

Memo

To: Randall Johnson, MetroGIS
Rick Gelbmann, Metropolitan Council

From: Michael Turner, AppGeo

Date: June 3, 2011

RE: Slate of potentially “actionable items” to pursue following Shared Needs workshop

On January 13, 2011 AppGeo facilitated a “Shared Geospatial Needs Assessment” workshop to supplement and build upon information gathered via a survey conducted in December. The survey showed that the existing eight regional datasets generally met participant needs but also identified a number of enhancements and suggestions to regional datasets for consideration. In association with the pre-workshop survey, the workshop also generated several observations from participants on the overall effectiveness of MetroGIS as well as many ideas for improving its relevancy and pursuing new initiatives. From these activities, three overarching observations were that, MetroGIS:

1. Needs to continually improve upon its regional solutions to shared needs
2. Is a little bit “old fashioned” and process bound
3. Would benefit from being more flexible and nimble

These observations and ideas were then presented to the MetroGIS Coordinating Committee (CC) during the March, 2011 meeting. The Coordinating Committee discussed the preliminary findings and seemed to support the general conclusions. The Coordinating Committee also identified that several of the potential recommendations seemed to tread into policy issues and as a result wanted to formally highlight these issues to the MetroGIS Policy Board (PB). The preliminary findings as well as the “policy issues” identified by the Coordinating Committee were discussed during the April, 2011 meeting of the Policy Board. Again, there seemed to be general support for the preliminary findings emanating from the survey and workshop.

This memo builds on the general findings identified during spring 2011 and presents a slate of actionable recommendations for activities and projects that MetroGIS might pursue to address issues, improve effectiveness and capitalize on new opportunities. The actionable items are organized under the headings that were used in the workshop and in presentations to the CC and PB. It is also important to note that the Metropolitan Council is in the process of hiring a GIS Project Manager. The intent is that this person would support a host of MetroGIS technical projects.

Communication & Collaboration

1. Re-design, re-vamp and re-launch the MetroGIS Web-site

Problem: The MetroGIS web-site is old fashioned, dominated by text and does not capitalize on emerging social media and Web 2.0 approaches for engaging the audience.

Actionable recommendations:

- (a) Consider re-deploying the web-site using a **content management system (CMS)** that will allow MetroGIS personnel to more easily manage existing content and publish new content. Open source tools, such as WordPress, are highly cost effective and are designed for this purpose.

- (b) Engage a **web-design professional** to assist MetroGIS in laying out the navigation for an improved web-site, developing “graphic templates” for key pages and providing training in web-site maintenance.
- (c) Consider **engaging a part-time, contract worker** who has web development skills in the chosen CMS to help MetroGIS migrate existing content and develop new content for the web-site. An effective person may also have some experience with applying “search engine optimization” (SEO) approaches that will help MetroGIS to be listed more highly in Google and other search engine search results.
- (d) To the extent possible, assemble and review **web statistics** for the existing web-site to help inform and focus the web design. Begin assembling and tracking **web statistics** for the new web-site immediately after launch. Web statistics can be incredibly helpful for revealing who is using a site, how a site gets used and the most popular elements of a site. Such information can greatly facilitate the prioritization of what parts of the site should be getting attention.

Potential costs:

- Web design consulting and CMS training: \$5,000 - \$10,000
- Contract personnel for web-site development (16 hrs/week, 6 months): \$8,000

2. Initiate a social media presence for MetroGIS

Opportunity: Social media¹ and collaboration software², collectively referred to as Web 2.0³ tools, such as blogging, SharePoint or similar tool, Twitter, Facebook, SurveyMonkey and LinkedIn provide new, on-line vehicles for engaging a community of interested people.

Actionable recommendations:

- (a) Create at least one, **new on-line forum** that allows stakeholders to communicate among themselves, in a real-time, two-way, non-email and public fashion. The initial focus would be to foster collaboration for a host of smaller projects that do not rise to the level of significance to the region to justify direct allocation of MetroGIS staff resources. This on-line forum would make it easier for project sponsors to join forces and work more effectively together.

The deliverable would include refining the organizational objectives to be pursued, identifying social media options to accomplish these objectives, define hardware/software platform and support costs, and creation of a tested process template by which stakeholders could independently create and host collaboration forums.

