

**MetroGIS Parcel Database Workgroup
(STITCH COMMITTEE)
Report to MetroGIS Coordinating Committee
December 16, 1999**

PURPOSE: Create prototype parcel database to gain better understanding of issues and actual effort required to merge parcel data from metro counties.

Two meetings were held at the Dakota County Western Service Center in Apple Valley on October 13 and December 13, 1999.

Attendees 10/13/99:

Carver County	Peter Henschel
Dakota County	Gary Stevenson
	Kent Tupper
	Randy Knippel
Hennepin County	Bill Brown
	Bob Moulder
Ramsey County	Curt Peterson
Scott County	Jim Hentges
	Renee Christenson
Washington County	David Brandt
	John Baer
Observer:	Don Elwood, City of Minneapolis

Attendees 12/13/99:

Carver County	Peter Henschel
Dakota County	Gary Stevenson
	Kent Tupper
	Randy Knippel
Ramsey County	Curt Peterson
	Brett Budrow
Scott County	Jim Hentges
Washington County	David Brandt

Purpose of the Stitch Workgroup:

At the September 23 meeting of the MetroGIS Coordinating Committee meeting, Dakota County agreed to supply staff and to head up a workgroup of Metro County GIS technical staff that will investigate a way to cost effectively develop a regional parcel dataset using county data to resolve data needs for government stakeholders. (Stitch It Together).

The Committee also concurred that it would be appropriate for the Charboneau's subcommittee that is looking into non-government participation in MetroGIS to work closely with the Metro County parcel workgroup as potential partners. MetroGIS staff suggested that both groups become acquainted with the subregional parcel data model prototyped by the North Metro I-35W Corridor Coalition as a means to make sure everyone has a similar understanding of the desired outcome.

Notes on 10/13/99 Meeting:

Anoka County representative, Jeremy Johnson, was not able to make the meeting, but has agreed to participate. The workgroup is to concentrate only on the technical aspects of putting together a metro region parcel database. Political and Policy issues are not a subject for this work group. The workgroup will not repeat work already done by others, such as the Parcel Boundary Workgroup of the MetroGIS Technical Advisory Team and the Parcel Data Committee of the Minnesota Governor's Council on Geographic Information.

GEOMETRY

- All Counties currently have parcel polygons with unique ID's (PIN or PID).
- Projections – What coordinate system to use? Consensus that we should use UTM – Zone 15 Meters (NAD83) - to be compatible with existing MetroGIS data sets, such as the TLG street center line database and the DOQ's. (North Metro I-35W Corridor Coalition used Ramsey County coordinates and transformed/adjusted Anoka County data to fit.)

- Accuracy, gaps, overlaps could be an issue, but importance will not be decided at this time. Project could be a benefit to all in helping identify possible problems and correcting databases in the future. Do we defer to the more accurate, if it becomes an issue? Education of users of limitations of data is important.
- Boundaries & Parcels – are they topologically clean? Could be a problem based on what system used. **All agreed to keep data exclusively polygons with PINs at this time.** Keep lines, etc. out.
- Feature Classifications? Polygon with PIN. The difference between naming features in each County of lines, points, annotation, etc. shouldn't be a problem when dealing only with polygons.
- PIN – unique, but not associated with all parcels, such as water, public right of ways.
- What is a parcel? Item addressed by other reports – Could ignore for the time being. Keep this initial task to the simple tax parcel.
- A single polygon & area for each PIN record – Does it matter?
- Need to agree on the definition of a polygon. Common ground. This could be a problem. Described by x,y coordinates? With different libraries area calculations, multiple polygons, multiple PINs could be a problem.
- Determine if separate processing is needed. Do we create something else? Applications could handle some of these problems.

ATTRIBUTES

- PIN number – do we need to add County FIPS code?
- Find common attributes & field names. Use Will Craig table. Need to agree on what they are. For time being limit the scope to common attribute and field names. Developing queries is an issue without common names. Normalize what we can without major effort. Need each county to identify what is available. Carver, Scott, and Washington all using same BRC system.
- Problems with matching data records to polygons – ex: taxes payable 1999, 2000. Currency will always be an issue between GIS database and attribute database. Keeping them in sync is just part of everyone's problem that we have to live with. Each county has various ways of dealing with PINs between databases and applications.
- How are PIN's defined in each County – length, type – use report by Governor's Council.

