Spring 2007 - Desktop GIS: Microsoft Live Local

By Joe Sapletal, GISP

Microsoft relaunched and rebranded its mapping site Virtual Earth as Microsoft Live *Local* last year, bringing all of its web applications under the "Live" brand. *Local* is a mapping and search site that rivals Google Earth and Google Maps in some aspects, allowing users to find just about any location they search for and get directions to get there.

You may be asking yourself, what is the connection between a Dakota County GIS User and Microsoft Live *Local*? The answer is that the very same Pictometry oblique images that we use here at the county are also available in Live *Local*. Yes, not only can our citizens access the bird's eye view of their point of interest through the Real Estate Inquiry while viewing property information on our website, they can access them on the Live *Local* site as well.

Now you might be asking yourself, why can't I just access them there instead of through the desktop software provided by Pictometry? There is nothing stopping you from doing that. Many organizations and businesses have incorporated *Local* into their websites. For example, Weather.com, Target.com and MyParksandRecreation.com, which serves the Puget Sound region in Washington state, all use the imagery from *Local*.

Lebanon Hills Visitor Center

I know what you are thinking now - why did we buy the Pictometry images in the first place, if they are available through *Local*? First of all, if we didn't buy them originally, they might not be in *Local* and our citizens wouldn't benefit from them in that manner. Second, the Electronic Field Study software provides a wealth of functionality options that are not available through *Local*. Think of all of the things we do with the imagery and the software that in turn save the taxpayers money by reducing site visits for the various projects we work on, or by having the images available to view, print or clip for our reports or presentations. Our citizens, in a way, get double the benefits. We use the imagery to make certain job tasks more efficient or safer and they get better information at their fingertips.

Think back to when you gave directions to a citizen to get to your location or a certain facility a few years ago. You had to give detailed instructions, turn right here, turn left there, third driveway down on the left is the parking

lot. Then they still drove around the block 3 times. Now, you can send them directions and a photo of the facility; they can check out the amenities ahead of time on their own. Having Pictometry imagery available internally and externally is a tremendous benefit to employees and citizens.

Spring 2007 - Tech Talk: Selecting in DakotaNet GIS 2007 FAQ
By Mary Hagerman

DakotaNet GIS 2007 boasts a host of new capabilities, including the ability to query and select data. This list of common questions and answers has been assembled to help you understand and perform tasks related to selecting in DakotaNet GIS 2007.

What is selecting and why would I want to do it?
Selecting in a GIS refers to the process of identifying a subset of the features in a layer based on some user-specified criteria. Features can be selected based on location or attribute information. You can even select features based on their proximity to other features. Once you have selected a subset of features, you can zoom to those features on the map, open a table of attributes for those features, or, if the selected features are parcels, create mailing labels.

How do I select features?
There are three ways to select features in DakotaNet GIS 2007. You can select a single feature by clicking on it using the *Select Features (* 🖱️ *)* tool, which is found on the standard toolbar. The other two options for selecting features are found under the **Selection** menu: *Select By Graphics* and *Select By Attributes*. *Select By Graphics* allows you to select features based on their location by drawing a polygon on the map. All the features that intersect the polygon are selected. *Select By Attributes* allows you to select features based on information about the feature. For instance, you could choose to select parcels that are greater than 40 acres in area.

How do I clear the selected features?
You can clear selected features with the *Clear Selected Features (* ▣ *)* tool found on the *Select By Attributes* and *Select By Graphics* dialogs and under the **Selection** menu.

Can I select features within a specified area?
Yes, by choosing *Select By Graphics* under the **Selection** menu. The *Select By Polygon* (▱) tool on the *Select By Graphics* dialog allows you to select features by drawing a polygon on the map. To draw a polygon, click multiple times on the map to create each corner of the polygon, then double-click for the last corner to finish the polygon. Features that are within or intersect the polygon will be selected. The number of features selected will be updated to reflect the new selection, and the *Zoom To Selected Features* and *Open Attribute Table* tools will be enabled. If the selected features are parcels, *Create Mailing Labels* will also be enabled.

Parcel Search | **Layers** | **My Maps** | **Legend**

Select By Graphics

Selectable Layer:

City Parks ▼

☑ **Add a buffer to selection**

Buffer distance: 300 Feet

Results Layer:

TaxParcels ▼

Refresh Map

72 Features selected

Can I select features that are within a certain distance of selected features?

