Esri News
for State & Local Government
Winter 2018

Helping the Homeless with GIS

By Kiersten Langerud, Esri

For the Southern California cities of Redlands and Rancho Cucamonga, homelessness has been a growing issue. To better understand and help alleviate this problem, the police departments in these cities turned to the use of geographic information system (GIS) technology.

The Challenge

The Rancho Cucamonga Police Department (a contract agency for the San Bernardino County Sheriff's Department) and its Solution Oriented Policing team began to receive an increasing number of calls about homeless people in the city. It was difficult for the deputies to communicate this new data to the other departments within the city or for those departments to share homeless camps data with the police team. The City of Redlands was also experiencing a growing number of homeless people and was looking for a way to track them. To address these issues, the police departments of both cities sought a solution that would help them gain a better understanding of their homeless populations, what services the cities could provide, and how the data could be shared within their respective police agencies and with other departments.

The Solution

After researching data collection options, both cities decided to use GIS to help address their problems with the homeless camps and populations. Rancho Cucamonga developed a mobile solution with the Collector for ArcGIS web app to allow staff to easily communicate between departments by giving them real-time updates on all cases opened by any relevant department. The Redlands Police Department decided to implement a GIS strategy with Esri's Survey123 for ArcGIS app, which provides the department with a fast and efficient data collection system.

The Results

These apps ultimately allowed the cities' police departments to better understand the homeless population; the problems

homeless face; and what services they could benefit from, such as assistance in finding shelters, Veterans Affairs, and county mental health services. Since deploying Collector and Survey123, both Rancho Cucamonga and Redlands have greatly improved the efficiency of their police departments in addressing homelessness in their respective cities. Using these

continued on page 3

Contents

Winter 2018

***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.

View *Esri News for State & Local Government* online at esri.com/statelocalnews, or scan the QR Code below with your smartphone.

Advertise with Us

Email ads@esri.com.

Submit Content

To submit articles for publication in *Esri News for State & Local Government*, contact Natalie Jung at Njung@esri.com.

Manage Your Subscription

To subscribe, unsubscribe, or make changes to your Esri subscriptions, please go to esri.com/updates.

If outside the United States, please contact your international distributor to subscribe, unsubscribe, or change your address. For a directory of distributors, visit esri.com/distributors.

Circulation Services

For back issues, missed issues, and other circulation services, email requests@esri.com; call 909-793-2853, ext. 2778; or fax 909-798-0560.

Helping the Homeless with GIS

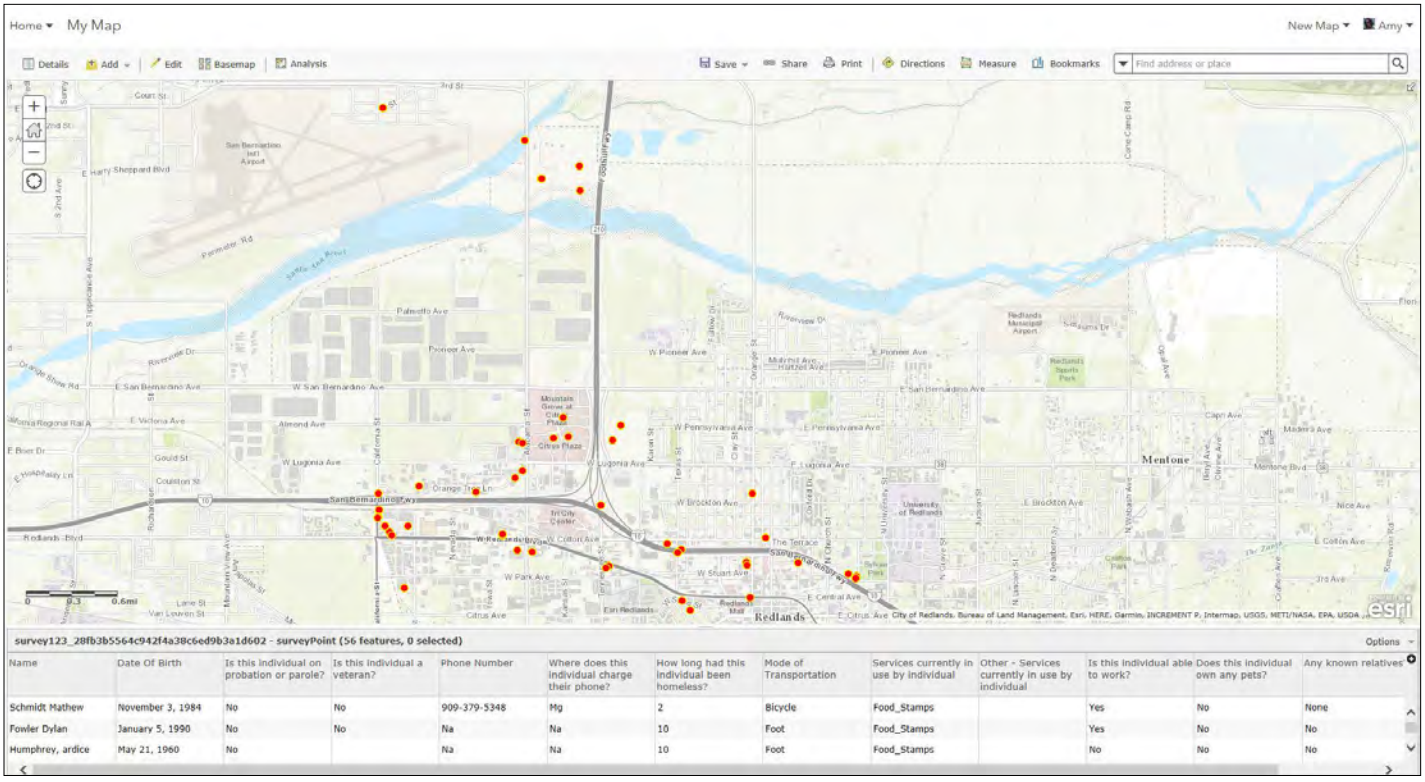
continued from cover

apps, Redlands identified 164 homeless adults and children and Rancho Cucamonga made 215 contacts with the homeless. These include multiple contacts with the same individuals. Specifically, Rancho Cucamonga Police Department has been better able to share its stories, resulting in increased collaboration and exchange of real-time data with other relevant departments. And since Redlands implemented the use of GIS, it has been more successful in identifying its homeless population and is better able to provide these people with appropriate resources, housing, and other assistance.

