COMBINING WEB AND ONSITE GIS FOR EMERGENCY MANAGEMENT DRILLS

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Agenda

• What is MCU-4
  • Old Version
  • New Version
  • Differences
  • Real Time Imaging Capabilities

• Web GIS
  • How it is being used
    • Monroe County Community College Active Shooter Drill 2014
    • Northern Border 2014
    • RGRTA Transit Center Active Shooter Drill
  • Lessons Learned
What is MCU-4

- MCU-4 is a mobile GIS response and work vehicle
- Day to day supports GIS staff with long term field projects
- It has a role in public safety
  - Base of operations for emergencies
  - Search and Rescues
- Large Scale Incidents
- Can be use to support special events
OLD MCU-4
Active May 2009 - February 2013
History of the Old MCU-4

• 1995 Ford Super Duty Box Truck
• Former Kodak Mobile Air Quality Lab
• Started out as a joint fiber and GIS vehicle
• Fiber got a vehicle that matched their purpose so we focused the vehicle on GIS
Uses of the Old MCU-4

- Air Show
- Various Searches
- Ginna Drills
- Breakout at Industry
- Mobile Dispatch for Pure Waters
- Lilac Festival Mapping
- Various School

- Outings
- Careers in Construction
- GIS/SIG Conference 2011
- Rochester City Marathon
- West Webster Christmas Eve 2012
NEW MCU-4
Active March 2013 - Present
Outside

- 2006 Specialties Coach on a Freightliner Chassis
- 7.0L Detroit Diesel Engine
- 8.5KW Diesel Generator (with available shore power)
- 30ft Mast
  - 3G and 4G Cellular Antenna
- Pan Tilt Zoom Camera
- TV Antenna
- Various Radio Antennas
- Ultrasonic Weather Station
- 12ft Slide Outs
Inside

- Network Closet with over 20 different CAT-5 Cables
- 3 Rugged Toughbook CF-31 Laptop Workstations (i5 processors)
- 1 Solid State Lenovo Laptop (i7 processor)
- 2 Toughbook Tablet W-2 with GPS
- 32 inch smart board
- 55 inch smart TV
- HP E510 Printer
- HP Designjet 130 Plotter
- Various Trimble GPS equipment including RTK devices
- Kitchenette and Bathroom
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Activities for New MCU-4

- City of Rochester Emergency Scenario with Fire and Police 2013
- Northern Boarder Exercise 2013
- PGA Championship 2013
- Ginna Drills 2013
- GIS/SIG June Program
- Soil and Water Conservation Field Days 2013
- Active Shooter Drill with MCC 2014
- Northern Border 2014 Drill
Improvements and Differences

**Improvements**
- More Space!!!!!!
- More workstations
- Internal conference table
- A second large screen
- Better MPG and generator operating time
- Better Breaks and Handling

**Differences**
- Built in bathroom (to be used only in major emergencies)
- Lost the observation deck, awning, and screen room
- Single generator
- No longer able to mount a screen on outside
- Need a CDL to drive it
Real Time Imaging Capability

• Should an emergency situation arise, the GIS technology vehicle is equipped to process real-time imagery, through a partnership with Pictometry International. Images can be sent from a plane to a radio antenna (seen here mounted on the observation platform on the old MCU-4).

• Once the images are received, they are processed inside the truck and converted to readable/transferable files in the matter of minutes, helping to aid in situational awareness.

• Real-Time available but it may need sometime to get clearance and approvals

• We are currently looking into the possibility of a UAV for emergencies
WEB GIS
Active Shooter and Northern Border Marine Incident Drills 2014
Emergency Management Situation Sharing Before

- Printed Maps
  - Hung up on walls and laid on tables
  - We would get mark ups and need to change the map and reprint
  - So overall slow, but good for record keeping
- PDF Maps
  - We used this similarly to the printed maps, but we could share the latest copy
  - Also very good for record keeping
- WebEOC
  - Mapper
    - First web service sharing
    - Cumbersome and buggy
  - MapTac
    - Share static images and dynamic markups
    - Free for all editing
    - Maps had to be uploaded during events
Examples Printed and PDF
Examples Web EOC
Emergency Management Situation Sharing Before

