



FIRST RESPONDERS WITH CAPTURX FOR ARCGIS

CAPTURX HELPS FIRST RESPONDERS IMMEDIATELY SHARE FIELD CONDITIONS WITH THE EMERGENCY OPERATIONS CENTER DURING TERRORISM EXERCISES

Like most cities, the City of Nashua, New Hampshire, relies on GIS systems to help track and coordinate a range of city services, assets and activities. Data is collected through activities across the city and then centrally stored and analyzed in ArcGIS. Nashua was an early adopter of Capturx for ArcGIS, because it enables teams to collect information easily on paper maps with a digital pen, which automatically integrates the data back into ArcGIS. City teams are able to quickly collect and share field data without the time, cost and hassle of handling and re-entering data on paper.

When the directors of the Nashua Emergency Operations Center (EOC) learned of the Capturx solution, they decided that it would play a key role in their homeland security planning and upcoming exercise. The exercise involved more than 20 agencies and 100 people from city, county and state departments. Past exercises revealed that their data collection processes were error-prone and inefficient, with key data not flowing to all stakeholders. By using Capturx, the cross-functional team was able to collect data quickly, send it wirelessly to the EOC, and have it displayed to every agency in near real time.

Situation

Emergency preparedness is something that the City of Nashua takes seriously. This particular training exercise was a simulation of a coordinated terrorist attack which included explosives, fires, and hostages. To make the exercise as real as possible, the city assembled agencies from the city, county, state and neighboring jurisdiction. Police, fire, SWAT, IT, health, the Red Cross, ambulance



services, education, and other groups all participated in a coordinated effort to control the situation.

To accurately portray the unpredictability of such an event, planners of the terrorist exercise ensured that information on the ground changed quickly and continuously. It was critical that the changing information be captured, documented and disseminated as often and as fast as it changed. The EOC is the central coordination point but its physical location, two miles from the incident, introduced challenges to the amassing and sharing of time sensitive information.

Challenges

In previous drills, the flow of information from the field to the EOC proved challenging. A common scenario would have responders at

“IN PAST EMERGENCY EXERCISES, OUR FIRST RESPONDERS WOULD RADIO OR CALL THEIR COUNTERPART IN THE EOC AND RELAY TIME CRITICAL INFORMATION TO BE SHARED WITH OTHER DEPARTMENTS. THE TRANSMISSION METHOD WAS PRONE TO MISINTERPRETATION AND WAS DIFFICULT TO SHARE WITH THE LARGER GROUP. PRIOR TO USING CAPTURX, WE WERE UNABLE TO EASILY DISTRIBUTE AND ARCHIVE ALL OF THE INFORMATION”

Angelo Marino, GIS Manager, City of Nashua, NH

the scene provide situational updates to the corresponding departmental staff at the EOC through a conversation over the phone or radio network. Verbal updates would then be documented on maps or forms. In order to provide the update to the other departments at the EOC, the entire group would gather around a small flip chart for impromptu updates as the situation warranted.

With 30 to 40 departments represented at the EOC, key stakeholders would often not be present for the ad hoc updates. The verbal relay of visual map information was also prone to error, which further hindered accurate and timely information sharing. The flow of data from the field to the EOC and back needs to be timely, easy to understand, and accessible to all that need it.

Solution

To improve information flow from the field, the City of Nashua selected Capturx for ArcGIS to collect field intelligence and quickly deliver it to the EOC.

The basic data capture process with Capturx is tried and true. Teams print maps on ordinary paper through ArcGIS, which they take into the field to record important information about fast-changing situations. They mark up the maps using ink, as they do today. There's no new complicated equipment to buy, learn or support.

