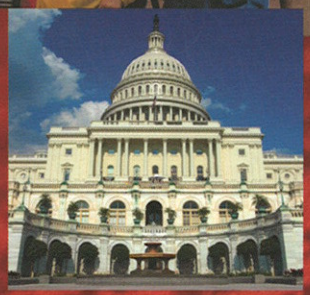
Case studies in **GIS**

GIS for Homeland Security



Gathering and analyzing intelligence

Protecting critical infrastructure

Responding to complex emergencies

Preparing for disease outbreaks and bioterrorism

Securing complex events

Mike Kataoka

Police officials also used a GIS application to collect information on the Fleet Center and other DNC facilities along with locations that housed important attendees. The building information was available for emergency response and incident management. After the convention, the Boston Police Department used Tablet PCs and ArcEditor to inventory hotels, municipal structures, schools, museums, and other significant city buildings, and developed an incident plan for each building.

The DNC went off without a serious incident and the collaborative effort of the GIS working group was deemed successful. The process confirmed that it is essential for multiple agencies joined for a common purpose to work with one set of data and maps and consistent models.

CASE STUDY

Super Bowl XLI

Teamwork enabled the Indianapolis Colts to win Super Bowl XLI on February 4, 2007. Teamwork also protected the venue, Dolphin Stadium, and the South Florida region from threats.

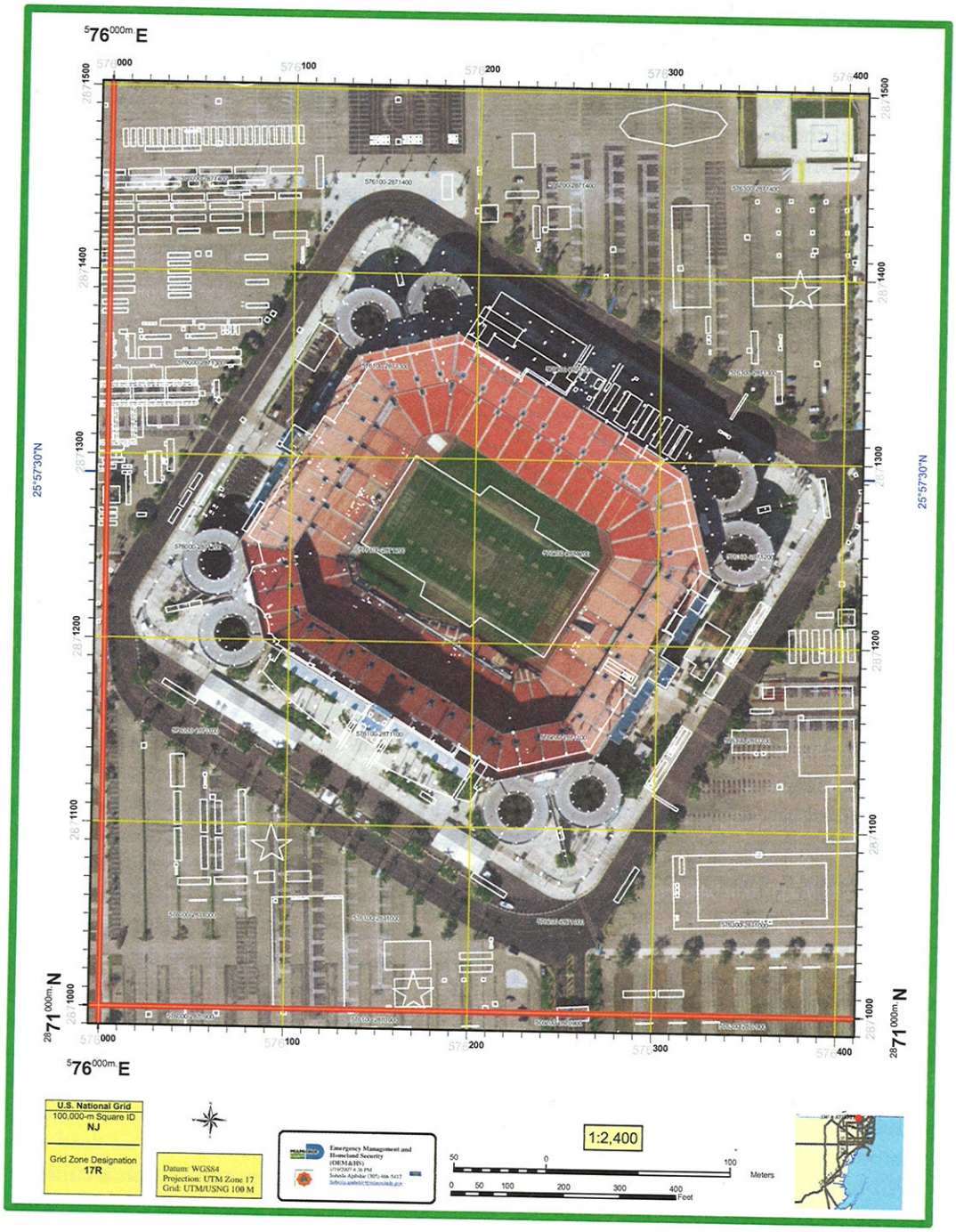
Coordinating multiple agencies and integrating the technology to allow those agencies to communicate with each other required extensive planning. That no major incidents occurred before, during, or after the football game within the Miami-Dade County region was a testament to the hard work behind the scenes, which included a strong GIS presence.

