



Sharing Information Across Boundaries

MetroGIS 2008 Performance Measurement Report

For the period October 1, 2007 through September 30, 2008
(*Editor's note: resources were not available to produce this report until May 2009.*)

May 26, 2009

This Report was prepared by MetroGIS Staff, accepted by the MetroGIS Coordinating Committee on *June 25, 2009*, and approved by the MetroGIS Policy Board on *July 22, 2009*.

Prepared by:
Randall Johnson and Chris Kline, MetroGIS Support Team

Excerpt
MetroGIS Policy Board Meeting Summary
July 22, 2009

5b) 2008 Annual Performance Measures Report

The Staff Coordinator summarized the highlights presented in the agenda report, emphasizing that MetroGIS's efforts continue to produce public value. He also noted that an initiative is in place to update MetroGIS's Performance Measurement Plan and identify ways to better understand the meaning of trends identified in the current performance measures are accruing and user satisfaction with regional solutions. Chairperson Schneider concurred that MetroGIS leadership needs to know more about stakeholder needs to ensure our efforts continue to provide value – continue to improve upon core assets. He also commented that a goal of the Performance Measurement Plan update process is create a means to effectively measure to what extent we are on course to maximizing outcomes.

Member Elkins moved and Alternate Member O'Rourke seconded to MetroGIS 2008 Performance Measurement Report, dated May 26, 2009. Motion carried, ayes all.

Member Elkins moved and Alternate Member O'Rourke seconded to the suggested actions recommended in the report to better understand the reason that trends detected in the metrics are occurring. Motion carried, ayes all.

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I. AUTHORITY AND CONTEXT

This report is the sixth in series of annual reports on performance measurement results for MetroGIS's efforts, covering the period from October 1, 2007 through September 30, 2008.

In April 2002, MetroGIS adopted a Performance Measurement Plan¹ to more clearly state desired outcomes, demonstrate accountability for results, and support continuous organizational improvement. This process is also designed to foster continued dialogue about outcomes that MetroGIS should focus on and how MetroGIS can demonstrate value to its stakeholders.

The foundation for measurement of MetroGIS's performance is its Mission Statement that was established in 1996:

MetroGIS's mission is to provide an ongoing, stakeholder-governed, metro-wide mechanism through which participants easily and equitably share geographically referenced graphic and associated attribute data that are accurate, current, secure, of common benefit and readily usable.

The Performance Measurement Plan identifies four "outcomes" to be achieved through MetroGIS's efforts, which parallel MetroGIS's core functions.²

These "outcomes" involve desired improvements in the following general areas:

- Ease of data discovery and access
- Data currency
- Internal efficiencies, level of cooperation
- Decision making, service delivery

Eleven performance measures provide the structure through which to assess progress toward achieving these four outcomes. Key results are summarized in Section II and a detailed explanation of each along with recommended action associated with each measure is provided in Section III.

The first annual performance measurement report, accepted by the MetroGIS Policy Board in January 2003, established baseline measurement information. It was largely descriptive. After the initial year of experience, more detailed metrics were devised. Consequently, some measures include data for 2002 and some do not.

The focus of these performance measures is not only on data-related preferences from the user's and producer's perspectives but also on broader desired organizational efficiencies and effectiveness. Assessment of MetroGIS's progress, by way of these measures, to achieve the desired outcomes comprises the substance of this annual report, culminating a year-long process. Performance measurement data are generally analyzed by staff on an ongoing basis to better understand trends that may be occurring, and reports are typically made quarterly to the MetroGIS Coordinating Committee and annually to the Coordinating Policy Board. Quarterly evaluation of the monitoring data was not possible in 2008 due to the loss of a key support resource.

This 2008 report provides more insight into trends, as at least six years of data are now available for most of the measures. A means to monitor map services, introduced in 2007, is providing insight important to refining data collection and monitoring impacts on changing methods of data delivery and discovery. As a result, a better understanding of causal relationships between resources allocated to specific activities and desired outcomes is possible. Further, in 2009, a work priority has been set to update the MetroGIS Performance Measurement program (first adopted in 2002) to align the measures with outcomes defined in the 2008-2011 MetroGIS Business Plan. A goal of that process will be to address the strengths and deficiencies of the existing program and procedures, while ensuring flexibility to adapt to future needs.

II. SUMMARY OF KEY FINDINGS

Key results for 2008 are summarized below for each of eleven performance measure. They are arranged by the four desired outcome categories defined by the Performance Measurement Plan adopted in 2002. No attempt is made to explain the meaning of these results in this Section. An attempt is made to explain the meaning of these results in Section III, including comparing and contrasting the results for this reporting period with those of previous periods, and providing recommendations for suggested actions to address issues brought to light by the results. Data is collected for all metrics on a monthly basis, but the data are aggregated to a quarterly or annual basis to streamline reporting.

OUTCOME A. EASE OF DATA DISCOVERY AND ACCESS

DataFinder: One of MetroGIS's core functions involves supporting a web-based tool to improve efficiencies related to Internet-based data discovery and distribution. Four measures were established with adoption of the 2002 Performance Measurement Plan to evaluate progress regarding the measures under this "Ease of Data Discovery and Access" outcome category. A fifth measure (2a) was added in 2003 following adoption of the 2003-2005 Business Plan in response to growing interest in defining MetroGIS's role regarding fostering solutions to shared application needs.

WebTrends software is used to collect data to measure use of MetroGIS DataFinder for discovering geospatial data by way of searching metadata records³, reviewing data characteristics provided in the metadata, and viewing the actual data online. Understanding how the MetroGIS DataFinder (www.datafinder.org) works is helpful to grasping the meaning of related performance measures. An overview of the functionality that is provided by MetroGIS DataFinder is provided in Section III.

Key findings for the "Ease of Data Discovery and Access" measures during the 2008 reporting period were as follows:

1. Number of visitor sessions to DataFinder (*Data Discovery via Catalog and Café*)
17,584 events, **up 29.5** percent from 2007
2. Number of partial or whole datasets downloaded via DataFinder (*Catalog and Café*)
9,137 events, **down 11.3** percent from 2007
- 2a. Number of visits to regional applications
1389 visits, **up 151** percent from 2007
3. Number and type of sector/stakeholder groups using Web Mapping Services
140,461 hits, **up 239** percent from 2007
4. Number of datasets downloadable and metadata records on DataFinder
228 metadata records, **up 13** from 2007; 180 datasets, **up 13** from 2007

Somewhat counter intuitively, downloads decreased during the reporting year (Measure 2 above), while increases were realized for the other four discovery/access metrics, some quite large. The reduction in data download activities (Measure 2) may be a direct result of the increase in use of web services (Measure 3) or a substitution effect. That is, users switching from utilizing data downloads to accessing the same data through a map service. A survey of users is called for in Section III to ensure that this downturn is not due to dissatisfaction with endorsed regional solutions.

GeoServices Finder: In December 2007, GeoServices Finder went live.⁴ Metrics had not been implemented at the time this report was written. The plan is to add them to the suite of MetroGIS's performance measures when the current MetroGIS Performance Measurements Plan is updated, which is scheduled to occur in 2009.

In brief, GeoServices Finder provides a mechanism to discover existing geospatial applications and web services; and is intended to work in concert with DataFinder. Once more fully populated with metadata for existing applications and web services, users will have the ability to discover a wide range existing geospatial applications and services in addition to over 200 existing datafiles

downloadable via DataFinder. The goal is to eventually create a web-based interface that allows users to simultaneously query both applications and leverage existing applications and, in some cases, the data they run on in a single query. Development of GeoServices Finder was a joint effort between MetroGIS and the Mn land Information Management Center (LMIC).

