Geospatial Initiatives
A State Perspective

MAG

Phoenix, Arizona

April 14, 2004

Arizona State GIS Organizations

- **Arizona Geographic Information Council (AGIC)**
  - Strategic Direction and GIS Policy Recommendations
  - Statewide Data Development/Acquisition/Sharing
  - Annual GIS Conference - Prescott Resort – October 27-29, 2004
  - Web Site: http://agic.az.gov/
- **Arizona Land Information System (ALRIS)**
  - State GIS Database - ALRIS Data Library
  - Provides Framework (and other) Data to agencies
  - Web Site: http://www.land.state.az.us/alris/index.html
- **Arizona State Cartographer's Office (SCO)**
  - GIS Standards
  - Data development and Access to data
  - Interagency Coordination
  - Web Site: http://sco.az.gov/

Arizona
State Roles

Communicate, Coordinate and Collaborate

- Establish communication channels (Council)
- Identify Resources and Opportunities (Inventories)
- Develop and maintain GIS Framework Data (Grants and Partnerships)
- Improve Access to GIS Data, Resources and Metadata (Portal)

Arizona Geographic Information Council Current Activities

- FEMA Grant: Data/Resources Inventory (On-line)
- Develop Statewide Framework Data and Integrate Local Geospatial Data
- Develop Arizona GeoData Network
- Establish an Arizona GeoData Portal
  - Link GIS data, contacts and resources
  - Improve access to geospatial data and information (The Arizona Map)
  - Conduct inventories and surveys on-line

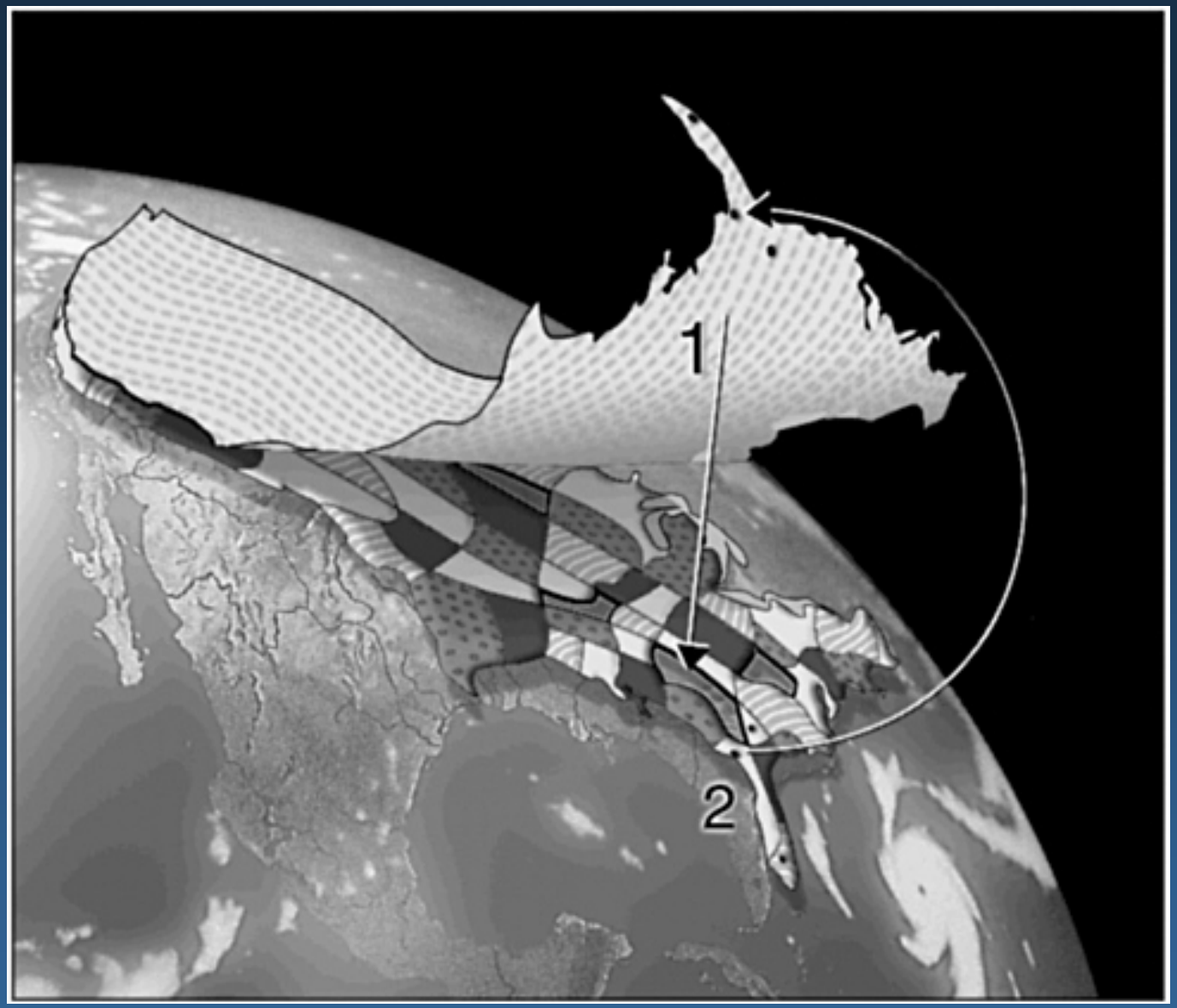
The Arizona Map Framework Data

- Statewide digital aerial photography
- Statewide digital elevation data
- Geodetic control (Height and Map Modernization)
- Statewide addressable street centerline database
- County and local digital aerial photography
  - Conduct Survey of Local Aerial Photo Ops
  - Coordinate and Partner as possible

…plus all existing ALRIS data

County and Local Data

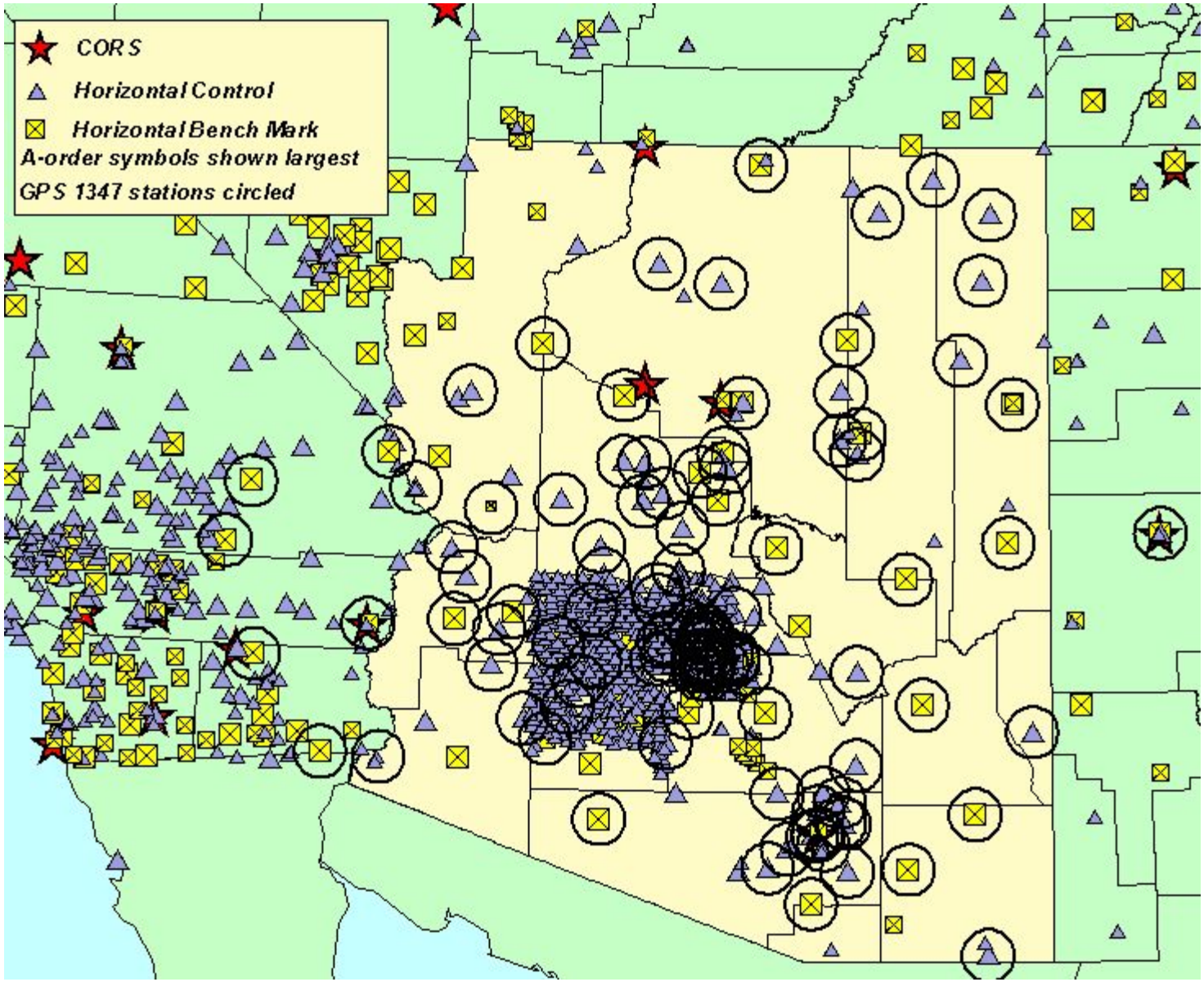
- There are a growing number of county, local, and tribal GIS installations in Arizona
- County and local GIS has the best data for their area
  - Most Resolute
  - Most Accurate
  - Most Current
- Integrate, Access and Utilize the “best” available data
  - Local data (if available)
  - State or Federal data (if no local data available)



SOURCE: Susanna Baumgart, University of California, Santa Barbara (National Academy of Sciences TNM Report)

