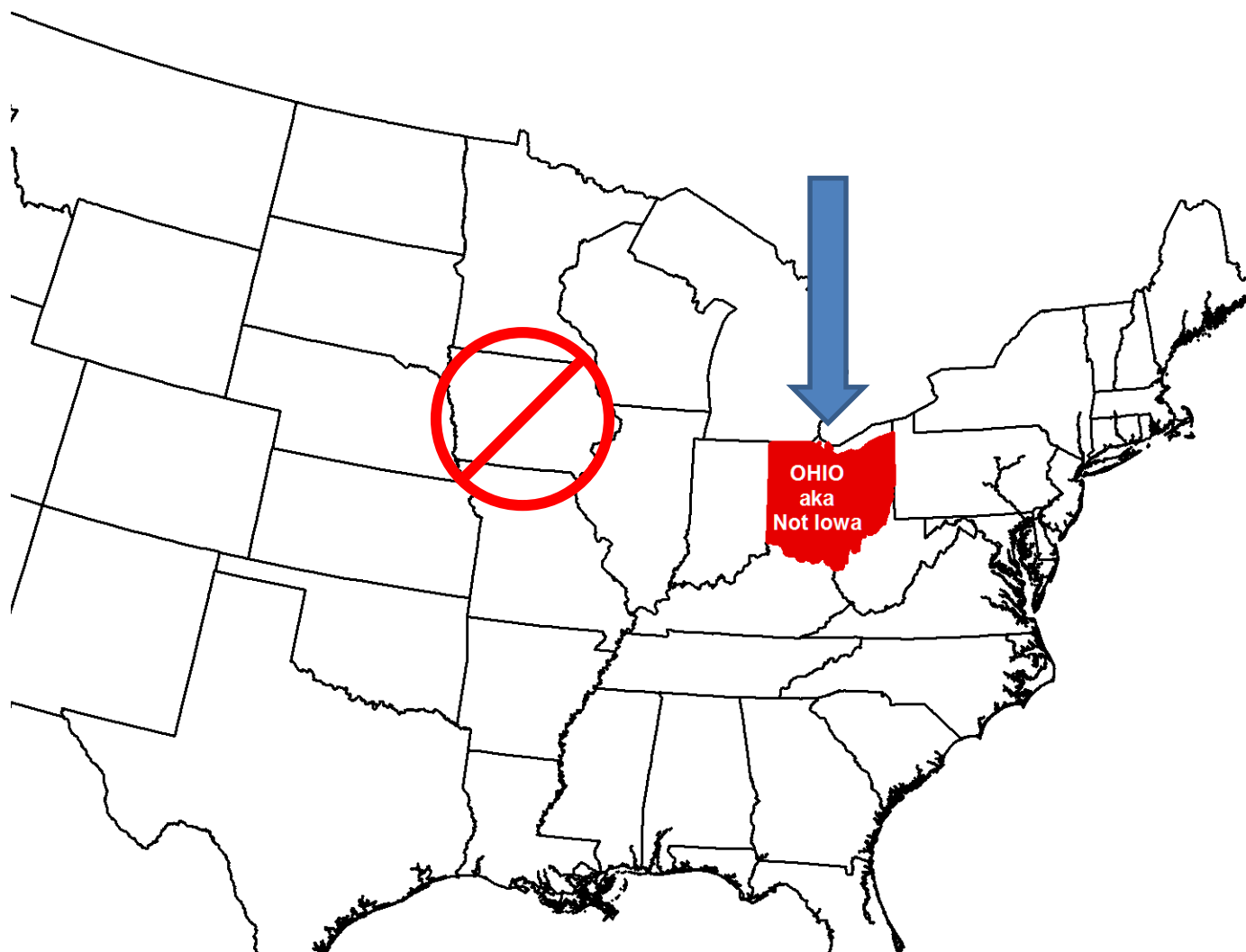


Preparing Ohio for NG9-1-1

&

Morgan County Ohio NG9-1-1
Implementation
Lessons Learned



ESINet Steering Committee

Chair

OML

CCAO

CCAO

OTA

Senate

Senate

House of Representatives

House of Representatives

Stu Davis, State Chief Information Officer

Thomas Robbins, Director of Public Safety - City of Marion

John Leutz, County Commissioners Association of Ohio

Edwin Humphrey, Clermont County Commissioner

Jason Loree, Boardman Township

Sen. Cliff Hite

Sen. Lou Gentile

Rep. Bill Patmon

Rep. John Adams

ESINet Technical Standards Committee

Chair

9-1-1 Providers

OCTA

OARNet

MARCS

OGRIP

OH-APCO

OH-NENA

CCAO

Warren County

Jeff Smith, OSDI Manager

Homer (Skip) Dalton, Frontier Communications

Robert Finney Director, Voice Operations Time Warner Cable

Paul Schopis, Chief Technology Officer

C. Randy Cole, OBM, Controlling Board President & Policy Advisor

Dave Blackstone, Ohio Dept. of Transportation

Matthew Franke, Communications Director, Butler County Sheriff's

Chris Santer, VP, Digital Data Technologies Inc.

Thomas Wheaton, Carroll County Commissioner

Paul Kindell, Warren County Telecomm Director

ESINet PSAP Operations Committee

Co-Chairs	Senator Cliff Hite/Jay Somerville
ODPS-EMA	Ronald (Dave) Ford
OSHP	Major Kevin Teaford
CCAO	Mike Bunner, Director of Emergency Services, Warren County
CCAO	Kevin Carver, Deputy Director of Licking County EMA
OML	Tom Robbins, Director of Public Safety, City of Marion
BSSA	Sheriff Michael Simpson, Preble County
OACP	Chief Kenneth Hinkle, City of Obetz
OAFC	Chief Scott Hildenbrand, Geauga County
OH-APCO	Jay Somerville, Bureau Director, Dublin Division of Police
OH-NENA	Patrick Goldschmidt, President
OH-MARCS	Darryl Anderson, Program Director

Proposed PSAP Ops Guidelines

5.2 Geographic Information Systems

- Ohio PSAPs should utilize spatial data meeting the standards of the Ohio Geographically Referenced Information Program (OGRIP) Location Based Response System (LBRS).
- PSAP GIS data should, at a minimum, include road center lines, emergency service zone and/or responding entity polygons, and PSAP boundary polygons.
- PSAPs shall ensure their GIS data and systems meet the following minimum requirements:

Data Layers

- **Street Centerlines**
- **Address Points**
- **Emergency Service Zone (ESN) Boundaries**

Geospatial Data Maintenance

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- Street Centerlines
- Address Points
- Emergency Service Zone (ESN) Boundaries

Data Maintenance of Street Centerlines

