OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM

Stuart Davis, Deputy CIO
Chief Operating Officer
Infrastructure Service Delivery
Ohio Office of Information Technology
Department of Administrative Services

1320 Arthur E. Adams Drive
Columbus, Ohio 43221
614-466-4747
http://ogrip.oit.ohio.gov

NATIONAL INITIATIVES

- Imagery for the Nation
- Transportation for the Nation
- Broadband USA

STATE INITIATIVES

- Ohio Spatial Data Infrastructure
- Location Based Response System
- Ohio Statewide Imagery Program
- Broadband Ohio

STATE IT LANDSCAPE

- NextGen-911
- Regionalization
- Virtualization

NATIONAL INITIATIVES

www.fgdc.gov
fgdc
FederalGeographicDataCommittee

Imagery for the Nation

www.nsgic.org
NSGIC
National States Geographic Information Council

Imagery for the Nation
IFTN

Introduced in 2004 by the National States Geographic Information Council (NSGIC), State GIS councils will specify digital orthoimagery requirements for IFTN

- Required Resolutions
- NSSDA Accuracy Requirement and Confidence Interval
- Frequency of Coverage
- Coverage Footprints
- Define Areas of Security Concern
- Image Type (CIR, NC, etc.)
- Contracting Preferences
- QA and QC Requirements
- Funding Methods
- Development of FGDC Metadata
- Data is in the Public Domain

NATIONAL INITIATIVES

www.fgdc.gov
fgdc
FederalGeographicDataCommittee

Imagery for the Nation

www.nsgic.org
NSGIC
National States Geographic Information Council

"A sustainable digital imagery program that meets the needs of local, state, regional, tribal and Federal agencies."

Imagery for the Nation
IFTN

- Lower costs/Economies of scale
- Reduce duplication of effort
- Data Standardization
- Available to government, private, and commercial users

NATIONAL INITIATIVES

Imagery for the Nation – RFI

www.fgdc.gov
fgdc
FederalGeographicDataCommittee

www.nsgic.org
NSGIC
National States Geographic Information Council

High resolution component:

- Leaf-on imagery
- Not less than 1 meter resolution
- Conterminous U.S. on an annual cycle
- Funding from the Federal government
- Defined buy-up options
- Managed by FSA

Imagery for the Nation
IFTN

Very high resolution component :

- Leaf-off imagery
- 1 foot and greater resolution
- Funding estimated to be 50% of the cost to image the AOI
- Defined buy-up options
- Management by USGS

NATIONAL INITIATIVES

www.fgdc.gov
fgdc
FederalGeographicDataCommittee

Imagery for the Nation

www.nsgic.org
NSGIC
National States Geographic Information Council

NSGIC Response to IFTN RFI "Common Requirements"

Imagery for the Nation
IFTN

Stakeholder Involvement & Program Governance

Scheduling

Buy-up Options

NATIONAL INITIATIVES

Transportation for the Nation

Outreach Activities

- USGS/Census Bureau meeting of federal stakeholders 10/09
- NSGIC Annual Conference 10/09
- TRB Presentation 01/10
- ESRI Federal User Conference 02/10
- 2010 GIS-T Symposium
- Steering Committee Formation
- Stakeholders Interviews

www.transportationresearch.gov/TFTN

NATIONAL INITIATIVES

Broadband USA

Broadband Technology Opportunities Program (BTOP) for deploying broadband infrastructure in un-served and underserved areas in the United States by investing in projects to:

- **Deploy Comprehensive Community Infrastructure**
- **Establish or Upgrade Public Computer Centers**
- **Increasing Sustainable Broadband Adoption**

RECOVERY.GOV

www2.ntia.doc.gov

NATIONAL INITIATIVES

BROADBANDUSA
CONNECTING AMERICA'S COMMUNITIES

ABOUT | GRANTS AWARDED | PROGRAM INFORMATION | BRIEFING ROOM | GRANTS MANAGEMENT | CONTACT

Home | Grants Awarded | State Data & Development

Ohio Office of Information Technology

Designee for the State of Ohio

Project Components

State Capacity Building:

The Connect Ohio Program Office, under the direction of the Ohio Office of Information Technology (OIT), will provide staff support to the Connect Ohio Technology Association, which consists of leadership form the Department of Development, the Office of Information Technology, the Department of Education, Public Utilities Commission, the State Library, legislators, state associations, broadband providers and other broadband stakeholders in Ohio. In Year 4, Connect Ohio will also conduct surveys in each of Ohio's 88 counties to assess the rates of broadband adoption and the barriers to adoption. The results of these surveys will be peer reviewed before release.

Technical Assistance:

Building on the local planning teams that now exist in all of Ohio's counties, the Connect Ohio Last Mile Enablement Project will provide broadband infrastructure assessments for local stakeholders so that they may effectively determine how to attract or build greater broadband capacity. These funds will also offer limited technical design support to determine best options for deployment and will share best practices statewide.

Data Collection, Integration, and Validation:

This project was originally funded for broadband planning activities and two years of data collection. In September of 2010, this project was amended to extend data collection activities for an additional three years and to identify and implement best practices.

Address File Development:

The State of Ohio maintains an existing partnership, the Location Based Response System (LBRS), between the state and local governments, to build accurate field verified address databases. This project will support direct funding to rural counties that lack the technical and/or financial resources required for LBRS participation.

Note: Project description is based on information supplied by the applicant. For more information, please visit State Broadband Data and Development Program

Original Award: $1,772,739
Supplemental Funding: $5,253,023
Total Award: $7,025,762

Search this site:
Search

State Broadband Data & Development Grant Program

Searchable Grants & Applications Database

JOIN BROADBANDMATCH

Register for the Post-Award Workshop November 9-10

RSS News Feed
Facebook
Flickr
Twitter

RECOVERY.GOV

www2.ntia.doc.gov/grantee/ohio-office-of-information-technology

CAAO

CEAO

Academia

CCAO

OARC

Utilities

Ohio Department of Development

ODOD

Municipal League (2)

ODOT

OEPA

ODNR

ODAS

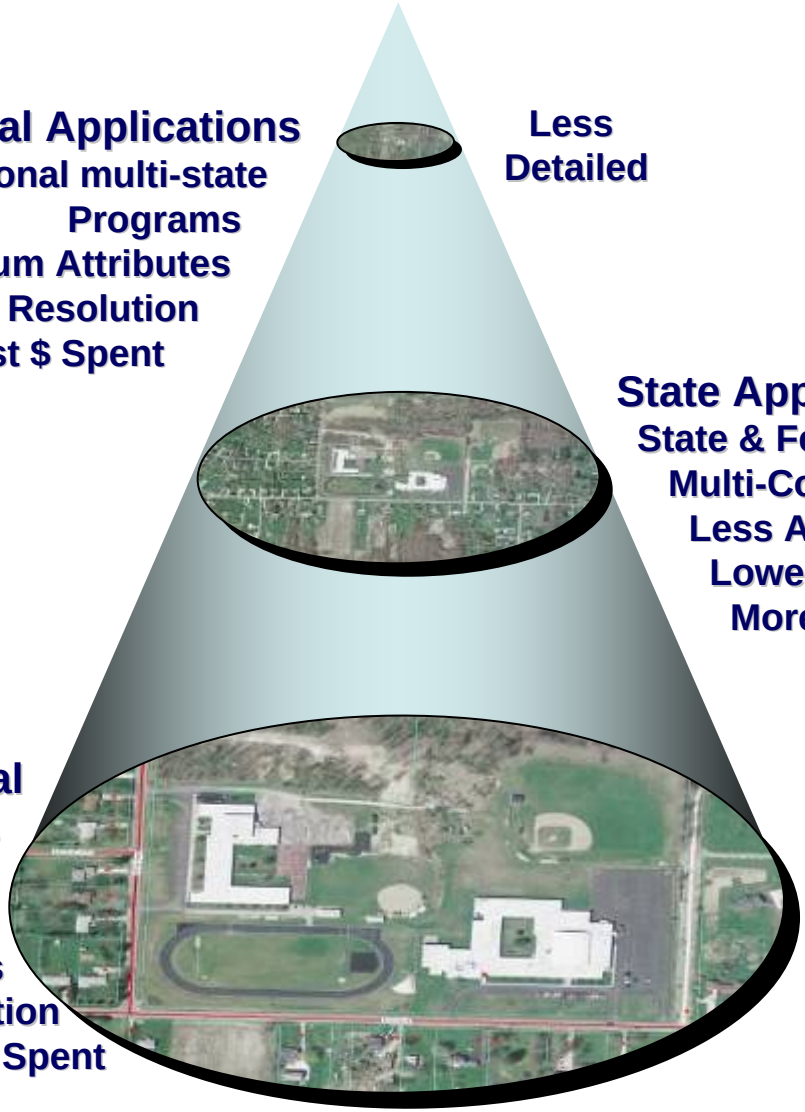
Ohio DAS Department of Administrative Services

TOS

AGO

VERTICAL INTEGRATION

THE MODEL FOR OHIO SPATIAL DATA INFRASTRUCTURE DEVELOPMENT



Federal Applications
Regional multi-state Programs
Minimum Attributes
Low Resolution
Least $ Spent

Less Detailed

State Applications
State & Federal Programs
Multi-County Multi-State
Less Attributes
Lower Resolution
More $$ Spent

Local Applications
Serve People
Multi-Neighborhood
More Attributes
Higher Resolution
Most $$$$ Spent

More Detailed

OHIO SPATIAL DATA INFRASTRUCTURE

ACTIVITIES SUPPORTED

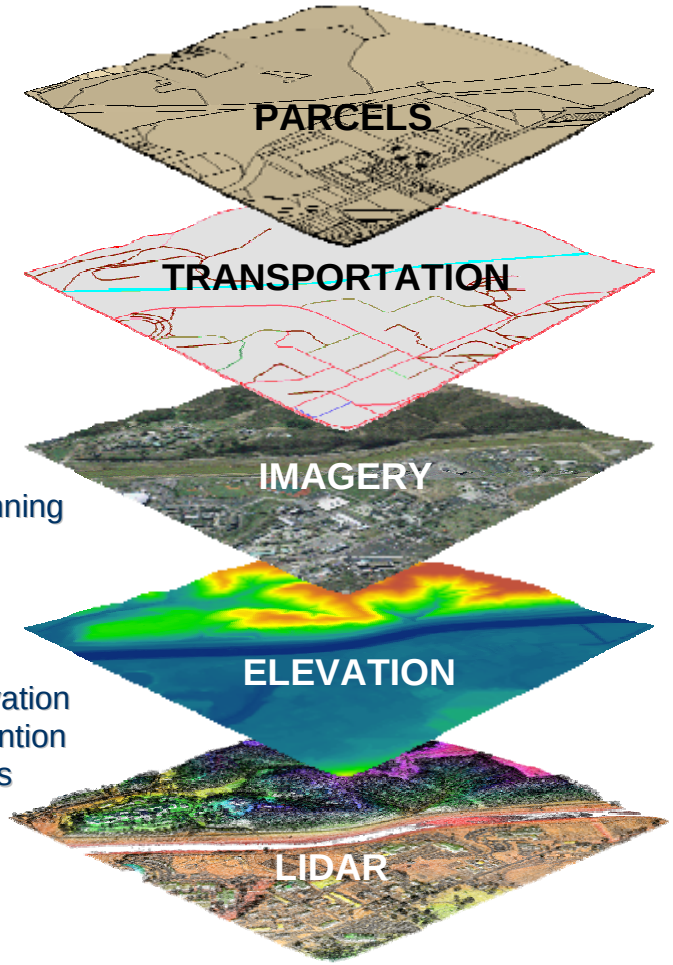
OSDI development supports

- Economic Development
- Critical Infrastructure Operations
- Business Activities
- Regulatory Compliance
- Emergency Response
- Law Enforcement

SECTORS SUPPORTED

Investment in the OSDI means improved planning and development activities for infrastructure projects for

- Transportation – Rail, Rivers, Roads
- Renewable Energy – Wind, Bio-fuels
- Environment – Assessment, Conservation
- Health – Tracking, Reporting, Intervention
- Climate Change – Modelling, Analysis



RETURN ON INVESTMENT

Coordinated OSDI development

- Saves Taxpayer Dollars
- Saves Lives
- Encourages Investment
- Stimulates High-Tech Jobs

PROCESS IMPROVEMENTS

OSDI information provides decision makers with the information and tools necessary to:

- Make better decisions
- Improve efficiencies
- Reduce redundancies
- Encourage collaboration
- Improve Communication

OGRIP

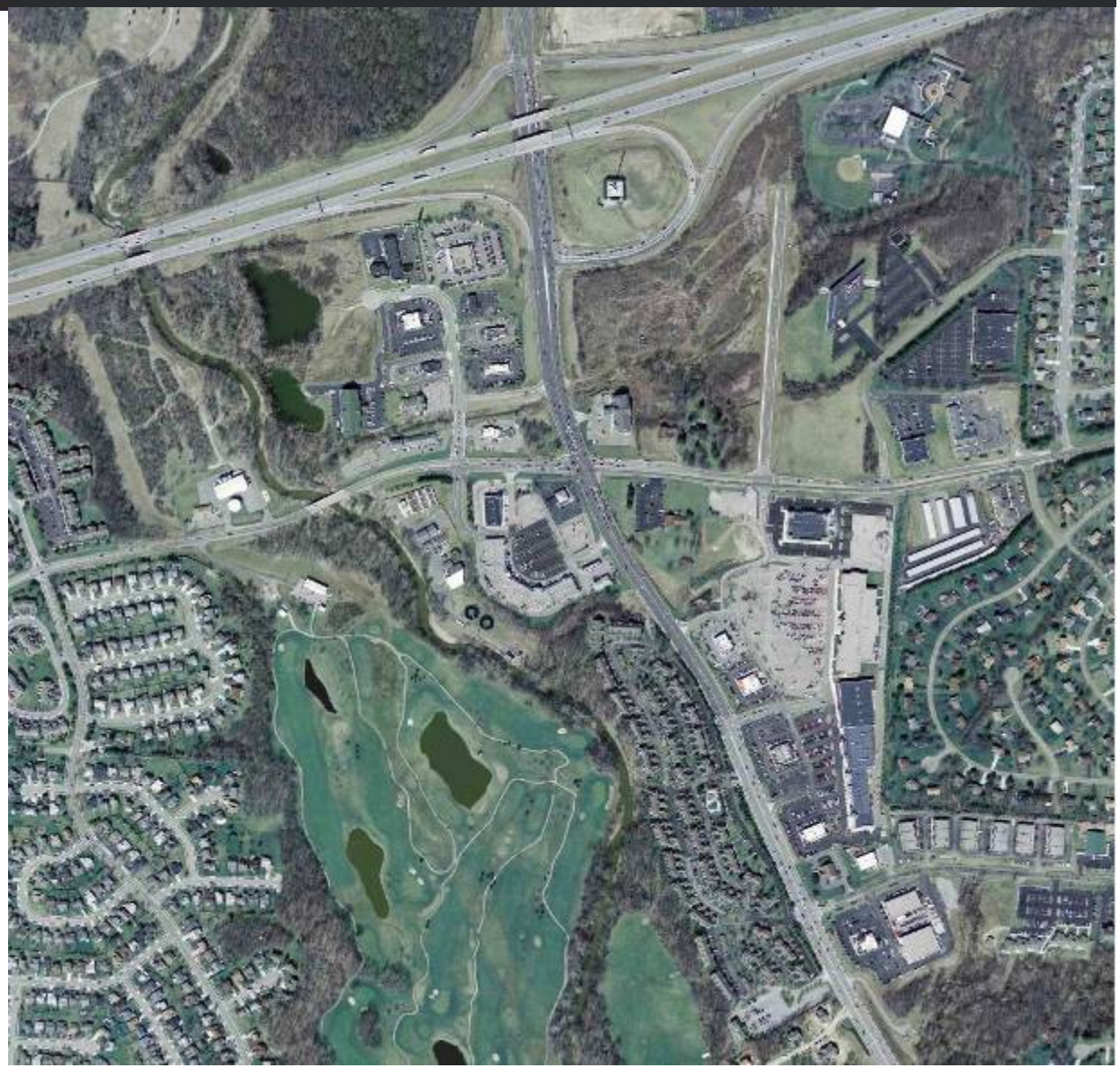
OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM

