PA Homeland Security/Public Safety Geospatial Portal Applications

ESRI FedUC 2006
Washington, DC

Jim Knudson (jknudson@state.pa.us)
Stacey White (stwhite@state.pa.us)

GTO Homeland Security Priorities

- Understanding of Agency Business Functions and Needs
- Statewide GT Data Assets
- Geospatial Enterprise Server Architecture
- GT Interoperability/Data Sharing
- Enterprise Strengthening
- Enterprise Capabilities

PA GTO HLS Functions

- Support for PEMA and other Public Safety agencies
- GT Governance Policy Board includes primary public safety/emergency response agencies (PEMA, OHS, PSP, DEP, DMVA, DGS, Health, Transportation)
- Definition of Geospatial Enterprise Architecture
- Review of DHS Grants related to geospatial
- Development of GT Interoperability standards, other GT standards and policies

PA GTO HLS Functions

- HLS IT Governance Workgroup Member
- Data Fusion (Intelligence) Steering Committee
- Working with PSP Crime Intelligence Center (PACIC) on geospatial support and products
- Defining Geospatial Components of State Homeland Security Assessment and Strategy (SHSAS) Update
- Regional Counter-Terrorism Task Force (RCTTF) collaboration and definition of minimum capabilities

DHS Information Technology Evaluation Program (ITEP) Project

DHS ITEP Grant Project

- 2004 Information Technology Evaluation Program (ITEP) Competitive Grant
- 13 awards nationally, 3 in geospatial cluster, others in data sharing and wireless
- PA project defined as Enterprise GT Data Architecture (EGTDA)
  - Evaluation of DHS GEA, start of PA GEA
  - Enterprise Geospatial Data Repository
  - Interoperable GT Data Sharing utilizing Open Geospatial Consortium (OGC) Mapping Services
  - Geospatial Mission Applications
  - Reusable GT Web Service Components

Geospatial Enterprise Server Architecture (GESA)

- Fault tolerant, high availability, 24x7 operational capabilities
- Consolidated Enterprise Geospatial Database
- Shared Services GT Application hosting environment – for BGT and other agencies
- OGC Mapping Services
- XML Web Services Reusable Components
- Geospatial Portal Deployments

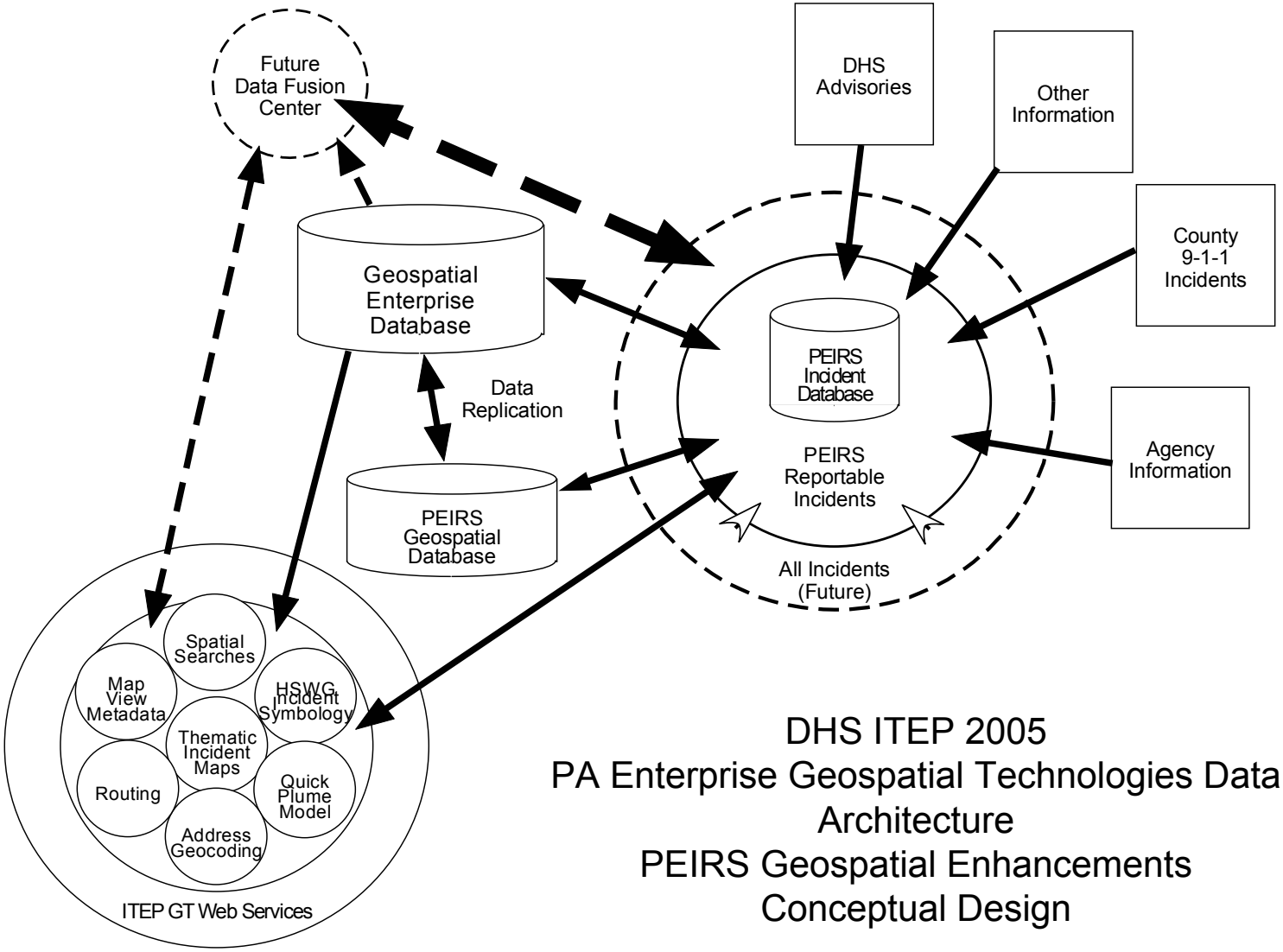
EGTDA Project

- Enterprise Geospatial Technologies Data Architecture
- Leverage the IRRIS/Geospatial Emergency Alert and Readiness System (GEARS) framework for Pennsylvania
  - $15M Military Investment in Integrated Road and Rail Information System (IRRIS)
  - First IRRIS/GEARS state project deployed by VA DOT
  - 2nd in PA for EGTDA
  - 3rd in VA for DOH

EGTDA Concept of Operations

- Leverage the Geospatial Emergency Alert and Readiness System (GEARS) for Pennsylvania and build the Geospatial Analysis of Threats and Incident Reports (GATIR) Application Portal
- Augment PEMA's PA Emergency Incident Response System (PEIRS) with robust geospatial capabilities
- Develop interoperable mapping services that can be accessed over the web and used by agencies, counties, first responders
- Develop interoperable and reusable XML web service geospatial application components

EGTDA Concept of Operations



DHS ITEP 2005
PA Enterprise Geospatial Technologies Data Architecture
PEIRS Geospatial Enhancements
Conceptual Design

EGTDA

- Phase I – Development of OGC compliant mapping services to share geospatial data via the Internet
  - Data Inventory/Data Loading
  - Requirements Definition
  - Mapping Services Development
    - WMS/WFS
    - OGC
  - Deployment