OUTCOME B. DATA CURRENCY, USEFULNESS

One performance measure exists for this outcome. Eight MetroGIS-endorsed regional data solutions have been implemented. This measure monitors compliance with custodial responsibilities related to keeping the source data current according to specifications defined by the MetroGIS community and adopted by the MetroGIS Policy Board.

5. Percent of regionally endorsed datasets maintained to agreed upon currency specification **100 percent**, as has been the case since 2005.

No new regional data solutions were implemented in 2008. As such there was no change in the number of data related custodian roles and responsibilities (**21**) associated with maintaining the eight regional solutions. These custodial roles are performed by **10** different **organizations**.

While these eight regionally-endorsed datasets comprise only 4.5 percent of the total datasets available via DataFinder, they continue to be the **most popular datasets** downloaded, although the rate of relative downloads decreased from 28.1 percent of the total downloads in 2007 to **26.9 percent** in 2008. Even though a modest reduction of 1.2 percentage points this period, it is a sign that a trend is beginning, the cause needs to be understood and addressed. In particular, if the cause is in any way related to a loss of user confidence in endorsed regional datasets. In Section III, suggested course of action are offered.

OUTCOME C. INTERNAL EFFICIENCIES, LEVEL OF COOPERATION

Four measures have been adopted to evaluate progress relative to this “Internal Efficiencies, Level of Cooperation” performance outcome. Metrics, unfortunately, are not available to evaluate progress for two of these measures (6 and 7). Key results during this reporting period for the other two follow:

6. Number of manual vs. self-service requests for data (by producer type)
(No effective means defined to measure)
7. Hours of staff time saved in data distribution tasks (by producer type – focus on counties and the Metropolitan Council)
(No effective means defined to measure)
8. Number (and names) of entities listing metadata records (which includes entities listing datasets) on DataFinder
18 publishers of metadata, same as 2007
(The names of each are maintained in the source performance data file)
9. Number (and names) of entities using DataFinder as a data distribution method
10 publishers of data, same as 2007
(The names of each are maintained in the source performance data file)

OUTCOME D. DECISION MAKING, SERVICE DELIVERY

One performance measure has been established for this outcome category.

10. Testimonials/case studies are used to improve understanding of benefit realized by stakeholders from MetroGIS’s efforts.
10 testimonials, an increase of one from 2007.

Reliance solely upon qualitative assessments of value created has not proven to be sufficient to secure resources needed to effectively address ever changing shared geospatial needs. Investigating quantitative methods that easily are related to by key stakeholders is recommended.

III. SUMMARY OF RESULTS BY MEASURE

OVERVIEW

With the metric data obtained during the 2008 reporting period, at least six years of comparable data were available for many of the measures presented in this report.

As with the previous five performance measurement reports, findings and recommendations for various improvements are identified for each of the measures and presented according to the four major outcome categories described in the previous section.

OUTCOME A. EASE OF DATA DISCOVERY AND ACCESS

Preface: A key to understanding the meaning of the measures associated with this outcome is one's understanding MetroGIS DataFinder (www.datafinder.org). In addition, two new application/services were added during the reporting period that assist the user more effectively discover geospatial data⁵ and related services they need to carry out their business needs.

- 1) **MetroGIS DataFinder** was developed by MetroGIS to support online discovery and access by MetroGIS stakeholders of geospatial data⁶ pertaining to the seven-county, Minneapolis-St. Paul Metropolitan Area, produced by multiple entities, and which are important to carrying out business responsibilities of other organizations. DataFinder has two principle components – Catalog and Café. The Catalog contains metadata records⁷ for each dataset accessible via the DataFinder website as well as a limited number of datasets that one must obtain directly from the producer. For those datasets available via DataFinder, a hyperlink is provided in the corresponding metadata records searchable in the Catalog. Clicking on a hyperlink permits the user to download a particular dataset in its entirety⁸. Café, on the other hand, was developed to provide the user with the ability to download self-selected portions of available datasets, as well as, bundle selections of multiple datasets into a single download event. The Catalog initially went on line in spring 1998. Café was initially launched in summer 2002. Following upgrades to the Java language that the Café was originally designed for, the Café was also upgraded and re-launched in October 2006.⁹
- 2) An **RSS service** was established in January 2007 through which users are able receive automated notification when datasets are updated. This service also streamlines downloading of the updated data by directing the user directly to the associated metadata record, thereby by passing the need to visit the DataFinder catalog web page to initiate the download process.
- 3) **GeoServices Finder** went live in December 2007 as a discovery tool for existing applications and web services. No metrics had been established as of this writing to monitor its use.

PERFORMANCE MEASURE 1: Number of visitor sessions to DataFinder (Data Discovery via Catalog and Café)

Background:

Use of DataFinder to discover existing resources continued to grow during this reporting period.

Table 1: Total Visitor Sessions to DataFinder

Year	Events	Annual Change (%)	Change since inception (%)	Target
2003	13,841	-	-	N/A
2004	15,258	10.2	-	Not Set
2005	15,658	2.6	-	Not Set
2006	15,720	0.4	-	Not Set
2007	13,583	-13.6	-	Not Set
2008	17,584	29.5	12.3	Not Set

Findings:

Data **discovery activity** in 2008 via MetroGIS DataFinder **increased 29.5 percent** to a total of 17,584 events versus 13,583 events experienced in 2007, up 12.3 percent since 2003. The visits to the DataFinder site are at the **highest levels recorded**, resulting in less concern about the decline experienced in 2007. Although the reasons for the decrease in 2007 are not understood, that decrease is viewed as an anomaly, as opposed to the beginning of a negative trend.

Overall, the only distinctive pattern in temporal usage is the reoccurring drop in third quarter usage compared to the second quarter usage. No other distinctive patterns have been discerned in the monitoring data for visits to the DataFinder website reported on a quarterly basis, except for the problems associated with the Café component (see below). These findings support the notion that DataFinder is being used to meet a wide variety of user needs and that the community of users, as well as, use among individual organizations continues to grow.

Figure 1a: Data Discovery via DataFinder

(Quarterly, 2003 - 2008)

