

# Esri News

## for State & Local Government

Winter 2012/2013

## Building on Best Practices in Utah County

### ArcGIS for Local Government Improves Data Management and Sharing

Utah County geographic information system (GIS) manager Patrick Wawro has been in the GIS industry for 20 years. A couple of years ago, he set out to update the county's extensive GIS data model, keeping in mind all the lessons he had learned throughout the years. Then he found out about the ArcGIS for Local Government Information Model, decided to abandon his individual efforts, and began modeling his data on the information model.

"After you've built data models and applications on your own for years, you look around at what others are doing and realize there are some better ways of doing things," said Wawro. "I don't care how experienced or smart you are, no one has a corner on good ideas. The good ideas that have percolated up to the Local Government Information Model are some of the best ideas."

The ArcGIS for Local Government Information Model is built on best practices that Esri has gathered from governments around the United States. Wawro saw it as a way to standardize and modernize work.

"I'm happier with the data model now because it wasn't just me trying to figure it out," he said. "I felt like I could stand on the shoulders of people who spent a lot of time positioning their data in a way that would be more prepared for future technological changes. Technology is changing so quickly that we wanted to have our data in a place where we could feel it was technologically mobile so we can quickly adopt new things."

Wawro said that in all the decisions he makes, he keeps the needs of local cities in mind. The municipal governments use much of the county's GIS data, such as roads and

parcels, in their operations. He makes the county's data available in ArcGIS Online and a legacy ArcIMS application, noting, "ArcGIS Online is currently the easiest, most convenient way we share our data."

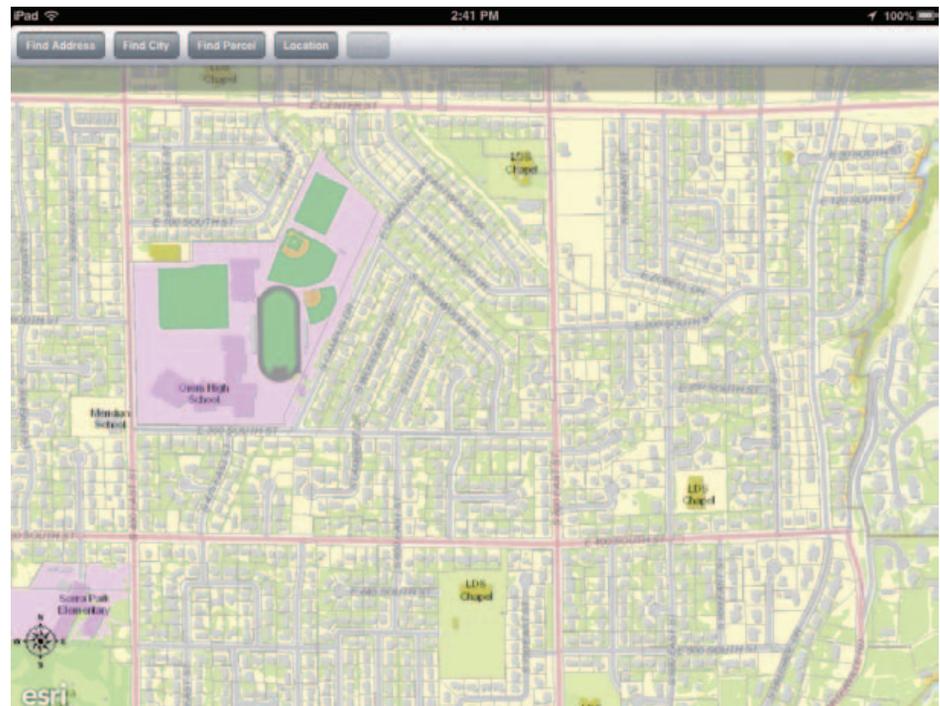
Using the ArcGIS for Local Government Information Model also makes it easier for cities to take advantage of the ArcGIS for Local Government templates; the county data is already constructed to fit into them.

The county itself is taking advantage of some of the ArcGIS for Local Government

templates including the Election Polling Places application, which is the basis for the Utah County Voter Precinct Locator. It is also developing a sign inventory application based on the Code Violations mobile template.

An iPad application called Utah Co Maps uses the ArcGIS for Local Government cached topographic basemap. The parcel data is accessible via the parcel publishing feature in the ArcGIS for Local Government Information Model. With this application, citizens can

continued on page 3



↑ ArcGIS for Local Government resources streamlined the creation of the Utah Co Maps iPad application.

# Contents

Winter 2012/2013

## Cover

- 1 Building on Best Practices in Utah County

## Thought Leadership

- 3 Geodesigning Our Man-Made Ecosystems

## Esri News

- 4 Lincoln County, New Mexico, Modernizes Land Records with Esri Technology
- 4 New and Noteworthy

## Data

- 6 Voters in 2012 Election Battleground States

## Case Study

- 8 Horry County, South Carolina, Improves Access to Parcel Documents
- 10 Tulsa Forges a Path into the Future
- 10 Esri Online

## Esri News for State & Local Government is a publication of the State and Local Government Solutions Group of Esri.

To contact the Esri Desktop Order Center, call 1-800-447-9778 within the United States or 909-793-2853, ext. 1-1235, outside the United States.

Visit the Esri website at [esri.com](http://esri.com).

View *Esri News for State & Local Government* online at [esri.com/statelocalnews](http://esri.com/statelocalnews) or scan the code below with your smartphone.