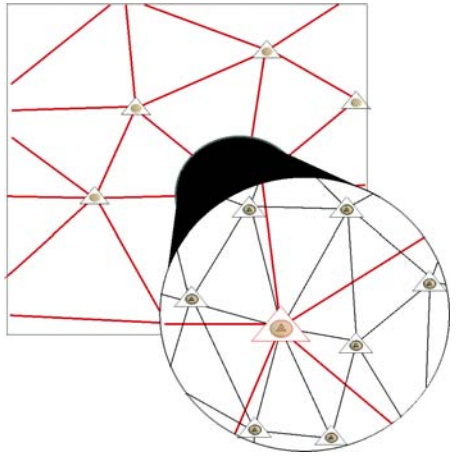
Arizona GeoServer

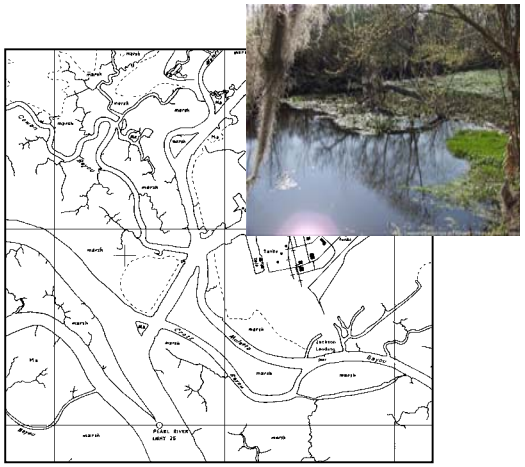
- **Problem:**
  - **Need for geodetic control in Arizona and lack of efficient, effective, and timely method for finding and/or sharing geodetic data**
- **Solution:**
  - **Develop a centralized, web-enabled repository for geodetic control information**
- **Partners:**


CORS
Horizontal Control
Horizontal Bench Mark
A-order symbols shown largest
GPS 1347 stations circled

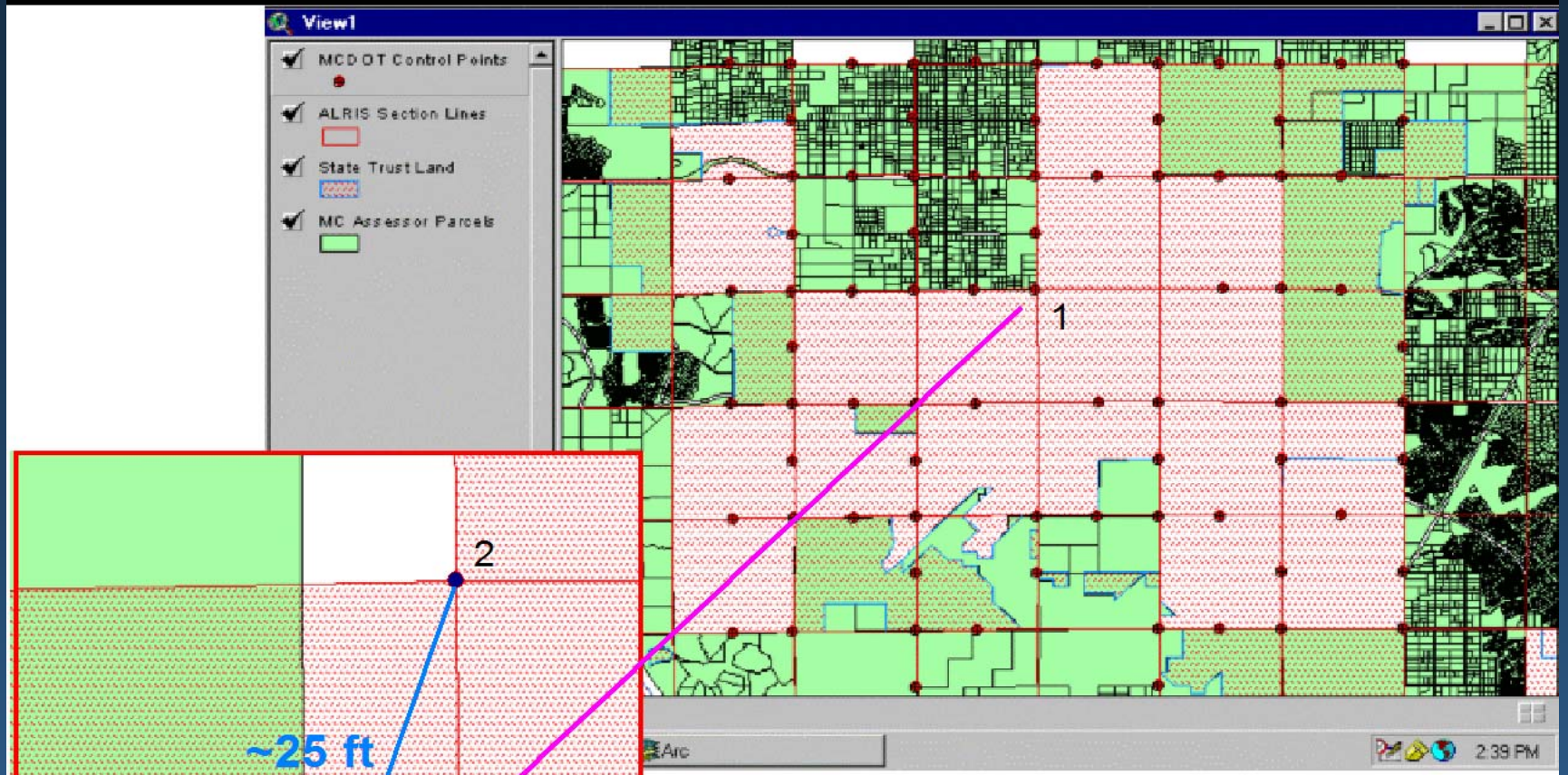
Arizona Height Modernization Benefit – Land Survey

Provides More Accurate Horizontal and Vertical Geodetic Control





Flood Plain Mapping, Aerial Photography Control, Subsidence Monitoring, and Land Ownership Mapping.



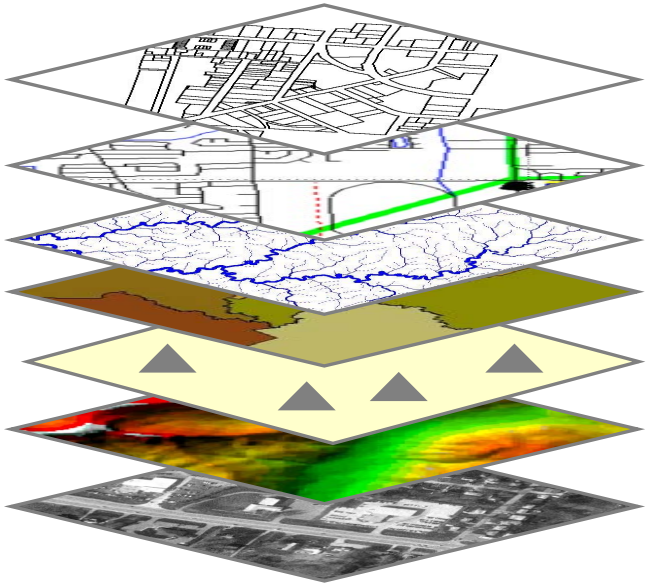
1 - MCDOT SECTION CORNER CONTROL

2 - ASLD SECTION CORNER (DIGITIZED)