EGTDA

- Phase II – Developed a secure geospatial portal for information sharing, mapping, visualization, and analysis
  - GEARS Framework as Base Architecture
  - GATIR = Geospatial Analysis of Threats and Incident Reports
  - System Documentation
  - Integration with PEMA PEIRS

EGTDA

- Phase III – Developed lightweight, reusable XML web services components to standardize and facilitate faster development of future GIS and information sharing application initiatives
  - .NET XML Web Services
  - Application Programming Interfaces
  - Mapping Web Service
  - Routing Web Service

GATIR Functionality

- PEMA PEIRS Added Functionality
  - Replacing incident location ‘dots’ with HSWG symbology
  - Role based user security mechanism for incidents
  - Thematic Incident Detail Maps – type of incident determines symbology and displayed layers, 1-5 mile distance rings, key assets/critical infrastructure nearby highlighted
  - Federal Disaster Declaration Map Automation
  - EOC/Situational Awareness Wall Map
  - Mapping, analysis, geocoding, routing
  - PEMA maintains control for access and details, GATIR assists in mapping and analysis
  - Difficult part was that PEIRS was being rewritten in .NET as the same time as our GATIR project was being developed

GATIR - Microsoft Internet Explorer

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Pennsylvania Bureau of Geospatial Technologies

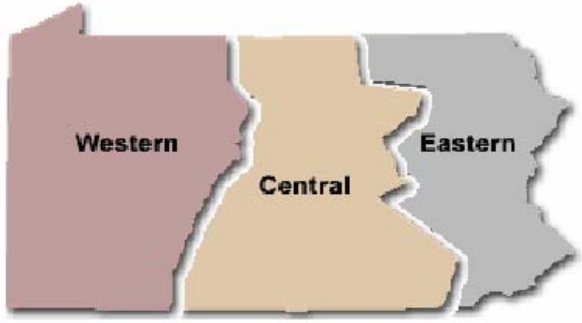
Mon, 30 Jan 2006 14:58:39 Zulu
9:58:39 EST

Quick Search Go

My GATIR | Region Map | Mapping | Deep Link Test | Admin | Wall Map

My GATIR | Edit Content

PEMA Map



Saved Maps

All Categories — Public — Private

Western

DHS Terrorism Threat Level

CNN News Syndication Feed

CNN.com - U.S.

CNN.com

Wounded ABC team in Germany
Mon, 30 Jan 2006 03:10:53 EST
ABC News anchor Bob Woodruff and his cameraman arrived in Germany this morning to receive treatment for wounds they suffered Sunday in a roadside bomb attack near Taji, about 20 miles north of Baghdad. They were reported in serious but stable condition.

Man denies raping toddler
Mon, 30 Jan 2006 01:39:56 EST
A man charged with raping a 3-year-old girl who has been living with him and a woman who may be her mother blamed

Fox News Syndication Feed

FOXNews.com - U.S. & World

FOX NEWS .com

Hamas Asks Nations Not to Cut Aid
Mon, 30 Jan 2006 08:46:03 EST
A Hamas leader asked the international community on Monday not to cut aid to the Palestinian Authority, saying Hamas was willing to have its spending monitored.

Woodruff, Camerman in Hospital in Germany
Mon, 30 Jan 2006 09:17:46 EST
ABC News anchor, cameraman Doug Vogt hit by roadside bomb while on assignment in Iraq Sunday.

Police Weigh Charges Against Ark. Mother
Mon, 30 Jan 2006 09:08:36 EST

Done — Internet

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9:52:26 EST

Quick Search Go

My GATIR | Region Map | Mapping | Deep Link Test | Admin | Wall Map

Criteria | Map | Map Layers | Print

Overview Map

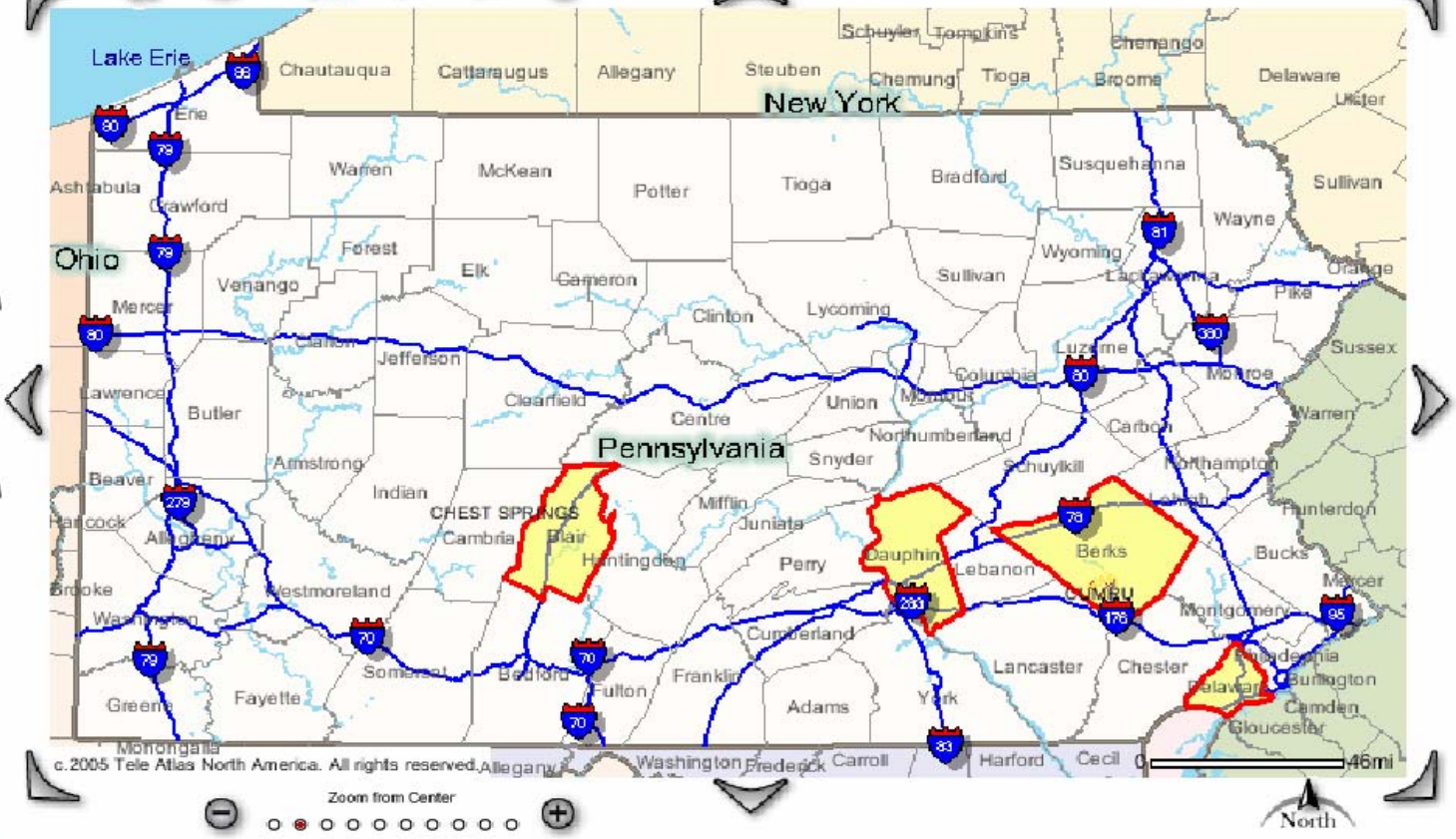
Map Utilities

Legend Refresh Map

- Base Layers
  - County Boundary
  - Municipality Boundar
  - Road Network
    - Interstate
  - Road Shields
  - Interstate Shields
  - State Boundary
    - District of Columbia

