Capturx Case Study

City of Nashua–Earth Day

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FOR EVENT PLANNING

Summary

Customer: City of Nashua, New Hampshire, prominent municipality actively offering public services for broad community.

Challenge: Need more efficient planning for coordinating events across the community.

Solution: Capturx for ArcGIS collaboration software for digital pens.

Results: Capturx enabled planning teams to instantly consolidate and share plans through ArcGIS. What had taken weeks in the past was done in minutes.

City of Nashua goes Digital on Earth Day with Capturx' Pen & Paper Software

On Earth Day, cities across the country and citizen volunteers join forces to focus on a common cause: Cleaning up the community and educating others about recycling, renewable energy, and other ways to protect the environment. In many communities, that often means getting out, leaving technology behind, and going back to basics.

Like other municipalities, the city of Nashua, New Hampshire, uses sophisticated technology for efficient governmental planning and to offer residents public services. But Nashua also relies on technology to plan for Earth Day – an important celebration for a city that Money magazine has named one of the "Best Places to Live" in the United States. This year, the city of Nashua brought its sophisticated GIS mapping system out of the office to turn untrained volunteers into GIS analysts. They worked with Capturx collaboration software for digital pen and paper developed by Adapx.

Community leaders and the city parks department coordinated a broad range of Earth Day activities across the region. Teams of volunteers were dispersed with supplies to clean and spruce-up the environment. To prepare for a smooth and productive event, city staff and volunteers spent a lot of time collaborating over maps to figure out who would go where and what resources they would need.

Challenge: Coordinating Field Teams

Nashua has traditionally used a series of multi-departmental meetings to outline Earth Day plans. Key city stakeholders including: Streets and Roads Department, Public Works, Parks Department, educators from local schools, and volunteers. In late winter, planning began for the city-wide celebration including all involved departments, volunteer groups, and organizations. The city needed to create a joint plan of action to delineate specific zones of activity for different types of clean up and resource allocation.

In the past, teams would print out special GIS maps from the city's database with appropriate information highlighted about public parks, roads and facilities. Leaders would huddle around these maps and mark up who should go where. While individual planning sessions could happen relatively quickly, gathering all the paper plans and drawings on maps, and processing the data into a cohesive plan often took days or weeks. Entering the information into GIS systems was important for sharing the data with others and documenting plans for future events.

Solution: Capturx for ArcGIS

Angelo Marino, Nashua's Chief Assessor and GIS Coordinator, took a different approach this year. The same groups of stakeholders worked with large maps on ordinary paper, but this time the maps were produced with Capturx for ArcGIS. Capturx software enables data from ArcGIS to be printed on ordinary paper with a special digital watermark that is readable by digital pens. Each printed map includes a unique pattern of imperceptible dots which are linked to the underlying the GIS data.

The printed map can be marked up with ink, the same way that teams use maps today for inspections, surveys, and more. In addition to ink, the digital pen also has an infrared sensor, processor, and memory. As the pen writes, the handwriting is digitized and stored on the pen. When the pen is docked to a PC, Capturx uploads the data and integrates it directly into ArcGIS. "It's all brand new, and it's something we just acquired this year," said

"They were able to collect sophisticated data in real time; without any formal training."

Angelo. In Nashua, the team members marked up their print outs with the digital pen, which digitized the notes as the teams wrote their plans.

Results: Better Collaboration and Faster Decisions

When the session was over, they still had physical maps, which were marked up with ink, but they also had the data stored digitally in all the pens. Pam Andruskevich, the City's GIS technician simply collected the pens and connected them to her computer. The information was instantly merged into ArcGIS, updating the geodatabase without any manual re-typing. Pam then created PDF files with consolidated plans and maps and emailed them to all of the stakeholders. Within five minutes of the conclusion of the meeting, everyone who attended had the full Earth Day planning details, clean-up zones, and full resource allocation requirements.

What had taken weeks in the past was done in minutes. The teams quickly refined their plans for Earth Day while also saving Angelo's team a lot of effort to re-key and interpret the map markups.

Marino also found other ways that Capturx could help improve collaboration and speed up field data collection. Marianne O'Connor, a local teacher was working with the University of New Hampshire Extension and the local mountain bike club on a project to help map trails and collect garbage throughout Nashua's Southwest Park for Earth Day. She enlisted volunteers to spread across the 233-acre park with GPS units. The volunteers used the Capturx digital pen to designate four different work zones to which volunteers would be assigned. "Within ten minutes of docking the pen, we were able to email the modified map with the zones and text to the group," said Angelo Marino.

The volunteer teams had specific instructions as to the location of trash collection points. The city's Parks and Recreation supervisor also used the pen to designate the locations on the map where they would be placing dumpsters, parking trucks, and collecting trash bags. Once all of the data was imported, the final maps were printed by the supervisor and handed out to his staff. The volunteers also used the GPS units to locate large trash items, such as discarded appliances, so that crews from the sanitation team could find these items in often remote parts of the park.

The second part of the team's mission was to accurately capture the trail routes throughout the park. The Parks Department wanted accurate data on how people use the trails, so they could keep people on these trails and avoid trampling off-trail areas by providing large trail maps in conveniently located kiosks within the park.

The student volunteers traveled the trails with GPS units, which collected their paths and coordinates. This raw data looked good when overlaid on the park map in the computer GIS system from a distance. However, as the team began zooming into the data for its eventual use on a large printed map, the meandering of the students created very erratic tracks and trails. Marino used Capturx and the digital pen to trace the path of the tracks in a continuous motion, so the city now has a very smooth GIS layer for trails in their geodatabase to produce park trail maps.

Summary

The city of Nashua's Earth Day proved extremely successful. This year, it was a lot faster with Capturx for ArcGIS and digital pens. Using Capturx, broad sets of community stakeholders were enlisted as virtual GIS analysts. They were able to collect sophisticated GIS data in real-time; without any formal training. With immediate access to the most recent data, the teams were able to collaborate more quickly and reach faster decisions. Capturx allowed them to spend more time doing community activities instead of planning community activities.