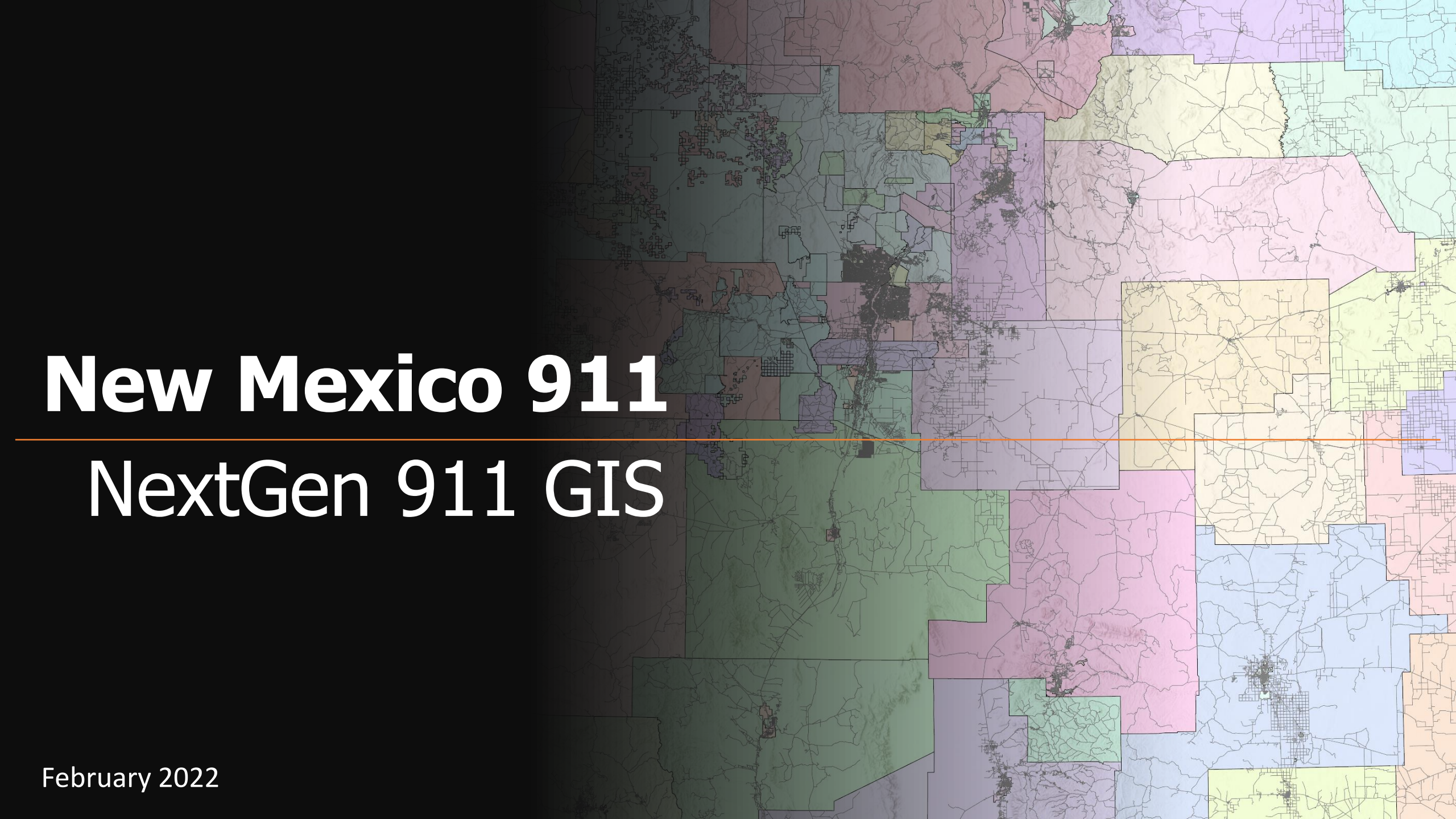


New Mexico 911

NextGen 911 GIS

February 2022

New Mexico 911

- The New Mexico 911 Program (NM911) is managed by the New Mexico Department of Finance and Administration (DFA)
- NM911 was created by the Enhanced 911 Act to ensure Enhanced 911 (E-911) systems were used statewide
- NM911 is now working to transition from E-911 to NextGen 911 (NG911) systems

New Mexico Department of
Finance & Administration

E-911 Bureau

Bureau Chief	Stephen Weinkauf
GIS Coordinator	Tyler Fossett
Program Manager	John Myrick
Program Manager	Nicholas Losito
Financial Coordinator	Sonya Bachicha