Original Map Last Map Zoom Box Zoom to Point Pan

PEIRS Disaster Declarations



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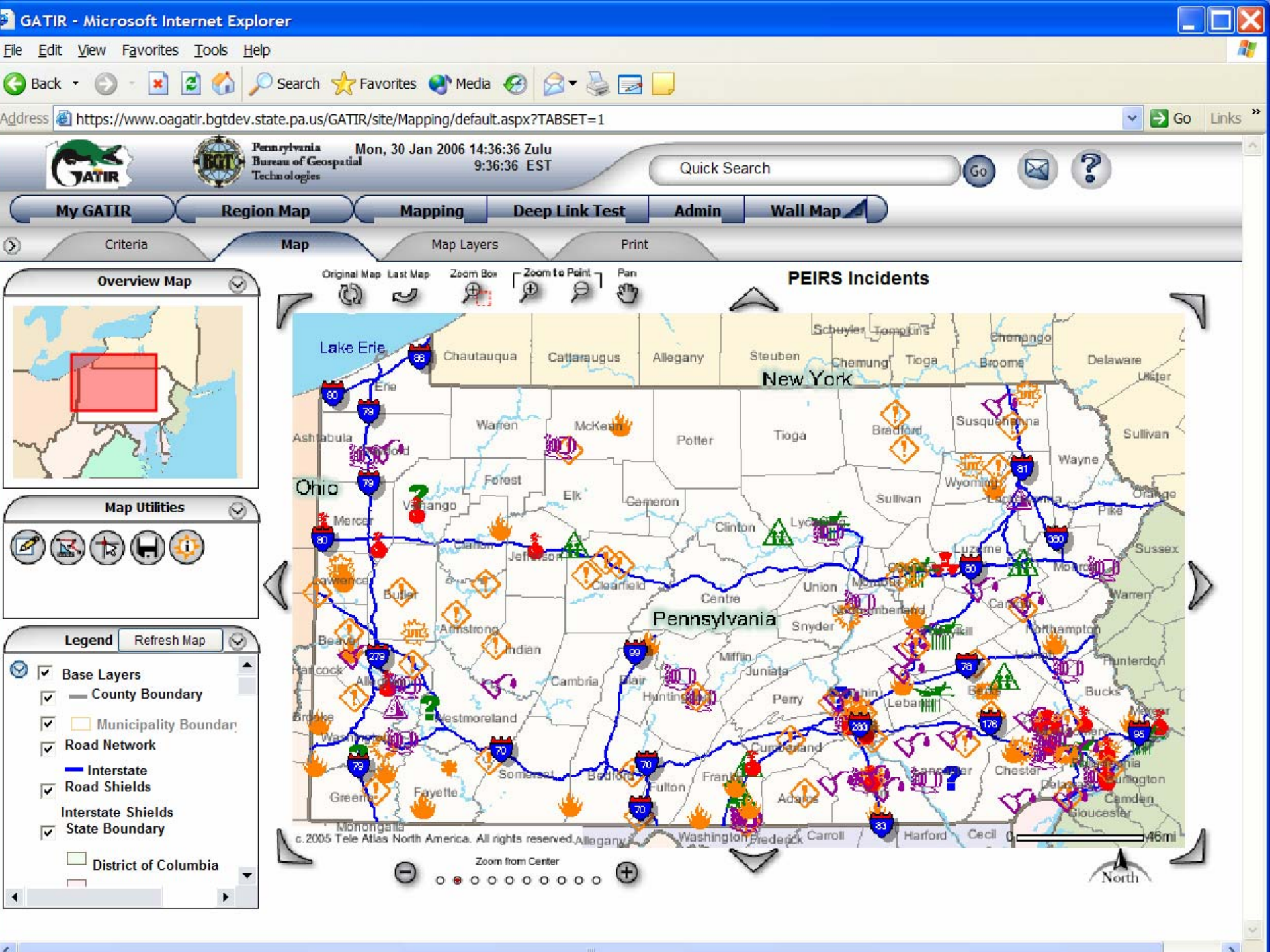
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Pennsylvania Bureau of Geospatial Technologies
Mon, 30 Jan 2006 14:36:36 Zulu
9:36:36 EST
Quick Search
Go
My GATIR
Region Map
Mapping
Deep Link Test
Admin
Wall Map
Criteria
Map
Map Layers
Print
Overview Map
Map Utilities
Legend
Refresh Map
Base Layers
County Boundary
Municipality Boundary
Road Network
Interstate
Road Shields
Interstate Shields
State Boundary
District of Columbia
Original Map
Last Map
Zoom Box
Zoom to Point
Pan
PEIRS Incidents
Lake Erie
New York
Ohio
Pennsylvania
Chautauqua
Cattaraugus
Allegany
Steuben
Schuyler
Tompkins
Chemung
Tioga
Chenango
Broome
Delaware
Ulster
Erie
Warren
McKean
Potter
Tioga
Bradford
Susquehanna
Sullivan
Wayne
Ashtabula
Forest
Elk
Cameron
Sullivan
Wyoming
Orange
Pike
Mercer
Clinton
Luzerne
Sussex
Jefferson
Clearfield
Union
Centre
Butler
Armstrong
Snyder
Northampton
Beaver
Indian
Mifflin
Juniata
Hunterdon
Cambria
Blair
Perry
Bucks
Westmoreland
Cumberland
Somerset
Bedford
Fulton
Franklin
Adams
Chester
Greene
Fayette
Monongalia
Allegany
Washington
Frederick
Carroll
Harford
Cecil
Camden
Gloucester
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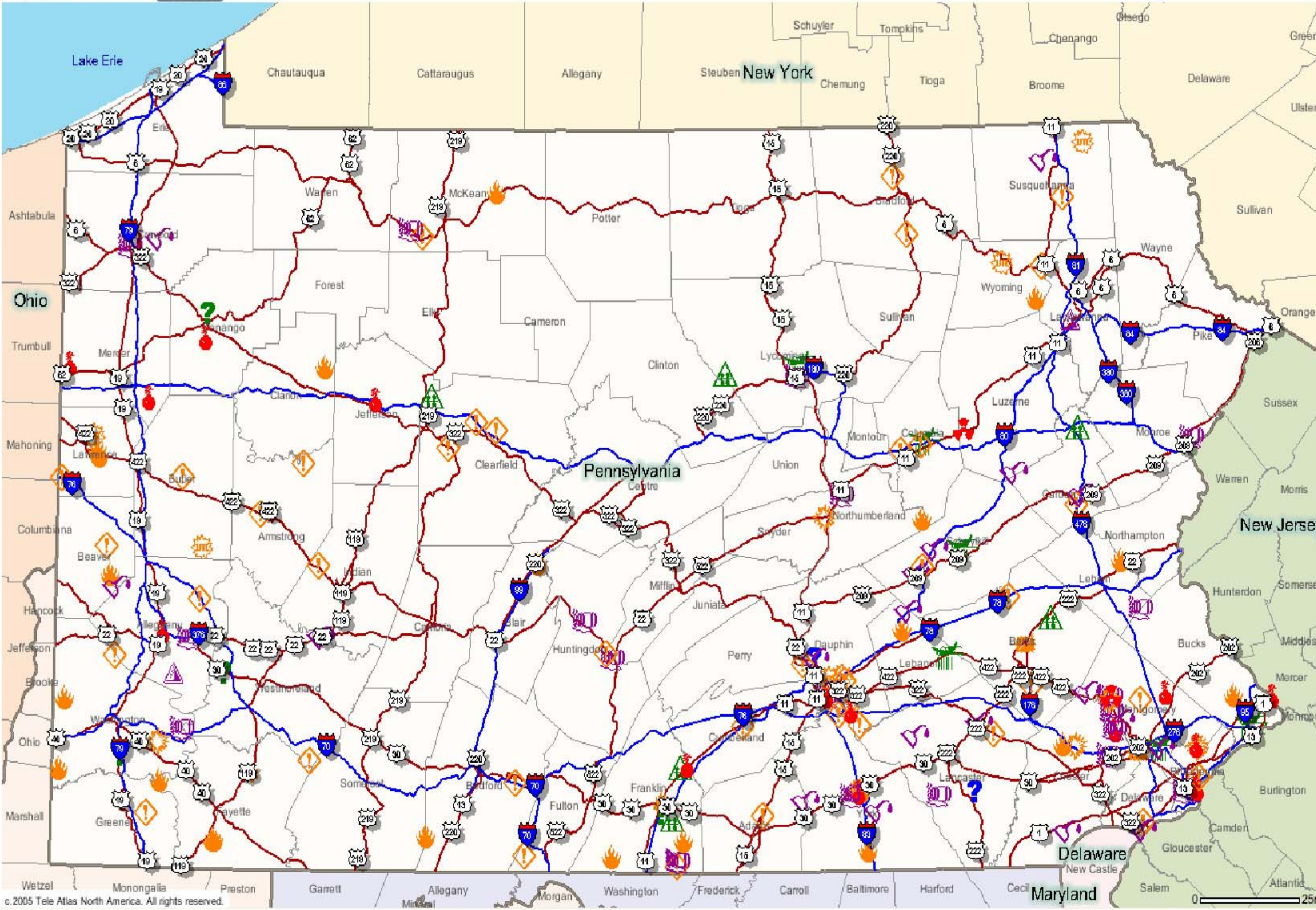
Zoom from Center
46mi
North

