

# GIS for Clerks and Recordors

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## GIS Headlines

- Natural Disasters
- Elections
- Redistricting
- National Projects
- Budgets
- Foreclosures
- Census



- Geographic Information System
- Garden International School (Malaysia)
- Gas-Insulated Switchgear
- Gastrointestinal Series
- Geeky Internal Stuff (databases)
- General Information Services
- General Information Session
- General Investigative Section (Canada RCMP)
- Generalized Iterative Scaling
- Genome Institute of Singapore
- Gentran Integration Suite (Sterling Commerce)
- Geodata Interoperability Specification
- Geographic Imaging Solutions
- Geographic Information Services
- Geographic Information Solutions
- Geographical Imaging Software
- Geographical Information Services
- Geographical Information System
- Geographical Intelligent Survey
- Geographisches Informationssystem (German)
- Geophysical Information System
- Georeferenced Information System
- Geoscience Information Society
- Geospatial Information System
- Geosynchronous Meteorological Satellite
- Gisborne, New Zealand (airport code)
- Global Inbound Service
- Global Indexing System
- Global Information Society
- Global Information Solutions
- Global Infrastructure Services
- Global Investment Systems
- Goddard Information System
- Google Image Search
- Government Information System
- Graphics Information System
- Greatness Is Simplicity
- Green Iguana Society
- Group Index and Schedule
- Group Information Session(s)
- Group Interference Suppression
- Groupe Interventional Speciale
- Gruppo d- Intervento Speciale
- Guaranteed Income Supplement
- Guidelines Implementation Staff
- Gunbound International Server

## What is GIS?

# Geographic Information System



# Land Information Systems

Tax Mapping



Property Valuation



Integrated Land Management



Field Data Collection



Oil & Gas Leases



Analyzing Transactions



National Data Portal



## Technology for Managing and Using Geographic Information

- Data Models
- Analytical Tools
- Integration Platform
- Visualization
- Workflows
- Applications



# GIS – Technology Platform for Local Government



# Types of geographic data

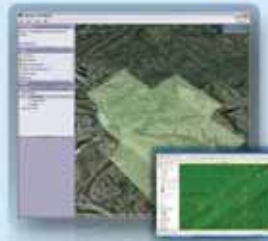
## VECTOR

- Property Lines
- Transportation
- Surface Waters
- Boundaries
- Geodetic Control



## RASTER

- Elevation
- Imagery
- Land Cover
- Soils
- Vegetation
- Slope
- Others...



## SURVEY

- Parcel Fabric
- Measurements
- Coordinates
- GPS





# Components of geographic data

## ATTRIBUTES



A screenshot of a data table with multiple columns and rows, representing attribute data. The table has a header row and several data rows with various numerical and text values.

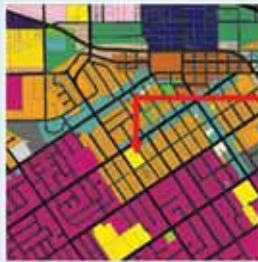
## GEOMETRY



## BEHAVIOR



## Digital Map Linked to a Database



	A	B	C	D	E
1					
2	James	Smith	127 South St	Jonesville	LA
3	John	Jones	11 Highview Terrace	Smithton	LA
4	Roberta	Gomez	140 Ridgeview Dr	Doerton	LA
5	Mary	Workalot	38268 Village Rd	Sleepyville	LA
6	Shauna	Hoover	2200 Herman Ct	Chowda	LA
7	Bonny	Ville	17 South Main St	Old Town	LA
8	Harry	Harold	43560 Acre Dr	Township	LA
9	Gunter	Chain	Route 66	Trig	LA
10	Rod	Poleman	16.5 County Rd	Baseline	LA

GIS connects and unlocks the value in your data....

## John Snow's Cholera Map



## A Complete GIS System



## Available Data in the Cloud



## Layers of Information



## Layers of Information



# Land Administration

Cadastre  
Land Registration  
Mapping  
Valuation  
Planning  
Survey  
Development  
Land Management  
Land Information Systems  
Spatial Data Infrastructures





# Integrating GIS and Valuation Systems

Modeling trends, improving revenue projections



Fair , Equitable, and Transparent...

## Public Portals

Effectively communicate with the public

Accountability  
Customer Service  
Public Relations  
Access to Data/Docs  
Transparency



Engaging with the Public...

# Document Recording

Backbone of our Land Records system

Deeds  
Mortgages  
Liens  
Divorces  
Marriages  
DD-214  
.....



Mildly Transparent...

## Who uses this data

And how do they get it?

Attorneys  
Surveyors  
Realtors  
Assessors  
Title Companies  
Mortgage Companies  
Fannie Mae  
.....