Because of this shared use of GIS, Rancho Cucamonga and Redlands are now looking at using GIS technology to collaborate on addressing this problem. The plan is to work with neighboring cities to develop best practices for San Bernardino County in its entirety.

> The app has been an innovative step in homeless outreach and marks a successful merging of GIS services and efforts to assist the homeless.
>
> **Amy Varela, CCIA**
> Crime Analyst
> Redlands Police Department

go.esri.com/RanchoAndRedlands



Name	Date Of Birth	Is this individual on probation or parole?	Is this individual a veteran?	Phone Number	Where does this individual charge their phone?	How long had this individual been homeless?	Mode of Transportation	Services currently in use by individual	Other - Services currently in use by individual	Is this individual able to work?	Does this individual own any pets?	Any known relatives
Schmidt Mathew	November 3, 1984	No	No	909-379-5348	Mg	2	Bicycle	Food_Stamps		Yes	No	None
Fowler Dylan	January 5, 1990	No	No	Na	Na	10	Foot	Food_Stamps		Yes	No	No
Humphrey, ardice	May 21, 1960	No		Na	Na	10	Foot	Food_Stamps		No	No	No

The Geospatial Peter Principle

By Brent Jones, Global Manager, Esri
Twitter @Brent__Jones

Are you familiar with the Peter Principle? If you're not, it's the management theory of author and educator Laurence Peter, summarized as follows: if you perform well in your current position, you'll get promoted, but eventually you'll be promoted to a position that exceeds your competence level.

This also happens to parcel maps. The parcel map is arguably the most useful data layer in a government's GIS, used by public works, planning, public safety, and economic development professionals and just about everyone who uses municipal data. Originally created for fair and equitable taxation, parcel maps are now much relied on by many departments and agencies—despite the fact that these maps often aren't the right fit for the job. I call this the Geospatial Peter Principle: data use evolves beyond the capabilities of the data.

Original Purpose

Many parcel maps were first developed by researching survey plans and deeds. Property descriptions were overlaid on aerial photographs and then drafted onto linen or Mylar. As time went on, these maps were digitized and maintained in CAD format. It was easy to share an electronic CAD file, so parcel maps were distributed throughout government. Naturally, the uses and the number of users of these maps grew.

It's been said that we may not be the most valuable users of our own data, and this is especially true of the creators of parcel maps. They probably didn't envision who'd be using their maps. For example, public works departments need a high level of positional accuracy, public safety departments need current situs addresses, and utilities need detailed right-of-way information. All this should be provided by the parcel map, but it may not meet all the external users' requirements. "For departments and agencies that must update their own maps, having a parcel mapping standard—such as Esri's—that meets the majority of their needs leads to decreased maintenance.

Parcel Fabric Self-Repair

We can't remap to meet the evolving accuracy requirements; we have neither the time nor the money. The solution is to implement workflows that incrementally improve the quality of our data with our daily work so that, over time, our data is improved without costly remapping. For parcel maps, this is done with the parcel fabric. The parcel fabric is a set of standardized workflows for all things related to parcels (splits, merges, subdivisions, etc.), and a data model that leverages the survey data on plans and deeds to improve the spatial accuracy of the parcels. Use of the parcel fabric not only improves data but also increases efficiency. Many users report a 50 percent increase in parcel throughput using the fabric.

Improved mapping isn't enough, however. Like a relay runner handing off a baton, data managers need to be sure they're sharing parcel maps in a way that lets recipients run with the data. Unfortunately, some parcel maps are more like lead pipes disguised as batons.

Modern Sharing

Data sharing has come a long way from providing paper maps and map books. CAD helped us share very large datasets quickly and easily but created some problems. There were many copies of CAD parcel maps in several departments, resulting in duplicate datasets and many versions of the truth, so to speak. GIS, by contrast, is inherently epistemic and demands high-integrity data. Modern data sharing isn't about sharing paper maps or CAD files; it's about sharing authoritative data with useful web services. This is the backbone of Web GIS. Sharing via web services allows the steward of the data (in this case, parcel data) to maintain data, and users can connect to the service and use the current data. And this extends to the public, so citizens have access to the same version of the truth that's used within government. This is done with open data—a new set of tools that allow citizens to easily search for and map a wealth of government datasets.

Uses of our data aren't static; they're growing and evolving every day. Consequently, the usefulness and quality of data need to coevolve with the growing population of data consumers. Only purpose-built data models, task-specific apps, and workflows that improve our data with our daily work will stave off the obsolescence that gave rise to the Geospatial Peter Principle.

Learn more at go.esri.com/LR-WhitePaper

YOUR CITY NEVER SLEEPS

Power | Water | Waste Water | Streets | Buildings | Traffic | Safety | Emergency | Airports | Business Services

THE RISE OF GIS-CENTRIC SMART CITIES IS NO COINCIDENCE.

In an "always on" world, local municipalities and utilities are leading a digital transformation by implementing GIS as a smarter foundation to managing their infrastructrure and business services. Built exclusively on Esri® ArcGIS® technology, the **Cityworks enterprise asset management platform** helps communities successfully improve management of their public assets and services–improving civic engagement and economic development.

Cityworks + ArcGIS® Enables the Power of Where for public asset management.

Cityworks®
Empowering GIS

801-523-2751 | Cityworks.com

esri Partner Network Platinum

Esri trademark provided under license from Esri.

Where: Cityworks Conference

MAY 9-11
SALT LAKE CITY, UT

REGISTER TODAY AT:
WWW.CITYWORKS.COM

Communicating the Severity of the Opioid Crisis in Colorado, Tri-County Health Department

By Natalie Jung, Esri

Tri-County Health Department (TCHD), one of the largest local public health agencies in the country, serves over 1.4 million residents in three of the Denver, Colorado, metropolitan area counties—Adams, Arapahoe, and Douglas. Similar to many other communities across the country, TCHD's jurisdiction has seen a growing problem with the recent opioid crisis. The department needed a way to effectively engage and share data with the communities within their jurisdiction to communicate this issue and other public health problems that they may be facing. The solution? Esri geographic information system technology.