Yes. When you select features based on location using *Select By Graphics* or the *Select Features* tool, you have the option to add a buffer to your selection. A buffer polygon is created around the selected features using the buffer distance you specify. Features that fall inside of the buffer polygon are selected. The Results Layer indicates which layer the features selected by buffering will be from. To select features from a different layer than that used to create the buffer, simply choose a different layer from the Results Layer dropdown.

Can I zoom in to the features that I have selected?

Yes. You can zoom in to selected features with the *Zoom To Selected Features* (⊕) tool found on the *Select By Attributes* and *Select By Graphics* dialogs and under the **Selection** menu.

How do I select features based on attribute information?

Use *Select By Attributes* under the **Selection** menu. In the *Select By Attributes* dialog, choose the layer from which you wish to select features (Step 1). Step 2 defines the selection criteria. Choose a field and an operator and enter a value. 'Value' is the desired value for the specified 'Field' of the features you wish to select. The 'Operator' defines the relationship between the field and the value. Operators include equals/does not equal (=, <>); greater than/less than (>, >=, <, <=); 'Like'; 'Between'; and 'In'. 'Like' uses wildcards to search for patterns within text fields. 'Between' searches for values that fall within a range. 'In' searches for exact matches from a list separated by commas.

Step 3 allows you to do a custom query by specifying additional criteria. Click 'And' or 'Or', then repeat Step 2 to define another criterion. If you chose 'And', all criteria must be met for a feature to be selected. If you chose 'Or', only one must be met. Finally, review your query and click Apply to execute it (Step 4).

The query may look a bit cryptic. That is because the raw field names are being used and special characters such as wildcards have been added where necessary. Once the query has executed, the number of features selected is updated to reflect the new selection, and the *Zoom To Selected Features* and *Open Attribute Table* tools are enabled. If the selected features are parcels, *Create Mailing Labels* will also be enabled.

What if I want to see the attribute data for the selected features?

Once you have selected a subset of features, the *Open Attribute Table* (▦) tool will become enabled. To view attribute data for selected features, click the *Open Attribute Table* tool on the *Select By Attributes* or *Select By Graphics* dialogs or under the **Selection** menu. A new window will open displaying the data. You can sort the data by any column by clicking the column name. Also, you can zoom to a feature by clicking the link for that feature's record in the table.

How do I create mailing labels?

Creating mailing labels is easy. Once you have selected the parcels for which you wish to create labels, simply click the *Create Mailing Labels* ( ) tool on the *Select By Attributes* or *Select By Graphics* dialogs or under the **Tools** menu. You can specify whether to create Avery 5160 or 5161 formatted labels. The default is 5160. To select a format, choose from the dropdown on either the *Select By Attributes* or *Select By Graphics* dialogs. A new window will open with your labels ready for printing.

Why can't I create mailing labels from the results of a Parcel Search?

A Parcel Search highlights the resultant parcel, but it does not actually select it. You need to have at least one selected parcel in order to create mailing labels. Use *Select By Attributes*, *Select By Graphics*, or the *Select Features* tool to select parcels for creating mailing labels.

Where can I find more help on selecting in DakotaNet GIS?