**Grantor/Grantee**

**Legal Description**

Subdivision Name

Book/Page

Date

Instrument Type

**Document Number**

**What does all land information share?**

Location

Location

Location

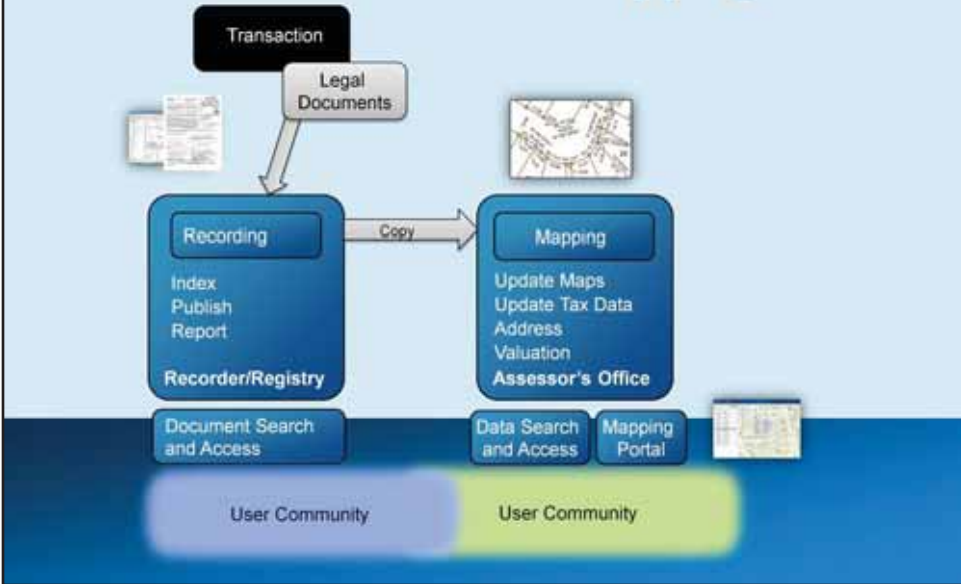
## Land Records – Location Data

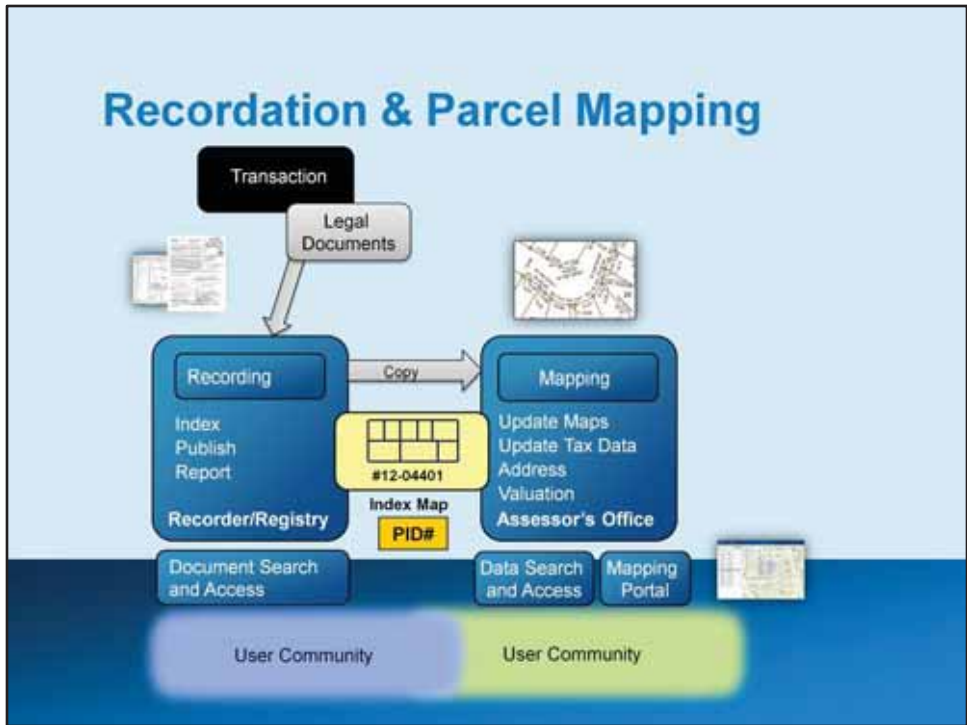
- Deeds
- Mortgages
- Liens
- Discharges
- Foreclosures
- Surveys
- Leases
- Plats
- .....



- Coordinates
- Parcel ID
- Address
- Lot/Block
- Description
- Census Block
- City
- RJID
- .....

# Recordation & Parcel Mapping





Notes: Font: Arial, Size: 8, Text: Wrap



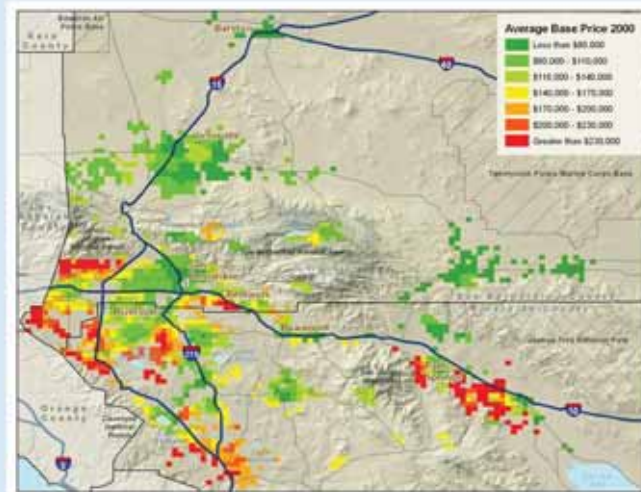
## Why GIS in the Recorder's Office?

