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# New Information Channel

## Android app gets evacuation information to residents

By Matthew DeMeritt, Esri Writer

When the 2011 Tohoku earthquake, one of the strongest ever recorded, struck the coast of Japan, it sent a tsunami Hawaii's way.

In a sense, Hawaii had dodged a bullet. The March 11, 2011, earthquake transferred most of the tsunami's energy toward Japan's coast rather than toward Hawaii. The wave that Hawaii experienced was 1 meter high (compared to Japan's 10-meter wave) but still caused millions of dollars in damage to docks and seacraft but—fortunately—no deaths.

The tsunami alert sent many Hawaiians scrambling to find out if they were in a tsunami evacuation zone or where the nearest shelter was located. Requests to Honolulu's government website created a logjam that disabled the site.

During a government meeting to assess the tsunami's toll, Honolulu technical staff raised the issue of public access to critical evacuation zone maps during times of high demand on the county server.

"One of the GIS analysts mentioned that their site [Honolulu.gov] went down following the alert because too many residents were trying to find information related to the tsunami at once," said Kyle Shimabukuro, a systems analyst for City and County of Honolulu. "That spurred discussion about why the bottleneck happened and how we could avoid it in the future."

Staff eventually concluded that the emergency maps in local phone books also were not sufficient to disseminate critical information about tsunami evacuation zones immediately following a seismic event. Because a large percentage of Hawaiians exclusively depend on cell phone service for their telephone needs, many residents simply don't have phone books.

To avert a similar crisis in the future, systems staff at Honolulu created a tsunami evacuation zone app built with Esri's ArcGIS Runtime Software Development Kit (SDK) for Android to serve as a critical information channel. "It took an event like this to point out the obvious problem," said Shimabukuro. "Being an Android phone owner, I knew that a large majority of those seeking information from the web had smartphones and that Esri had already created a variety of mapping solutions for them."

Theoretically, a large percentage of requests could be transferred to a simple mapping app similar to the ones Esri had already created, so Shimabukuro went looking for a way to make a custom app for →

↑ The app taps into the Android device's GPS and displays the user's current location.

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# Taking the Scenic Route

## Mono County Plans Ahead to Increase Tourism

Tufa rock formations leap from the surface of Mono Lake in Mono County, California. The beautiful landscape of this ancient lake attracts hikers, campers, kayakers, and photographers every year. It also provides a lesson in how ancient people used to survive in the area—eating flies from this saltwater pool.

The county government wants more people to know about this kind of natural and cultural jewel set along California's Highway 395.

Throughout Mono County, the highway weaves along the eastern side of the Sierra Nevada range between Yosemite National Park and Nevada. It is a designated California scenic byway, but the county wants the United States Department of Transportation's Federal Highway Administration (FHA) to recognize it as one of the nation's scenic byways too. This designation will help the county preserve; enhance; and, very important, promote this route. Federal byway status also opens up new sources of federal funding that will help the county maintain its infrastructure and develop new projects.

### Understanding Assets

FHA awarded the county a grant to create its corridor management plan, a key step on the path to federal recognition. To create the plan, county staff went into the field with GPS to inventory assets and opportunities along the highway. As part of this inventory, staff collected facility and infrastructure data along the corridor and attributed to it key asset management information such as manufacturer, date of installation, repair needs, and accessibility according to Americans with Disabilities Act (ADA) standards.

"For each site along the byway, we collected GIS data on the facilities to better understand the current visitor experiences and identify key areas that can be improved," said Nate Greenberg, GIS coordinator for Mono County. "We also want a better understanding of maintenance costs associated with our infrastructure, which will ultimately dovetail into an asset management system we want to create with this data."

The corridor management plan will help the county protect the essential nature of this part of the eastern Sierra. In the plan, FHA requires the county to explain the intrinsic qualities of the facilities and attractions as recreational, cultural, scenic, natural, or archaeological.

↓ Photo Courtesy of Greg Newbry

↑ To gain recognition of Highway 395 as a federal scenic byway, Mono County mapped assets along the route including this welcome center.

"If a site has cultural qualities, for example, specific fields were populated when we collected the data," said Greenberg. "It might have been a site where Native Americans carved arrowheads or a site like Bodie State Historic Park, which was one of the original and largest mining sites in California during the gold rush of the 1800s."

At the end of each workday, the county's GIS intern Steve Connett would upload the data gathered from the field to ArcGIS for Server, which would allow other staff to immediately review the information on an internal web map. The same data is available publicly at http://gis.mono.ca.gov/silverlightapps/FacilitiesInfrastructure_Public.

"It was really exciting to literally watch this very rich dataset grow right before our eyes," said Greenberg. "Not only were we capturing information that helped shape the picture of our byway, but each day we were gathering critical data that will help us support decision making and better understand management needs for years to come."

## Drawing Crowds

Gaining a deeper understanding of the resources along the byway and enhancing the visitor experience will be part of creating a Highway 395 brand. The county will market the experiences along the 100 miles of highway and build a brand identity of the area, likely tied to the current slogan Wild by Nature.

"At the end of the day, creating the plan and attaining federal recognition has as much to do with marketing and economic development as it does with protecting our resources," said Greenberg. "Having a better understanding of what is out there, how it's being used, and whether it's being overused or underutilized helps us make decisions that will attract people to the area for decades."

In the future, the county plans to create another public-facing website, showcasing the data it collected, that will help visitors get to know this area better and plan their adventures here.

"We expect to have a pretty interactive website including a dynamic map that will be a tool to create customized itineraries for visitors, branded like the paper publications we'll hand out at visitor centers, but on a whole other level," said Heather deBethizy, assistant planner for Mono County. "We'd like for it to also be tied to a mobile app, but we're in the very early phases of development now. Right now, we're just doing all the foundation work, and after that, the possibilities are endless."

For more information, contact Nate Greenberg, GIS coordinator for Mono County, California, at ngreenberg@mono.ca.gov.