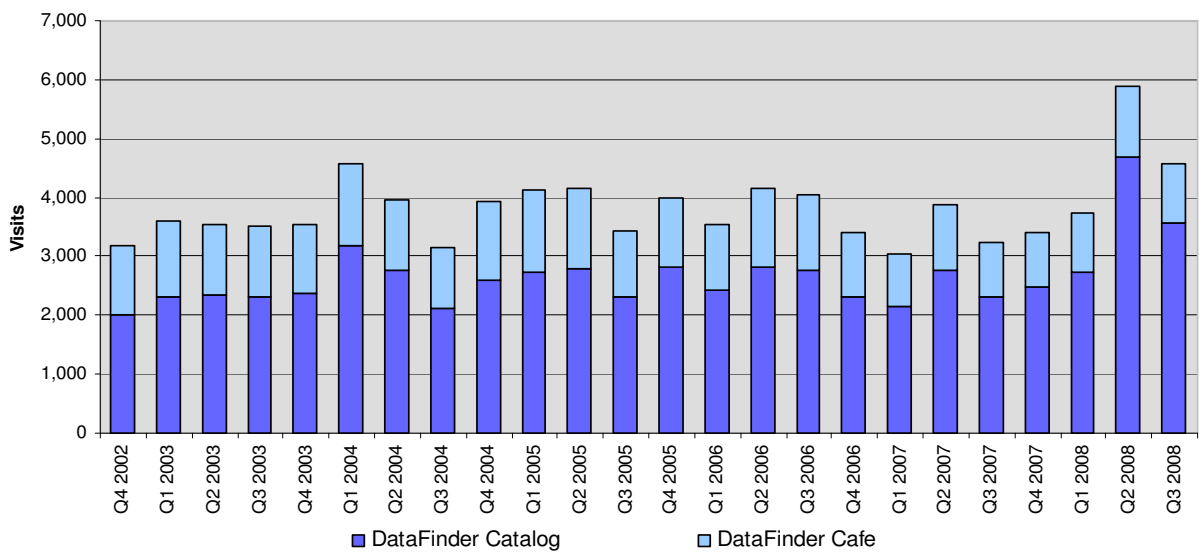
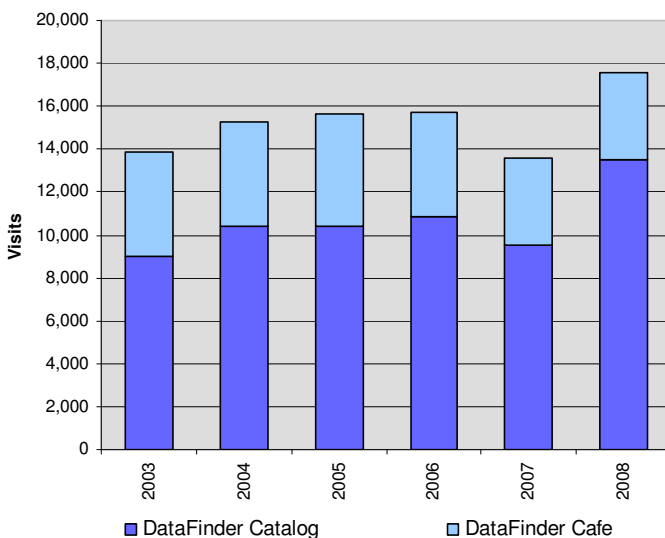


Figure 1b: Data Discovery via DataFinder

(Annually, 2003 - 2008)



DataFinder **Café activity** declined in 2008, to **23.4 percent of total data** discovery activity, a decrease of 6.5 percent from the previous reporting year. This is compared to the highest percentage in 2003 recorded for Café, when it accounted for 35.1 percent of the total data download events. A possible reason for the decline may be the significant increase in web service traffic (Measure 3) and possibly the launch of the RSS service which provides subscribers automatic notification when datafiles are updated (see below). The DataFinder manager is not aware of any substantive malfunctions of Café that could have impacted use as a discovery tool to this extent.¹⁰ A **survey of users** is suggested to ensure that the decrease in discovery activity is not related to loss of trust in regional datasets or the tools developed to aid in their discovery.

In 2007, users' ability to monitor data update activity automatically via **RSS** technology was added to DataFinder. **Utilization** of this notification technology **continues to grow** in addition to the overall visits to DataFinder as noted above - more than doubling during this reporting period (108 percent increase) from 980 hits in October 2007 to 2,045 hits in September 2008. There is not enough data to conclude there is direct relationship between use of the DataFinder RSS feed and increasing DataFinder visits but it appears this may be the case. The more important conclusion is that an increasing number of users are interested in knowing when data have been updated, presumably so that access it for their business needs. Expanded use of this and similar technologies should be investigated to increase understanding of MetroGIS resources via non traditional outreach methods as a component of the pending project to update the MetroGIS Outreach Plan.

In addition to maintaining data discovery metrics for DataFinder, metrics are also maintained for discovery of data activity accomplished via the **MetroGIS Socioeconomic Resources Page**. Use of the Socioeconomic Web Resources Page in 2008 doubled compared to 2007. In 2008, the average monthly usage increased to 760.3 visits per month that involved viewing of at least one data source page. (See the Regional Applications section, below, for additional use data.)

Finally, during this reporting period **GeoServices Finder** was launched as a discovery tool for existing applications and web services. **Establishment of metrics** for this application should be **investigated** as a component of a planned project in 2009 to update the MetroGIS Performance Measurement Plan to align MetroGIS's performance measures with the objectives set forth in the 2008-2011 MetroGIS Business Plan.

PERFORMANCE MEASURE 2: Number of whole or partial datasets downloaded through DataFinder [Catalog and Café] (by dataset, and by sector/stakeholder group if possible).

Background:

A principal benefit of DataFinder is that it provides a centralized location from which users can obtain geospatial data pertaining to the seven-county, Twin Cities Metropolitan Area. Currently 221 datasets are downloadable, eight of which have been endorsed by MetroGIS as meeting high-priority shared information needs of the stakeholder community and which meet MetroGIS-defined data standards. The other 213 datasets, although not components of current endorsed regional solutions, are accessible via DataFinder to act on the goal of maintaining a one-stop-shop for data access and because some of them may be of potential regional importance in the future.

Table 2: Total Data Downloads

Year	All Data Download Events	Annual Change (%)	Change since inception (%)	Target
2003	7,073	-	-	N/A
2004	7,608	7.6	-	Not Set
2005	7,463	-1.9	-	Not Set
2006	7,347	-1.6	-	Not Set
2007	10,299	40.2	-	Not Set
2008	9,137	-11.3	29.2	Not Set

Findings:

Data download activity in 2008 was at its **second highest level** recorded (see Figure 2b), but nevertheless **decreased 11.3 percent** to 9,137 events, as opposed to 10,299 events experienced 2007. Download activity, overall, has increased 29.2 percent from 2003 levels. Although the significant increase experienced in accessing data via web services (Measure 3, below) is assumed to be directly related to this 11.3 percent decrease conventional data download activity, further monitoring is required to determine if the decreased activity is a trend and if the uptick in conventional downloading in 2007 was an anomaly. A **user survey** is also suggested gain insight. For instance, other factors are likely involved because parcel and street centerline data cannot be accessed via web services. The good news is that the number of entities **licensed to access** the regional parcel and street centerline datasets increased a combined **increase of 7.8 percent** over 2007; 332 in 2008 versus 308 in 2007.

Another factor that will take time to sort out is the degree to which the recession affected stakeholder interests and, consequently, to what extent stressed resources (loss of staff and project funding) might account for some of the reduced demand for data accessible via DataFinder. The later observation is offered because **downloads of MetroGIS Endorsed Regional Datasets also decreased to pre-2005 levels** during this reporting period (see Tables 3 and 4, below). Specifically, a 15.3 percent reduction in downloads of endorsed regional solutions and a 1.2 percent reduction as a percentage of overall downloads from that realized in 2007). This is a matter that warrants **immediate attention** because facilitating effective long-term solutions to priority shared information needs, known as endorsed regional datasets, is one of three core MetroGIS functions. As such, the significance is greater in terms of support for key business functions. Therefore, a **survey of users should be initiated immediately** to identify if the current regional solutions are meeting their needs and, if not, what enhancements are needed ensure continued relevancy.