Modern Indexing System (Modern Transparency)  
Better Customer Service  
Accuracy (Get the Right Answer)  
Validate with Context  
Adds Efficiency to Downstream Government Functions

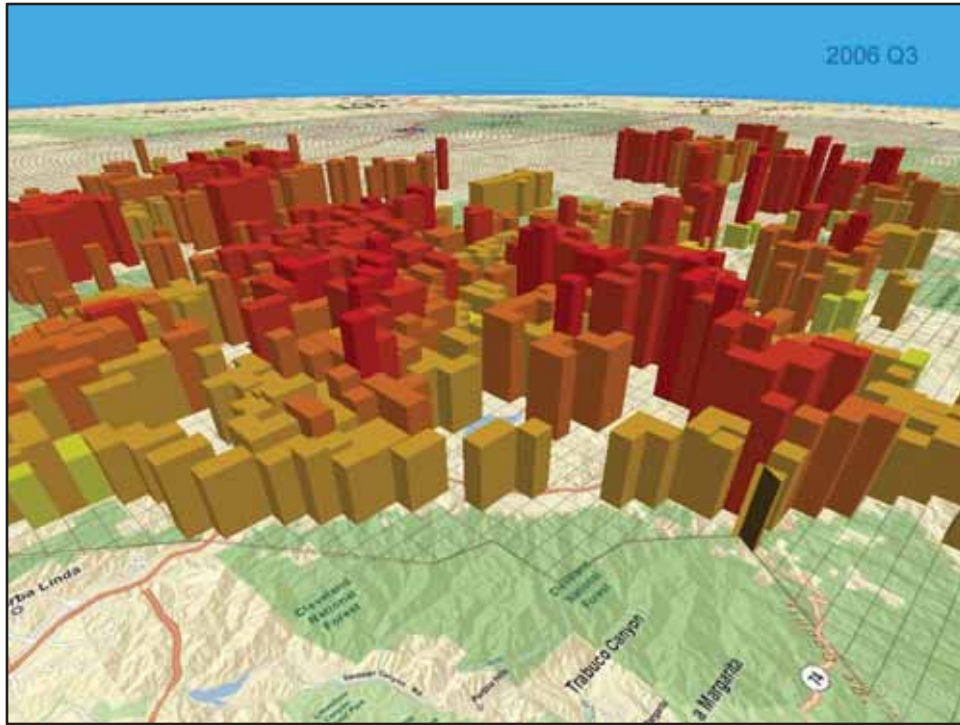
## Why GIS in the Recorder's Office? (con't)

Addresses Inadequate  
Valuable Service to Private Sector  
Assured Authoritative Content from a Reliable Source  
Regulators are Coming  
New Revenue