OSDI

Ohio Statewide Imagery Program

OSIP

Digital Orthophoto



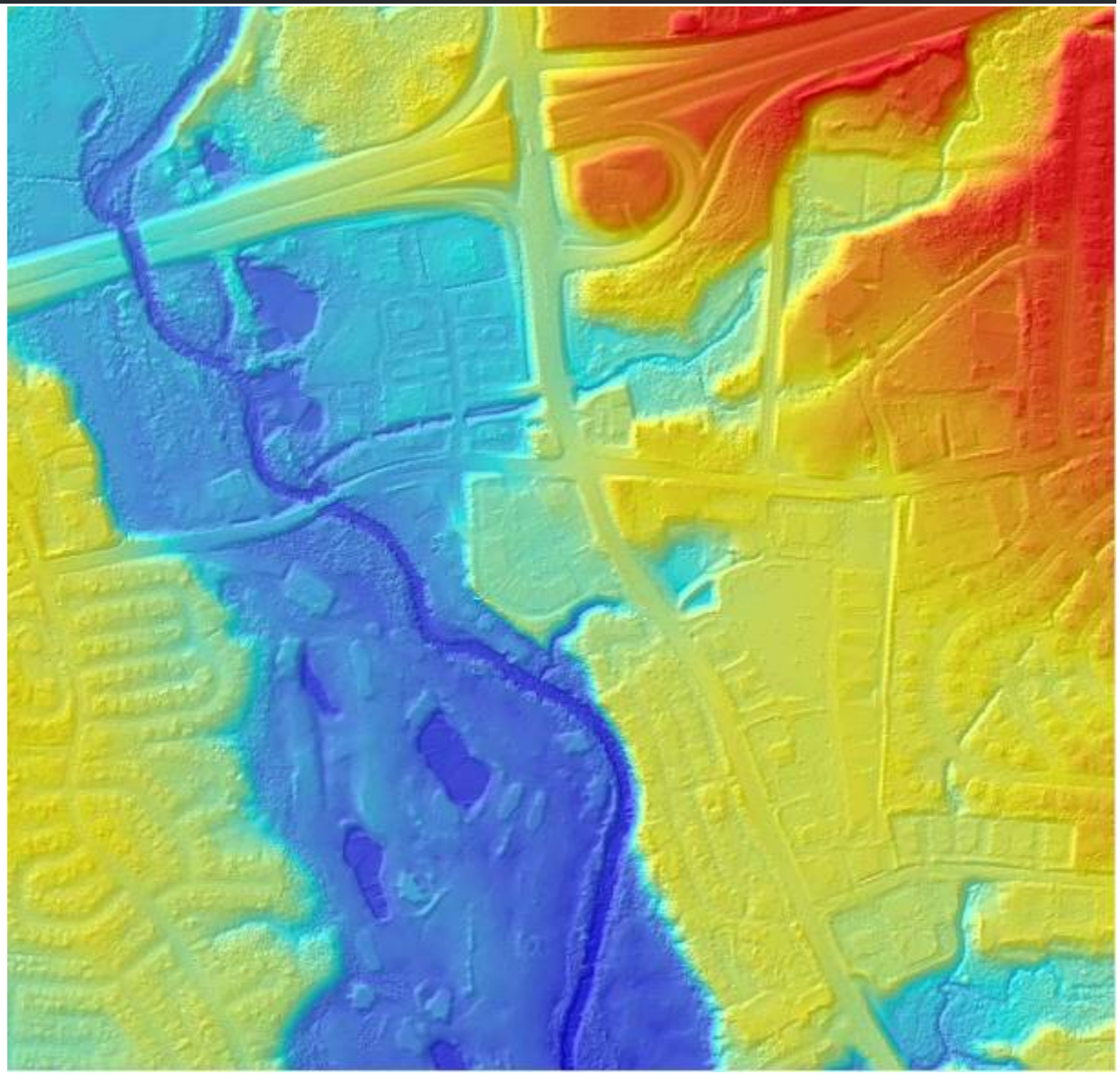
Licking County, Ohio
I70 & SR256

OSDI

Ohio Statewide Imagery Program

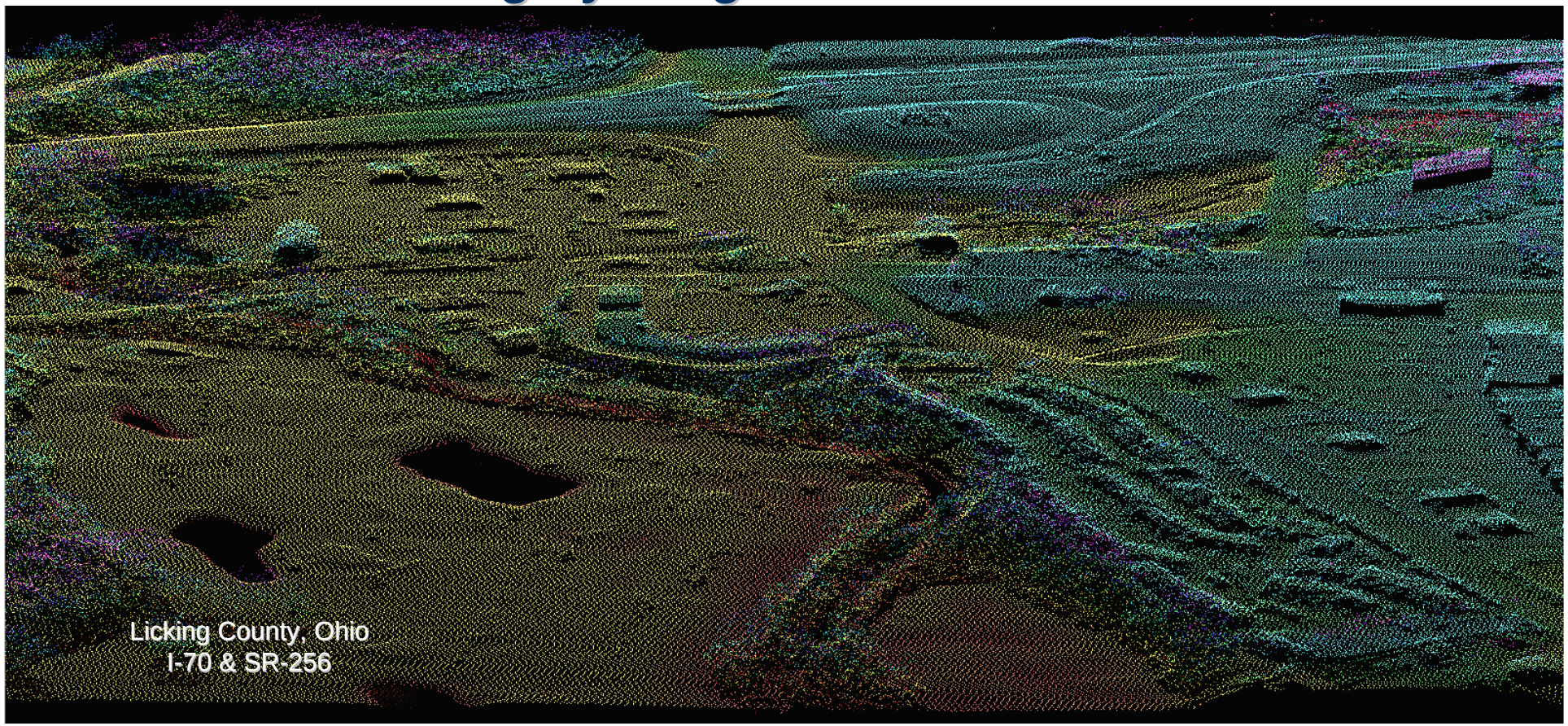
OSIP

Digital Elevation Model



Licking County, Ohio
I70 & SR256

OSDI
Ohio Statewide Imagery Program OSIP



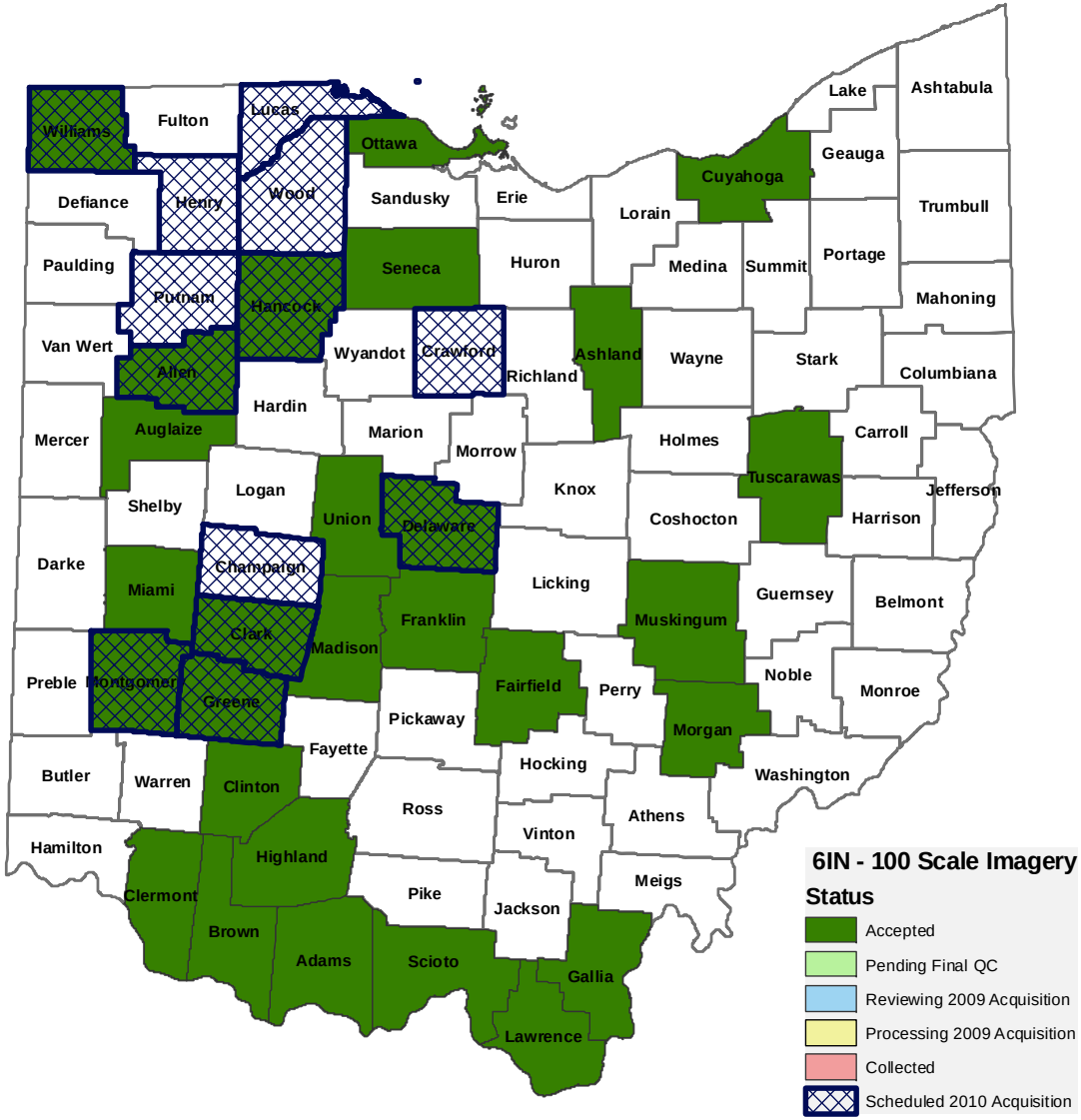
LiDAR Light Detection and Ranging Points

OSDI

Ohio Statewide Imagery Program

OSIP

36 COUNTIES OBTAINED
OPTIONAL OSIP PRODUCTS
6IN Color Orthophotography
Saving Taxpayers over $5 Million



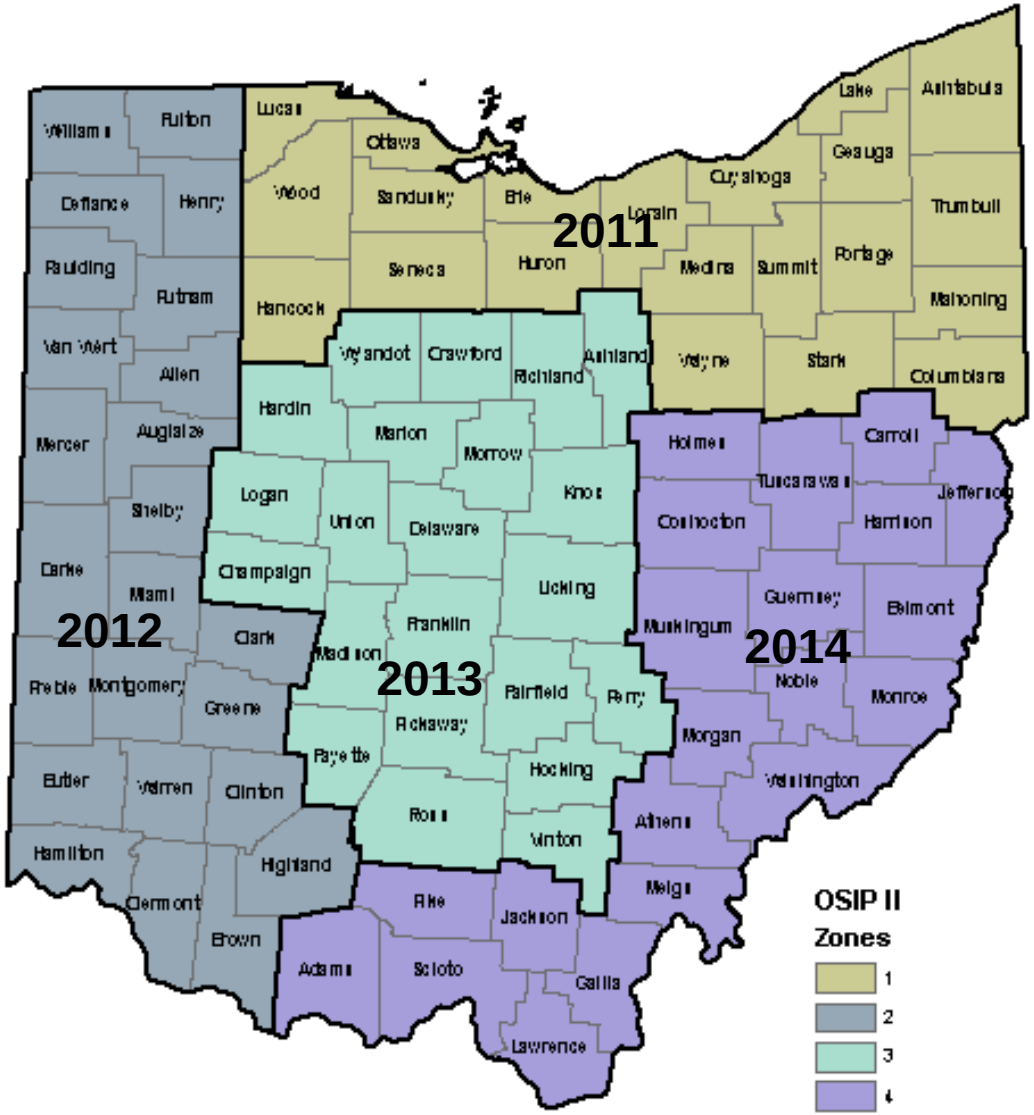
OSDI

Ohio Statewide Imagery Program

OSIP

OSIP II
Acquisition Zones

Optional Buy-ups for
6” Orthos
1’ & 6” Obliques
Densification of LiDAR
Contour Generation
Feature Extraction



