

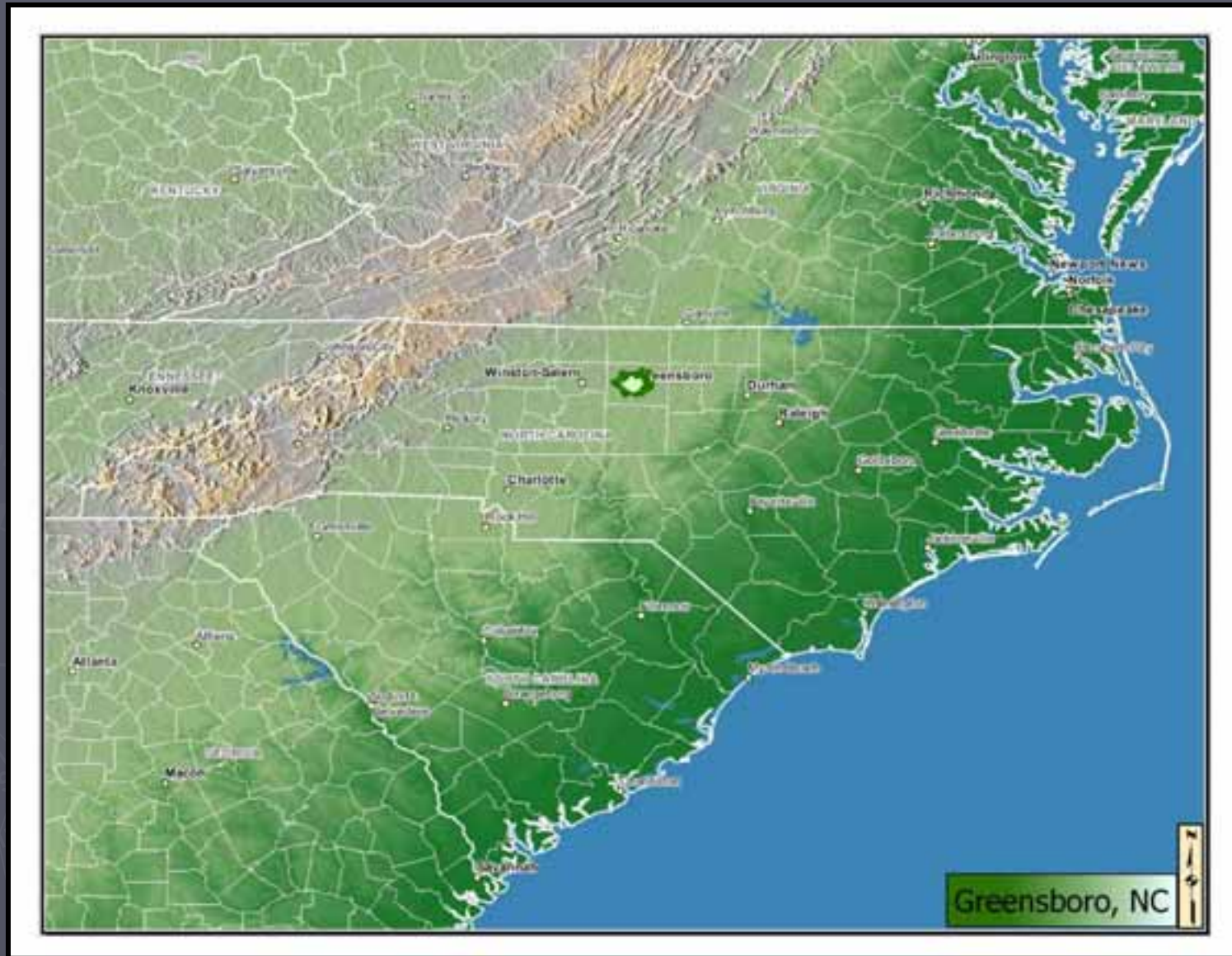
GIS In The Emergency Operations Center

Highlighting Examples Of GIS Support
For The EOC

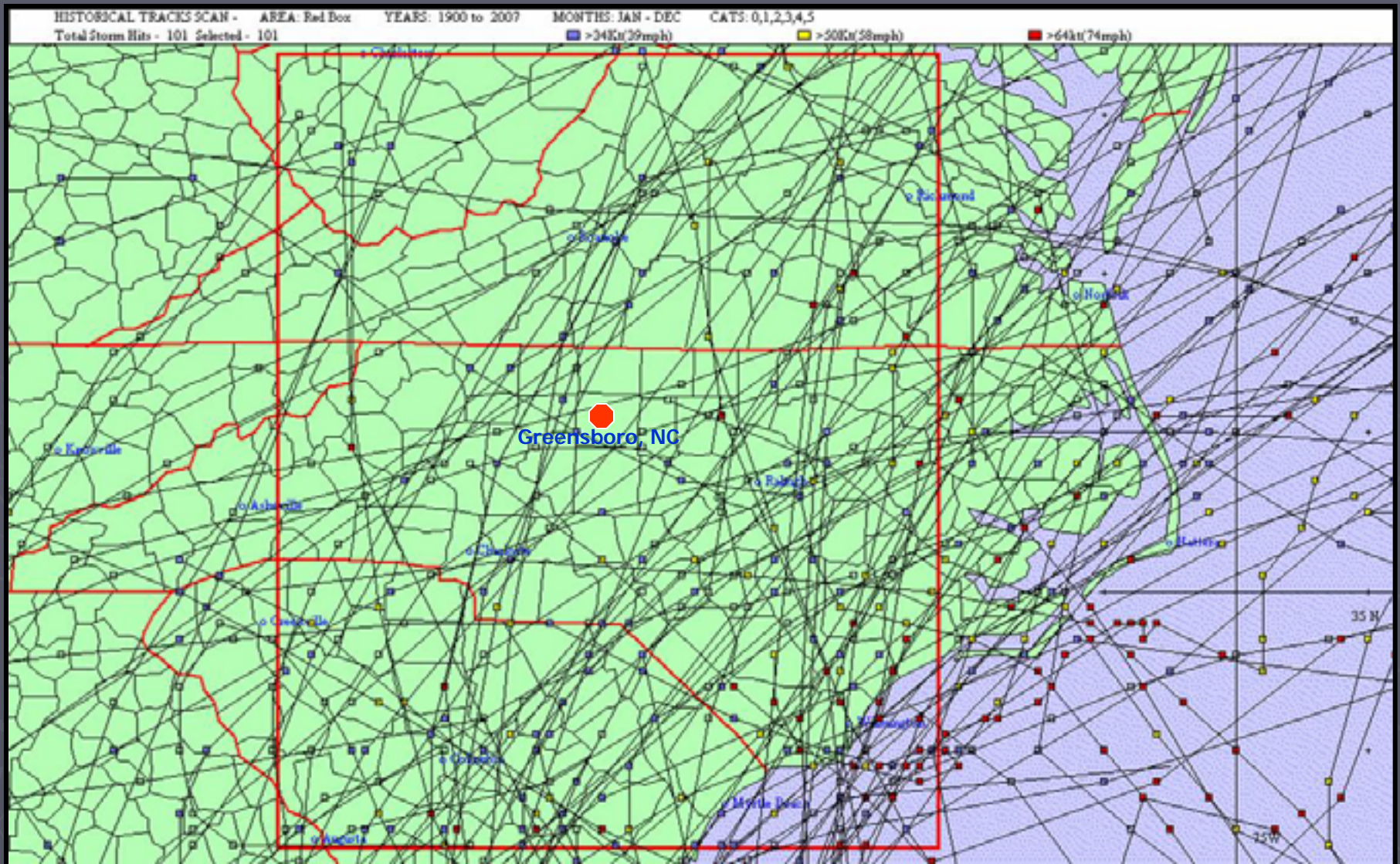
City Of Greensboro, NC.

Presented By
Chris Freeman, GISP