## Advertise with Us

E-mail [ads@esri.com](mailto:ads@esri.com).

## Submit Content

To submit articles for publication in *Esri News for State & Local Government*, contact Christopher Thomas at [cthomas@esri.com](mailto:cthomas@esri.com) or Emily Vines Pierce at [epierce@esri.com](mailto:epierce@esri.com).

## Manage Your Subscription

To update your mailing address or subscribe or unsubscribe to Esri publications, visit [esri.com/manageyoursubscription](http://esri.com/manageyoursubscription).

International customers should contact an Esri distributor to manage their subscriptions.

For a directory of distributors, visit [esri.com/distributors](http://esri.com/distributors).

## Circulation Services

For back issues, missed issues, and other circulation services, e-mail [requests@esri.com](mailto:requests@esri.com); call 909-793-2853, extension 2778; or fax 909-798-0560.



Copyright © 2012 Esri.  
All rights reserved.  
Printed in the United States of America.

The information contained in this work is the exclusive property of Esri or its licensors. This work is protected under United States copyright law and other international copyright treaties and conventions. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or by any information storage or retrieval system, except as expressly permitted in writing by Esri. All requests should be sent to Attention: Contracts and Legal Services Manager, Esri, 380 New York Street, Redlands, CA 92373-8100 USA.

The information contained in this work is subject to change without notice.

Esri, the Esri globe logo, 3D Analyst, ArcAtlas, ArcCatalog, ArcData, ArcDoc, ArcEditor, ArcExplorer, ArcGIS, the ArcGIS logo, ArcGlobe, ArcIMS, Arc/INFO, ArcInfo, ArcLogistics, ArcMap, ArcNetwork, ArcNews, ArcObjects, ArcPad, ArcPress, ArcReader, ArcSDE, ArcSurvey, ArcToolbox, ArcTools, ArcUser, ArcView, ArcVoyager, ArcWatch, ArcWeb, ArcWorld, ArcXML, Business Analyst Online, BusinessMAP, CommunityInfo, EDN, Geography Network, GIS Day, MapData, MapObjects, Maplex, MapStudio, ModelBuilder, MOLE, NetEngine, RouteMAP, SDE, Sourcebook•America, StreetMap, Tapestry, [esri.com](mailto:esri.com), [esri.com](http://esri.com), [arcgis.com](http://arcgis.com), [geographynetwork.com](http://geographynetwork.com), [gis.com](http://gis.com), and [gisday.com](http://gisday.com) are trademarks, service marks, or registered marks of Esri in the United States, the European Community, or certain other jurisdictions.

Other companies and products mentioned herein may be trademarks or registered trademarks of their respective trademark owners.



## Building on Best Practices

continued from cover

search for property records and view detailed parcel information.

In some legacy applications, the GIS team has taken services from ArcGIS for Local Government templates and added them to existing applications to maintain a seamless experience for people who have been using them for years. In the county's Parcel Notification Map, for example, the team used the buffer tool found in the Land Use Public Notification template. "The ArcGIS for Local Government resources are completely open, and that's what we love about it," said Wawro. "If you know your way around, you can use what works for you."

With a complex and robust GIS, Wawro and his team worked for eight months to update their information model, keeping in mind the cascading consequences. He offered this suggestion for other jurisdictions that want to make similar updates: "It's important to do two things at once—continually convince others that it's worth it and make sure the process isn't dragging out too long."

To explore ArcGIS for Local Government, visit [resources.arcgis.com](http://resources.arcgis.com).

For more information on the Utah County implementation, contact Patrick Wawro at [patrickw@utahcounty.gov](mailto:patrickw@utahcounty.gov).

# Geodesigning Our Man-Made Ecosystems



Shannon McElvaney,  
Global Industry Manager,  
Community Development, Esri

In modern society, buildings are where we spend the vast majority of our waking and sleeping hours. Our facilities and cities are in reality man-made ecosystems—vast assemblages of interdependent living and nonliving components. They have quickly become the primary habitat for the human species.

As technology advances at a record pace, our man-made ecosystems are becoming more complex and sophisticated. These intricate collections of materials, infrastructure, machinery, and people, with countless spatial and temporal relationships and dependencies, require progressively more sophisticated tools to help us design and manage them.

## Leveraging Geography

The recognition of buildings, facilities, and cities as habitat for modern man is leading to a revolution in facilities management and urban planning. GIS technology is designed specifically for the management and analysis of spatial relationships. It only seems logical to manage, model, and design our new man-made ecosystem with the same tried-and-true tools used to manage, model, and design traditional ecosystems.

GIS has long been used to help measure the impact of a building or facility on a natural ecosystem, but today it is increasingly being used to design and manage the man-made ecosystem that is the building or facility. Powerful GIS tools, used successfully for many years in fields such as environmental analysis and landscape planning, also support a broad range of applications inside and outside buildings, facilities, and cities—applications such as operations planning, emergency management, Americans with Disabilities Act (ADA) compliance, safety/security planning, and space utilization and optimization. GIS can be used throughout the life cycle of a building, a facility, or a city—from siting, design, and construction through ongoing use, maintenance, and adaptation and ultimately to closing, repurposing, and reclamation.

## Designing Our Future

The key to developing a true understanding of our complex and dynamic earth is creating a framework that allows us to take many different pieces of past and future data from a variety of sources and merge them in a single system.