- Updated and maintained on a continual basis
- Accurately reflect block address ranges as related to Address Points
- Fall within 10 feet or less of the centerline 95% of the time
- Represent all public and addressed private streets
- Attributes are accurate, complete and standardized (Address ranges, Communities, spelled out, etc.)
- All related NENA standards are met or exceeded
- MSAG is reviewed for accuracy and synchronized with the GIS
- Data layers contain all valid addressing information after correction to MSAG standards
- Street Centerlines match the corrected MSAG to a 98% or higher rate
- Street names include the street centerline attribute
- Street names conform to the legal names as assigned by the issuing authority
- Correct all errors, incompleteness, missing or inconsistent names
- MSAG Communities are populated with correct information, spelled out and consistent
- Include all attribute information, such as ESN, Community etc.
- Include County names that are consistently attributed
- Assure that lower address ranges are lower than high address ranges
- Attempt to assure that Left and Right addressing is consistently either odd or even addresses; document unsuccessful attempts
- No overlapping address ranges exist
- Orient all line segments in the direction of increasing address ranges
- Each centerline segment shares an exact begin or end node with another centerline segment
- Each intersection is split for routing purposes and intersection lookup purposes
- Street centerlines are split at intersections with ESN boundaries, City Boundaries and County Boundaries

Data maintenance of Address Points

- Updated daily or as needed
- Located either on the structure on the driveway, whichever will best route emergency vehicles accurately
- Include valid attribute values
- Not contain duplicate address points – each address point should be uniquely identifiable by the attributes
- Attempt to assure that Address Points on the left or right of the street centerline are consistently either odd or even addresses; document unsuccessful attempts
- Site address matches ALI data base
- Address Point match corrected MSAG/ALI to a 98% or higher rate

Data Maintenance of ESN Boundaries

- Updated as needed to stay current and accurate with streets, address points and community boundaries
- No gap or overlapping polygons
- ESN Boundaries joined to jurisdictional boundaries where appropriate.
- ESN, ESZ info matches MSAG/ALI
- ESN Boundaries match Street Centerlines and Address Points to a 98% or higher rate.

