trying To Achieve?

Institutionalize wide spread sharing of accurate and reliable geospatial data and related resources to:

- Improve participant operations
- Reduce costs
- Improve support cross-jurisdictional decision making

And, more importantly, as a product of achieving these outcomes, "to measurably improve the effectiveness of stakeholder interests in achieving livable community goals, enhancing the quality of life of their residents, and improving their economic competitiveness."

How Does MetroGIS Achieve These Outcomes?

Three core services have provided focus for MetroGIS's efforts. These services and the major outcomes sought from each are as follows:

1) *Foster GIS Coordination Among Stakeholders*

- Provide an inclusive, trusted forum to collaboratively resolve geospatial data and GIS technology-related issues and opportunities of common interest.
- Improve trust and mutual understanding within the GIS community through frequent opportunities to communicate with colleagues and peers.
- Build sustainable solutions to common geospatial data-related needs through the use of collaborative and consensus-based processes that seek to institutionalize custodian roles and responsibilities pertaining to data capture, maintenance, documentation and distribution of commonly needed data.
- Enhance individual stakeholder GIS programs and capabilities through sharing technology and proven practices with colleagues and peers.
- Promote "best practices" that improve ease of sharing commonly needed data (*See Attachment B*.)

2) *Oversee Implementation of Solutions To Common Information Needs*

- Increase access to, and use of, trusted, reliable and current data needed to support business needs through sharing data and creating community-endorsed regional data solutions. *Build once and share many times.* (*See Attachment C.*)
- Improve decision support for its entire stakeholder community through the use of minimal data standards pertaining to assembly of data produced by multiple organizations into regional datasets. These datasets work together horizontally within a given geospatial data theme and vertically among themes.
- Facilitate use of data standards and best practices.

3) *Support MetroGIS DataFinder - www.datafinder.org.* (*See Attachment D.*)

- Support data discovery and distribution through a centralized Internet-based tool that is a node of the National Spatial Data Infrastructure (NSDI).

What Costs are Involved in Supporting MetroGIS's efforts?

The costs to support MetroGIS's efforts can be divided into two main categories:

(1) Supporting the "fostering collaboration" function.

(2) Performing custodial-related responsibilities related to maintenance of:

- Endorsed regional data solutions (http://www.metrogis.org/data/about/index.shtml#whatis)
- MetroGIS DataFinder (www.datafinder.org), an Internet-based mechanism for discovery and access to geospatial data for the seven-county, Minneapolis-St. Paul Metropolitan Area.

(See Attachment E for a chart entitled "Leveraging Resources Through Partnerships", which lists the 10 organizations that perform 23 responsibilities in support of eight endorsed regional data solutions and the DataFinder function.)

How is MetroGIS Funded?

Willing organizations, which possess an internal business need and sufficient capacity, are sought out to support specific components of each regional solution on behalf of the broader community. These responsibilities generally comprise a modest extension of activities supported to address an internal business need, so a separate detailed accounting of these costs has not been maintained.

This is not the case for MetroGIS's "fostering collaboration" function. No single organization possesses a clear internal business need, although the fostering collaboration function is critical to the goals of leveraging existing investments and minimizing duplication of effort - *build once and share many times*. However, the Metropolitan Council recognized early on that substantial efficiencies could be gained from a collaborative environment and, more specifically, by obtaining the geospatial data it needs from others through MetroGIS's efforts as opposed to securing those data on its own. As such, the Council has accepted the role of supporting MetroGIS's "fostering collaboration" function. Support of this role over the past few years has involved about 1.75 FTE of dedicated staff support and about $85,000 in project funding.

The collaborative environment that has been become synonymous with MetroGIS's efforts could not have been successful without the participation of the over 500 individuals, representing a variety of professional expertise and government functions from the entire stakeholder community. These efforts are estimated to account for an average annual contribution of about .5 FTE. In addition, over the years, MetroGIS has also received over $175,000 in grant funds via the National Spatial Data Infrastructure (NSDI) program for various projects.