Wall Map - Microsoft Internet Explorer

Map will refresh in 4:50 Refresh

Legend



Done

Internet

GATIR - Microsoft Internet Explorer

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GATIR

Pennsylvania Bureau of Geospatial Technologies

Mon, 30 Jan 2006 14:40:45 Zulu
9:40:45 EST

Quick Search Go

My GATIR | Region Map | Mapping | Deep Link Test | Admin | Wall Map

Criteria | Map | Map Layers | Print

Overview Map

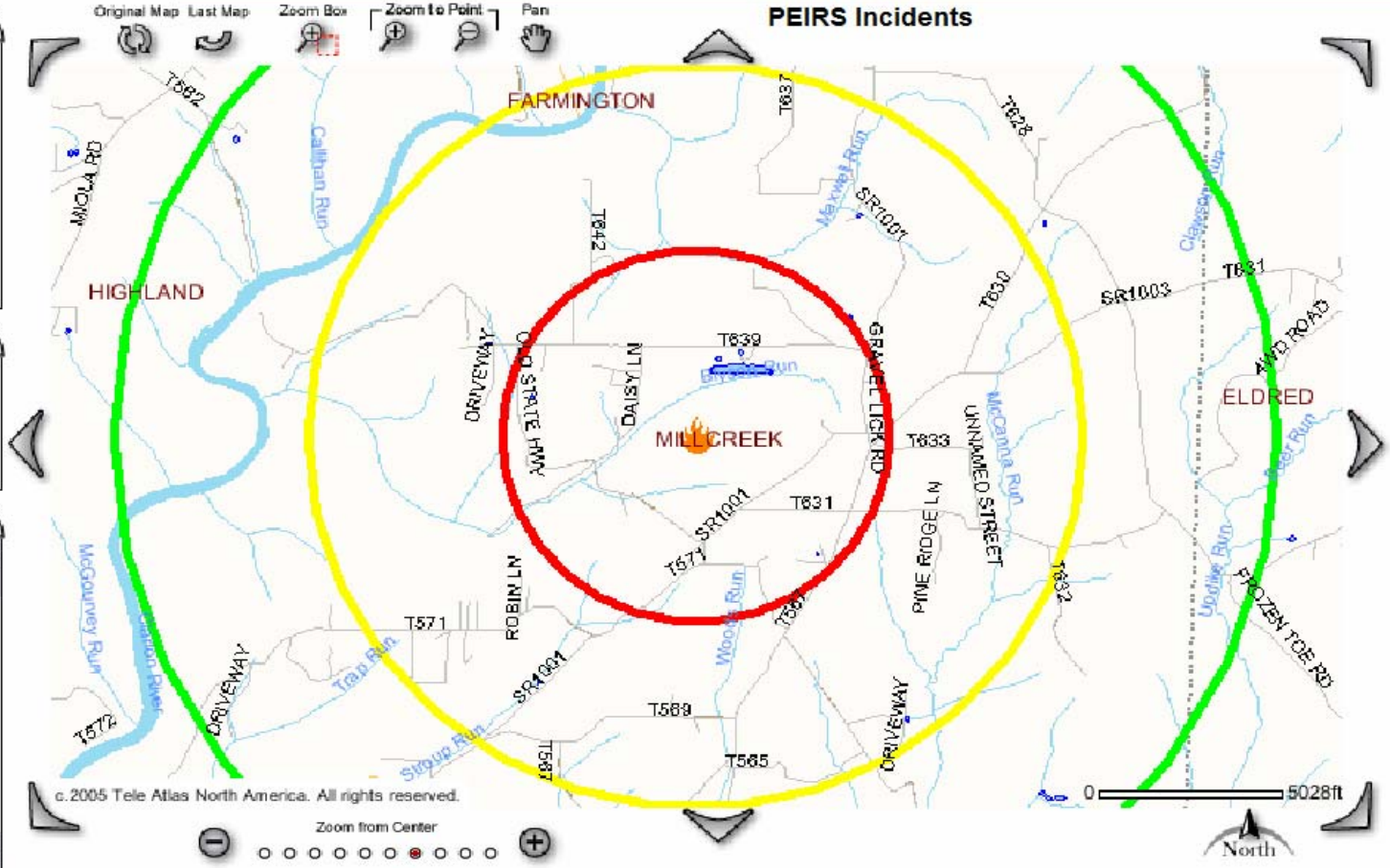
Map Utilities

Legend Refresh Map

- Base Layers
  - County Boundary
  - Municipality Boundar
  - Road Network
    - Local Road
  - Road Shields
  - State Boundary
    - District of Columbia
    - Delaware