OSDI

LOCATION BASED RESPONSE SYSTEM

LBRS

IDENTIFYING PROBLEMS AND NEEDS

1994 USGS Image & Various 1998-2001 Centerline Data Sources

OSDI

LOCATION BASED RESPONSE SYSTEM

SOLUTION

CURRENT
ACCURATE
INTEROPERABLE
COLLABORATIVE

2007 OSIP Image &
2008 Madison County
LBRS Data Sources

LOCATION BASED RESPONSE SYSTEM

Positionally accurate statewide road centerline data

- **+/- 1 M Horizontal**
- **Verified Address ranges**

Site specific addresses

- **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**

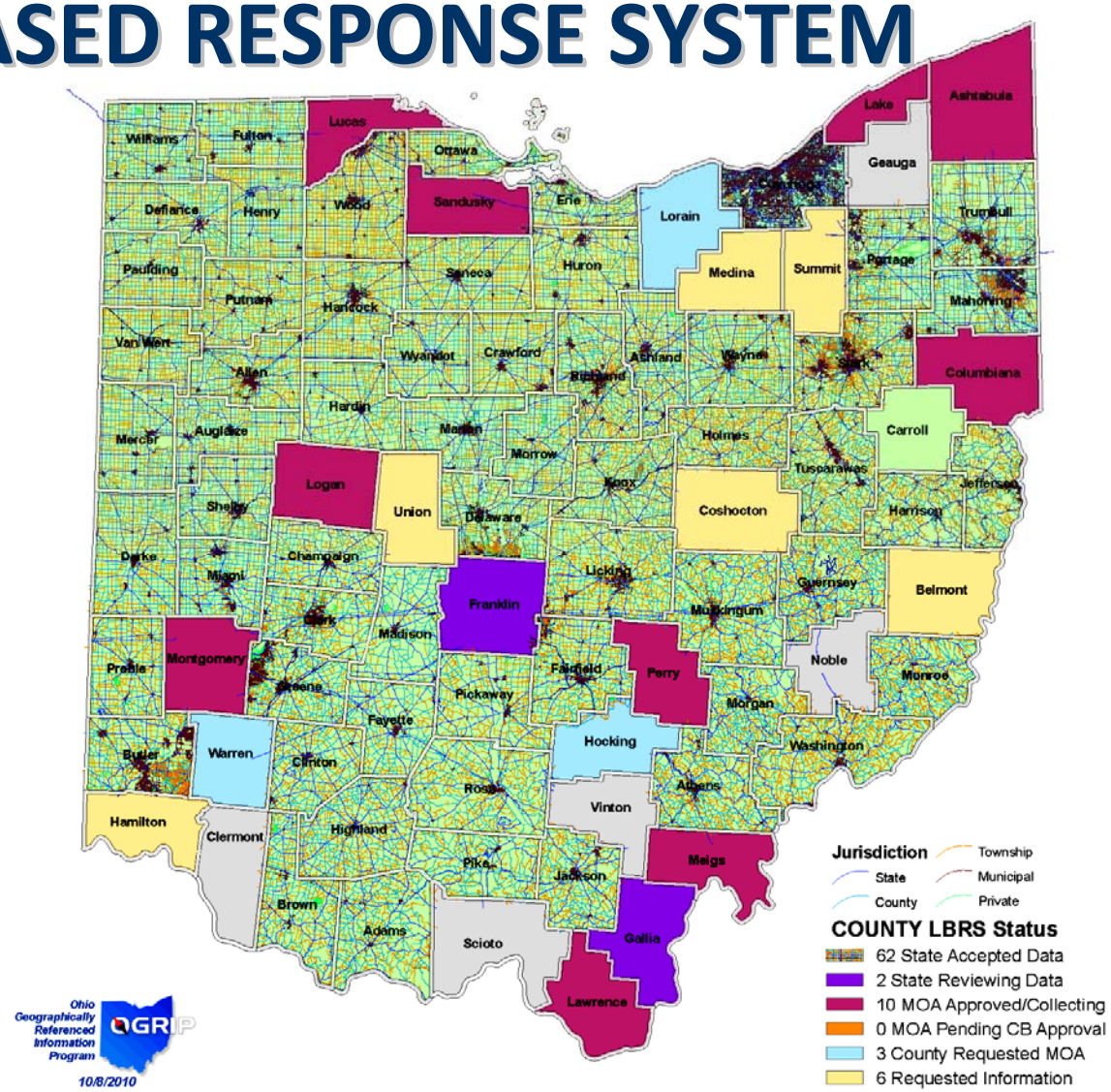
LOCATION BASED RESPONSE SYSTEM

SUPORTING
PUBLIC SAFETY
EMERGENCY RESPONSE
ROADWAY INVENTORY
CRASH ANALYSIS
PHASE II & NEXT GEN-911
CENSUS ENUMERATION

74 Counties Participating

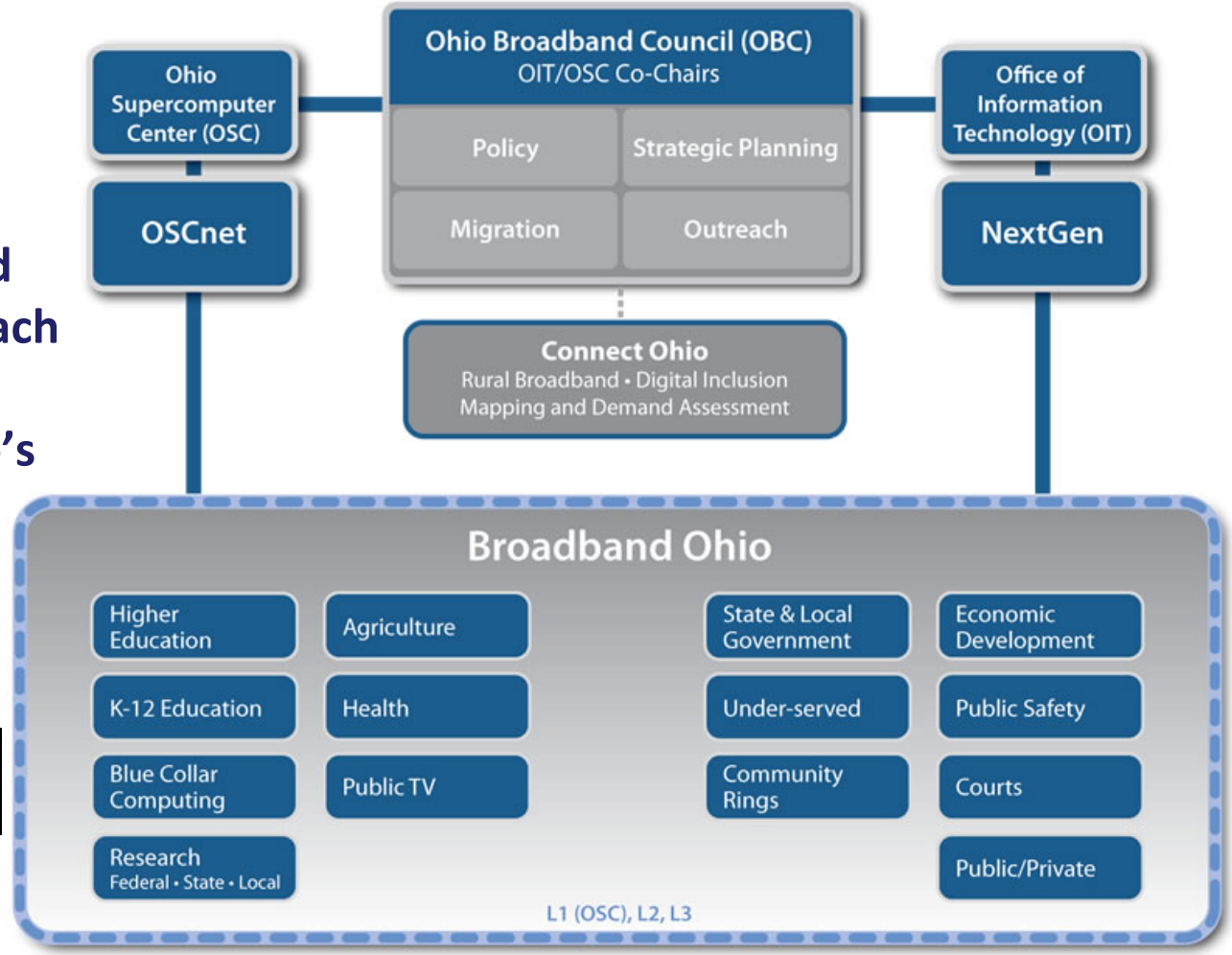
84,957 Road Centerline Miles Collected

2,619,367 Site Address Points Collected



BROADBAND OHIO INITIATIVE

The Broadband Ohio initiative leverages the state's significant, prior investments in broadband facilities to extend the reach of Ohio's broadband network and further Ohio's leadership in network innovation



Ohio Broadband Council

BROADBAND OHIO INITIATIVE

CONNECT OHIO

Connect Ohio is public-private partnership between the State of Ohio and Connected Nation to improve broadband access and increase the use of related technology by promoting:

- **Affordable broadband availability for all of Ohio**
- **Improved use of computers and the Internet by all Ohioans**
- **An Internet presence in all Ohio communities,**
- **Services and development through e-government,**
- **Virtual education and e-health solutions**
- **A policy and regulatory framework for continued investment**

Ohio Broadband Council

BROADBAND OHIO INITIATIVE

CONNECT OHIO

STATE BROADBAND DATA AND DEVELOPMENT PROGRAM

Address File Development

The State of Ohio maintains existing partnerships between state and local governments to build accurate field verified address databases through the Location Based Response System (LBRS). This project will support direct funding to rural counties that lack the technical and/or financial resources required for LBRS participation.

Ohio Broadband Council

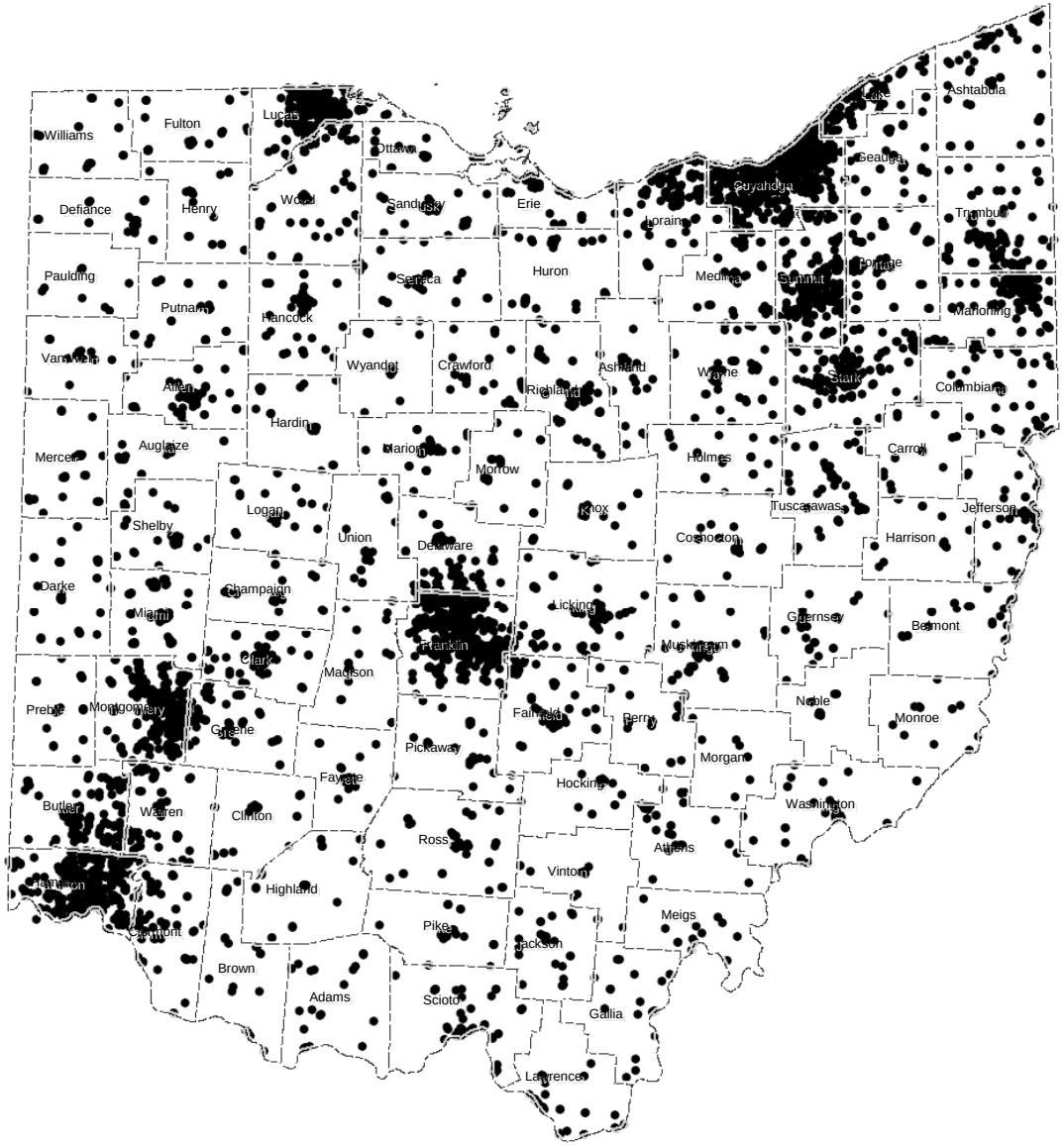
OGRIP

OHIO SPATIAL DATA INFRASTRUCTURE

Supporting Broadband Initiatives for Economic Development, Education, Health Service Delivery and Efficient Government

Community Anchor Institutions
Nationally Available Data Sources

- National Center for Education Statistics
- HospitalConnectSearch™
- FEMA U.S. Fire Administration (USFA)



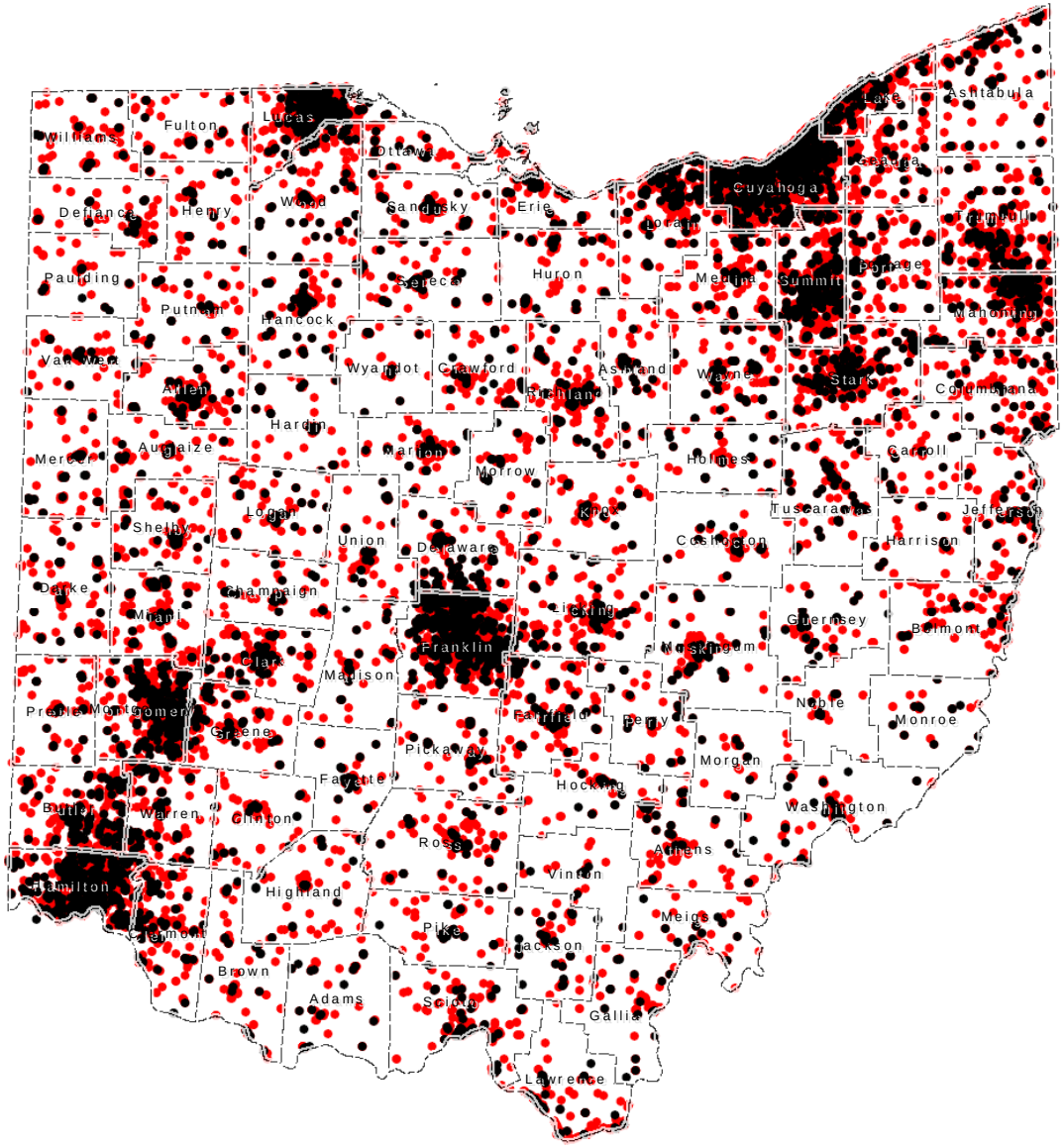
OHIO SPATIAL DATA INFRASTRUCTURE

Supporting Broadband Initiatives for Economic Development, Education, Health Service Delivery and Efficient Government