GIS enables a *geodesign* framework for analyzing and managing anthropogenic earth issues by allowing us to inventory and display large, complex spatial datasets. We can also analyze the potential interplay between various factors, getting us closer to a true understanding of how our dynamic earth systems may change in the coming decades and centuries.

Geodesign borrows concepts from landscape architecture, environmental studies, geography, planning, and integrative studies. Much like GIS and environmental planning before it, geodesign takes an interdisciplinary, synergistic approach to solving critical problems and optimizing location, orientation, and features of projects both local and global in scale.

# Lincoln County, New Mexico, Modernizes Land Records with Esri Technology

Staff members at the assessor's office in Lincoln County, New Mexico, recently shifted to geospatial technology from Esri to manage cadastral mapping. All key land records data is now available online, to the public, and to field crews. Additionally, workflows are sleek and modern—all cadastral data was moved from a tile-based CAD mapping system to a seamless, countywide Esri geodatabase.

"Our mapping system has grown by leaps and bounds," said Paul Baca, assessor for Lincoln County. "We are now able to produce wonderful, colored Esri maps for our constituents and share data with other governmental departments. We are also able to add data layers to our current mapping system, which is a key component for other offices within Lincoln County."

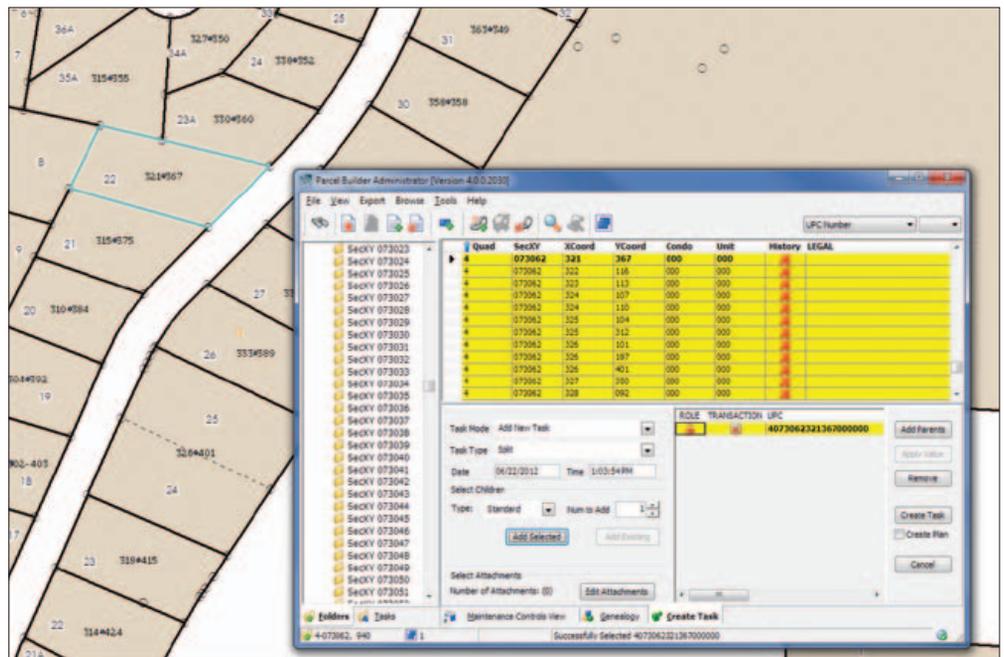
With the help of Esri partner the Sidwell Company, Lincoln County became an early adopter of Esri's ArcGIS for Land Records, a commercial off-the-shelf solution built to support local government functions, including

many that rely on land records, such as public works, planning, and engineering.

Esri's ArcGIS technology provides tools, data, and applications for efficient and cost-effective land records management.

To learn more, visit [esri.com/landrecords](http://esri.com/landrecords).

→ Parcel maintenance workflows are optimized with geospatial technology.

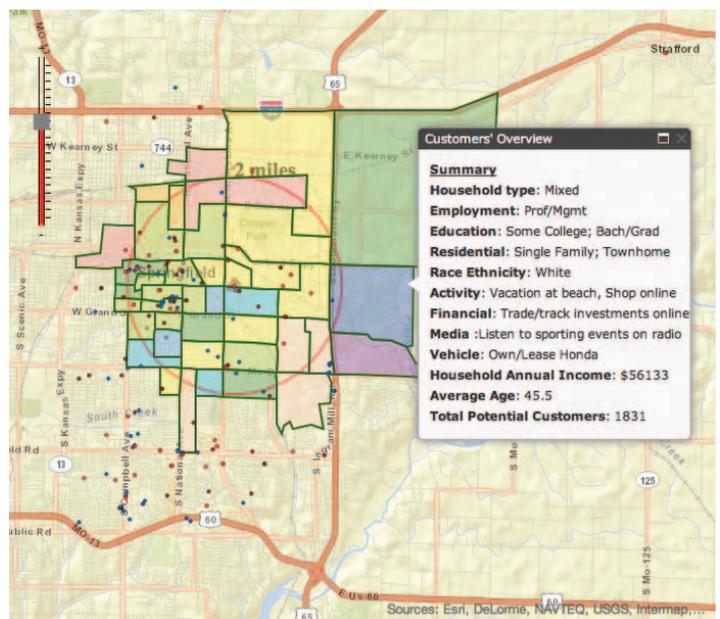


## New and Noteworthy

Powered by Esri's market data, Zympi, Inc., a technology startup in Redlands, California, demonstrates the Shop Local concept to cities. This approach allows local businesses to identify, differentiate, and interact with their customers through a location-based application that delivers current promotions like coupons to people's mobile phones. This real-time promotion reflects more precise targeting, resulting in better economic activities in cities and increases in tax revenue.