Challenge

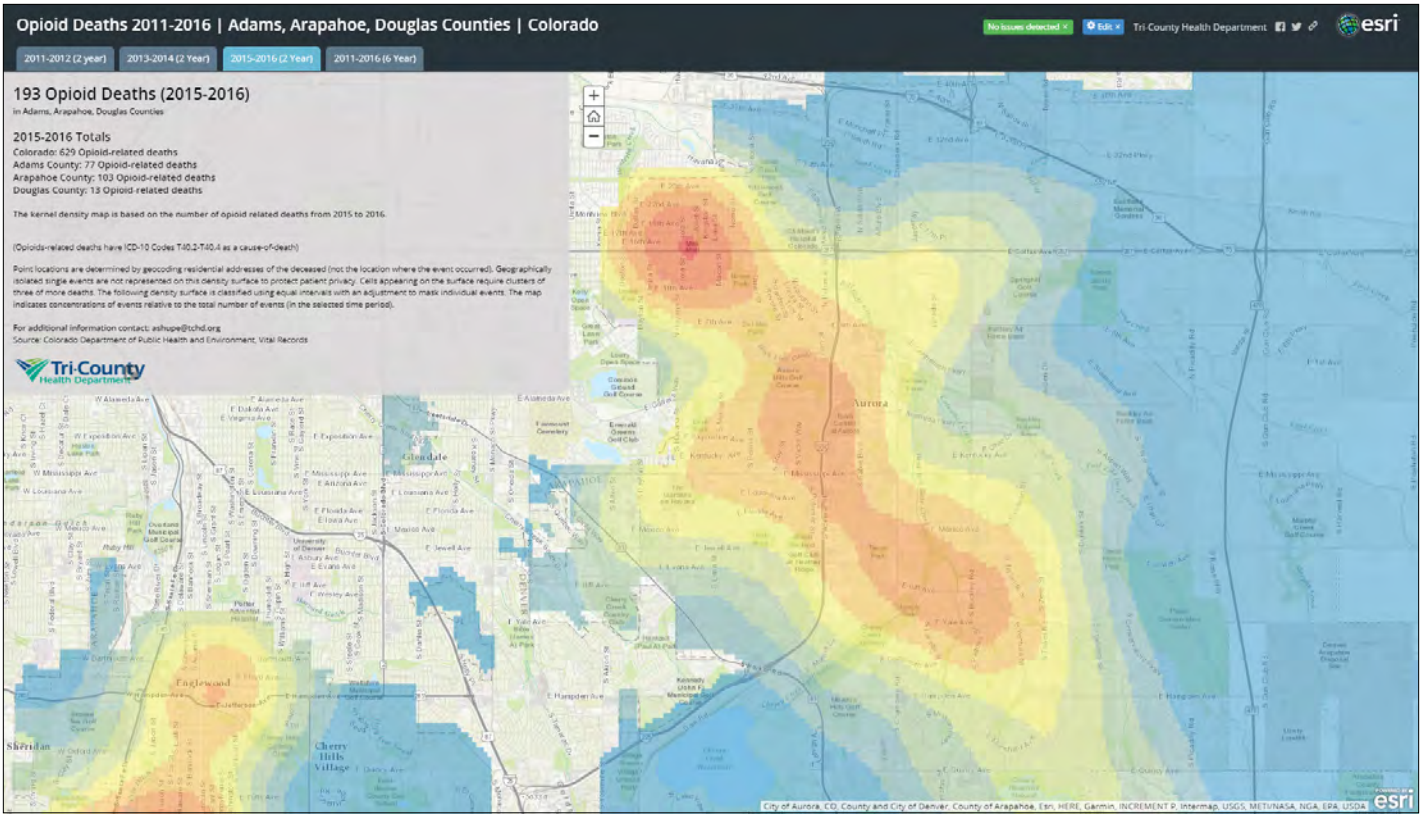
Communicating public health issues is always a challenge because the factors that influence health are increasingly complex and outcomes are not always straightforward. In its role as a local public health agency, TCHD needed a tool to clearly communicate complex data about the opioid crisis to various audiences. But the opioid usage data was challenging because, in Colorado, it is protected health information that requires additional consideration for confidentiality. Another problem was that data related to drug abuse prevention and programs was being dispersed in different formats to partner organizations.

TCHD needed an easy-to-use interface to quickly communicate relevant and accurate information that could be utilized by all the department's community members.

Solution

With the goal of community engagement in mind, TCHD found that Esri's ArcGIS Open Data solution would allow the department to achieve all its data-sharing, visualization, and communication goals, especially ones regarding information about the opioid crisis. By

continued on page 14



↑ Tri-County Health Department used this story map as a central location for the opioid epidemic data as well as the tools to visualize and communicate the data.

Powering Next Generation Economic Development

Attract Businesses that Fit Your Community

esri Emerging Business Partner

GIS WebTech

www.giswebtech.com | info@giswebtech.com | 404-535-1261

Telling the Story of Taxes in Alaska

Monica Pratt, Esri

The Challenge

Although the State of Alaska does not levy sales or individual income taxes—depending instead primarily on petroleum revenues and federal subsidies to finance government operations and services—each of its 164 independent municipalities can levy its own sales and property taxes.

That makes the job of amassing municipal tax revenue data—and creating an accessible, understandable document that communicates that information—challenging for Alaska's Office of the State Assessor (OSA). Housed within the Municipal and Community Policy and Research Section of the Division of Community and Regional Affairs (DCRA) in the Alaska Department of Commerce, Community and Economic Development (DCCED), OSA is tasked with communicating the tax information and the nuances of each tax code in context for legislators, OSA staff, businesses, and the public.

After the tax information is gathered, it is published and provided to state legislators and their staff as a printed document or a PDF file known as *Alaska Taxable*.

