

Esri News

for State & Local Government

Summer 2018

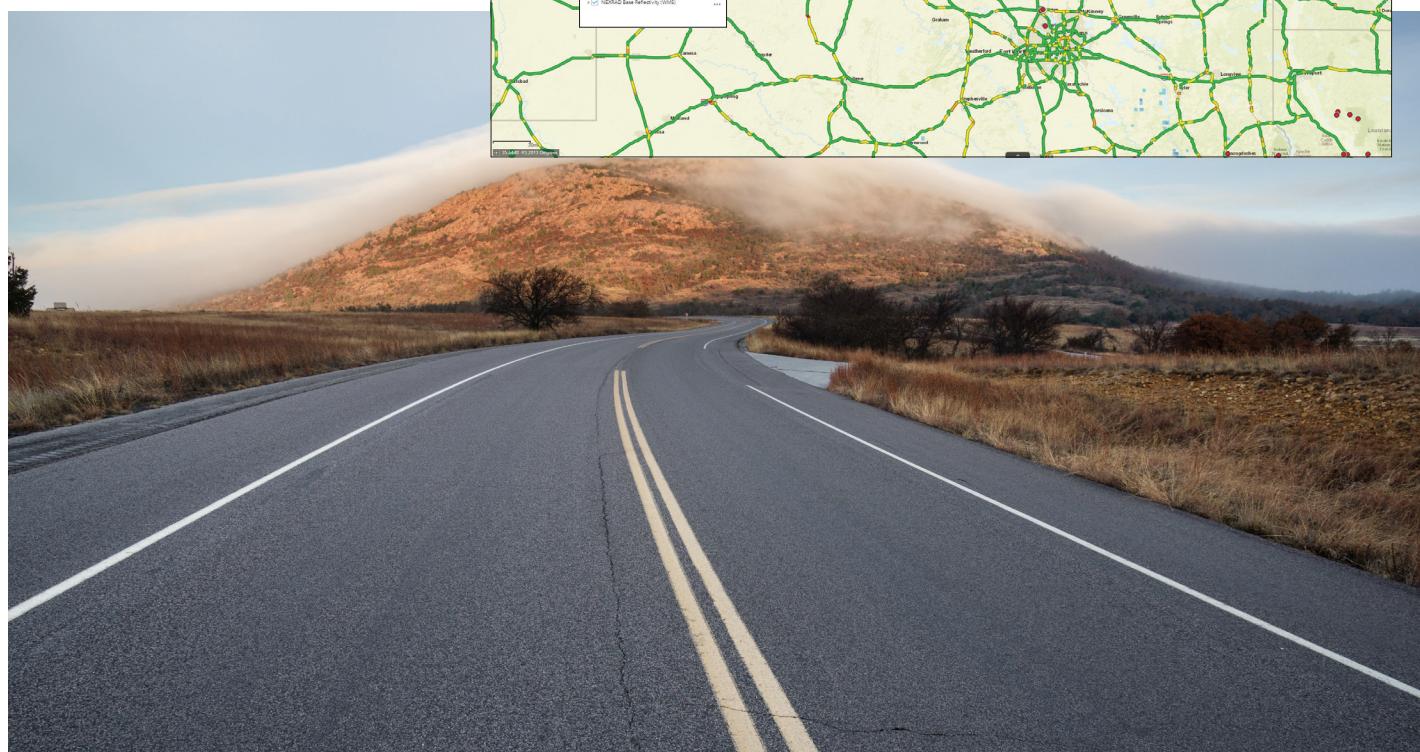
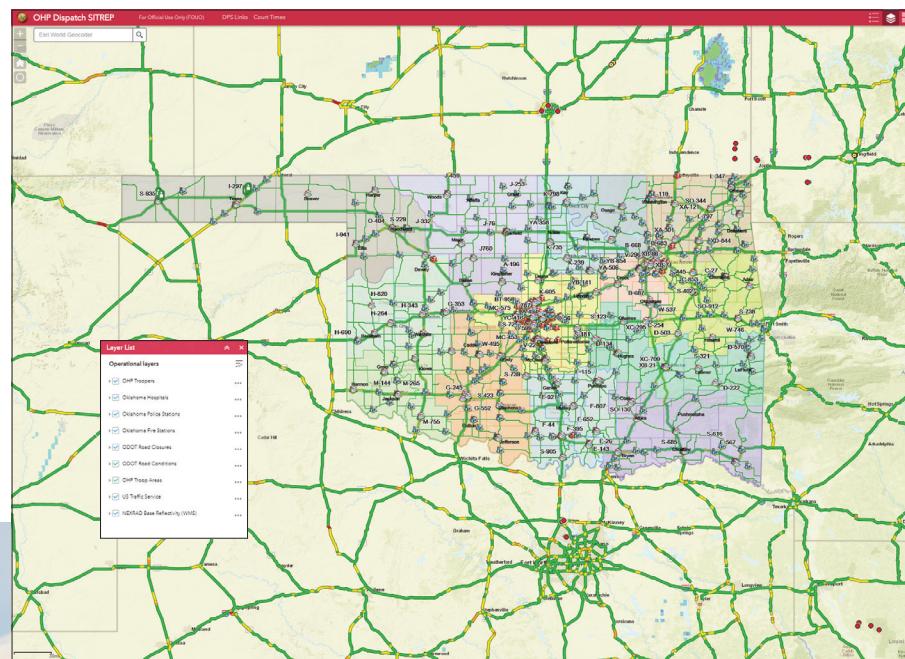
Esri Apps Go on the Road with Oklahoma State Police

When the Oklahoma Highway Patrol wanted a solution to enhance officer safety and increase efficiency, the agency looked no further than Esri technology.