The launch of this forum should be closely aligned with the creation of the new Social Media Committee described below in “2b”. It is recommended that the process to be used by the

¹ **Social media** are [media](#) for [social interaction](#), using highly accessible and scalable communication techniques. Social media is the use of web-based and mobile technologies to turn communication into interactive dialogue

² **Collaborative software** (also referred to as **groupware**, **workgroup support systems** or simply **group support systems**) is computer software designed to help people involved in a common task achieve their goals. It is usually associated with individuals not physically co-located, but instead working together across an internet connection. It can also include remote access storage systems for archiving common use data files that can be accessed, modified and retrieved by the distributed workgroup members

³ The term **Web 2.0** is associated with web applications that facilitate participatory [information sharing](#), [interoperability](#), [user-centered design](#),^[1] and [collaboration](#) on the [World Wide Web](#). A Web 2.0 site allows users to interact and collaborate with each other in a [social media](#) dialogue as creators ([prosumers](#)) of [user-generated content](#) in a [virtual community](#), in contrast to websites where users ([consumers](#)) are limited to the passive viewing of [content](#) that was created for them. Examples of Web 2.0 include [social networking sites](#), [blogs](#), [wikis](#), [video sharing](#) sites, [hosted services](#), [web applications](#), [mashups](#) and [folksonomies](#).

Committee to design and test this capability, should simultaneously explore Web 2.0 options to support the Committee's work. This project is a candidate such support by the pending GIS Project Manager hire at the Council.

- (b) Assemble a MetroGIS "**Social Media Committee**" (SMC) from interested staff and stakeholders. Ideally, this committee will include active social media members who can foster enthusiasm and generate new ideas and address implementation issues. The SMC would be tasked with defining next steps MetroGIS should take to utilize social media tools and also determining the value that these tools would add to MetroGIS.

Options to be considered include, but are not limited to:

- Continue to get educated about emerging social media and Web 2.0 approaches and **explore other innovative uses**. For example, MetroGIS could again consider sponsoring a web contest for the best/most innovative use of a MetroGIS web service. Such approaches have been useful for broadening the awareness and utilization of resources (e.g., MetroGIS services may be of interest beyond the "GIS community" and to the broader Government 2.0 and web mashup developer communities). To overcome issues encountered with the previous attempt in 2009, MetroGIS could focus on its stakeholder community and not attempt to catalyze a Statewide initiative.
- Consider **engaging part-time, contract personnel** who has social media awareness and skills. This person can support the SMC by generating ideas and/or executing the SMC's ideas.

Potential costs:

- Budget for scoping and prototyping an online collaboration capability: \$5,000
- Social media part-time, contract personnel (10 hrs/week, 6 months): \$5,000

Data

3. Identify required improvements to regional solutions

Problem: The on-line survey conducted as part of this project identified a number of "suggested improvements" (Attachment A) to a variety of MetroGIS's regional data solutions. These suggestions need to be fully vetted and prioritized for potential improvements.

Actionable recommendations:

Develop a process template for conducting and blending information gathered from stakeholders through Internet tools and face-to-face forums and also for synthesizing stakeholder feedback. Enhancements that have been identified for either the Regional Parcel or Regional Street Centerline datasets should be used as the pilot through which to test and refine the process template(s). Components of the process should include, but not be limited to:

- (a) Use the survey and this study as a starting point for a more **detailed assessment of data quality and utility**. This more detailed assessment may included, but is not limited to activities such as:
- (1) One-on-one interviews with key and/or representative users
 - (2) Review of data download and service access statistics to better understand the levels of use of these data and by association the potential relative importance of these data to the user community.