## Home Prices before the Bubble











# Demonstration Screenshots

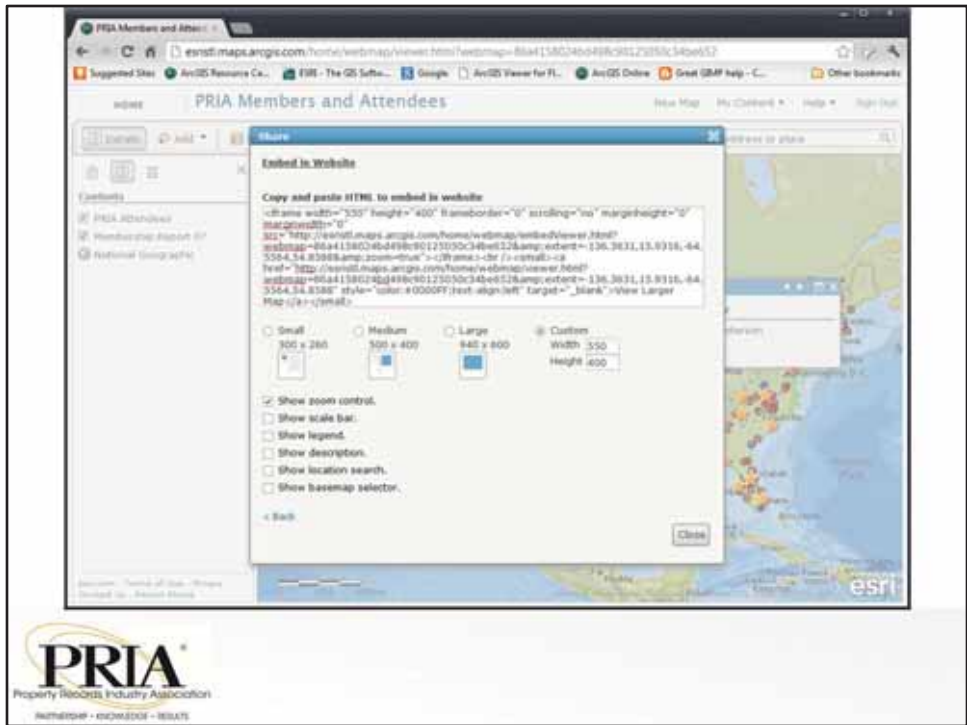


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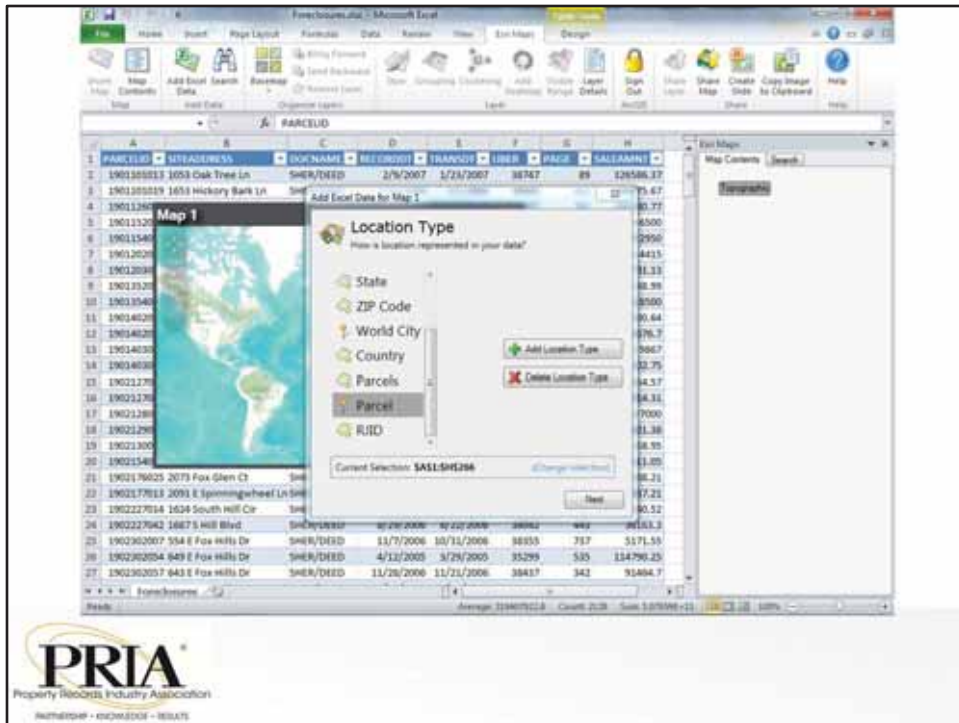
One very basic use of GIS is to map locations based on geographic data such as address or city and state. Tables (.csv format) with attendee and member locations can be mapped very quickly by dragging the files onto a web map in ArcGIS Online. Pop-ups can be formatted so that the users of the map can see just the information they need.



There are many ways a web map can be shared. One way is by embedding the web map into a web page. In the Share window shown above, HTML for an embedded web map is automatically generated. The web developer can copy and paste the HTML into a web page to add the map.



Here is the web page for the PRIA conference with a web map embedded into it. Visitors to the page can pan and zoom on the map and can click the points to see the pop-ups with member names.

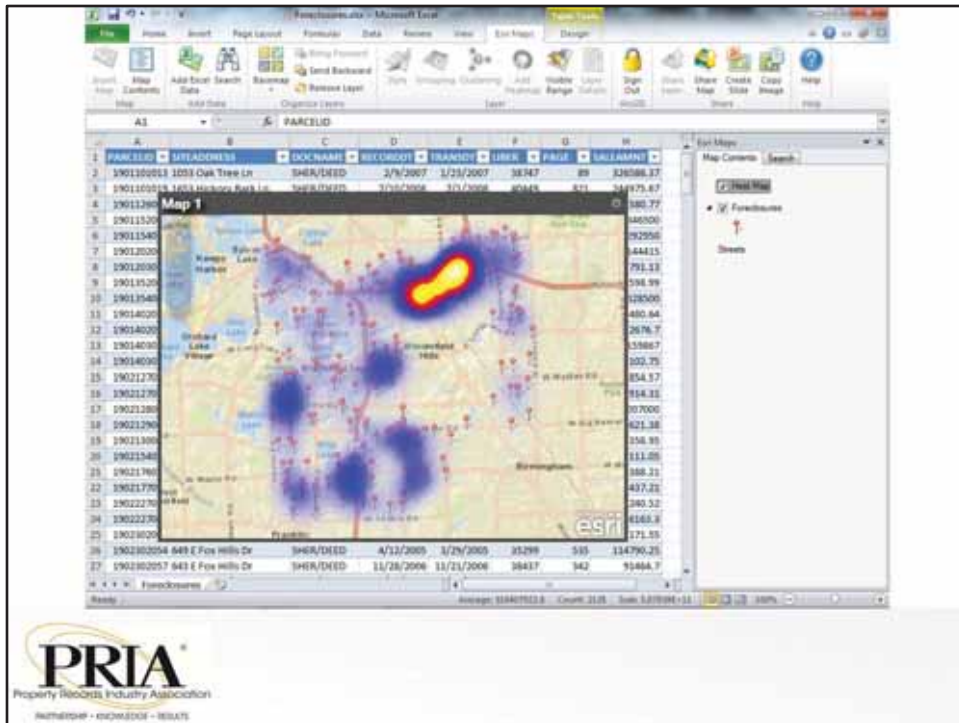


Some useful analysis can be done in GIS with property records data if the data includes location information. Foreclosure records that have a field with location data can be added to a map. When the foreclosures are displayed on the map, we can see more clearly which neighborhoods in our communities are being impacted the most.