The Challenge

The Oklahoma Highway Patrol (OHP) leadership wanted to modernize its operations and was looking for a solution that could provide a critical, real-time view of where its on-duty troopers are as they patrol Oklahoma's highways. OHP has 800 troopers; 13 communication centers;

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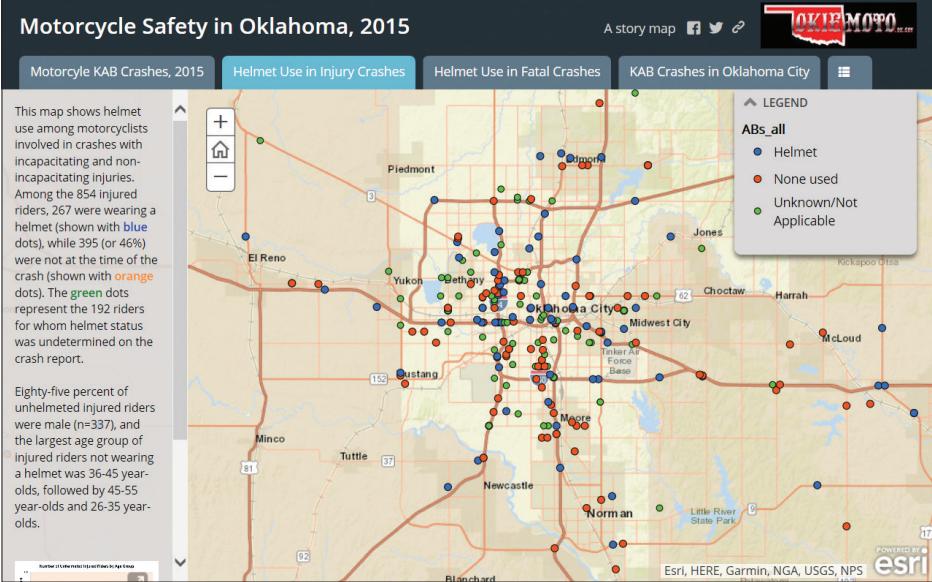
and more than 111,000 miles of roads, highways, and waterways. The management of so many personnel over such a wide geographic area was daunting, and automatic vehicle location (AVL) solutions were cost prohibitive.

The Solution

OHP conducted a 90-day test to find out how many hours and miles in travel time would be saved by making dispatch decisions using Workforce for ArcGIS. In responding to 28 collisions and 23 cases where motorists needed assistance, the test showed a savings of 889 miles and 14 hours in travel time, according to OHP captain Ronnie Hampton. "Mileage is a savings of fuel. Hours [saved mean] a quicker response for the public. The greatest benefit for Oklahomans is the faster response times, especially in rural areas," Hampton said. "The people that

"In responding to 28 collisions and 23 cases where motorists needed assistance, the test showed a savings of 889 miles and 14 hours in travel time."

Ronnie Hampton
Captain, Oklahoma Highway Patrol



benefit from this are the public, by being able to have someone at the scene in 3 or 4 minutes versus . . . 45 or 50 minutes," he said. "That's where your hours of savings come in."

Following the test's success, OHP made Workforce for ArcGIS and ArcGIS Online available to all its troopers. Officers can download the app onto their smartphones, and staff in all 13 communications centers now use one comprehensive statewide web map to track officers' locations in real time. The dispatchers can use the built-in Near Me

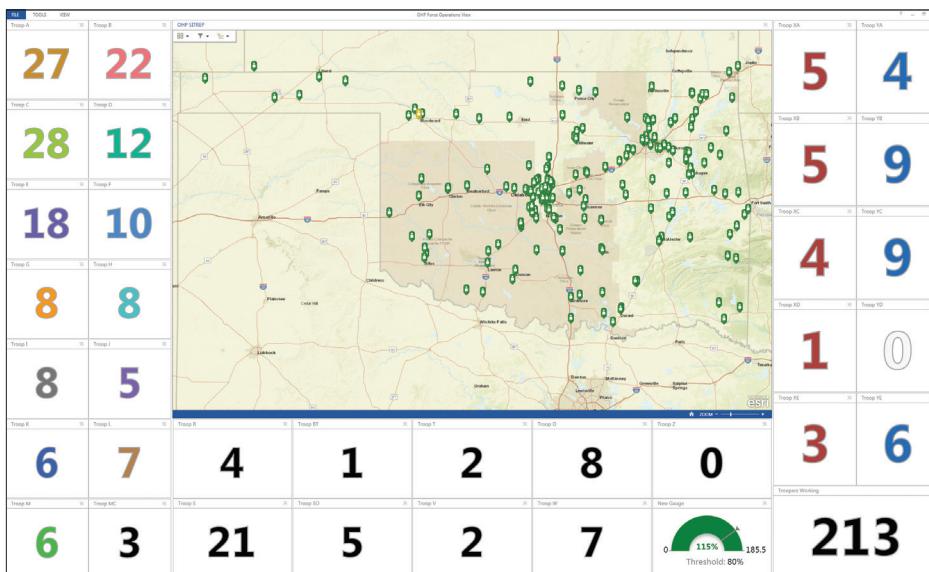
widget to find the officer closest to the scene of an incident. They also can turn on layers in the map to obtain weather information, traffic conditions, and the locations of other available emergency services.