3 - MC ASSESSOR'S PARCEL/SECTION CORNER

POINTS 2 AND 3 SHOULD BE COINCIDENT WITH POINT 1 TO ALLOW CONSISTENT GIS ANALYSIS

Benefits - NSDI Framework Layers



Land Ownership

Transportation

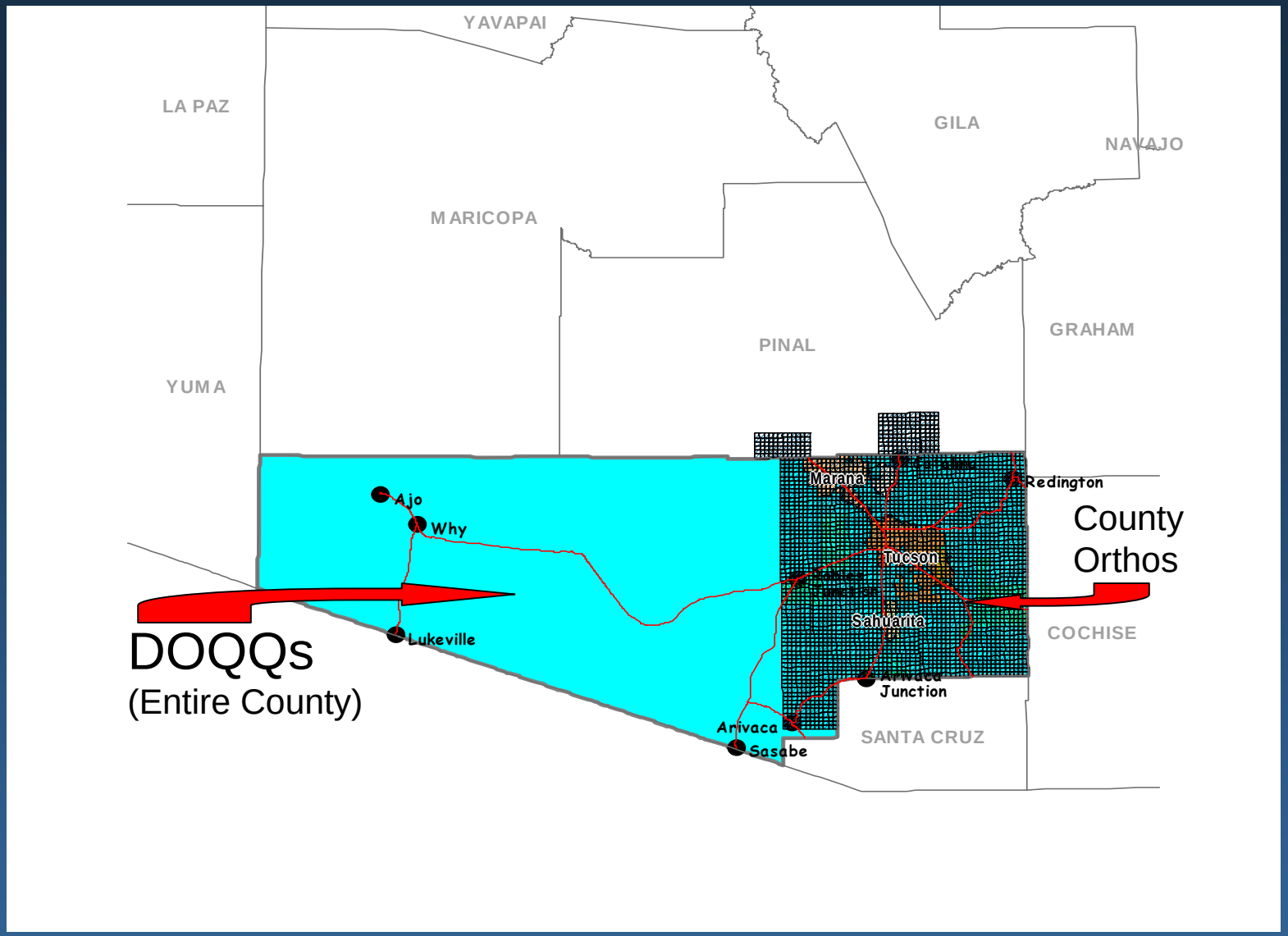
Floodplains

Boundaries

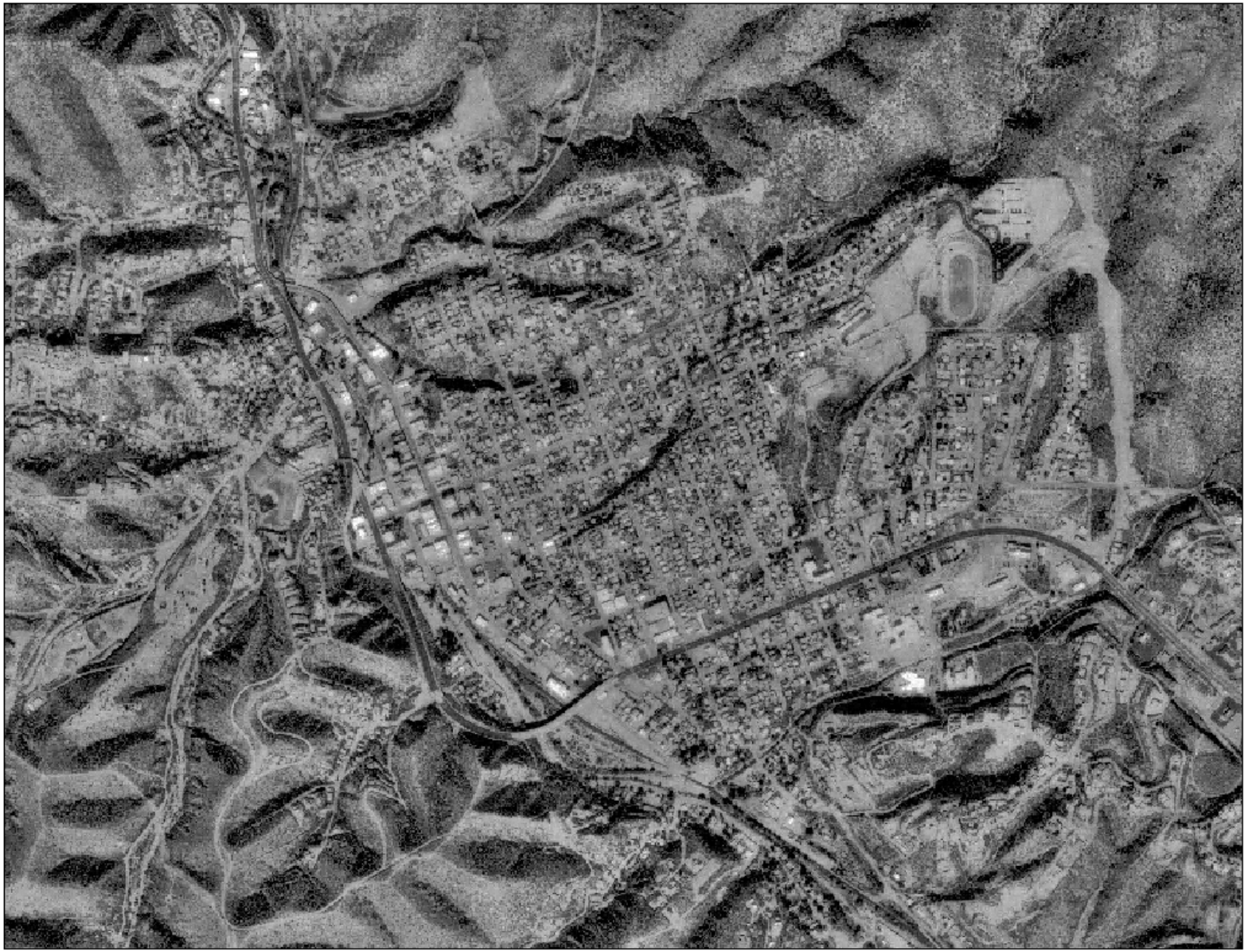
Geodetic Control

Elevation

Aerial Imagery



Pima County 2002 Ortho Coverage Area



ARIZONA STATE
CARTOGRAPHER'S OFFICE

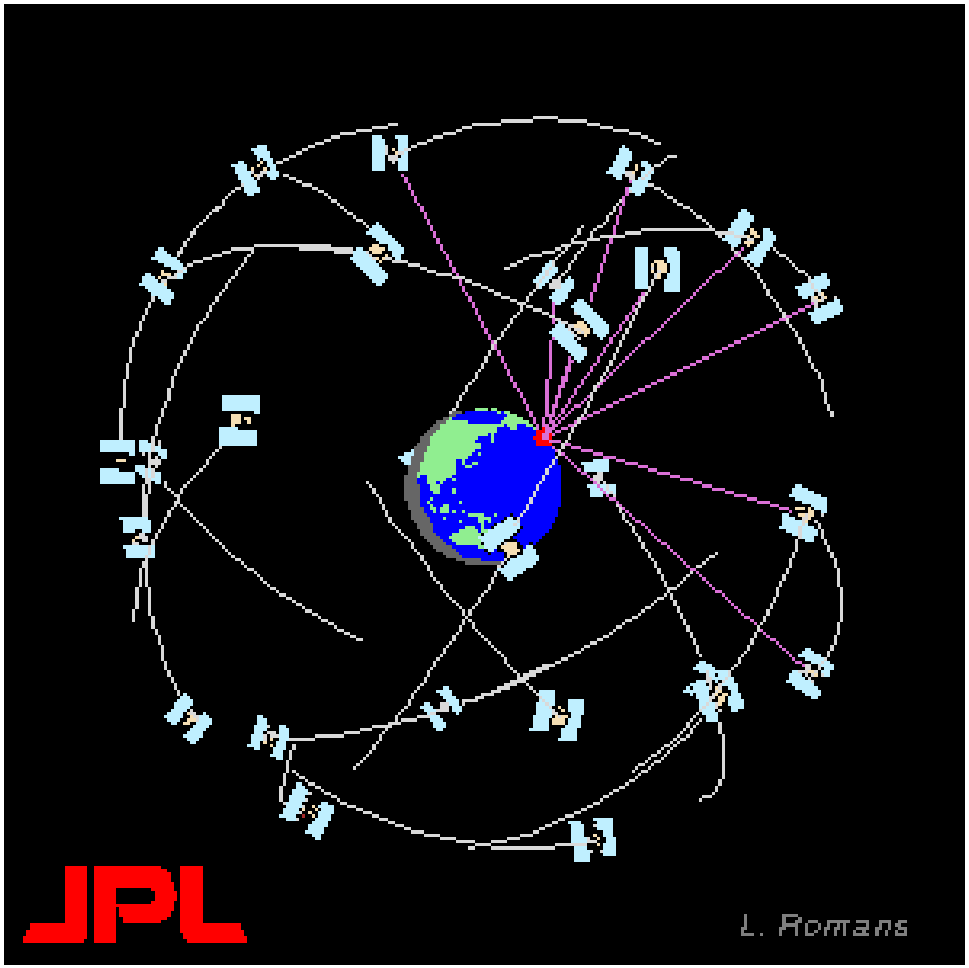
Globe, AZ (DOQQ)

ARIZONA STATE CARTOGRAPHER'S OFFICE

Pima County 1' Color Ortho Image

What is the Global Positioning System?