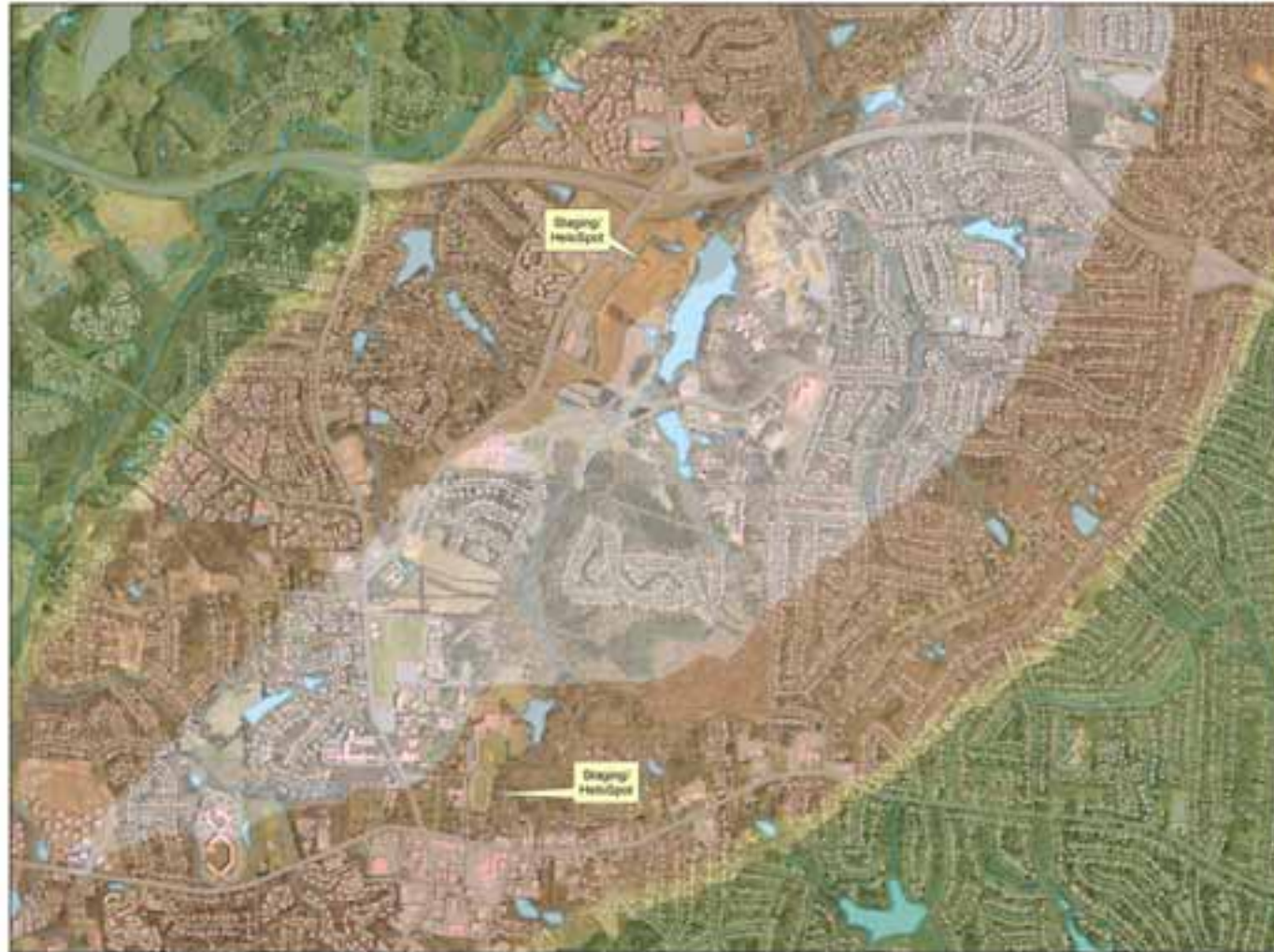
Greensboro Geography



Greensboro Vulnerabilities Hurricanes



Greensboro Vulnerabilities Tornadoes



Preliminary Damage Assessment

Probable Tornado Event
Sunday April 20th, 10:50 am
Northwest Greensboro, NC.