The Results

Most of the information and capabilities in the Dispatch Map are available to on-duty officers using the Trooper Field Map in ArcGIS Online, accessible via the in-car computers mounted in their vehicles. The troopers now have access to shared maps that give them increased situational awareness and help them communicate information about traffic conditions, accidents, and pursuits in real time.

OHP has now expanded its use of ArcGIS to include Esri Story Maps apps for briefings and to share information with the public and assist in prosecutions. In the near future, OHP plans to use Drone2Map™ for ArcGIS to aid in accident and crime scene investigations.

For more information, contact Captain Ronnie Hampton, commander of the Futures, Capabilities, and Plans Division of OHP, at Ronnie.Hampton@dps.ok.gov.



go.esri.com/OKHP

Data-Driven Decisions for Smart Transportation

By Terry Bills, Esri



There has never been a more challenging time in transportation than today. Transportation professionals need to plan and manage increasingly complex transportation systems, all with constrained resources and increasing public expectations. As urban congestion increases, urban travel patterns are rapidly changing with a host of newly emerging mobility options. These remain the central challenges for those smart cities seeking to increase livability in their communities.

That is why leading transportation agencies are increasingly turning to the power of information and a location intelligence strategy to inform better decision-making and become data-driven organizations. Geographic information system (GIS) technology allows transportation professionals to bring information together from across their organizations to improve their operations and their performance and solve today's most vexing transportation challenges.

With the ArcGIS platform, you can create a system of record, which organizes information from your important business systems and provides a single authoritative source of truth that is trusted throughout the organization and united by location. By bringing together information from real-time systems along with new mobility sources drawn from telecom data and other sources, Esri helps you derive new insights from your data.

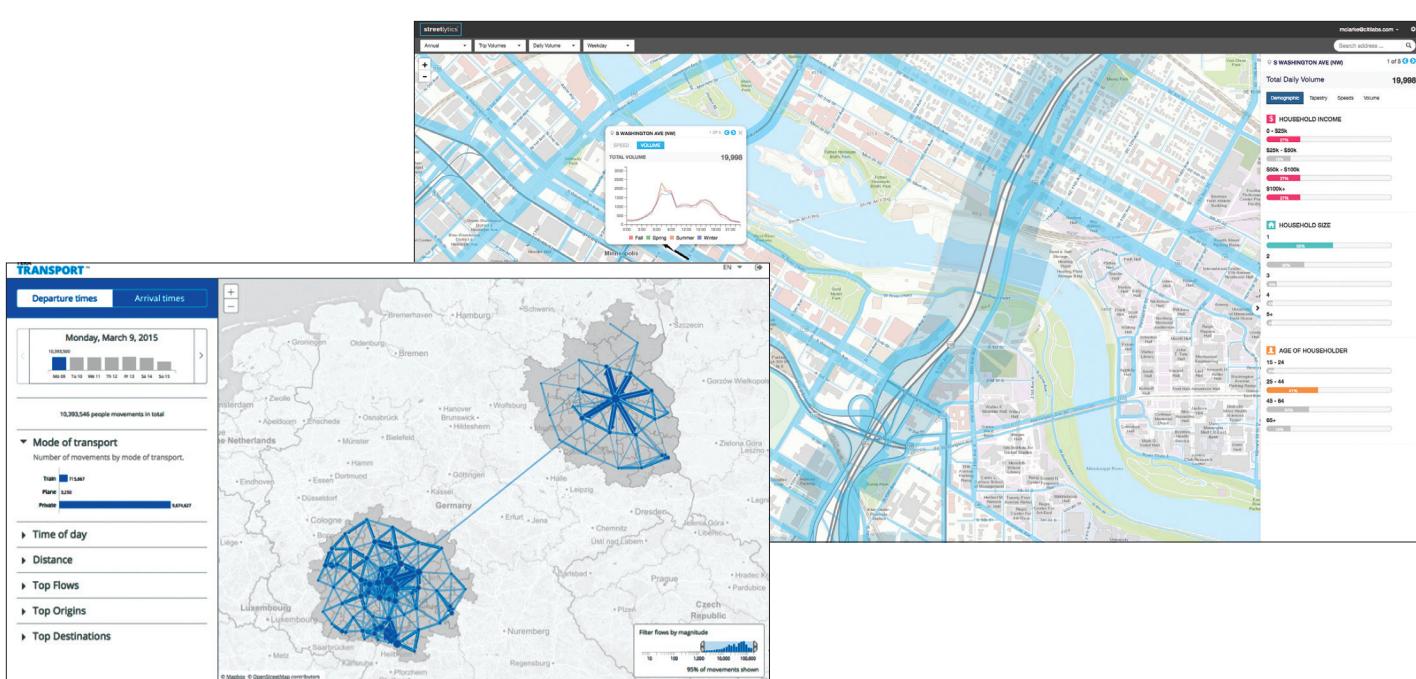
Once your information sources are organized through GIS,

information products in the form of targeted and easy-to-use applications can be built for specific areas. Whether your professionals are in operations, traffic management, maintenance, or incident management, Esri can empower them all. They can discover, analyze, and share information and maps from any device, anywhere, anytime.