Community Anchor Institutions

State Data Sources

- Ohio Department of Education
- Ohio Department of Commerce
- Ohio State Fire Marshal
- Ohio Public Library Network
- Ohio Job and Family Services
- Ohio Department of Health
- Ohio Public Safety



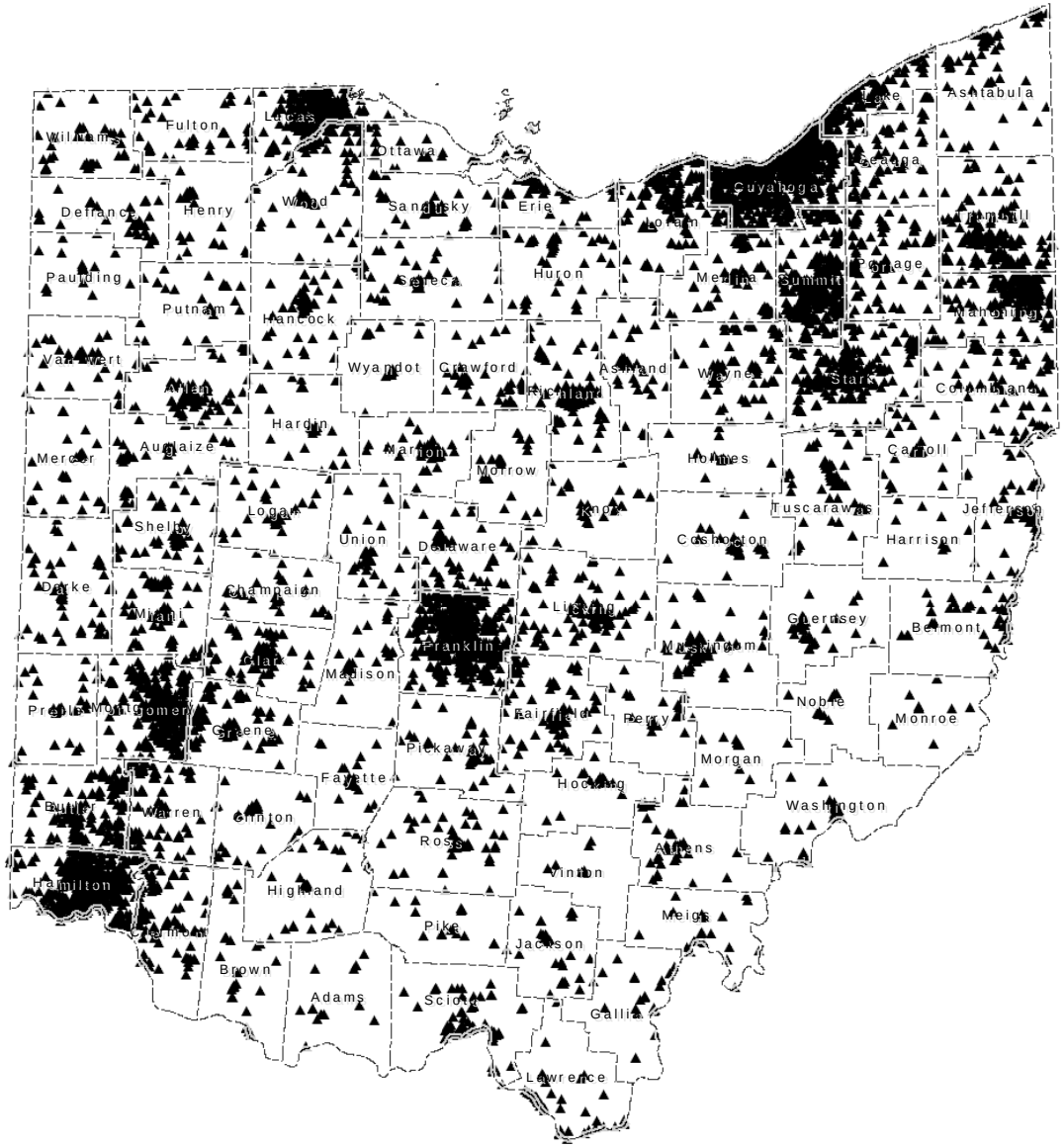
OHIO SPATIAL DATA INFRASTRUCTURE

Supporting Broadband Initiatives for Economic Development, Education, Health Service Delivery and Efficient Government

Community Anchor Institutions

State Data Sources

- **K-12 Public/Private/Parochial School Facilities/ Headstart/ Daycare**
- Libraries
- College/University/Post-secondary
- Public Safety/Fire/EMS/Law Enforcemen
- Hospital/Health/Senior Care
- Government Service Providers
- Non-government Service Providers

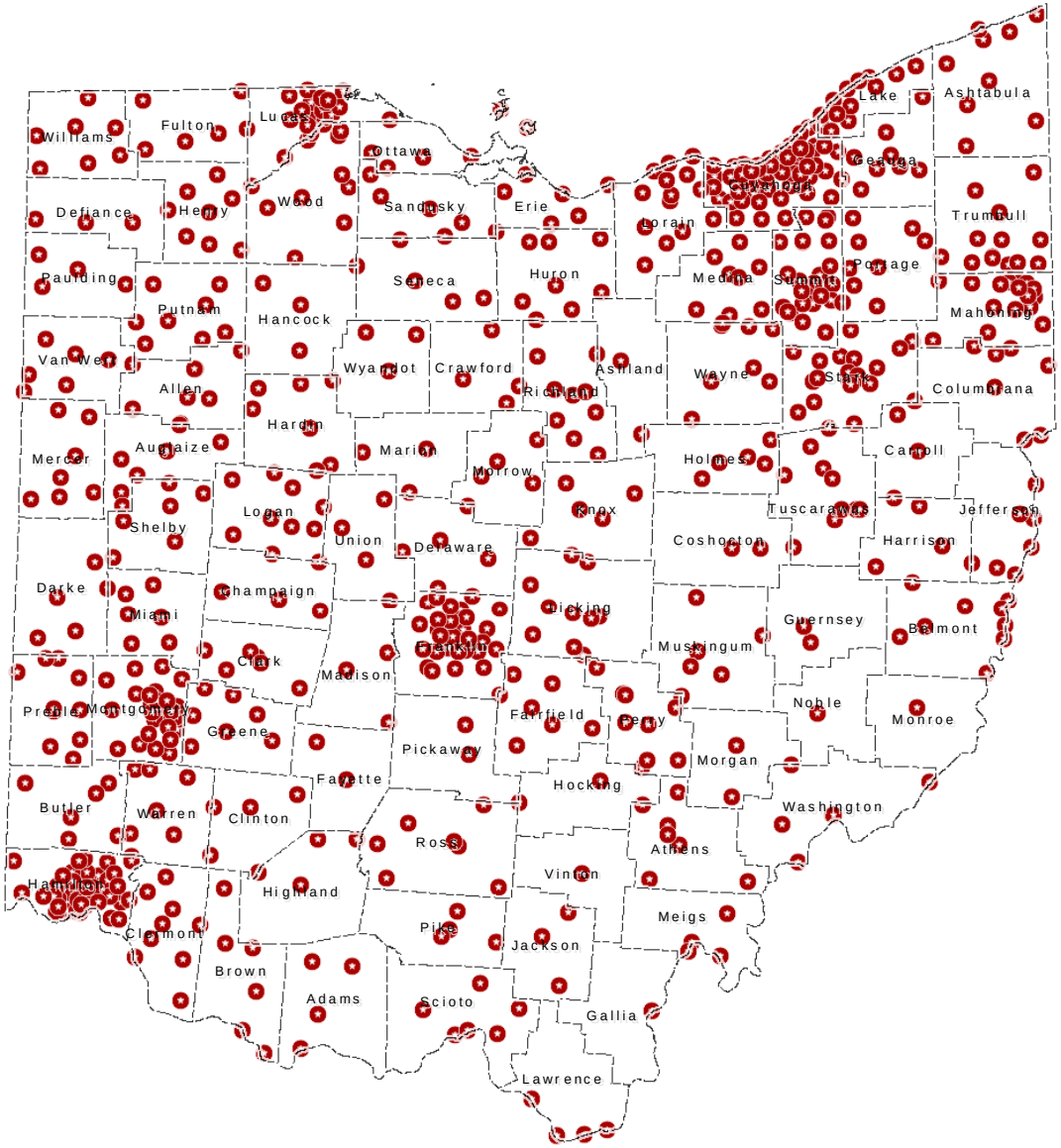


OHIO SPATIAL DATA INFRASTRUCTURE

Supporting Broadband Initiatives for Economic Development, Education, Health Service Delivery and Efficient Government

Community Anchor Institutions
State Data Sources

- K-12 Public/Private School Facilities
- **Libraries**
- College/University/Post-secondary
- Public Safety/Fire/EMS/Law Enforcemen
- Hospital/Health/Senior Care
- Government Service Providers
- Non-government Service Providers



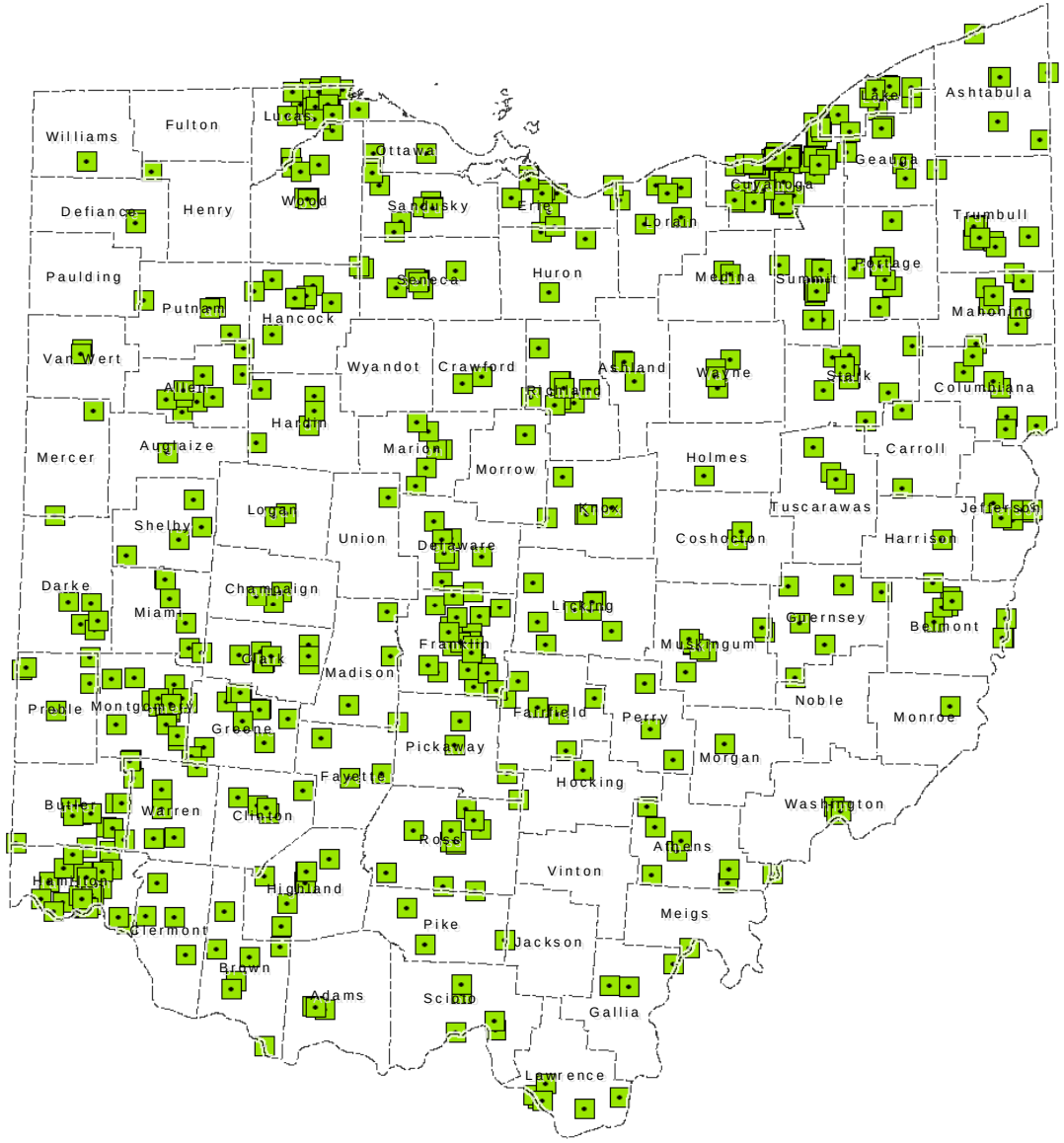
OHIO SPATIAL DATA INFRASTRUCTURE

Supporting Broadband Initiatives for Economic Development, Education, Health Service Delivery and Efficient Government

Community Anchor Institutions

State Data Sources

- K-12 Public/Private School Facilities
- Libraries
- **College/University/Post-secondary Technical/Career Centers**
- Public Safety/Fire/EMS/Law Enforcemen
- Hospital/Health/Senior Care
- Government Service Providers
- Non-government Service Providers