How is MetroGIS Organized?

MetroGIS is governed by a 12-member Policy Board of elected officials and a member of the Metropolitan Council representing core stakeholder interests – cities, counties, regional government, school districts, and watershed districts sets policy direction. A 28-member Coordinating Committee of managers involved with geospatial technology from local and regional government, as well as from the academic, non-profit, for profit and utility communities serve in effect as staff to the Policy Board recommending courses of action for the Board to consider. A Technical Advisory Team, comprised of GIS technologists from many government and non-government interests, also advises the Coordinating Committee.

What Are MetroGIS's Distinguishing Characteristics?

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

III. PROGRESSION IN METROGIS BUSINESS PLANNING FOCUS

First Plan (2000-2003):	Defined philosophy, form, and function of MetroGIS.
Second Plan (2003-2005):	1. Addressed custodian and data access policies and procedures for common data needs (assembly, distribution and maintenance). 2. Performance measurement
Next - Third Plan: (2007+)	Collaborate on applications that address common needs in addition to commonly needed data - ***do we go in this direction***?

Each of the previous plans and the processes utilized to develop them can be viewed at http://www.metrogis.org/about/business_planning/index.shtml

IV. WHAT DOES IT MEAN TO BE A METROGIS PARTICIPANT?

MetroGIS is not a membership organization. Best practices and regional solutions to common needs endorsed by MetroGIS are generally available to any interest that wishes to take advantage of them. Stated another way, all interests are encouraged to take advantage of the benefits that can be achieved by utilizing standards, tools, and products implemented via MetroGIS's efforts.

Expectations for involvement by any particular organization differ depending on how critical that organization's involvement is to the long-term success of MetroGIS. An organization's participation in the development and maintenance of a regional policy or solution varies depending upon how well their internal business needs align with the subject regional solution(s) and their willingness to perform desired custodial roles. See Attachment E for a listing of the 23 custodial roles and responsibilities that have been assumed by 10 willing stakeholder organizations in support of endorsed regional solutions.

There are three "participant" categories, based upon the current focus of local and regional government interests comprising the core stakeholder community:

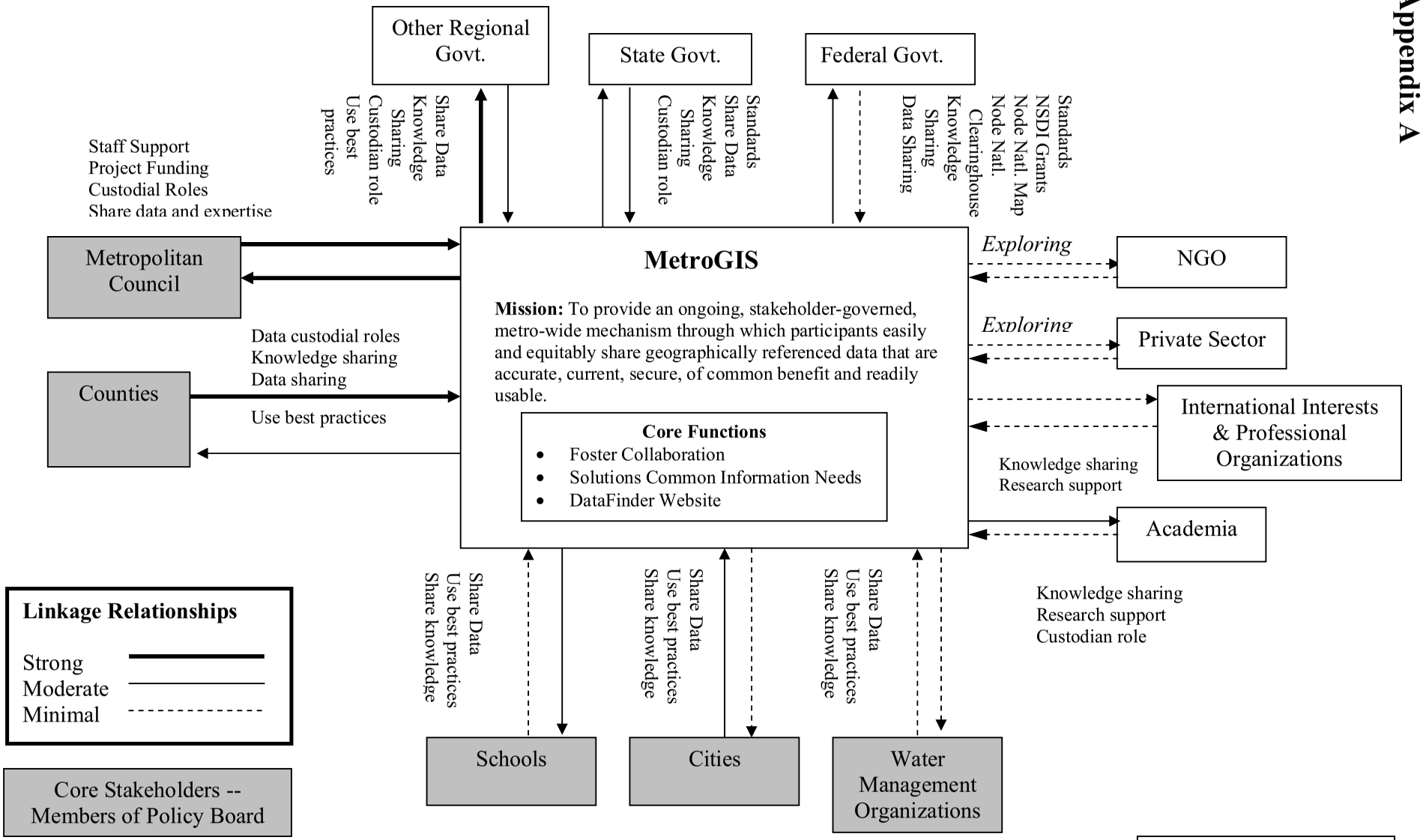
- **Essential participant**: Organizations whose participation is vital to the existence of MetroGIS. They produce essential framework data and/or provide essential functions or resources (equipment, staff and/or funds). Examples include the seven metropolitan area counties and the Metropolitan Council. Other organizations could become essential participants if they choose to support a vital function.

- **System enhancer:** Organizations that produce data or possess resources that, although not essential to the existence of MetroGIS, enhance its functionality and/or the benefits received from it. These organizations influence MetroGIS to varying degrees based on the importance of their data or resources and the degree of their participation. Examples include cities, school districts, utilities, watershed districts, and state and federal agencies.

- **Secondary beneficiary:** Organizations that are solely users of MetroGIS data or services. They neither produce data nor contribute resources. They are not among the targeted beneficiaries. Examples include the general public, businesses, and nonprofits.

MetroGIS: Fostering Inter-Organizational/Sector Collaboration

Appendix A



Source: MetroGIS - 12/2005
Derived from a diagram created by Japanese delegation 5/2002

Attachment B

MetroGIS

Cooperation, Coordination, Sharing Geographic Data

MetroGIS Data Standards/Guidelines and Best Practices

To Improve Ease of Sharing Commonly Needed Data

Introduction

The MetroGIS Policy Board has endorsed the following GIS-related data standards and guidelines. The MetroGIS community is encouraged to incorporate them into their daily GIS procedures as "best practices", so that data commonly produced by multiple interests can be more easily shared.

An explanation for each of the endorsed best practices and standards listed below is provided at http://www.metrogis.org/data/standards/index.shtml. Included in each explanation is a description of the item, the date it was adopted or endorsed, where to obtain related information, and a contact person.