Central to any data-driven organization is the ability to effectively monitor performance to continually improve outcomes. The ArcGIS platform delivers the tools to monitor and analyze performance data, helping users derive new insights and understand new strategies.

A final key to an organization's success lies in its ability to effectively collaborate among agencies and communicate a strategy to engage the larger community—two hallmarks of effective, smart cities. Esri's GIS technology provides a framework to facilitate data sharing and collaboration within or between agencies, allowing everyone to work with the same data and understandings. At the same time, a new generation of transportation professionals is discovering the power of Esri Story Maps templates. These multimedia presentations combine high-quality graphics, maps, text, and videos to present each element of a plan.

I invite you to learn how you can develop a location intelligence strategy and become a data-driven organization to solve your community's mobility challenges by going to go.esri.com/smarterDOT.



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ArcGIS Facilitates Collaboration and Engagement

Data Sharing Success Stories

Organization	Department	Problem
State of Arkansas, USA	Arkansas Department of Parks and Tourism	The Arkansas Department of Parks and Tourism (ADPT) needed a solution to support daily operations, help in the planning and development of physical assets and facilities, and provide critical and timely information to staff and park guests.
City of Tempe, Arizona, USA	Information Technology Division	The City of Tempe's goal was to create a centralized and open data site available to employees, partners, and citizens. An open data site would enable departments to maintain and exchange authoritative data and increase transparency with the public.
Valley Metro, Phoenix, Arizona, USA	Public Transit	With a need to replace its time-consuming and inflexible spreadsheet-based methods, Valley Metro sought to develop an authoritative source of public transit ridership information for transportation planners and staff, which could also be accessible to the public via the Internet.
City of Long Beach, California, USA	Technology and Innovation Department	The City of Long Beach identified a need to get more from its open data by making it more actionable and efficient. City leaders believed a more engaging user environment, integrating data with maps and charts, could help to quickly relate neighborhood stories while improving economic development, citizen engagement, and transparency.
City of Aurora, Colorado, USA	Social Services	When faced with a need for better accounting of sheltered and unsheltered homeless persons within city boundaries for a mandated point-in-time count, the City of Aurora looked to replace its paper-based survey and analysis with a modern digital approach to collecting the data in a single night.
State of Alabama, USA	Alabama Law Enforcement Agency	The Alabama Law Enforcement Agency (ALEA) needed a better way to manage how it shared data among state employees and also with citizens. The agency developed a goal to create an open interactive platform for the discovery, access, exploration, and visualization of geospatial data in a collaborative environment.
City of Salem, Oregon, USA	Information Technology Department	The City of Salem GIS sought to make better use of its GIS capability in support of city initiatives and projects, as well as improve collaboration, efficiency, and communication in all aspects of city government. A primary objective was to embrace smart cities concepts, leveraging its ArcGIS investment to instill a culture of data sharing and spatial intelligence.

Solution Using GIS	Result
ADPT configured a cloud-based information management system with ArcGIS Server and ArcGIS Online to create custom web applications to support staff in the office and field and improve the experience of park visitors. Workers use mobile applications to locate underground assets and property boundaries and keep facilities data current.	The cloud solution greatly facilitates communication and collaboration between workers by streamlining the management and accounting of construction projects throughout the state. Customers have access to more usable trail and campground maps and a variety of other media and publications used for visitor information, marketing, and exhibit production.
To unify the GIS work of several departments, the city created an enterprise GIS group under the Information Technology Division of Internal Services. The group implemented Portal for ArcGIS and developed its ArcGIS Online platform to enable easy access, creation, and maintenance of data, as well as the creation of web and mobile applications for the public.	Tempe improved access to government information by creating a centralized method for collecting, maintaining, and sharing data. Public records—once only available upon request—are now viewable online, saving citizens time and effort and providing greater insight into the community.
Working closely with Esri, Valley Metro quickly configured Web AppBuilder for ArcGIS to create its Ridership Data Portal, an open data site to provide commuters with anytime access to daily ridership figures for single or multiple bus stops.	With four to five million trips per month, Valley Metro greatly improved its efficiency in analyzing ridership patterns. Simple ridership queries that formerly took several hours to complete can now be performed online for the entire system with just a few mouse clicks, saving an enormous amount of time and effort.
The city used Esri's ArcGIS Enterprise, ArcGIS Online, ArcGIS Open Data, and solutions from Esri partners to create DataLB, its centralized portal that enables citizens to explore, visualize, and download data that has been made publicly available.	The DataLB portal allows citizens to analyze and combine open data layers using only a map viewer. Residents can view detailed geographic datasets, allowing them to see their government in action and have a better understanding of the precise location where city projects will be funded and the scope of work being done.
Using Survey123 for ArcGIS, IT GIS staff were able to quickly create a digital survey accessible via a URL. The survey link was given to the volunteer staff, who were able to input the survey information with very little training due to the streamlined and easy-to-use nature of the application.	The project helped to alleviate hours of manual tallying of hand written data and digital data entry for city staff, as well as provided a more accurate and valuable assessment of the homeless population throughout the city.
ALEA's needs resulted in a project to develop a state data portal dubbed the Alabama GeoHub. The portal was built on the Esri ArcGIS Hub with ArcGIS Online used to create desktop and mobile apps on demand by employees and citizens and view community data in more insightful ways.	The Alabama GeoHub provides effective operational, strategic, and executive decision-making capabilities. It helps optimize the health and resilience of communities by increasing the transparency of public information. And it enhances the safety, economy, environment, and quality of life in Alabama.
The city implemented an enterprise license agreement for the ArcGIS platform to utilize much of the Esri product suite. The Information Technology Department created online-based apps using Web AppBuilder for ArcGIS to facilitate the flow of information internally and engage citizens on key initiatives by providing more visual, analytical, and storytelling content.	Portal for ArcGIS improved collaboration by allowing information to be shared across departments. ArcGIS also improved communication with the public, increasing citizen engagement with greater transparency and improved online experiences. Public works staff automated data collection to monitor field data in real time, expediting the decision-making process.

