HIGHLIGHTS

GIS 101: No Map Is Too Simple

Department Spotlight: Floodplain Management and GIS

Desktop GIS: Creating Mailing Labels using Dakota County Parcel Query

Tech Talk: Data Beyond County Boundaries

MEETINGS & EVENTS

January 28, 2004
Dakota County GIS Users Group Meeting. Dakota County Western Service Center, Conference Room L139 from 1:00 p.m. to 3:00 p.m. View the complete agenda at **http://dakotanet/gis/events/gisusers.htm**. RSVP to **Todd.Lusk@co.dakota.mn.us**

CONTACTS

If you would like to write an article for the Spotlight section of the GIS News newsletter and share how you use GIS in your department, call or email Randy or Joe.

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GIS 101

No Map Is Too Simple
### By Randy Knippel, Office of GIS

Few would argue that the old adage "a picture is worth a thousand words" applies to maps. Maps can be used to add meaning, and are especially useful for describing location. GIS technology continues to make map production easier and more efficient. As a result, it has become cost-effective to incorporate even the most basic maps into your business documents.

You may have a clear understanding of a particular location or area of interest and its surroundings, but conveying that through a description can be time consuming and awkward. It is difficult to anticipate all the questions the reader may ask to clarify the location details; however, most people are very comfortable using a map to answer those questions. Even simple maps show many details that would be difficult to describe. At a glance, someone can identify the location and understand where it is, how it is related to its surroundings, and what other things are in the vicinity.

The Office of GIS has produced general-purpose maps and can make other maps on request with the flexibility to adjust to your needs and time constraints. We have also created standard map 'templates' that allow us to create commonly used maps very quickly and easily and provide them in the form of a printed map, a PDF file, or an image. Maps like these are useful for reports, grant proposals, Recommended Board Action (RBA's), and websites.

The Office of GIS has published some commonly requested general-purpose maps in the map gallery on both the County website and the internal website, DakotaNet. Two such maps include a map of Minnesota showing Dakota County and a map of Dakota County showing cities and major roads.
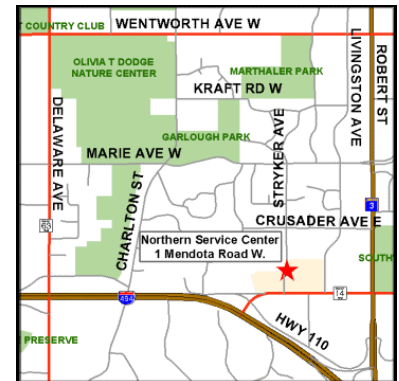
Northern Service Center

We have also created maps for the county website showing the locations of all county facilities. These can be easily copied and pasted into other documents, presentations, and email. These maps follow a consistent format and color scheme.

There are also several census maps in the map gallery. These are useful in resource planning and grant applications. Basic maps using census data can help us to understand and emphasize the demographic characteristics of the community.
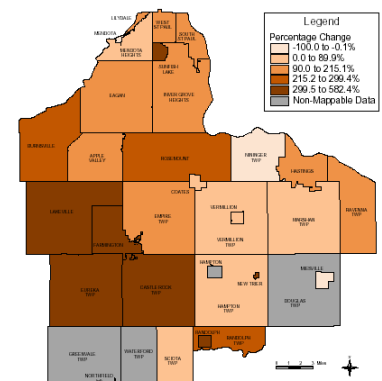
Percent change in Hispanic/Latino Population

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RBA maps can show anything from client locations to the proposed development of a CDA property. All RBA maps should follow the same general format, insuring a consistent message about locations within the County. Contact us for help with RBA maps.
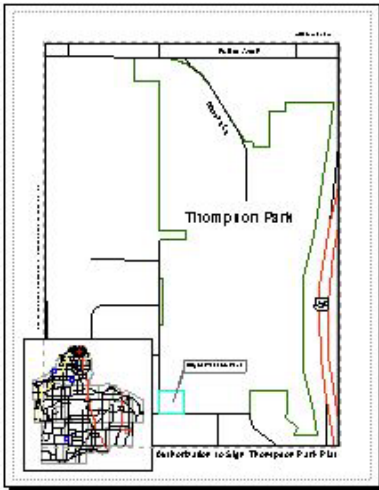
RBA Map