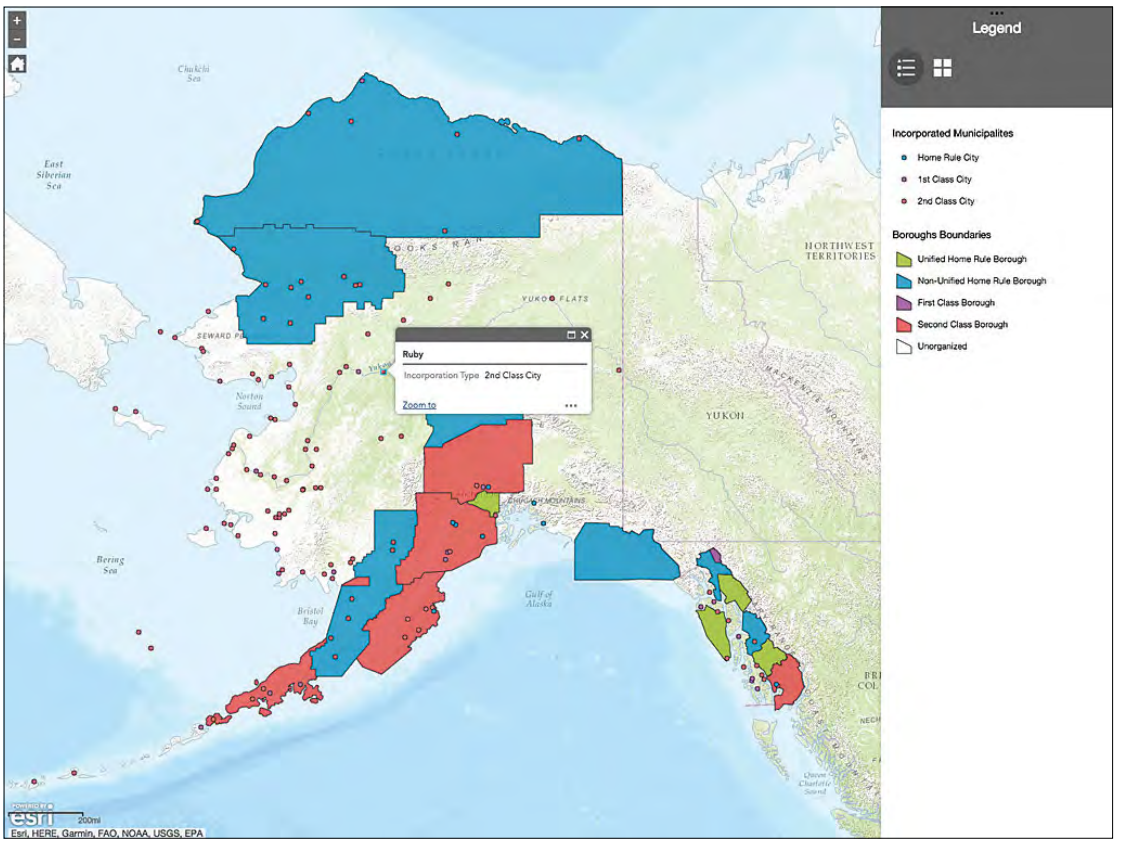
For many years, municipal taxation information—including exemptions, rates, and revenue data—was compiled into a complex, massive Microsoft Excel workbook. "Depending on who was using it, the spreadsheet could be a masterpiece or a very confusing representation of taxation information," said Ron Brown, the assistant state assessor. The workbook, with its tangle of interdependencies, had become so complex over the years that only Brown and one other person could work with it successfully.

The Solution

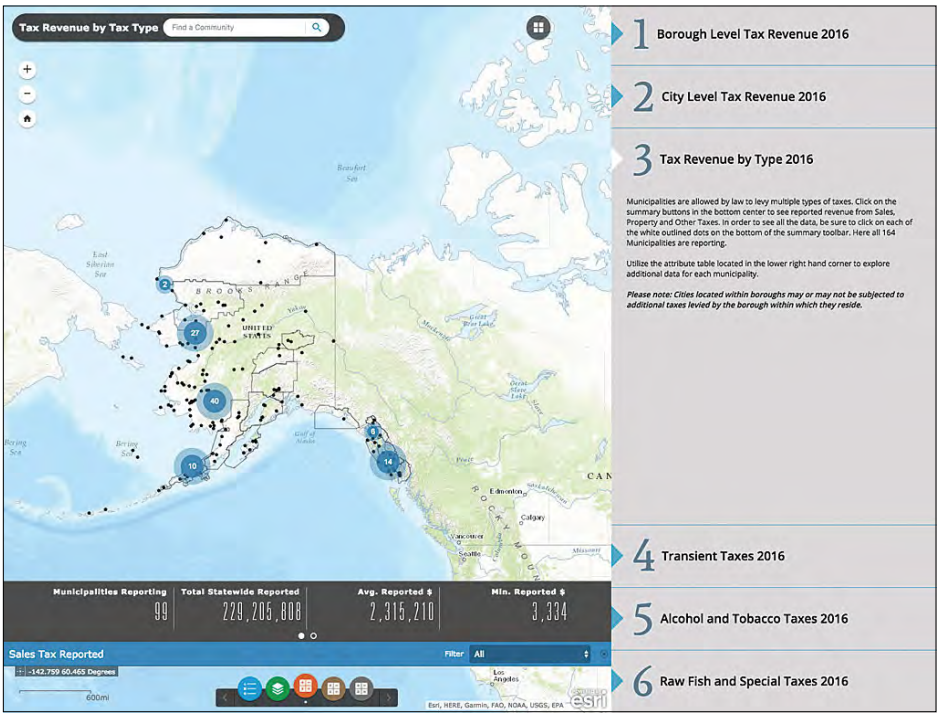
It was necessary to simplify the creation of *Alaska Taxable* and retain the organizational knowledge associated with it. Manjula Boyina, research analyst with the Municipal and Community Policy and Research Section, and her small team—Grace Beaujean and Jade Bickmore (who were also research analysts within the section); Lorence Williams, a publications specialist; and George Plumley, a planner and the only team member who had previous GIS experience—worked with Brown to implement an ArcGIS solution.

The first part of the solution was finding a more efficient way of gathering tax data. The team decided to use Survey123 for ArcGIS, which was then in early beta.

The survey building team of Bickmore and Williams pushed the capabilities of Survey123 for ArcGIS to balance the amount of data to be collected, add



→ *Alaska Taxable 2016* tremendously simplifies the process of locating tax information for state legislators, government staff, business, and the public.



↑ The *Alaska Taxable 2016* story map is a short course in Alaska taxes as well as a compendium of tax code, revenue, and historic data.

functionality to do calculations, and make survey interfaces user-friendly. The survey forms the team developed have been re-created by Esri as templates for collecting municipal tax data. "Getting featured as a template within Survey123 is a testament to the alternative use of the application," said Williams with pride.

The data in the Survey123 for ArcGIS forms was brought into ArcMap and joined to make one feature class. Population, address, and supplemental data from other state agencies was also joined to the feature class. The data was further cleaned to remove redundant fields and add calculated fields, such as per-capita-generated revenue, that were not part of the reports.

The second part of the solution involved coming up with a way to make this complex data interactively accessible and understandable in context.

Alaska Taxable had always been a publication, so it seemed natural to the team to use Esri Story Map Journal. "What we had here was a story. We had a story about local revenues, a story about tax capacity, a story about the types of exemptions you have in certain regions," said Beaujean. "If you looked at it holistically, you could see a story forming about how Alaska gets its revenue."