Learn more about solutions for smarter data sharing at go.esri.com/datasharing.

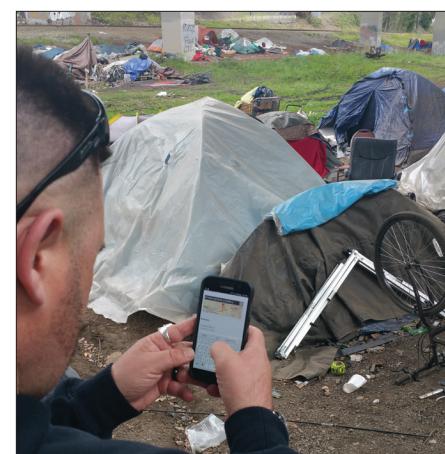
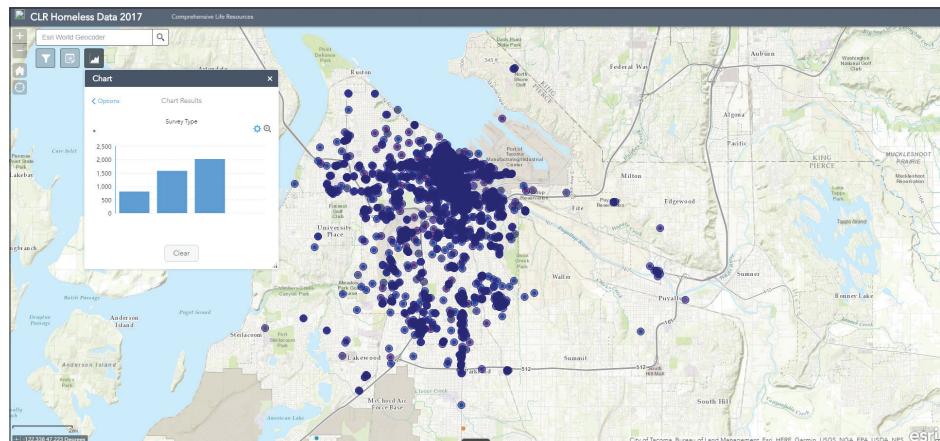
Collaborating to Curb Homelessness

Several years ago, the City of Tacoma, Washington, began working with community partners to address issues related to mental health, substance abuse, and homelessness. After soliciting community feedback, the city partnered with Comprehensive Life Resources (CLR), a nonprofit organization that offers mental health, homeless, housing, and other human services to residents in and around Tacoma.

One of CLR's programs, called Positive Interactions, assists local businesses in addressing concerns related to homelessness and blight. Tailored to fit the needs of both businesses and individuals experiencing homelessness, Positive Interactions operates a response line that business owners and community members can call to express their concerns about homeless activity in their areas. CLR field crews then engage directly with the homeless individuals in a way that is sensitive to the traumas they have faced to learn their needs and connect them with services.

To get Positive Interactions started, CLR employees collected field data about businesses and Tacoma's homeless population on paper and then completed fillable forms in Microsoft Word once they got back to the office. It was common to have lapses in time between interacting with homeless individuals and submitting the forms, which often resulted in lost or inaccurate data. CLR also needed to record spatial information, analyze data, track time and resources, and create reports—but it couldn't do any of this easily.

So CLR approached Frontier Precision (frontierprecision.com), which suggested that the organization employ Survey123 for ArcGIS on employees' phones and tablets to gather data in the field. Since nobody at the nonprofit had experience with GIS, CLR had Frontier Precision assist in configuring, deploying, and



managing the survey and the data.

CLR deployed the digital survey in September 2016, and since then, employees have submitted almost 5,000 surveys. With so much data, CLR can analyze it to find trends and patterns in where homeless activity takes place, how homelessness changes during different seasons, and how demographics factor in. Now, management can better deploy field crews to areas with high levels of homeless individuals. And crew members can view prior surveys to figure out if the homeless individual they are about to visit has been contacted before and follow up with him or her on services that were previously offered.

After Frontier Precision demonstrated how helpful GIS is and how easy it is to

use, CLR fully embraced the technology by deploying it across the organization in several different programs. Starting this year, CLR will have a public resources locator that will help members of the community and case workers find housing, financial, and legal services for those in need. Additionally, CLR will employ Survey123 for data collection related to its gang reduction project, its mobile community intervention response team, and for foster care case management.