Affected Population:
Schools: 4
Churches: 8
Residential: 5563
Commercial: 768

EMA Facilities:

Staging/HubSpot:

1. Quilford College Athletic Field
2. Construction Area @ Bryan and New Garden

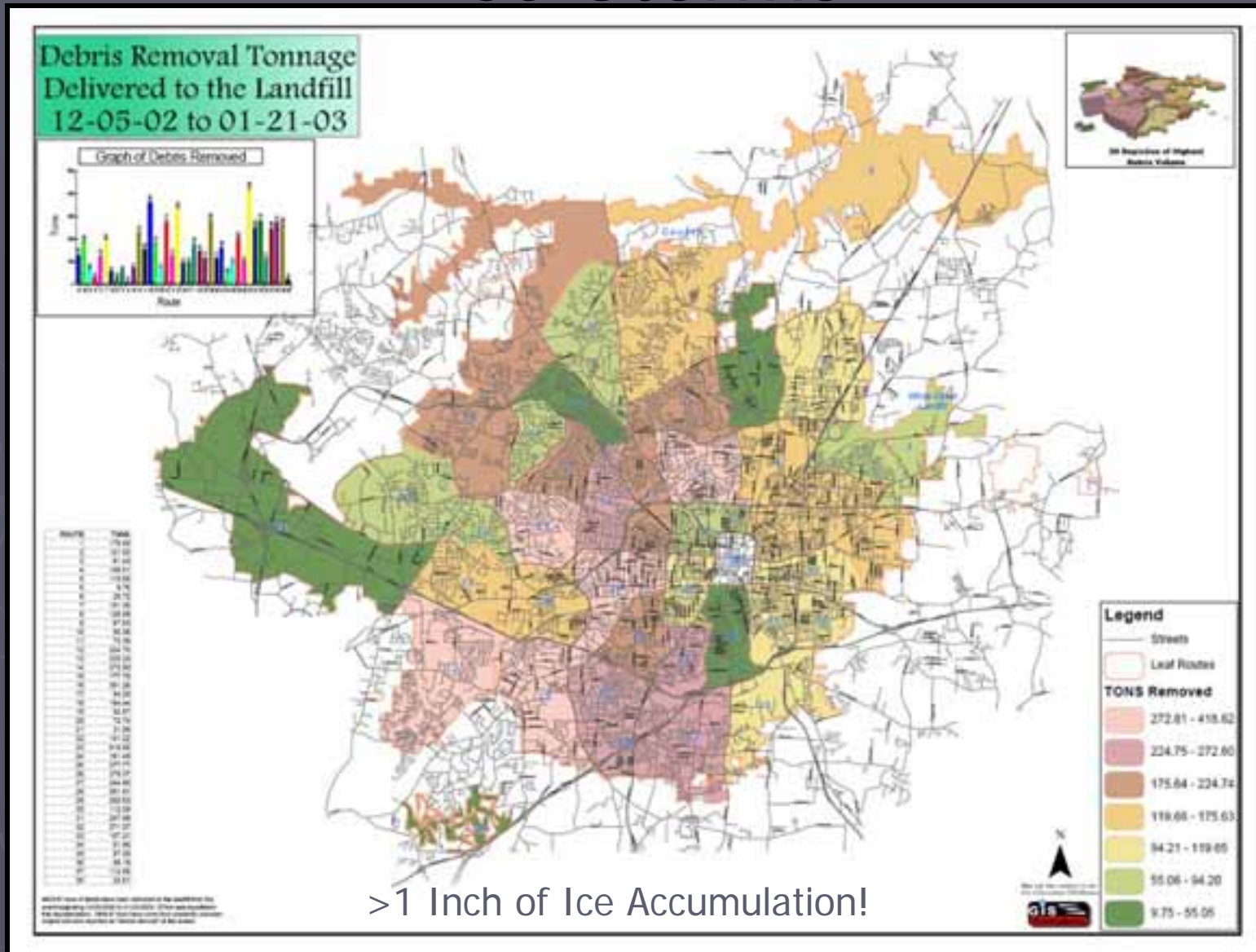


Legend

IDW of Address

- Major Structural Damage
- Trees Down, Some Damage
- Trees Down, Debris in Street
- Spotty Damage, Some Debris
- Street
- SDE SDEADMN Streets
- SDE SDEADMN Building
- SDE SDEADMN Roads
- SDE SDEADMN Water
- SDE SDEADMN Parks

Greensboro Vulnerabilities Ice Storms



Greensboro Vulnerabilities

Flash Flooding



3.08 Inches of Rain in a Two Hour Period!

Greensboro Vulnerabilities HAZMAT/Civil Disaster

- ▶ Distribution Hub for Colonial and Plantation Pipelines.
- ▶ Chemical Plants.
- ▶ Terrorist Activity.
- ▶ In Vicinity of 2 Nuclear Power Plants.
- ▶ 4 Interstate Highways and Rail Corridor.