You can find help on selecting, creating mailing labels, and a number of other functions in the *Map Toolbar Help*
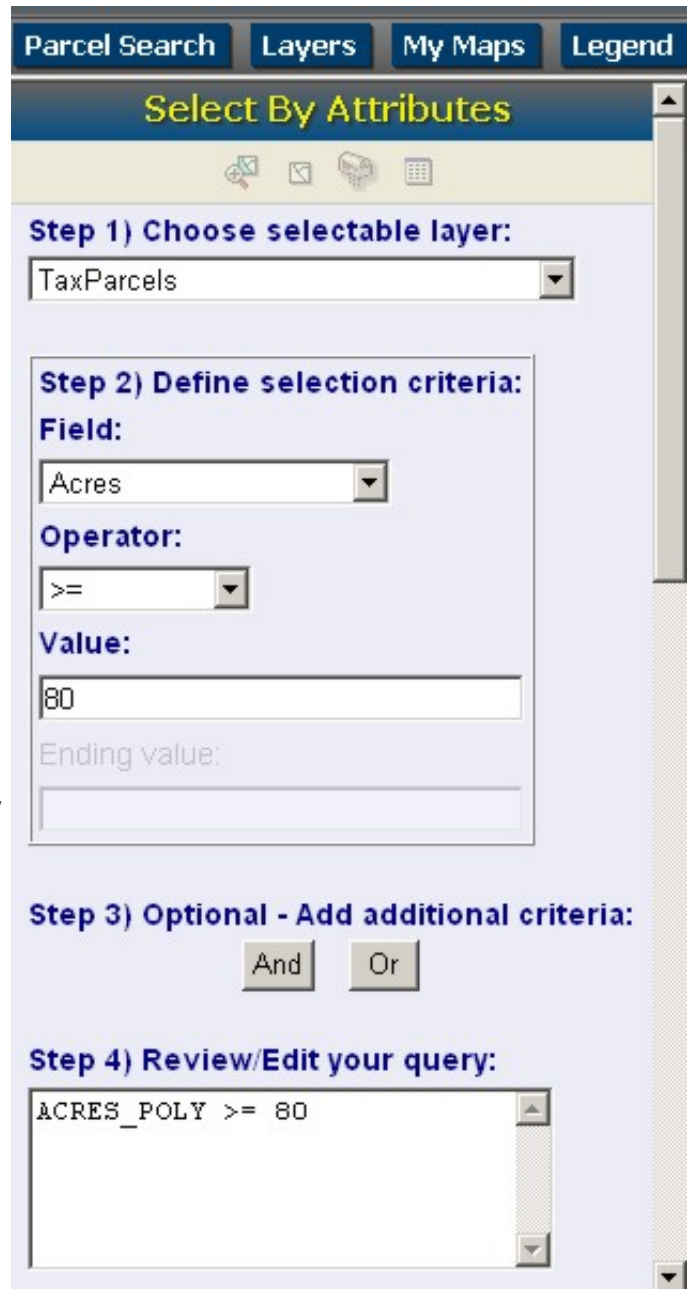
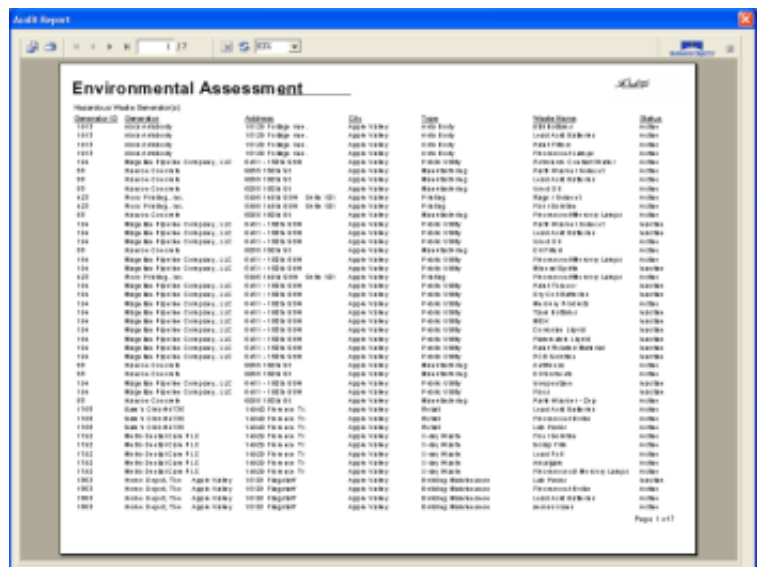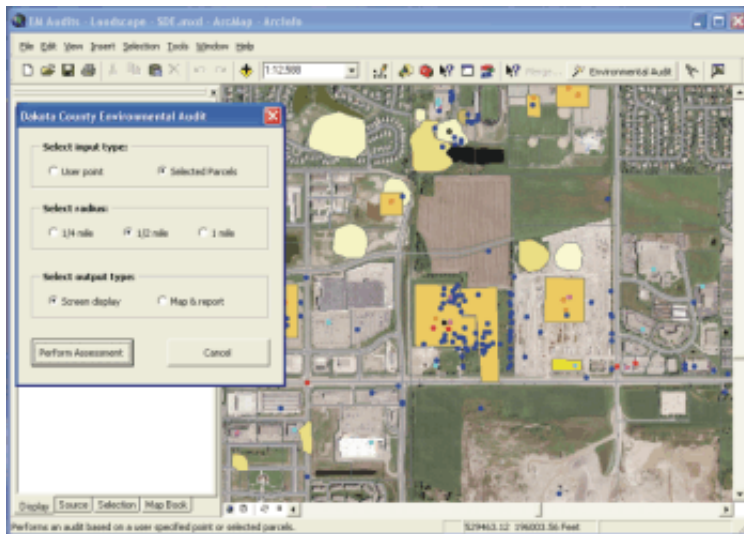under the **Help** menu. There are also video demos for many tools.