Learn more about managing your indigent population at go.esri.com/frontier.

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Uplifting Blighted Neighborhoods

Transform Problem Areas into Community Assets

ArcGIS for Blight Remediation is a location-based solution that can help communities manage distressed properties and make them marketable. ArcGIS for Blight Remediation provides local governments with a framework to revitalize neighborhoods and address common issues:



Recapture Lost Revenue

Vacant and foreclosed properties, once fallen off the tax roll, pose a significant decrease in revenue to local governments. Blighted structures diminish revenue by depressing the value of neighboring properties. Start reversing the downward slide. Regain lost revenue by proactively managing and revitalizing blighted properties.

Contain Costs

Beyond depressing revenue, neighborhoods in distress put a strain on the budgets of local government departments by requiring frequent and expensive service calls. Blighted properties are hot spots for crime and disease and are targets for arson. They present a dangerous environment for neighborhood residents. Local governments can lessen their exposure to these financial liabilities by taking measures to rehabilitate and contain blight where it exists and before problems can multiply. Reducing the cost of servicing blighted areas increases operating budgets, ensuring a higher level of service to the entire community.



Esri solutions help local governments breathe life into troubled neighborhoods by returning vacant and abandoned properties to productive use. Apply the power of location to help understand the scope of blight issues, manage cases, and collaborate with stakeholders. Learn more about how ArcGIS for Blight Remediation can help renew growth and uplift your community.

Learn more at go.esri.com/newstart.



Foresee Potential Problems

Use available data to identify areas of potential blight before problems can take root. Key indicators signal when neighborhood properties are potentially at high risk for abandonment and foreclosure. Once a neighborhood shows early signs of being at risk, local governments can take proactive measures by offering programs to help keep residents in their homes, creating more feet on the ground with citizen-based action groups, and dispatching code enforcement officers more frequently.



Empower and Engage Citizens

Online data portals allow local governments to offer housing information online, empowering the public to combat blight in their own communities. Greater data transparency allows the inclusion of people and organizations—beyond limited city staff—to become part of the solution. Community activists, nonprofit groups, and public-private partnerships can mobilize around the data to participate in making informed strategies about how to stabilize neighborhoods and begin restoring properties.

It Takes a Village: Using an Enterprise-Wide Approach in Public Asset Management

By Doug Ritter, Ritter GIS, and Sara Adelman, Cityworks

The village of Arlington Heights, Illinois, is a progressive and vibrant community nestled in the outskirts of Chicago. But don't let its village classification fool you. With a population of more than 75,000 and growing, Arlington Heights is the most populated village in the United States.

The Arlington Heights Public Works Department recognized the power of ArcGIS to increase efficiency and improve service delivery. Although the village had GIS data, its existing asset management system didn't connect with the data in any meaningful way.

"Public works staff needed to use the village's GIS system with our work management software," said Steve Mullany, public works services coordinator at





Arlington Heights. "Our department administrators also wanted to make sure the work management system could expand across departments while still being cost-effective."

That's why, in January 2017, Arlington Heights partnered with Ritter GIS Inc. to implement Cityworks, a web GIS-centric enterprise platform for public asset management. Built exclusively on Esri's innovative ArcGIS technology, Cityworks helps local governments leverage the inherent power and capabilities of ArcGIS through spatial analysis of work activities, mobile field operations, and analytics.

Arlington Heights committed to an aggressive six-month implementation, and it created a project leadership team that worked closely with Ritter GIS every step of the way. During implementation, every public works division participated in meetings and training. Together, the leadership team collected and documented several hundred artifacts from existing practices and developed new workflows.

In the first phase of the project, team members focused on converting valuable workflow and historical data to GIS feature classes and services. For example, they converted a Microsoft Access database previously used for tracking water main breaks and associated the data to individual main segments in the GIS. Various attributes were updated to seamlessly track key maintenance information such as inspection date and GPM (gallons per minute). And they created a customized basemap tile layer (.tpk) for mobile device integration and accessing feature layers while working in the field.



Easing the (Work)Flow

With the GIS data in place, the next phase focused on integrating and streamlining business processes across the enterprise. The first group to go live had a very specific use in mind—hydrant flushing. Each spring, the Arlington Heights water distribution team dedicates two weeks to inspecting, flushing, and maintaining more than 4,200 hydrants across the village.

"Before this implementation, our staff had to complete hydrant inspection forms on paper," Mullany explained. "Now, the supervisor can see the progress of the crews every morning and what items need to be repaired right off the inspection list."

To make this happen, the team built a customized hydrant inspection form to incorporate all the necessary points of inspection. Each crew member is now equipped with an iPad and a unique login to use in the field. Once an inspection is complete, the hydrant disappears from the mobile view, eliminating any overlap with crews on offsetting shifts. The crew also submits notes and photographs to help the foreman determine appropriate repairs.

Once repairs are identified, the team can create work orders and assign them to the appropriate crew. All inspections and repairs are automatically associated with the GIS asset, creating a system of record for historical data such as inspector name, inspection date, and all observation results. The team also uses Crystal Reports to automate the gallons-per-minute calculation for each hydrant and compare the data with previous years.

Results Speak Volumes

By the end of the project, Ritter GIS had directly integrated Cityworks with Arlington Heights' implementation of ArcGIS Enterprise across multiple departments. This includes not only utility layers, such as water, storm water, and wastewater, but also forestry zones, building footprints, and traffic signals.

