



FROM THE EDITOR:

We should all know by now that like it or not Geographic Information Systems (GIS) is our profession's technological future, and that we are at the foothills of that future. We've all seen the demonstrations, read the articles, attended the workshops, then scratched our heads and cursed a little. It all looks so useful when the experts show us how simple using GIS can be, but then it so often comes to naught when we try to apply those techniques to our work.

The problem with GIS isn't what it can do for us, the problem is getting GIS to actually do those things. The dominant software product, ESRI's ArcGIS, is immensely complex, and unlike usual trends in software development with each new iteration ArcGIS becomes more robust but not any friendlier.

I was publishing computer magazines in the 1980's, when personal computers were the new thing. Early generation word processors were also complex tech stuff. To underline a word you had to enter a start command code followed by the command itself, which was followed by an end command code. To write "Kerry's a great assessor," you'd have to write, "Kerry's a <<BEGINCMD>>
<<F1>>great<<F1>><<ENDCMD>>
assessor. Although the sentiment expressed is clearly worth the hassle, it requires

learning commands and an awful lot of typing just to underline a single word.

The computer market got competitive very quickly. New word processors combined new features with easier use. Commands began to make more sense. Rather than F1 the command for underline became U, italic became I. Each new version of a word processor furthered this feature rich/ease-of-use progression. Programs slow to embrace user friendliness failed, even those that were once dominant in the market. Remember WordStar and WordPerfect? They were the Microsoft Word of their day. Simple to use, robustly-featured Word soon entered the market and blew them away.

ESRI will either get smart about ease-of-use or they will become marginalized. We're already seeing the next generation of products emerge. Although still dependent on ArcGIS as the engine to work the data, products such as MapGeo, Blue Marble and CAI aim to make *using* the maps easier. AppGeo's Kathy Miller presented her company's product, MapGeo at our February meeting.

These second generation GIS products excel at displaying various types of maps and data. Although extremely easy to use they do not offer the ability to analyze GIS data. For that



you still need ArcGIS. For many of us that capability remains untapped due to the complexity of learning to edit data and use the program.

This issue's feature article is by Mt. Desert assessor and Maine Chapter executive board member, Kyle Avila. Kyle's comfort level in working with this complex technology is impressive (and humbling). The goal of Kyle's article is to bring the analytical capability of GIS within reach for the rest of us.

In Making GIS Work for You, Kyle explains how he uses the graphical nature of GIS to simplify analysis for his work and to illustrate for residents the fairness of their assessment. For those of us who need a little more how-to instruction to get GIS to work for us, Kyle also wrote a side-piece, *How to "Join" an Excel file to a GIS Layer*. I followed Kyle's instructions (had to call him just once) and now have GIS working for me! Give it a try, it is eye opening.



We hope you enjoy this spring issue of CMA and that we'll see you at the Spring Meadows Golf Club for our Spring Meeting in Gray on May 10!

Making GIS Work for You

By Kyle Avila, CMA

I use GIS daily – for explaining valuations to taxpayers in a visual way, for reviewing assessments in ratio studies – as well as providing GIS support to my co-workers in the Town Office. I’m running Vision v6.5 as my assessing software, and ArcView desktop v10.1 to visualize and analyze. ArcView allows for spatial analysis (how one feature relates to another in space) and has many options for displaying and symbolizing data. No matter what CAMA software you use, if can export data to an Excel file you can perform the analysis described in this article.

Every month or two, after I update new property transfers in Vision, I create a custom report and export the ownership database to an Excel file. This export file from Vision has Map/Lot ID, ownership (name & addresses), zoning, and most of the other property characteristics (acreage, use type, neighborhood code, site index, land value, building value, etc.) for each parcel.

The key to displaying this data visually in my GIS is having the Map/Lot field in the Excel file, since this is the field used to “join” the Excel file to the parcels GIS layer, which also has a Map/Lot attribute.

Once I’ve joined the Excel file to my parcel layer, I can display the parcels by whatever field I want to look at. If I want to visualize land values, I create a copy the parcel layer (that already has my ownership Excel file joined), and edit the properties (double-clicking on a layer opens the properties for that layer) to

display the parcels: on the Symbology tab, by Quantities, graduated colors, by land value (see Fig. 1.).