Figure 2a: Downloads via DataFinder
(Quarterly, 2003 - 2008 by Year)

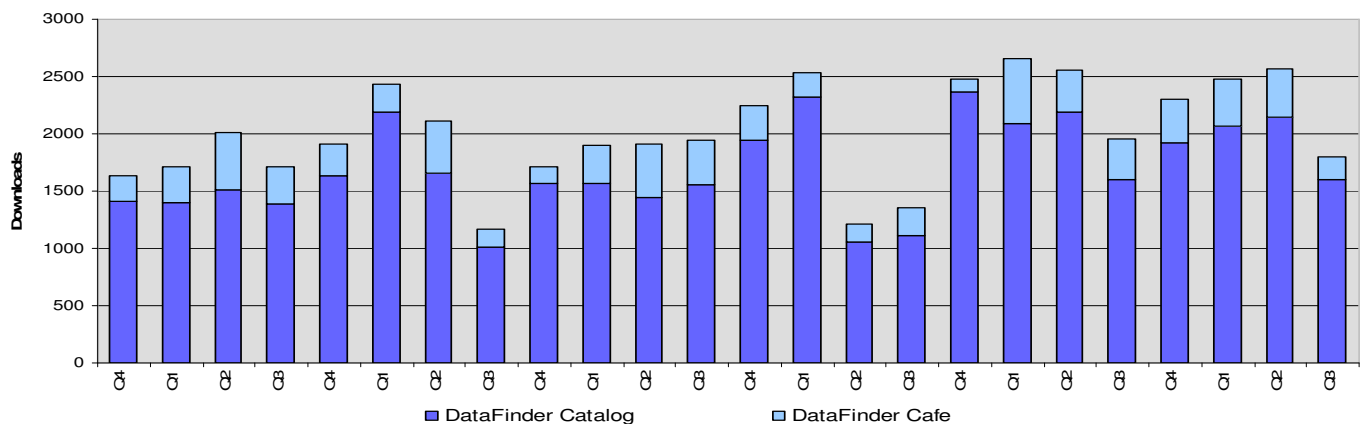


Figure 2b: Downloads via DataFinder
(Annually, 2003 - 2008 by Year)

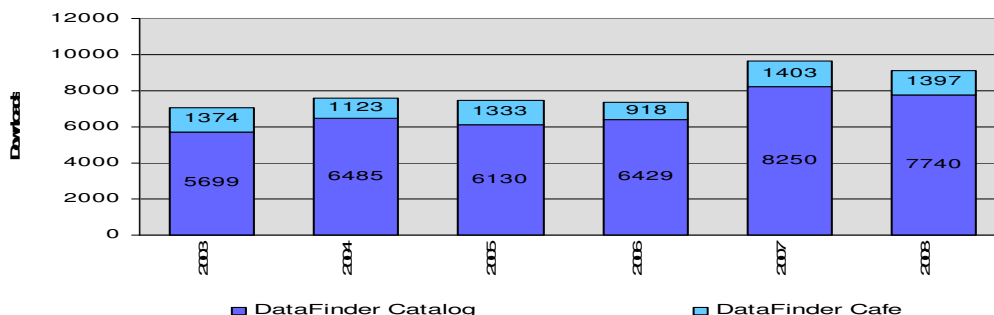


Figure 3a: Downloads via Café Relative to Total Data Downloads

(Quarterly, 2003 - 2008)

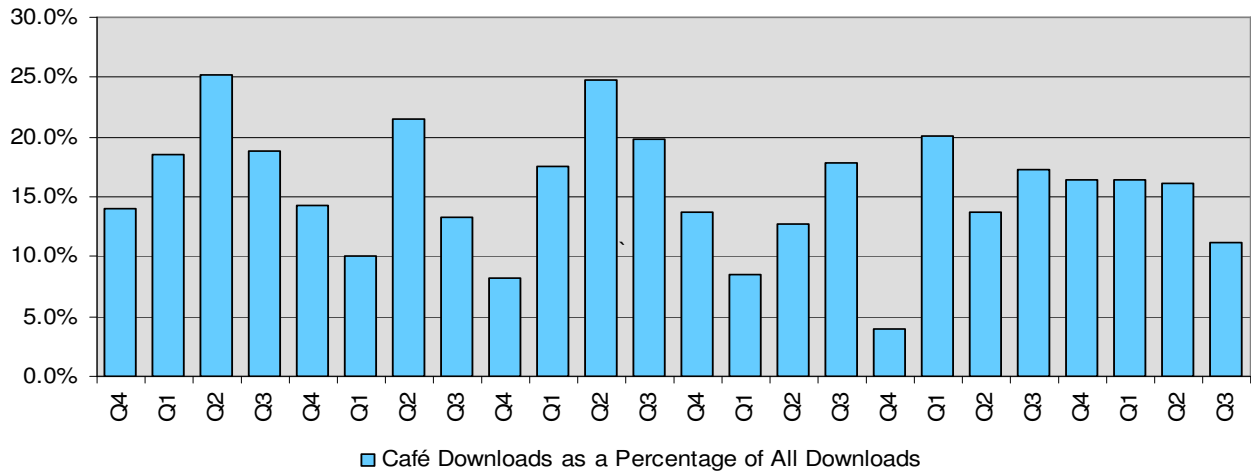


Figure 3b: Downloads via Café Relative to Total Data Downloads

(Annually, 2003 - 2008)

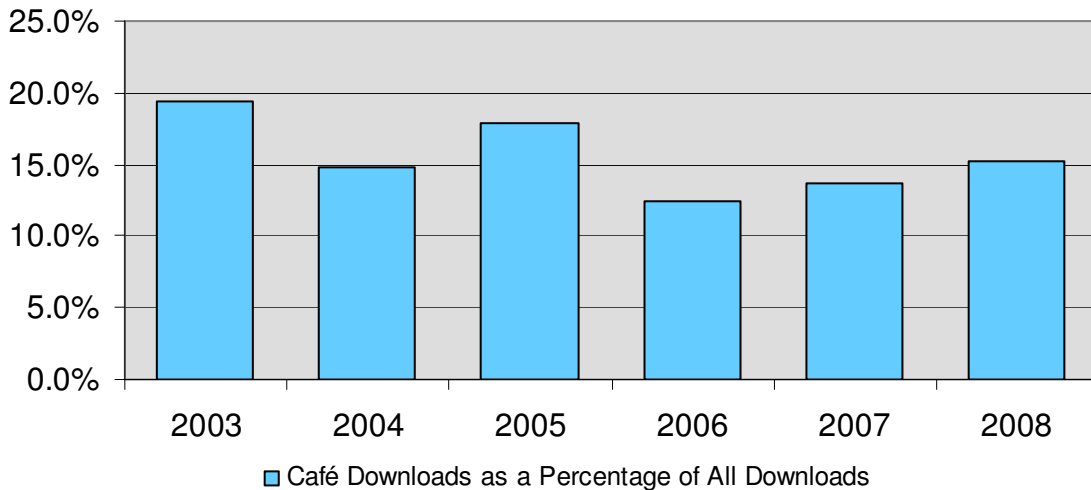


Table 3: Downloads of MetroGIS Endorsed Regional Datasets

Year	MetroGIS-Endorsed Regional Dataset Download Events	Annual Change (%)	Change since inception (%)	Total Downloads (%)	Target
2003	1,775	-	-	25.1	N/A
2004	2,017	13.6	-	26.5	Not Set
2005	2,335	15.8	-	31.3	Not Set
2006	3,377	44.6	-	46.0	Not Set
2007	2,899	-28.9	-	28.1	Not Set
2008	2,456	-15.3	38.4	26.9	Not Set

Figure 4: Downloads of Regionally Endorsed Datasets Relative to Total Downloads

(Annually, 2003 - 2008)