GIS - ESF 5 Information & Planning

- ▶ Activation by **Emergency Support Function (ESF)**
- ▶ GIS is ranked as ESF-5 in the **National Incident Management System (NIMS)**
- ▶ GIS Personnel on call 24/7/365
 - Activation by ESF need via pager
 - 2 GIS Staff on Call at all times
 - All GIS Staff NIMS Certified

How It Works Overview

- ▶ Pre-deployment and Maintenance of:
 - Servers
 - Infrastructure
 - Data
- ▶ Communications
 - Radio
 - Telephones
 - Pagers
- ▶ Redundant Systems
 - Servers (Everyday Production and EOC)
 - 2 Laptop Computers

How It Works

The EOC

► EOC Site:

- Located away from population centers at Public Safety Training Facility
- Dedicated Fiber to offsite EOC location
- Server stored on site available on VPN with separate Internet
- Generators for 3 days of off grid operation
- Telephone Bank
- Radio, Cell, and Satellite communications

How It Works

The GIS

- ▶ 2-4 Laptops loaded with ArcInfo Concurrent License (license manager on EOC server), Spatial Analyst, and 3D Analyst
- ▶ 2 LCD Projectors
- ▶ Data:
 - If network available, Production SDE Geodatabase is used
 - No Network –EOC Server Loaded with SDE backup, Personal Geodatabases, and Shapefiles
 - No Network or EOC Server – Laptops are loaded with SDE backup, Personal Geodatabases, and Shapefiles
 - No Network, EOC Server or Laptops - ??? RUN!

How It Works

Preplanning The Data

- ▶ EOC Basemap - Data Refreshed Monthly Using Model Builder Scripts
 - Flood Prone Areas
 - Pipelines
 - Congregate Areas
 - HAZMAT Information
 - Standard Municipal Features
 - "Template" Feature Classes Always Available

Recent Activations And Training

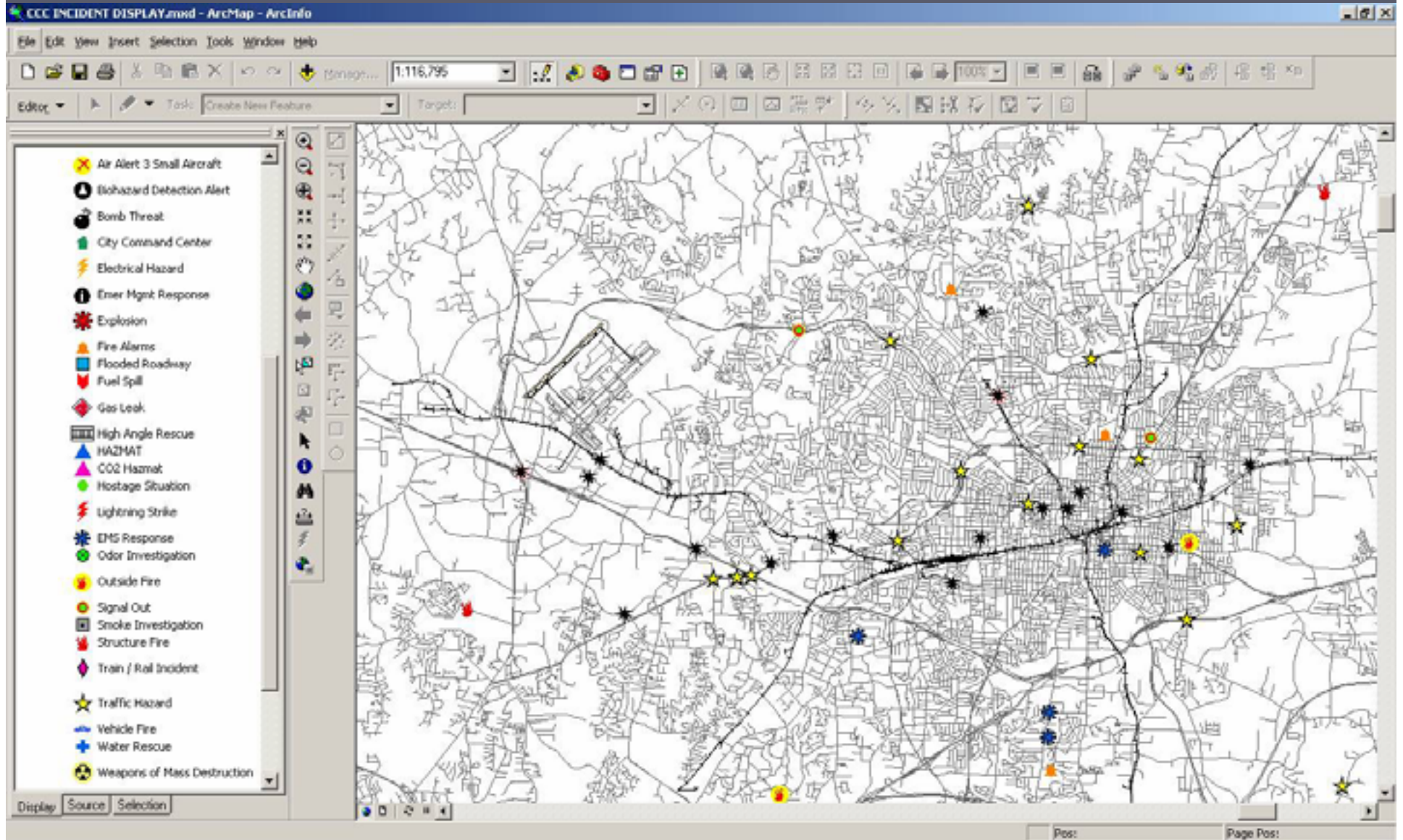
- ▶ Average: 1 Formal Activation and 2 Drills Annually
 - "911"
 - 2 Ice Storms
 - Straight-Line wind event
 - Hurricanes (Floyd, Fran, Katrina, Isabel, Ophelia)
 - Partial Activation following High Wind Event
 - Gas Crisis following Katrina
- ▶ Biannual Enterprise Drills/Simulations
- ▶ Annual Drills for GIS Staff