The difference is that the teams are using Capturx software with digital pens. The Capturx add-in within ArcGIS prints each map with an imperceptible digital watermark which can be read by a digital pen. As the team member writes on the map, the digital pen records the ink strokes and their relationship to the map data based upon the digital watermark. Teams can simply annotate maps or even use the legend to create new map features. 0

For example, teams can select roadblocks or checkpoints from a legend and draw them on their paper maps. Once the pen is docked into its USB port on a PC or laptop, the field data automatically appears in ArcGIS. Notes can appear as ordinary handwriting on maps. New features, such as roadblocks or checkpoints, can be automatically added to the geodatabase.

Results - Faster and better decision-making

As a result of using Capturx, the extended Nashua team was able to get immediate access to the right information, in the right format. Teams were able to quickly get information into ArcGIS where it could be displayed on the big board in the right format and in the right contexts for all groups to see. They saw the information just as the team member collected it in the field. There was no guessing or miscommunication through verbal relay. They were also able to see it within ArcGIS – so teams could immediately manipulate it and create different views and simulations:



“I CAN CREATE A PDF OUT OF IT,(THE MAP AND THE DATA COLLECTED) AND IF I NEED TO SEND IT TO THE STATE POLICE OR THE FBI, I CAN DO THAT IMMEDIATELY WITHOUT HAVING TO WORRY ABOUT HOW TO SEND THAT FLIPCHART PAPER MAP THAT HE’S MARKED UP WITH A HIGHLIGHTER.”

Angelo Marino, GIS Manager, City of Nashua, NH

Works the way they work

The team was able to automate data collection with Capturx without any changes to their workflow or having to buy, support or train teams for mobile computers. Teams print maps on ordinary paper in the same way they do today. The pen is easy to carry and durable for variable field conditions.

With the natural pen interface and direct integration into industry leading applications, virtually any team member can begin using it right away. The pen captures every stroke of information that is marked on the map or written on the form. Once the pen is docked to the computer, the data is instantly available for editing or upload to other central systems like those used in Emergency Operation Centers.

The rechargeable battery allows field use for up to ten days with a single charge. Unlike mobile computers, there is no boot up time and teams always get automatic paper back-up copies of all data collected in the field. There is no new technology to learn or data to send, verbally relay, or manually re-enter.

Immediate ROI

Any emergency preparedness exercise is fundamentally a learning experience. Teams learn how to prepare, how to collaborate effectively, and how to put their response plans into action quickly and efficiently. There is little time to learn complicated new technologies or troubleshoot mobile

computer issues in the field.

Capturx played a role in the terrorism exercise – which was an astounding success. The City of Nashua’s Emergency Operations Center was able to achieve new levels of data accuracy and response with significantly faster access to field information compared to having information conveyed verbally over the phone or radio and recreated in the EOC.

The city was able to improve decision-making without investing in complicated training, devices or putting a burden on their IT department.

Future Plans

Based on the initial success of using Capturx, the city of Nashua is planning on expanding the emergency response scenarios.

They will use **Capturx for ArcGIS in team tactical planning** before the exercise. Rather than grouping the tactical team around a clip board and a standard letter size sheet of paper, the data will be captured with the digital pen and then immediately shared using the large screen monitor located on the side of the command vehicle. The tactical team will easily be able to see the status of the situation and receive instructions as to how to execute the tactical plan.

The information capture and analysis of each exercise includes extensive logging of all calls and activities. These are currently captured on paper and then re-typed into

computers for future reference and analysis. The team is planning on using **Capturx Forms for Excel** to immediately digitize activity logs that are handwritten on paper forms. With Capturx, the data can be made immediately available on the big screen for all to see without the time and expense of re-typing or teams fussing with technology in the heat of a crisis.

With Capturx for ArcGIS, the City of Nashua is prepared to respond to any situation, whether from malicious intent or natural disaster. First responders are enabled with digital pen and paper technology that is easy to use, requires little training, and is not cumbersome to their task. Better decisions are enabled because data from the field is easily collected by anyone and the updates are provided to each team in the Emergency Operations Center almost instantly.

Article provided by Adapx (www.adapx.com), developer of the Capturx software solutions.