

## GIS, GPS, and Wireless A Powerful Combination for Quicker, More Accurate Damage Assessment

With recent advancements in wireless technology and network speed, nearly everything you can do on the desktop can be performed in the field. Not long ago, streaming live video or surfing the web from your phone seemed implausible. Imagine the implications for more critical mobile tasks, like assessing damage and allocating resources after a disaster.

As a geographic information system (GIS) professional focused on emergency management and disaster recovery, Karyn Tareen understands the value of gathering and sharing timely, accurate information so that cities, counties, and states can prioritize their relief efforts, seek federal reimbursements, and rebuild after a major event. Her company, Geocove—an Esri partner—provides cutting-edge tools and services that help local governments collect, map, and report damage assessment information and community needs.

Using ArcGIS technology and APIs from Esri, Geocove developed an application called ARM360 that gives field-workers a real-time,

dynamic picture of the situation from a mobile device, tablet, or laptop. Digitally enabling damage assessments allows information to be collected quickly and accurately, instantly enhancing maps and reports that become powerful decision-making tools. Because ARM360 references an organization's in-house GIS data, it also provides emergency personnel with a common operational picture.

"By using ArcGIS for Server Advanced, we can now support our customers through a hosted environment or allow them to keep their data stored in-house, which is important to many government organizations," says Tareen. "If they don't have the advanced server version in-house, they can still use our mobile application in the field."

ARM360's communication capabilities can be powered by AirCard® mobile broadband devices from Sierra Wireless, whose products are available through AT&T. The devices provide Geocove a quick and reliable way to connect to the Internet anywhere there is AT&T net-

work coverage. Even if the application is not connected to a network, ARM360 offers full functionality and automatically synchronizes when connected. An integrated GPS in the AirCard device ensures geographic accuracy and simplifies the data collection process. To streamline large-scale government rollouts, the AirCard can be inserted into virtually any laptop and programmed to automatically connect to virtual private networks to ensure the secure transfer of data.

When damage assessments are collected on paper without requiring that all factors be accounted for, local governments can miss out on significant federal funding. ARM360 eliminates the need to manage vast paper files and includes customizable forms to ensure that all required pieces of information are collected and measured on a consistent scale.

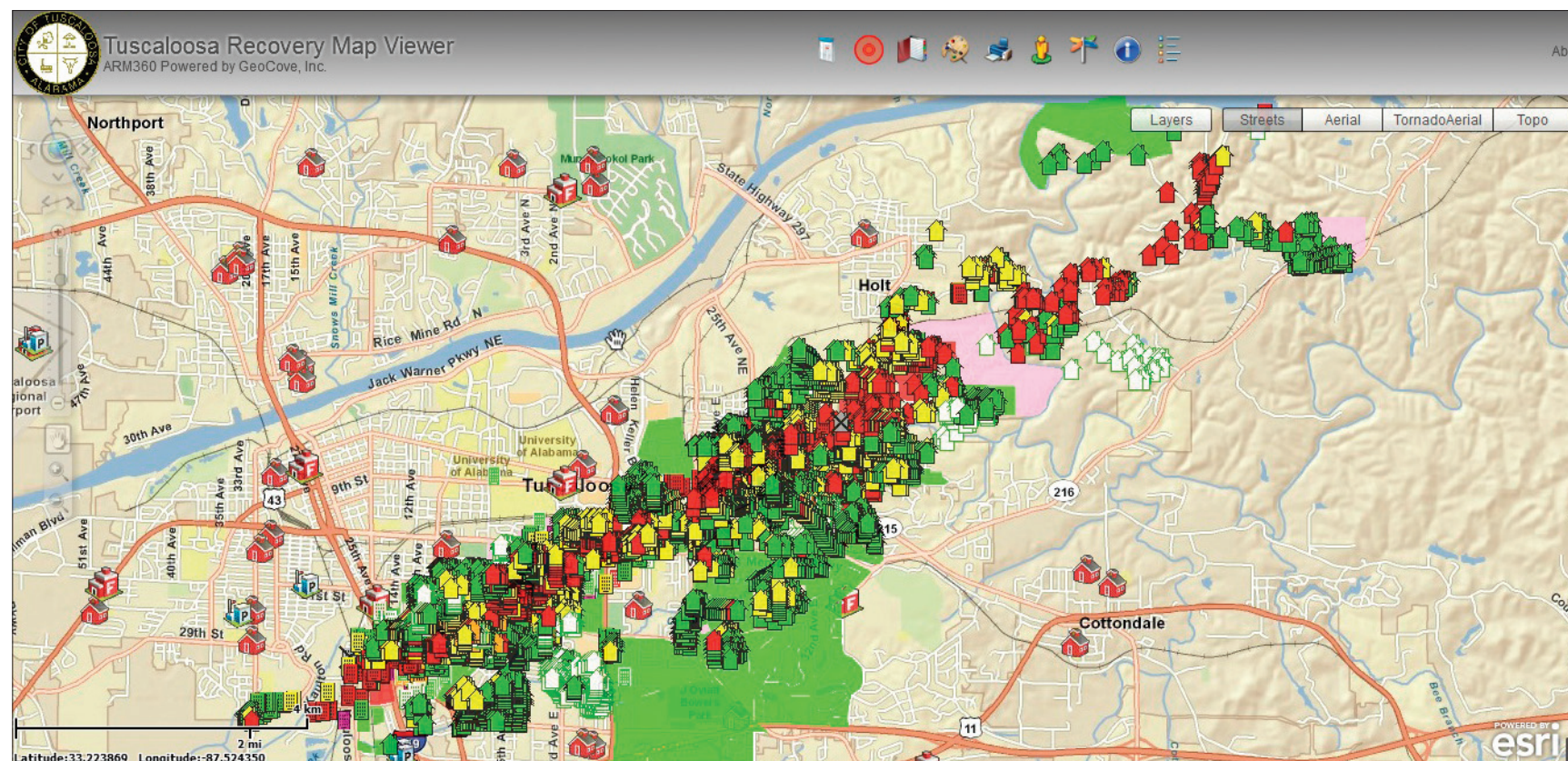
In ARM360, incident and initial damage reports may be viewed as a dashboard summary or in detailed assessments, depending on current needs. An incident assessment report lo-