- (b) Re-establish “**Peer Review Forums**” to help identify desired improvements. These forums could be conducted in several ways but may include:
- (1) Focus group meetings of users
 - (2) Use of new social media tools and the creation of interactive, on-line forums aimed at gathering user feedback in near real-time
- (c) Within 6 months, **develop a prioritized “action plan”** for addressing identified shortcomings in the data sets. The action plan should include:
- (1) Detailed enumeration of all desired improvements on a layer-by-layer basis
 - (2) Prioritization of the improvements based on acuteness of the shortcoming, cost/level-of-effort and popularity/level of use the data layer gets
 - (3) Recommendation on whether, or not to proceed with the improvement based on cost and other priorities within MetroGIS (i.e., some good suggestions may not be acted on in light of other priorities)

Potential costs:

- Budget to develop and test the process template - \$5,000 to \$10,000
- No new project spending is anticipated once the process template is developed. Once the process is in place, its application to each of the regional solutions would be led by MetroGIS staff, in cooperation with volunteers from the MetroGIS stakeholder community. This project is a candidate such support by the pending GIS Project Manager hire at the Council. As appropriate, the part-time contract personnel recommended above under items #1 and #2 could participate in this activity, particularly for establishing on-line peer review forums.

Staff expertise anticipated:

- Understanding of GIS data
- Understanding of GIS techniques for data improvement and editing
- Communication skills pertaining to data and technology

4. Plan for development of a regional, base map tile service

Opportunity: There appears to be increased interest in MetroGIS working to “make data into more useful end-user oriented products.” Given web mapping technological advances and the fact that most of the public uses commercial mapping sites such as Google Maps there is merit in pursuing the development of a consistent, region-wide base map with superior cartographic quality and available as a consumable tile service.

Actionable recommendations:

- (a) Assemble a MetroGIS “**shared base map committee**” (SBMC) from interested staff and members. Ideally, this committee will include a mix of members who are currently making their base map materially publicly available along with those who are not as well as interested base map *users*.
- (b) Assess whether **Esri’s Community Base Map (CBM)** program⁴ may meet the needs of the MetroGIS community. Currently, there is some enhanced base map content within CBM for the Metro area, but participation and base map content is not standard across the seven counties.

⁴ See: <http://www.esri.com/software/arcgis/arcgisonline/community-maps.html> for further details.

Participation in this program would provide freely available map tiles, but it would also require effort “on behalf of the region” – potentially supplied by MetroGIS - to supply Esri with what it needs across the region.

(c) **Assess other methods** besides CBM for potentially meeting this need. Options include, but are not limited to:

- (1) Opening a communication channel with other suppliers such as Google and Microsoft (for Bing mapping) whereby MetroGIS data could be supplied for inclusion in their tile services with a known update frequency.
- (2) Standing up a MetroGIS base map tile service using open source, Esri or Google⁵ technologies.

Potential costs:

No new project spending is anticipated for this activity. Rather, most of the effort will be staff time and potentially the time of other MetroGIS volunteer members. This project is a candidate such support by the pending GIS Project Manager hire at the Council. If participation in Esri CBM is pursued, then a budget for participation will need to be created.

Staff expertise anticipated:

- Strong communication skills for assembling and brokering conversations between committee members
- Understanding of GIS data and cartographic representation
- Familiarity with Esri technology and corporate practices

Organizational

5. Streamline MetroGIS processes to make the organization more flexible, responsive and nimble

Problem: Over the past 15 years, MetroGIS has evolved within a very formal governance structure. This structure includes oversight by both a Coordinating Committee and a Policy Board and a very tightly structured mission and mandate. This structure never envisioned the state of GIS technologies in the second decade of the 21st century where technology is rapidly evolving and the general public has access to, and utilizes high quality geospatial data on a regular basis. At present, MetroGIS can appear process bound and inflexible in being able to move quickly enough to capitalize on new developments and opportunities.

Actionable recommendations:

- (a) Work with the Policy Board to **create a “Guidance Committee” (GC)** that could meet more regularly than the quarterly schedule of the PB itself. The GC would have authority to:
 - (1) Following Policy Board approval of the annual MetroGIS budget, approve project funding for amounts up to 50 percent of MetroGIS’s budget, but not greater than \$50,000.
 - (2) Assess opportunities and approve/empower MetroGIS staff to pursue partnerships and projects.

⁵ Google’s new Earth Builder product has the potential to produce and host this kind of resource. See: <http://www.google.com/enterprise/earthmaps/builder.html> for further details.

