Volunteers with GIS Skills Support American Red Cross

By Evan Lue, GIS Project Lead, American Red Cross Los Angeles Region

American Red Cross chapters with mapping teams are few and sometimes require mapping by volunteers rather than employees. The SoCal Red Cross GIS Project is working with National Headquarters and other chapters to build the organization's capacity for geospatial visualization and analysis.

The American Red Cross is part of a humanitarian effort and joins nearly 180 national societies with one of the most recognizable symbols in the world.

But to assume that the Red Cross at the local level makes frequent use of GIS is only partially correct.

There are chapters that use mapping software to aid in their mission to provide relief, and National Headquarters (NHQ) has a geospatial technology unit that can create a wide range of maps in different formats at the request of chapters, regions, divisions, or other NHQ departments. The geospatial technology unit maintains a number of mapping and hazard websites to share steady-state and response-specific PDF map products. ArcGIS Online for Organizations is used for situation-specific interactive maps, and ArcGIS Viewer for Flex is configured as the Red Cross Common Operating Picture platform. During a large disaster, NHQ creates and distributes mission-critical maps to support the Red Cross response and relief effort, which is always started by the chapter.

Nevertheless, local chapters with staff mapping teams are few in number and sometimes rely upon volunteer mappers. The SoCal Red Cross Project is an example of such a local nearly-all-volunteer effort. This group is working with NHQ and other chapters to build the organization's capacity for geospatial visualization and analysis.

Recently the geospatial technology group at NHQ entered into an enterprise license agreement (ELA) with Esri to provide ArcGIS for Desktop to local chapters that have the capacity to use it. The ultimate goal is for all chapters to use the organization's GIS capabilities in some way, either by building their own teams and creating their own GIS data or by having a group of chapters collaborate together to build their collective GIS capacity and capability through shared resources.
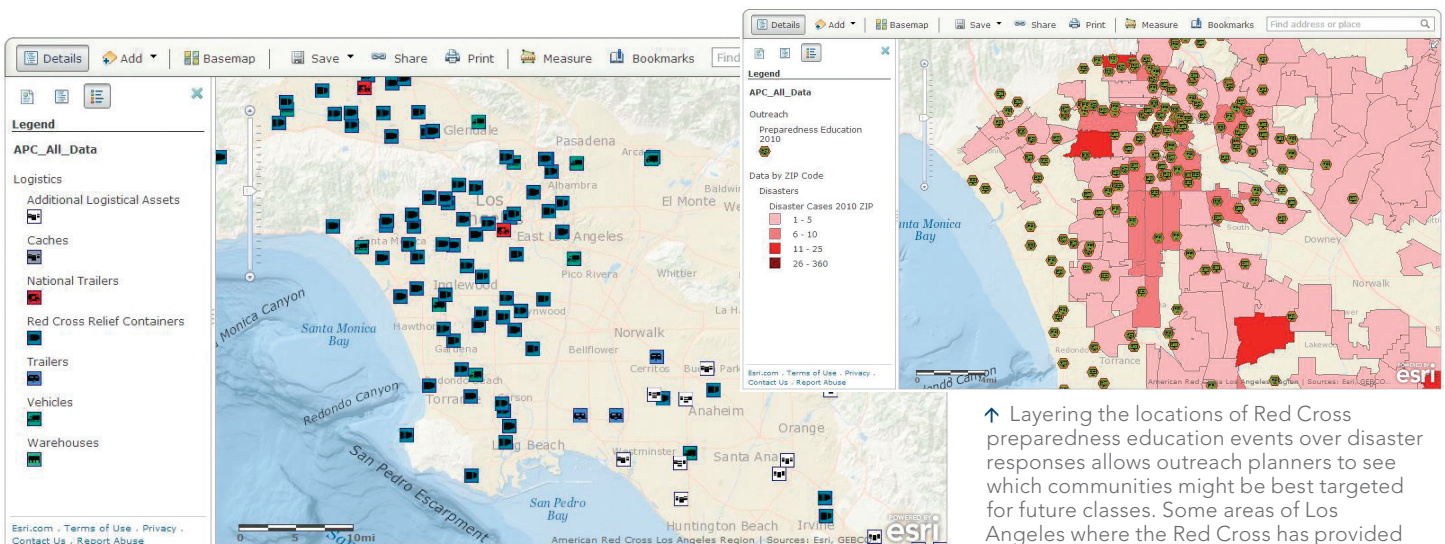
↑ The Red Cross has prepositioned over 80 containers across Los Angeles County alone, each with supplies to support the potential activation of a nearby shelter. GIS can help sheltering and logistics managers determine which neighborhoods might be more likely to rely on these containers while considering population density and transportation networks.