If that wheel has already been invented, we should make it our mission to keep the bearings greased.

K. Miller

If the #^@% work has already been done we would be *&#^@%'s to \$(*@&^ it.

S. Johnson

Geospatial Data Maintenance

Shall be updated and maintained on a continual basis to meet all applicable NENA i3 standards and the State of Ohio, i.e:

LBRS Data Specification v3.1 June, 2008

71-501 – Synchronizing GIS with MSAG & ALI

71-001 – NG911 Additional Data

02-010 – Data Formats for ALI, MSAG & GIS

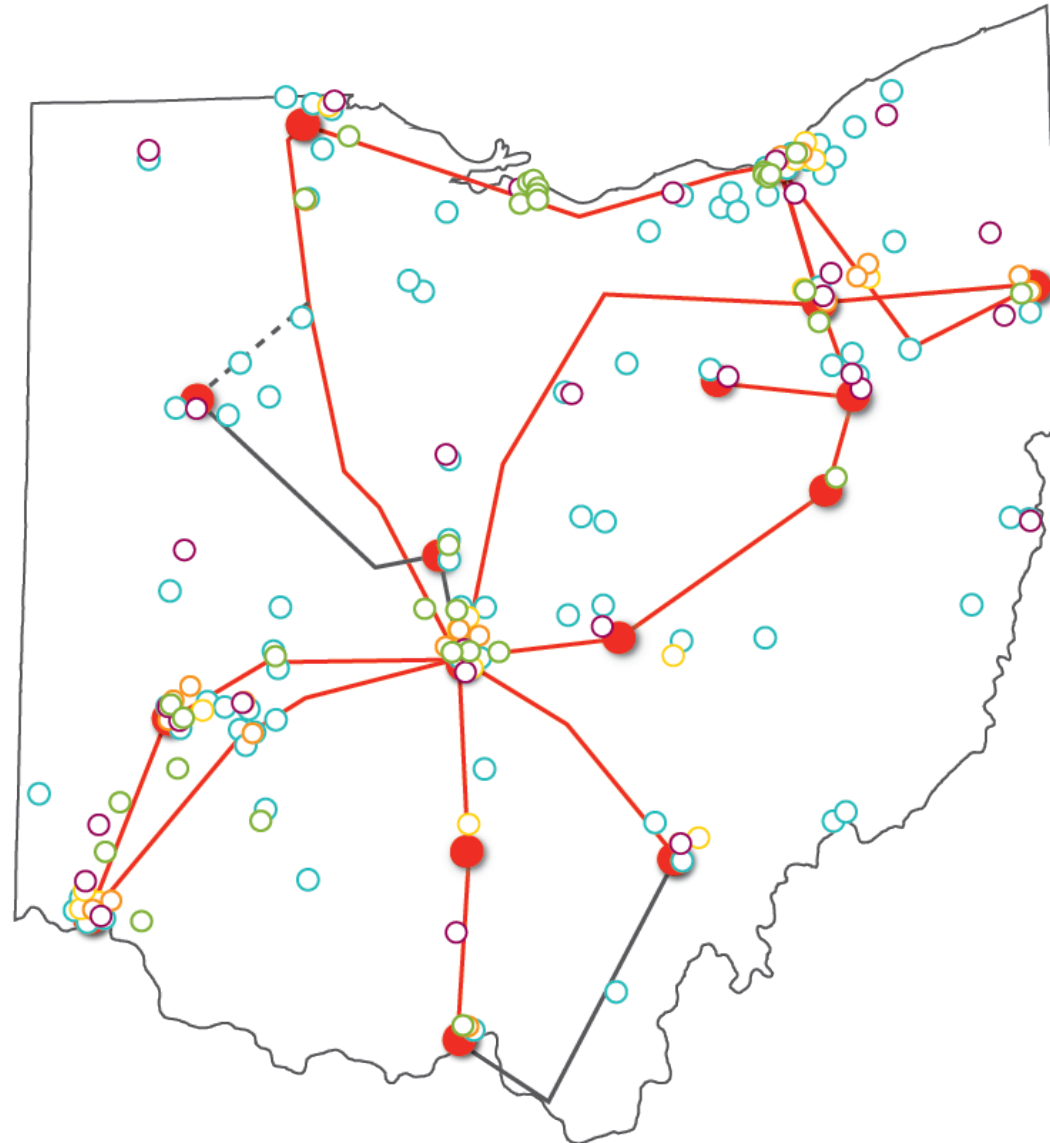
02-014 – GIS Data Collection & Maintenance