Initially, Arlington Heights projected 90 users of the new system, but that number has since grown to 160. Today, more than 13 divisions are using ArcGIS and Cityworks to streamline their work. From facilities and fleet to the senior center and health department, everyone is using Cityworks and ArcGIS in some way.

"One of the biggest improvements we saw is that employees are invested in contributing to the GIS," said Mullany. "Management, staff, and field crews are excited to enter their information into Cityworks from their desktop, iPad, iPhone, and Android devices."

Staff at the village manager's office took the system of engagement one step further: public engagement. They integrated SeeClickFix with Cityworks and ArcGIS to seamlessly receive and monitor service requests while effectively giving residents a one-stop shop to report issues.

With this integrated solution in place, Arlington Heights now has a reliable system of record, system of engagement, and system of insights. By applying these systems on an enterprise level, Arlington Heights can build a more resilient, responsive, and safe community for its residents—a smart community.

For more information, contact Sara Adelman of Cityworks at sadelman@cityworks.com or 801 523-2751, ext. 1042.

Learn more at
go.esri.com/cityworks.

Location Intelligence Ensures Tornado Warnings Work When It Matters Most

With Survey123 for ArcGIS and Lucity, Tuscaloosa County Inspects Sirens in Real Time

By Raj Patil, Lucity

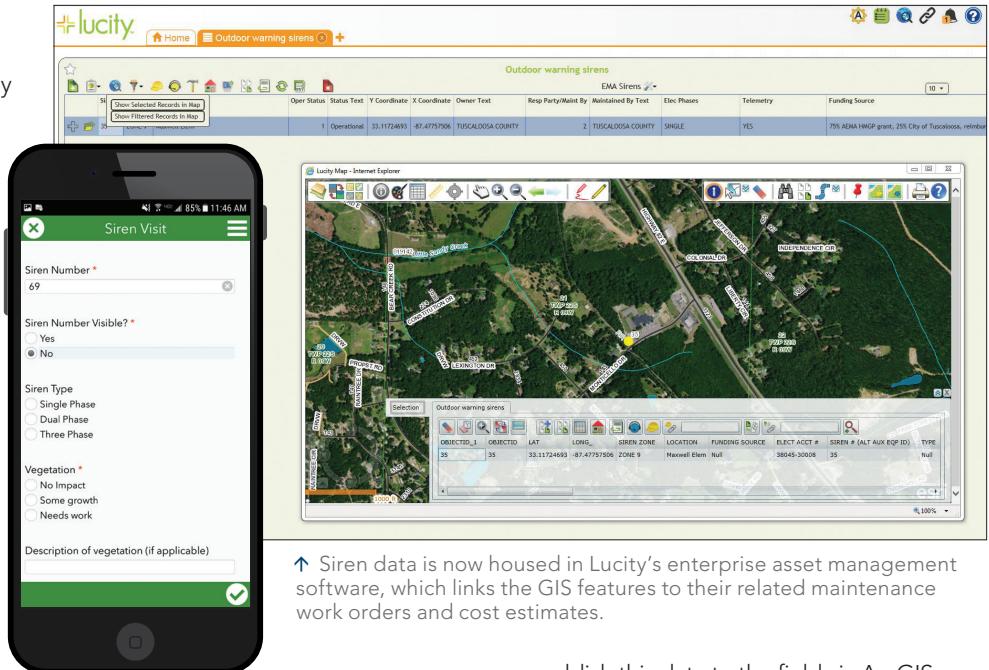
If a natural disaster were to strike in Tuscaloosa, Alabama, the Tuscaloosa County Emergency Management Agency (TCEMA) would provide leadership, planning, education, and resources to protect lives, property, and the environment. The multijurisdictional organization—jointly funded by the City of Tuscaloosa, the City of Northport, and Tuscaloosa County—serves all jurisdictions and stakeholders in the county, which is Alabama's second largest by land area. TCEMA also coordinates state and federal resources when any are needed in a disaster management situation.

As part of its disaster preparedness and planning operations, TCEMA maintains outdoor warning sirens located throughout the county. These sirens are used to alert the public about tornadoes, which are relatively common in the southeastern United States. As early warning tools, they are also critical to managing disaster response activities, including mobilizing first responders, coordinating storm shelter needs, and facilitating timely evacuations.

TCEMA needed a way to track not only the siren assets but also its fleet and equipment. Which is why the agency opted to gain location intelligence using the ArcGIS platform along with Esri partner Lucity's enterprise asset management system.

Tracking Siren Inspections in the Field

With its tornado siren data strewn across spreadsheets, shapefiles, SDE files, map books, and paper records, TCEMA was finding it challenging to track the various activities related to doing siren



▲ Siren data is now housed in Lucity's enterprise asset management software, which links the GIS features to their related maintenance work orders and cost estimates.

inventories; conducting inspections; performing maintenance; and putting together reports for the Federal Emergency Management Agency (FEMA), since many of the sirens were purchased with federal grant funding. Monitoring these activities was inefficient, time consuming, and costly—and most importantly, it affected the agency's ability to maintain up-to-date information about the sirens to adequately forewarn citizens of potential danger.