GIS is a powerful technology for analysis and mapping; however, it can also be applied efficiently to simple situations to improve the message conveyed. By making general-purpose maps easily available and creating templates for commonly requested maps, the Office of GIS has made applying basic maps to a variety of situations very cost-effective. Contact us today to get more information. 🌐

Department Spotlight

Floodplain Management and GIS by Tom Berry, Office of Planning

Several years ago the Federal Government launched a bold initiative to update and modernize the National Flood Insurance Program. The initiative is to remap the nation's floodplain areas to update aging and outdated flood insurance rate maps that communities use when assessing development near flood prone areas, and to provide improved hazard identification and risk management in

areas already developed.

Some of Dakota County's flood insurance studies are over 20 years old. Cities have sprung from farmland and large areas of open land have been paved over since these studies were completed. The existing flood insurance studies no longer provide a level of adequate assurance against future flood conditions from when they were originally delineated.

At the invitation of the Federal Government, Dakota County entered into partnership with the Federal Emergency Management Agency (FEMA) and the Minnesota Department of Natural Resources (DNR) to modernize the County's floodplain maps and accompanying flood profile and insurance studies. This partnership is known as a Cooperating Technical Partnership (CTP). The CTP recognizes the fundamental importance of flood hazard identification in the successful reduction of future flood losses and the combined commitment needed at the federal, state and local level to the effort.

The entire CTP process developed by FEMA is very systematic and automated. FEMA has developed a comprehensive, step-by-step floodplain mapping modernization process. Template agreements, mapping tasks and work obligations are used to streamline the administrative burden associated with updating floodplain studies. Surveying, engineering, and mapping protocols created by FEMA are in place from the onset, thereby minimizing confusion or delays between CTP partners as elements of the project progress to deliverable products.

FEMA's model for map modernization is countywide, multi-jurisdictional flood insurance rate maps. Gone will be the paper flood insurance rate maps (FIRMs) that communities have been familiar with for decades. The new maps will be GIS-based digital maps

that can be accessed through the internet by the public in a simple-to-use format called digital flood insurance rate maps (DFIRMS). Tentatively, the DFIRMs will be created in an ArcMap environment with additional internet-based ArcIMS applications to be used by the public. The new maps and accompanying studies will provide communities with more accurate floodplain delineations in a format that will improve efficiency for staff and customer service to residents, builders, insurance companies and lenders.

The CTP process is a collaborative effort where Dakota County, DNR and FEMA each contribute data and units of work to maximize the extent, accuracy, and usability of the products to best meet the needs of all communities. The entire countywide floodplain modernization will be paid for through federal funds and in-kind matches from the DNR and Dakota County. No funds will be required at the local level, however local cooperation is key to the success of the map modernization project.
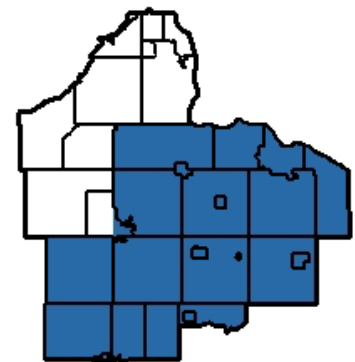
Area to be covered by LiDAR

The project is expected to take two full calendar years to complete. It will use Light Distancing And Ranging (LiDAR), which is an aerial-based surveying technology that utilizes millions of eye-safe laser pulses to create detailed topographic data sets of the earth's surface. Over 70 percent of the County will be flown with this

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technology in the spring of 2004. From the LiDAR data gathered, a digital terrain model (DTM) will be created that will result in a 2-foot contour map throughout the southeastern portion of Dakota County. This information will be combined with existing contour data from participating communities.