ETC...

ESINet Steering Committee

- Recommendations for the state to address the development of a statewide emergency services internet protocol network
- Policies for PSAPs to receive funds from the wireless assistance and NG9-1-1 funds

.....recommendations to **limit duplicative efforts** to ensure an effective transition to next-generation 9-1-1



OARnet is a 100Gbps fiber backbone stretching over 1,850 miles

Reduces technology costs through aggregate purchasing.

Maximizes shared service opportunities for network operations centers, co-location, web hosting, and cloud computing.

OHIO LOCATION BASED RESPONSE SYSTEM

Spatially accurate statewide road centerline data

- +/- 1 M Horizontal
- Verified Address ranges

Site specific field verified address locations

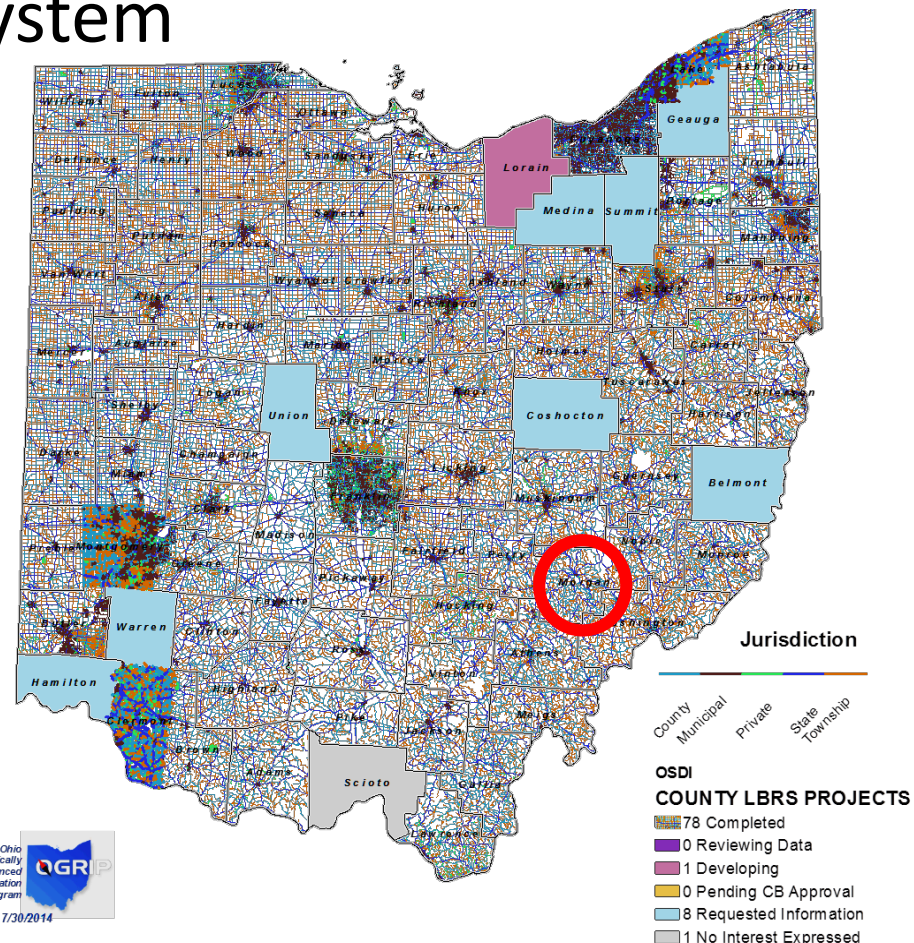
- Higher confidence/increase reliability for geocoding
- Known accuracy & limits of data and use