Merging software

The Miami-Dade County Office of Emergency Management and Homeland Security (OEM&HS), as the local lead agency, faced the challenge of merging different software and data into a compatible platform for easy access on an intranet Web application. The OEM&HS was well positioned to meet the challenge, having relied on GIS to coordinate responses to hurricanes, fires, hazardous material spills, and other emergency situations. OEM&HS also had an established track record of assessing vulnerabilities and maintaining current, relevant data.

Soheila Ajabshir, GIS coordinator for the OEM&HS, said the U.S. National Grid (USNG) referencing system for the region was foundational for aiding the Urban Search and Rescue (USAR) team. CAD drawings of Dolphin Stadium and key perimeter sites, digital orthophotos, ESRI and Oracle data, were combined with the grid system to create a common operating picture.

All countywide critical facilities such as hospitals, schools, and transportation facilities were mapped or printed for different agencies prior to and during the week leading up to the Super Bowl. Emergency managers and security personnel at the Miami-Dade County Emergency Operations Center (EOC) monitored traffic, airspace, waterways, and crowds while investigating alerts, tips, and any unusual events.



This map was created for Urban Search and Rescue team members at the command post for Super Bowl XLI. It shows U.S. National Grids overlaying Dolphin Stadium aerial photograph. The CAD annotation is not shown for the purpose of security.

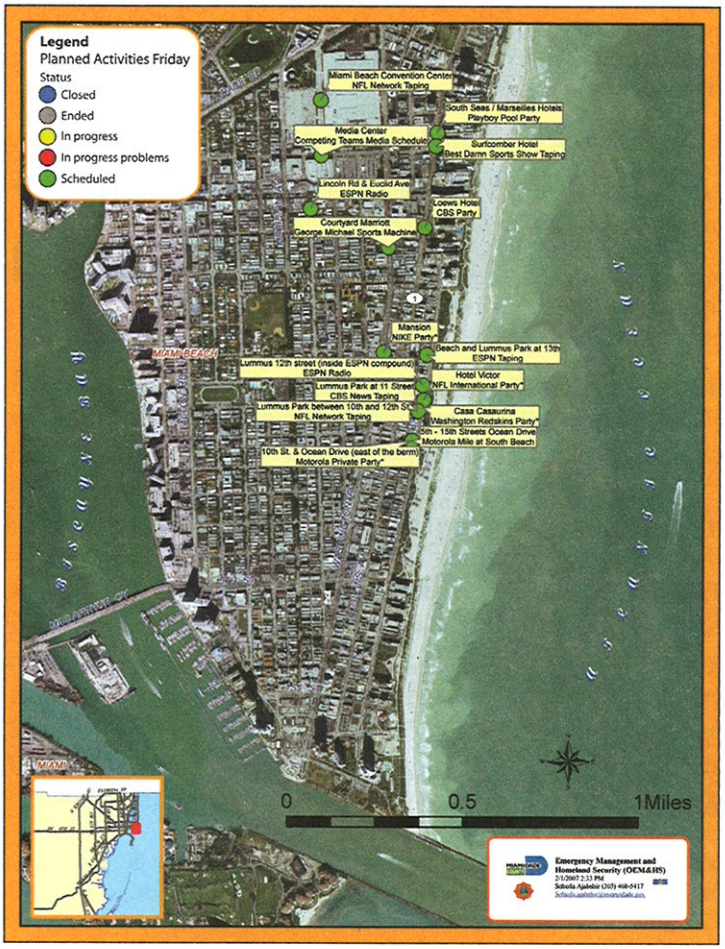
Source: Soheila Ajabshir, Miami-Dade County.

Monitoring pregame events

Pre-Super Bowl events, such as major parties and television and radio tapings, were monitored at the EOC over the several days before the game itself. During the game, Ajabshir's eyes were glued on computer screens, not the Super Bowl coverage.

Every agency at the EOC, including representatives from counties, municipalities, nonprofit organizations, and state and federal agencies at the EOC were linked via E Team software, NC4's situational response solution. NC4 (National Center for Crisis and Continuity Coordination) is based in El Segundo, California, and provides real-time alerts and communication on significant incidents affecting business and government.

GIS and E Team enable multiple organizations involved in preparing for and responding to emergencies to collaborate and manage their efforts from a single common view and coordination point. The geospatial technology at the Super Bowl delivered key information to the right people at the right time, regardless of their location. Officials could observe, assess, and analyze data from spontaneous and planned events to make accurate and timely decisions.



This map was created for Miami-Dade EOC, showing Miami Beach area parties and events scheduled for February 1, three days before Super Bowl XLI.

Source: Soheila Ajabshir, Miami-Dade County.

At the EOC in Miami, users were able to post and retrieve information on the intranet site Miami-Dade Viewer to evaluate current situations and potential incidents. As reports, graphics, maps, or satellite displays were updated, the new information was automatically available to everyone.

ArcGIS server and E Team's program and software combined to allow users to access maps and conduct GIS analysis using a simple browser. Users could conduct incident modeling, access incident data, and obtain situational awareness with highly detailed geographic data. This data was dynamically updated and provided to all users with current map displays, easily and quickly.

GIS applications were used to map USNG in combination with transportation, critical facilities, digital ortho images, and live data from E Team's planned event in order to exhibit and monitor a common picture at the EOC and the command post near the stadium.

From a threat standpoint, the big event proved uneventful, which suited Ajabshir and others at the EOC just fine.

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