For more information, visit [zympi.com](http://zympi.com).

→ The points on this map indicate where customers downloaded mobile coupons from the featured merchant. The customer overview describes the target audience.





# Real-Time Service Tracking AVL



Solid Waste



Sweeper



Transit Bus

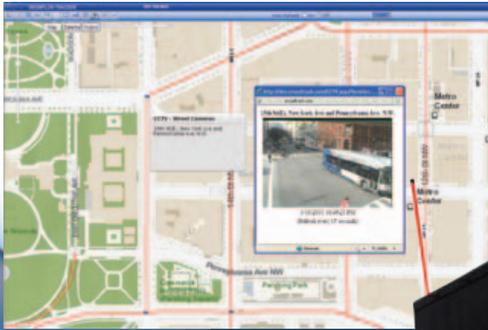


Grader



Loader

[www.eRoadTrack.com](http://www.eRoadTrack.com)



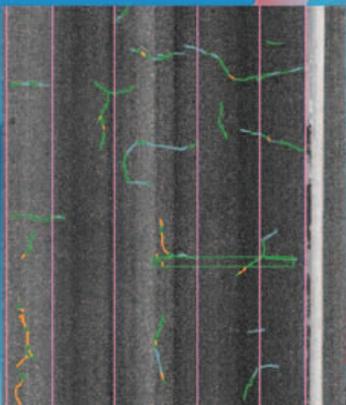
## Complete Pavement Management Decision Support

Rating, Budgeting, Repair Prioritizing, and Condition Forecasting

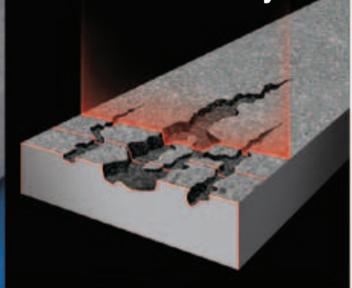
[www.eRoadInfo.com](http://www.eRoadInfo.com)

- Transverse Profiling (Rutting)
- Longitudinal Profiling (IRI)
- Hi-Res Pavement Imaging
- Hi-Res 360° ROW imaging
- Grade and Curvature

Automated Crack Detection



3D Pavement Analyzer



# Voters in 2012 Election Battleground States

## Were They Conformists or Mavericks?

Postelection, pundits trumpeted that the election may have been decided by changing voter demographics. Was that theory true? Young people, women, blacks, and Hispanics were specifically targeted with messaging based on particular issues that resonated with these diverse groups. Before the election, both presidential campaigns focused on the “battleground” states, inundating voters with messaging by phone, mail, and door-to-door visits. Campaigns conducted polls daily and sometimes hourly to see how voters were leaning. These efforts intensified as Election Day approached. Did voters in each state conform to predictions or were they mavericks? Let’s examine a few, and you can decide.

### Colorado

The median age of Colorado residents is 36.1 years, slightly younger than the US median of 37.3 years. The ratio of males to females is 50.4 percent to 49.6 percent, and 17.1 percent of adults identify themselves as Hispanic. The median household income is \$54,595; the median home value is \$224,880. The Market Potential Index (MPI) in Esri’s Market Potential data identified Colorado residents as a bit more liberal overall than the average American. Barack Obama won Colorado by 51 percent to 46 percent.

### Florida

Florida residents have a median age of 40.9 years; the ratio of male to female is 48.9 percent to 51.9 percent. Hispanics aged 18 and older comprise 21.1 percent of the total state population. The Market Potential data notes that compared to the United States, Florida residents are a bit more conservative overall. However, pockets of liberal voters can be found in urban areas such as Miami. The election was already decided when Florida finally reported its result of 50 percent to 49 percent for Obama.

### Iowa

Iowa residents have a median age of 38.1 years, a median household income of \$47,510, and a population with little diversity. The Market Potential data indicates that an Iowan is 12 percent more likely to be very conservative than the average American and 17 percent less likely to be very liberal. Liberal voters are found near urban areas such as Iowa City. The final tally was 52 percent for Mitt Romney to 46 percent for Obama.