These best practices are meant to supplement or enhance standards and guidelines associated with specific data themes for which MetroGIS has endorsed a regional solution (companion summary document).

MetroGIS Endorsed Best Practices

- Thematic Data Categories (DataFinder)
- Municipal Boundary Mapping Guidelines
- Metadata Guidelines
- Metro-Wide Coordinate System
- National Standard for Spatial Data Accuracy (NSSDA)

MetroGIS Endorsed Data Content Standards

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

Attachment C

MetroGIS

Cooperation, Coordination, Sharing Geographic Data

MetroGIS Endorsed Regional Data Solutions

Introduction

A central focus of MetroGIS's work is to identify common information needs of its stakeholder community who serve the Minneapolis/St. Paul Metropolitan Area and facilitate long-term support of regional solutions to meet these common information needs. Elements of the National Spatial Data Infrastructure (NDSI) vision[1], such as the area integrator, framework themes, framework functions, and skylines concepts, are embedded in the philosophy that underlies MetroGIS's "endorsed" regional solutions.

What is Meant by "Endorsed"?

The MetroGIS Policy Board provides a political "reality check" when it endorses desired specifications for geospatial data commonly needed by the MetroGIS data user community at the conclusion of a broadly participatory and replicable process. These commonly needed data are referred to as "regional data". Another component of the Policy Board's endorsement action involves roles and responsibilities for primary and regional custodians of these data and any related agreements with specified organizations to carry out the desired tasks. In addition, endorsement of a regional dataset involves guidelines for access, content, documentation and distribution of the dataset. For more information about MetroGIS's regional datasets, please see http://www.metrogis.org/data/index.shtml.

What Endorsed Regional Data Solutions Are Currently Available?

- Addressable Street Centerlines
- Census Boundaries (1990 and 2000)
- County/Minor Civil Division (MCD) Boundaries
- Land Cover
- Parcels (including unique IDs)
- Planned Land Use
- Socioeconomic Characteristics of Areas (Web Resources Page)

What are the Benefits of Regional Data Solutions?

- Regional endorsed solutions work together. Their interoperability saves substantial time and effort for setup prior to use.
- Standardized capture and reporting of endorsed data permits easy "apples-to-apples" comparisons regionwide.
- Builds trust in the data as the go-to source, resulting in higher quality data at less cost over time.
- Use of endorsed data focuses debate on intended issues rather than on competing data sources.
- Leverage resources or share costs of enhancements to data that are important to the community.
- Accessible for free via the Internet for as many solutions as possible.

For more information see http://www.metrogis.org/data/about/index.shtml

[1] A comprehensive explanation of the National Spatial Data Infrastructure (NSDI) is provided in the NSDI Framework Handbook, which can be viewed at http://www.fgdc.gov/framework/frameworkintroguide.

Attachment D

MetroGIS

DataFinder℠

sharing information across boundaries

http://www.datafinder.org

DataFinder is a one-stop-shop for discovering and obtaining geospatial data pertaining to the Twin Cities area of Minnesota. Its primary function is to facilitate sharing of GIS data among organizations serving the seven-county Metropolitan Area of Minnesota. DataFinder provides metadata describing GIS data sets, many of which can be downloaded or used via map services.

- DataFinder is available as a data discovery and distribution option for any organization that produces GIS data pertaining to the Twin Cities and wishes to share it with others.
- Metadata are provided in FGDC-compatible format. DataFinder is a National Spatial Data Clearinghouse search engine.
- DataFinder uses Minnesota Geospatial Data Theme Categories based on ISO 95115 (official state, federal and international categories).
- Data are downloadable via FTP or by creating custom bundles using DataFinder Café.
- MetroGIS-endorsed regional data solutions are quickly identifiable.
- Map services are available for direct use of data in GIS software or web applications. DataFinder offers OGC-compliant Web Mapping Services (WMS), OGC-compliant Web Feature Services (WFS) and ArcIMS image and feature services. By using map services, the most recent data available on DataFinder can be accessed without having to download, maintain and store the data locally.