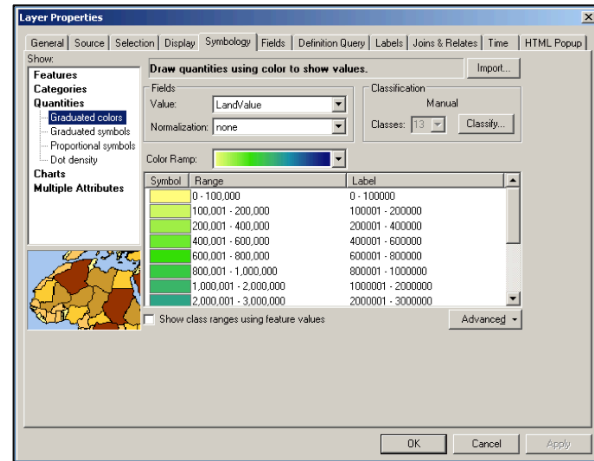


Figure 1: Layer Properties, Symbology Tab

I group ranges of land values by clicking on the value showing under “Range” and keying in what range I want, such as 0-\$100,000, \$100,001-\$200,000, etc.

Now I can look at all the parcels, shaded by the range of land value that it falls into (See Fig. 2.) I also turn on the labels to show the individual parcel land values (labels can be customized on the “Labels” tab under the Layer Properties).



Figure 2. Parcels by Land Value

I can repeat this process to visualize any characteristics of the parcels that are in my Excel file that I've joined to my parcels. When using Vision to assess land, base rates begin with assigning neighborhood codes. Here are the parcels displayed by NBHD code:



Figure 3. Parcels by NBHD code

So, when a taxpayer comes in and asks for a review, this is the first thing I do to look for consistency. Is their land value comparable to their neighbors? Does anything jump out as being inconsistent? Is the NBHD code different?

If not, then I look at sales in the area. I've created a copy of my parcels (already joined to my Excel file) and display it with sales information. This is a little bit trickier, as now I have to edit the properties with a "definition query", which is another tab on the Layer Properties.

In my Vision export Excel file, I have fields for sale date, whether the sale is arm's length, and of course, sale price. In my definition query (which is another tab in the Layer Properties), I set up ArcView to display just those parcels that are qualified sales. I also edit the symbology as "Categories with unique values" based on the year the sale took place. By

doing this, I can make all parcels that sold in 2012 one color, 2011, another color, and so on (Fig. 4).

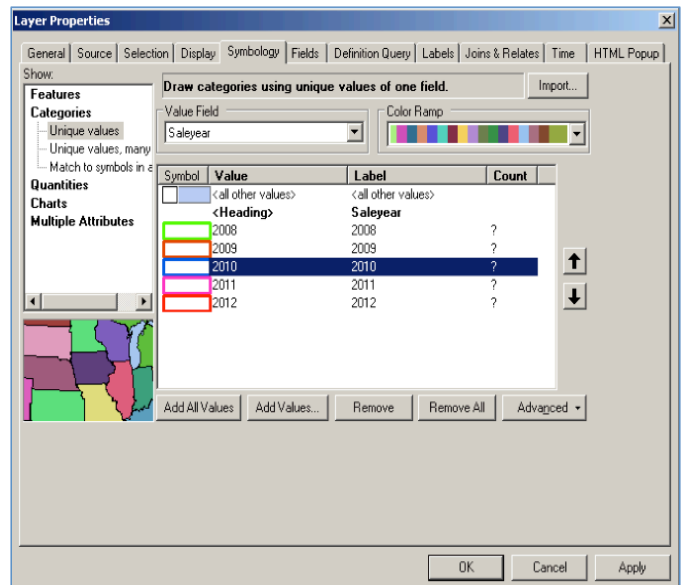


Figure 4. Layer Properties for Sale Year

With a quick glance, I can point to recent sales in the area that justify the assessment (hopefully).