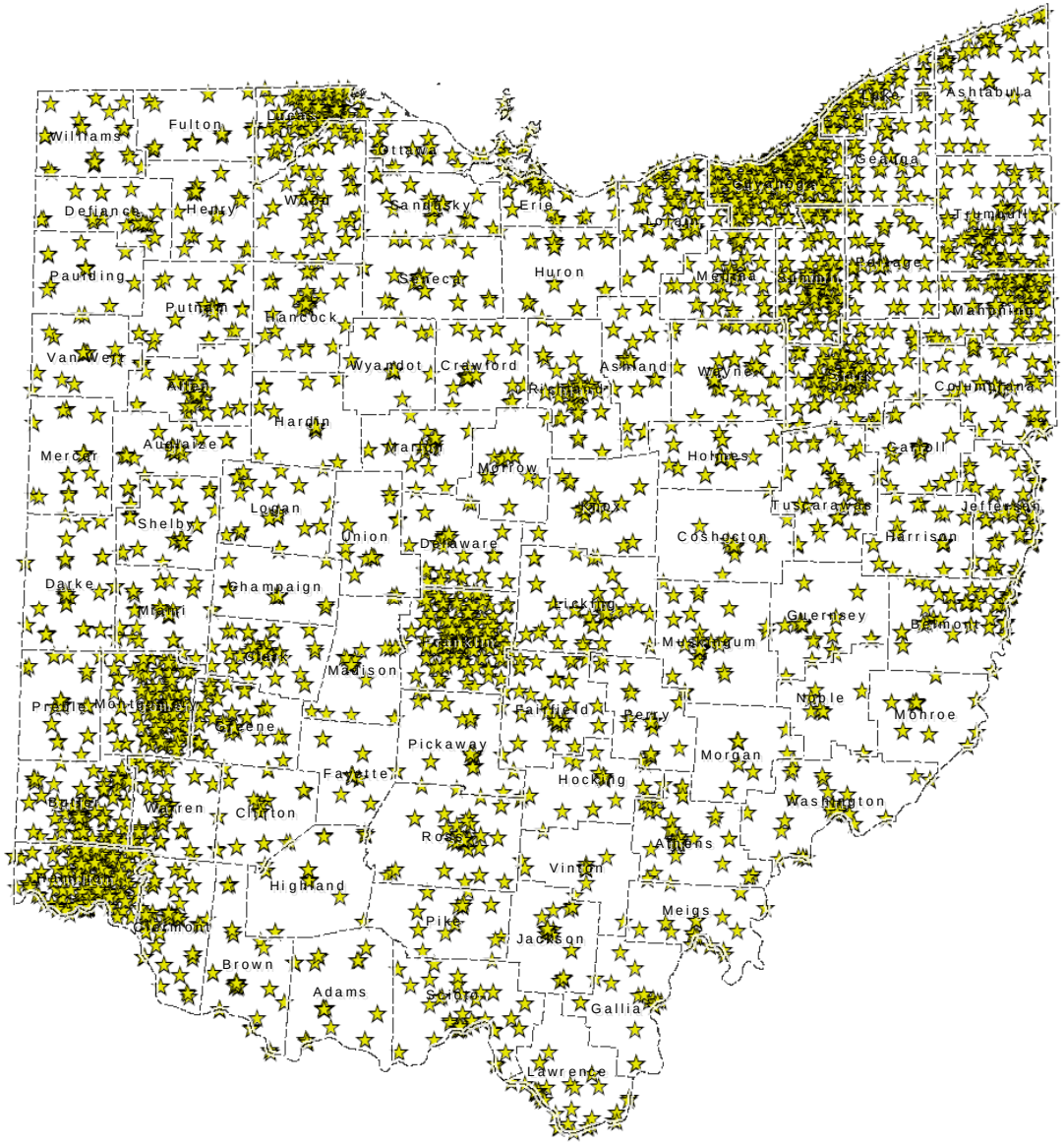
OHIO SPATIAL DATA INFRASTRUCTURE

Supporting Broadband Initiatives for Economic Development, Education, Health Service Delivery and Efficient Government

Community Anchor Institutions

State Data Sources

- K-12 Public/Private School Facilities
- Libraries
- College/University/Post-secondary
- **Public Safety/Fire/EMS/Red Cross/ Law Enforcement/ EMA/EOC/ PSAP/Courts/Jails**
- Hospital/Health/Senior Care
- Government Service Providers
- Non-government Service Providers

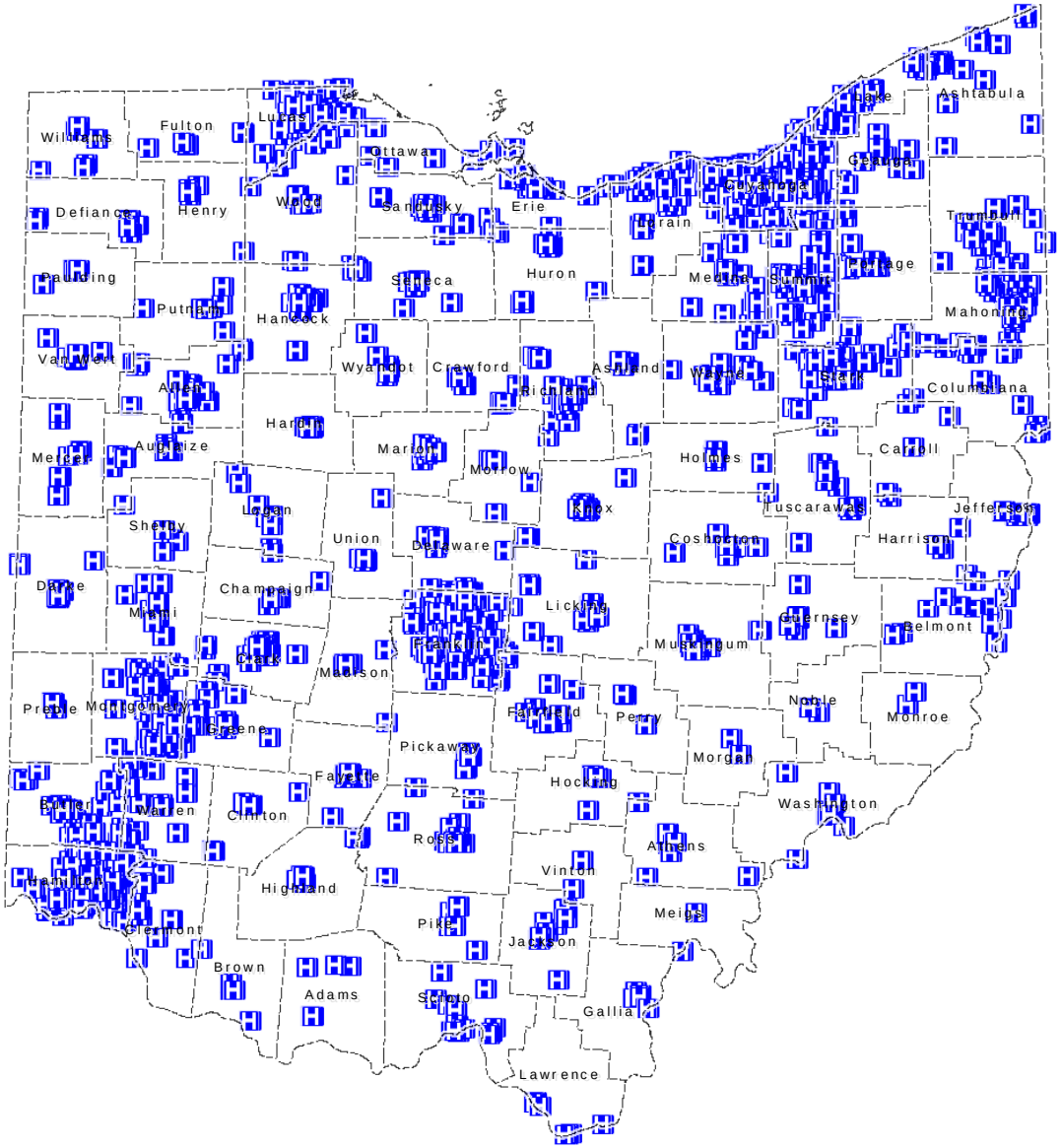


OHIO SPATIAL DATA INFRASTRUCTURE

Supporting Broadband Initiatives for Economic Development, Education, Health Service Delivery and Efficient Government

Community Anchor Institutions
State Data Sources

- K-12 Public/Private School Facilities
- Libraries
- College/University/Post-secondary
- Public Safety/Fire/EMS/Law Enforcemen
- **Hospital/Nursing/Health Departments Adult Daycare/Urgent Care**
- Government Service Providers
- Non-government Service Providers



OGRIP

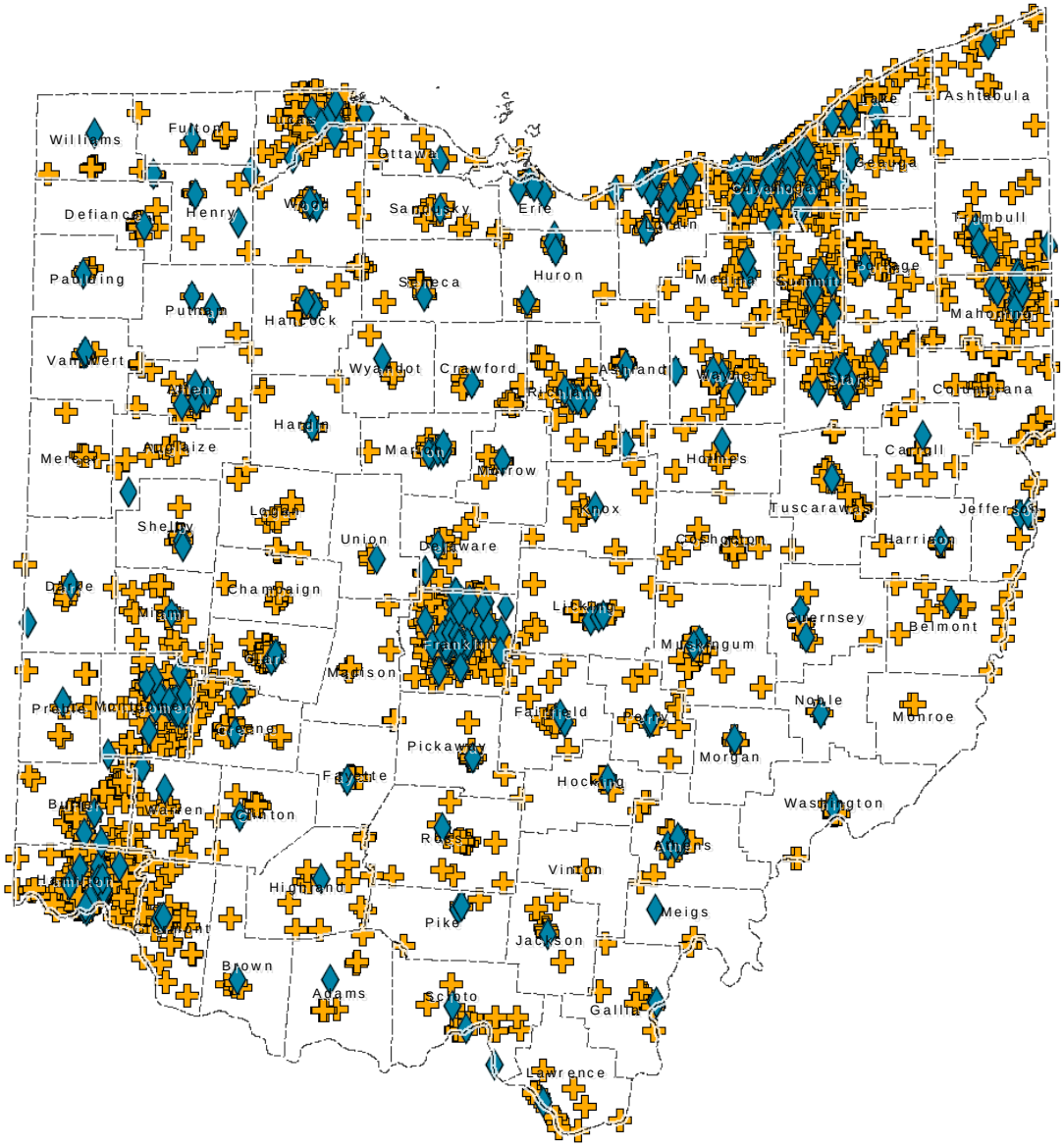
OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM

OHIO SPATIAL DATA INFRASTRUCTURE

Supporting Broadband Initiatives for Economic Development, Education, Health Service Delivery and Efficient Government

Community Anchor Institutions
State Data Sources

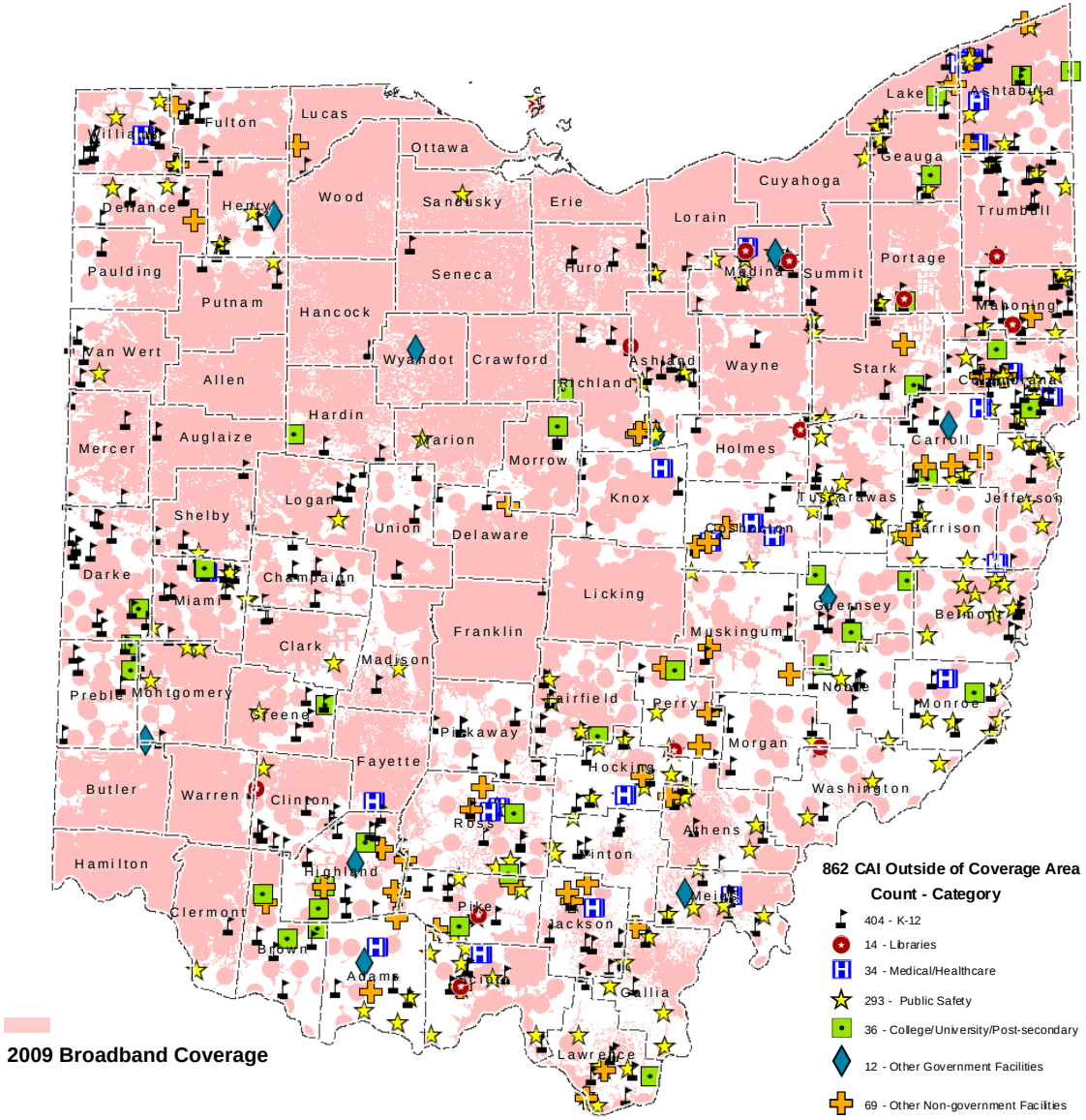
- K-12 Public/Private School Facilities
- Libraries
- College/University/Post-secondary
- Public Safety/Fire/EMS/Law Enforcemen
- Hospital/Health/Senior Care
- **Government Service Providers**
- **Non-government Service Providers**



OHIO SPATIAL DATA INFRASTRUCTURE

Supporting Broadband Initiatives for Economic Development, Education, Health Service Delivery and Efficient Government

Ohio Broadband Coverage



State of Ohio House Bill 420

Real property management (R.C. 125.902) Real Property Inventory

The bill requires the OGRIP Council to develop and update a real property inventory, and

That each state agency provide OGRIP with information on the property it owns and submit updated information to the Council as it becomes available, and