One set of geography –

- Multiple attributes for different uses at all levels of government
- Locally maintained – collaboratively funded

2002 Secured capital funding to create the Ohio Location Based Response System

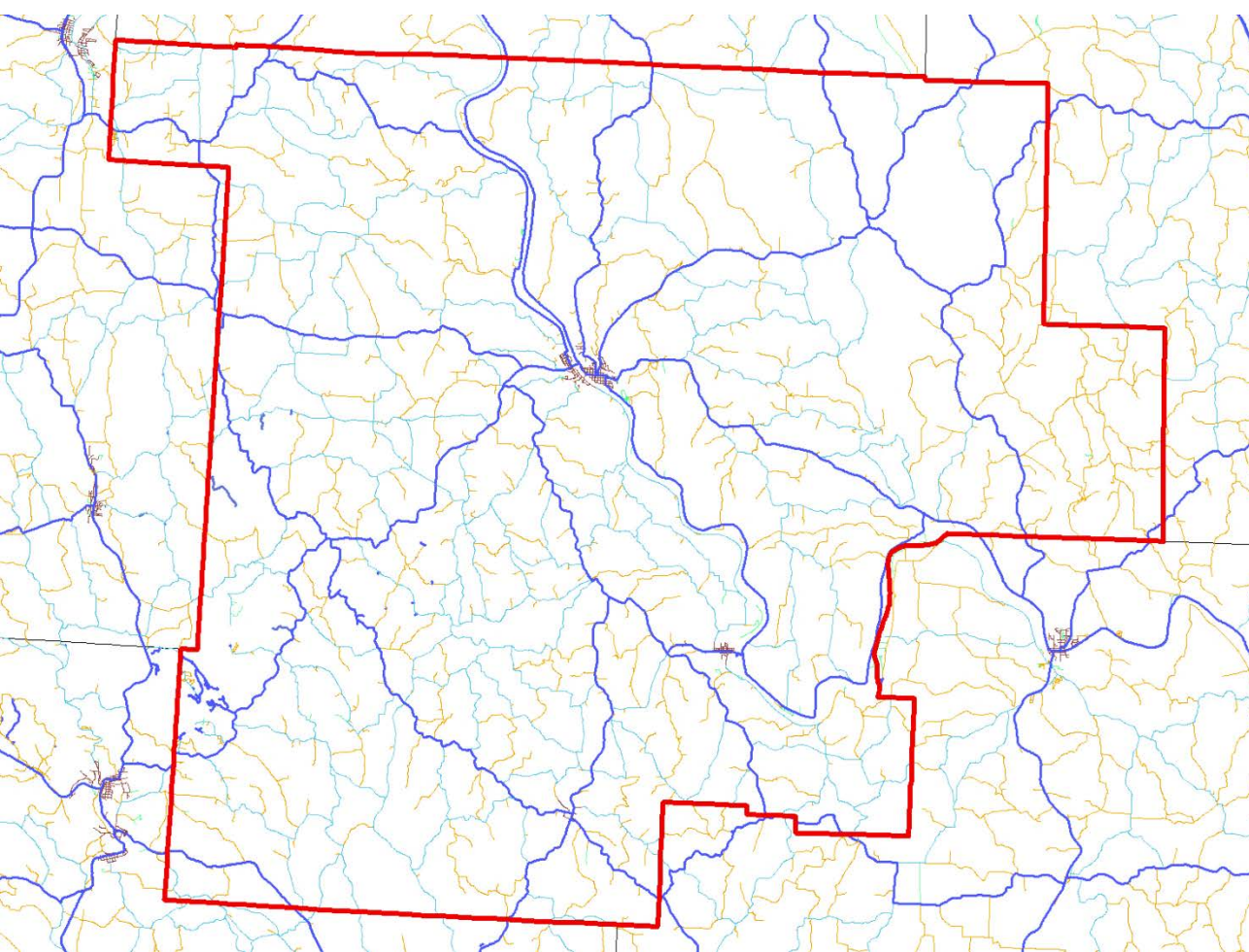
- Developed Address and Centerline Standards
- 79 of 88 Counties participating voluntarily
- 120,090 centerline miles collected
- 4.6 million **field verified** addresses in the State's Master Address File