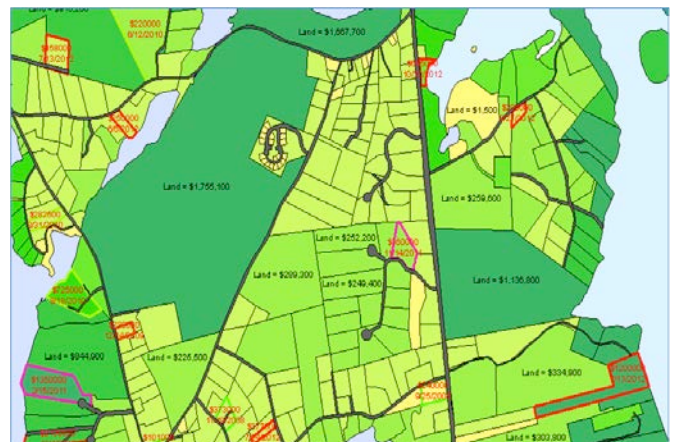


Figure 5. Parcels by Land Value and Sold Properties by Sale Year

When it comes time to do my sales analysis, I can display the properties that sold, symbolized by their ratio, to look for clusters of sales that are out of whack with assessed values, and thereby indicating possible adjustments to whole neighborhoods (Fig. 6 & 7):

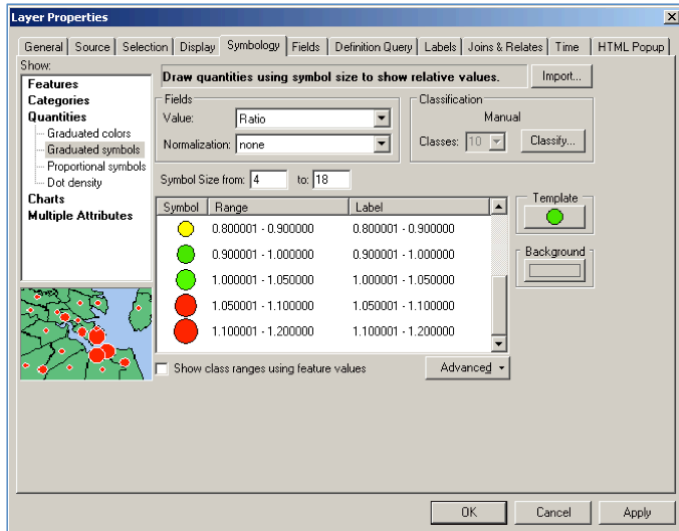


Figure 6. Ratios Symbolized with Graduated Symbols

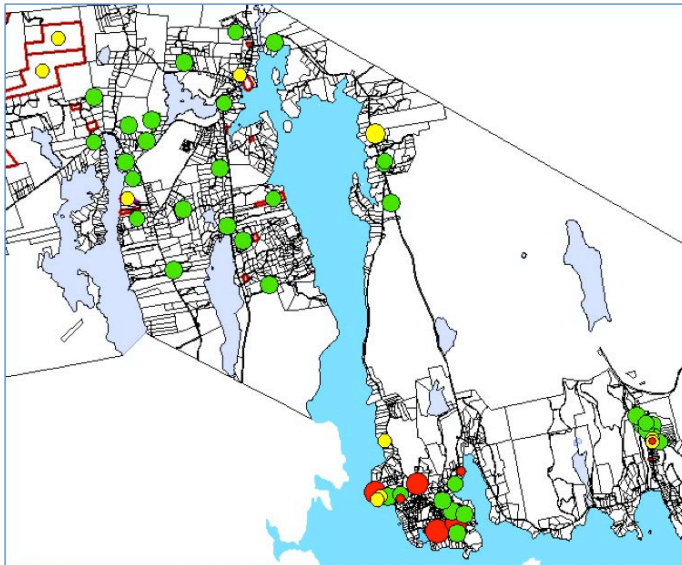


Figure 7. Sale Properties with Graduated Symbols by Ratio

These examples are just a few ways to use GIS in the Assessing Office. When taxpayers can see their valuation in relation to their neighbors visually, it goes a long way in diffusing hot tempers. I hope this helps, and feel free to call or write if you have questions I can help with.