cates information such as downed wires, debris blocking roadways, and flooded areas. A human services assessment report collects data on public health or community needs, such as water, medical services, and transportation, to facilitate an appropriate and timely response.

After a disaster, Tareen says the most immediate damage assessment need is a basic summary of areas with major structural damage. Current satellite imagery of the area can be brought into ARM360 to help quickly identify unsafe areas so officials can protect citizens from danger. Next, building inspectors and engineers are dispatched to collect detailed assessments and post warnings in severely damaged areas. During the assessment process, the application can reference other geospatial data, such as property tax information, to generate intelligent estimates of the cost of the damage. Finally, field-workers can use ARM360 to track the safety precautions they take and the proposed next steps in the rebuilding effort.



Geocove Inc. CEO Karyn Tareen, center, worked with Pelham Fire Department Captain Brian Cleveland (left) and Lt. Tim Honeycutt (right) in support of the Tuscaloosa tornado recovery effort. Geocove's ARM360 application stays connected via the Sierra Wireless AirCard® 890 from AT&T.



In the wake of the Alabama tornadoes, an online viewer powered by ARM360 presented a common snapshot of structural damage, complete with full individual damage assessments.

### ARM360 in Action Supporting Damage Assessment after the 2011 Tornadoes

When massive tornadoes ravaged southeastern states recently, emergency crews from Geocove played a major role, helping Tuscaloosa, Alabama, city officials assess the extent of tornado damage. Geocove specialists provided a tool that coupled satellite images with GIS databases to produce a thorough preliminary damage assessment within days. Tuscaloosa was able to rapidly and accurately determine not only the number of structures affected by the storm but also the estimated cost of the damage to assist in planning for recovery efforts and requests for adequate funding.

"When the damage grid is that sensitive, it would take weeks to compile the assessments using standard protocols," Tareen says.

#### About Geocove

Geocove, Inc., provides scalable assessment solutions built using the power of GIS across a multitude of industries. The Geocove team has extensive experience in providing assessment, reporting, and mapping tools for emergency management, building officials, public health, and other government agencies as well as utilities and other private industries. Geocove, Inc., a privately held corporation located in central Florida, is an authorized partner of Esri, the world's leading GIS software provider.