- (3) The details of membership (i.e. limited to only PB members, or not?), appointment, meetings (e.g., could “electronic meetings” take place?), etc. will be worked out after there is agreement to pursue this course of action.
- (b) Pursue a **policy clarification on the definition of “regional significance.”** Currently, “regional significance” is construed to mean that data development projects must encompass *all seven counties and address an information need of multiple organizations represented on the Policy Board or be classified as “critical” to society.* Development of web services have been required to “run” on and add value to endorsed regional datasets. Supporting projects that involve a geographic extent of multiple counties, but not necessarily the entire, seven-county area can still be considered to be “regionally significant.” Such a policy clarification opens the possibility of becoming involved in additional projects and preserving the flexibility to remain relevant in additional, previously unanticipated settings. Guidelines for pursuing such projects (e.g., improves data interoperability) should be adopted.
- (c) Modify the Committee structure, including the Policy Board; staff assignments; and associated activities to **bring more non-governmental interests into MetroGIS projects**, initiatives and activities, including data sharing. To remain more vital and relevant it is important that MetroGIS has the ability to engage in an increasing variety of geospatial opportunities that may originate both inside and outside of government. MetroGIS staff should be empowered to uncover and pursue emerging trends and new technologies that may benefit the community.

Potential costs:

No new project spending is anticipated for this activity. Rather, most of the effort will be the staff and Policy Board time necessary to move the deliberations forward and to potentially approve these kinds of proposed changes.

Staff expertise anticipated:

- Strong communication skills – written and oral – and confidence working with the senior level executives that comprise the PB.
- Strong understanding of GIS technology and issues to enhance the PB’s understanding of this arena and to answer PB member questions.

6. Pursue a public-private partnership

Opportunity: There appears to be increased interest in some members of the private and non-profit sectors in actively working with MetroGIS including participating in data sharing. Equally, MetroGIS is interested in increasing its relevance by limiting its involvement to governmental geospatial initiatives. Pursuing a joint project will help to both demonstrate the benefits and test the complexities for both the MetroGIS and a private sector partner. At least one private real estate company, CB Richard Ellis, has approached the MetroGIS to express an interest in pursuing a collaborative partnership including bi-lateral data sharing.

Actionable recommendations:

- (a) Act on Policy Board’s earlier directive to pursue public-private partnership project by formally approaching CB Richard Ellis and CenterPoint Energy to investigate data sharing opportunities.
- (b) Communicate with MetroGIS membership to explain the nature of the project, and the potential implications (e.g., broader data sharing than is now allowed).
- (c) Scope and pursue the joint project so that it meets the mutual interests of the participants.

- (d) Conclude the project and draft a lessons learned document to determine the relative success of the effort and the desirability, or not of broadening this kind of effort.

Potential costs:

No new project spending is anticipated for the planning aspects of this activity. Rather, most of the effort will be the staff time necessary to scope and negotiate a partnership project. Executing the project itself may entail some kind of budget requirements, as well as staff attention, however, these costs will not be known until the details of the project to be undertaken are better known.

Staff expertise anticipated:

- Strong communication skills – written and oral – to facilitate making agreements
- Project management skills to understand how projects should be structured for successful completion
- Strong understand of GIS data sets and related issues such as standards and data sharing agreements

ATTACHMENT A

Desired Enhancements to Existing Regional Datasets (Source – January 2011 Needs Assessment Survey)

Free Form Survey Answers Pertaining to Data Sets

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The following provides comments that were extracted from SurveyMonkey free form field entries. The answers were plucked from a variety of questions and have been organized by the data set that was being discussed.

Census Geography (1990 and 2000)

- 2010 US Census
- Existing data is good, but will need update for 2010.

- 2010 census boundaries are due to be released soon and will need to be reconciled with the data in MetroGIS DataFinder
- Aggregate any local improvements to 2010 census TIGER lines
- just a reminder: 2010 Census geography adjusted to parcel lines is imperative.
- Census 2010 boundary data geometrically adjusted to parcel lines is necessary and warranted. 1990 and 2000 boundary data is important for trend analysis to us.
- If they continue to be accurately defined. Original census data has poor positional accuracy.
- More Geographic Coverage. Complete associated attribute tables (SF1, SF2, SF3, SF4).
- Addition of the Home / Work Census data as overlays.
- Have had trouble tying the census information to sewersheds to determine expected sewerflows
- It would be nice to have finer grain boundaries (smaller than census blocks). Also, a more user friendly way to download/apply census data to the areas. While it does exist, it is difficult to figure out unless you use it frequently.