Kyle Avila is a single Assessor in the Town of Mount Desert, Maine and can be reached at 207-276-5531, or by email at assess@mtdesert.org.

How to “Join” an Excel file to a GIS layer

Let’s start with some basic terminology. A “Layer” is a set of features that can be displayed in GIS software. Layers can be polygons (shapes with an area, such as parcels), lines (road centerlines), or points (fire hydrant locations). The Layer can have information associated with each feature, called its “attributes”, or more commonly known as “fields”, where you can enter information about the particular features. My Parcels Layer has a field named MAPLOT in which unique IDs are assigned to each parcel. (See Fig. 1).

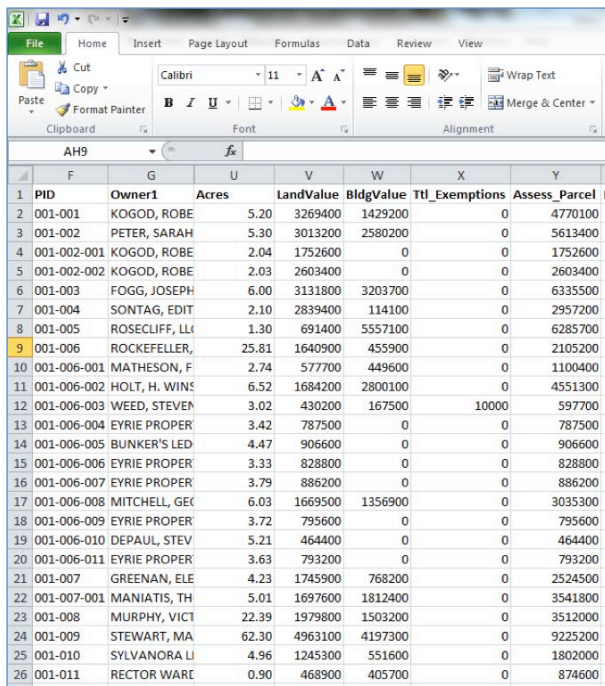
OBJECTID	Shape *	MAPLOT	RuleID	Shape_Length	Shape_Area
1	Polygon	010-157	PARCEL	3009.191643	117021.148527
2	Polygon	012-031-006	PARCEL	876.388605	24903.984096
3	Polygon	012-027	PARCEL	462.862734	11942.192102
4	Polygon	012-028	PARCEL	460.668805	10401.102279
5	Polygon	012-029	PARCEL	517.632792	11562.87489
6	Polygon	012-030	PARCEL	589.483584	15028.030037
7	Polygon	012-031-004	PARCEL	1184.263163	55900.658956
8	Polygon	010-155	PARCEL	621.172238	15509.379252
9	Polygon	012-031-005	PARCEL	630.205593	20409.759784
10	Polygon	012-026	PARCEL	459.119531	11783.319932
11	Polygon	012-022-002	PARCEL	2459.372964	224147.168449
12	Polygon	010-156	PARCEL	251.487342	3215.205551
13	Polygon	012-031-003	PARCEL	755.996049	22864.580789
14	Polygon	012-022-001	PARCEL	471.327092	11237.842937
15	Polygon	010-154	PARCEL	167.417581	1581.53125
16	Polygon	010-162	PARCEL	2110.011406	203245.68951
17	Polygon	012-007	PARCEL	3054.940361	502648.355024
18	Polygon	012-025	PARCEL	510.401493	10679.862795
19	Polygon	012-006	PARCEL	4599.616535	371121.400099
20	Polygon	010-114	PARCEL	3194.349527	390159.730311
21	Polygon	010-153	PARCEL	219.595916	2960.842325
22	Polygon	012-024	PARCEL	500.322017	11011.387802
23	Polygon	012-031-002	PARCEL	1014.999417	43037.037332
24	Polygon	010-163	PARCEL	1410.633385	70703.512083
25	Polygon	012-021	PARCEL	3072.288037	417996.061733
26	Polygon	012-031-001	PARCEL	232.266242	3355.460646
27	Polygon	010-150	PARCEL	194.982333	1991.472801
28	Polygon	012-021-001	PARCEL	1251.828195	97850.085917
29	Polygon	012-023-001	PARCEL	1017.763777	40697.292538
30	Polygon	010-147	PARCEL	2093.726918	116394.066562
31	Polygon	010-148	PARCEL	532.590031	17181.810242
32	Polygon	010-158	PARCEL	350.024119	7323.587141
33	Polygon	010-149	PARCEL	113.800922	690.008782
34	Polygon	010-164	PARCEL	1812.700519	146963.426825
35	Polygon	012-032	PARCEL	769.032944	33438.566207

Figure 1. Parcel Attribute Table has MAPLOT as my unique identifier for each parcel.