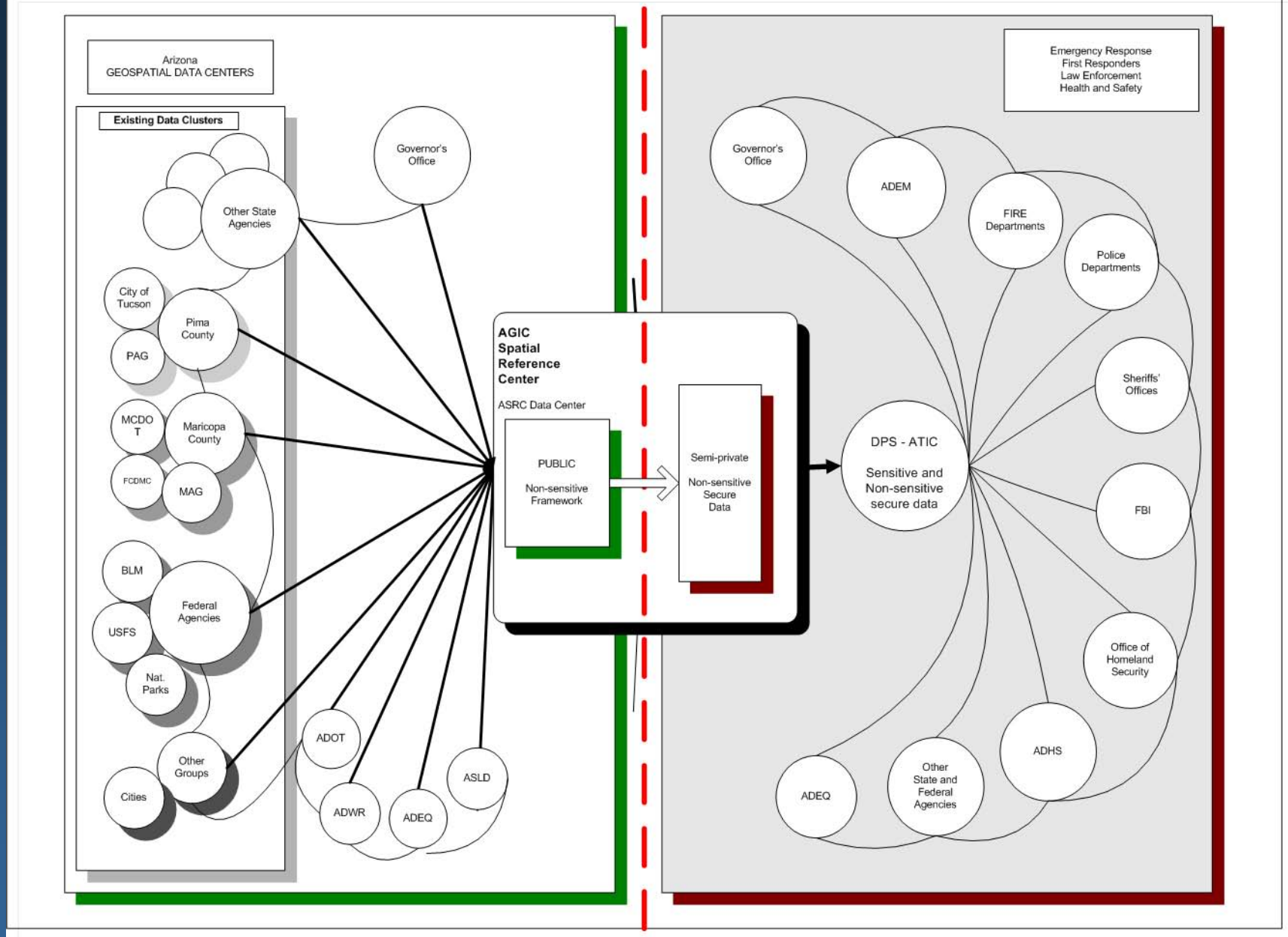
- A network of satellites that continuously transmit coded information, which makes it possible to precisely identify locations on earth by measuring distance from the satellites.
- The GPS involves ~24 satellites (NAVSTARs, or SVs put up by DOD) and ground stations
- On the ground, GPS “receivers” are used to mark or find geographic coordinates.



GPS Receiver >>>

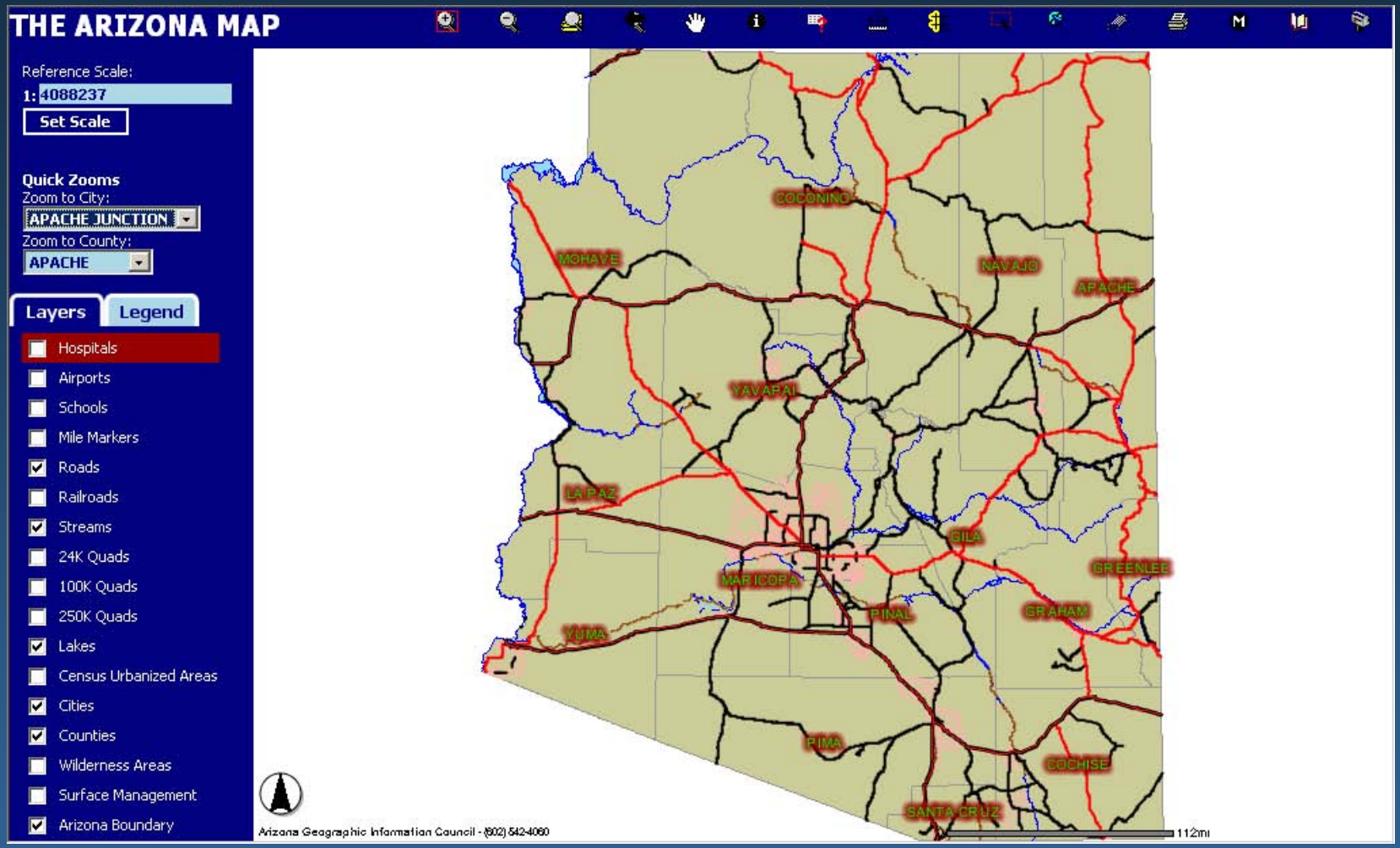
Partnership Model

- Communication, coordination and partnerships are needed to address common problems
- Incentives and solutions are required to:
  - Standardize and document data
  - Share existing data and expenses
  - Develop capacity where no data currently exists
- Partnering on grants
  - Share existing expertise and resources
  - Gain additional resources


Arizona
GEOSPATIAL DATA CENTERS
Existing Data Clusters
Governor's Office
Other State Agencies
City of Tucson
Pima County
PAG
MCDOT
Maricopa County
FCDMC
MAG
BLM
Federal Agencies
USFS
Nat. Parks
Other Groups
Cities
ADOT
ADWR
ADEQ
ASLD
AGIC
Spatial
Reference
Center
ASRC Data Center
PUBLIC
Non-sensitive
Framework
Semi-private
Non-sensitive
Secure
Data
Emergency Response
First Responders
Law Enforcement
Health and Safety
Governor's Office
ADEM
FIRE Departments
Police Departments
Sheriffs' Offices
DPS - ATIC
Sensitive and
Non-sensitive
secure data
FBI
Office of Homeland Security
ADHS
Other State and Federal Agencies
ADEQ

Arizona GeoData Portal

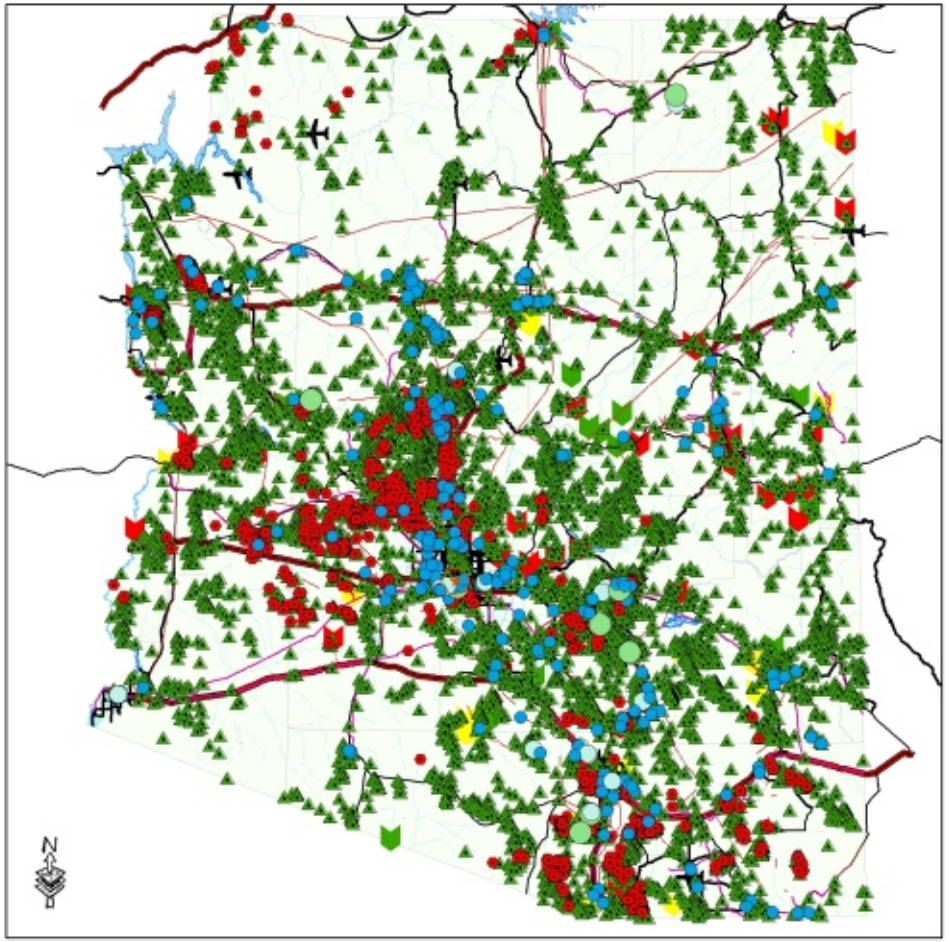
- Features
  - Data Clearinghouse
    - View The Arizona Map and Download Data
    - Browse for data using metadata
  - GIS Contacts Database
  - Geospatial Data and Resources Inventory
  - Links to Other Sites and Data Sources
    - Federal, State, County and Local Sites