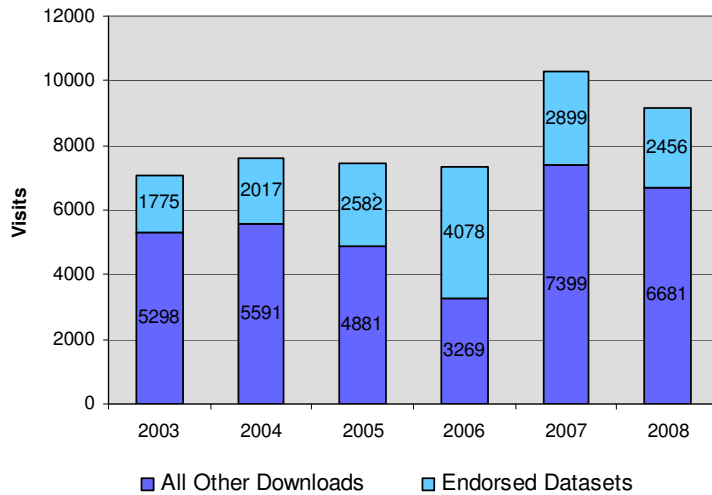


Table 4: Download Events for MetroGIS Endorsed Regional Datasets

Dataset	Number of downloads						Percent change	
	2003	2004	2005	2006	2007	2008	From 2003	From 2007
County & Municipal Boundaries	441	484	479	832	398	438	-0.7	10.1
Census Demographic Profiles	295	479	516	793	661	607	105.8	-8.2
Parcels	255	258 ⁽¹⁾	576	793	953	769	201.6	-19.3
Street Centerlines	218	249	322	419	556	287	31.7	-48.4
Census Geography (e.g. tracts and blocks)	286	244	228	311	164	200	-30.1	22.0
Planned Land Use	260	288	208	183	139	129	-50.4	-7.2
Subtotal	1,755	2,002	2,329	3,331	2871	2,430		
All other downloads	<u>5,318</u>	<u>5,606</u>	<u>5,134</u>	<u>4,016</u>	<u>8,111</u>	<u>6,707</u>		
TOTAL	7,073	7,608	7,463	7,347	10,982	9,137		

⁽¹⁾ Access to parcel data via MetroGIS ceased in February 2004 due to the lack of a Data Sharing Agreement. Access was reinstated January 2005.

PERFORMANCE MEASURE 2A: Number of visits to regional applications (this measure was added in 2003 following adoption of the 2003-2005 Business Plan and following availability of two applications implemented as MetroGIS initiatives)

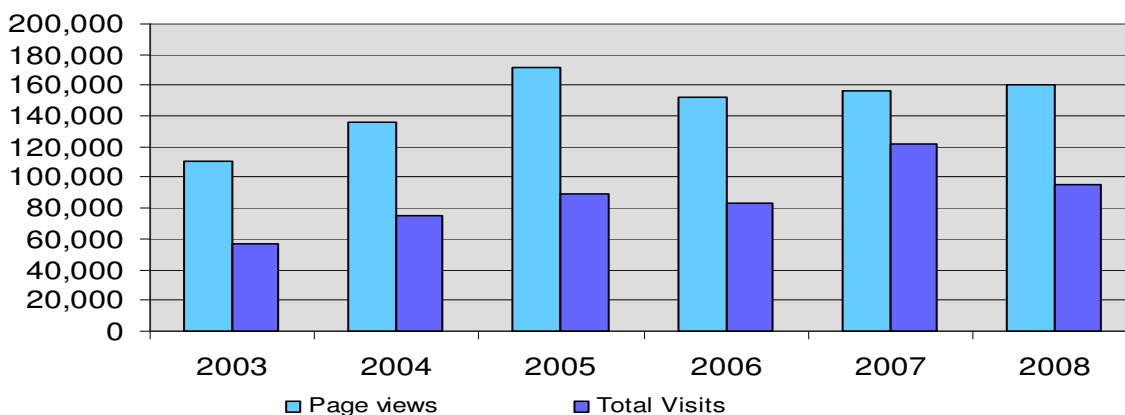
Table 5: Usage MetroGIS General Website (www.metrogis.org)

	1998-2002	2003	2004	2005	2006	2007	2008
General Information Website	No data	56,653	75,718	89,138	83,251	122,255	95,327

The general information website serves as the institutional memory for MetroGIS, containing information about every aspect of its operations. It also provides the primary means by which committee members are communicated about meetings and how they gain information about past and ongoing initiatives. It is a principal supported component to act on another of MetroGIS's core functions – support a “forum” to foster coordination through knowledge sharing and use of best practices. Support of activities, which foster knowledge sharing, are acknowledged as critical to continued innovation needed to achieve the most effective and efficient services possible

As such, activity on this site is viewed as a reflection of the relevance of MetroGIS's activities to stakeholder needs, therefore, trends in its use have been closely monitored since the site was originally launched in 1997. Its architecture was last enhanced in 2001. Updating the site's

Figure 5: General Information Website Activity
(Annually, 2003 - 2008)



architecture is currently defined as a need but sufficient resources have not been available to effectively accomplish a major refresh of the site. In preparation for a refresh of the site, **a survey should be undertaken to investigate user satisfaction** with it and any enhancements that they would like made. Depending up-on the complexity, some enhancements might be possible as stand-alone projects as opposed to waiting until a major refresh is possible. That said, the pending refresh of this site should not be initiated until objectives for the site and for MetroGIS's outreach objectives, in general, are revisited as a component of updating MetroGIS's Outreach Plan, which is anticipated to begin in 2009.

In addition to the general information website, several theme or function specific web-based applications have also been developed via MetroGIS's efforts. Some are no longer supported by MetroGIS (Regional Mailing Labels – use discontinued in 2006 and Emergency Management – moved to state in 2008) and two others are supported as institutionalized, regional solutions. One of which, the **Regional Geocoder Service, launched during this reporting period** (October 2008) builds upon two regional data solutions also implemented via MetroGIS's efforts:

Table 6: Usage of MetroGIS Endorsed Web-based Applications

	2004	2005	2006	2007	2008
Socioeconomic Web Resources Page¹¹	124	446	1307	4,275	9,124
Regional Geocoder Service	-	-	-	-	Testing completed 9/08
Total	124	552	1389	4,275	9,124

Findings:

Specifics follow about each of the applications which currently support a MetroGIS endorsed function follow:

a) General Information Website:

Total visits to the site **declined 22 percent** in 2008, with 95,327 total visits, as opposed to 122,256 total visits experienced in 2007. The increased traffic in 2007 was partially attributed to the MetroGIS 2008-2011 Business Planning Process but not enough is known about the reason for spike in use in 2007 to determine if it was an anomaly or if 2008's activity is in effect the return to the trend in use that was occurring before 2007, given that visits to the site in 2008 were the **second-highest level recorded** behind 2007. A **survey of stakeholders** should be undertaken to identify any **desired modifications** to the site.

b) Socioeconomic Web Resources Page

(www.datafinder.org/mg/socioeconomic_resources/index.asp)

This webpage was implemented in April 2004. Monthly average use nearly doubled from 356.3 visits to 760.3 visits per month during the 2008 reporting period and **more than doubled again during the 2008 reporting period from 4275 to 9124**. A partial reason for this substantial growth might be attributable to growing awareness of this application plus expanded data availability but a **survey should be undertaken to better understand this rapid growth trend** as well as identify any improvements that might be desired by those using the site.

c) Regional Geocoder Service.

It went live October 2008, after the close of this performance measures reporting period.¹² This service was developed and tested spring and summer 2008 via a MetroGIS-funded pilot project. Given its potential statewide application, the Mn Land Management Information Center agreed to host it on one of its servers. In brief, it is a Web Service that consumes Address or Intersection requests and returns closest matches with their latitude-longitude, based on the MetroGIS regional parcel and street centerline data layers. The service is built with open source code that is available for download. See <http://www.metrogis.org/data/apps/geocoder/index.shtml> for more information. Basic metrics are maintained from which usage can be monitored. As a component of the proposed project in 2009 to update the Performance Measurement Plan, the **potential of enhancing the metrics to learn more about the users should be investigated** (i.e., who is using this service and for what).