MORGAN COUNTY, OHIO

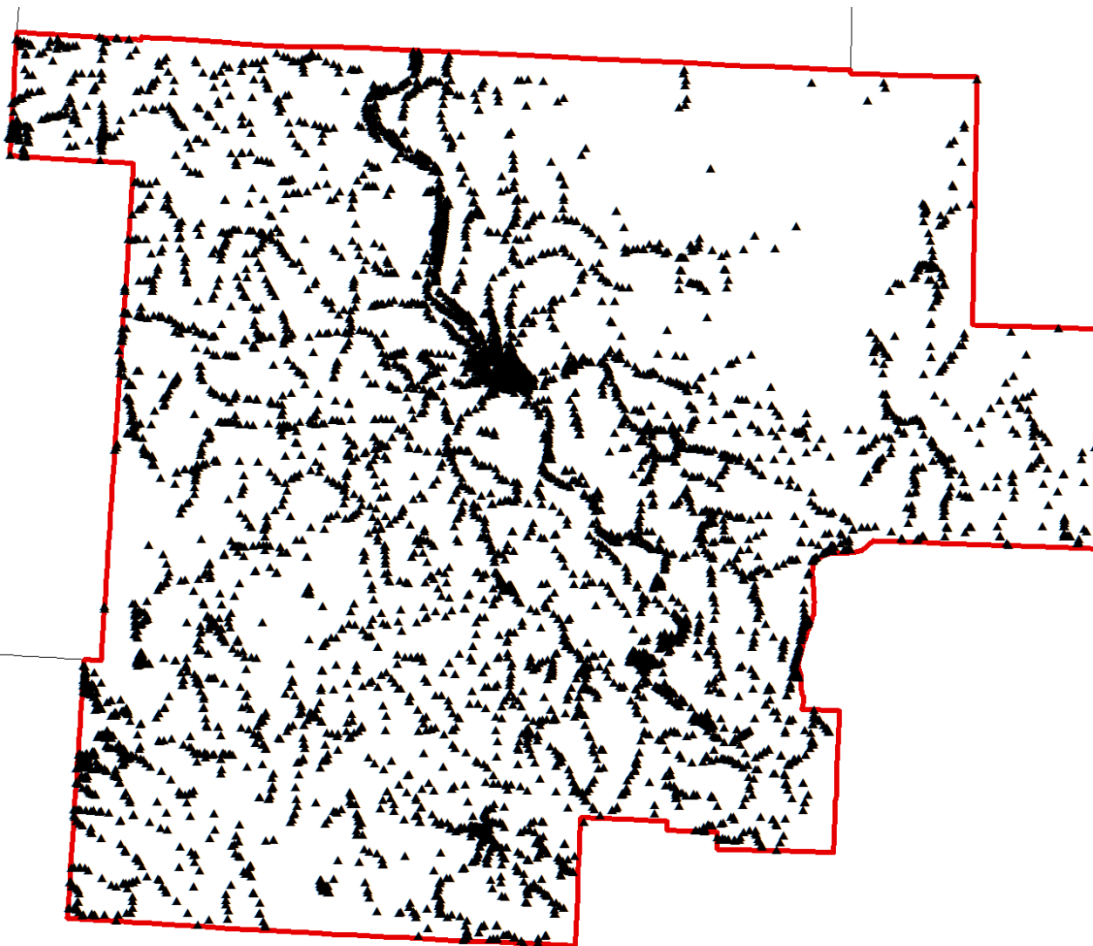
Population
~ 15,000

933.19 Road miles



All Jurisdictions	933.19	miles
Private	9.33	miles
Municipal	20.34	miles
Township	362.77	miles
County	341.74	miles
State (All Types)	196.43	miles
State (State Routes)	188.40	miles
State (US Highways)	0.00	miles
State (Interstates)	0.00	miles
State (Ramps)	0.00	miles
State (State Park Roads)	8.03	miles
Federal	2.57	miles