DataFinder Features

DataFinder Catalog (*205 datasets*)
The catalog provides a list of datasets by theme categories. Each item in the catalog links to a standardized metadata record that allows the user to evaluate the dataset for their use. Many of the datasets can be downloaded in their entirety via an FTP link in the metadata record.

DataFinder Search
The search tool allows a search of metadata by keyword and/or location. DataFinder is a registered NSDI Clearinghouse node.

DataFinder Café
The Café enables users to browse GIS data and interactively clip datasets to user-defined areas for download. The user can also save their session for later use.

DataFinder Map Services (*35 services*)
DataFinder offers data via WMS, WFS and ArcIMS image and feature services. Map services can be used in desktop and internet GIS and mapping applications.

APPENDIX E

MetroGIS *Leveraging Resources Through Partnerships*			
		Who & Major Responsibilities	
Function		**Lead Partner**	**Other Partner(s)**
Policy Direction & Best Practices		**Metropolitan Council:** Lead support for business planning, policy coordination, performance measurement, communication, outreach, and advocacy. *(In 2006, 1.75 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. *In 2004, the person hours contributed equated to about .5 FTE.*
DataFinder (*www.datafinder.org*)		**Metropolitan Council:** Lead support to maintain DataFinder application. (*In 2006, .3 FTE*)	**Regional custodians and other participating stakeholders:** Provide metadata, in appropriate format, for each dataset to be searchable and accessible via DataFinder. (*Estimate support expense not currently available*)
Endorsed Regional Data Solutions			
	Census Geography	**Metropolitan Council:** Created 1990 and 2000 datasets that align with streets and parcels	**None**
	County/City Boundaries	**Metropolitan Council:** Reassemble updated data quarterly into regional dataset	**7 metro area counties:** Submit updated source data on a quarterly basis.
	Parcels	**Metropolitan Council:** Reassemble updated data quarterly into regional dataset and manage licensing per agreement with counties.	**7 metro area counties:** Submit updated source data on a quarterly basis per agreement
	Planned Land Use	**Metropolitan Council:** Update dataset quarterly with approved Land Use Plan Amendments	**Cities and counties:** Submit maps illustrating proposed Land Use map changes (paper of electronic)
	Land Cover	***Department of Natural Resources*:** Reassemble dataset as new or updated data submitted.	**Nearly 30 government and non-government interests**
	Street Centerlines	**Metropolitan Council:** Manage licensing and distribution of quarterly updates per agreement with TLG (data owner)	**Cities and counties:** Submit correction and updated information to TLG as information changes
	Socioeconomic Characteristics ***Web-based Search Resource***	***University of Minnesota***	**Numerous local, state, and federal interests**
		In 2004, Total Estimated FTE to Support Regional Solutions: ***Metropolitan Council: 0.9 - Other Partners: 19.7***	
Other Datasets		**N/A**	Not including Regional Solutions, **18 local, regional, state and federal organizations** are distributing 152 datasets via DataFinder

Last Updated:
January 9, 2007

Attachment F

Definitions

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

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

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.)

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

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).

Web Feature Service: 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.[1] 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.

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…"[2]

MetroGIS's Geospatial Data Distribution Chronology

- Pre DataFinder (before 1998)– Manual distribution of media (tapes, DVDs) from producer to users
- Since DataFinder – User provided with the ability via the Internet to:
  - Download geospatial data files via FTP
  - Download only the portion of source geospatial data files they need (DataFinder Café)
  - Access geospatial data via Web Mapping Services

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[1] Source: http://www.ogcnetwork.net/wms
[2] Source: http://msdn.microsoft.com/webservices/default.aspx?pull=/library/enus/dnwebsrv/html/wsmsplatform.asp#wsmsplat_topic2