The Results

The resultant map, *Alaska Taxable 2016*, is a short course in Alaska taxes as well as a compendium of tax rates, revenue, and historic data. It tremendously simplifies the process of locating tax information.

Alaska Taxable in story map form is more readily used by state government staff, businesses, and the public. As Alaska enters its second year of recession, the topic of revenue generation has much broader interest. Local research groups, like the Institute for Social and Economic Research, have found the story map to be an excellent resource as they prepare reports examining the vulnerability of municipalities to reductions in state aid.

Local government specialists use the map when discussing the possibility of tax rate increases with communities. Specialists can easily access OSA data and compare a community's current revenues with those of other communities of similar size. By showing how local governments fund themselves, *Alaska Taxable* can inform larger conversations.

The business community has been impressed with the story map because it lets them easily look up municipal property taxes and sales taxes statewide. Tax codes are unique to each community, so being able to look up the individual tax rates and exemptions for each of Alaska's municipalities is a huge benefit for businesses.

It is also a great time-saver for OSA staff members who previously had to spend significant time marshaling tax information for business requests. For the same reason, the story map saves OSA time when fulfilling information requests from the public.

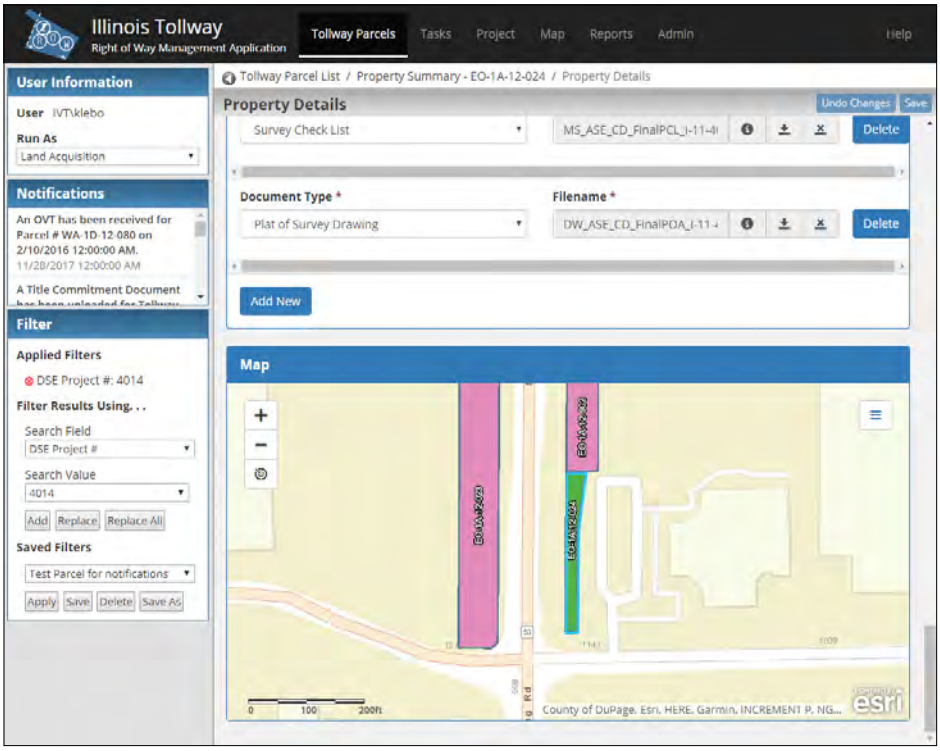
Boyina summarized the project by saying, "The experience of designing and developing the workflow exposed the team to how three different tools in the Esri platform can be seamlessly weaved together. ArcGIS Online hosted the Alaska tax story that was compiled using feature services published from data edited in ArcMap and captured in Survey123. Our experiment—carried out with the hard work, dedication, and patience of the team—was a success!"

Go.esri.com/Alaska

Illinois Tollway Improves Productivity and Efficiency with Modern Technology Approach

By Kurt Lebo, GIS Manager, Illinois Tollway

Move Illinois: The Illinois Tollway Driving the Future is a 15-year, $12 billion capital program for improving mobility, relieving congestion, reducing pollution, and connecting economies across the state.



Testimonial

"The IROW tool has had a tremendous impact on the way we manage and deliver projects as well as on how information is collected and shared across the project team."

Rocco Zucchero
Deputy Chief of Engineering for Planning, Illinois Tollway

"IROW has been an invaluable resource for initiating and tracking the progress of land acquisition activities for the Jane Addams Memorial Tollway (I-90) Rebuilding and Widening Project for the Illinois Tollway. Data input is simple, and once in IROW, data is selectively available to the tollway, surveyors, appraisers, negotiators, and relocation specialists assigned to the project and also available to populate customized reports. Following entry of geodatabase files, the mapping function allows immediate visual reference to acquisitions parcels. IROW has greatly enhanced our productivity in assisting the Illinois Tollway with land acquisition activities."