Original Map Last Map Zoom Box Zoom to Point Pan

PEIRS Incidents



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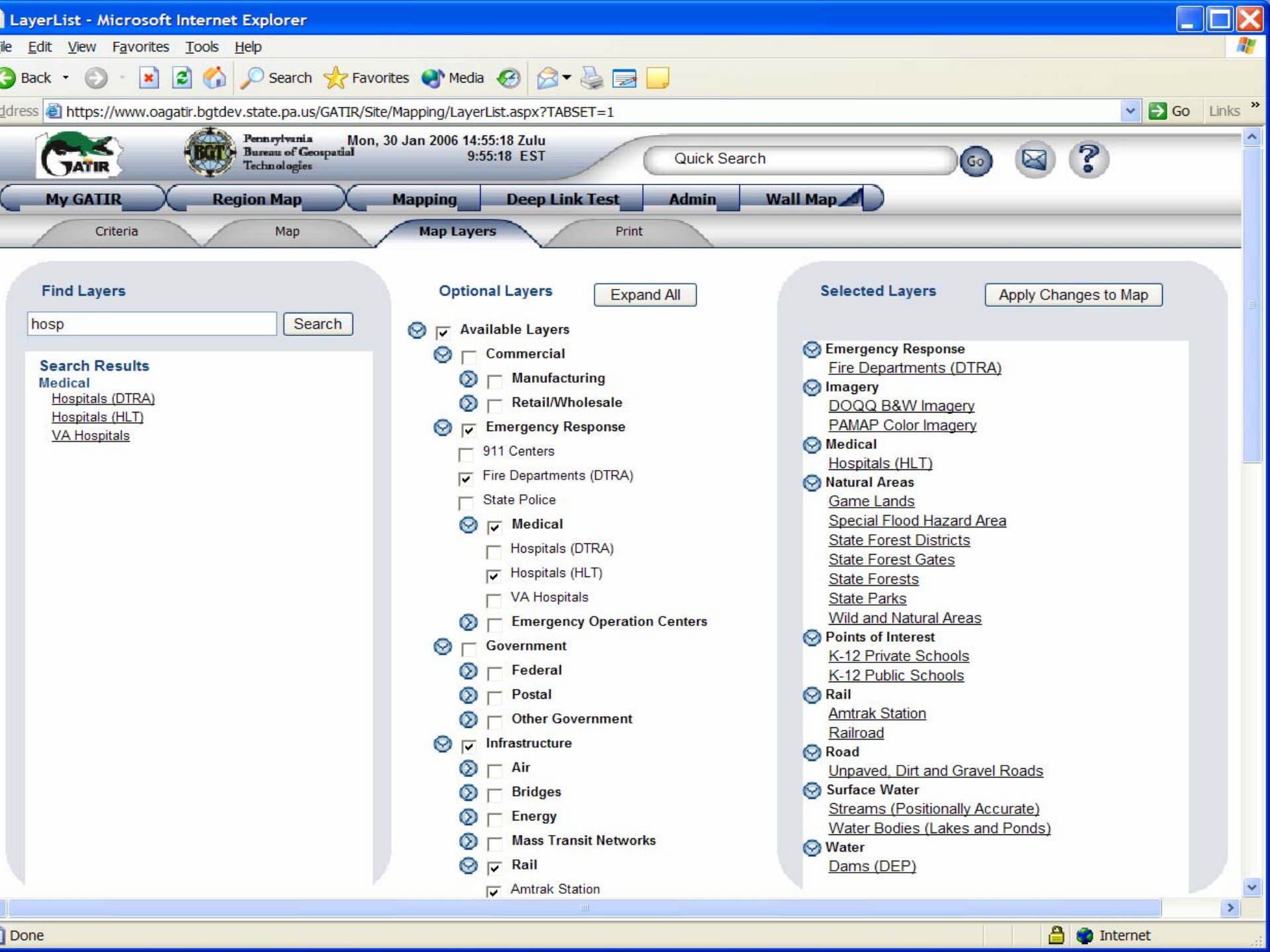
Internet