Automated Real-time Data

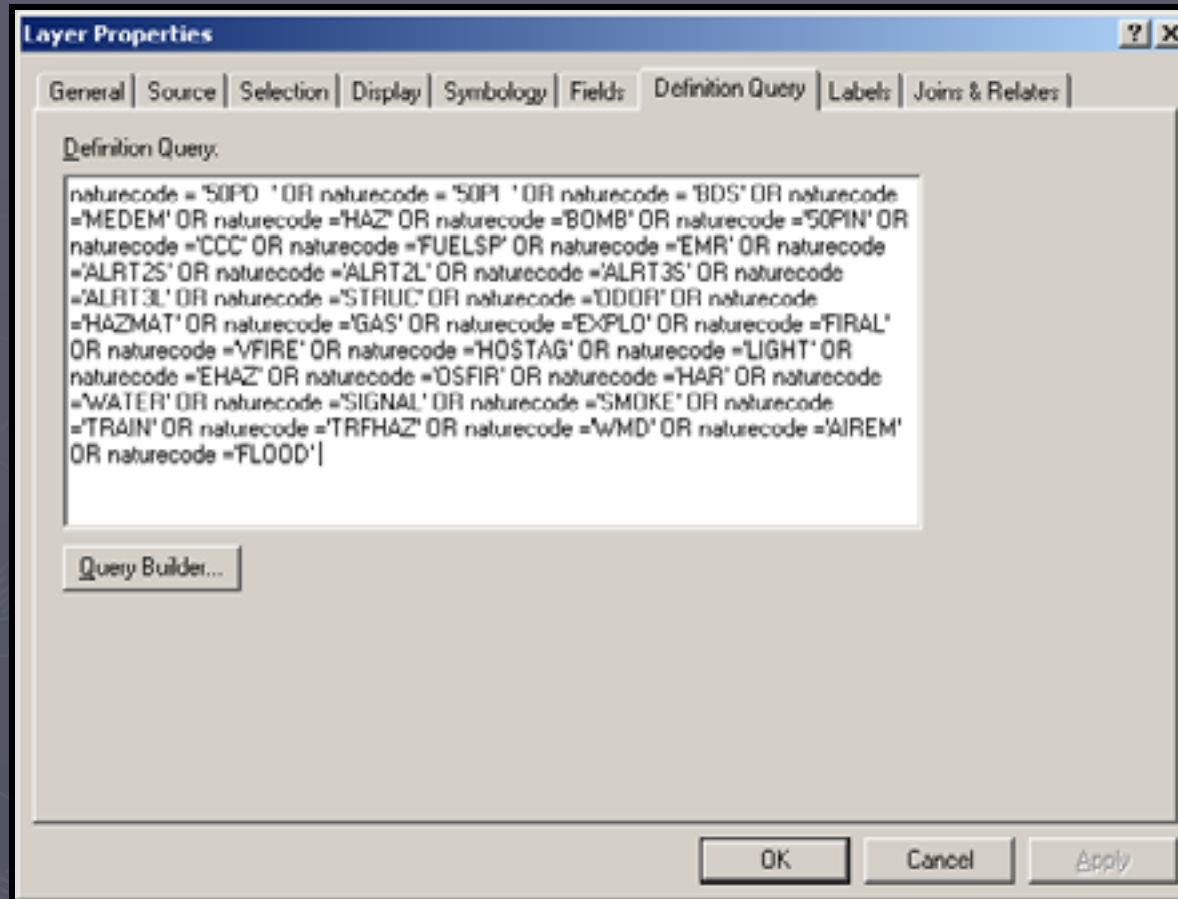
“Leveraging Existing Technology”

- ▶ Contact Center (*Call Center*) and 911 calls are captured in Real-Time
- ▶ ODBC connection to SQL Server established in the 911 dispatch system (OSSI) (Real-Time)
 - ▶ Any call that comes into 911 is displayed in ArcMap as soon as the dispatcher enters the call
- ▶ ODBC SQL Server connection to Contact Center Application (Near-Real-Time)
 - ▶ Citizen non-emergency phone number “373-CITY”
 - ▶ Information is displayed in the same ArcMap application

