GEOSPATIAL New Mexico

Overview of Activities

New Mexico Counties Conference, Clovis New Mexico

June 2019

doiT NEW MEXICO DEPARTMENT OF INFORMATION TECHNOLOGY

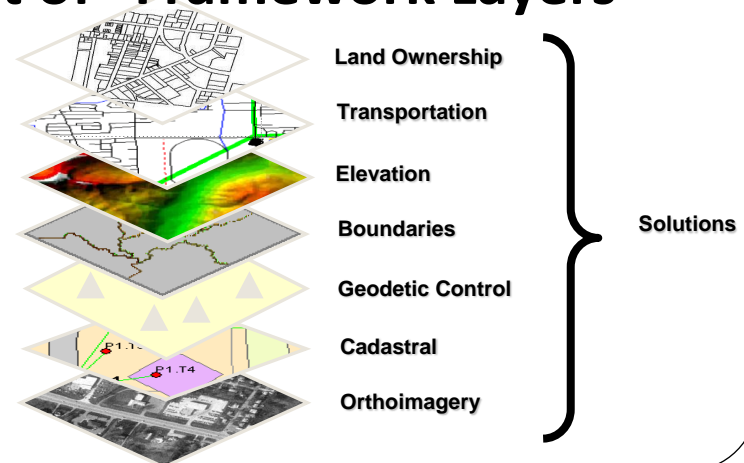**Office of Broadband and Geospatial Initiatives**

GAC

New Mexico Geospatial Advisory Committee

GeoPLAN: NM Strategic Plan

RECOMMENDATIONS:

- **GIO: Establish a Geographic Information Officer position**

- Services: **Designate** and fund NM GeoData Clearinghouse (EDAC)

- Budget: Provide an annual budget of $850K

- Re-**Engage: Involve highest levels of management.**

- ~~SDI: Create a Spatial Data Infrastructure Committee~~

- Update **Business Plans: Development of "Framework Layers"**

- Funding: Recurring support funding
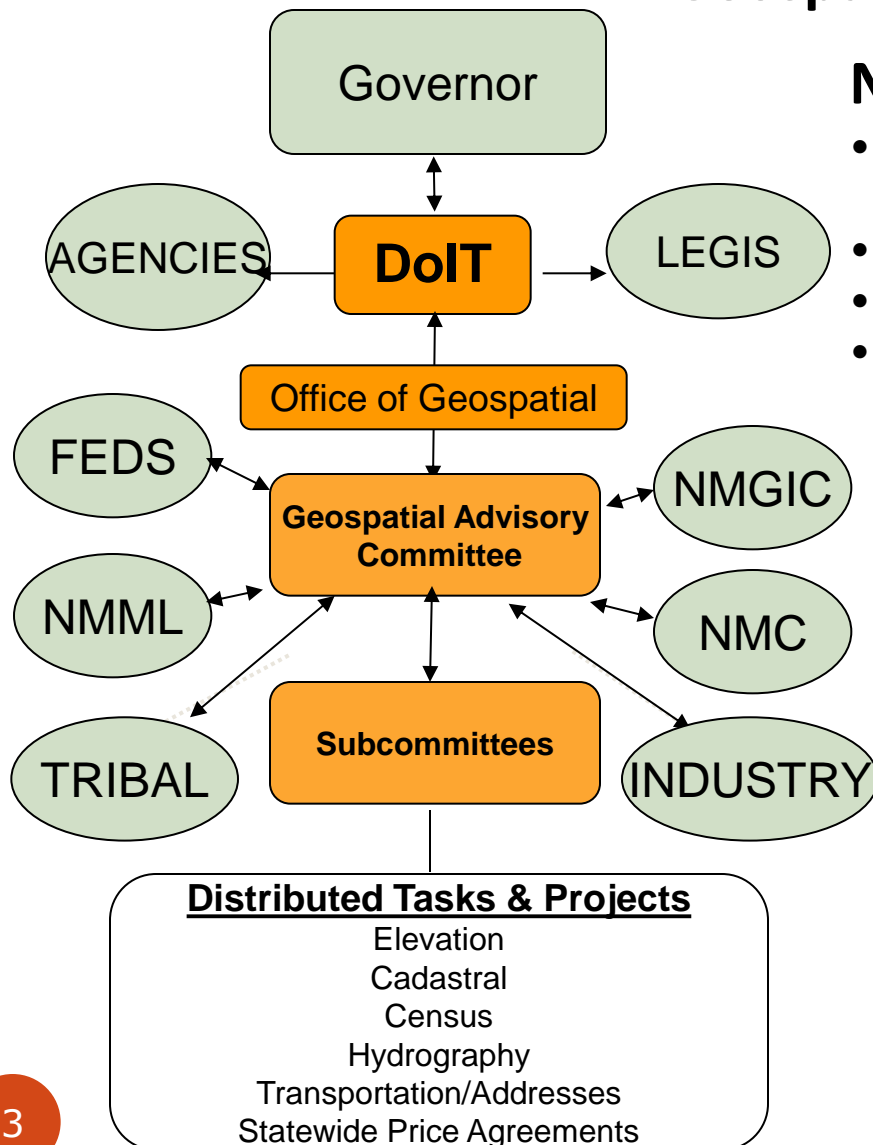

PLAN: http://www.gac.state.nm.us/docs/NMGeospatialStategicPlan.pdf

MEMORIAL: http://www.gac.state.nm.us/docs/HJM81-TaskForce-FindingsAndRecs.pdf

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GeoADMIN: Communication

Geospatial Information Technology (GIT)

New Mexico Leaders:
- DoIT: Dept of Information Technology
  - Office of Broadband and Geospatial Initiatives
- NMGIC: NM Geographic Information Council
- NMC: NM Counties
- NMML: NM Municipal League

Participants:
- Local Governances
- State Governances
- Federal Governances
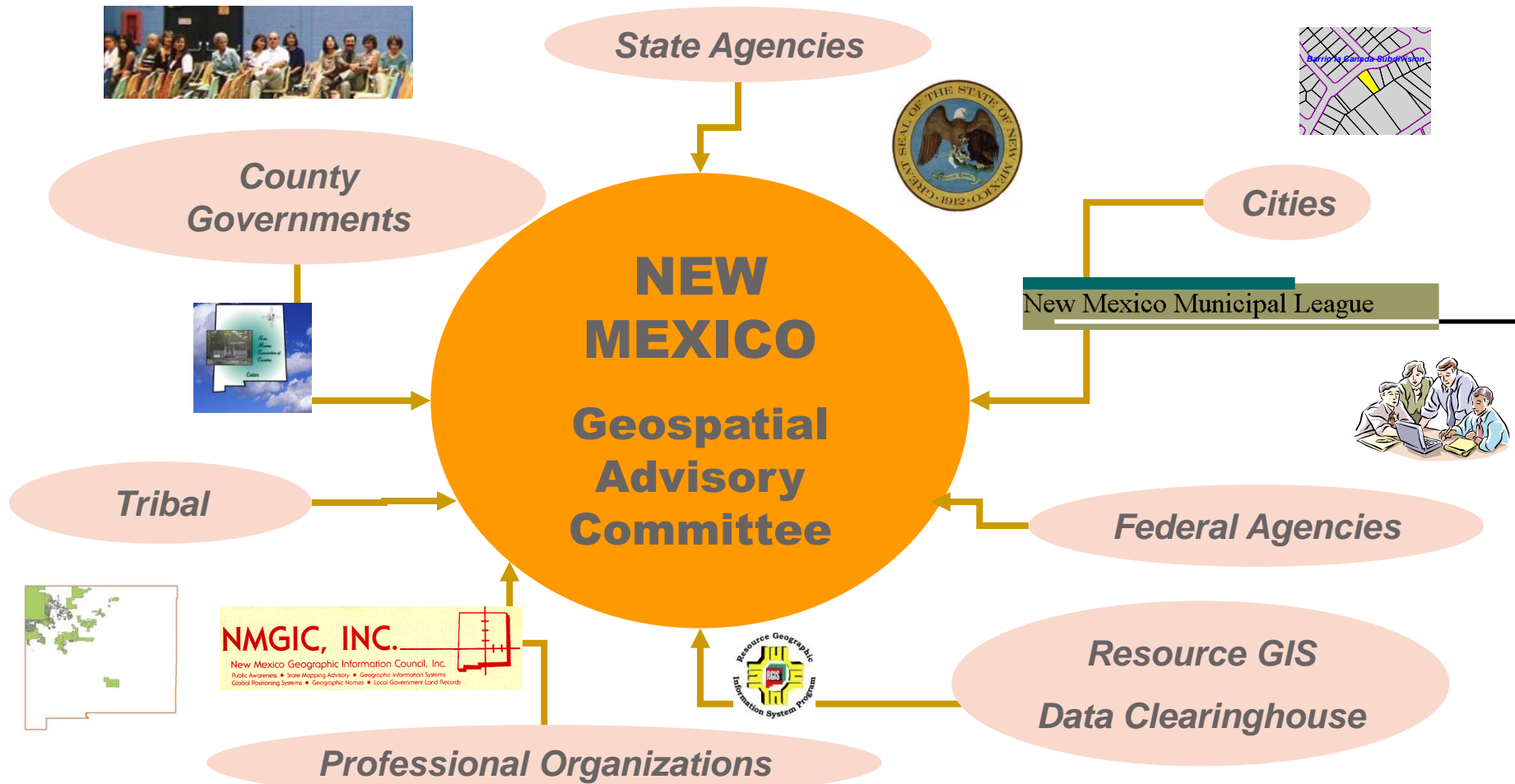- Tribal Nations
- Industry/Professional

The New Mexico Geospatial Advisory Committee (GAC) guides the use and development of Geospatial Technologies within New Mexico by advising the State Department of Information Technology (DoIT) Cabinet Secretary and CIO. The committee meets monthly and includes representatives from state, federal, local, tribal, and professional interests.

GAC: http://www.gac.state.nm.us/index.html

Diagram (left side):

- Governor
- AGENCIES
- DoIT
- LEGIS
- Office of Geospatial
- FEDS
- Geospatial Advisory Committee
- NMGIC
- NMML
- NMC
- TRIBAL
- Subcommittees
- INDUSTRY

Distributed Tasks & Projects
Elevation
Cadastral
Census
Hydrography
Transportation/Addresses
Statewide Price Agreements

3

GeoADMIN: Advisory Committee

New Mexico Geospatial Advisory Committee

State Agencies

County Governments

Cities

New Mexico Municipal League

NEW MEXICO
Geospatial Advisory Committee

Tribal

Federal Agencies

NMGIC, INC.
New Mexico Geographic Information Council, Inc.
Public Awareness • State Mapping Advisory • Geographic Information Systems
Global Positioning Systems • Geographic Names • Local Government Land Records

Resource GIS
Data Clearinghouse

Professional Organizations

GAC MEMBERSHIP: ttp://www.gac.state.nm.us/docs/gac_membership.pdf
GAC Map Gallery: Services - http://www.gac.state.nm.us/maps/mapservices.html
GAC Map Gallery: State Maps: http://www.gac.state.nm.us/maps/nm_maps.html
GAC Announcements: http://www.gac.state.nm.us/Announcements.html

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GeoADMIN – Elevation

New Mexico Elevation Data Planning and Acquisition Subcommittee

- Represents the State in Elevation Data Issues.
  - NM designated Top Priority State
  - Over 50% ($15M) of the state has been collected
    - Partners: Federal and Local Funding (No State Funds)
    - Future: Funding promises to complete state in 2020
  - NM Counties presented legislation (Map Fund)
    - Resides with the Office of the State Engineer
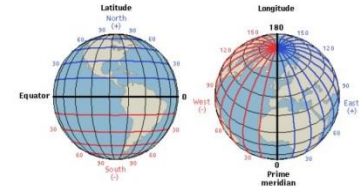 - NM911 Support – Search and rescue