PERFORMANCE MEASURE 3: Number and type of sector/stakeholder groups using Web Mapping Services

Background:

Map services were introduced in late October 2006 and their use is being tracked through the DataFinder Café. Currently, tracking of usage is based upon the number of hits to each map service. There are four types of map services currently available: WMS Image, ArcIMS Image, ArcIMS Feature, and WFS. The number of hits to a service cannot be considered a measure of how many sources are using services; instead, it is a measure of the general level of activity to a service from all sources. It is worth noting that the map services with the higher number of hit (Transportation and Administrative and Political Boundaries) are included in The National Map online map (<http://nationalmap.gov/>).

Findings:

Map service usage has significantly increased since data available on DataFinder were structured to be map service compliant in October 2006. A **peak of 32,875 hits** was recorded in September 2008 with a **total of 140,461 hits** for the 2008 monitoring period, an **increase of 138.8 percent** over 2007. As illustrated in the Table 7, every service experienced higher usage, ranging from an increase of 31 to an increase of 677 percent. The three most popular map services accessed during 2008 were the Administrative and Political Boundaries, Transportation, and Water Resources.

This increase in use of map services is likely a major factor in the decline experienced in FTP-based data downloads from Catalog and Café during the 2008 reporting period. This **relationship should be explored** in the user needs/satisfaction survey called for in the previous section and should include investigating a means to better understand who is using map services and what they expect from these services in the future.

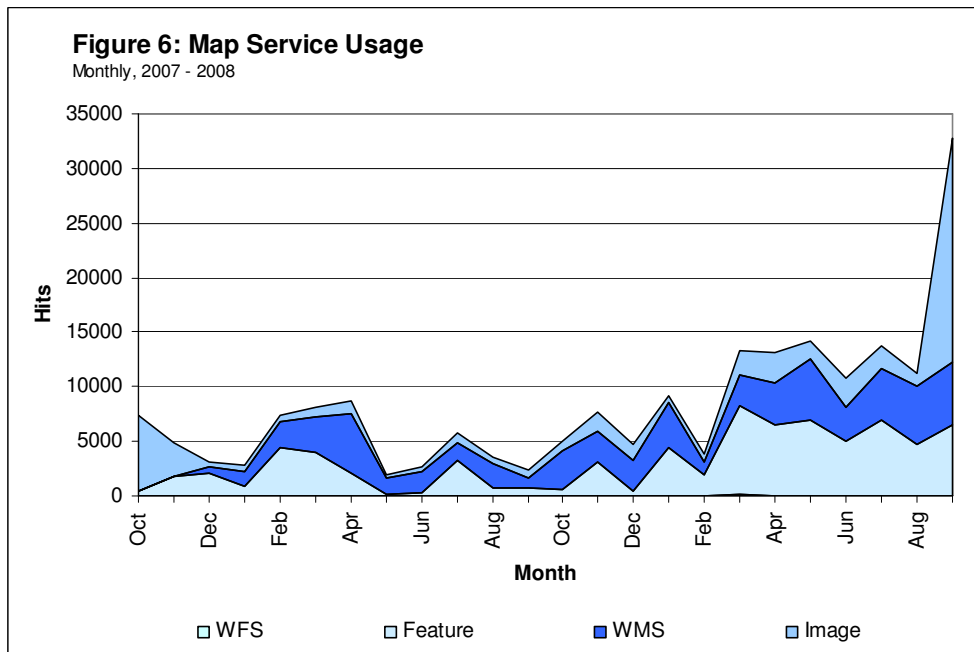


Figure 7: Map Service by Category
Quarterly, 2007 - 2008

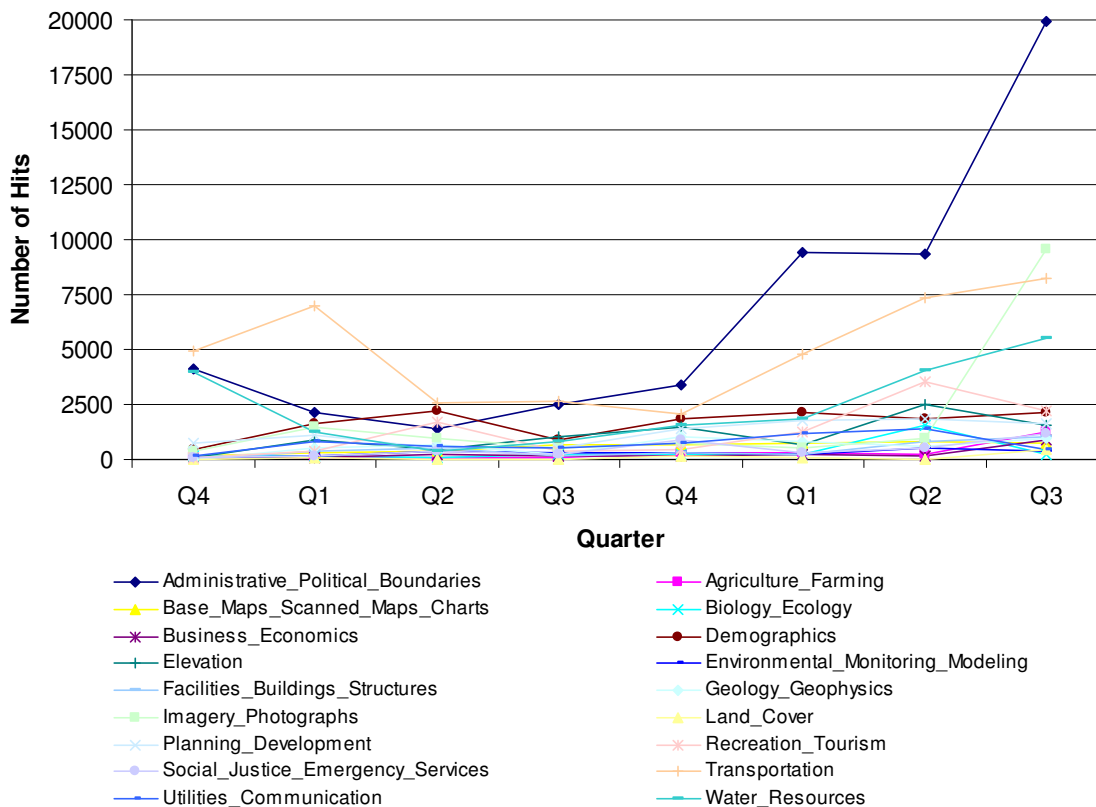


Table 7: Map Services

Service	2007	2008	Change (%)
Administrative_Political_Boundaries	10,186	41,979	312.1
Agriculture_Farming	270	2,094	676.6
Base_Maps_Scanned_Maps_Charts	1,421	2,977	109.5
Biology_Ecology	558	2,175	289.8
Business_Economics	535	1,442	169.5
Demographics	5,068	7,852	54.9
Elevation	2,354	6,206	163.6
Environmental_Monitoring_Modeling	845	1,396	65.2
Facilities_Buildings_Structures	999	2,348	135.0
Geology_Geophysics	1,386	3,402	145.5
Imagery_Photographs	3,315	11,792	255.7
Land_Cover	108	646	498.1
Planning_Development*	2,907	6,605	127.2
Recreation_Tourism	2,460	7,478	204.0
Social_Justice_Emergency_Services	778	2,854	266.8
Transportation**	17,116	22,482	31.4
Utilities_Communication	2,095	3,760	79.5
Water_Resources	6,416	12,973	102.2
Total	58,817	140,461	138.8

* Does not include Regional Parcel Dataset

** Does not include TLG Street Centerline Dataset

Usage of individual services is an important indicator of the demand for the service, however monitoring of specific data layers within map service bundles is not possible unless software changes are implemented to facilitate identification of these layers. **The potential to achieve the required software enhancement should be investigated.**

PERFORMANCE MEASURE 3a: Number and type of sector/stakeholder groups accessing data from DataFinder.