When the DTM is completed, the County will contract with an engineering firm to conduct hydrologic and hydraulic modeling to redelineate the floodplain boundaries. This information will be then incorporated into GIS mapping templates created by FEMA to meet their precise FIRM mapping specifications.

Once the maps are finished there is an exhaustive review process at the federal level of the engineering and mapping projects, along with a public comment and appeal period. The complete project will include time commitments and the sharing of information from the Dakota County Offices of GIS and Survey, the DNR, FEMA and yet to be specified outside vendors and review agencies under FEMA's direction.

The Dakota County Office of Planning is managing the project. Affected cities under the countywide product will administer the floodplain within their respective boundaries. The resulting project will produce accurate, state-of-the-art floodplain mapping products that will help communities to more efficiently and effectively administer their required floodplain ordinances. 🌐

Desktop GIS

Creating Mailing Labels Using Dakota County Parcel Query
by Kent Tupper, Office of GIS

"Dakota County Parcel Query" is a custom Microsoft Visual Basic

application using ESRI's MapObjects ActiveX components developed by the County in 1996. It was created to view GIS basemap data, perform simple lookups and display selected County Tax Parcel information. Since that time many enhancements have been added. Today there are more than 300 installs of this application in various County departments and local City offices within Dakota County.

One enhancement added to Parcel Query is the generation of mailing labels. Presently there are two options available.

Available mailing list options.

The first generates labels from Tax Parcel owner information (owner name and owner address) that fall within a specified distance of the boundaries of a selected Tax Parcel. The user simply selects the parcel of interest, enters the buffer distance in feet and all Tax Parcels that fall within that distance are selected.
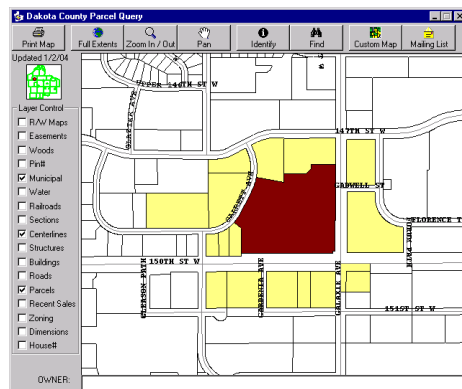

Selecting parcels by buffering.

A list of Avery 5160 formatted mailing labels then appears. They can then be sent to a printer 🖨 or stored in various electronic formats (i.e. comma separated text, Microsoft Word documents, etc.) by pressing the "Export" button 📤. This gives the

user the ability to import the mailing labels into other software, Microsoft Access for example, and reformat the labels to the style of your own choosing. A site map of the affected area can also be printed out.

Avery 5160 formatted mailing labels.

The second mailing list option allows the user to interactively select Tax Parcels by clicking on them one by one or dragging a selection box on the map view. Once the user has selected all the desired Tax Parcels, mailing labels can then be generated from that selection set.
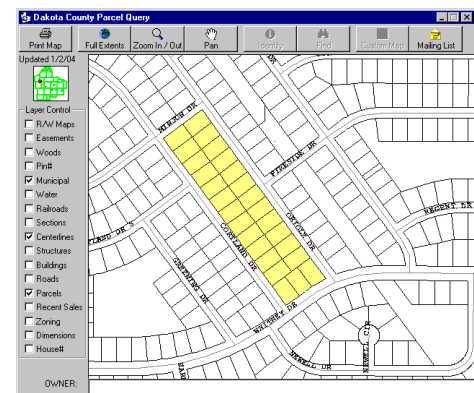
Create mailing labels by interactive parcel selection.

A previously undocumented feature of Parcel Query is that the mailing label option creates a Microsoft Access database named "Pqmaillist.mdb" located under C:\Program Files\dakquery. This database contains a single table named "maillist" containing the contents of the last mailing list results. Each time the Mailing Label option is run it

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overwrites the contents of the previous list. As mentioned above the user can take this information into other mailing label software and format to whatever style you prefer. One additional column in the "maillist" table that is not part of the Avery Label format is Tax Pin Number. This gives the user with skills in database manipulation the ability to take information from a mailing list selection and relate it to additional information containing Tax Pin as an attribute.