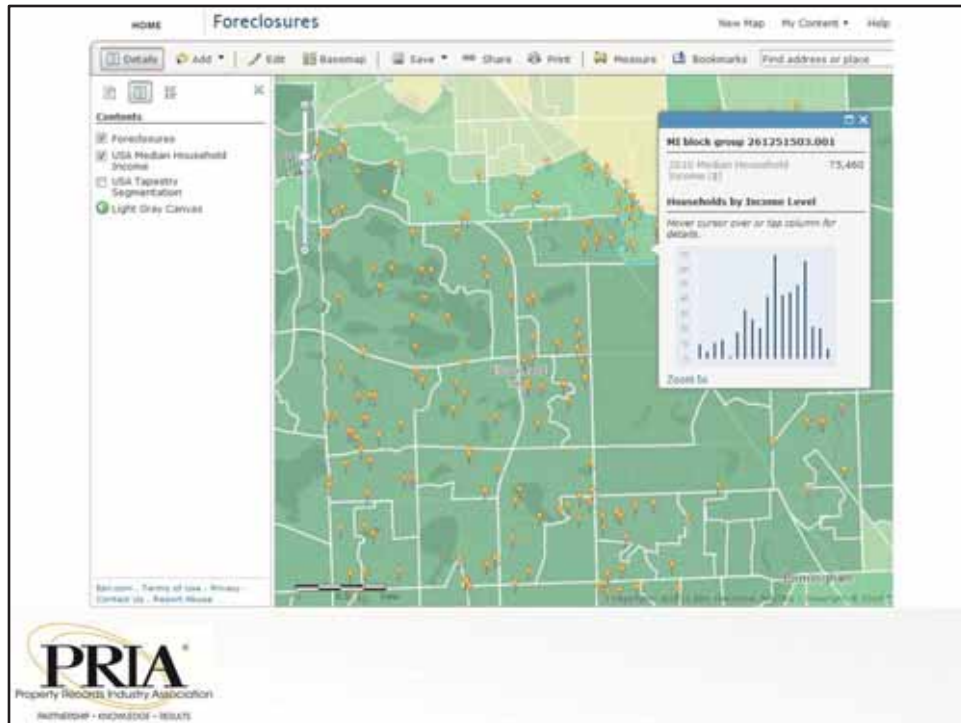
Parcel identifier is a good choice for location data because it leaves less room for mismatches due to data entry error than would a street address. Positional accuracy can also be more precise with parcel identifiers. In some parts of the U.S. and the rest of the world, address geocoding matches to a location on a street centerline rather than a rooftop. Also, due to parcel splits and subdivisions, the same address may be assigned to various parcels over time, whereas parcel identifiers are typically retired when a parcel no longer exists.

Parcel identifier can be mapped to either a parcel polygon or to a parcel centroid (center point). Here a spreadsheet in Microsoft Excel is used with Esri Maps for Office to map the foreclosures to a parcel as a point location.

Foreclosure data is courtesy of Bloomfield Township, Michigan.

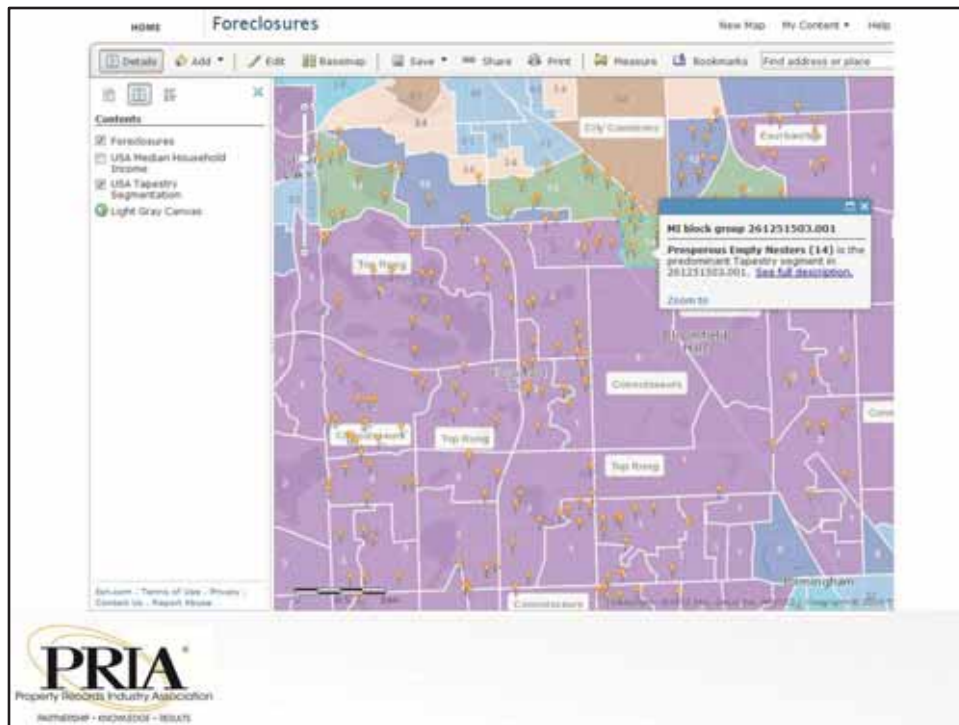


Points are added to the map to show foreclosure locations. A heat map shows where foreclosures are concentrated. Knowing which areas have a higher density of foreclosures can be important to police departments because of the rise in vandalism and drug crime vacant homes may attract. Foreclosure concentrations may also be of interest for local governments with foreclosure prevention programs so organizers can decide where to target outreach.



Using the foreclosure data with additional data layers, such as demographics can help answer the question “Which type of homeowners in my community are being impacted the most by foreclosure?” The foreclosure data can be shared from MS Excel to ArcGIS Online and used in a web map. Here the foreclosures layer is shown in combination with a median household income layer. A pop-up for a census block group in the income layer shows the median household income and a chart showing the number of households in each income range.

Many map layers containing demographic variables are shared to ArcGIS Online by Esri and are available for all ArcGIS Online users.



Looking at foreclosures with market segment data can help further the understanding of who is impacted. Here, the foreclosure locations are shown with the dominant Tapestry market segment for each census block group. Tapestry classifies U.S. residential neighborhoods into 65 unique market segments based on socioeconomic and demographic characteristics.