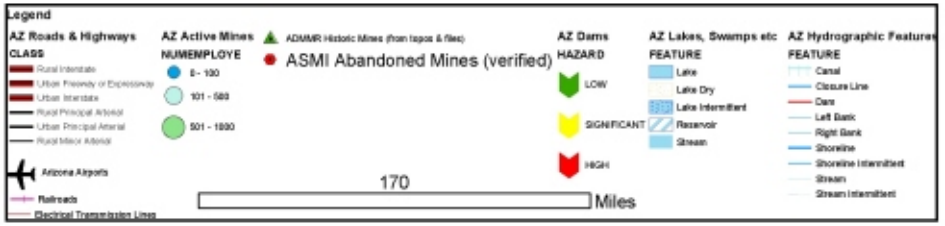


Arizona Geodata Portal

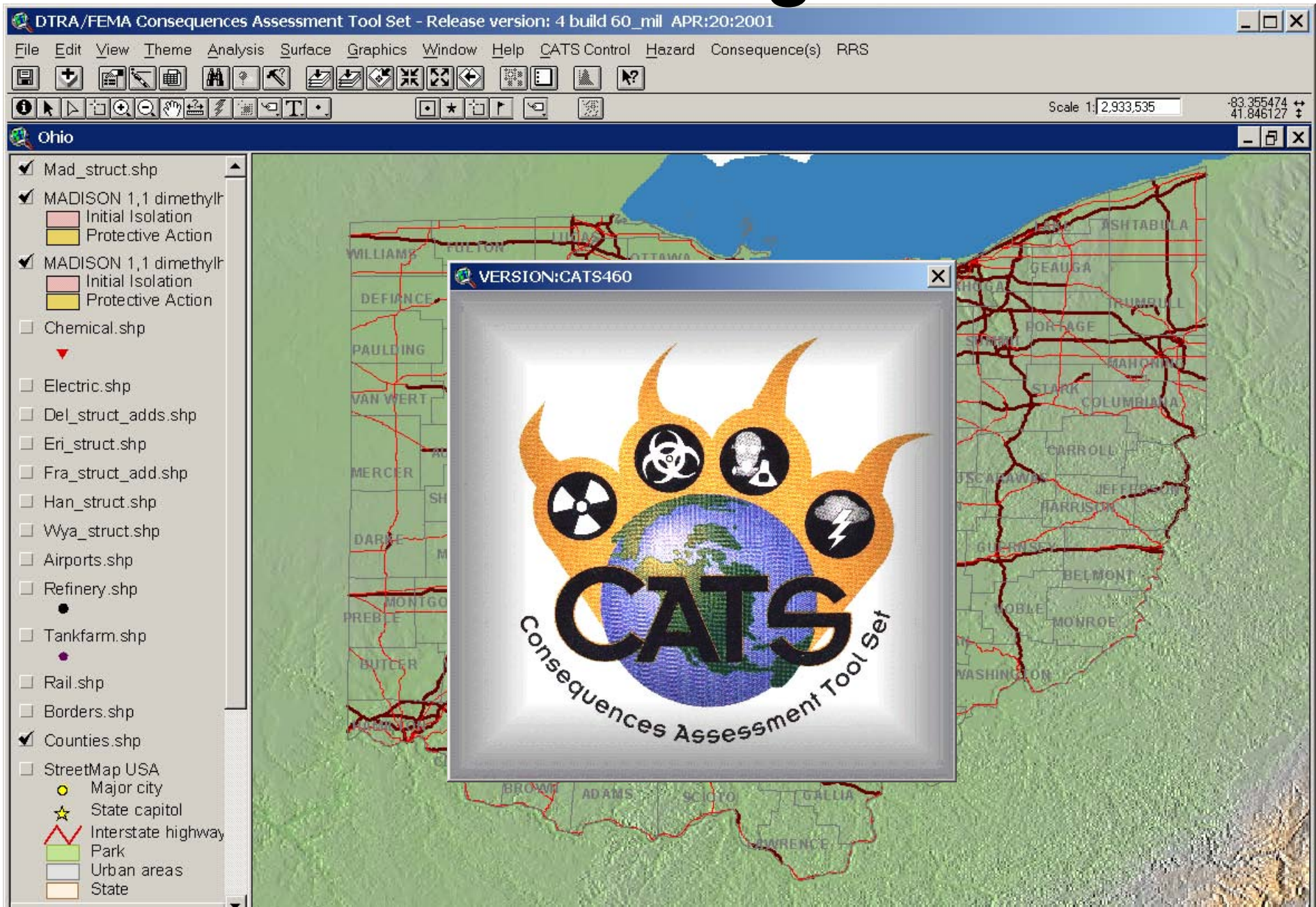
Aspen Wildland Fire – Summer 2003

Active and Historic Mines In Arizona





Planning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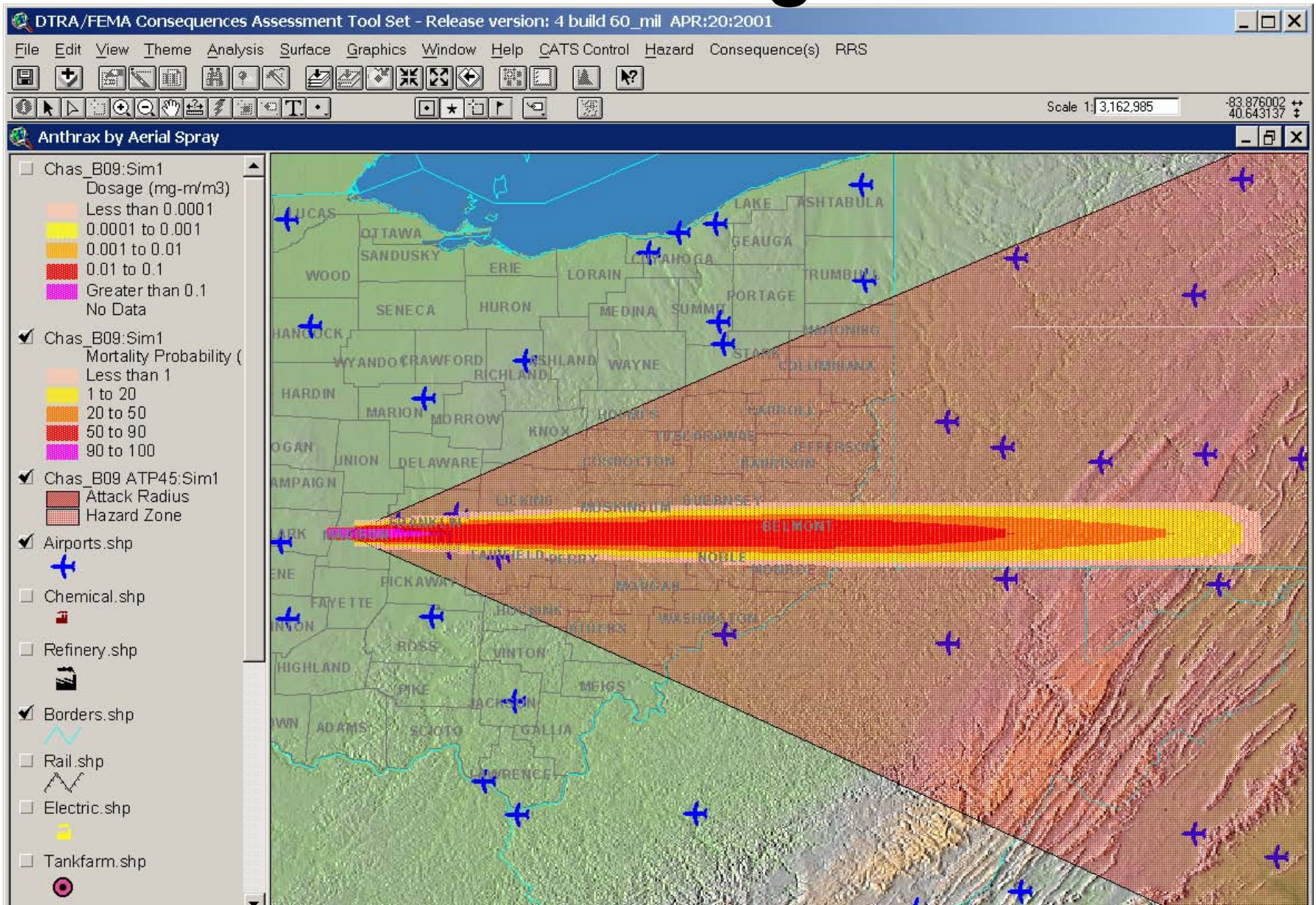
41.846127
Ohio
Mad_struct.shp
MADISON 1,1 dimethylh
Initial Isolation
Protective Action
MADISON 1,1 dimethylh
Initial Isolation
Protective Action
Chemical.shp
Electric.shp
Del_struct_adds.shp
Eri_struct.shp
Fra_struct_add.shp
Han_struct.shp
Wya_struct.shp
Airports.shp
Refinery.shp
Tankfarm.shp
Rail.shp
Borders.shp
Counties.shp
StreetMap USA
Major city
State capitol
Interstate highway
Park
Urban areas
State
VERSION:CATS460
CATS
Consequences Assessment Tool Set
ASHTABULA
GEAUGA
TRUMBULL
PORTAGE
MAHONING
STARK
COLUMBIANA
CARROLL
HARRISON
BELMONT
MONROE
NOBLE
WASHINGTON
DEFIANCE
PAULDING
VAN WERT
MERCER
DARKE
PREBLE
BUTLER
BROWN
ADAMS
SCIOTO
GALLIA
LAWRENCE