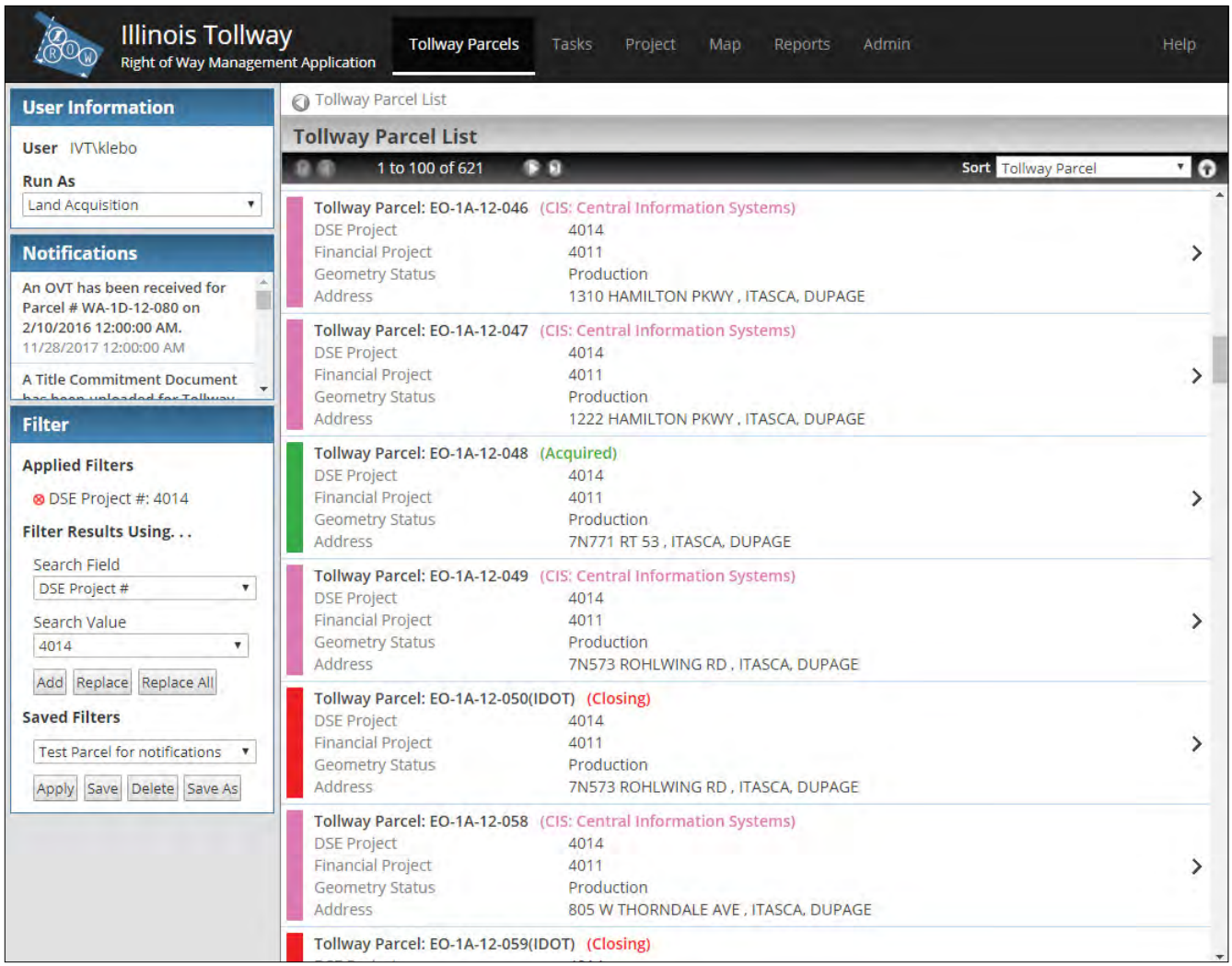
John T. Whitehouse, PE, PLS
Senior Project Manager, Illinois Tollway

This is the largest capital improvement program in the Illinois Tollway's history. To deliver such a large program on time and within budget requires timely and efficient acquisition of land. The Illinois Tollway looked to Esri technology to help manage such a large project.

For decades, the Illinois Tollway relied on spreadsheets and hard copies of the right-of-way information necessary for project implementation. The agency knew that in order to improve operations and efficiencies, it had to modernize the process to collect and analyze this kind of data. The Illinois Tollway Right of Way (IROW) management application was created to meet this need. Built to be used in ArcGIS Desktop and on iPads, this app allows staff to access and modify right-of-way information in real time.

More than 1,300 fieldworkers have access to modify this data; additionally, more than 20 users have view-only access. Users can access the application to visualize land acquisition status and make inquiries via the application, reducing the time it takes to get answers and helping staff work more efficiently. Plus viewers of the data are assured that what they are viewing is high-quality, accurate data. With the new IROW app, current information regarding all parcel reports, as well as the status of land acquisition for individual parcels or entire projects, is at everyone's fingertips. Additionally, IROW was developed to enable remote access to data and reports, which is very helpful when Illinois Tollway staff are talking with members of the general public outside the office, either one-on-one or at public meetings.

Another unique benefit of the app



is the use of GIS. In earlier versions of this application, vendors would submit geodatabases and then Illinois Tollway staff would have to check and approve the data for quality control before the databases could be uploaded into the system. This was a cumbersome, tedious, and inefficient process. Now, through IROW, vendors can upload geodatabases and make changes as needed. This has proved to be beneficial because the uploaded data includes the geometry and the unique Illinois Tollway parcel number associated with the submitted right-of-way request. The Illinois Tollway parcel number is a unique name for each proposed land acquisition area and is assigned as an attribute by the user within the application. All other attributes of the parcel are managed within the application as well. Upon upload of the geodatabase to the application, a Python script checks for various spatial criteria, for example, to verify whether the correct projection is used and the records are complete and to see if there is any overlapping geometry. The ability to report and monitor the status of land acquisitions is valuable to the Illinois Tollway, as these tasks enable timely dissemination of critical project details. They also allow improved decision-making and setting of realistic project schedules.

IROW is mapcentric. Built using ArcGIS Server and ArcGIS API for JavaScript, IROW is hosted on an external site so that members of the organization can easily access it.

Aside from the spatial data integration, IROW serves as the document repository for all records related to the land acquisition process, including documents associated with appraisals, negotiations, relocations, condemnations, and closings.

Next steps with the application will include creating a mechanism to track and record the ability to sell off or develop specific use easements of existing Illinois Tollway property.

If you would like to replicate IROW's process, go to go.esri.com/IL-Tollway

ArcGIS Solutions for Homelessness Response

As state and local governments experience an increase in the number of homeless people, it is critical that you are given the right tools to help. With ArcGIS solutions for homelessness response, you will be able to count the homeless population, inventory your resources for the homeless, and increase your community's awareness of services that are available. Take the first step toward effectively and efficiently supporting your community's homeless population today.

Homeless Point-in-Time Counts

Homeless Point-in-Time Counts is a configuration of the Survey123 for ArcGIS application and Operations Dashboard for ArcGIS software. This tool allows health and human services agencies to more efficiently conduct accurate surveys of homeless people. Additionally, agencies can monitor results of the point-in-time count, ultimately gaining a deeper understanding of your city's homeless population.