## Tapestry™ Segmentation

For a Tapestry™ Segmentation system divides U.S. residential areas into 45 distinctive segments based on socioeconomic and demographic characteristics to provide an accurate, detailed description of U.S. neighborhoods. Tapestry Segmentation can help you to identify your best markets, find the most profitable consumer types, tailor marketing messages to fit your audience, and define product and service preferences. Here's a brief description of a Tapestry segment.

### 14—Prosperous Empty Nesters

**Segment Code—14**      **LifeStyle Summary Group—L5 Senior Style**  
**Segment Name—Prosperous Empty Nesters**      **Utilization Summary Group—U7 Suburban-Feriphery 1**

**Demographic**

Approximately 6 to 10 households in Prosperous Empty Nesters neighborhoods are aged 50 years or older. Forty percent of the households are composed of married couples with no children living at home. Residents are enjoying the move from child-rearing to retirement. The median age is 60.5 years. Population in this segment is increasing slowly, at 0.51 percent annually; however, the pace will probably accelerate as the Baby Boomers mature. Prosperous Empty Nesters residents are not ethnically diverse; approximately 90 percent are white.

**Socioeconomic**

With a median net worth of \$217,500, Prosperous Empty Nesters invest prudently for the future. The median household income is \$42,200. Although 71 percent of the households earn income from wages and salaries, 38 percent receive investment income, 30 percent collect Social Security benefits, and 28 percent receive retirement income. Fortyone percent of residents aged 25 years and older hold bachelor's or graduate degrees, nearly 30 percent have attended college. Many residents who are still working have solid professional and management careers, especially in the education and health care industry sectors.


**Residential**

**Preferences**

Prosperous Empty Nesters residents value their health and financial well-being. Their investments include annuities, certificates of deposit held longer than six months, mutual funds, money market funds, tax-exempt funds, and common stock. They hold universal life insurance policies. Residents exercise regularly and take a multitude of vitamins. They update furniture and play golf. They also attend golf tournaments and sports events, particularly baseball games and college football games. They order by phone from catalogs and use coupons. Households are likely to own or lease a luxury car.

Prosperous Empty Nesters residents take pride in their homes and communities, so home remodeling, improvements, and lawn care are priorities. Residents will join a club (club or charitable organization), help with fundraising, write to a radio station or newspaper editor, and volunteer. They travel extensively in the United States and abroad. They read biographies, mysteries, and history books; use or more daily newspapers, and business or fitness magazines. They watch golf, news, and talk programs on TV.

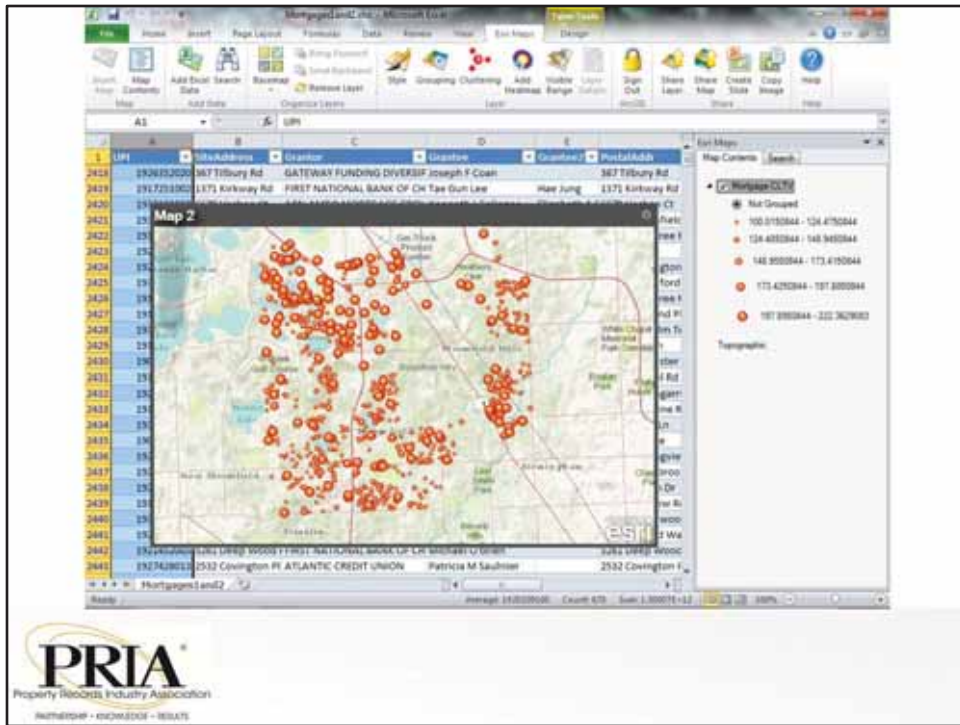
For more information about Tapestry, call Ext. at 1-800-443-9776