To make my parcels layer much more useful in my GIS software, I perform what is called a “Join”, to an Excel file I have exported out of my Assessing software. My Excel file has a column named PID, which corresponds to each parcel’s Map and Lot ID

How to “Join” an Excel file to a GIS layer continued

for each record in my Assessing Software. (See Fig. 2)
The exported Excel file also has columns for other details of each parcel, such as the acreage for each lot, land and building values, etc.



	F	G	U	V	W	X	Y
	PID	Owner1	Acres	LandValue	BldgValue	Ttl_Exemptions	Assess_Parcel
1	001-001	KOGOD, ROBE	5.20	3269400	1429200	0	4770100
2	001-002	PETER, SARAH	5.30	3013200	2580200	0	5613400
3	001-002-001	KOGOD, ROBE	2.04	1752600	0	0	1752600
4	001-002-002	KOGOD, ROBE	2.03	2603400	0	0	2603400
5	001-003	FOGG, JOSEPH	6.00	3131800	3203700	0	6335500
6	001-004	SONTAG, EDIT	2.10	2839400	114100	0	2957200
7	001-005	ROSECLIFF, LL	1.30	691400	5557100	0	6285700
8	001-006	ROCKEFELLER,	25.81	1640900	455900	0	2105200
9	001-006-001	MATHESON, F	2.74	577700	449600	0	1100400
10	001-006-002	HOLT, H. WINS	6.52	1684200	2800100	0	4551300
11	001-006-003	WEED, STEVEN	3.02	430200	167500	10000	597700
12	001-006-004	EYRIE PROPER	3.42	787500	0	0	787500
13	001-006-005	BUNKER'S LED	4.47	906600	0	0	906600
14	001-006-006	EYRIE PROPER	3.33	828800	0	0	828800
15	001-006-007	EYRIE PROPER	3.79	886200	0	0	886200
16	001-006-008	MITCHELL, GE	6.03	1669500	1356900	0	3035300
17	001-006-009	EYRIE PROPER	3.72	795600	0	0	795600
18	001-006-010	DEPAUL, STEV	5.21	464400	0	0	464400
19	001-006-011	EYRIE PROPER	3.63	793200	0	0	793200
20	001-007	GREENAN, ELE	4.23	1745900	768200	0	2524500
21	001-007-001	MANIATIS, TH	5.01	1697600	1812400	0	3541800
22	001-008	MURPHY, VICT	22.39	1979800	1503200	0	3512000
23	001-009	STEWART, MA	62.30	4963100	4197300	0	9225200
24	001-010	SYLVANORA LI	4.96	1245300	551600	0	1802000
25	001-011	RECTOR WARE	0.90	468900	405700	0	874600

Figure 2. Excel File with corresponding PID (parcel ID) Column

It is important to make sure that the formatting of the column in the Excel file with the Parcel IDs (PIDs) matches exactly the format of the field in the Parcel Layer. Map 1 is not the same as Map 001, and will not join to the Parcel Layer correctly. If they do not match, you need to do some formatting in the Excel file to make the PID column format exactly the same as it appears in the Parcel Layer.