LayerList - Microsoft Internet Explorer
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Back Search Favorites Media
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GATIR
Pennsylvania Bureau of Geospatial Technologies
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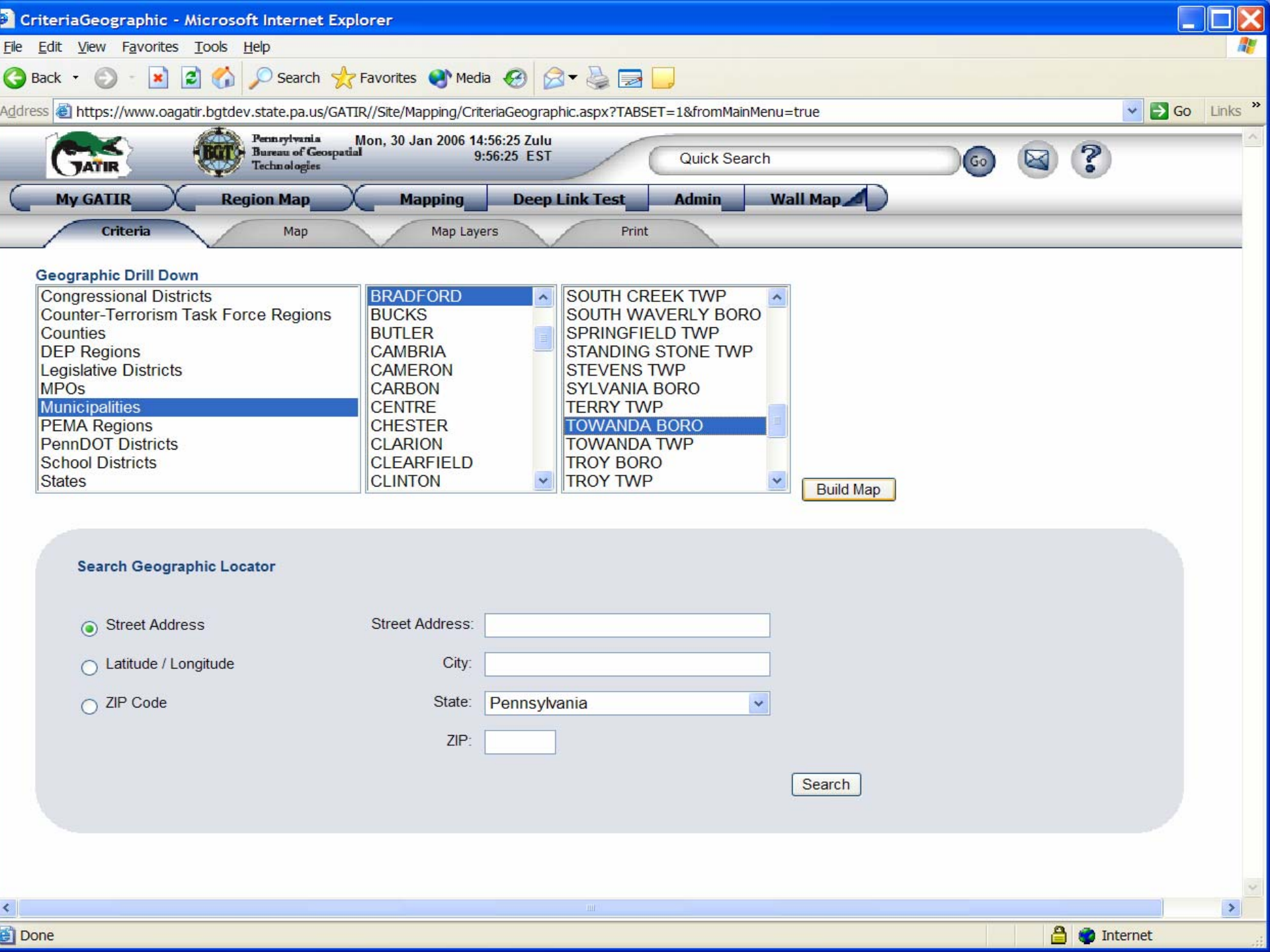
Quick Search
Go
My GATIR
Region Map
Mapping
Deep Link Test
Admin
Wall Map
Criteria
Map
Map Layers
Print
Find Layers
hosp
Search
Search Results
Medical
Hospitals (DTRA)
Hospitals (HLT)
VA Hospitals
Optional Layers
Expand All
Available Layers
Commercial
Manufacturing
Retail/Wholesale
Emergency Response
911 Centers
Fire Departments (DTRA)
State Police
Medical
Hospitals (DTRA)
Hospitals (HLT)
VA Hospitals
Emergency Operation Centers
Government
Federal
Postal
Other Government
Infrastructure
Air
Bridges
Energy
Mass Transit Networks
Rail
Amtrak Station
Selected Layers
Apply Changes to Map
Emergency Response
Fire Departments (DTRA)
Imagery
DOQQ B&W Imagery
PAMAP Color Imagery
Medical
Hospitals (HLT)
Natural Areas
Game Lands
Special Flood Hazard Area
State Forest Districts
State Forest Gates
State Forests
State Parks
Wild and Natural Areas
Points of Interest
K-12 Private Schools
K-12 Public Schools
Rail
Amtrak Station
Railroad
Road
Unpaved, Dirt and Gravel Roads
Surface Water
Streams (Positionally Accurate)
Water Bodies (Lakes and Ponds)
Water
Dams (DEP)
Done
Internet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GATIR
Pennsylvania Bureau of Geospatial Technologies
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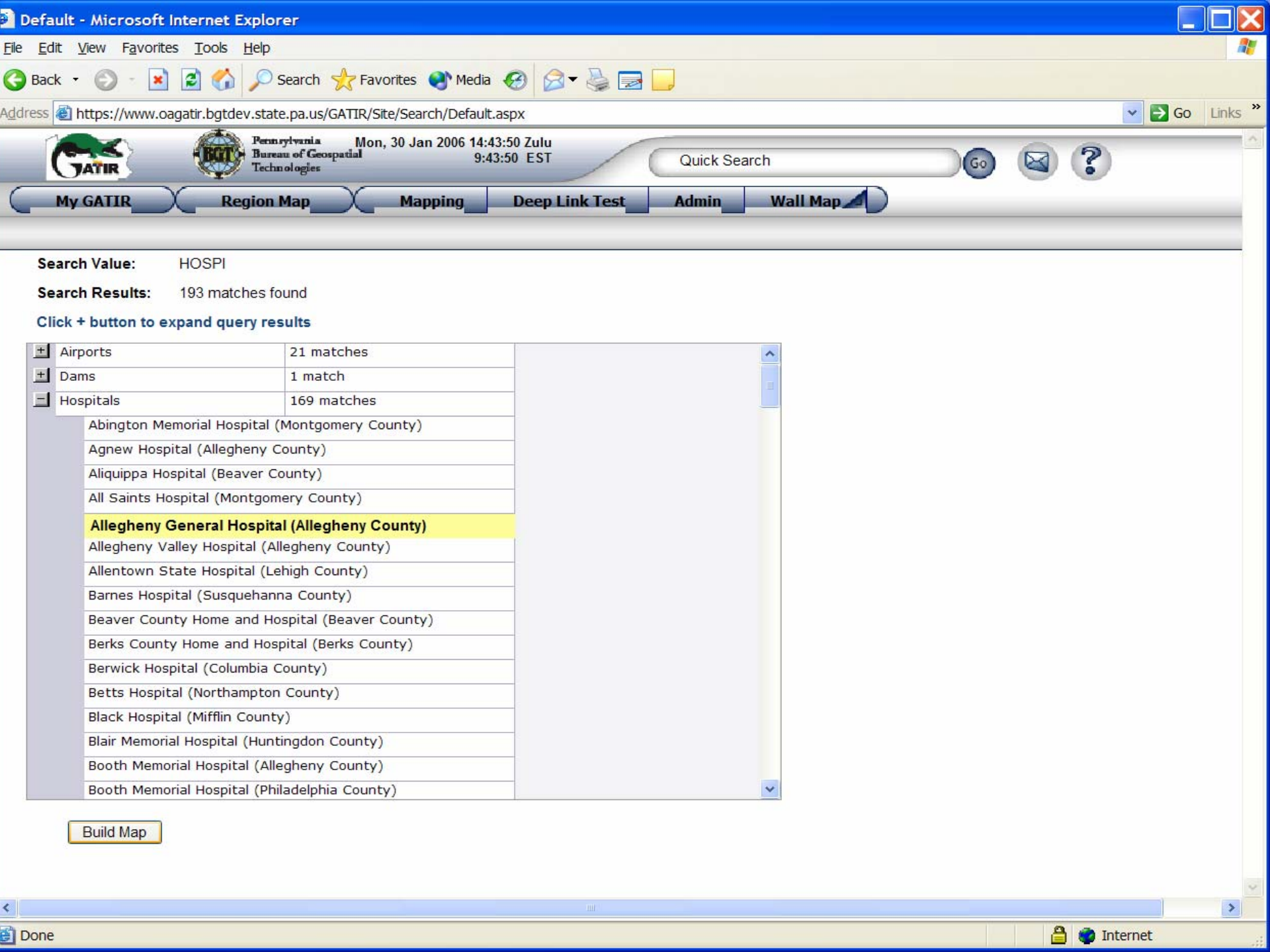
Quick Search
Go
My GATIR
Region Map
Mapping
Deep Link Test
Admin
Wall Map
Criteria
Map
Map Layers
Print
Geographic Drill Down
Congressional Districts
Counter-Terrorism Task Force Regions
Counties
DEP Regions
Legislative Districts
MPOs
Municipalities
PEMA Regions
PennDOT Districts
School Districts
States
BRADFORD
BUCKS
BUTLER
CAMBRIA
CAMERON
CARBON
CENTRE
CHESTER
CLARION
CLEARFIELD
CLINTON
SOUTH CREEK TWP
SOUTH WAVERLY BORO
SPRINGFIELD TWP
STANDING STONE TWP
STEVENS TWP
SYLVANIA BORO
TERRY TWP
TOWANDA BORO
TOWANDA TWP
TROY BORO
TROY TWP
Build Map
Search Geographic Locator
Street Address
Latitude / Longitude
ZIP Code
Street Address:
City:
State:
Pennsylvania
ZIP:
Search
Done
Internet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Back Search Favorites Media
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Go Links
Pennsylvania Bureau of Geospatial Technologies
Mon, 30 Jan 2006 14:43:50 Zulu
9:43:50 EST
Quick Search
Go
My GATIR
Region Map
Mapping
Deep Link Test
Admin
Wall Map
Search Value: HOSPI
Search Results: 193 matches found
Click + button to expand query results
Airports 21 matches
Dams 1 match
Hospitals 169 matches
Abington Memorial Hospital (Montgomery County)
Agnew Hospital (Allegheny County)
Aliquippa Hospital (Beaver County)
All Saints Hospital (Montgomery County)
Allegheny General Hospital (Allegheny County)
Allegheny Valley Hospital (Allegheny County)
Allentown State Hospital (Lehigh County)
Barnes Hospital (Susquehanna County)
Beaver County Home and Hospital (Beaver County)
Berks County Home and Hospital (Berks County)
Berwick Hospital (Columbia County)
Betts Hospital (Northampton County)
Black Hospital (Mifflin County)
Blair Memorial Hospital (Huntingdon County)
Booth Memorial Hospital (Allegheny County)
Booth Memorial Hospital (Philadelphia County)
Build Map
Done
Internet