↑ Layering the locations of Red Cross preparedness education events over disaster responses allows outreach planners to see which communities might be best targeted for future classes. Some areas of Los Angeles where the Red Cross has provided disaster relief (redder polygons) may benefit from increased exposure to preparedness education (green markers).

A Program for GIS Volunteers in Southern California

The SoCal Red Cross GIS Project began in 2009 with a partnership between the Los Angeles and San Diego Red Cross chapters. Los Angeles had just begun mapping its resources, and a connection was quickly made between the effort and a similar one happening in San Diego. Both had the same idea, and both were being organized by volunteers. Realizing the opportunity to merge their efforts, resources, and GIS talent, the two chapters began framing their GIS operations in the broader context of Southern California as a whole. Soon after, the group grew to include members from all their neighboring chapters.

The American Red Cross is only able to provide its services and fulfill its mission through the work put in by its many dedicated volunteers. In the same way, the SoCal Red Cross GIS Project is possible only through volunteer contributions. One of the greatest challenges at the outset (and still is) has been finding volunteers with skill sets that meet the organization's GIS needs. Following the advice of a local university professor, the Red Cross looked to college students for interns and volunteers. A partnership between the San Diego chapter and the Viz Lab at San Diego State University led to the development of a central website and hub for the project's GIS maps and data products. Today, the program is entirely volunteer-run and plays a role in the Emergency Disaster Response team, and much recruiting is done through universities.

How GIS Has Aided the Mission

After starting the project in Southern California, the benefits of GIS for the organization quickly became apparent. Operational uses include the ability to find the nearest shelters, logistical assets, or partners to disaster incidents. For example, a Disaster Action Team (DAT) responding to a late-night apartment fire may determine that the affected client's immediate need is a place to stay for a night while he or she comes up with a recovery plan. Premapped partner information can tell the DAT responders where the nearest lodging partner is located. If multiple people are affected by the incident, the nearest potential shelter that meets the situation's needs would be located instead.

While GIS has an obvious role in disaster operations, its largest roles for Southern California chapters include planning and storytelling. The Disaster Response team in Los Angeles long knew that the incidents to which it responded were not happening in the same areas where communities were requesting emergency preparedness outreach. GIS moved that theory firmly into the fact category. After mapping the locations of disaster responses and layering them with outreach events, it quickly became apparent that there were communities getting little outreach but seeing more disasters. The addition of volunteer density by neighborhoods showed a similar trend: people who spent time volunteering for disaster relief came from areas that saw fewer disasters. Having graphical evidence of these trends helps determine where the organization may want to prioritize outreach and volunteer recruitment.

Bringing GIS to More Chapters

Today, with the GIS resource firmly in place at local chapters, the next steps for the SoCal Red Cross GIS Project are to publicize the resource and help chapters get started. The program in Southern California is among the chapters that, already having some experience with developing a GIS team, are helping NHQ's geospatial technology unit accomplish this.

These are no small tasks, as many chapters will need to utilize their volunteers in order to put a team together. Everyone knows that GIS requires some amount of training, including those who know they want to do it but never knew how to start. This is where the volunteers come in, some of whom have GIS skills but never before had an opportunity to put those skills to use within the organization.

There are Red Cross volunteers who have GIS skills that go with their passion for humanitarian aid and disaster relief. Unfortunately, these volunteers may lack an opportunity to contribute their skills in their local chapters. Our hope is to get the word out to both chapters and volunteers. Whether it's a chapter employee or a volunteer who attempts to initiate a GIS program, we want them to know that support from other chapters and NHQ is available.

In the case of the SoCal Red Cross GIS Project, many growing pains were experienced, including security/privacy concerns, data dictionary interoperability between chapters, and data collection and sharing. Many of these growing pains were unavoidable given some unique characteristics of the organization, but they can be avoided by other chapters through shared experiences. After all, the purpose of a Red Cross GIS community is to give chapters an opportunity to add a spatial understanding to their operations while keeping them from reinventing the GIS wheel.

An example of a lesson that will be shared immediately with any budding local GIS team is that its efforts need to be publicized within their chapter to gain office-wide awareness and acceptance. The group in Southern California has developed a memo that a local disaster services manager can sign and distribute. It announces the new effort and what it means for data managers. At an early stage, it is important for people to know what datasets are being mapped and by whom, along with the privacy measures to be put in place. As small a step as this may seem, it is not immediately obvious, and many chapters have identified this as a barrier to successfully rolling out a GIS program.

As the Red Cross continues to build its GIS community, volunteers become more and more important in developing the standards, technical documents, and workflows that will provide spatial awareness in both planning and operations.

If you're interested in volunteering in any capacity, please contact your local Red Cross chapter or visit www.redcross.org.

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