Real-time Data Connections 911 Center

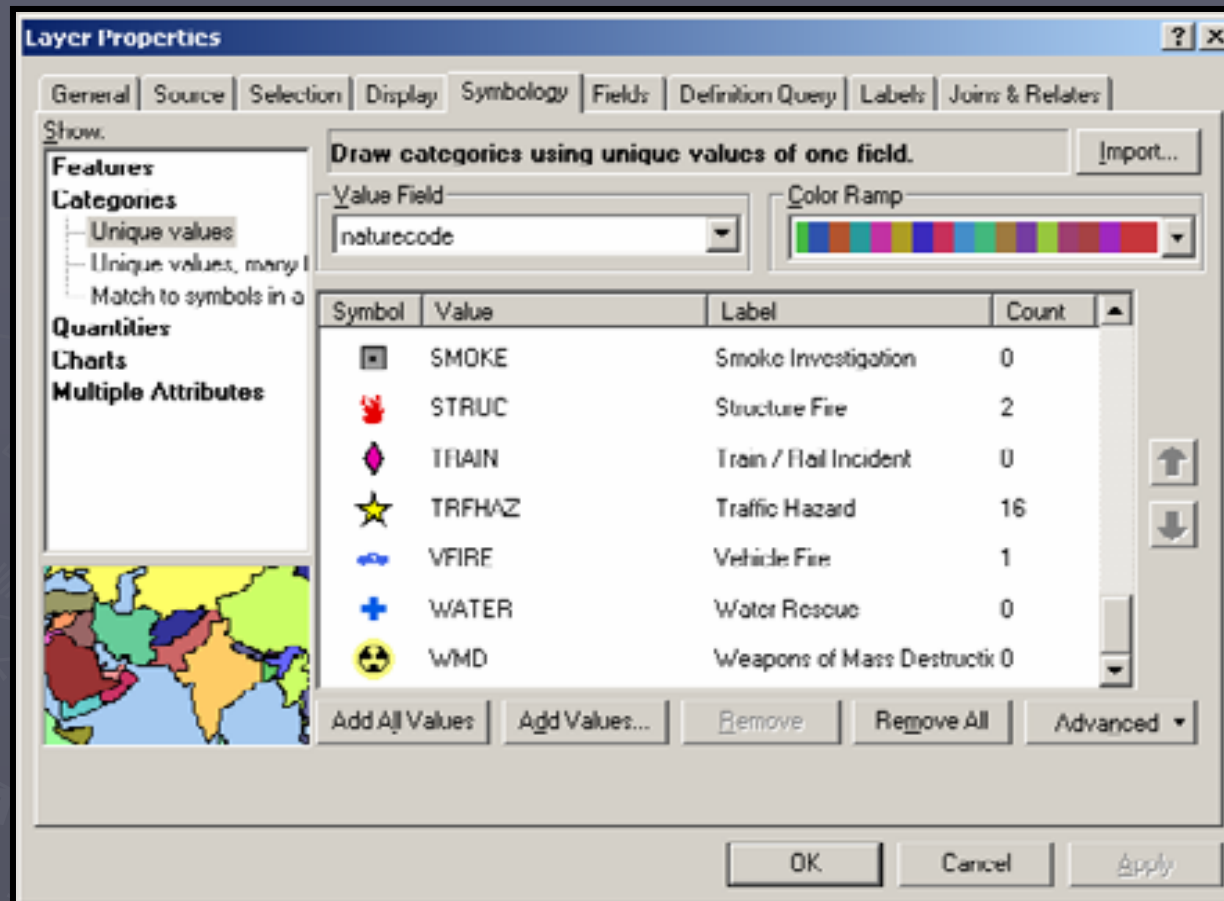


911 Center Data



- Definition Query on 911 SQL Server table to return only valid EOC call types

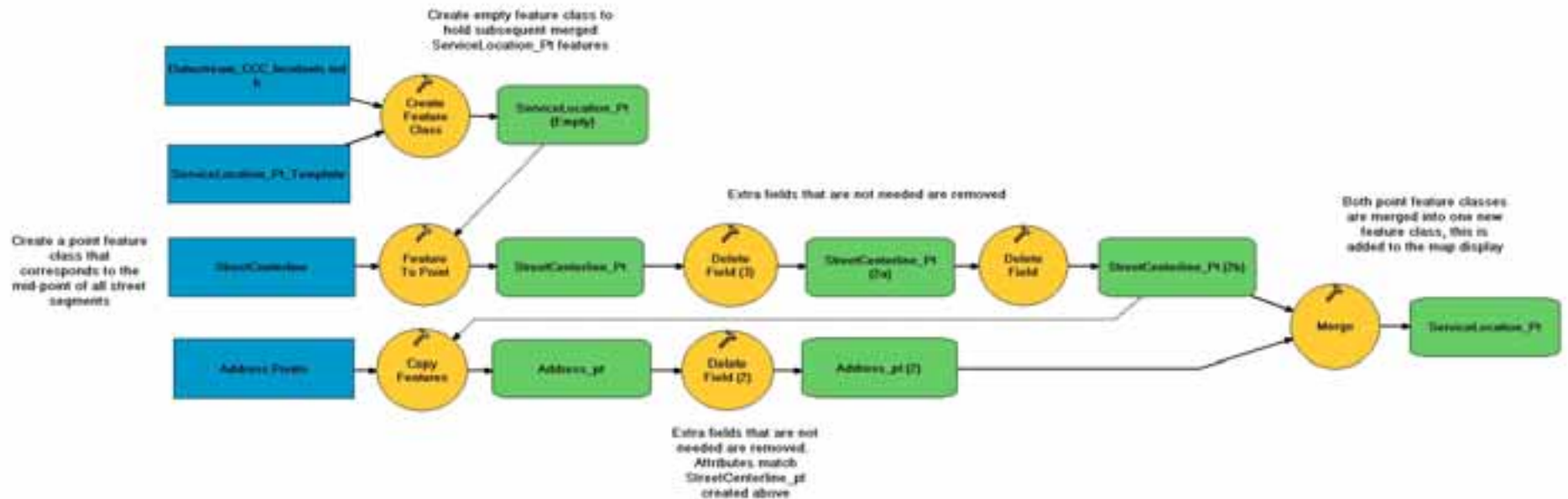
911 Center Data



- ▶ Predefined Unique Value Symbology Assigned to valid EOC Call Types

Contact Center Application Model

This model creates a single point layer consisting of addresses and street centerline mid-points that will be used in mapping storm events. It should only be run to create the underlying basemap once per event.



Model run to establish a "Template" for table joins from the Contact Center.

Contact Center Application

Call Entry Form

CSR's issues for this call

GIS Map and Knowledge Database Window

The screenshot displays a web-based application interface for a contact center. On the left, there is a navigation menu with various options. The main area is divided into several sections:

- Call Entry Form:** A form with fields for call details, including a dropdown for 'Category' and a 'Submit' button.
- CSR's issues for this call:** A table with columns for 'Issue ID', 'Issue Description', 'Status', and 'Priority'. It lists several issues related to 'Response to be collected'.
- GIS Map and Knowledge Database Window:** A map showing a street grid with several buildings highlighted in red. To the right of the map is a legend with various categories like 'ADDRESSPOINTS', 'HOSPITALS', 'INDUSTRIES', etc.
- Bulletin Board:** A section at the bottom right displaying news items with dates and brief descriptions.

Community Events List

"Top Ten" Daily Items

Bulletin Board of City news

Customer Service Representative enters calls: "Trees Down", "Debris Removal", etc...