To fix this, TCEMA began by making it easier to document inspection and maintenance data. Starting in January 2017, TCEMA identified and validated information about all its sirens in the field. Then, the Tuscaloosa County Public Works (TCPW) department, as a collaborative partner, imported the existing siren shapefile features into its enterprise geodatabase. Finally, Jeannette Byrd, a mapper and GIS analyst at TCPW, set up a web feature service to

publish this data to the field via ArcGIS Online. Within approximately three months, TCEMA had a functioning field solution.

Now, using an easily configured Survey123 for ArcGIS app that TCEMA built, authorized users from TCEMA and TCPW can visualize and interact with the siren features in real time. They can record the required attributes for a siren inspection—such as whether or not the siren is functioning and if there is vegetation that could interfere with its operation—and simultaneously view and correct each siren's mapped location. With the siren data now housed in Lucity's enterprise asset management software, the GIS features are linked to their related maintenance work orders.

"TCEMA is now able to leverage the Esri platform within and outside the office," said Byrd. "It was simple for us to import the old shapefile of siren locations to our enterprise geodatabase and create the Survey123 application.

The app allows the EMA specialists to concurrently record a siren inspection and check the existing mapped location of that siren. The easy pick list format of Survey123 ensures the integrity of the data and a smooth data import into our Lucity asset management system. Tracking work orders in Lucity allows us to document maintenance and, therefore, [reduce] costs."

In addition to optimizing how TCEMA tracks siren inspection and condition data in the field, this real-time process enables the agency to complete its inspection and maintenance reports more quickly and accurately. By giving authorized employees shared access to and visibility of important public service information in the ArcGIS platform—at any time, and from anywhere—TCEMA was able to achieve higher levels of productivity.

"For a project such as this, cost is always a factor," said TCEMA director Rob Robertson. "The agencies were able to leverage existing Esri and Lucity deployments. Both platforms are flexible, making it easy to adapt our technology investment and increase the [return on investment] of stakeholders' tax dollars."

The data in TCEMA's ArcGIS platform

is also shared with Lucity, the agency's system of record for work and maintenance activities. This means the data only has to be updated once before authorized users can have transparent access to the siren data published and shared through ArcGIS. That way, TCEMA and TCPW can easily track and follow up on the work activities that are required to

- Perform routine maintenance on outdoor warning sirens.
- Ensure that sirens are in proper working condition.
- Maintain regulatory compliance regarding safety and operational readiness.
- Achieve the desired level of disaster preparedness.

"As the outdoor warning sirens age, maintaining these assets becomes more critical," pointed out Robertson. "Having them accurately mapped and tracked means better siren performance and more efficient use of agency funds."

Optimizing Field Visits Even More

By leveraging the mobile and web capabilities of the integrated ArcGIS platform, TCEMA has achieved significant

efficiencies in managing its outdoor disaster warning systems. Using focused, mobile apps together with the spatial, interrogative, and analytical functions of ArcGIS Online has made it easier for field operations staff to check, fix, and report on critical assets as well as coordinate response activities during disaster events.

"The Esri and Lucity platforms are flexible enough to allow us to inspect, maintain, and track county assets not only during routine workflows but also during emergency situations," said Robertson. "Our agencies work together under the Tuscaloosa County umbrella, and now we have a unified system to document and analyze our cooperative efforts."

As part of its ongoing endeavor to further optimize field visits, the agency is looking to use Navigator for ArcGIS, which is also integrated with the Lucity work management platform, to help siren inspectors and maintenance workers travel more efficiently to each siren's location when needed. This is expected to strengthen TCEMA's operational foundation and boost workforce productivity, helping the small agency meet its goals more effectively.

"Tuscaloosa County has many remote, rural areas," pointed out Tyler Deierhoi, a GIS and emergency management specialist with TCPW. "Navigation capabilities enable inspection activities to be made efficiently, often when TCEMA staff may be in the area for other types of work. This enables us to not only save on employee hours but also on fuel costs related to travel."

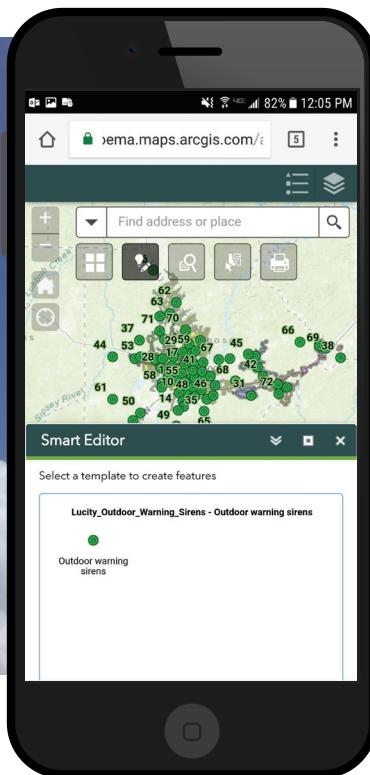
Deierhoi, along with his colleagues, looks forward to continuing to expand the county's use of GIS and enterprise asset management technology to support additional improvements in emergency management and response across Tuscaloosa County. Learn more at go.esri.com/Tuscaloosa.

About the Author

Raj Patil is the director of strategic partnerships, marketing, and international business at Lucity.



↑ Using Survey123 for ArcGIS, TCEMA specialists can check a siren's location on the agency's existing map at the same time that they conduct a siren inspection.





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