Homeless Activity Reporter

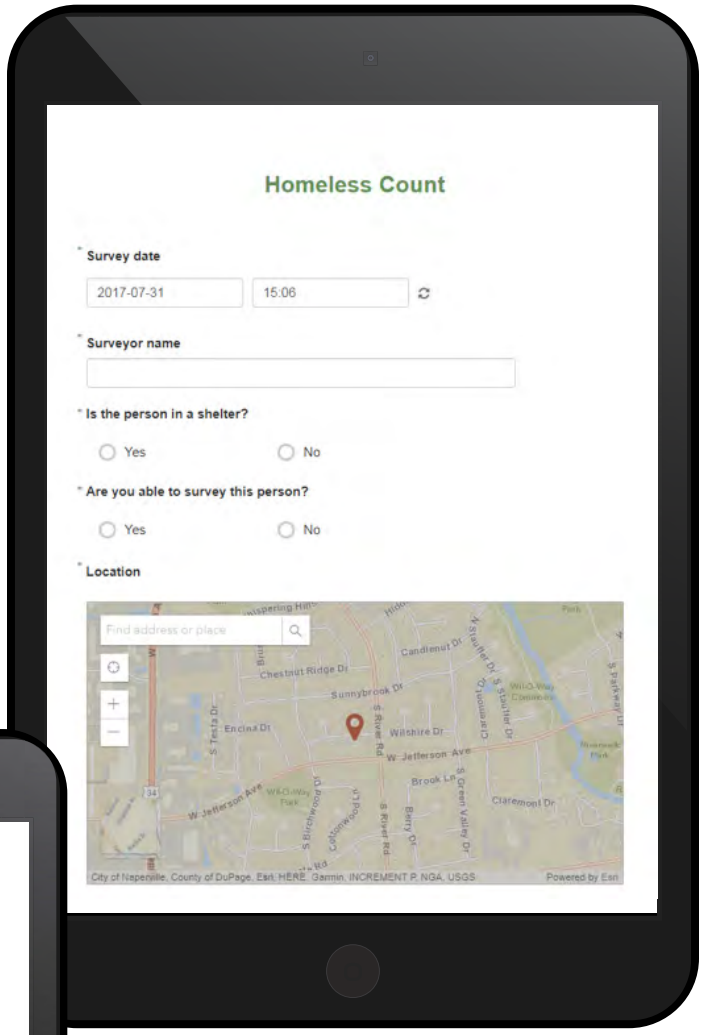
This collection of applications provides the general public and relevant organizations with the tools to report the location of homeless individuals and encampments within the community. Additionally, health and human services personnel can use these applications to monitor their city's homeless activity and deploy resources as necessary. Reports of homeless activity can be shared with relevant departments and organizations that can assist in providing the necessary aid to homeless individuals and families.

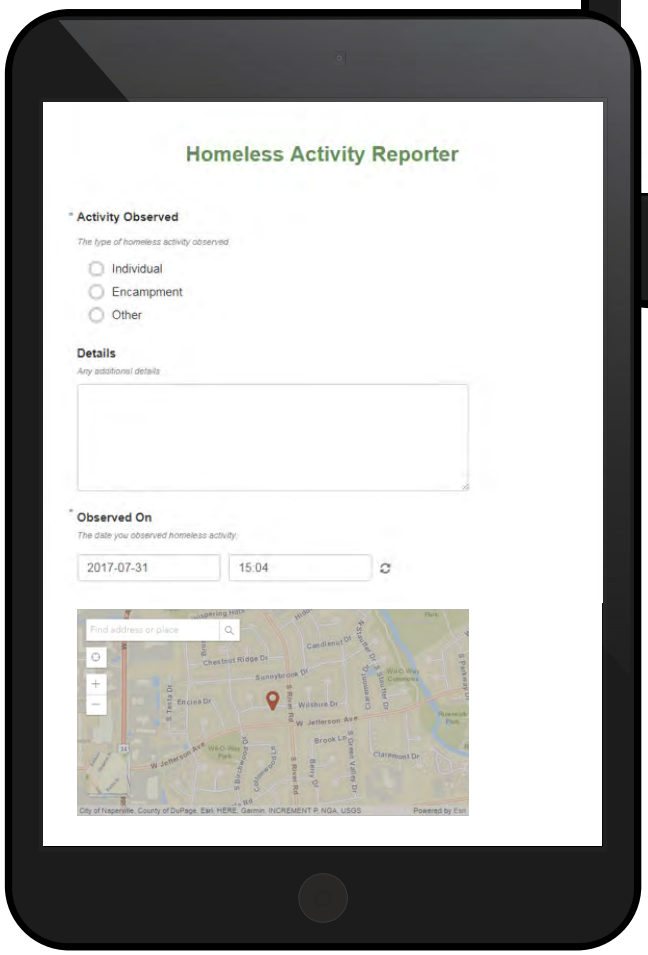
Homeless Service Locator

Homeless Service Locator is a configuration of Web AppBuilder for ArcGIS and is used to locate facilities that provide services to homeless individuals and families. Mainly, this application is used by the homeless and those at risk of becoming homeless to seek help from local agencies that offer shelter, housing assistance, health services, and more. Organizations can also use this application to promote various opportunities within their communities to connect volunteers to the homeless population by providing time, food, supplies, or job training.

With these solutions, you will have the tools for true data-driven decision-making and effective public communication, and you'll be able to collaborate across departments to tackle the problems related to homelessness. Visit the website below to learn more about our homelessness solutions and how you can help your community better understand and assist its homeless population.

Go.esri.com/HomelessResponse





Communicating the Severity of the Opioid Crisis in Colorado, Tri-County Health Department