MORGAN COUNTY, OHIO



7,912 Address Locations

- 5776 Single Family Houses
- 94 Duplexes
- 1247 Trailers
- 203 Apartments
- 40 Secondary Structures
- 53 Utility Structures
- 451 Commercial Structures
- 16 Addresses w/ no structure
- 32 Campground Lots

Morgan County i3 NG9-1-1

- IP Network over Ohio OARnet

- Central Ohio Located in a Secure Facility

- Redundant Diverse Path Using an Ohio Secure IP Network

- System Engineers with Remote Access to the Full System

- GIS Data Creation

- GIS Data Maintenance (SIF)

- System Access: GDIT, DDTI, Experient, DSS, Oracle Admin

- Border Control Functions (BCF)

- Emergency Call Routing (ECRF)

- Emergency Service Routing (ESRP)

- Location Validation (LVF)

- Location Database (LDB)

- Policy Routing Function (PRF)

- 4 Computers Total vs. 13 in 2009

- Interconnect NG9-1-1 and E9-1-1 Legacy Network Gateway (LNG)

- Integrated CAMA Trunks ANI/ALI

- Integrated Multiple County/PSAP Capacity

- Network Security

- Fully Recorded Voice and Data

- System Monitoring/Logging

- VoIP (LAN) Network Telephones

- Work Stations support NG911 applications

- Video Solution Uploaded when Standards are Finalized

Morgan County i3 NG9-1-1

The major wireless carriers to provide DIRECT IP to the i3 compliant equipment in Columbus, Ohio for text messaging.

Why DIRECT IP to our centrally located hub?

- DIRECT IP is the responsibility of the wireless provider, the other SMS cost money and connection fees.
- Once DIRECT IP is connected to the ESINet other NG9-1-1 PSAPs in Ohio can take advantage of this established service.

Scalability

Item	Function	Scalability
Core NG9-1-1 CPE Turnkey	Call taker workstation VoIP application core with call distribution and GIS integration	99 Call Takers during transitional phase with migration from ALI database
Core NG9-1-1 Services Turnkey	ESInet foundation including ECRF/LVF, ESRP, ALI Accelerator, LNG(s), & BCF(s)	BCF 25 Concurrent Sessions; LNG 24 Trunks
Core NG9-1-1 Recording Turnkey	Logging with audio recording, screen capture, and event recording	225 Concurrent Sessions and storage beyond 500 GB
Call Taker Position	Workstation application endpoint with VoIP phone	Per Call Taker
PSAP Site Specific: Installation & Training, Custom Integration	Labor for systems integration, network design, installation, and training	Per Site
Access Circuits	Connect PSAPs to Core	Based on route diversity & bandwidth requirements
Annual Maintenance	Sustainment and risk management	Function of Sites & Endpoints
OARnet Data Center Rack Space	Location of Core(s)	1.5 Racks per core
OARnet WAN Bandwidth	Connect Data Center Core(s)	Dependent on type and volume of payloads

Invest the time and effort to make the County and municipal boundaries as consistent and accurate as possible.

Municipal boundaries need to have a way to allow timely updates for every PSAP in the state.

MSAGs historically managed at a county level will need to be modified to ensure that a full road name plus area field(s) are unique at the state level.

There needs to be a central clearing house mechanism to coordinate uniqueness of addressing and the ESN polygons.

By definition, records in the ALI should match the MSAG, but this is not always (seldom) the case, resulting in a high percentage of discrepancies, i.e.

- Inconsistent MSAG road names (Chillicothe spelled 16 different ways within the county)
- Road names in the **ALI** data that do not match the **MSAG**.
- MSAG ranges not reflecting the reality of the field verified GIS address ranges.

Synchronizing the MSAG with the GIS has to take place.

COMMENTS & DISCUSSION