COMBINING DATA

- **All Counties now create ARCVIEW shape files.** New to Hennepin County, but they have just completed first conversion of files from Intergraph to ARCVIEW shape files. This is a major plus since no new procedures need to be created – already part of everyone's system. Minimal impact on County staff and resources.
- All Counties can project parcels to common coordinate system – UTM NAD83 Zone 15 Meters. This is **NABD** (not a big deal). Simple procedure that will not take much additional staff time.
- If fields are common, shapefiles could be merged together. Need to identify common fields to be extracted (Will Craig's Table).
- Do we add FIPS code? When?
- Can we agree on a common structure?
- Keep the burden on current staff and resources to a minimum. Develop common template.
- How often do we update?

PILOT PROJECT

- All counties will provide ARCVIEW shape files (parcel polygons) to Dakota County. . Attributes could either be in shape files or separate, what ever is easier for the County. Dakota County to document process at receiver end.
- Convert to UTM coordinate system first, if possible
- Forward CD's to Randy or Kent – each County to e-mail Randy to set up communication network.
- Product to be used only for demonstration purposes to MetroGIS. Must honor existing data license agreements and combined data will not be distributed.
- Use process to identify some problems, such as how multiple ownership is handled. Ignore some problems at this time, but process can be expanded in the future to benefit all in developing common applications and data structures. Is file size going to be an issue? Can updating be done with FTP?
- Report findings to MetroGIS Coordinating Committee at December 16 meeting.

Notes on 12/13/99 Meeting

Reviewed our strategy of the Counties providing ArcView shapefiles of parcel polygons with unique identifier. Carver, Dakota, Hennepin, Ramsey, Scott, and Washington have supplied data to date.

- Transformation of parcel polygons to UTM, Zone 15, meters worked well in ArcView. Parameters for the transformation are available from several sources on the Web. All data were transformed either by the county or using

supplied coordinate information. The Counties fit together very well with little or no gaps and overlaps. Shows the effort of each County in developing their databases using GPS control and Public Land Survey corners pays off.

- The use of ArcView shapefiles for Parcel polygons works well as a standard and has good documentation. To simplify this Pilot project, parcel polygons were summarized by PIN for lowest common denominator and parcels without PINs were removed. We did not deal with items such as right of way and water at this time. Parcels were merged on PIN to form single polygon for each PIN. The six shapefiles were combined into single shapefile and indexed on the PIN and shape (Approximately 744,000 records). The single shape file is an option, but is not needed, as applications could use the individual files. Advantages of either process would have to be further studied. Areas and distances in UTM will not reflect normal use of acreage and feet, but can be dealt with in applications.
- Property attributes were received in dBase or ASCII flat files. Normalized attribute tables using data matrix previously developed by MetroGIS Parcel Subcommittee was developed using MS Access query functions. For the purpose of the Pilot Project attributes were reduced to PIN, FIPS code, Owner, Address, and Values. The 3-digit FIPS code for each county was added. For the initial demonstration, attributes from Carver, Dakota, and Washington Counties were used. This was not a sophisticated process and could definitely be improved on. Probably can be done directly in ArcView.
- The combined shapefile is 388 MB and the total effort took approximately 20 hrs.
- Data Performance Testing was done using ArcView (GIS analysis). ArcExplorer, free from ESRI, and Web-based applications using Internet Standard Applications from ESRI were also reviewed, but with only minimal effort (2 hrs.). The advantage of using standard Web-based applications is that there is no development cost.

Conclusion:

The Stitch Committee is in agreement that the Pilot Project has definitely demonstrated that a Regional Parcel Database can be accomplished with little effort and expense. A Possible Scenario is that MetroGIS maintains an FTP site where the server runs automated procedures to combine, verify, and install data for applications. Counties run automated pre-processing procedures to prepare data, transform to UTM, and upload to the MetroGIS server. **It is extremely important that no modifications to parcel geometry be made at the server level! Each county remains responsible for its data. Updates would be done based on individual Counties business needs for its own users.** Date stamping of files and metadata would handle differences in timing.

Continuing Effort of Workgroup

We agreed to complete integration of attributes in the combined parcel shapefile of the data from Hennepin, Ramsey, and Scott Counties and assemble a CD for distribution to the members of the workgroup for demonstration purposes (ensuring compliance with all license agreements). We feel the goal of the Stitch Committee has been met and need direction from the MetroGIS Coordinating Committee if we are to continue.

Recommendations to MetroGIS Coordinating Committee:

1. Develop normalized attribute data based on MetroGIS data matrix and refine attributes (start small and build on experiences)
2. Cooperatively develop procedures for data integration and applications to pre-process parcel and attribute data and coordinate with post-processing procedures
3. Assist in developing post-processing procedures and prototype applications on server
4. Investigate the use of a web site and web applications
5. Develop iterative process to deal with issues such as gaps, overlaps, multiple PINs per parcel, multiple polygons per parcel, water, right of ways, etc.
6. Work cooperatively to resolve problems and issues