County/MCD Boundaries

- Combing MN and WI into one dataset. Same could be said for zip codes
- It seems the datasets come in individual packages for WI and MN. Why separate the two? Perhaps a column could be added to indicate state.
- More timely updates
- timely updates
- MCD not kept current enough
- not accurate enough
- resolve record title boundary conflicts; apply and identify corresponding field boundary positions
- consistent boundary matches among all organizations (DOT, Census, SOS, Legislature, etc) specifically for MCD boundaries
- improvement is necessary to the accuracy based on correct boundary lineage of record and position.
- Great start. Consistency in the process needs streamlining and development. Annexation issues still exist and need to be resolved.
- County boundaries would work well, if they were standard between the state, counties, and cities. My issue is that each entity maintains their own boundaries that do not match up with the others.
- I need these, particularly the MCD boundaries, to be extended statewide.
- The boundaries don't seem to be maintained by the "source of truth" for each dataset. There doesn't seem to be a way for the actual stewards to deliver changes to MetroGIS. Basically they aren't accurate enough for all of our needs.
- aggregated census info would be a nice addition

Land Cover

- higher resolution
- Not high enough resolution.
- better detail
- We need a more detailed land cover land use map
- when will next update be?
- But are there any plans to update this or coordinate with the NWI update?
- Data is VERY Helpful but is incomplete and often outdated. Updates to this are needed as well as more user-friendly ways to display and simplify data (very simple is easy as well as very detailed, but in between is difficult).
- The MLCCS needs to be updated on a more frequent basis to be useful
- Needs to be updated! Would be nice to have this dataset available statewide! Also, could be better if the MMU was set to 0.5 acre, to match the NWI.
- I also need these statewide, although the USDA Cropland Data Layer comes close.
- Metro wide MLCCS desirable
- Not sure if the effort to collect the data is of sufficient regional value. Could limit to "high environmental value areas".
- invasive species, forest/veg inventory

Parcels

Access

- better access for nonprofits
- more available for private
- Difficult to get as a private company working for public clients - easier to obtain through gov agencies
- It does not meet our need if it is unavailable for use by our organization
- My understanding is that we have not had access to this information.
- Not accessible to non-profits
- but it is not available to the private sector
- Should be available for private use by local, metro-area businesses (i.e. those which have paid county taxes which largely pay for the development/maintenance of the source parcel datasets).
- The dataset should be made available to all organizations. Our need as a non-profit is not met by this solution.
- access issues for non-government entities
- to this point, getting access to the parcels is next to impossible, unless you're the U of M or part of a government agency
- Parcels not accessible to non-profits
- Parcels need to be a public dataset and not force to have an agreement in place with the data owners. Also, standards need to be created and followed by data maintainers to have a uniform standard dataset.

Attributes & Data Quality

- Linking to associated attribute data
- more attributes
- In addition to the line work, we need the attribute data (deed, market value, etc.) associated with the parcel and necessary to engage in R/W acquisition.
- We need more information about government -owned parcels and rights of way.
- More complete address information for multi-unit facilities.
- Multiple addresses for one parcel are not handled.
- More complete attribution & and better solution for multi-owner parcels (i.e., condos)
- In the parcel data set, information on how many dwelling units are on a parcel is very often missing or vague. This is especially the case in Hennepin county where there are many multi-unit parcels.
- Need to combine with building data to identify the number of housing units on a parcel
- Need to have more complete address information regarding more than one address on a parcel
- I need to know street addresses for apartment units and businesses in shopping centers. I would also like to have this information available for web applications through web services.
- Number of units in apartment buildings/condos Regional information on size of dwelling (SF, # of bedrooms)
- Addresses are not always assigned to "virtual locations" on streets where there is not a "real" address. The geocoder comes up empty in many cases. Street data needs multiple naming schemes.
- Data could be cleaner-geocoding produces erroneous results yet
- Would like to see addressing information match the finalized Federal Addressing standards
- These FC's do not have population fields
- none of this data is population based...you can have a bunch of residential parcels but you don't know if the buildings are empty or full. I would love to see a population density layer
- ParcelID= Taxable. We need a unique ID for all Polys, not just taxable polys
- The parcel dataset could be significantly improved if more attributes could be populated, if attribute values could be standardized across counties and if counties could provide more consistent documentations of changes from one quarter to the next (more complete and accurate metadata).
- As far as I know, boundary information in parcels is now good (thanks to extensive correction work done by some counties). There is still a number of issues with attribute consistency and attribute data quality that can make it challenging to use the data as a metro-wide dataset.
- The parcel data set has many errors -- particularly around land use (and especially in Hennepin County). There also needs to be a standard land use classification; presently it is a total mish-mash with some categories too elaborate and some too skimpy (eg. commercial use includes everything from small enterprises to regional shopping and office campuses and private golf courses and private schools)
- Would like to see more fields populated, particularly Built Square Footage & Number of Units. Also would like to see common solution of multi-owners properties (i.e., condos and mixed use ownership). Currently, counties handle these conditions differently. Also need a solution for