### Nevada

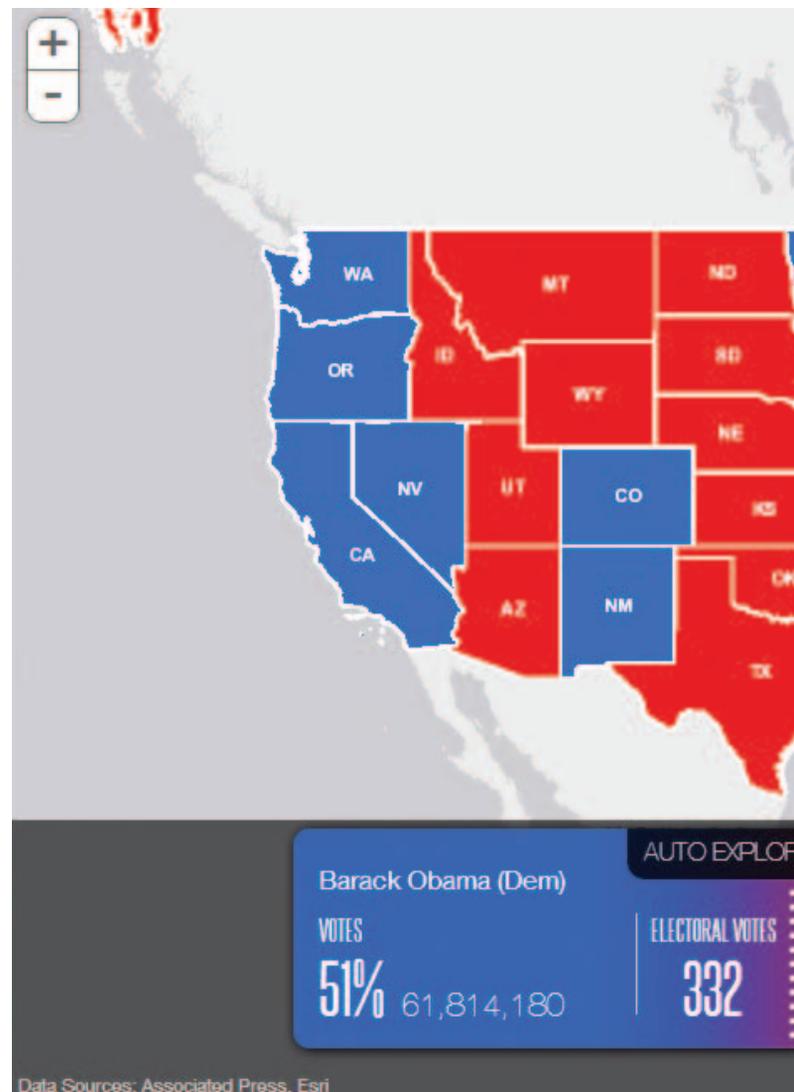
The median age of Nevada residents is 36.4 years; the ratio of male to female is 50.9 percent to 49.1 percent. Hispanics comprise 27.4 percent of the state’s population. According to the Market Potential Index, residents are 12 percent less likely than the average American to be very liberal. Vote results were 52 percent for Obama to 45 percent for Romney.

### New Hampshire

The median age of New Hampshire residents is 41.2 years; population diversity is low. The ratio of males to females is 49.2 percent to 50.8 percent. Median household income is \$62,992. Residents tend to be slightly more conservative than average. Traditionally beginning the voting at midnight on Election Day, New Hampshire voted 52 percent for Obama to 46 percent for Romney.

### North Carolina

Median age in the Tar Heel State is 37.4 years; the median household income is \$42,941. The ratio of males to females is 48.7 percent to 51.3 percent. Blacks comprise 20.6 percent of the population; Hispanics are 6.8 percent. Except for a few pockets of more liberal voters around urban areas, the state is a bit more conservative than the US average. The vote was 50 percent for Romney and 48 percent for Obama.



→ The Final Election Results from the Associated Press

### Ohio

The median age of Ohio voters is 38.4 years; population diversity is low. The ratio of male to female is 48.7 percent to 51.3 percent. Median household income is \$44,598; median home value is \$115,294. Market Potential data indicates that Ohio voters are slightly more conservative than the average. Down to the wire, the key vote of the election went to Obama, 50 percent to 48 percent.

### Virginia

The median age in Virginia is 37.4 years. The ratio of males to females is 49.1 percent to 50.1 percent. Population diversity is derived from blacks, who comprise 18.7 percent of the adult population; Hispanics account for 6.9 percent. Median household income is \$58,234; median home value is \$208,968. Virginia voters tend to be slightly more conservative than the national average; however, voters in northern

Virginia and other urban areas skew more liberal. The result was 50 percent for Romney to 47 percent for Obama.

Esri's 2010/2015 and 2011/2016 Updated Demographics data and attitudinal data from its Market Potential database were used in this informal exercise. Election results were courtesy of the Associated Press.

Esri's Updated Demographics data provides a full roster of current-year estimates and five-year projections for population, income, race/ethnicity, home value, net worth, disposable income, and more. Ranked number one for accuracy in a blind, independent study, Updated Demographics data was produced and updated with proven methodologies to provide the highest possible level of precision. Delivered in a wide variety of formats and geographies, Updated Demographics is available as an ad hoc database that integrates seamlessly into GIS software. It is also accessible in products including the Esri Business Analyst product suite, Esri Community Analyst, and ArcGIS Online.