Multiple Return Explanation
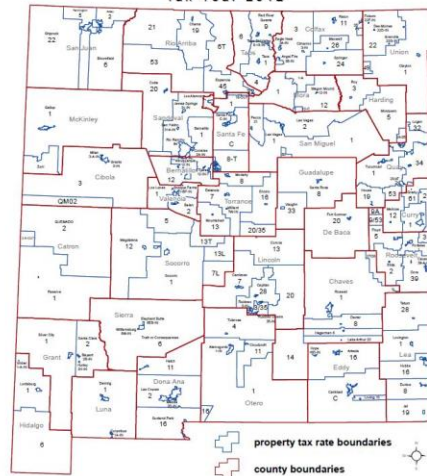

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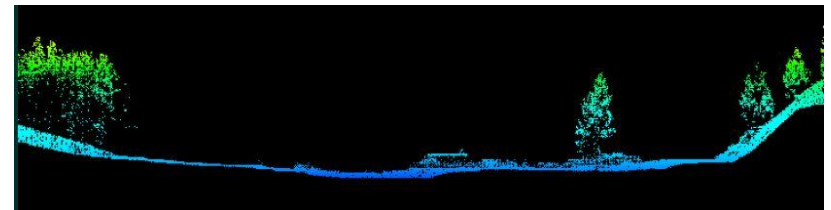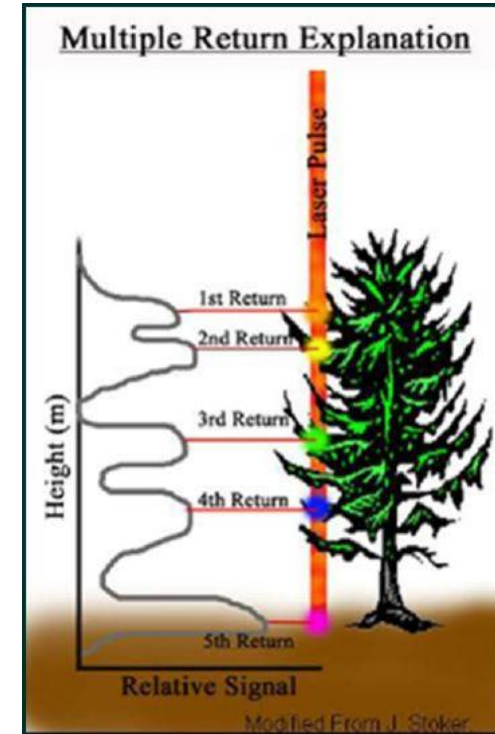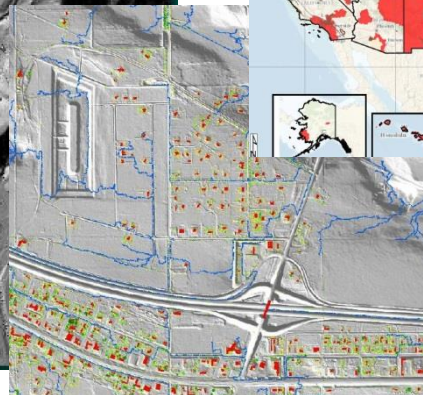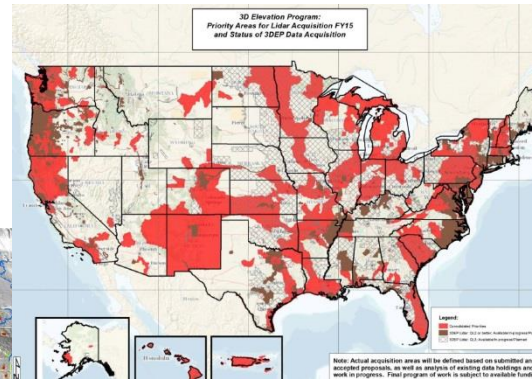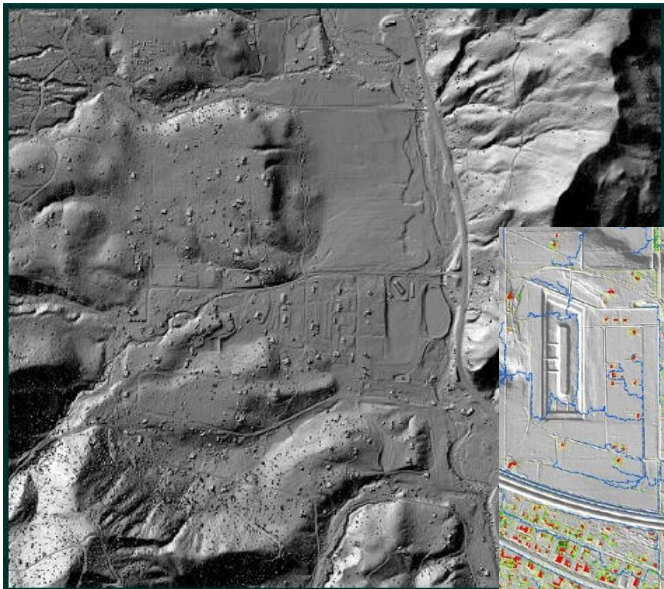
GeoADMIN – Cadastral

New Mexico Cadastral, Boundary, and Geodetic Control Subcommittee

- Represents the State Cadastre, Boundaries, and Geodetic Survey
    - NM Taxation and Revenue Department Steward to the U.S. Census Bureau
    - Coordinates local government boundary changes with Census
    - Assist Counties in Developing Assessment Mapping Projects
    - Provides Taxation Maps
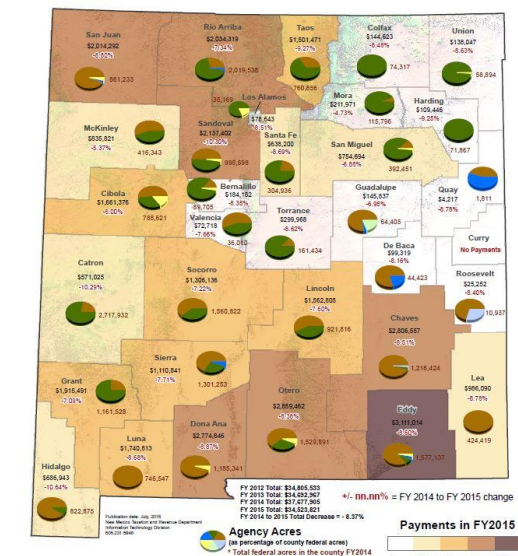   - NM911 Support – Annexation/municipal boundary changes

CADASTRAL: http://www.gac.state.nm.us/subcommittees/cadastral.html

GeoADMIN – Decennial Focus

Decennial Census Focus Group Subcommittee

• Support local, state, and federal coordination and facilitation towards 2020 Census

- Provide cohesive, unified, and focused engagement with Census Bureau
- Educate executives and legislatures on the value of a "complete count"
- Programs: Local Update of Census Addresses, Participant Statistical Areas Program, Complete Count Committees, Block Boundary Suggestion Program, Redistricting Data Program, etc.
- NM911 Support – Address points
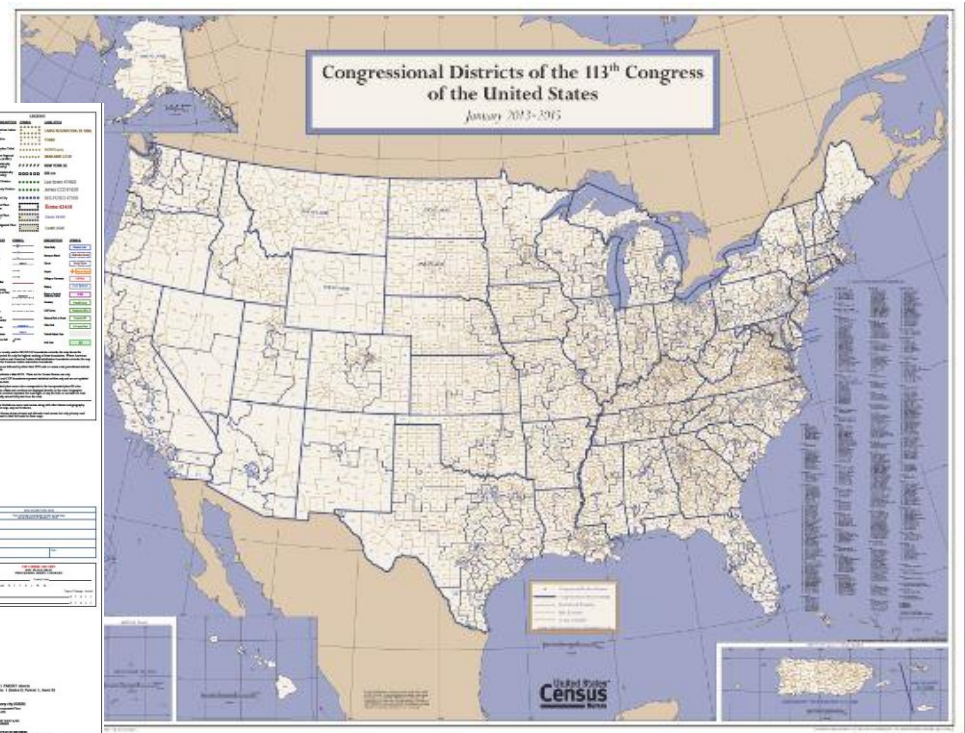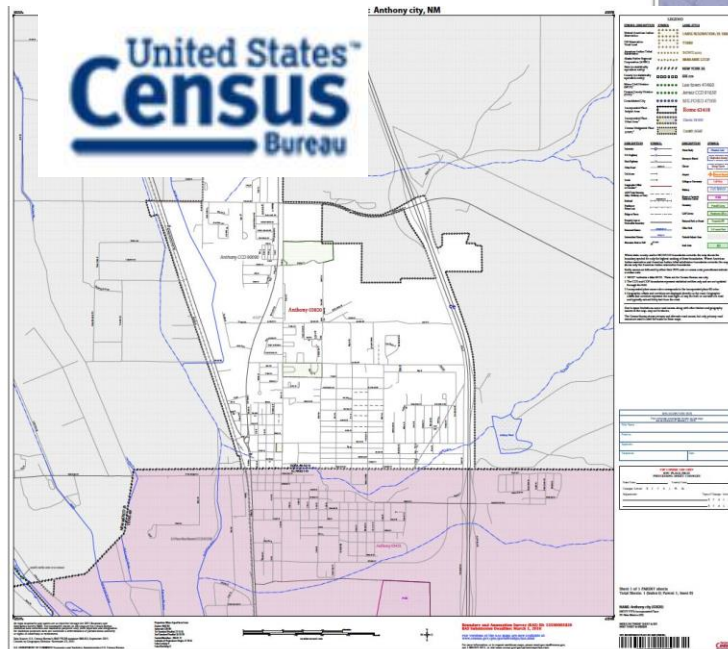
GeoADMIN – Hydrography

New Mexico National Hydrography Dataset (NHD) Subcommittee

- Represents the State in Hydrography Data Issues.
    - NM Environment Department: Data Steward for New Mexico with USGS
    - EDAC: Employs USGS Certified NHD Editors
    - Project: Conveyances/Acequia
    - NM911 Support – Water bodies, streams, gages (fire/flooding)