Background:

This measure was added as a performance measurement in 2005. The objective was to ensure that metropolitan area users are the primary users of DataFinder. This outcome was found to be case during the reporting period for which Quova's reverse IP lookup services were able to be utilized. Quova's process "looked up" assigned each IP address to the geographic location of the user (origin of the request). This process is common in the marketplace, but hardware policy issues with the DataFinder server, plus lack of a contractor to perform the work within the available budget have precluded use of this technique during the past few reporting periods. Hardware policies which in effect neutralize incoming IP addresses make them all appear to be the same on the MetroGIS side of the connection.

Finding:

As this is an important measure of value created, a **means to again enable a reliable means to map the IP addresses associated with data download requests should be investigated.**

PERFORMANCE MEASURE 4: Number of datasets and metadata records on DataFinder

Background:

In accordance with its policy to promote leveraging of investments within the community, MetroGIS should continue to encourage data producers to publish metadata, as well as their actual data holdings, via the DataFinder tool in an effort to continue to improve user and producer efficiencies related to discovery and distribution of geospatial data.

Even though the number of participating entities did not change, the number of **metadata records searchable** on DataFinder increased from 221 to 228 or **up 3.7 percent** and number of **datasets downloadable** via DataFinder increased from 167 to 180 or **up 7.8 percent**.

Table 8: Metadata Records Searchable on DataFinder

Year	Searchable Metadata	Annual Change (%)	Change since inception (%)	Target
2002	136	-	-	Not set
2003	166	22.0	-	Not set
2004	183	10.2	-	Not set
2005	188	2.7	-	Not set
2006	205	9.0	-	Not set
2007	221	6.7	-	Not set
2008	228	3.7	67.6	Not set

Table 9: Datasets Directly Downloadable via DataFinder

Year	Directly Downloadable Datasets	Annual Change (%)	Change since inception (%)	Target
2002	107	-	-	Not set
2003	136	27.1	-	Not set
2004	145	6.6	-	Not set
2005	151	4.1	-	Not set
2006	158	4.6	-	Not set
2007	167	5.7	-	Not set
2008	180	7.8	68.2	Not set

Findings:

Additional emphasis on outreach activities should be pursued to encourage increased participation.

OUTCOME B. DATA CURRENCY, USEFULNESS

Background:

The 2002 MetroGIS Performance Measurement Plan established one measure of the “Data Currency” outcome. 2008 results and 2002-2007 trends for this measure are as follows:

PERFORMANCE MEASURE 5: Percent of regionally endorsed datasets maintained to agreed-upon currency specifications.

Table 10: Compliance with Custodial Responsibilities

Year	Percent Compliance	Annual Change (%)	Change since inception (%)	Target
2002	100	-	-	Not set
2003	100	0	-	Not set
2004	100	0	-	Not set
2005	100	0	-	Not set
2006	100	0	-	Not set
2007	100	0	-	Not set
2008	100	0	0	Not set

Findings:

A total of twenty-five (**25**) **custodial roles and responsibilities** defined by MetroGIS, an increase of two (Regional Geocoding Service and GeoServices Finder) during this reporting period are being

supported assumed by ten (11) separate **willing organizations** with appropriate support resources, an increase of one (LMIC) during this reporting period. Twenty one (21) of these custodian roles and responsibilities are associated with maintaining regional data solutions endorsed by MetroGIS. Each of these data maintenance-related **responsibilities** were found to be supported in **accordance with agreed upon specifications**, as has been the case in the past. Four of the other five custodial responsibilities involve supporting a regional web service or application. These responsibilities were also supported in accordance with agreed upon specifications. The final custodial role is that of hosting MetroGIS’s “foster collaboration” function, which is a role for which the Metropolitan Council has served as primary sponsor since MetroGIS’s inception. See Appendix B for a listing of each of this responsibilities and entities that has accepted each of them.

OUTCOME C. INTERNAL EFFICIENCIES, LEVEL OF COOPERATION

Background:

Four distinct performance measures are used to evaluate progress relative to this “Internal Efficiencies, Level of Cooperation” performance outcome. No means is available to monitor two of measures, although the trend is toward increased involvement by data producers. Findings for each of the other two measures follow.

PERFORMANCE MEASURE 6: Number of manual vs. self-service requests for data (by producer type)

PERFORMANCE MEASURE 7: Hours of staff time saved in data distribution tasks (by producer type) – focus on counties and the Metropolitan Council

Findings (PM#s 6 and 7):

(No effective means yet defined to measure)

PERFORMANCE MEASURE 8: Number (and names) of entities listing metadata records (which includes entities listing datasets) on DataFinder.

Background:

In accordance with its policy to promote leveraging of investments within the community to improve user and producer efficiencies related to discovery and distribution of geospatial data, MetroGIS’s strategy has been to encourage data producers to publish metadata, as well as their actual data holdings, via the DataFinder tool.

Table 11: Entities Publishing Metadata Records via DataFinder

Year	Searchable Metadata	Annual Change	Change since inception	Target
2002	15	-	-	Not set
2003	16	6.7 %	-	Not set
2004	18	12.5 %	-	Not set
2005	18	0 %	-	Not set
2006	18	0 %	-	Not set
2007	18	0 %	-	Not set
2008	18	0 %	20.0 %	Not set

(The names of participating entities are maintained in a separate source data file)

Findings:

There was no change during this reporting period in the number of organizations using DataFinder to advertise availability of their geospatial data holdings. The number of participants remains at 18. The flat annual rate of change since 2005 is in large part due to less time spent on networking and outreach activities by support staff over the past several years. Notwithstanding, the number of metadata records increased from 221 to 231. Since growth in

this measure is directly dependent on efforts to educate potential stakeholders of this opportunity, ways to **increase resources that can be used to expand outreach activities** should be investigated as a component of the proposed project to update MetroGIS's Outreach Plan.

PERFORMANCE MEASURE 9: Number (and names) of entities using DataFinder as a data distribution method.

Background:

In accordance with its policy to promote leveraging of investments within the community, MetroGIS's strategy has been to encourage data producers to publish not only metadata but their actual data holdings as well via DataFinder in an effort to continue to improve user and producer efficiencies related to discovery and distribution of geospatial data

Table 12: Entities Publishing Geospatial Data via DataFinder

Year	Directly Downloadable Datasets	Annual Change	Change since inception	Target
2002	7	-	-	Not set
2003	7	0 %	-	Not set
2004	10	42.8 %	-	Not set
2005	10	0 %	-	Not set
2006	10	0 %	-	Not set
2007	10	0 %	-	Not set
2008	10	0 %	42.8 %	Not set

(The names of participating entities are maintained in a separate source data file)

Findings:

There was no change during the reporting period in the number of organizations using DataFinder as a data distribution mechanism. The number remains at 10. As with Measure 8, the flat annual rate of change since 2005 is in large part due to less time spent on networking and outreach activities by support staff over the past several years. Notwithstanding, the number of number of datasets downloadable via DataFinder increased from 167 to 177.

OUTCOME D. DECISION MAKING, SERVICE DELIVERY

PERFORMANCE MEASURE 10 (NON-QUANTITATIVE MEASURE): Testimonials/case studies on how data access and delivery, and the MetroGIS forum, were used to improve operations/systems/decision-making by sector/stakeholder group.