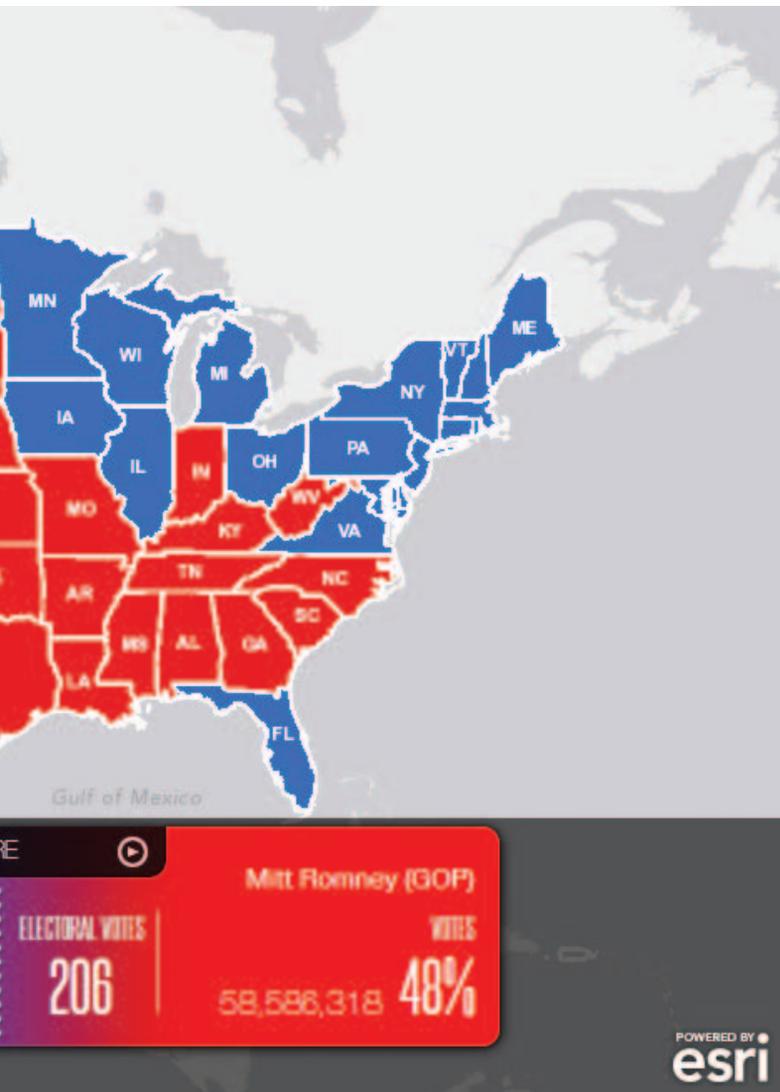
Esri's Market Potential database measures probable demand for a product or service in an area. The database includes the MPI, which measures the probability that adults or households in a specific area will exhibit certain consumer behaviors compared to the US average. The index is tabulated to represent a value of 100 as the overall US demand. The Market Potential data is available in a variety of geographies and formats, the Business Analyst product suite, and reports from Community Analyst.

Government agencies can use these databases for a variety of analyses. For example, agencies can learn whether current services are serving area populations, study population changes, research business opportunities, or examine housing options.

For information about Updated Demographics, visit [esri.com/demographicdata](http://esri.com/demographicdata).

To learn more about Market Potential data, visit [esri.com/mp](http://esri.com/mp).

To view the interactive Associated Press election results map, visit [esri.com/electionmaps](http://esri.com/electionmaps).



Pam Allison, a digital media and marketing strategist and location intelligence consultant, conducted the research described in this article. To read more articles about each battleground state and the election, visit [www.pamallison.com](http://www.pamallison.com).

# Horry County, South Carolina, Improves Access to Parcel Documents

Horry County, the home of Myrtle Beach, is one of the fastest-growing counties in South Carolina. Due to the increasing population and need for government services, Horry County needed a way to provide faster and more efficient services to residents. Horry County streamlined processes by integrating OnBase, its enterprise content management (ECM) solution, with its Esri GIS. The integration connects approximately 57 departments scattered across 1,200 square miles and gives employees the ability to access documents from another department within the GIS interface.

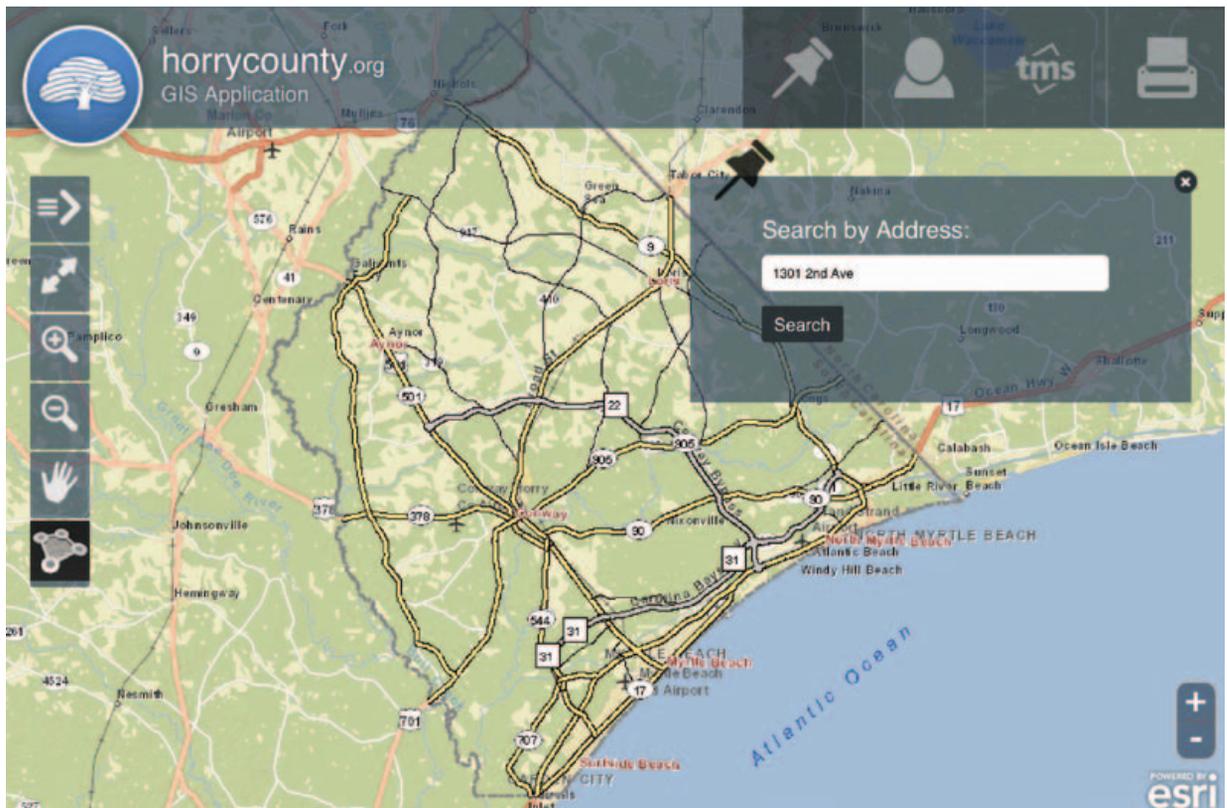
When Horry County implemented OnBase, it required a product with the capability of expanding beyond the traditional scan, store, and retrieve document management model. OnBase not only significantly improved county processes by digitally storing content and routing workflows electronically, it also integrated with its award-winning GIS. The integration made it fast and easy for Horry County employees to find permits, plans, deeds, applications, and more.