HYDROGRAPHY: http://www.gac.state.nm.us/subcommittees/hydrography.html
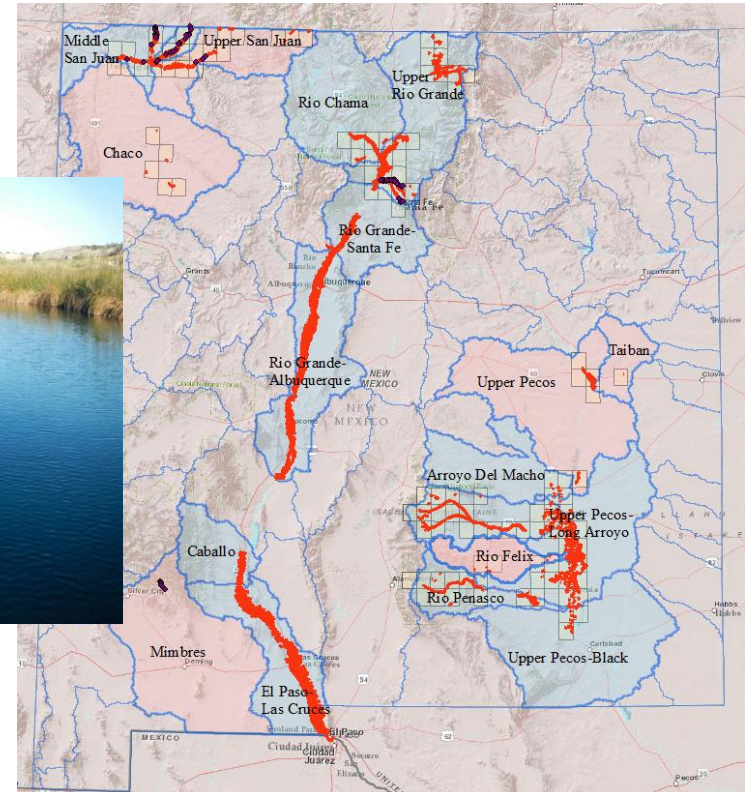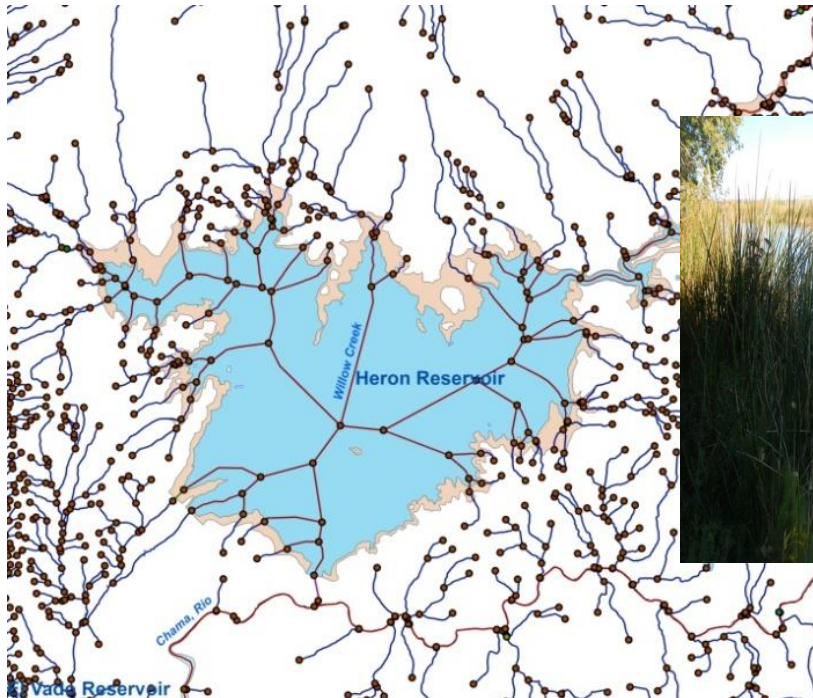
GeoADMIN – Transportation/Addresses

New Mexico Transportation/Address Subcommittee

- Represents the State in transportation and address data issues
    - Single comprehensive up to date statewide datasets
        - Routable Transportation Network and Master Address Dataset (MAD)
        - Integrated network to support DoIT/NM911, DPS/CAD, DOT/ARNOLD/TDM/LWL
    - Local Government engagement an important component
    - NM911 Support: Primary data requirement (roads/addresses)

TRANSPORTATION: http://www.gac.state.nm.us/subcommittees/transportation.html
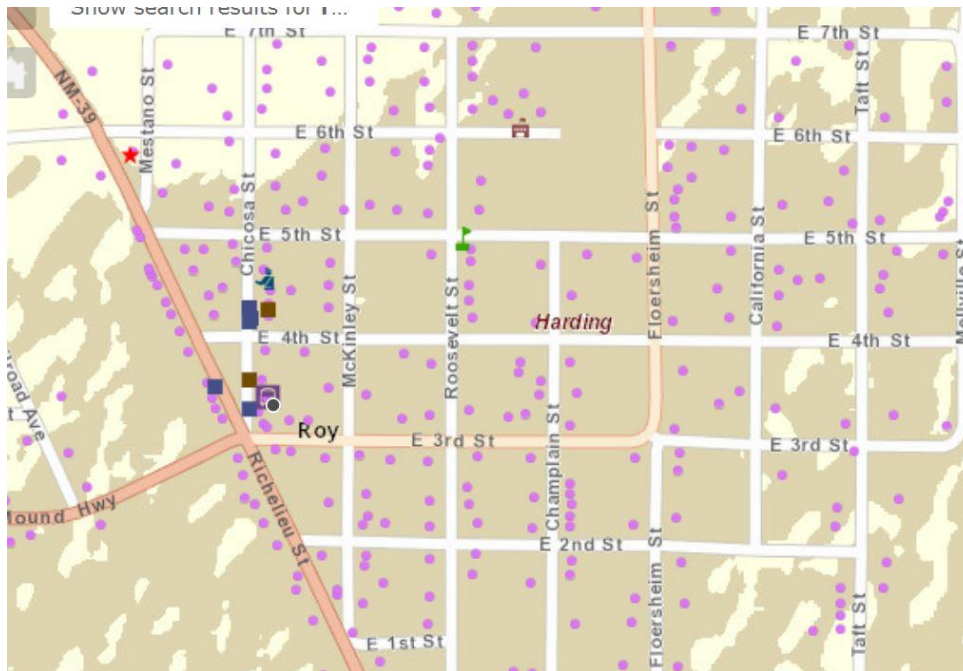
GeoADMIN – Agreements/Contracts

GeoType Service Agreements

Geospatial Technology Services
- Total Vendors: 29
- Site: http://www.generalservices.state.nm.us/statepurchasing/40-000-14-00106.aspx#Cat4

Geospatial Products and Support Services
- Total Vendors: 5 (Data Transfer Solutions, Esri, GeoComm, Intergraph, Trimble)
- Site: https://www.generalservices.state.nm.us/statepurchasing/Statewide_Price_Agreements.aspx
    - Scroll to IT/GIS

Geo911 Equipment and Services
- Total Vendors: 15
- Site: https://www.generalservices.state.nm.us/statepurchasing/Statewide_Price_Agreements.aspx
    - Scroll to IT/E911

GeoADMIN – NSGIC

National States Geographic Information Council

- **Represents the State in National Geospatial Initiatives (Five Memberships)**
    - **NM Members: Transportation, GeoPreparedness, Addresses, GeoClearinghouse, GIO**
    - **NM Tribal: Represent NSGIC as the National Tribal Liaison**
    - **Advocate for National Issues: Elevation, Imagery, Legislation, NG911, Public Safety**
    - **Collaborate: Engage local, state, federal, and industry interests**
    - **Conference: Snowbird Utah (23-27 September 2019)**

NSGIC
National States Geographic Information Council

Emergency Response and Next Generation 9-1-1

- First Responders are typically sent to specific addresses by their Public Safety Answering Points (PSAPs or 9-1-1 Call Centers).
- These addresses must include X & Y coordinates that allow emergency personnel to find the location the first time, and to be dispatched by the shortest routes.
- An accurate National Address Point Database will save lives.

GIO Spotlight and State Information

State Information Only (at this time)

NSGIC: https://www.nsgic.org/
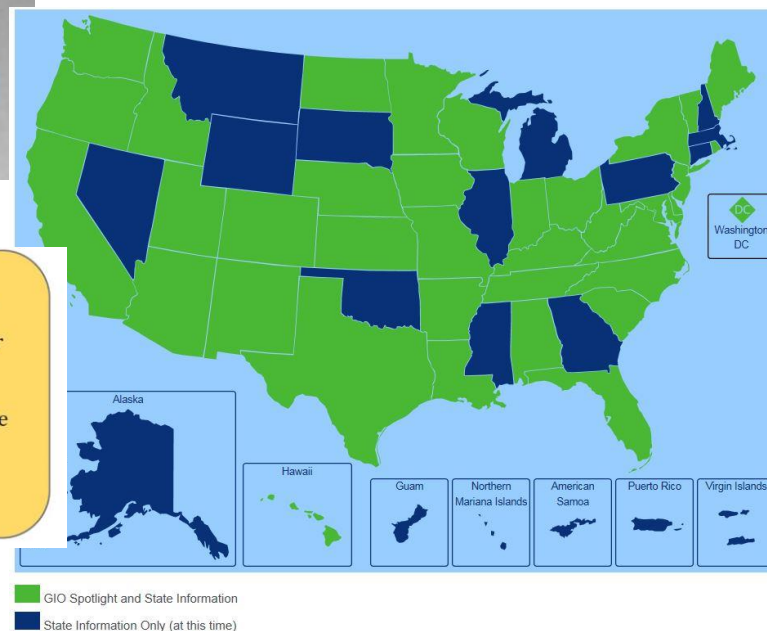
GeoDATA: Framework Layers
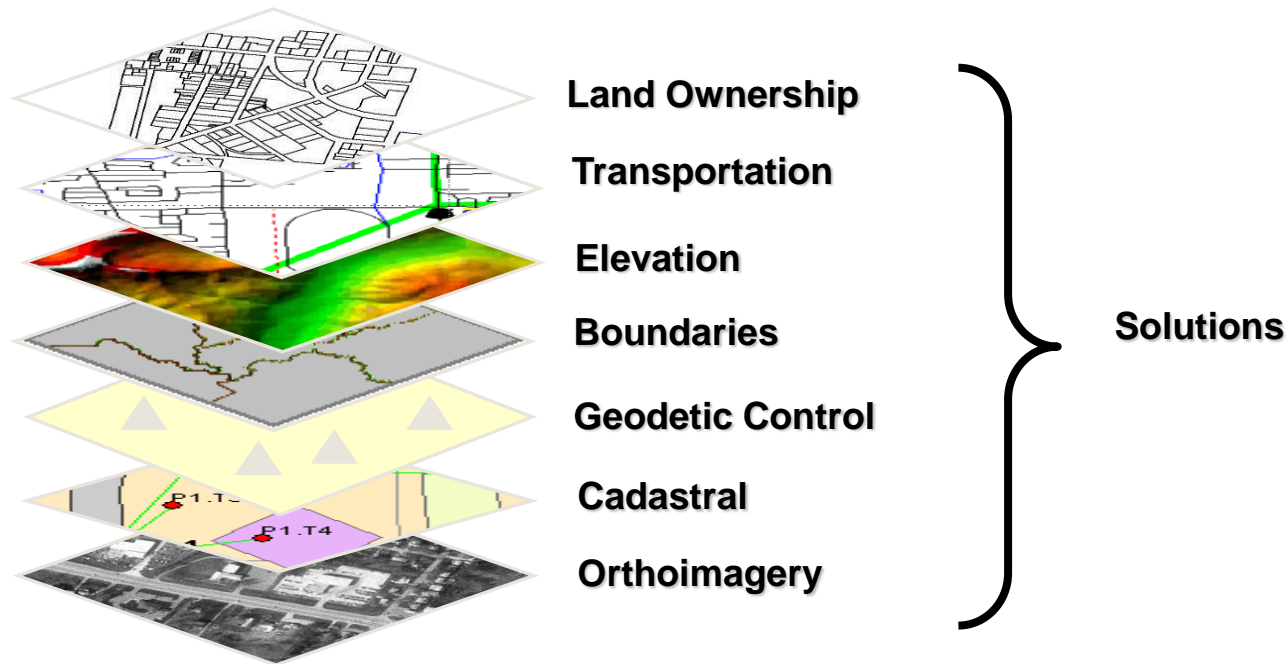
Land Ownership

Transportation

Elevation

Boundaries

Solutions

Geodetic Control

Cadastral

Orthoimagery

Base Map Data Requirements:
- **Steward**
- **Business Plan**
- **Metadata**
- **Quality Check**
- **Accuracy Check**