Background:

Ten testimonials have been produced and indicate a high level of satisfaction and perceived value associated with processes and tools developed through MetroGIS's efforts. One testimonial was added during the 2008 reporting period from 1,000 Friends of Minnesota. Resources should continue to be devoted to publishing testimonials.

None of the MetroGIS Performance Measurement efforts to date has included quantitative measurement of efficiencies gained by data producers through tools and processes developed and supported by MetroGIS. The primary reason is that quantifying this benefit is extremely complicated due to the variety of business models used by various producers. Although qualitative testimonials are useful they have proven to be insufficient to secure resources needed to address priority shared geospatial needs.

Findings:

As a component of its Performance Measure Plan Update project proposed for 2009, MetroGIS leadership should **investigate** the potential of documenting in **quantitative terms** that are

easily related to by policy makers **value created** when stakeholders participate in a geospatial commons. These methods should **include** identifying effective ways to document efficiencies **gained by producers** of data that are components of endorsed regional data solutions as well as continue to document how **users who benefit** from collaborative solutions achieved via MetroGIS's efforts.

APPENDIX A: SOURCE DATA FOR METRICS

Detailed data are captured monthly for each performance measure. These detailed source data are maintained in a complex spreadsheet along with related summary set of tables and graphics. These detailed data are the foundation from which staff identify anomalies, both positive and troublesome items, for discussion with the Coordinating Committee on a quarterly basis in an attempt to better understand the causes and identify any desirable mitigating actions that should be pursued.

The Source Data are maintained by Measure in the same manner as reported herein:

A. Outcomes for Data Users - Ease of discovery and access

PM #1: Visitor sessions to DataFinder web site

PM #2: Datasets downloaded through DataFinder

PM #3: Map Services

PM #4: Datasets and metadata records on Data Finder

B. Outcomes related to Users - Data Currency

PM #5: Percent of Datasets Updated

C. Outcomes related to Producers - Internal efficiencies; level of cooperation

PM #6: Manual vs. self-service requests for data (by producer type)

PM #7: Staff time saved in data distribution tasks (by producer type)

PM #8: Entities listing metadata records on DataFinder

PM #9: Entities using DataFinder and DataFinder Cafe as a data distribution method

D. Ultimate Outcomes – Improved decision-making and better service to the public

PM # 10: Testimonials (Non-quantitative)

APPENDIX B:
REGIONAL SOLUTIONS TO SHARED GEOSPATIAL NEEDS (May 2009)
Role(s) Performed On behalf of the Community

Roles and Responsibilities <i>25 Distinctive Responsibilities</i>	Custodian^{(1) (2)} <i>Performed by 11 Organizations</i>	
1. Foster Collaboration <i>Staffing And Funding To Support Forums And Workgroups To Define Shared Geospatial Needs And Collaborative Solutions To Those Needs, Perform Satisfaction Monitoring, Foster Use Of Endorsed Best Practices, Fund Partnership Agreements, Support Decision-Making Processes, Etc</i>	Metropolitan Council	
2. Internet Discovery and Access to Existing Geospatial Resources <i>Staffing And Funding To Support Internet-Based Tools For Discovery Of Existing Geospatial Data, Services And Applications To Be Leveraged By Across MetroGIS Community</i> a. MetroGIS DataFinder a. GeoServices Finder	Metropolitan Council Mn Land Management Information Center	
3. Regional Data Solutions <i>Staffing And Funding To Develop, Maintain, And Document Regional Data Solutions To Priority Shared Information Needs</i> ----- a. Addressable Street Centerlines ----- b. Census Geography (1990 and 2000 Datasets) <i>(aligned with parcel and street centerlines)</i> ----- c. Jurisdictional Boundaries – Cities and Counties <i>(aligned with parcels and street centerlines)</i> ----- d. Land Cover ----- e. Parcels ----- f. Planned Land Use ----- g. Socioeconomic Characteristics of Areas	Primary Producer The Metropolitan Council via a contract with NCompass/TLG The Metropolitan Council via a contract with NCompass/TLG ----- 7 Counties ----- No specified roles <i>(30+ diverse government, academic, and private sector entities have contributed)</i> ----- 7 Counties ----- No specified roles <i>(City-produced data incorporated when available)</i> ----- No specified roles <i>(Various Organizations that Publish Census Type Data)</i>	Regional Producer/Aggregator Metropolitan Council ----- Metropolitan Council ----- Metropolitan Council ----- Mn DNR ----- Metropolitan Council ----- Metropolitan Council ----- University of Minnesota (Population Center)
4. Regional Applications/Services <i>Staffing And Funding To Maintain And Document Solutions To Shared Geospatial Application Needs</i>		
a. Geocoder Service	Mn Land Management Information Center	

Notes:

- (1) For links to the listings of specific roles and responsibilities for each endorsed regional dataset go to www.metrogis.org/data/index.shtml.
- (2) Since 1997, the seven counties have agreed to share their parcel data with other government and academic entities, which serve the Metro Area, as a component of Data Sharing Agreements executed with the Metropolitan Council. For more information see www.metrogis.org/about/history/sharing.shtml.

ENDNOTES:

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- ¹ The adopted MetroGIS Performance Measurement Plan can be viewed at www.metrogis.org/benefits/perf_measure/index.shtml.
- ² Section 1.3.2 of MetroGIS's 2003-2005 Business Plan identifies three functions core to MetroGIS's efforts:
- Support a "forum" to foster coordination through knowledge sharing and use of best practices.
 - Facilitate effective long-term solutions to priority common information needs (regional datasets), and
 - Support an efficient mechanism for Internet-based data discovery and retrieval (MetroGIS DataFinder)
- ³ Metadata provides information about geographic data important to evaluating its fitness for use, such who created the data, when created, source from which created, data projection, explanation of descriptive attributes, update cycle, etc
- ⁴ See <http://www.lmic.state.mn.us/GeoServiceFinder> for more information about it development and functionality.
- ⁵ Features with a geographic component, such as the location of parcels of land and descriptive information about each parcel, location of city boundaries, location of lakes and descriptive information about each lake, etc.
- ⁶ Features with a geographic component, such as the location of parcels of land and descriptive information about each parcel, location of city boundaries, location of lakes and descriptive information about each lake, etc.
- ⁷ Metadata provides information about geographic data important to evaluating its fitness for use, such who created the data, when created, source from which created, data projection, explanation of descriptive attributes, update cycle, etc.
- ⁸ Links through with to download data via the DataFinder Catalog utilize FTP (File Transfer Protocol) technology.
- ⁹ For more information about the history of DataFinder see <http://www.metrogis.org/data/datafinder/index.shtml> .
- ¹⁰ **Note for the preparers of the 2009 Performance Measurement Report.** Café's operating system was upgraded winter 2009 (after the reporting period that is the subject of this report) resulting in malfunctions that precluded users' ability to download data via Café. This problem was being worked on by software engineers but, as of this writing – May 2009, a solution had not been discovered. It is likely that this loss of functionality will account for a further reduction in browsing of data via Café. Once users encounter the message on Café that FTP is the only downloading option, many may elect to also forego use of Café tool as a browser tool.
- ¹¹ For the next report, consideration should be given to reorganizing the Socioeconomic Resources Webpage to treat this resource as a data discovery tool and not an application per se since its purpose to is assist in finding existing data, not analyze it.
- ¹² Editor's note, during development of this annual report after the reporting period closed, use of the application rapidly increased, which will be documented in a subsequent report. For instance:

Oct 2008	583
Nov	670
Dec	8,303
Jan. 2009	44,105
Feb	41,192
Mar	17,135
Apr	97,135