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Back Search Favorites Media

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Quick Search Go

My GATIR | Region Map | Mapping | Deep Link Test | Admin | Wall Map

Criteria | Map | Map Layers | Print

Overview Map

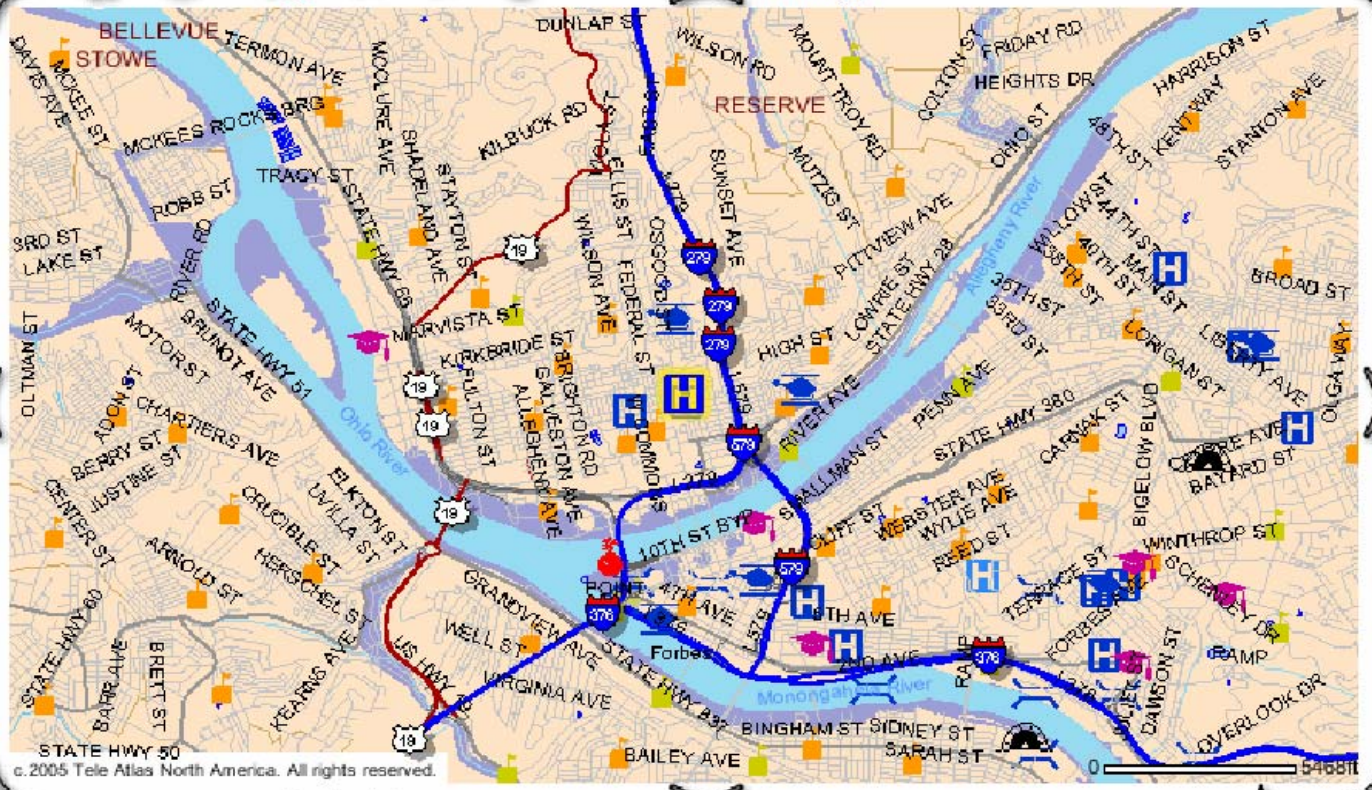
Map Utilities

Legend Refresh Map

- Base Layers
  - County Boundary
  - Municipality Boundar
  - Road Network
    - Interstate
    - US Highway
    - Interchange
    - State Highway
    - Local Road
  - Road Shields
    - US Highway Shields

Original Map | Last Map | Zoom Box | Zoom to Point | Pan

Allegheny General Hospital (Allegheny County)