GeoDATA: Stewardship
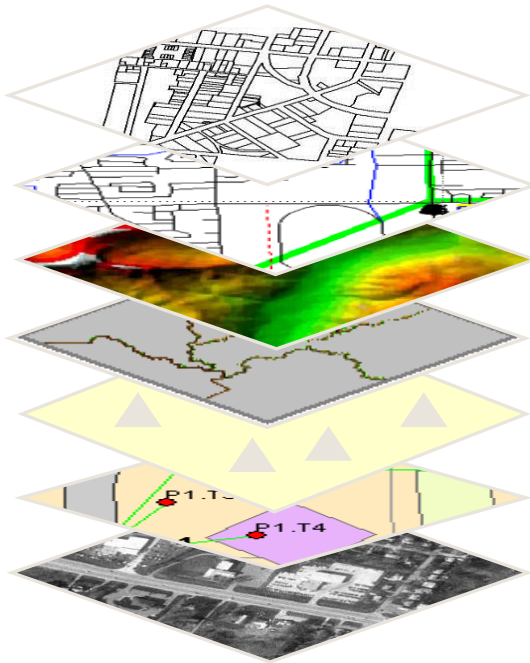
Hydrography – **ENV/USGS**

Transportation – **DOT/USDOT**

Elevation – **EDAC/USGS**

Boundaries – **TRD/Census**

Geodetic Control – **DOT/NGS**

Cadastral – **TRD/BLM**

Orthoimagery – **EDAC/USGS**

Local Governance

State Agreements

- **Administration Steward: DoIT**
- **Technical Steward: EDAC**
- **Data Steward: Agency**
  - **Sample Agreement:** http://www.gac.state.nm.us/subcommittees/hydrography/State_moa_stewardship_signed.pdf

Base Map Data Requirements

- **Steward**
- **Business Plan**
- **Metadata**
- **Quality Check**
- **Accuracy Check**

GeoDATA: RGIS Data Clearinghouse

Resource Geographic Information System (RGIS) - Data and Services

Geospatial Data Clearinghouse (EDAC/RGIS)

Parcels

Hydrography

Transportation

Environment

Forestry

Aerial Imagery

Barrio la Canada Subdivision

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RGIS: http://rgis.unm.edu/
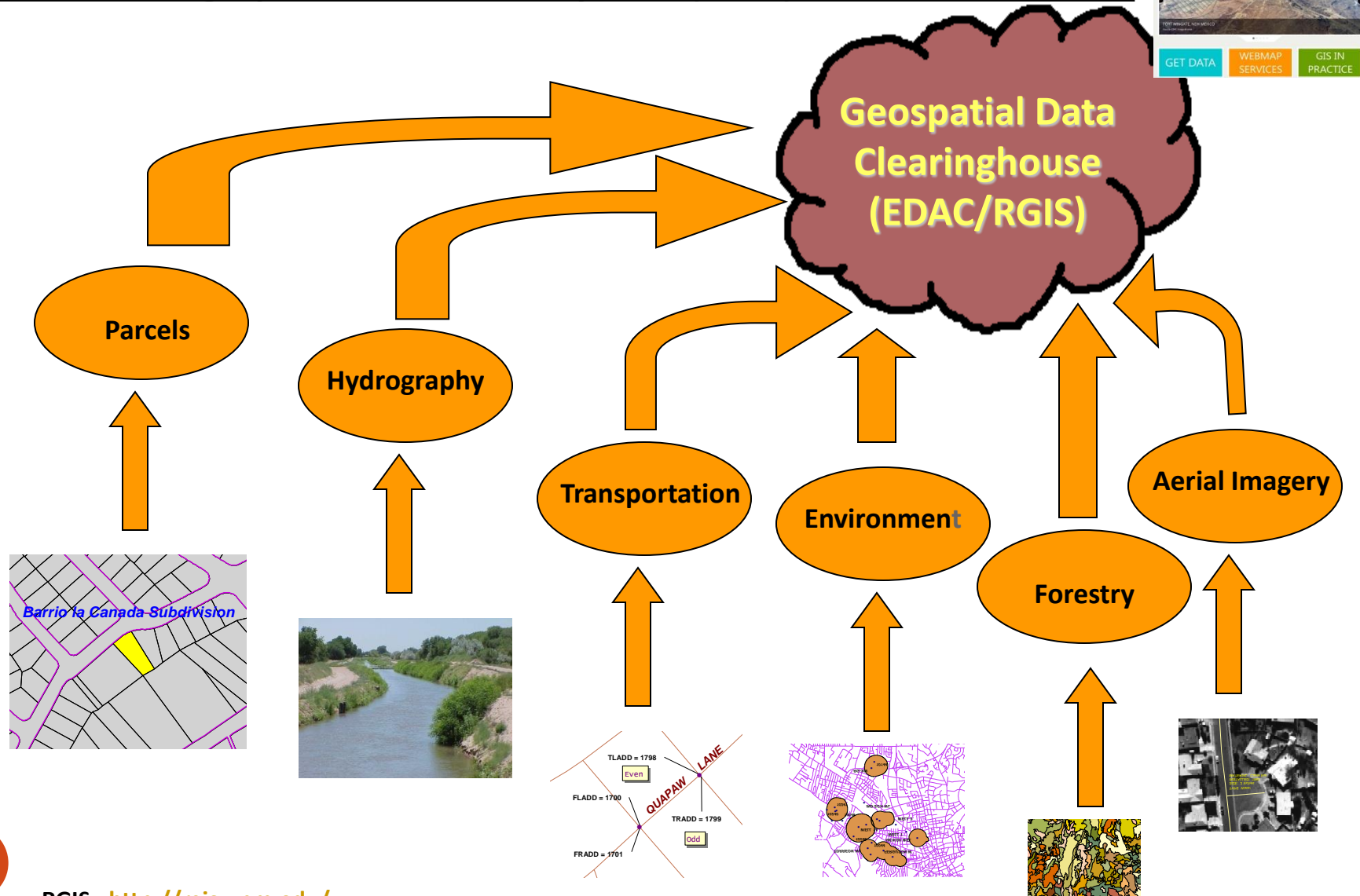
GeoDATA: RGIS Portal – Version 6.0

NEW PORTAL

- **State Statute Designated**
- **Free Downloads**
- **Five Terabytes and Growing**
- **Over 100K Datasets as a Service**
- **Open Source Service**

NEW MEXICO TOPOGRAPHIC MAP
Source: USGS

GET DATA | WEBMAP SERVICES | GIS IN PRACTICE

RGIS Funding
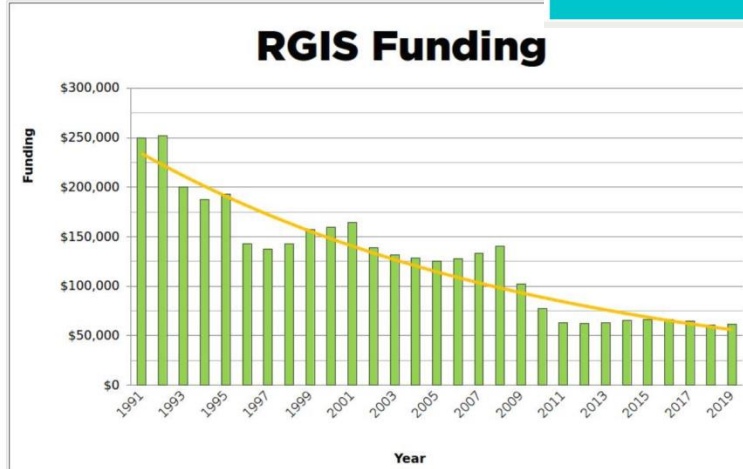
RGIS HISTORY:
- 1988 – New Mexico State agencies surveyed by four UNM units to assess the feasibility for developing a statewide computer mapping and geographic information system (RGIS)
- 1989 – House Bill 218 requested funds for establishing a GIS clearinghouse
- 1992 – RGIS clearinghouse opened and provided digital data via 4mm and 8 mm tapes
- 1996 – rgis.unm.edu established
- 2013 – Legislation: Designated State Geospatial Clearinghouse

RGIS PORTAL (Beta): http://rgis-data.unm.edu/rgis/ApolloPro.aspx

GeoDATA: NM Roads

Collaborative:

- **NM911/DoIT/DFA**
  - **Local Governments**
- **Public Safety**
  - **Computer Assisted Dispatch**
- **Transportation**
  - **ARNOLD**
  - **Large Load Permitting**

NM DOT/DPS/DoIT
(Leads)

Census

Forest Service

NEW MEXICO ROAD FILE

Military

Tribal

Local

Federal

Regional

SUCCESS: First publicly available routable network
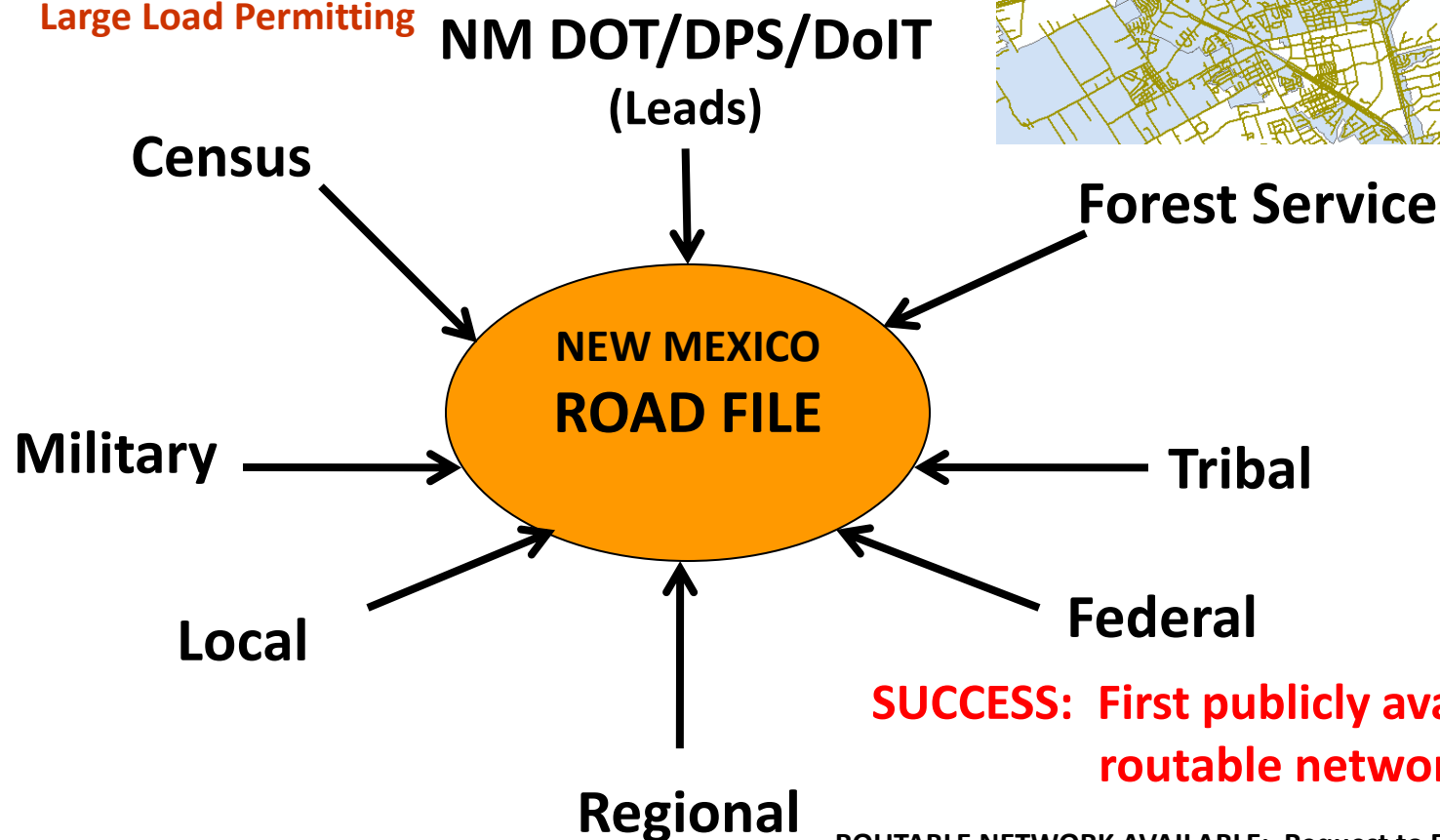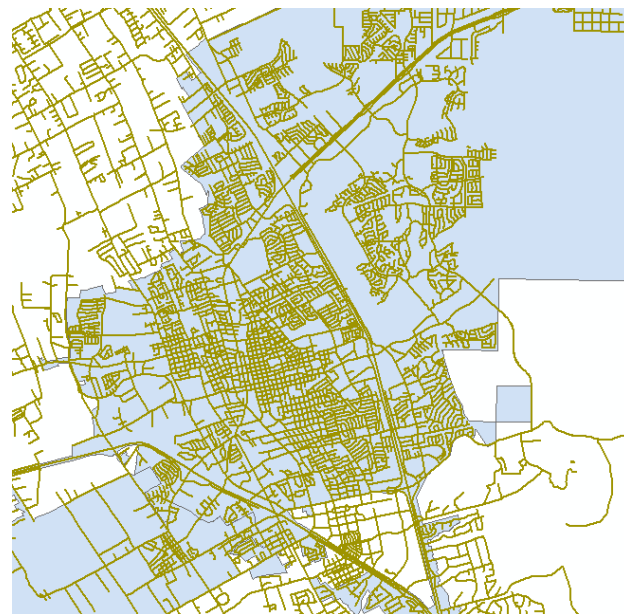
ROUTABLE NETWORK AVAILABLE: Request to EDAC/RGIS