Other EOC Resources

CAD Resource Monitor

The screenshot displays the Visual CAD Admin interface. The main window is titled 'Call Taker/Dispatch Window' and shows a call log for call # 331. The call details include:

- Ref#:** 331
- EMS:** Fire
- Law:** Law
- Resc:** Resc
- Other:** Other
- Call #:** 2007-0508-178
- Unit:** W911
- Priority:** P342
- Location:** GALLIMORE DAIRY RD/INTERNATION 0 IN FRONT OF SAMET
- Call Type:** ACCIDENT WITH PROPERTY DAMAGE
- Caller:** BOB GREER
- Address:** GALLIMORE DAIRY RD/INTERNATION
- Phone #:** (338) 338-6619
- Time:** 12:34

Below the call details is a table of available units:

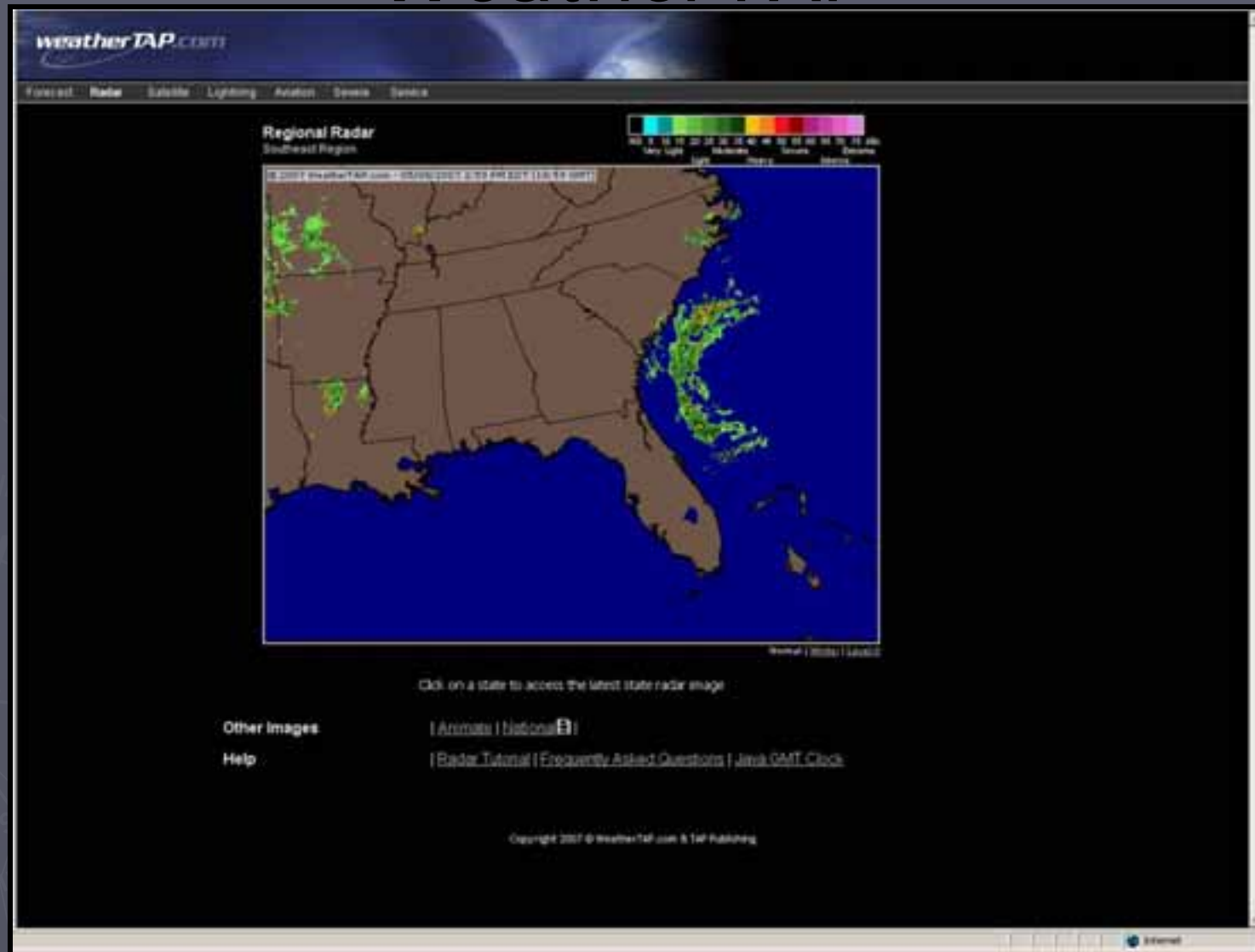
Unit	Status	Call	Nature	Location	Time	MCI
100	CB			U/N		52
108						
107						

The right side of the interface shows a map with numerous colored markers (yellow, blue, green) representing the locations of various units. The map is overlaid on a street grid. The bottom of the screen shows the Windows taskbar with the Visual CAD Admin application icon and the system clock at 2:07 PM.

Guilford Metro 911 Dispatch Viewer

Other EOC Resources

WeatherTAP[©]



Commercial Near Real Time RADAR and Satellite Viewer

Other EOC Resources

Hurrevac

The screenshot displays the Hurrevac 2000 software interface. The main window shows a map of the Gulf of Mexico and surrounding regions, with a green overlay indicating a forecast area. A text viewer window is open, displaying the following text:

ISAAC # 21 HBC Forecast and Forecast Discussion
24HR NOAA H.P.C. Rainfall Forecast Day 1 ending 050907 09E - Forecast may not reflect the latest storm forecast track