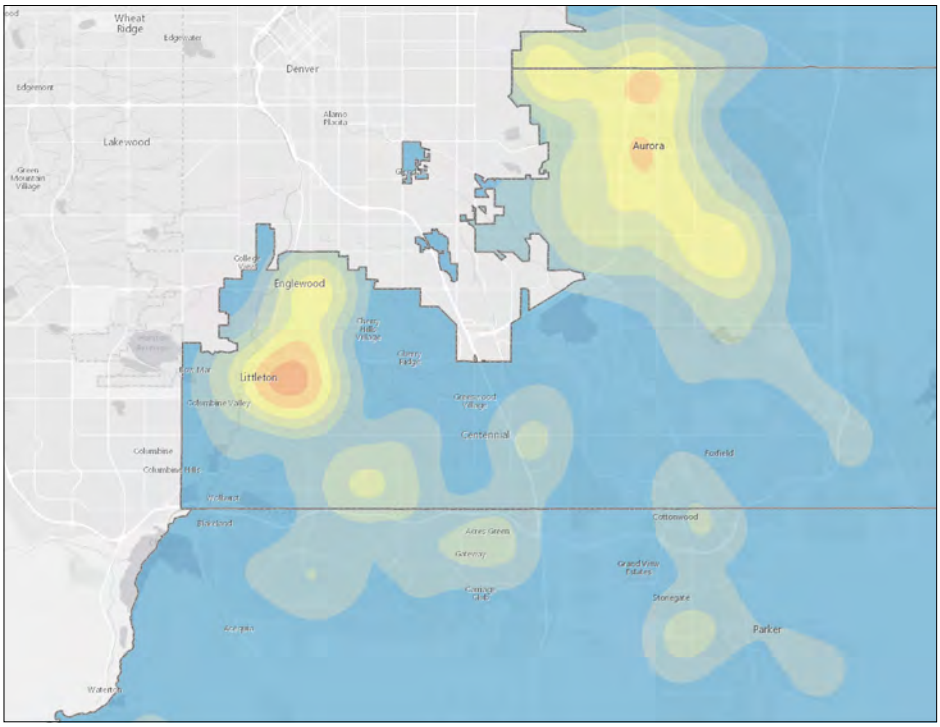
continued from page 6

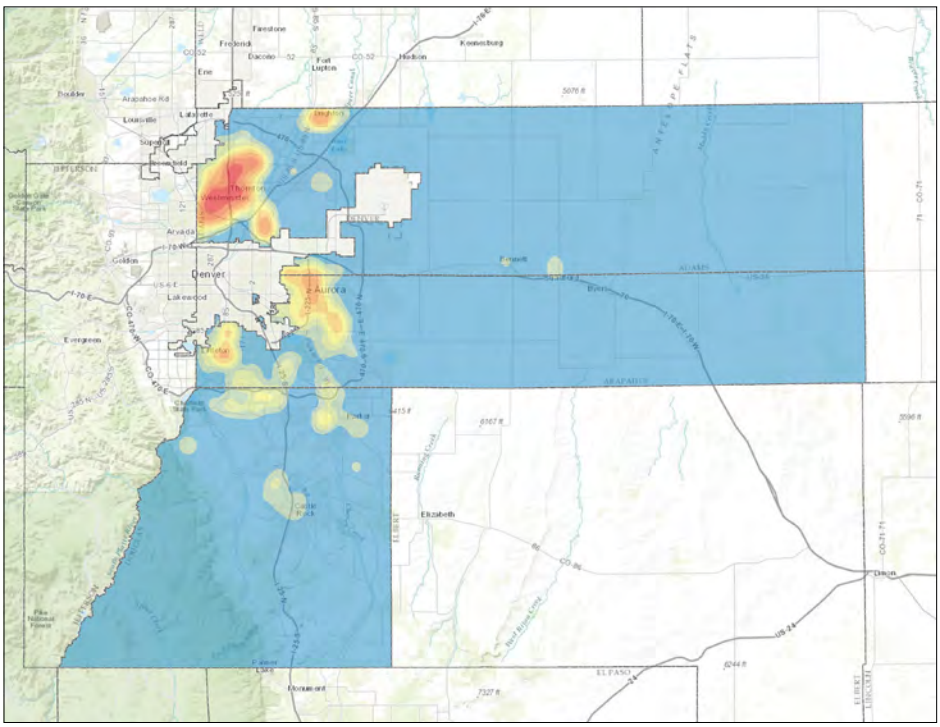
creating an Open Data site, TCHD was able to combine its data resources in one central location and compile and share the opioid epidemic data in an easy-to-understand visual format with those in the department's jurisdiction. This solution fit TCHD's needs perfectly for communicating health data so that it is meaningful and impactful and can address the different challenges being faced by diverse communities.

In addition to making the information readily available both internally and to its stakeholders, TCHD utilizes ArcGIS Online services to share and access information more efficiently and, ultimately, to make decisions for the community on how to tackle the opioid crisis and other public health issues.

Results

Since the creation of the Open Data site, there has been a dramatic increase in both the information available to the public and the community's understanding of the opioid crisis. The TCHD Open Data site has had over 9,000 visitors so far, and that number is growing. TCHD's partner agencies have been able to use the site to identify communities in greatest need related to the opioid crisis and to share maps, graphs, and opioid abuse data. This site has also helped generate discussion around naloxone use (for emergency treatment of opioid overdose) and syringe disposal locations. The success of this platform has inspired TCHD to create more topic-specific Open Data sites to provide ready-to-use data and maps to local governments and community partners, which will ultimately help the department provide the right resources to its citizens and keep them engaged with the latest health trends in their communities.





Go.esri.com/TCHD

Go.esri.com/TCHDOpenData

Esri News

Geodesign Summit | January 23–25, 2018

2018 is around the corner. Save the date for Geodesign Summit 2018. This year's event will change the way you think about the planning practice. You will hear from your colleagues and GIS experts about smart planning technology and geodesign techniques that will help you evaluate planning proposals against possible outcomes, engage diverse voices, and communicate effectively across departments and with the public.

Go.esri.com/geodesign18

Esri Public Sector CIO Summit | April 4–5, 2018

Attention, chief information officers (CIO) and IT executives. Join us at the 2018 Esri Public Sector CIO Summit to explore best practices on how GIS factors into your organization's strategic plan and IT strategy. Last year, we heard from organizations like Waze; Microsoft; and the City of Long Beach, California. Also, thought leaders spoke about the Internet of Things (IoT), data analytics, and drones.

Go.esri.com/CIOsummit18

Sign Up for the State and Local E-brief

Stay up-to-date on the latest trends and news in government and technology—sign up for the State and Local E-brief. The e-brief will provide you with industry-specific content such as the following:

- Thought leadership
- Blogs
- Story maps
- Product announcements
- White papers
- Webinars
- Videos
- User stories
- Training opportunities
- Upcoming events

Go.esri.com/ebrief-signup

Harvard's Data-Smart Map of the Month Contest

Get recognized for the work you do to improve public policy. Harvard Kennedy School's Ash Center for Democratic Governance and Innovation is seeking story maps and apps that illustrate, enhance understanding of, or solve a complex problem faced by the public sector. Be sure to submit your work to the Harvard Map of the Month Contest today.

Go.esri.com/harvardcontest

Hardware Solutions

Did you know that Esri hardware partners offer packaged solutions for GIS users? These packages contain mobile, desktop, server, and data products that come prepackaged with ArcGIS software. Take advantage of these special offers to reconfigure or upgrade your GIS technology and devices today!

Learn more about our hardware partners and data offerings:

go.esri.com/gov-hardware-partners

Esri Public Sector GIS Conference April 10–12, 2018

The Esri Public Sector GIS Conference is a conference series designed to deliver a new, unified experience for all attendees. Esri's goal is to bring together our state and local government professionals and give them access to Esri experts and technology. Our next location is Denver, Colorado. Don't wait, register today!

go.esri.com/PS-GIS

esri
THE SCIENCE OF WHERE™

380 New York Street
Redlands, California 92373-8100 USA

Presorted
Standard
US Postage
Paid
Esri

159775 G79609