replating properties. Some counties deliver both old parcel alignment information with overlapping new replatted parcels (stacked, overlapped). Seems there could be a field that helps flag these situations or there could be a single land parcel with limited attribution to separate from unit ownership.

Spatial Accuracy & Coverage

- Parcels data set has issues with data quality, consistency between counties, and currentness. It is usable but could be much better.
- field locate and certify
- accuracy is suspect in some cases.....
- Field surveyed and certified parcel boundaries would meet our business needs.
- Because we need statewide coverage
- Also would be nice if it was statewide.
- Does not include State parcel identifier for highway right of way parcels.
- Overlapping parcels (stacked polygons) makes identifying parcels difficult with large address datasets (see # 5 above)

Timely Updates

- Not updated often enough.
- currency of the parcel dataset can be an issue for use at the municipal government level. To that end, many municipal governments simply acquire this dataset directly from their respective county.
- timely update and easy access for private sector

Planned Land Use

- Accessibility
- As noted, this should also be standardized
- Create voluntary data set if broad acceptance is obtained
- Current zoning/property restrictions would be a good addition.
- Existing landuse would be very beneficial
- It would be helpful to be able to compare planned land use change over time. Having a consistent standard at the city level would help this.
- Keeping it up is a challenge.

Socioeconomic characteristics of areas

- 2010 US Census
- will need update for 2010
- Integrate census data

- I'm not aware of what will be available for the 2010 census and the 5-year samples of ACS data. The latter will be very important.
- it seems this data is available elsewhere (ACS or US Census)
- Lack of currency - i.e., annual reporting of crime stats is ineffective in heading off problems.
- We could use neighborhood specific information
- Would like to see more identification of employment centers, shopping centers, residential neighborhoods.
- I would like to see this information in smaller information blocks, even as small as census blocks.
- This solution does not allow or provide for data distribution or analysis to the detail level required by our business.

Street Centerlines and Address Ranges

Access

- It does not meet our need if it is unavailable for use by our organization
- address ranges and street names need verification
- Make available at no charge to non-profits and community GIS users
- Did not know it existed

Attributes and Data Quality

- It needs to be fully routable with one way segments digitized in the direction of traffic. Address ranges need to be improved.
- More complete coverage of streets.
- Many uses for Street Centerlines. Positional Accuracy is not accurate, Many private streets not included, etc
- R/W width and nature of interest
- Right of way boundaries are also needed along with street centerlines
- Beyond centerline, there should be information as to the location of the R/W as well as the nature of the R/W interest (fee or easement).
- Centerlines are a great start, but adding in road edges would facilitate a great deal more complex analysis.
- Accidents, fatalities, road conditions, transportation enhancements, ADA, complete street etc.
- All modes of transportation need to be included in characteristics of roads -- where are bike lanes? Where are pedestrian crossings? Roads are not just for cars.
- I have not tried using these data sets for routing but I think they are sufficient.
- It can't participate in a network.
- Need field located and certified boundaries for highway right of way.
- Only if it is statewide.

- There is a lot of information in the county comprehensive plans that could be pulled together with information on state and federal roads. This should be sufficient for a regional scale data set. Community comprehensive plans can be used to get information for each community.

Timely Updates

- updates needed sooner than quarterly
- There needs to be a better mechanism for updating the centerline.
- The turnaround time for updates being redistributed is too long.
- easier faster updating cycle