At the heart of Horry County's system is the GIS foundation it has been using for years. Staff members from various county departments use the map to get all the documents they need. "GIS is the key that ties all the applications and all the departments together," said Tim Oliver, geographic information officer and assistant CIO of Horry County. Without leaving their GIS interface, staff members can access all pertinent information for a particular location. By clicking on a

parcel on an Internet-based map, an employee can bring up all documents associated with the location. An employee can also start from a document with an address or parcel number, which can then be taken to the map, where more information is available. By connecting ECM and GIS solutions, documents can be quickly retrieved, viewed, and shared across departments.

"In Horry County, all the applications that we've deployed have to be GIS-centric, which means they have to be able to be read from our GIS databases," said Oliver. "So we wanted to make sure we found a document management system where there wasn't some middleware that had to exist." The county started with a pilot ECM project in the Storm Water and Public Works departments and then expanded to additional departments. In the first year and a half, the county estimates it saved around \$300,000 in staff time and file storage costs.

For more information, visit [Hyland.com](http://Hyland.com) or contact Terri Jones, government industry manager, at Hyland Software at [terri.jones@hyland.com](mailto:terri.jones@hyland.com) or 980-219-1765.



→ Employees can use Horry County's GIS application to search for documents related to a specific address.

# Cityworks®

**In the Cloud**



---

Take **CONTROL** of your **ASSETS**.  
PLAN and **ANALYZE** for **SUCCESS**.  
Go **MOBILE**. Enable field workers.  
Be **AWARE** of your **OPERATIONS** everywhere, 24/7.  
**ENGAGE** and empower your **CONSTITUENTS**.

---

Empowering **GIS™** for  
**ASSET MANAGEMENT,**  
**PERMITTING, LICENSING**  
and more!

POWERED BY  
**esri®**

801.523.2751  
[www.cityworks.com](http://www.cityworks.com)



# Tulsa Forges a Path into the Future

Tulsa, Oklahoma, is a city with a rich and proud history. Resources like oil and US Route 66 have helped build this community from the ground up. Now the city has turned to Esri's Community Maps Program to help it define the community from the top down. By becoming a Community Maps contributor, Tulsa has gained access to its own data in a new way. Eliminating the need for hosting and maintaining a basemap service, it can now focus on developing the operational layers that provide other city departments and the public with what they need. Application development manager John Gregorovic, a pioneer and thought leader in the City of Tulsa's GIS department, has been instrumental in providing a vision for how to accomplish this.

**"If I am sharing data with users, I am going to make sure the data is more correct. I want it to be the best it can be."**

John Gregorovic, GIS Department, City of Tulsa

## Joining the Community Maps Program

The first step for Gregorovic was to sign up for a training session. "I actually learned a lot about cartography and great ETL [extract, transform, and load] processes," he said. "The technical workshop was helpful in explaining what I needed to do to get my data integrated into the Local Government [Information] Model."

While the process behind preparing Tulsa's data seemed like an intimidating task at first, Gregorovic was surprised to find Esri willing to meet him halfway. "Initially, I only had 10 to 12 feature classes to submit to the Local Government model, but Esri was willing to accept it and give feedback on what I needed to do in order to meet the standard for the integration process," he said. Contributors like Gregorovic take pride in providing a dataset representing an entire municipality, and with it comes a sense of accountability. "If I am sharing data with users, I am going to make sure the data is more correct," he added. "I want it to be the best it can be."

Gregorovic's utilization of the basemap has provided dynamic information to many of the city's other divisions. The city's Police, Fire, Public Works, Finance, and IT departments all have prospered from the use of the basemap. In addition, Tulsa's 400,000 residents now have access to several interactive maps that allow them to visualize and understand their community in a new way.

This is exactly what has propelled the World Topographic Map quickly into becoming the most comprehensive, authoritative, referenced basemap in the world. Contributors like the City of Tulsa retain ownership of their data and can edit it at their discretion, controlling what appears on the World Topographic Map.