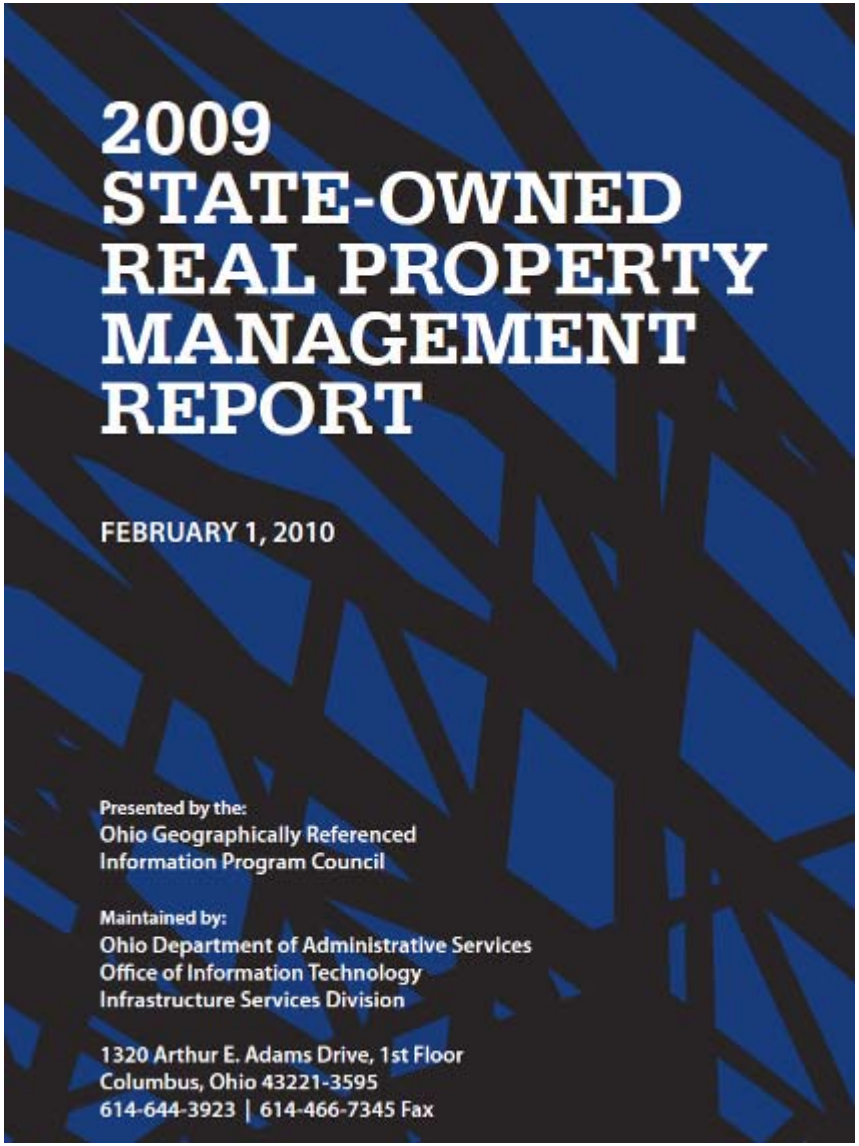
Provide a copy of the inventory to the Treasurer of State for publication via an online database

OGRIP SORP Management Report

Outlines strategies for creating a Real Property Management Plan for the State of Ohio

The purpose of the Real Property Management Plan is to:

- **Promote transparency in government**
- **Identify opportunities to leverage existing information**
- **Establish state agency reporting guidelines**
- **Create data sharing agreements to support the development of a comprehensive Real Property Inventory.**



2009
STATE-OWNED
REAL PROPERTY
MANAGEMENT
REPORT

FEBRUARY 1, 2010

Presented by the:
Ohio Geographically Referenced
Information Program Council

Maintained by:
Ohio Department of Administrative Services
Office of Information Technology
Infrastructure Services Division

1320 Arthur E. Adams Drive, 1st Floor
Columbus, Ohio 43221-3595
614-644-3923 | 614-466-7345 Fax

2009 Parcel Collection

5,046,382 Parcels

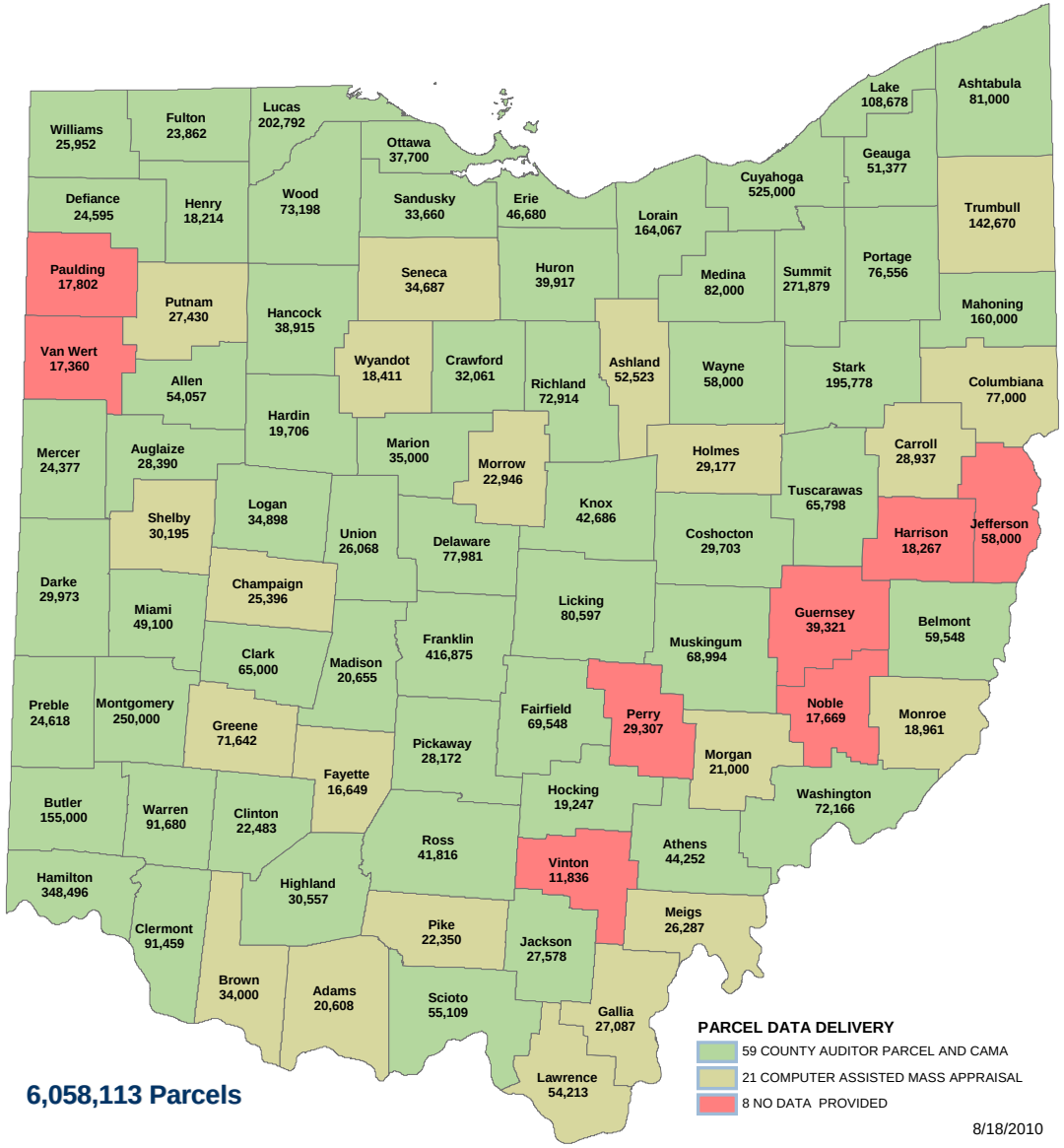
Delivered in GIS format with associated CAMA data

802,169 CAMA records

Delivered in digital format

209,562 Parcel records

Not received



Significance of Parcels: Supporting Government Business Processes

Economic Development
- Site selection & impact analysis

Emergency Services and Public Safety
- 911 / Dispatching
- Floodplain Management

Community Health
- Disease surveillance
- Food borne outbreaks
- Trends & patterns

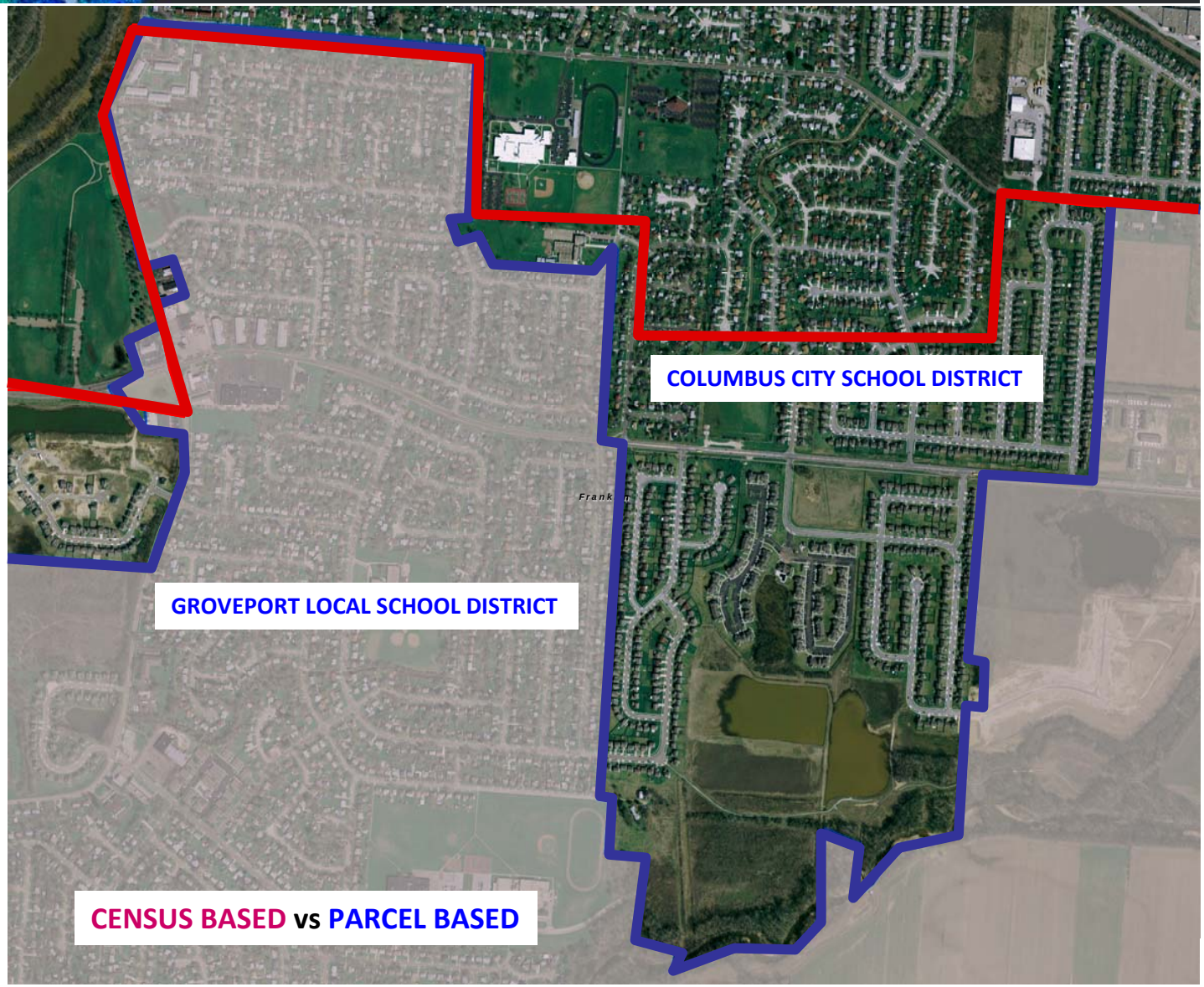
Transportation Planning
- Local and regional impacts

Revenue collection & distribution
- Income tax administration & compliance
- Sales tax determination

Assessment and Appraisal

LOCAL DATA SUPPORTS CULTURAL BOUNDARY DEVELOPMENT

SCHOOL DISTRICT BOUNDARY COMPARISON



Coordinated Effort – Cadastral Program

To establish a seamless statewide parcel repository maintained and supported by local government.

Include common data elements:

- -County FIPS Code
- -Parcel Identifier (Unique ID per County)
- - Owner Name
- - School District Name / Tax District Code
- - Jurisdiction name
- - Site Address
- -Deeded Acreage/ Lot Number/ Legal Description
- - Land Classification Code
- - Latest Date of Transfer
- - Valuation – Assessed / Appraised (Land & improvements)
- - Current Agricultural Use Value Determination
- - Building Size (Square Footage)