Field names in parcels may vary, so you should query the Parcel Layer to find out how your parcel IDs are formatted. This can be done by right-clicking on the parcel layer in the Table of Contents to open the menu, then select “Open Attribute Table” to see what fields are in your parcel layer. Look for the field that has the unique parcel IDs, and make sure the format of that field matches the column in the Excel file that has the unique parcel ID. Once the format of the PID column in the Excel file matches the MAPLOT field in

the Parcel Layer, you can perform the join of the two. Start by adding the parcel layer into a map, then right-clicking on the parcel layer in the table of contents. This should open a menu on which you can see “Joins and Relates”. (See Fig. 3)

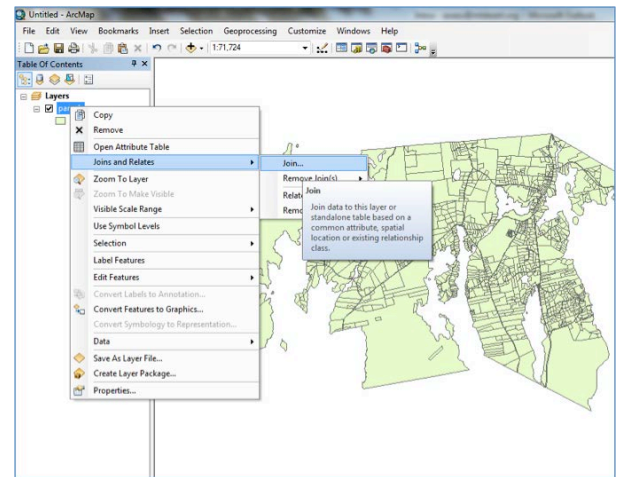


Figure 3. Right-Click on Parcels Layer in Table of Contents

Select “Join” which should open the “Join Data Wizard” asking several options. Question 1. Asks to choose the field in this layer that the join will be based on. Click the dropdown arrow to see a list of fields embedded in the Parcel Layer to choose from. I choose the MAPLOT field from the parcels layer. Question 2. Asks what file will be joined to the Parcel Layer. Click the folder icon to browse to where the Excel file to be joined is saved. Question 3. Asks what Column from the Excel file has the corresponding unique Parcel ID to use in the join. I choose PID from the dropdown list (which lists all of the columns in my Excel file). There are some Join Options below this, which I select “Keep all records”. You can test the join by clicking the “Validate Join” button. This will let you know if there are any problems preventing the join from working. If the join was successful, you should now be able to use the “Identify” button to query a parcel, and change the symbology to show the Excel data.

-Kyle Avila



STATE OF MAINE
CHAPTER



INTERNATIONAL ASSOCIATION OF ASSESSING OFFICERS

**Spring Meeting
May 10, 2013**

The State of Maine Chapter of IAAO will hold its Spring meeting on May 10, 2013 at **Spring Meadows Golf Club in Gray.** (NOTE THE NEW LOCATION)

The agenda is as follows:

8:30 – 9:00	Sign in and Registration
9:00 – 9:15	Pledge of Allegiance, Introductions, and Chapter Business
9:15 – 10:35	"The Power and the Glory" what does 706 mean? William H. Dale, Jensen Baird Gardner and Henry
10:30 – 10:45	Break
10:45 – 12:00	"Run, Hide, or Fight" - Workplace Safety Joseph Shnupp, Cumberland County Sheriff's Office
12:00 – 1:00	Lunch
1:00 – 2:30	"In the Hopper" – Geoff Herman of MMA will update the Chapter on passed legislation, what is in the works, and what did not make it.

The cost for this session is **\$35** for State of Maine Chapter IAAO members and **\$45** for non-members. Make checks payable to **State of Maine Chapter IAAO**

Please register by e-mail (preferred method) or phone no later than May 3, 2013

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Name: _____ Municipality: _____

How to register:

E-mail: jromano@yorkmaine.org
Phone: 361-4852

Or by mail to: Julie Romano
186 York Street
York, ME 03909

Please send payment (payable to: State of Maine Chapter IAAO) to the above address or bring with you to the meeting.

A few snapshots from the Maine Chapter IAAO winter meeting held at the Maple Hill Farm Conference Center in Hallowell



Maine Revenue's Lisa Whynot and Jeff Kendall go "old school" powerpoint with their Tree Growth presentation.



AppGeo's Kathy Miller demonstrating MapGeo.



MMA's Geoff Herman talking about proposed legislation. Geoff will also be at our Spring meeting to update us on which proposed legislation is likely to pass and which isn't.

State of Maine Chapter IAAO Executive Board

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