GeoDATA: NM Land Index

New Mexico Lands Index: Standard Indexing System – Aligned with PLSS
- Funding: State Land Office/Dept. of Information Technology (SLO/DoIT)
- Content: PLSS-like Grid extension into Land Grants and No Data Areas
- Available: EDAC/RGIS Geospatial Data Clearinghouse (CadNSDI)
- Objectives
    - SLO requirement for State Lands accounting
    - DoIT requirement to support broadband provider data validation
    - Assist in "geocoding" legacy data based on extruded PLSS
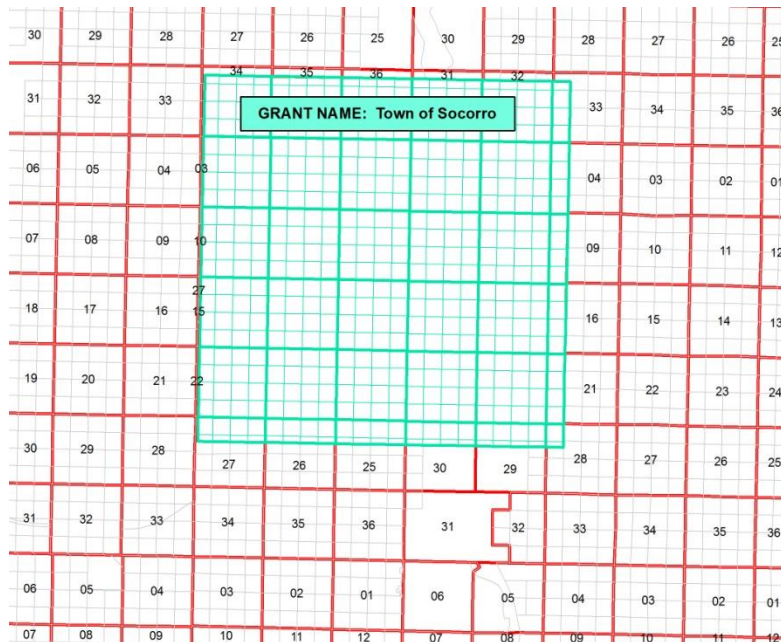
Application: UPC GeoLocator
- Create Parcel Centroid
- Statewide UPC Feature Class
- Emergency Response/Notification

GeoDATA: CASA

- Community Anchor Site Assessment (CASA)
  - Integrated Database of Structures
    - Fire Stations (Fire Marshal)
    - Government Buildings (General Services/LCS)
    - Health Facilities (Dept. of Health)
    - Libraries (State Library)
    - Schools (Public Schools Facilities Authority)
    - Readiness Centers (National Guard)
    - Emergency Operations Center (US DHS/HSIP)
    - Miscellaneous (USGS/GNIS)
  - Update Strategy – CrowdSourcing
  - First for New Mexico
- Project: Government Facility Inventory
  - State/Local Collaborative (LCS/TRD)
  - Letters Requesting Assistance
  - Assessor Database Standards Opportunity

New Mexico Broadband Mapping Program

Community Anchor Site Assessment (CASA)
Community Anchor Sites

Legend
- School - K through 12
- Library
- Medical/healthcare
- Public safety
- University/college
- Community support - Governmental
- Community support - Non Governmental

0 15 30   60
                 Miles

CrowdSourcing - http://www.doit.state.nm.us/broadband/surveys.shtml
Video: https://www.youtube.com/watch?v=9yG5rRInGBk

CASA: Data Classification

TOTAL: 4,252

- Medical/Healthcare (191)
  - Hospitals
  - Nursing Homes
  - Urgent Care
  - School-Based HC
  - Federally Qualified HC
  - Emergency Medical Services
- Public Safety (969)
  - EOC (73)
  - Fire Stations (645)
  - Law Enforcement (251)
  - Correctional Facilities

- Education (1,173)
  - Public Schools – K12 (1,033)
    - District Offices
    - Traditional
    - Alternative
    - State/District Charter
    - Grant/BIE Tribal
  - Higher Education (140)
- Government (1342)
  - State Government
  - Local Government
- Library (160)
  - Regional
  - Branch
  - Bookmobile Stop
- Non-Governmental (77)

Office of Broadband and Geospatial Initiatives

NEW MEXICO DEPARTMENT OF INFORMATION TECHNOLOGY

CASA Maps - http://www.doit.state.nm.us/broadband/map_statewide.shtml

CASA: Asset Management

Government Buildings

Health Facilities

Fire Facilities

CASA
GEODATA
BANK

Interoperability

Schools

Law Enforcement

Emergency Centers

Correctional Institutions

NM Broadband Program

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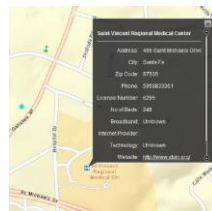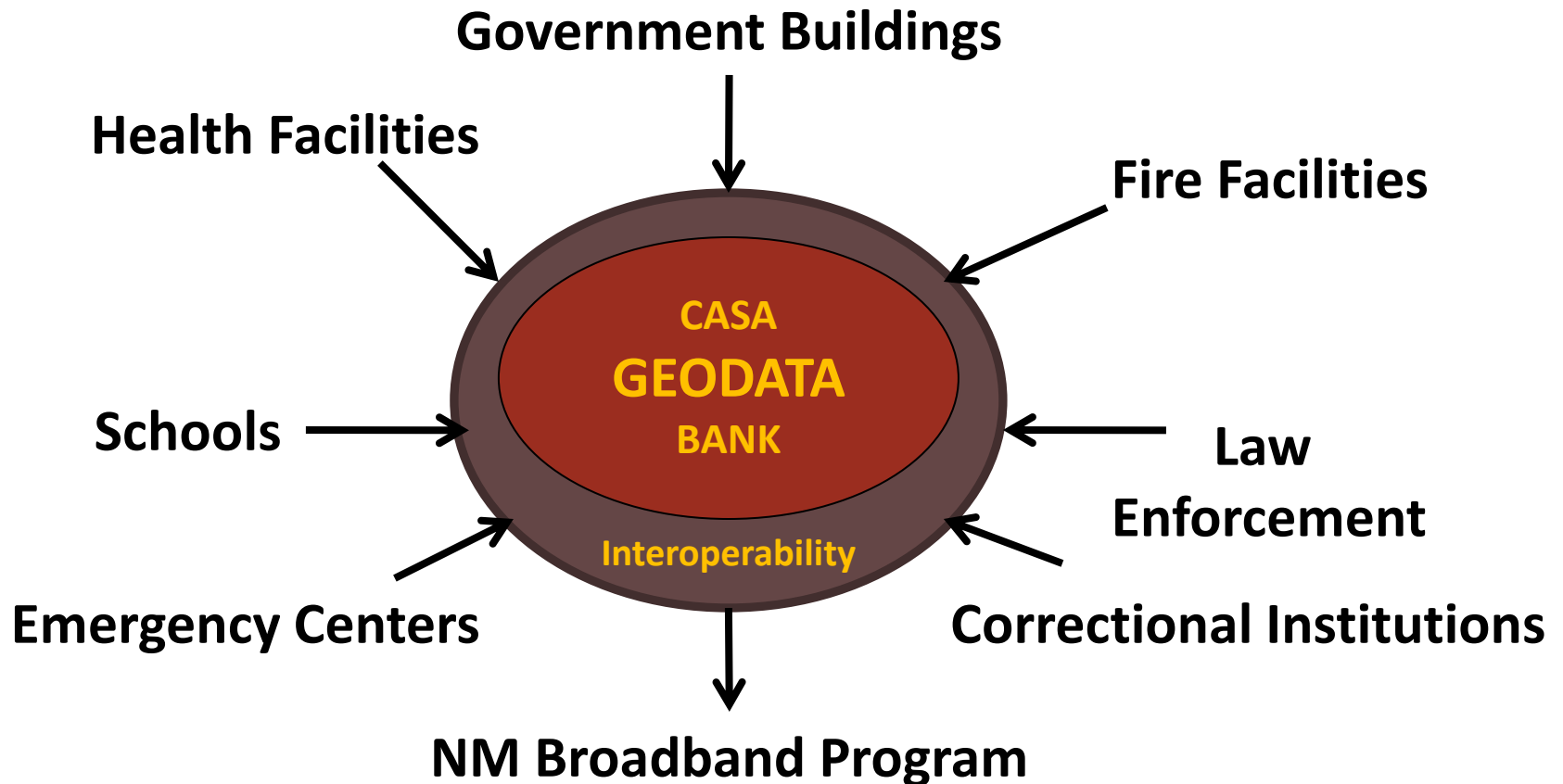
CASA: NM911

OBJECTIVE/PROCESS:

- **Assist First Responders in quickly locating public facilities**

- **Disaster planning and identify potential shelters**

- **Base requirement for Next Generation 911 Statewide implementation**

RESOURCES:

- **DoIT NM Broadband Program CASA Database**

- **DoIT NM 911 Address Database (Local Agencies)**

- **DoIT NM Public Safety Broadband Network Critical Infrastructure Data**

- **DPS NM Routable Road Network (Local Agencies)**

COLLABORATIVE

- **Local Government Agencies**

- **Department of Information Technology**

    - **NM Broadband Program**

    - **NM 911 Program**

    - **NM Geospatial Advisory Committee**

    - **NM Public Safety Broadband Network**

- **Department of Finance Administration**

- **Department of Public Safety**

- **Department of Transportation**

- **Earth Data Analysis Center/UNM**

doiT — NEW MEXICO DEPARTMENT OF INFORMATION TECHNOLOGY

Office of Broadband and Geospatial Initiatives

GeoSERVICES: Leveraging

- New Mexico Broadband Map
  - Map Service
  - Initial Investment
    - Software/Hardware
    - Data
    - Development
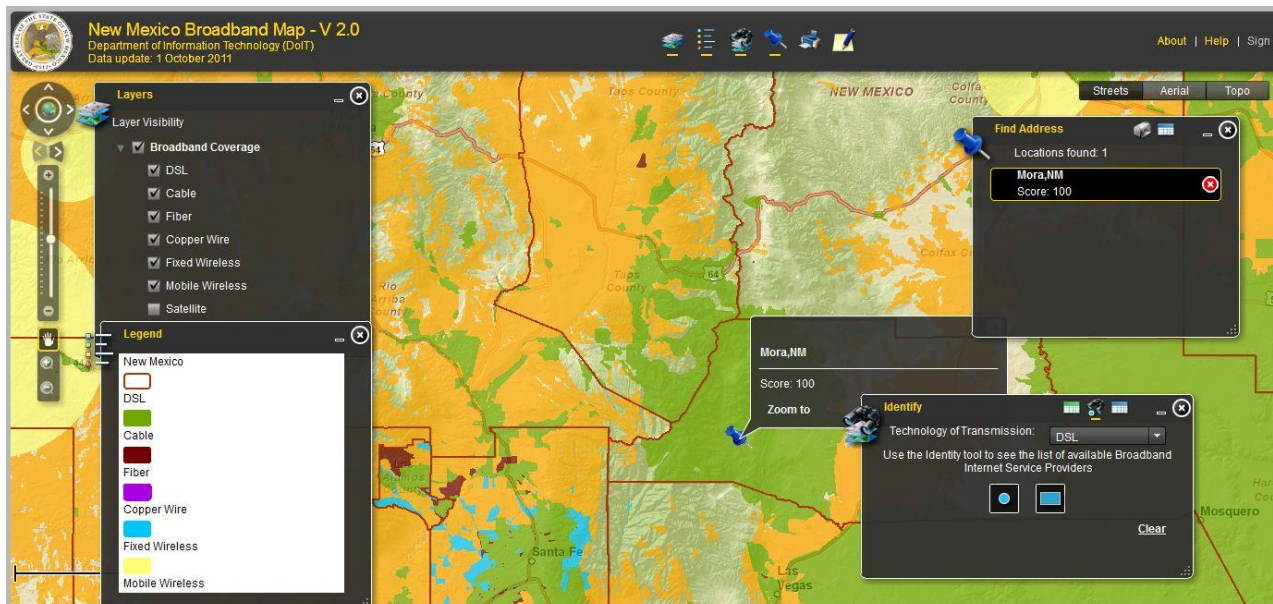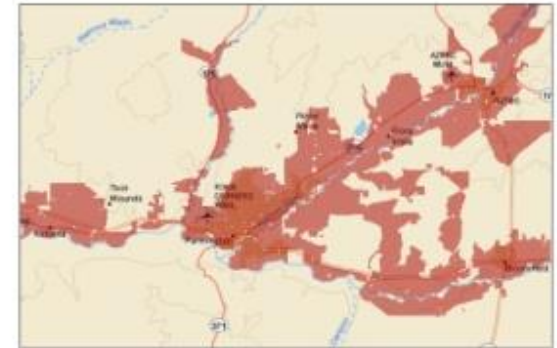
GeoSERVICES: Online Map Services

MAP SERVICES Geospatial Data Clearinghouse (EDAC/RGIS)

BROADBAND

EMERGENCY

ROADS

ENVIRONMENT

LAND

ECONOMY
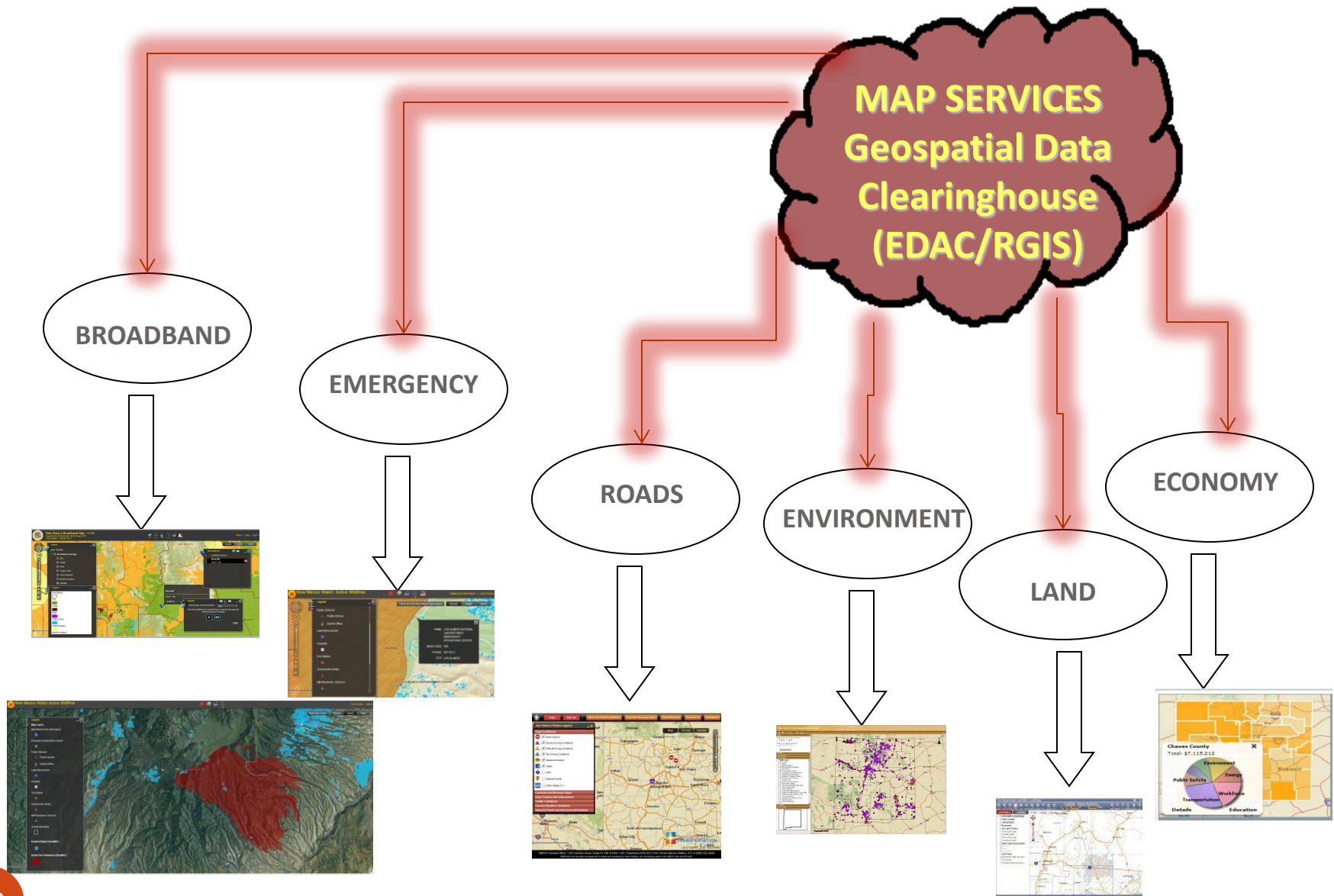
GeoSERVICES: Broadband Map
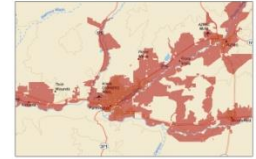
New Mexico Broadband Map (Availability)

- Source – Provider Data
- Type of Technology
- Search – Address, Community, Area, or Point

MAP SERVICES Geospatial Data Clearinghouse (EDAC/RGIS)

BROADBAND

SITE: http://www.doit.state.nm.us/broadband/
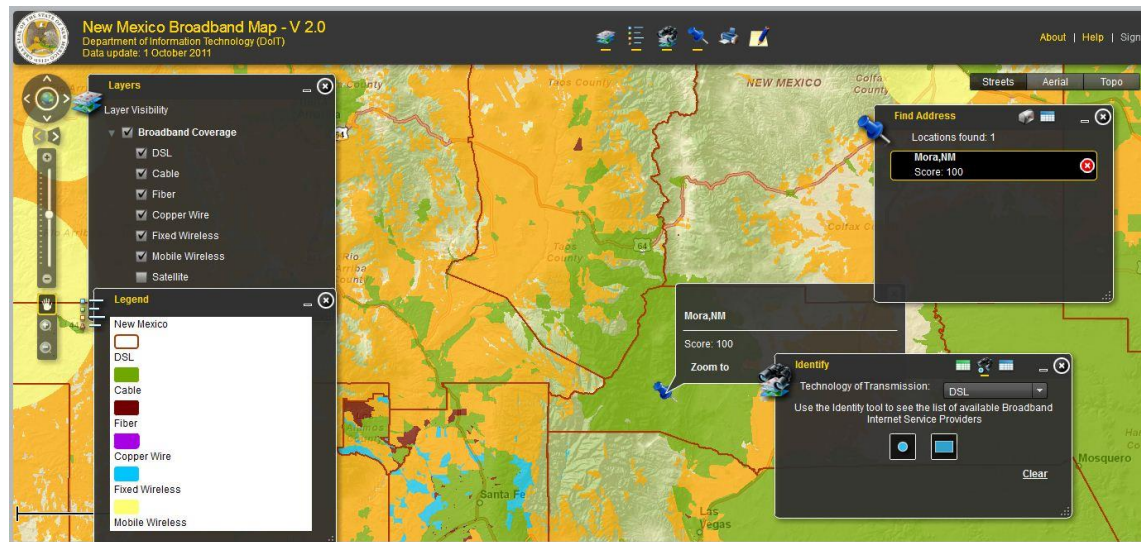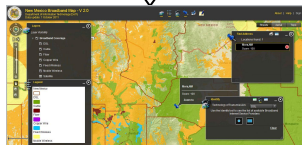
GeoSERVICES: Wildfire Watch

DATA SOURCES:

- **County Structures**
- **Broadband CASA**
- **NM DOH Health Facilities**
- **NM Fire Marshal Stations**
- **NM National Guard Centers**
- **HSIP Facilities**
- **NHD/NRCS HUC**
- **GeoMAC Fire Data**
- **NWS Rain and Smoke**
- **BAER Team Soil Burn Severity**
- **USGS Stream Gages/Flow**
- **USGS Earthquake Hazards**
- **BLM Federal Lands**

EMERGENCY

MAP SERVICES Geospatial Data Clearinghouse (EDAC/RGIS)

SITE: http://nmwatch.org/
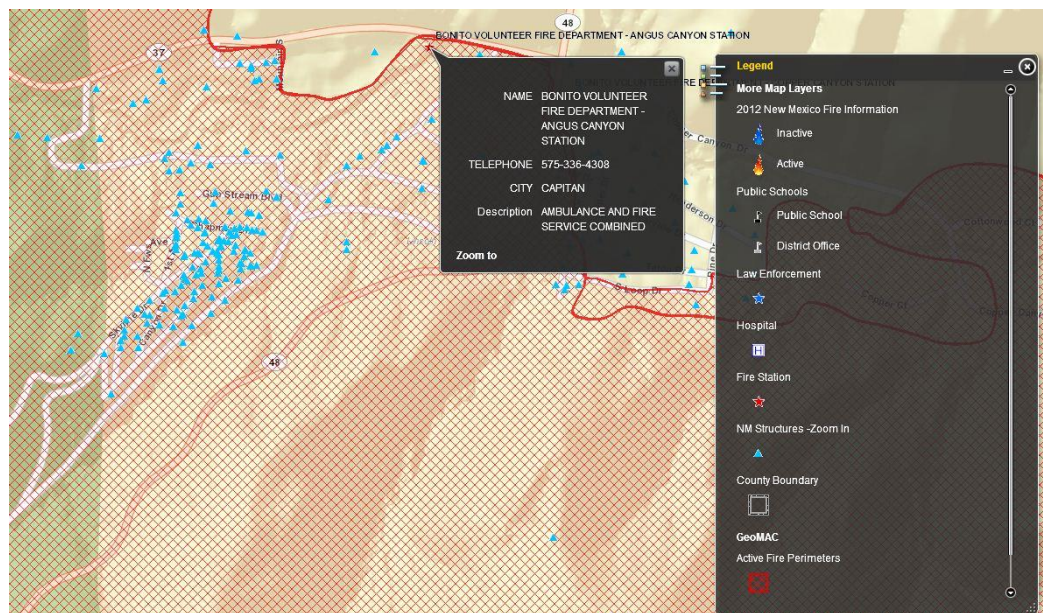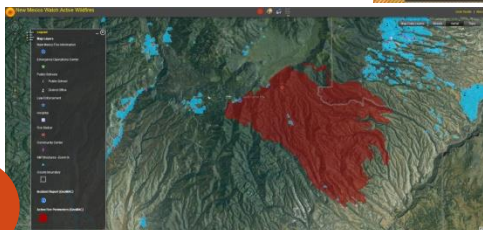
GeoSERVICES: NM911 Data Sources