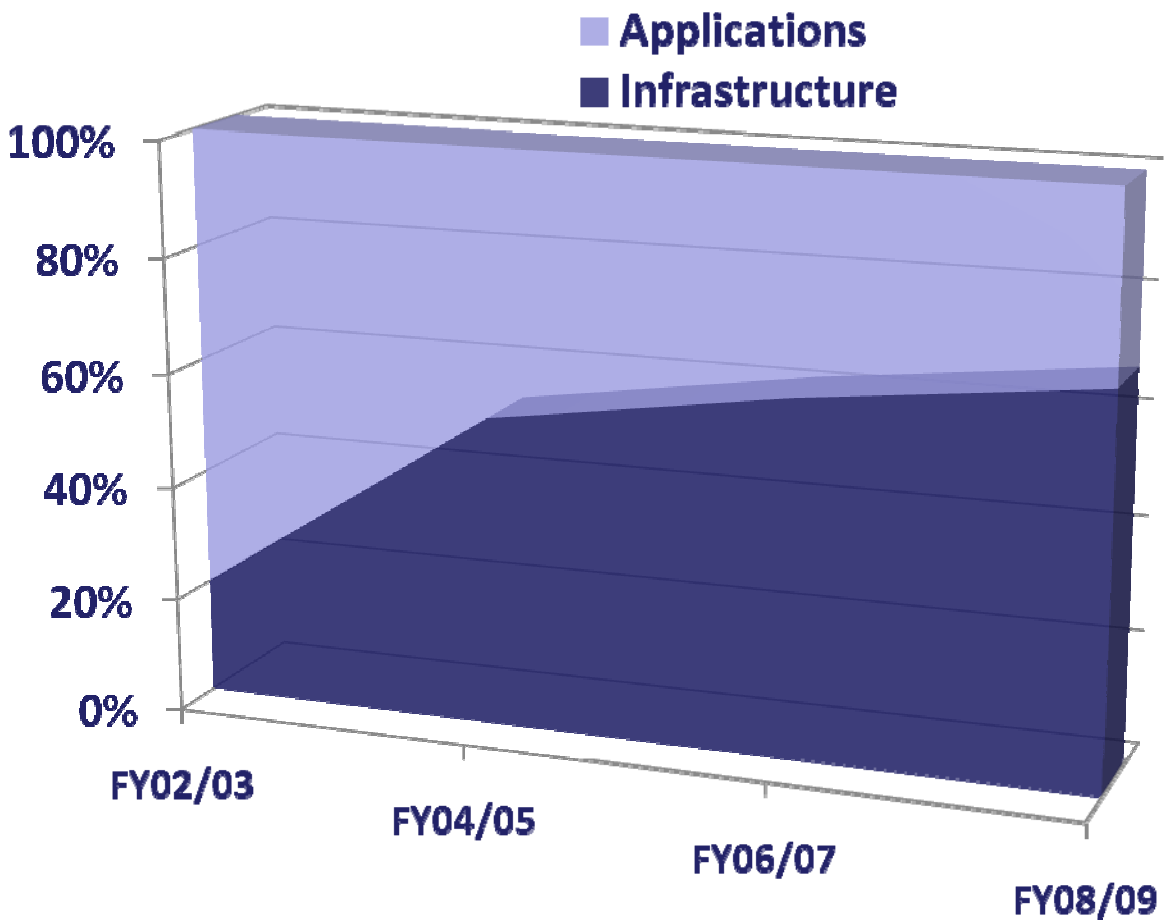
Landscape of State Government

110 autonomous agencies, boards and commissions

60,000 employees

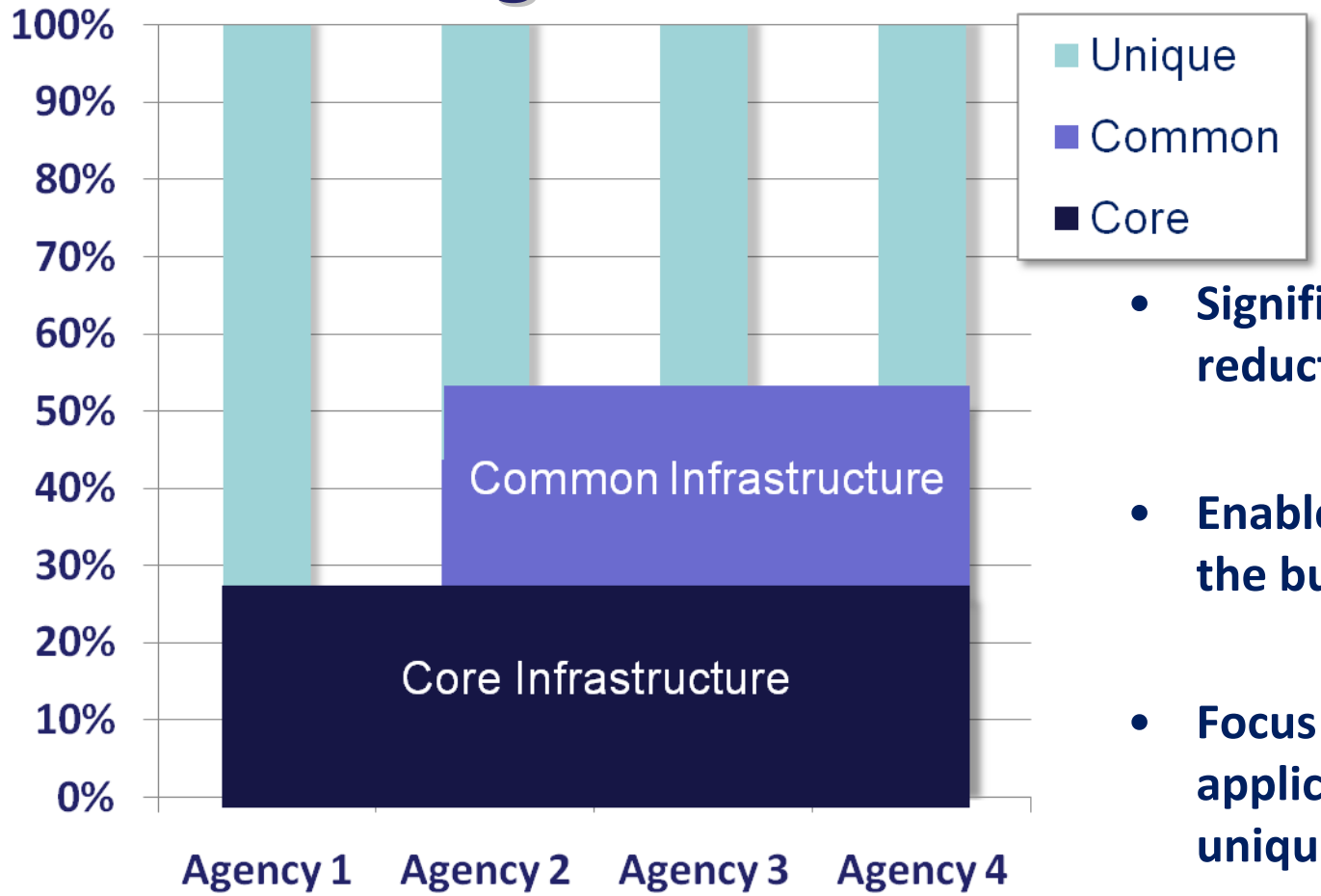
Distinct solution stacks for each agency translate into incredible diversity and complexity for the state

Goal moving forward not dissimilar - invest in what matters



Re-thinking the business model

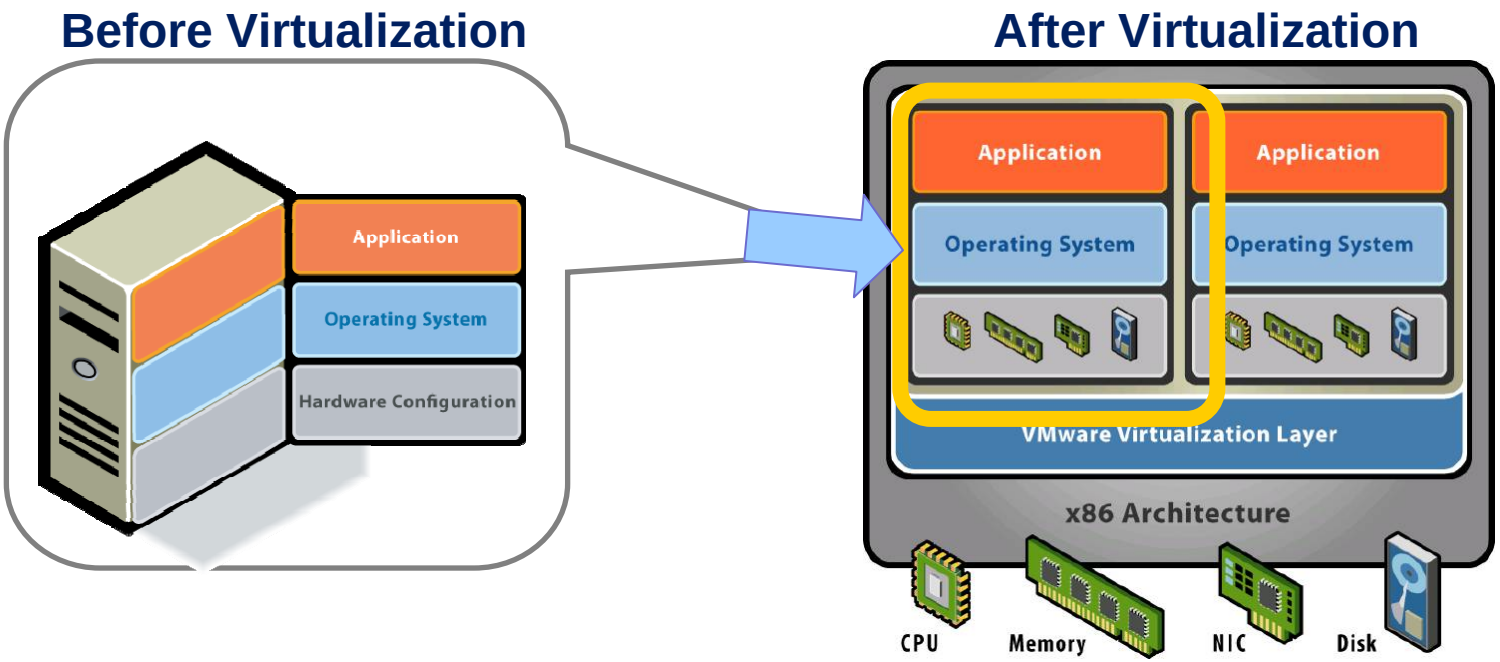
Investing in what matters



- **Significant budget reductions (some over 50%)**
- **Enable and create value for the business –**
- **Focus agency resources on applications and services unique to each agency**

What is Server Virtualization?

Server virtualization packages hardware, OS, and applications into a portable virtual machine package



- Software tied to hardware
- Single OS image per machine
- One application workload per OS

- Multiple workloads per machine
- Software independent of hardware
- System, data, apps are files

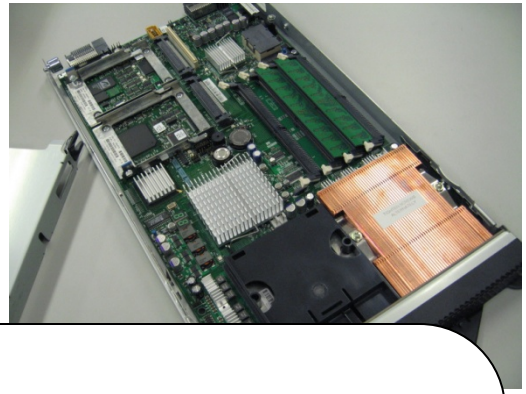
Server Engineering - before Virtualization

Typical Server Hardware Utilization
< 5 to 15%
5% or less is not uncommon

Multiple Apps

Multiple Servers

Server Engineering - after Virtualization



Significantly Changes the Total Cost of Ownership Model for Servers

- Consolidate multiple applications on 1 server

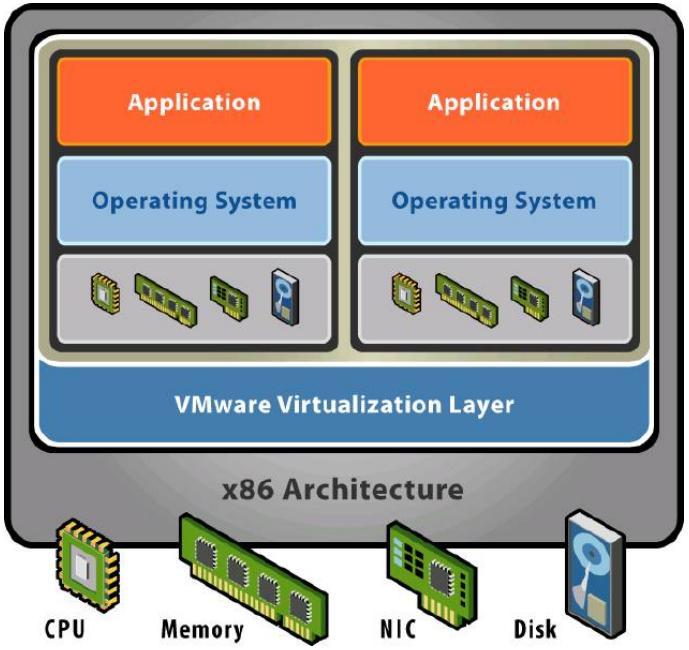
Typical Virtualized Hardware Utilization 50-75%
Some 'headroom' is required

- Add server hardware on annual or semi-annual basis
- Replace hardware every 3-5 years instead of monthly on different cycles

Virtualization - Game Changing Technology for Production

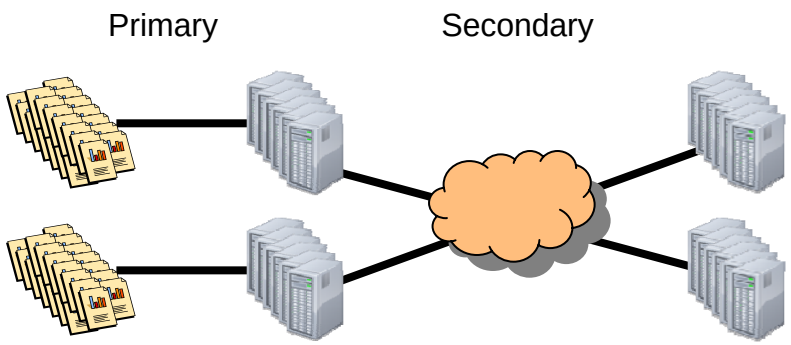
Reduce Server Hardware, Operating System and Applications to a Virtual Machine – a software file

- Portability enables:
  - Rapid creation of new servers in the pre-production environment
    - Spin up new servers on demand in minutes instead of weeks or months
  - Faster movement into production
    - Prototyping > Testing > Production enabled by allocation of system resources (processor, memory, storage, network) on the fly via software configuration

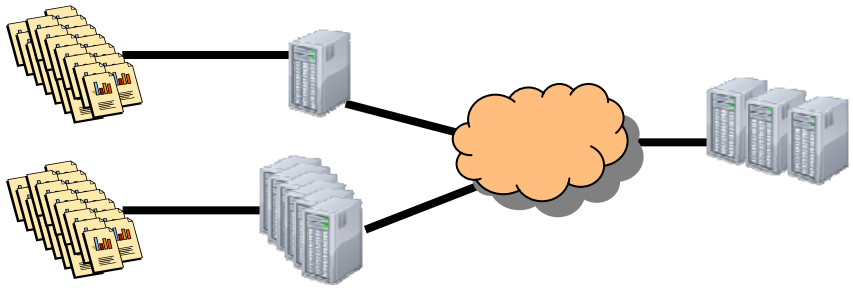


Game Changing Technology for Disaster Recovery & Business Continuity

- DR and BC can be leveraged with disparate hardware vendors
- Without server virtualization disaster recovery relies on back-up and restoration
  - Time consuming and prone to human error
- Mission-critical government applications need high availability systems with fault-tolerance
  - Application resiliency with instantaneous fail-over in the event of an outage



Before Virtualization

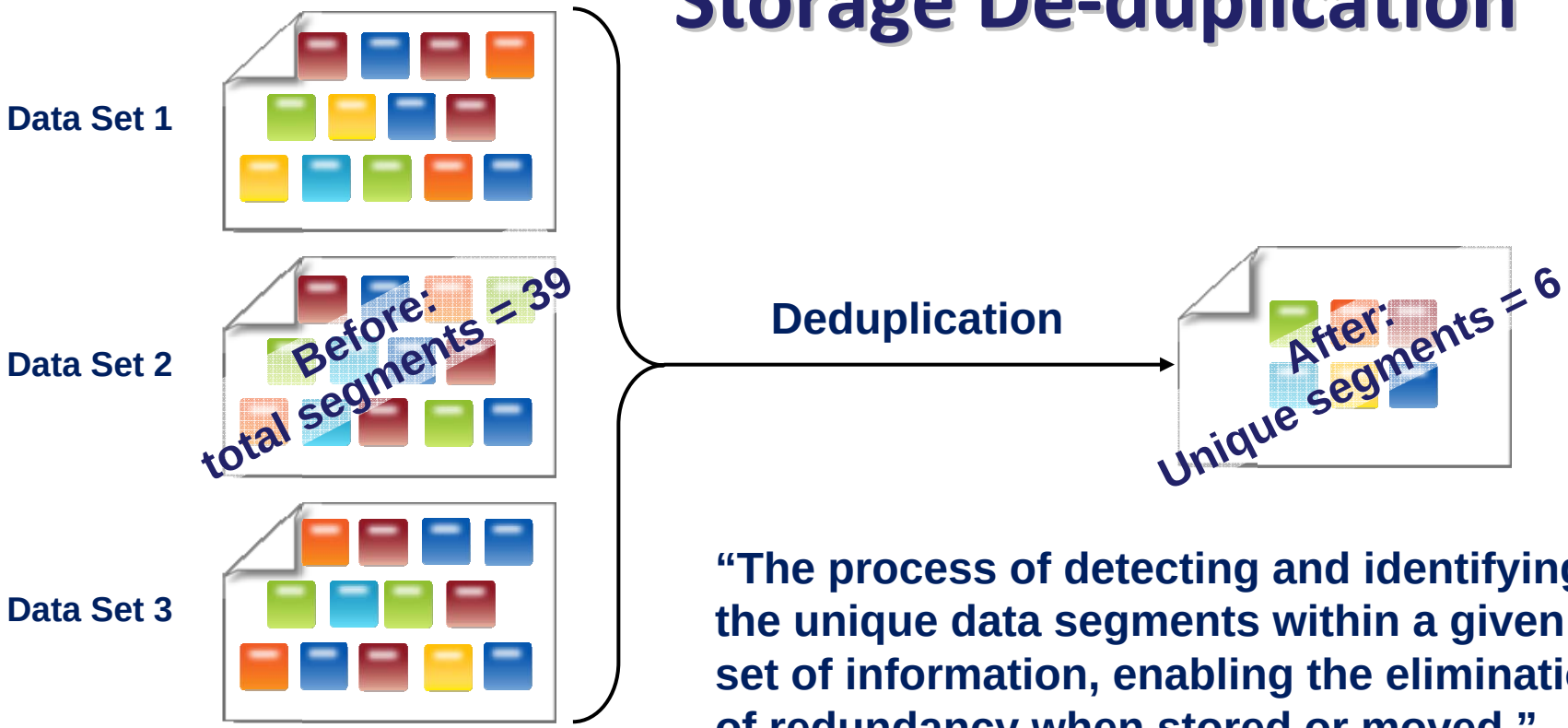


After Virtualization

Storage Cloud

Storage Virtualization

Storage De-duplication



"The process of detecting and identifying the unique data segments within a given set of information, enabling the elimination of redundancy when stored or moved."

Opportunity for Convergence of IT Infrastructure and Functions

- Network Connectivity
  - Accessible Broadband
  - Affordable Access
- Servers/Software
  - Licensing
  - Maintenance
  - Management
- Shared Applications
- Disaster Recovery
- Business Continuity
- Primary/Secondary Data Center Sites
- Virtualization
  - Servers
  - Applications
  - Storage

Right-sized focus – 70% on Business Value Applications and 30% on Infrastructure to support it!