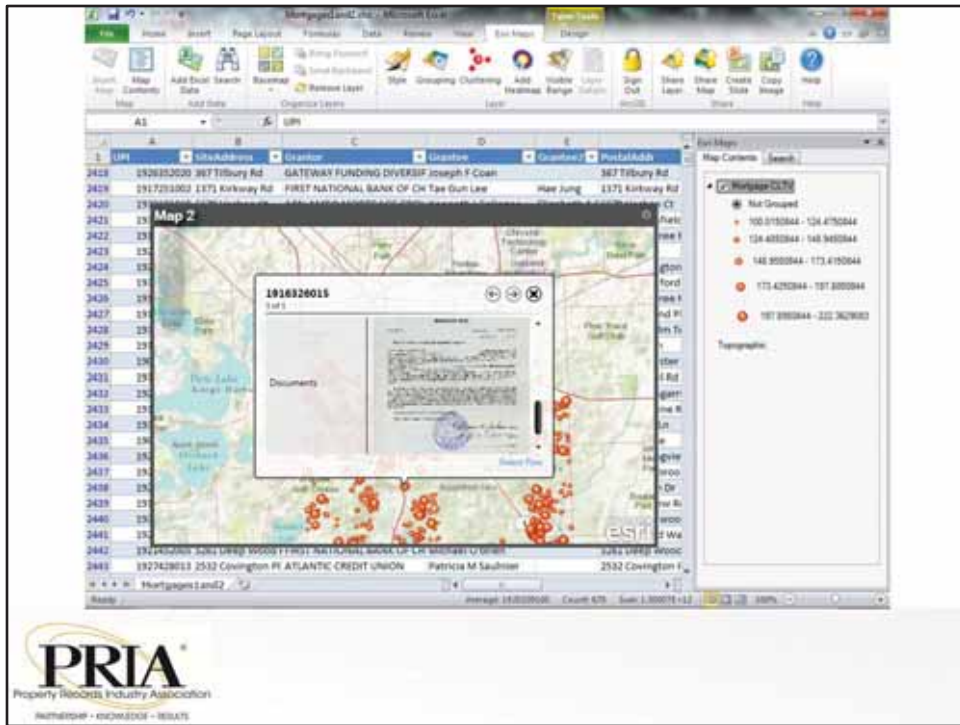
**PRIA**  
Property Records Industry Association  
MEMBERSHIP • EDUCATION • RESEARCH

A click on the pop-up for the block group opens a description of the tapestry segment that includes demographic, socioeconomic, and residential characteristics of the segment as well as preferences for leisure activities. Also included is information about which types of media (TV, radio, magazines, etc.) those in the segment prefer to access.