Planning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Anthrax by Aerial Spray
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Dosage (mg-m/m3)
Less than 0.0001
0.0001 to 0.001
0.001 to 0.01
0.01 to 0.1
Greater than 0.1
No Data
Chas_B09:Sim1
Mortality Probability (
Less than 1
1 to 20
20 to 50
50 to 90
90 to 100
Chas_B09 ATP45:Sim1
Attack Radius
Hazard Zone
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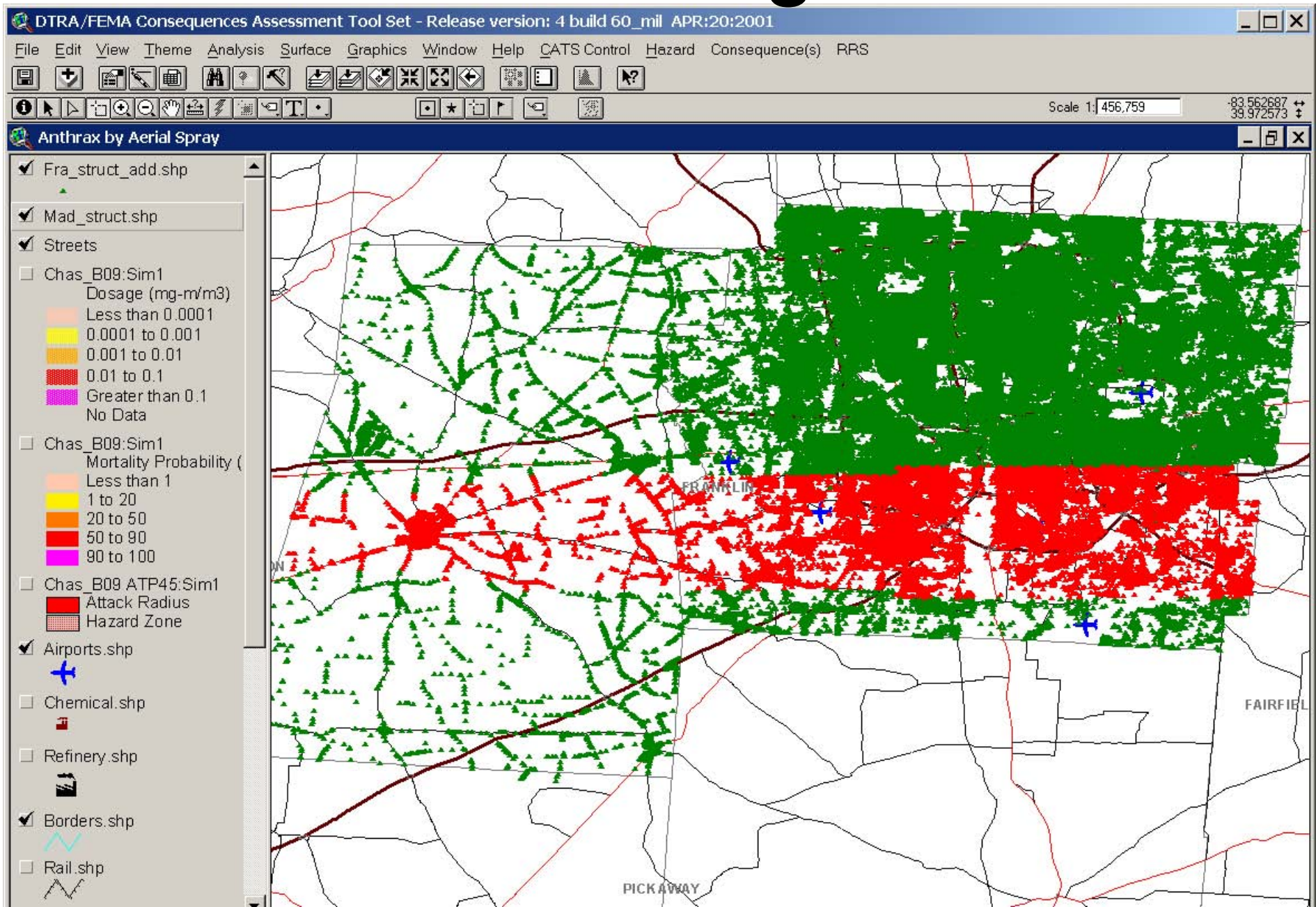
Chemical.shp
Refinery.shp
Borders.shp
Rail.shp
Electric.shp
Tankfarm.shp
LUCAS
OTTAWA
SANDUSKY
ERIE
LAKE
ASHTABULA
GEAUGA
WOOD
LORAIN
PORTAGE
SENECA
HURON
MEDINA
WYANDOT
CRAWFORD
RICHLAND
WAYNE
HARDIN
MARION
MORROW
KNOX
UNION
DELAWARE
BELMONT
NOBLE
FAYETTE
ROSS
VINTON
HIGHLAND
PIKE
MEIGS
ADAMS
SCIOTO
GALLIA
LAWRENCE

Planning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Anthrax by Aerial Spray
Fra_struct_add.shp
Mad_struct.shp
Streets
Chas_B09:Sim1
Dosage (mg-m/m3)
Less than 0.0001
0.0001 to 0.001
0.001 to 0.01
0.01 to 0.1
Greater than 0.1
No Data
Chas_B09:Sim1
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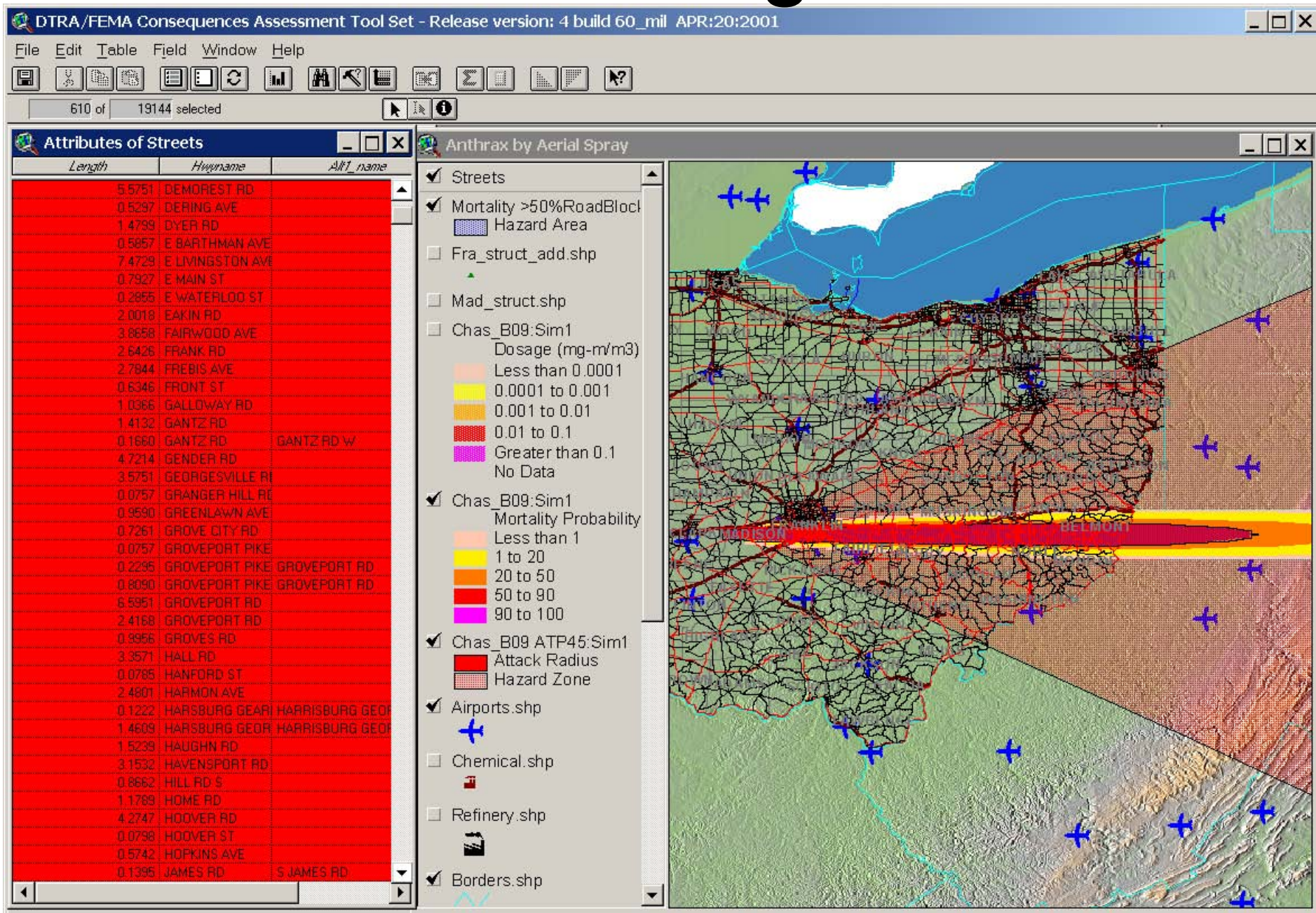
Attack Radius
Hazard Zone
Airports.shp
Chemical.shp
Refinery.shp
Borders.shp
Rail.shp
FRANKLIN
PICKAWAY
FAIRFIEL