State Server Virtualization Results

- Approximately 5,000 servers in state government
- 28% of servers being virtualized at an approximate cost savings to the state of $13.9M
- If 60% of remaining servers are virtualized conservative estimates suggest potential cost savings of an additional $21M in capital and operating costs
- Statewide VMWare Licensing Available – 70% off SRP
  - Bob.Radigan@oit.ohio.gov

A Future of Virtualization

- Virtual Ohio? Government Cloud?

- Regional data and application hubs with Shared Infrastructure
- Shared software and applications
- Consolidated procurement / increased bargaining power

NEXT GENERATION 911

- NG-911 systems will use GIS data to pre-validate caller location by address and LAT/LON, routing calls based on caller location, not telephone number, moving GIS to the front end of the process and eventually bypassing ALI and MSAG files altogether.
- Ohio County and municipal governments will need to develop or expand GIS capabilities and create or modify GIS data to support Next Generation-911 as GIS data becomes the core database used in NG-911.
- Data will need to be kept current with annexations, new development, and road closures.
- GIS professionals will need develop an understanding of the needs of 911 and Public Safety in order to support the presentation of a Common Operating Picture for First Responders

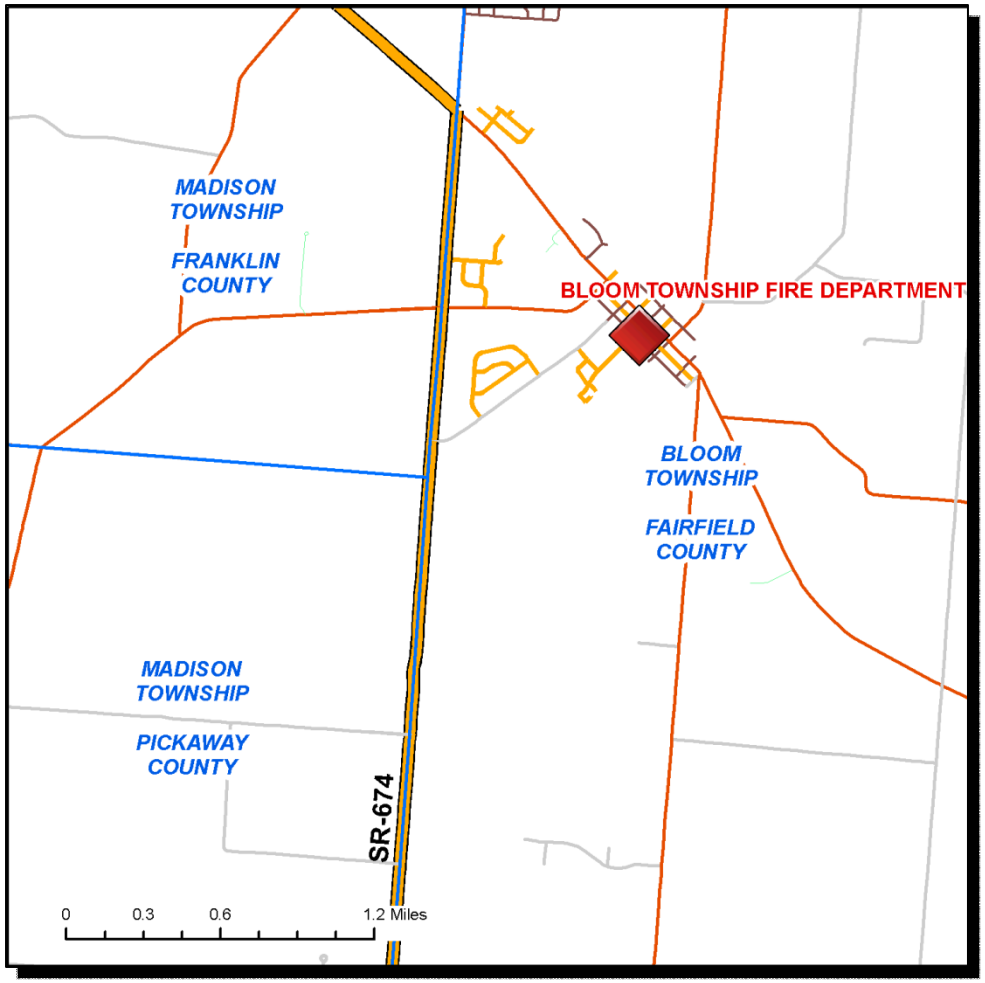
NEXT GENERATION 911

- Call is routed based on caller location, not telephone number
- Call routed to PSAP based on GIS validation of location
- GIS must be synchronized to ALI and MSAG
- Location Based Response Data must be current
  - Road Closures
  - New Development
  - Annexations
- GIS professionals must understand the needs of 911 and Public Safety
- GIS presents a Common Operating Picture for First Responders
- Virtualization of regional data and applications support NG-911 Data hubs
- Virtualization can support shared software and applications for LBRS Data maintenance and updates

A Case for Regionalization

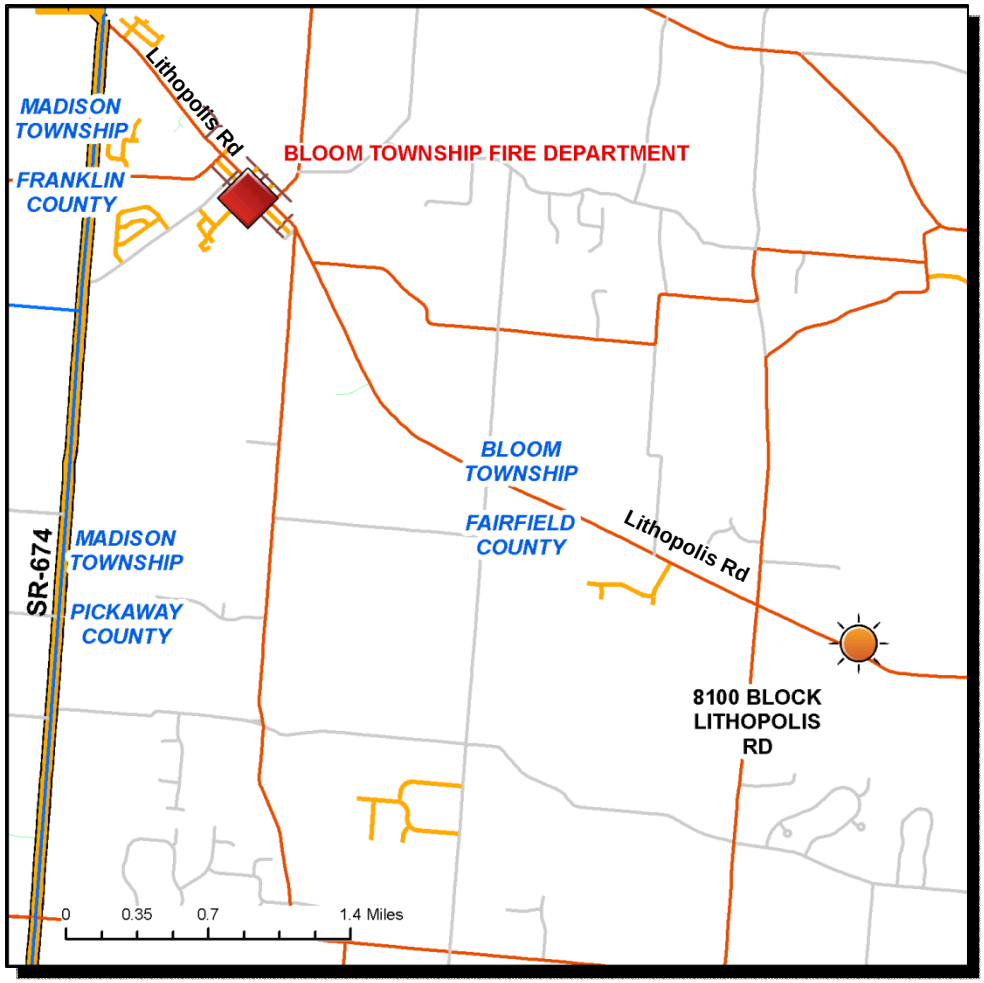
- The first 911 call was made from a cell phone routed to Fairfield County 911 based on the location of the cell tower receiving the call.

- The caller on SR-674 observed smoke from a fire in the distance, reporting his location as a street intersection, Bloom TWP fire was dispatched to the Tri-County area to investigate.



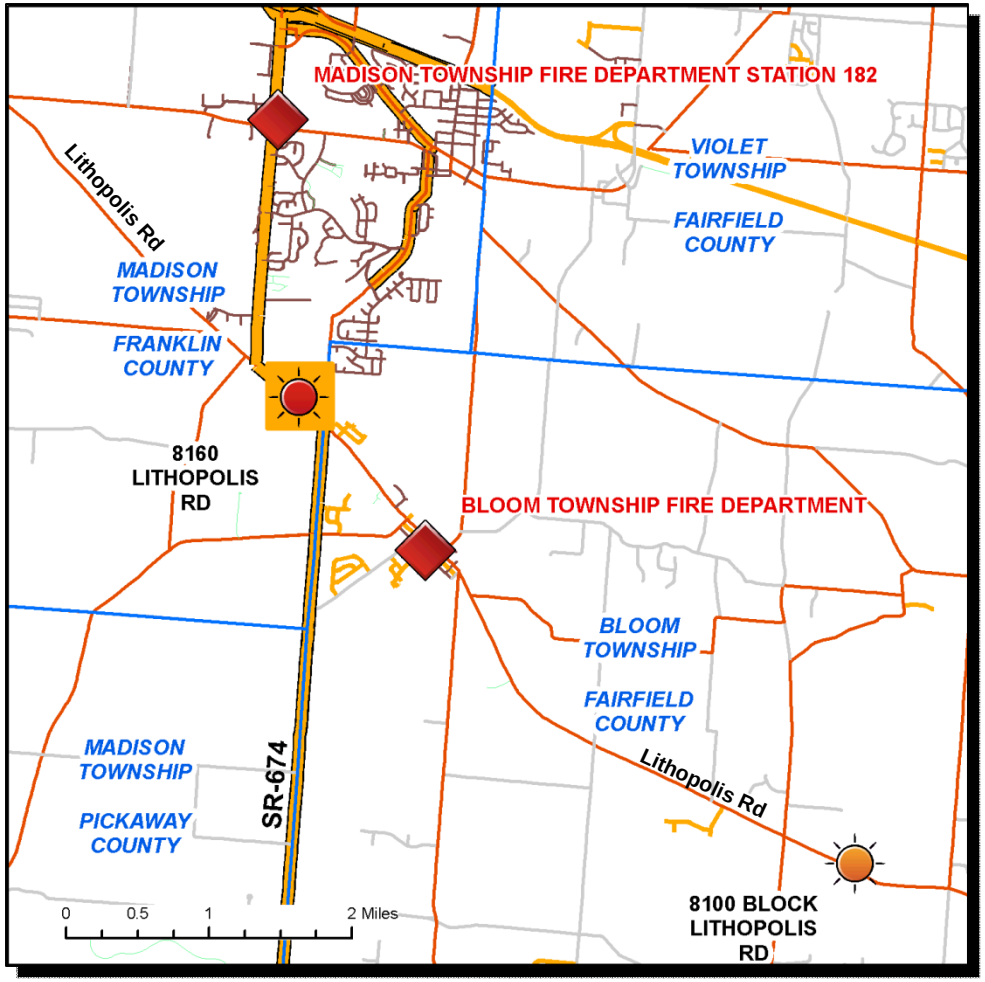
A Case for Regionalization

- A second 911 cell phone call was received by Fairfield County 911. The caller was on the scene and provided the correct street address as 8160 Lithopolis Road.
- The address does not exist, but the address number falls within a valid address range along Lithopolis Road in Fairfield County.
- Based on the information provided responders were directed to the new location.



A Case for Regionalization

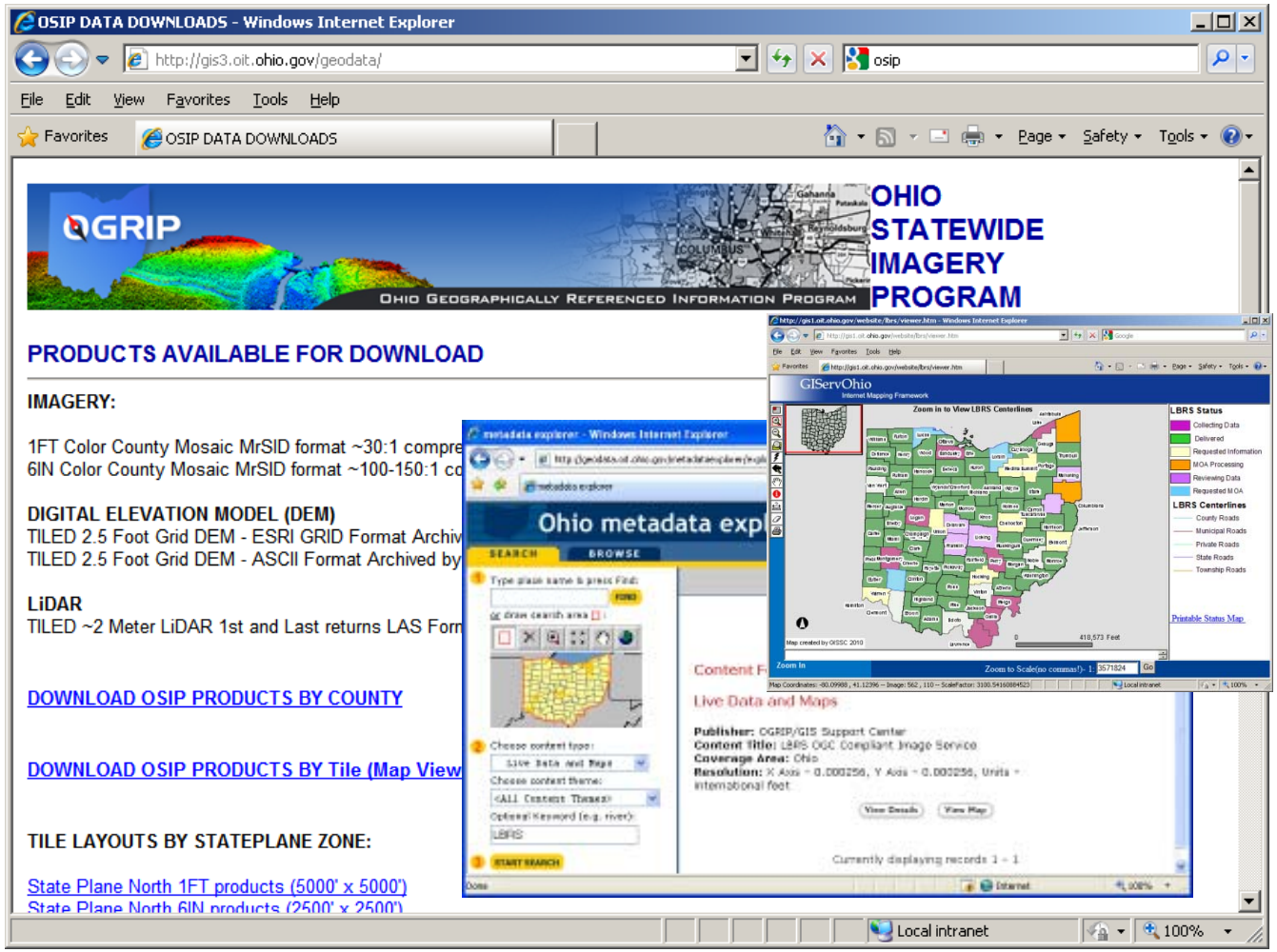
- Once responders realized no structure addressed as 8160 Lithopolis Road existed in Fairfield County they contacted Franklin County 911 and Madison Twp Fire was dispatched, arriving on the scene within four minutes.



GEOSPATIAL DATA DISTRIBUTION

Connectivity to ~ 12 TB of Ortho Imagery, Elevation and Vector Data thru Map Services or for Downloading

Metadata Discovery



http://ogrip.oit.ohio.gov

OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM

Stuart Davis, Deputy CIO
Chief Operating Officer
Infrastructure Service Delivery
Ohio Office of Information Technology
Department of Administrative Services

1320 Arthur E. Adams Drive
Columbus, Ohio 43221
614-466-4747
http://ogrip.oit.ohio.gov