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Zoom from Center

Current zoom level: 4

Internet

GATIR - Microsoft Internet Explorer

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Quick Search Go

My GATIR | Region Map | Mapping | Deep Link Test | Admin | Wall Map

Criteria | Map | Map Layers | Print

Overview M

RESERVE

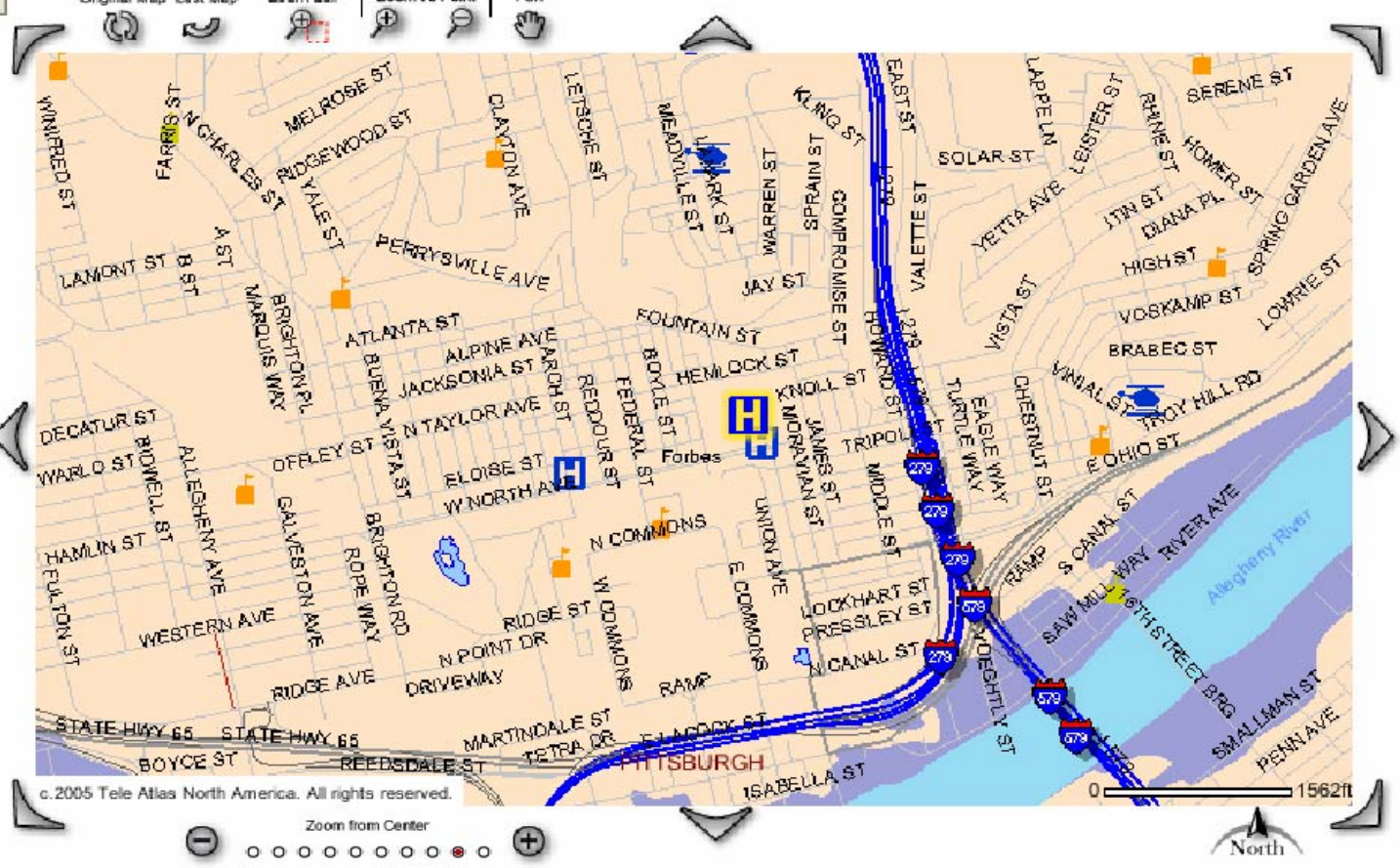
Allegheny
PITTSBURGH

Map Utilities

Legend Refresh Map

- Base Layers
  - County Boundary
  - Municipality Boundar
  - Road Network
    - Interstate
    - Interchange
    - State Highway
    - Local Road
  - Road Shields
  - Interstate Shields
  - State Boundary

Original Map Last Map Zoom Box Zoom to Point Pan



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Current zoom level: 2

Internet

Future Functionality

- Implement CA/eTrust Security Model
- Expansion of enterprise GT database layers
- Additional XML Web Services
  - Gazetteer – location searches and routing stops
  - Spatial Search – designed but not implemented
  - Plume modeling
  - Print on Demand
  - Enhancements to mapping and routing services
- Mapping Collaboration Center/Web Context Services
- Secure OGC Mapping Services

Future Projects

- Severe Weather Alerting and Plume Modeling – SHSGP 2004 funding
- Health Geospatial Portal - $400K in SHSGP 2005 funding (“HATIR”)
- Transportation Geospatial Portal – FHWA earmarks from 2004, 2005, 2006+? (“TATIR”)
- ESRI Portal Toolkit – Catalog Services
- Regional Counter Terrorism Task Force (RCTTF) collaboration projects

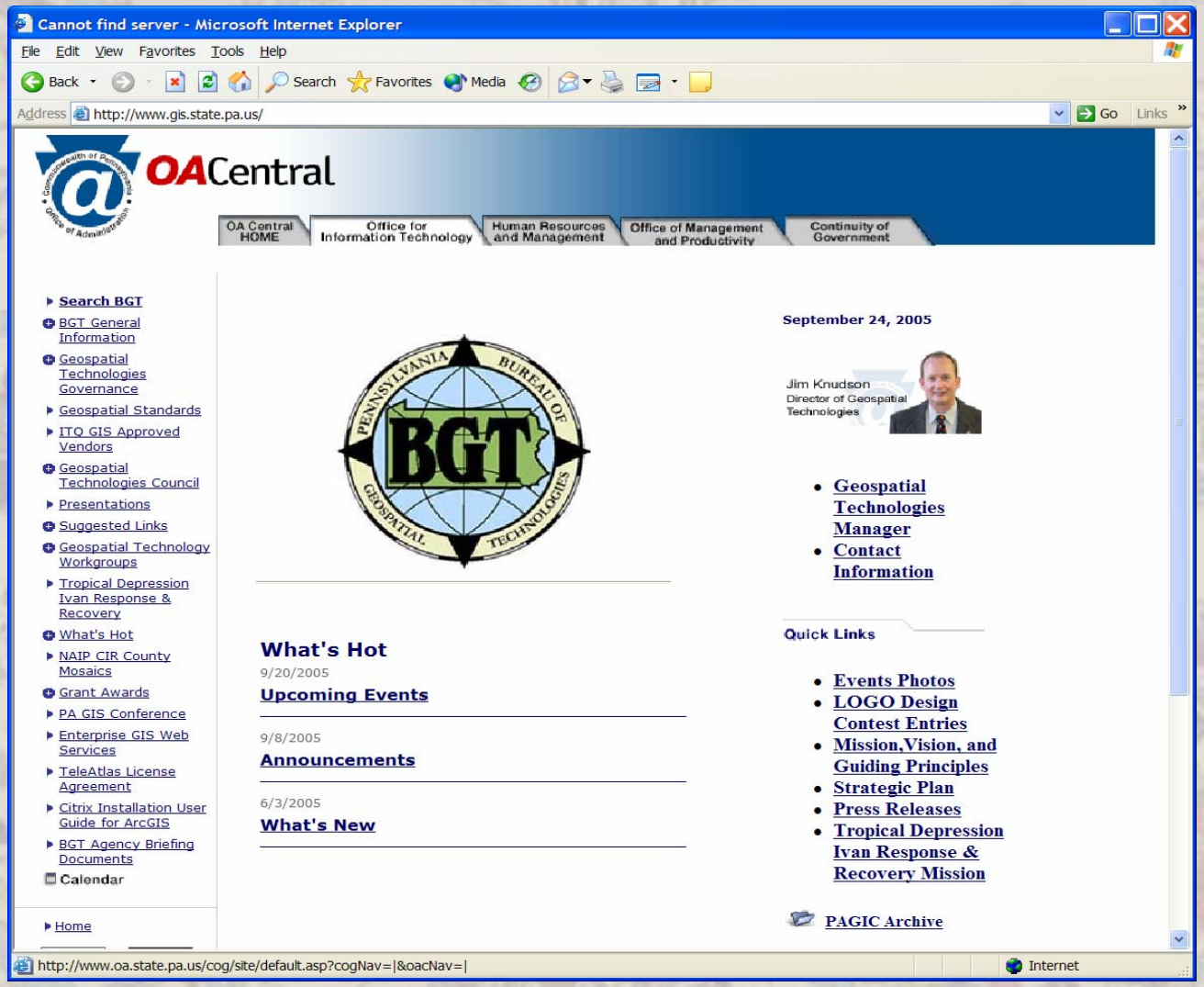
Future Projects

- Enhancements to GATIR - $450K in SHSGP 2005 funding
- PENNSafe – hazardous materials stored in PA business facilities – paid for by Labor and Industry, hosted by BGT
- Data Fusion Center (Intelligence)
- Federated GIS Data Pilot Project – use of ArcGIS Server to share state/local data transparently in a common mapping application

Weather/Plume Modeling

- GESA Architecture built, Weather data processing servers installed, weather data services procured and being deployed
- Load real-time weather data into Oracle/ArcSDE enterprise database, incorporate into OGC mapping services and applications
- Develop web-based plume modeling capabilities
- Develop location and temporal-aware severe weather alerting capabilities

PA GTO Website



http://www.gis.state.pa.us