www.dakotacounty.us

Spring 2007 - Department Spotlight: Contaminated Sites Unit GIS
by Cathy Undem, Dakota County Water Resources Office, Contaminated Sites Unit

The Dakota County Water Resources Office's Contaminated Sites Unit (CSU) has collaborated with the Office of GIS to create an internal mapping application for conducting environmental audits and reviews that takes a fraction of the time but generates a more useful product than the previous approach. The CSU completes an Environmental Audit for an external customer (such as an environmental consultant or property owner) who requests environmentally related data on a particular property or site. The CSU completes an Environmental Review for an internal customer (such as the Office of Planning, Parks, FNAP or Transportation) who requests environmental data on a particular property or site. The information included in the audits and reviews can vary depending on the request, but in general it includes any available information on waste sites, wells, hazardous waste generators, Minnesota Pollution Control Agency site listings, wetlands, pipelines and transmission lines.

The data needed to complete these reviews was available through an internal DakotaNet application; however, the

format, report making and map producing ability were incompatible with the needed results. The CSU asked GIS if an application could be designed to meet the needs of an audit or review. GIS met the challenge and designed the application based on ArcGis 9.1 allowing flexibility and efficiency in completing the audits and reviews. The audit application allows CSU to compete an audit in much less time than it previously took and the end product is a consistent and professionally formatted report and map.

Environmental Audit

At this time, this internal application is not available for external use; however, GIS and CSU may use it to develop an accessible and user-friendly application for the general public.

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Spring 2007 - GIS 101: What's In My Neighborhood?
by Randy Knippel

An enhancement was recently added to the Real Estate Inquiry application on the County website called "What's In My Neighborhood?", which uses fundamental GIS concepts to produce a list of places of interest that are in the vicinity of an address or selected parcel. GIS provides the ability to see how things are related by their locations. Locations can be selected based on where they are in relation to other locations. In this way, County Commissioner districts, school districts, and municipalities can be identified for locations that fall within them. It's a bit trickier to find things that are near or closest to other things, although the same concepts apply.

If we want to know our closest library, we can measure the distance from each library to our house and pick the one with the shortest distance. However, doing this for every house in the county to every library, county park, city park, service center, and license center is time consuming and not very efficient.
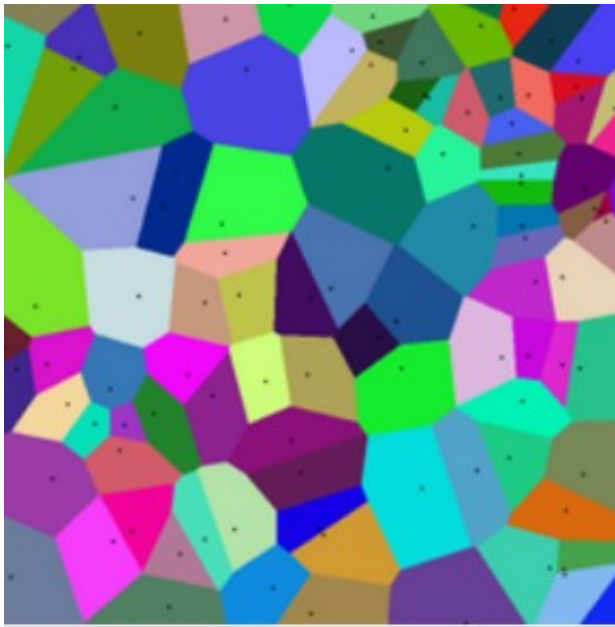

Figure 1 - Thiessen polygons representing areas in which all locations are closest to each point.

A more efficient way of determining proximity is with "Thiessen polygons", also known as "Voronoi tessellations". A Thiessen polygon for a library represents an area in which any location it contains is closest to that library. Therefore, a Thiessen polygon layer for all libraries in the county represents a set of areas containing points that are nearest to each library (Figure 1). Given an address, we can select the area it falls in to determine the closest library. This kind of query can be performed very efficiently and doesn't require any complex calculations.

The "What's In My Neighborhood" function can be found in the Real Estate Inquiry on the County website. Select a parcel by searching for a house number or by zooming in to an area and clicking on a parcel with the Identify tool. This will show basic information about the selected parcel and a list of buttons that provide more information, including the new "Neighborhood" button. It will soon also be available directly on the main page of the County website.

More information about Voronio tessellations may be found on Wikipedia at http://en.wikipedia.org/wiki/Voronoi.