Planning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Attributes of Streets
Length Hwyname Alt_name
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0.5297 DERING AVE
1.4799 DYER RD
0.5857 E BARTHMAN AVE
7.4729 E LIVINGSTON AVE
0.7927 E MAIN ST
0.2855 E WATERLOO ST
2.0018 EAKIN RD
3.8658 FAIRWOOD AVE
2.6426 FRANK RD
2.7844 FREBIS AVE
0.6346 FRONT ST
1.0366 GALLOWAY RD
1.4132 GANTZ RD
0.1660 GANTZ RD GANTZ RD W
4.7214 GENDER RD
3.5751 GEORGESVILLE RI
0.0757 GRANGER HILL RD
0.9590 GREENLAWN AVE
0.7261 GROVE CITY RD
0.0757 GROVEPORT PIKE
0.2295 GROVEPORT PIKE GROVEPORT RD
0.8090 GROVEPORT PIKE GROVEPORT RD
6.5951 GROVEPORT RD
2.4168 GROVEPORT RD
0.3956 GROVES RD
3.3571 HALL RD
0.0785 HANFORD ST
2.4801 HARMON AVE
0.1222 HARSBURG GEAR HARRISBURG GEOR
1.4609 HARSBURG GEOR HARRISBURG GEOR
1.5239 HAUGHN RD
3.1532 HAVENSPORT RD
0.8662 HILL RD S
1.1789 HOME RD
4.2747 HOOVER RD
0.0798 HOOVER ST
0.5742 HOPKINS AVE
0.1395 JAMES RD S JAMES RD
Anthrax by Aerial Spray
Streets
Mortality >50%RoadBlock
Hazard Area
Fra_struct_add.shp
Mad_struct.shp
Chas_B09:Sim1
Dosage (mg-m/m3)
Less than 0.0001
0.0001 to 0.001
0.001 to 0.01
0.01 to 0.1
Greater than 0.1
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20 to 50
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90 to 100
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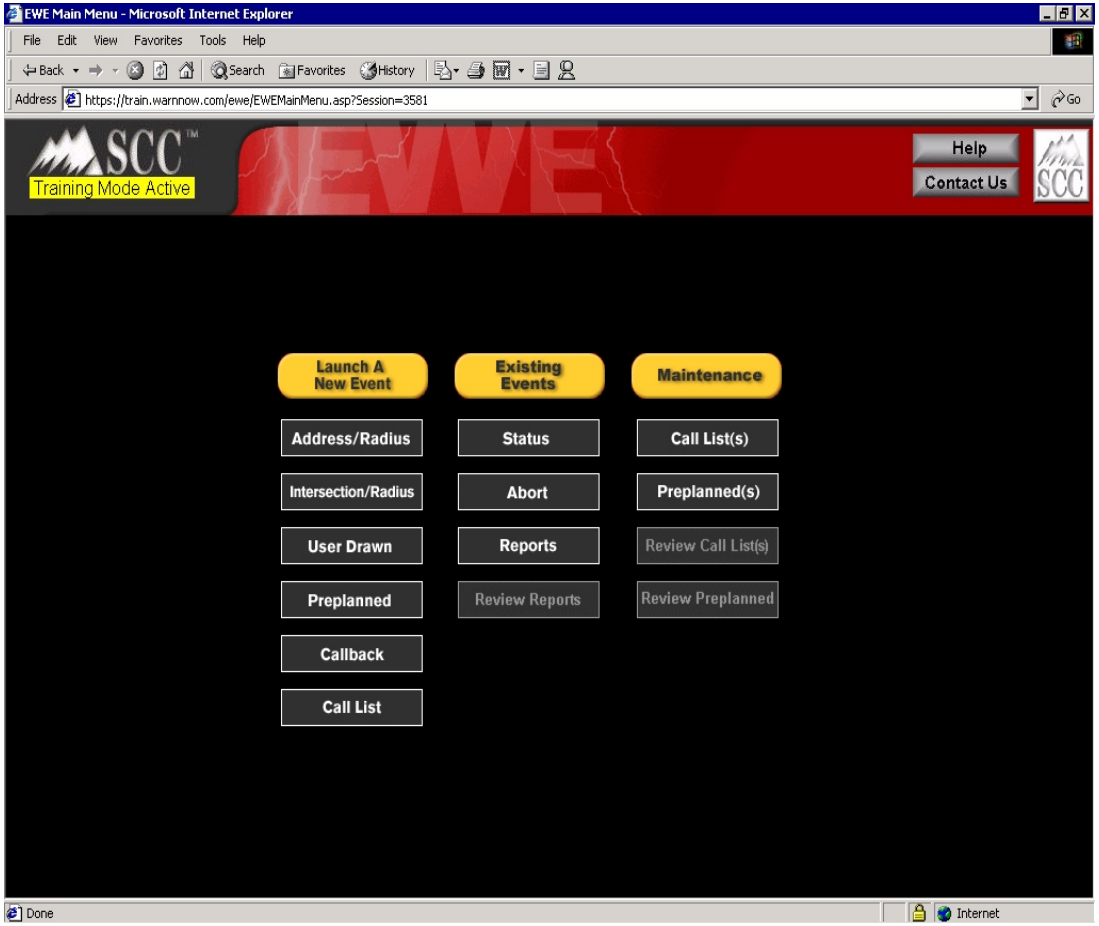
Attack Radius
Hazard Zone
Airports.shp
Chemical.shp
Refinery.shp
Borders.shp
MADISON
BELMONT