Advisory Text Viewer - File C:\Program Files\Hurrevac2000\rain\sp1000c.txt

FXUS04 KWBC 081810
QUANTITATIVE PRECIPITATION FORECAST DISCUSSION
NWS HYDROMETEOROLOGICAL PREDICTION CENTER CAMP SPRINGS MD
600 AM EDT TUE MAY 08 2007
FINAL DAY 1...DAY 2 AND DAY 3 QPF DISCUSSION
VALID MAY 08/1200 UTC THRU MAY 11/1200 UTC
REFERENCE AVIPS GRAPHICS UNDER...PRECIP ACCUM - 24HR
...DAY 1...
...UPDATE...
MAIN CHNGS WERE OUR THE SRN PLS INTO SRN TX. SRNWX THAT WAS OUR
THE SRN TX PNDL LOOKS SOMEWHAT STRG IN THE LATEST WJ SATL
PICS/ROR RETURNS. LOOKS LIKE IT IS NW CDS. LOLUL FLOW AND OF THIS
ENERGY IS SUPPORTG A STRG REGION OF LOLUL THERMAL FORCG AND ASSOCD
CHNGTN. XPCET THIS ACTVTY TO CONT LIFTC ENEWD THIS HRNC AND LRLY
ENING THE BRDGY ACRS THE REGION FOR ADDTN. DULPNT LATER TDA AS
MORE ENERGY RIDES NEWD FN THE CLSD LOW OUR THE SRN U.S./NRN MEX.
PCPM AMTS HAVE BEEN RAISED...ESPCLY EARLY TDA ACRS OK/NRN TX.
...SYNOPSIS...
OMEGA BLOCK OVR THE CONUS CONTS TO DETERIORATE WHILE THE DEEP LYRD
FLOW OVR MUCH OF THE CONUS WEAKENS. ORGANIZED HVR RWFL SHLD TAKE A

Forecast/Advisory - Plots | Public Advy - Discussion... | Tropical Outlook | HPC Rainfall Discussion

Default Text Directories are for:
 So Pacific West Pacific Central Pacific East Pacific Atlantic

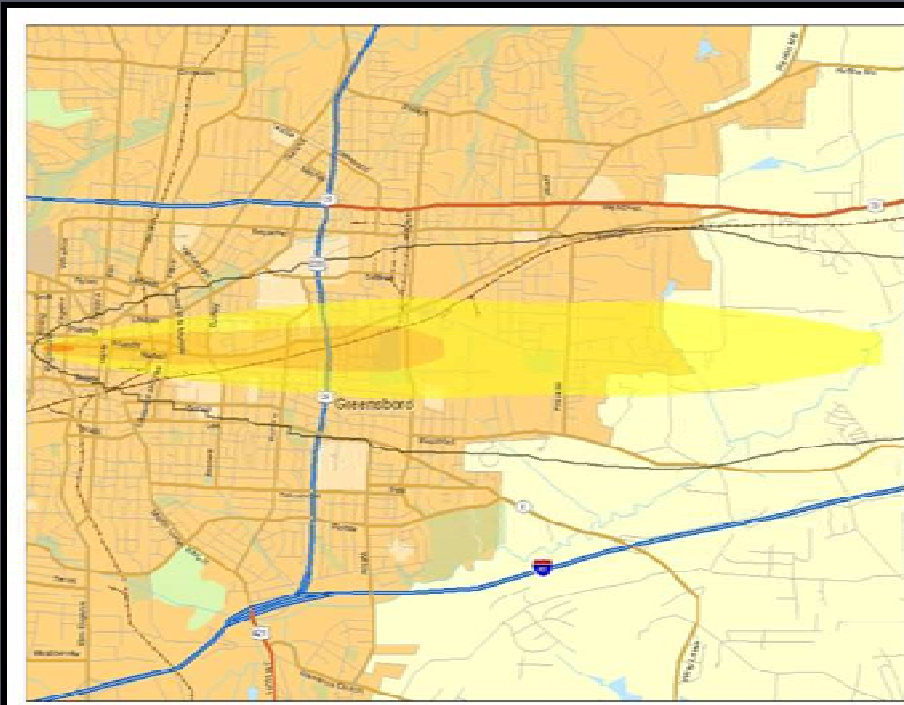
Buttons: Print, Close

Taskbar: HURREVAC 2000 for W... | Advisory Text Viewer... | 2:10 PM

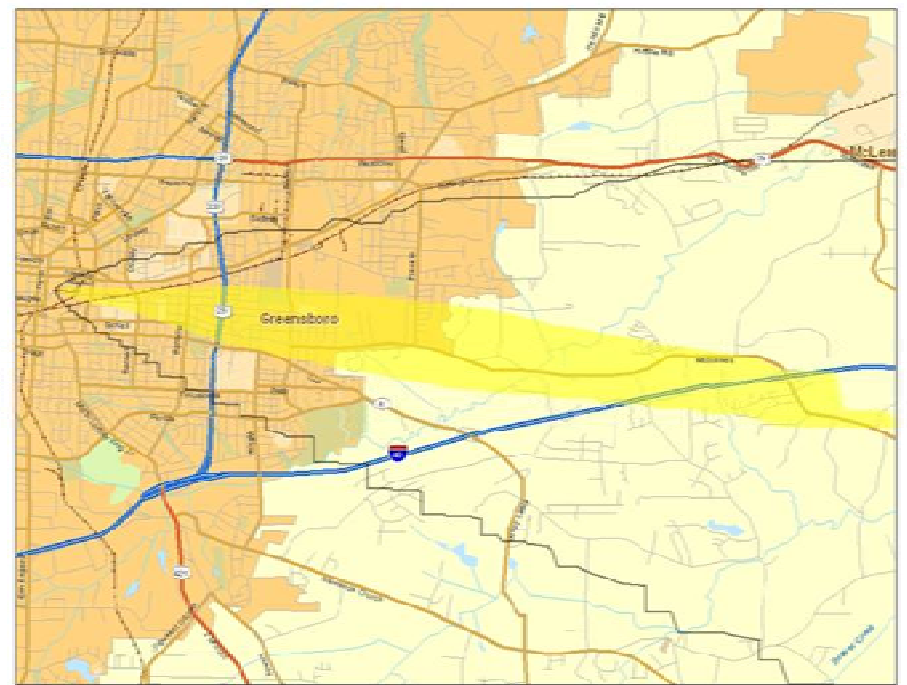
Hurricane Tracking and Advisory Viewer

Other EOC Resources

Consequences Assessment Tool Set (CATS)



Large Canister of Chemical Agent Model



Small Canister of Anthrax Model

GIS In The Emergency Operations Center

Questions?

Contact Information

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