Microsoft Access database of selected parcels.

For additional information on the "Dakota County Parcel Query" application you can contact Kent Tupper kent.tupper@co.dakota.mn.us, Dakota County Office of GIS.

Tech Talk

Data Beyond County Boundaries
by Mary Hagerman, Office of GIS

There is a tendency to concern ourselves only with that which lies within our sphere of interest. County GIS staff are no exception to this notion. We collect, compile, and distribute scores of data – countywide data. Rarely do we work with data for areas that reach beyond the county boundaries. There are a variety of reasons, however, why you might need data that extends beyond the county boundaries.

Regional data is useful for seeing the big picture. You may want to know how Dakota County fits into the metro

area, or the state. There may be trends that appear at a regional level that are not evident at the county level. Likewise, data outside the county is sometimes necessary for comparison purposes. You may need to know how Dakota County measures up to other counties. Is the county ahead of the game, middle of the pack, or lagging behind? Additionally, if your study area, or area of interest, is near the county boundary, it may be useful to examine data for the neighboring county as well. In fact, limiting your study to just the area within county boundaries may cause you to overlook something. All of these situations call for data that is normally outside of our sphere of interest.

In recent months, the Office of GIS has released three new extensions for ArcMap that provide access to metro and statewide datasets. These new extensions include parcel and centerline data for the metro counties and MNDOT BaseMap data for the entire state. All datasets are in county coordinates, and are easily accessible through the extensions dialog in ArcMap.

The Metro-wide Parcels extension contains parcel data for six metro counties (including Dakota). Each of the Metro Area counties has entered into a multiparty agreement with the Metropolitan Council to assemble and distribute the parcel data for each county as a regional parcel dataset. (Hennepin County has declined to use the standard data license agreement, so their data are currently unavailable.) A standard set of attribute fields, agreed upon by the counties through MetroGIS, is included as well.

Street centerlines are available from MNDOT on a county-by-county basis. The MNDOT Centerlines extension contains street centerline themes for the seven metro counties. Attributes include street name, type, and direction, as well as functional class code.

The MNDOT BaseMap extension contains statewide planning-level data developed at a scale of 1:24,000. The dataset includes information about transportation features (roads, railroads and navigable waters), as well as boundary information (state, county, and municipal boundaries, MNDOT district boundaries, townships, state forests and parks, military reservations, Indian reservation lands, national forests and parks), and stream and lake locations.
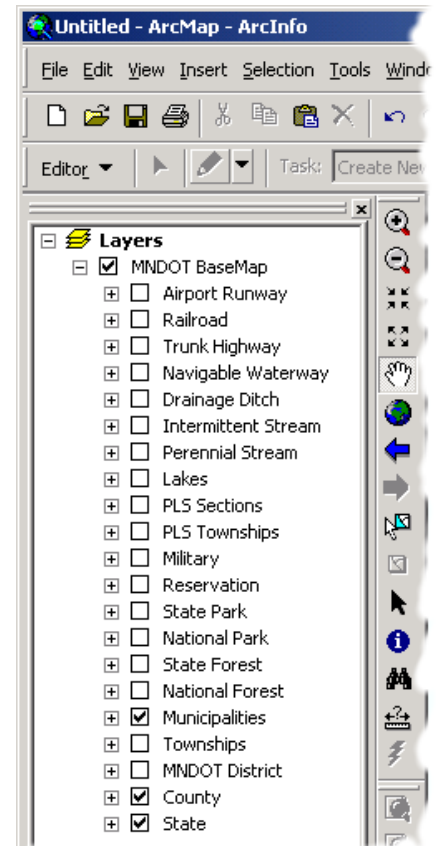
Available Layers in MNDOT Basemap

You can access the Metro-wide Parcels, MNDOT Centerlines, and MNDOT BaseMap extensions through the Dakota County Extensions dialog in ArcMap (choose 'Dakota County Extensions' under the 'File' menu).

For additional help, contact any GIS Specialist.