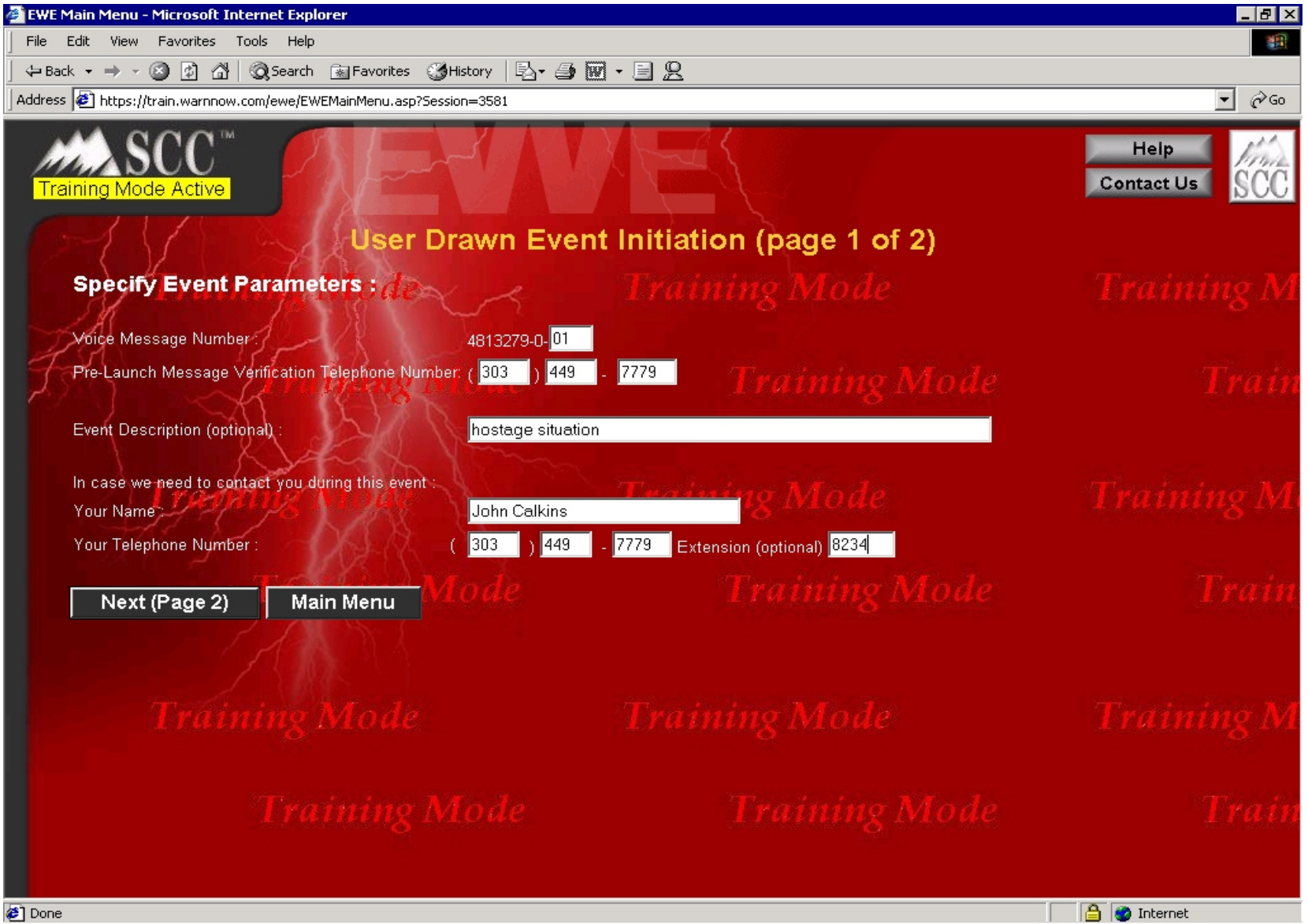
Response

Early Warning & Evacuation - Reverse 911



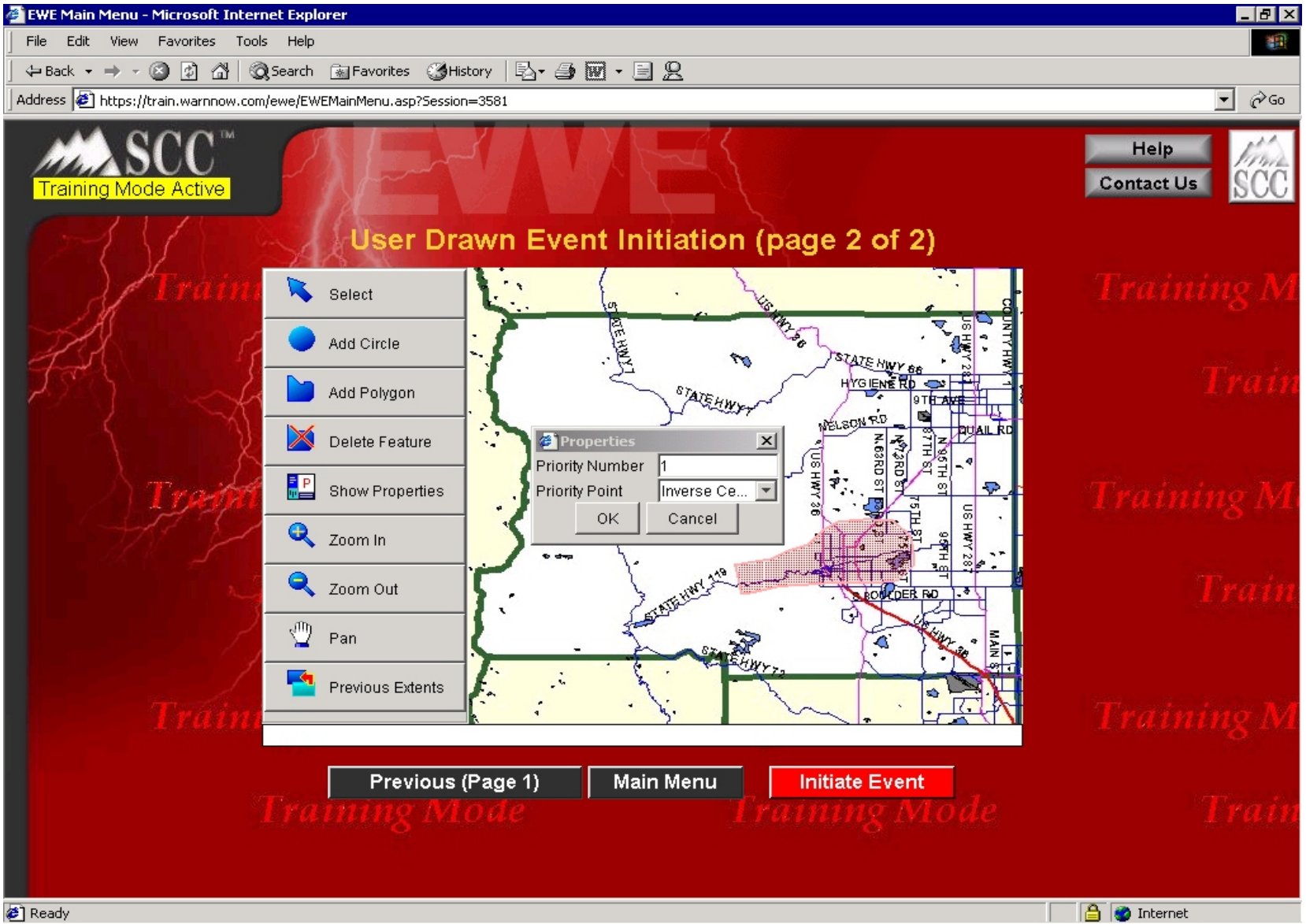
Response

Early Warning & Evacuation - Reverse 911



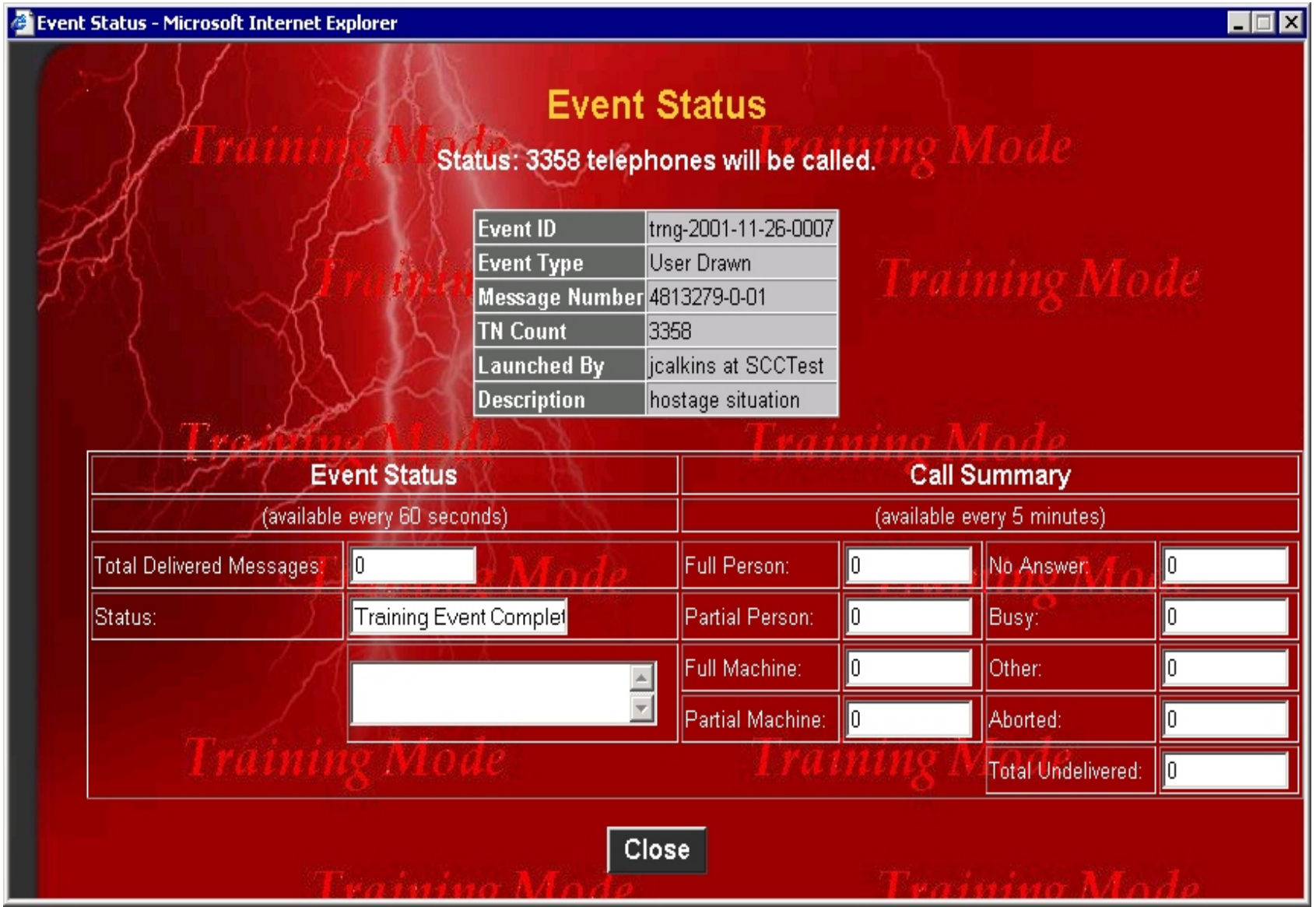
Response

Early Warning & Evacuation - Reverse 911



Response

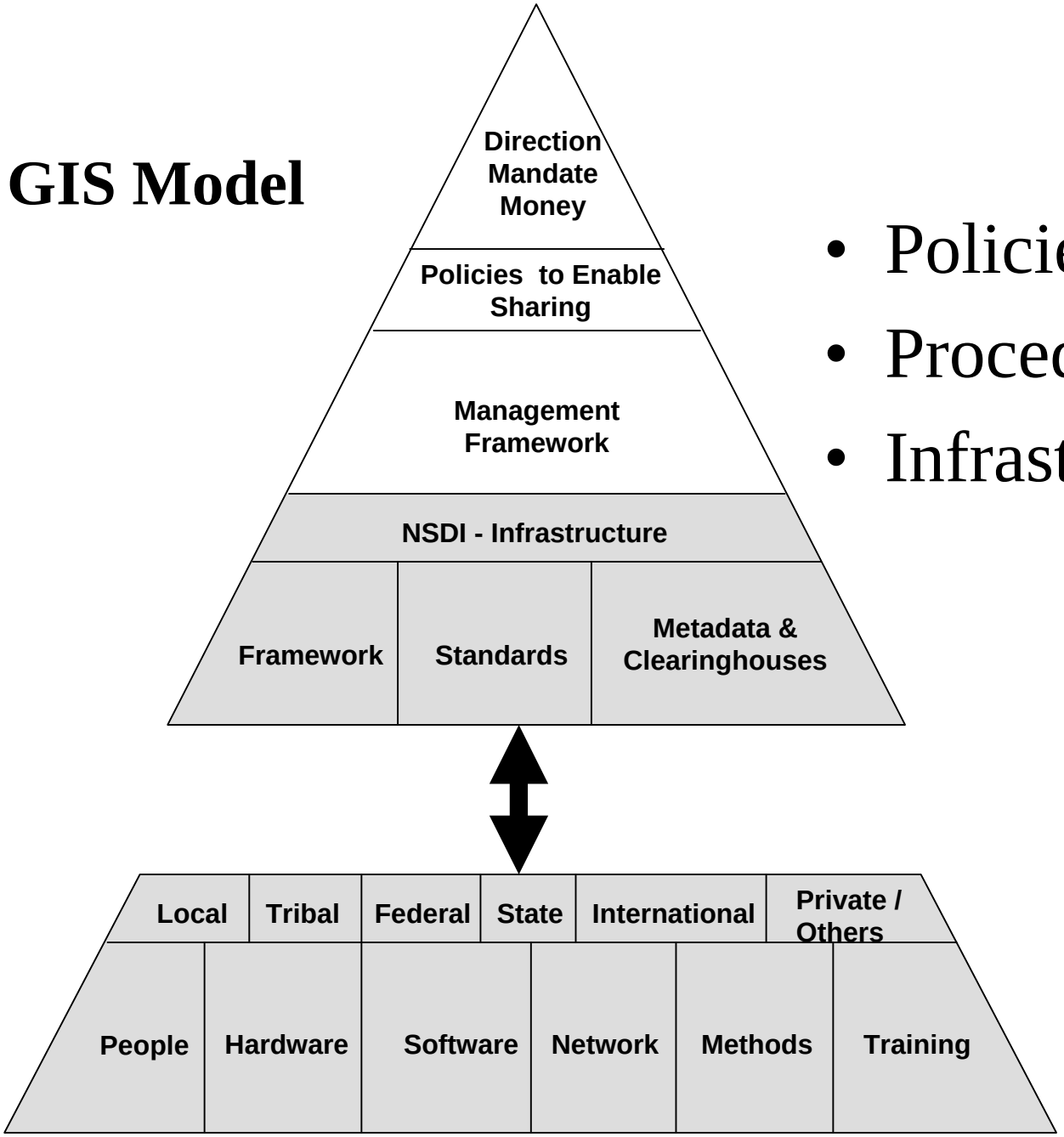
Early Warning & Evacuation - Reverse 911



Opportunities

- Federal programs are providing incentives to state and local governments to obtain data
- Open architecture and national standards allow data to be shared effectively
- Opportunities are increasing for partnerships to develop state and local data

National GIS Model



- Policies
- Procedures
- Infrastructure

Thank You!

State Cartographer's Office
Arizona State Land Department
1616 West Adams Street
Phoenix, Arizona 85007
gtrobia@land.az.gov

Web Sites:

AGIC: http://agic.az.gov

State Cartographer's Office: http://sco.az.gov