NM911 PORTAL Geospatial Data Clearinghouse (EDAC/RGIS)

SOCORRO

ISLETA

SAN MIGUEL

LAS VEGAS

HARDING

MVRDA

ADVANTAGES:

- **Initial Cost Provided**
- **Local Data Stewards**
- **Public/Secure Environments**
- **Web Browser Only – No Software**
- **Development & Subscription Costs**

DEMO: http://nmwatch.org/socorro/
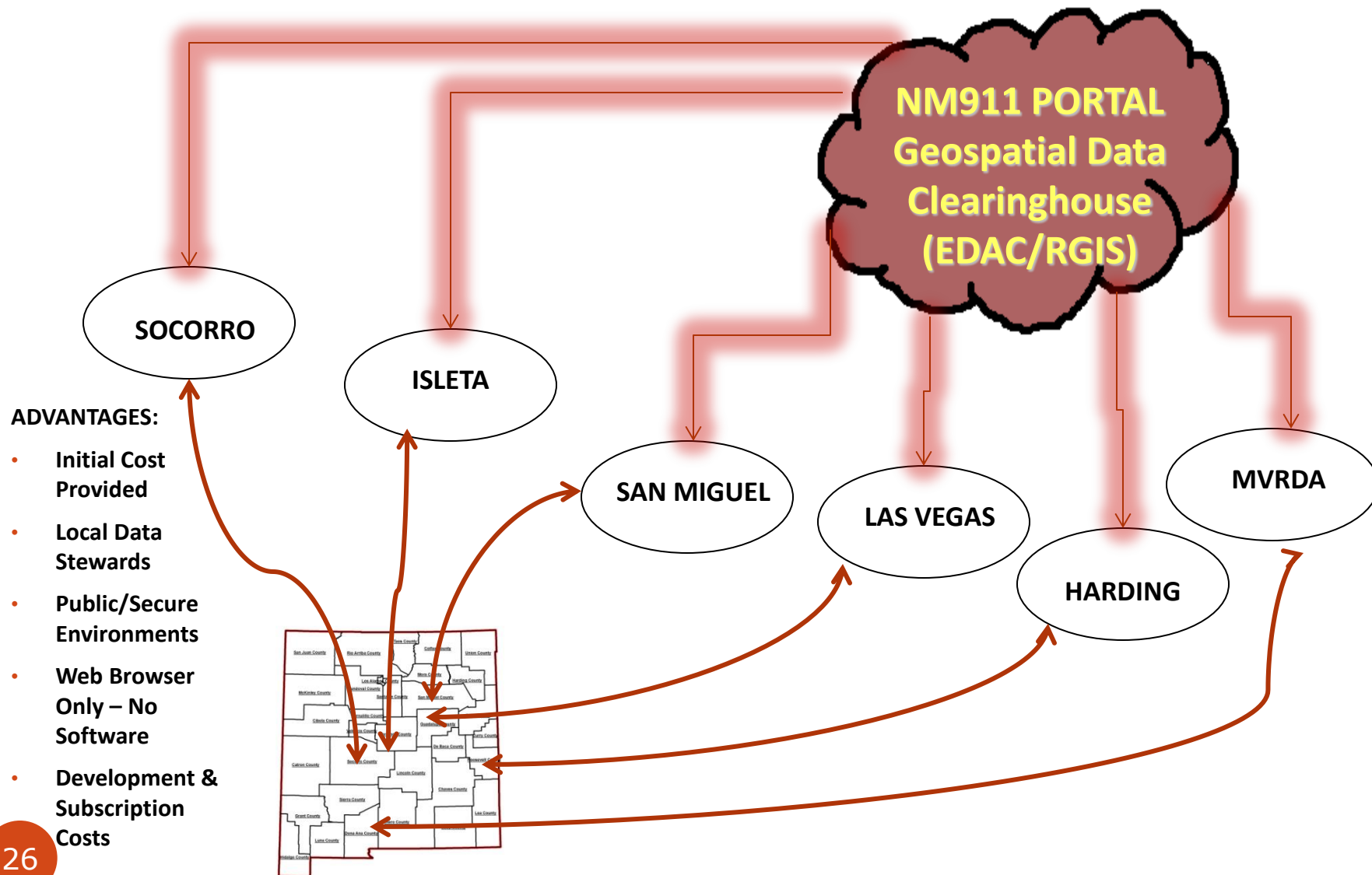
GeoSERVICES: DoIT Asset Tracking

DoIT FACILITY/TOWER ASSETS:

- **Passcode Protected**
- **User Updates**

NM DOIT SERVICE Geospatial Data Clearinghouse (EDAC/RGIS)

State Facility Communications

Fiber Infrastructure

Tower Management

Government Resource...
1 of 1

NM DoIT DMW Tower
1 of 1

GeoSERVICES: Education

ISP Cost per Mbps per Month
2017 E-Rate Data

Prepared For: Office of Broadband and Geospatial Initiatives, NM Department of Information Technology
Data Sources: 2017 E-Rate validated by EducationSuperHighway, NMRGIS

ISP Cost (Mbps per Month)
- No Data (1% of Districts)
- $0.01 - $4.00 (46% of Districts) - Goal
- $4.01 - $10.00 (28% of Districts) - Acceptable
- $10.00 and higher (25% of Districts) - Unacceptable

September 2018

BROADBAND FOR EDUCATION

- **GeoAnalyses**
- **User Updates**

Facilities within one mile radius to the school

Career Prep Alternative High School-Based Health Center | Career Prep High School | Dine College - Shiprock South | Eva B. Stokely Elementary | New Mexico Human Services Department - Child Support Enforcement Division - County Office 9 | Nizhoni Elementar

- ISP Contract Expiration by School District (Data Transmission and/or Internet Access Only)¶

¶

- Data Source: USAC 2017 E-Rate Data & E-Rate data validated by EducationSuperHighway¶

Alamogordo Public Schools—·1211·Hawaii·Ave, Alamogordo, NM·88310¶

Internet Service Provider	Contract Expiration Date	
CenturyLink Qwest Communications Company LLC	6/30/2019	
TDS Baja Broadband LLC	11/10/2019	
Tularosa Communications, Inc.	6/30/2019	

¶

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GeoCOMM: Synergistic Chatter

NEW MEXICO GEOGRAPHIC INFORMATION COUNCIL (NMGIC)

- **Function: Geospatial Professionals Statewide and Beyond**
- **Provides: Digital Newsletter, Conferences, Workshops, Vendors, and Email Information**
- **Fee: $30 Includes above and two box lunches**
- **Join: http://nmgic.com/**

DOIT GEOSPATIAL ADVISORY COMMITTEE

- **Function: Advises the State on Geospatial Issues (Standards, Data Acquisitions, etc.)**
- **Membership: State, Federal, Local, Industry, Public, and Professional Groups**
- **Access: No Restrictions and Meetings Open to All**
- **Meetings: Monthly on the Second Tuesday usually in Santa Fe**
- **Provides: Information Email Announcements (george.clarke@state.nm.us)**
- **Website: http://www.gac.state.nm.us/**

NEW MEXICO 911 PROGRAM

VIDEOS:
- Why 911
- The Dispatcher
- A 911 Call

NM-911: Responsibilities

NM-911 Provides:

- **Oversight of the E-911 Fund**
- **Technical Assistance**
- **Compliance with Statute and Rule**
- **Guidelines for the E-911 Program**
- **GIS Technical Support and Data Review**

NM-911 Does Not Provide:

- **Regulatory Authority**
- **PSAP Operational Guidance**

PSAP: Responsibilities

- **Annual Reporting**
  - **PSAP Profile and Annual Report**
  - **Annual Call Statistics**
- **Must be a 24 Hour, 365 Days Per Year Operation**
- **Must Have at Least One Dispatcher on Duty**
- **Must Record All Inbound 911 and Outbound Radio**
- **Must Have a Generator for Back Up Power**
- **30 Minutes of Uninterruptible Power Supply (UPS)**

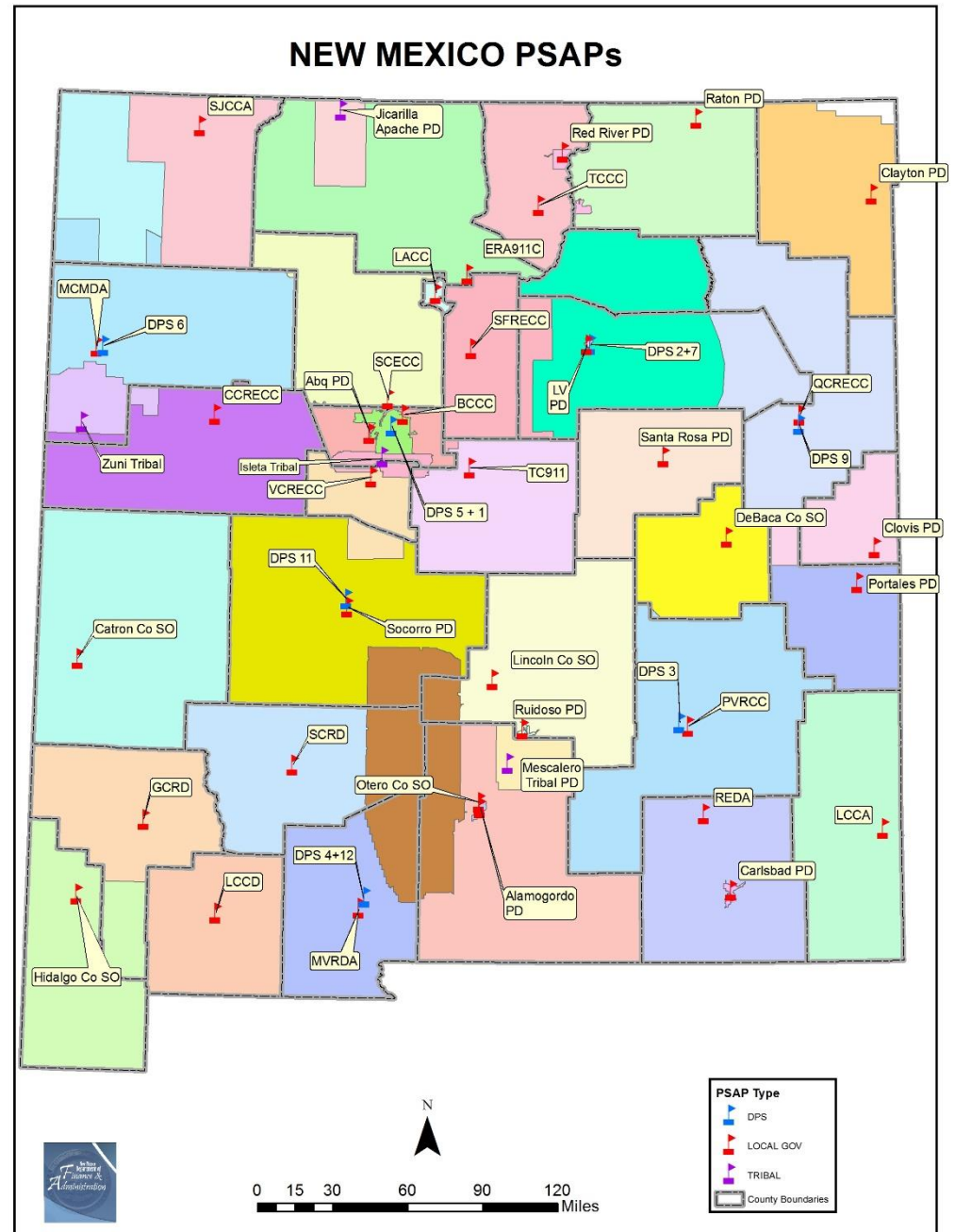# PSAP (41)
- **Boundaries**
- **Locations**