- Early Web Viewers
  - Flex applications and web services
  - Showed the power of GIS and users had more control
  - As ArcGIS Server expanded so did the viewers
  - Ginna Nuclear Power Plant Emergency Zone Map and Flood Viewer were the first
  - A viewer was also used to help with the Spider-Man 2 Movie Shoot and the 2013 PGA Championship
- The emergency management and first responders really like this approach and wanted more tools to collaborate with
Examples of the Flex Apps
Examples of the Flex Apps
Amazing Spider-Man 2 Filming

http://www.gannett-cdn.com/media/Rochester/USATODAY/2013/12/05//1386282693000-roc-6a1338tdqi1cm4boqjoriginal.jpg

http://www.imdb.com/title/tt1872181/

http://www.rochester.edu/news/SpiderMan/199BEST.jpg
Evolution to Web GIS

• Biggest thing limiting the expansion from GIS staff to first responders was the lack of collaborative tools

• In the winter of 2014, I looked into how to get web editing of features to work and how best to load it into viewers

• It really was not that difficult, the main thing was getting the time to implement it

• The first test was getting collector to work with the flood viewer for ground truthing of points

• Then came the new exercises
Monroe Community College
Active Shooter Drill

• The first active drill that used the web editing capability was the Monroe Community College (MCC) Active Shooter Drill
• June 20, 2014
• This drill played out after the school ended for the year and had a few players
  • NYS Department of Homeland Security and Emergency Services
  • NY State Police
  • Monroe County Sheriff
  • Brighton and Rochester Police Department
  • MCC Security
  • Rochester and Brighton Fire Department
  • TSA
  • Monroe County Medical Examiner
  • Emergency Communication Department (911)
  • Monroe County Office of Emergency Management
Photos from the MCC Active Shooter Drill
Watching Social Media Around the Drill

Awaiting start of active shooter drill at @MonroeCC. Law enforcement agencies training together to prepare for worst.
http://t.co/uqCTdlkEON
3:17pm · Jun 20, 2014

@MonroeCC holding active shooter drill. 250 players involved - 50 of them students.
@13WHAM http://t.co/9OP3PCq7jR
3:06pm · Jun 20, 2014
Northern Border Marine Incident Drill 2014

- Basically this is a cross agency drill to help strengthen the security and abilities of the US/Canada border on the Great Lakes
- August 14 and 15, 2014
- Players
  - US Coast Guard
  - Canadian Coast Guard
  - Home Land Security
  - FBI
  - US Customs
- Local Police and Sheriffs
- New York State Police
- And a lot of smaller organizations
- Zone of Play
  - Buffalo
  - Niagara
  - Rochester
  - Oswego
- Everyone needed a method to share location information quickly and would work between everyone
Large Scale Web GIS Implementation

- Using ArcGIS Server each region has their own layer to edit and a set of editing interfaces
  - 8 Java Script Viewers
  - 6 Flex Viewers
  - 2 Geocortex Viewers
- All viewers are accessible through ArcGIS Online
- All of the editors can see everyone's changes but not edit them
Javascript Editor
Vehicle Tracking Using APRS.fi and JavaScript Viewers
Operations in the EOC / Command Center
Operations in MCU-4
RGRTA Transit Center Active Shooter 2014

- A Drill Similar to the MCC Active Shooter with a new facility and other players

  - November 2, 2014

- The Facility was Not Open (Still Under Partial Construction) So there was limited impact to the people

  - Roads were still closed and the general public was not admitted into the area of operation

  - A tricky part was the new terminal has residential buildings around it so a public information campaign went out

- Because the Exercise was inside 2 buildings, floor plans were loaded into the GIS web application

  - The application allowed for placing units in the bus ways and even in bathroom stalls

  - Outside of the Web Applications, Pictometry Imagery was used to look a line of sight for possible sniper deployment
Lessons Learned - GIS Response Vehicle

• Bringing Geospatial Technologies to the first responders shows them how useful it can be as well as it is something that they can use easily.

• Have preset projects and data ready to go so you do not have to long set up times.

• Carry backups of many datasets because you may not have internet conductivity.

• Have plenty of fuel (generator and regular engine), paper, ink, and water because you do not know how long you might be out in the field.
Lessons Learned - Web Viewers

• You have to make the applications real easy to use and basic to get the most people using it

• Try to get all of your types and symbology preloaded and get input from users before you need to use the viewers

• Sometimes internet connections are weak, so put together a way to use replicated data, and field collectors
QUESTIONS

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