↑ Tulsa, Oklahoma, City Permit Map

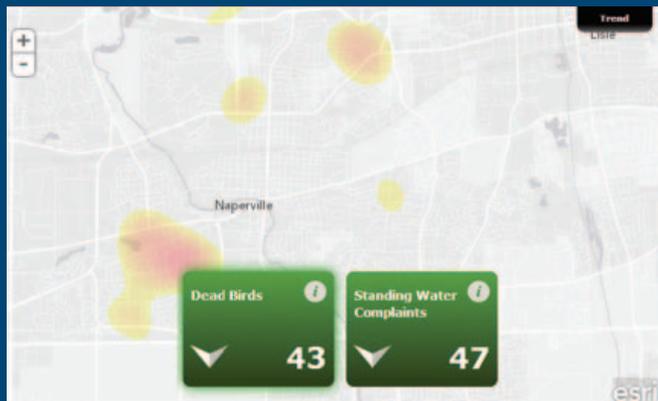
# Esri Online

## Find New Application Templates

ArcGIS for Local Government templates reflect best practices from governments around the country. Visit [resources.arcgis.com](http://resources.arcgis.com) and select Local Government to take a look at new releases including the following:

- The first release of **Executive Dashboard**, an application local government leaders can use to view critical metrics, identify trends, raise questions, and devise new management strategies
- A new version of **My Government Services**, an application that helps residents locate a government facility and obtain information about curbside and drop-off services provided by a government agency

You will also find ArcGIS 10.1 releases of **Water Utility Mobile Map**, **Public Safety COP**, and **Tax Parcel Viewer**.



↑ The Executive Dashboard Application Template

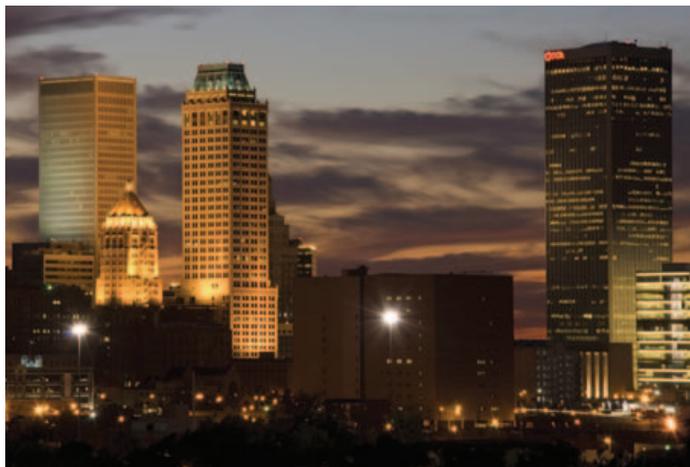
## Explore Upcoming Conferences

The Geodesign Summit is coming up at the end of January. Visit [geodesignsummit.com](http://geodesignsummit.com) to learn about this exciting event, which draws professionals interested in using geospatial technology to create sustainable design solutions. You can also follow the Twitter hashtag #GeodesignSummit to hear the conversations and observations taking place during the conference.

Find information on other upcoming events, including the Esri Developer Summit and Esri International User Conference, at [esri.com/events](http://esri.com/events).

## Expand Your Knowledge of Economic Development

*Economic Development and GIS*, a new book from Esri Press, applies the geographic approach to problem solving originally proposed by Esri president Jack Dangermond. The book, written by J. M. Pogodzinski and Richard M. Kos, describes policy problems and presents methods and techniques to solve them with GIS. You can find the book at [esri.com/esripress](http://esri.com/esripress).



## Using the World Topographic Map in New Ways

Since joining the Community Maps Program in 2010, the City of Tulsa has produced a variety of web maps. Currently, 12 applications based on ArcGIS Viewer for Flex utilize the World Topographic Map as a reference. The Tulsa Police website features the Overall Crime Map, Meth Lab Map, Sex Offender Map, and Traffic Collision Map.

Gregorovic and his team have also created applications for various other departments within their local government. An internal Fire Incident Map allows fire fighters to check hydrants, incidents, and apartments in their immediate area and find the closest station that would be called first in response to an incident. Particularly interesting is the discovery of how a City Permit Map—created for one department—found its way into the hands of another department. It wasn't long after Gregorovic created the map for the Development Services department before another division was taking advantage of it. "We created the permit map for Development Services and found that our Finance department was using it to see what properties were within the city boundaries," he said.

## The Road Leading to the Future

Tulsa is poised to continue revealing and exploring the community, map by map. When asked how the city intends to use ArcGIS Online basemaps in the future, Gregorovic replied, "We would like to keep expanding our datasets and use the basemap for more online mapping projects." Each map has produced benefits for the City of Tulsa by increasing the transparency between departments, allowing them to operate more efficiently, providing citizens with access to important information, and creating relationships based on trust and mutual understanding that underpin the healthy growth and development of the community.

For more information, visit [esri.com/communitymaps](http://esri.com/communitymaps).



**esri**<sup>®</sup>

380 New York Street  
Redlands, California 92373-8100 USA

Presorted  
Standard  
US Postage  
**Paid**  
Esri

133342 QUAD144.2M1/13k



**esri**<sup>®</sup>

Understanding our world.



ArcGIS Online  
**Maps made better.**

(Some assembly required.)

Creating your own map from maps published by other users is just one of many ways to take advantage of the rich collection of data and resources ArcGIS<sup>SM</sup> Online makes available to you.

Welcome to the new frontier in geographic information systems.

**30-day free trial:** [esri.com/agol](http://esri.com/agol)