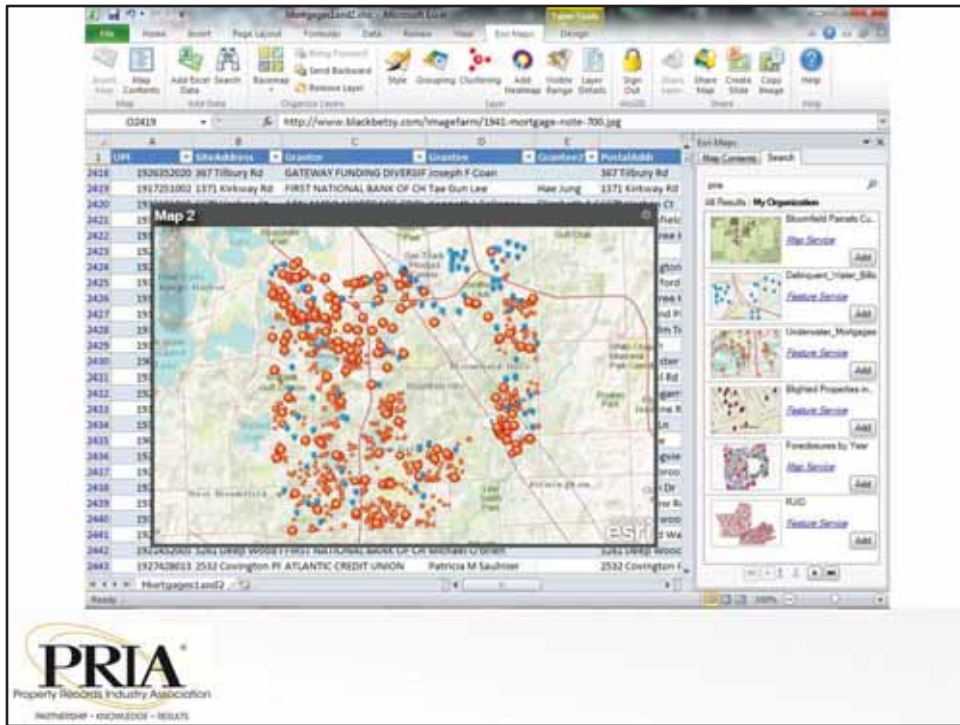




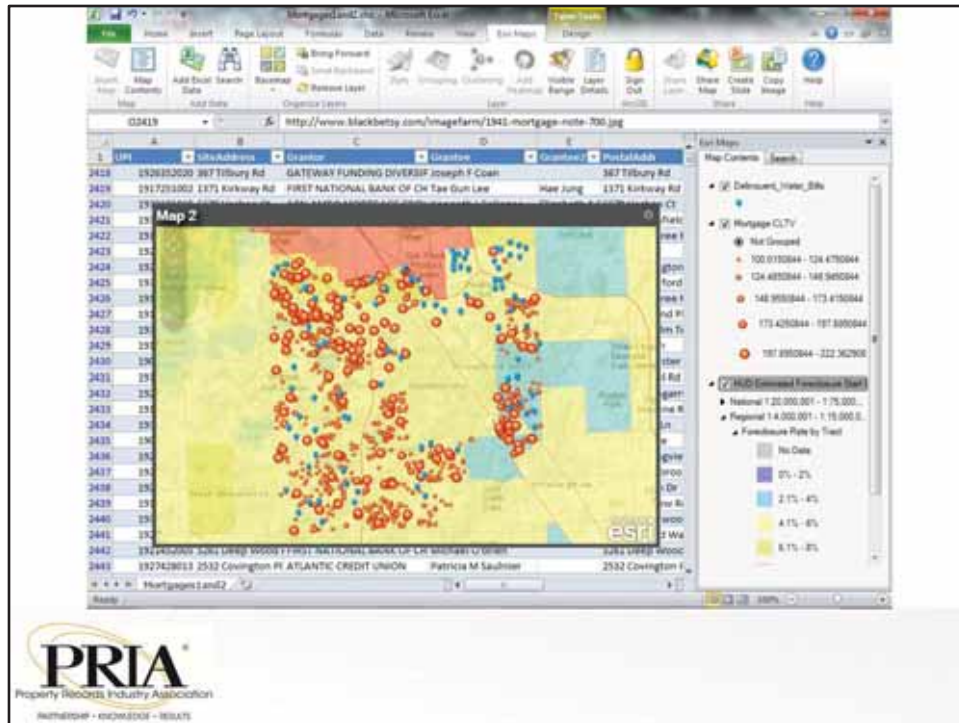
Mortgage data can help predict locations where future foreclosures are likely to occur. Here, (fictional) underwater mortgages are shown with symbols scaled based on Combined Loan to Value (CLTV) ratio. Selections on the Excel spreadsheet are honored in the map display. This spreadsheet lists many mortgages, but only those with a CLTV greater than 100 are selected and displayed on the map.



Pop-ups can show documents that are available on the Internet. A click on the document image links to a full-sized copy in a web browser.



The underwater mortgage locations can be displayed in combination with other data that may be useful in predicting which areas may be impacted by foreclosures in the future. For example, the local water utility can provide data about unpaid bills which may be an indicator of financial problems. Here, some fictional locations showing homes with unpaid water bills are displayed in combination with the underwater mortgages.

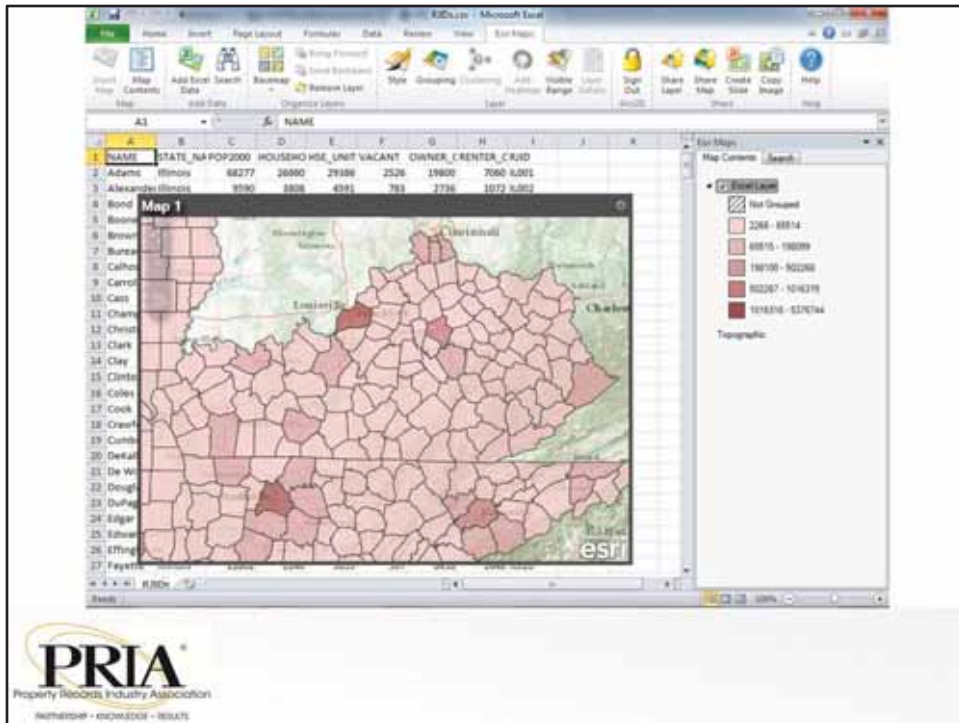


U.S. Department of Housing and Urban Development (HUD) estimated foreclosure start rates are shown here with the fictional underwater mortgages and unpaid water bills. GIS provides a tool for visually integrating the HUD estimates with local data in a way that makes it easier to see trends in a community.

HUD provides the estimates “to assist state and local governments in their efforts to target the communities and neighborhoods with the greatest needs. HUD recommends that if states and local governments have local data, such as county data on foreclosure filings, that those data also be given serious consideration in identifying areas of greatest needs\*.”

\*Link to more information about the HUD data:

<http://www.arcgis.com/home/item.html?id=06269dcf262b4c1b88c4091e9b004ecf>



Another possibility with GIS is to map data by Recording Jurisdiction Identifier (RJID). The example above shows a few states where recording jurisdictions correspond to counties. In other areas, the jurisdictions may be towns or other units and their boundaries could be added to create a nationwide map. Kenton County, KY in the example map has two jurisdictions. The boundary between them was placed somewhat arbitrarily for the sake of example but of course could be repositioned as necessary. In the example above, the RJIDs are colored based on population.

A nationwide RJID map could be used for various purposes. It could be put on the PRIA website and pop-ups could be used to provide links to contact information and websites for the jurisdictions. A nationwide map could also be used for color-coded or thematic mapping to show variables such as number of foreclosures per jurisdiction.

**Thanks!**

Brent Jones

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