PSAP Calls
- **Over 1,400,000 per year**
- **2-3% increase per year**
- **Landline 17%**
- **Wireless 83%**

Data Providers (70+)
- **Counties**
- **Incorporated Areas**

NEW MEXICO PSAPs

Expenditures: FY16 by Category

- Operating - GIS Consulting 4%
- Operating - Interpretive Services 1%
- Operating - E911 Related GIS 0%
- Operating - Minor Equipment 1%
- Operating - E911 Related Training 1%
- Capital - Equipment Upgrades 35%
- Operating - System Maintenance 27%
- Capital - Firewall and Router Equipment 1%
- Operating - Wireless Cost Recovery 2%
- Capital - Recorders 1%
- Operating - Data MPLS 5%
- Operating - Voice Network 21%
- Capital - UPS/Generator 1%

Public Safety Emergency Response End-to-End System

In-Bound Call Network

Funding Sources:
Carrier / Provider Funds
E-911 Fund

3 Position PSAP

Funding Source:
E-911 Fund

Funding Sources:
- County/Municipal/Tribal Government Funds
- State/Federal DHS/EM Grant Funds

Out-Bound Radio & Dispatch Networks

Funding Sources:
- County/Municipal/Tribal Government Funds
- State/Federal DHS/EM Grant Funds
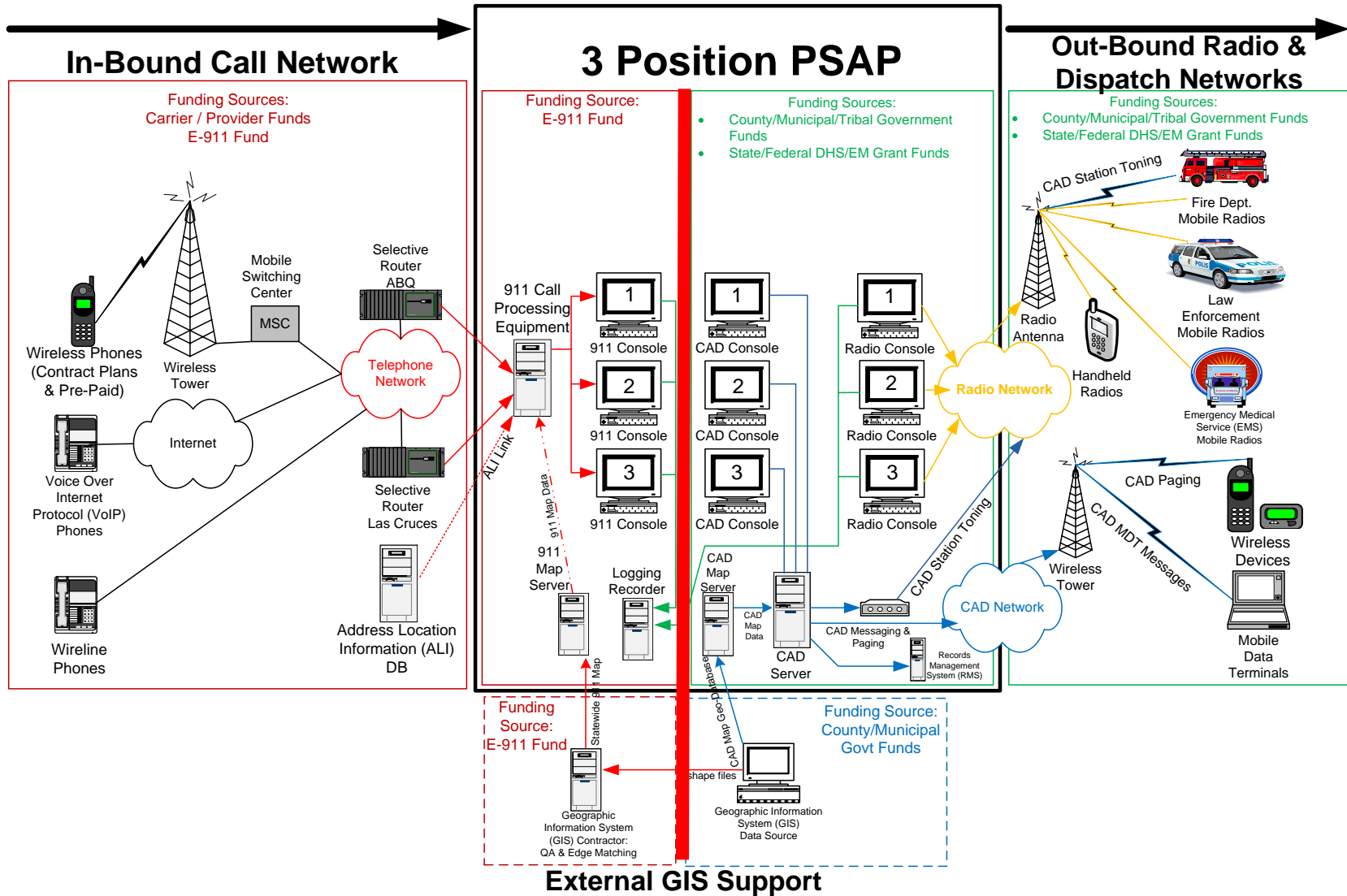
Data Acquisition – Processing – Statewide Merge – PSAP Clip – Map Servers

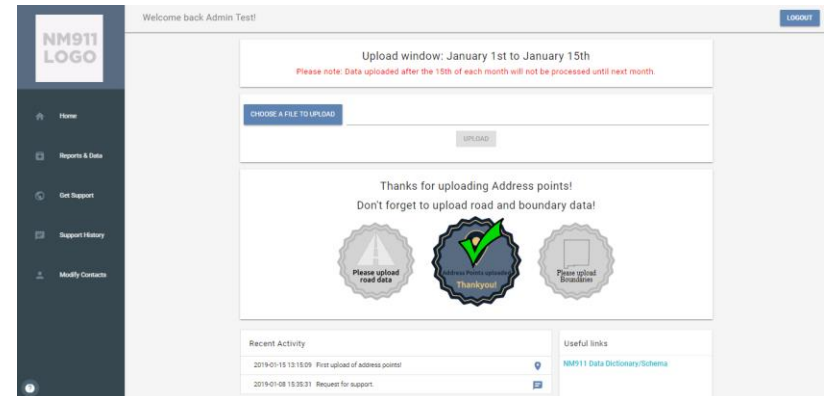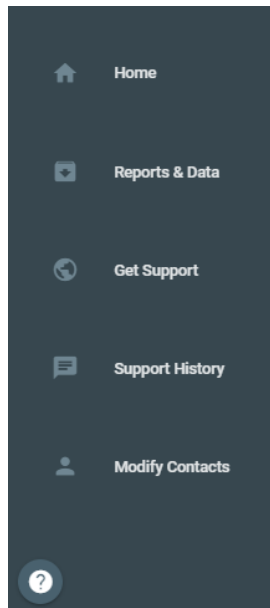EDAC   EDAC   EDAC   BHI   BHI

GIS: Workflow - Acquire/Upload
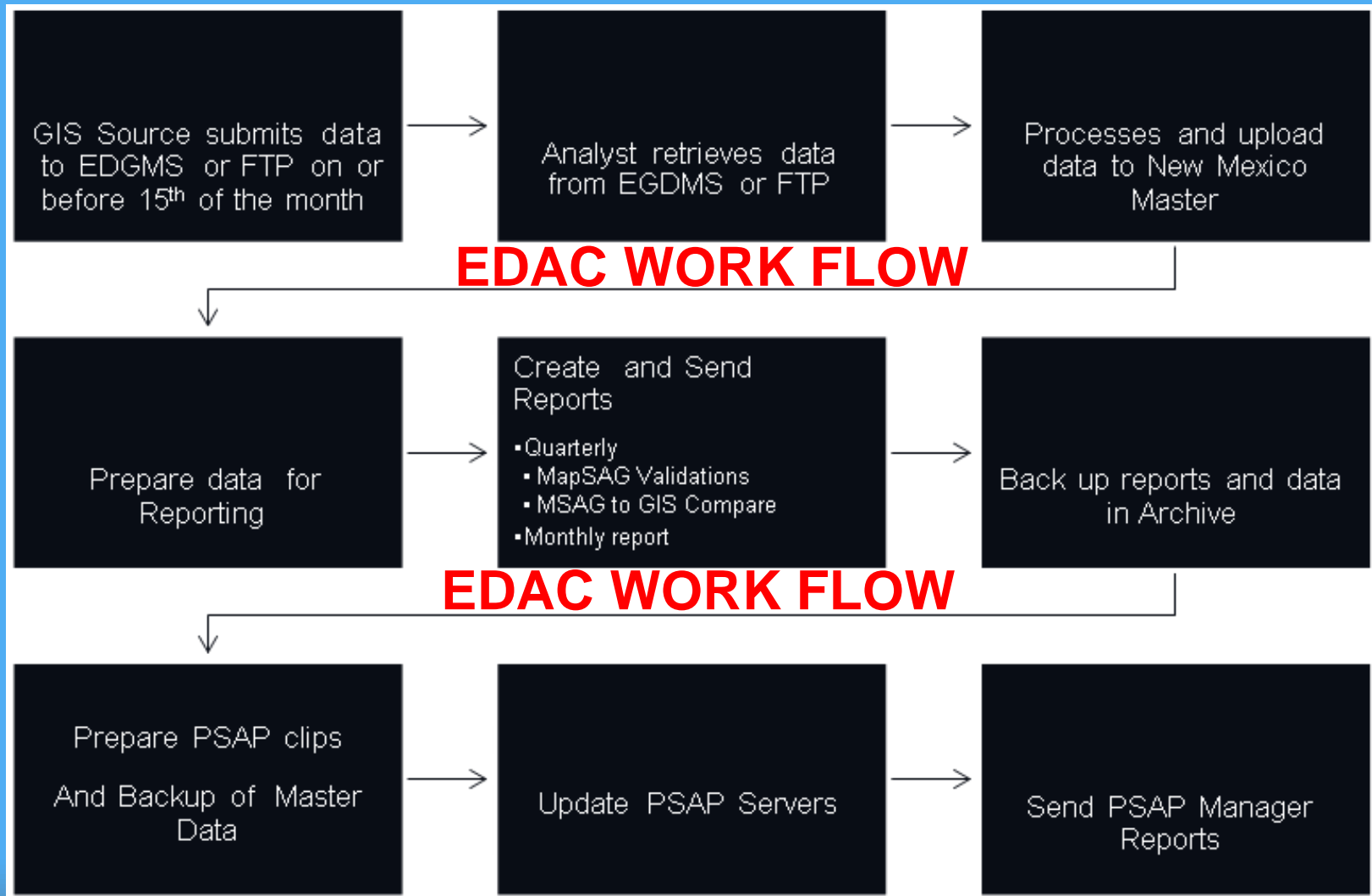
WORKFLOW: Data Services (EDAC)

GeoData Processing

- Acquire data from GeoProviders
  - Roads/addresses/boundaries/etc.
- Run error checking and report
- Transform to Statewide Standard
- Upload for PSAP Processing

GeoServices

- Portal development
- Technical support
- Training apps and webinars

WORKFLOW: Map Server Download (BHI)

Map Server Upload

- Obtain statewide layers
  - Roads/addresses/boundaries/etc.
- Transform to PSAP formats
- Clip to PSAP boundaries
- Upload data to PSAPs
- Verify/document upload status
- Deliver monthly reports
  - Reports to DoIT and PSAPs

NM911 Monthly GIS Data Workflow

EDAC

1. Statewide GIS Data transfer from EDAC to BHI

2. BHI transforms GIS data from NM to PSAP format

3. BHI prepares 41 individual clips of PSAP GIS data

4. BHI distributes 41 individual clips to each PSAP → PSAPs

5. BHI documents status of the PSAP GIS data updates

6. BHI prepares monthly NM911 GIS Data Upload Report → DoIT

Gar Clarke
NM Geospatial Program Manager