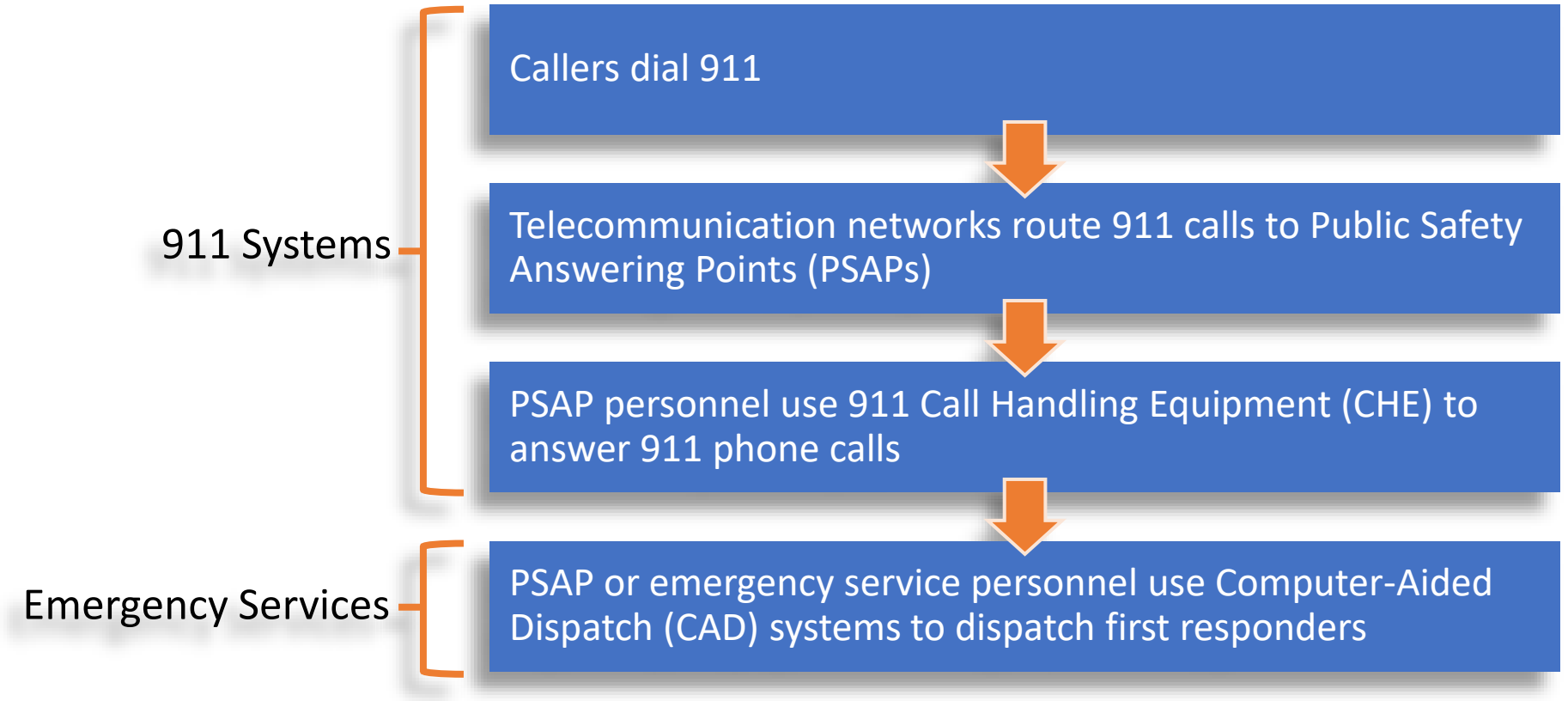
NM911 Program

The vision of New Mexico 911 is to provide a best-in-class 911 system, utilizing emerging technology to facilitate efficient reliable public safety response to best serve the communities of New Mexico.

- Manage Inbound 911 Voice and Data Network
- NG 911 Planning and Implementation
- Maintain Capital Equipment Replacement Cycle
- Manage 911 Equipment Maintenance Agreements
- State GIS Data Aggregation and Map Support
- Procurement for 911 Related Statewide Price Agreements
- Contract and Vendor Management
- 911 Telecommunicator and GIS Training Support

Emergency Response

911 systems are used in conjunction with emergency services to deliver emergency response



Types of 911 Systems

- Most states use a modified version of their original landline-based 911 system called an Enhanced 911 (E-911) system
- E-911 systems are becoming increasingly unfavorable due to their inability to integrate new technology
- Many states are currently replacing E-911 systems with NextGen 911 (NG911) systems

E-911	NG911
Originally built to handle landlines and later modified to handle cell phones	Designed to handle cell phones, media, and other anticipated technologies
Uses tabular databases, called ALI-MSAGs, to route phone calls	Uses GIS to route phone calls
Uses copper telecommunication networks to transmit information	Uses internet networks to transmit information

NextGen 911 Benefits

Improves location and call routing accuracy

- Locates callers with geodata from mobile devices rather than cell tower pings
- Reduces call transfers by using GIS-based call routing

Accommodates modern forms of communication

- Cell phones
- Text messages
- Multi-media data
- Language translation
- Medical devices
- Car computers
- Building alarms

Improves PSAP personnel and first responder awareness

- Enables information exchange between PSAPs or between PSAPs and first responders
- Transmits data prior to arrival (e.g., crash impact speed, airbag deployment, etc.)
- Allows for access to building video feeds and sensors

NG911 Components

Call handling equipment

NextGen call systems interface with internet services and support voice, video, text, and other media

ESInet & NGCS

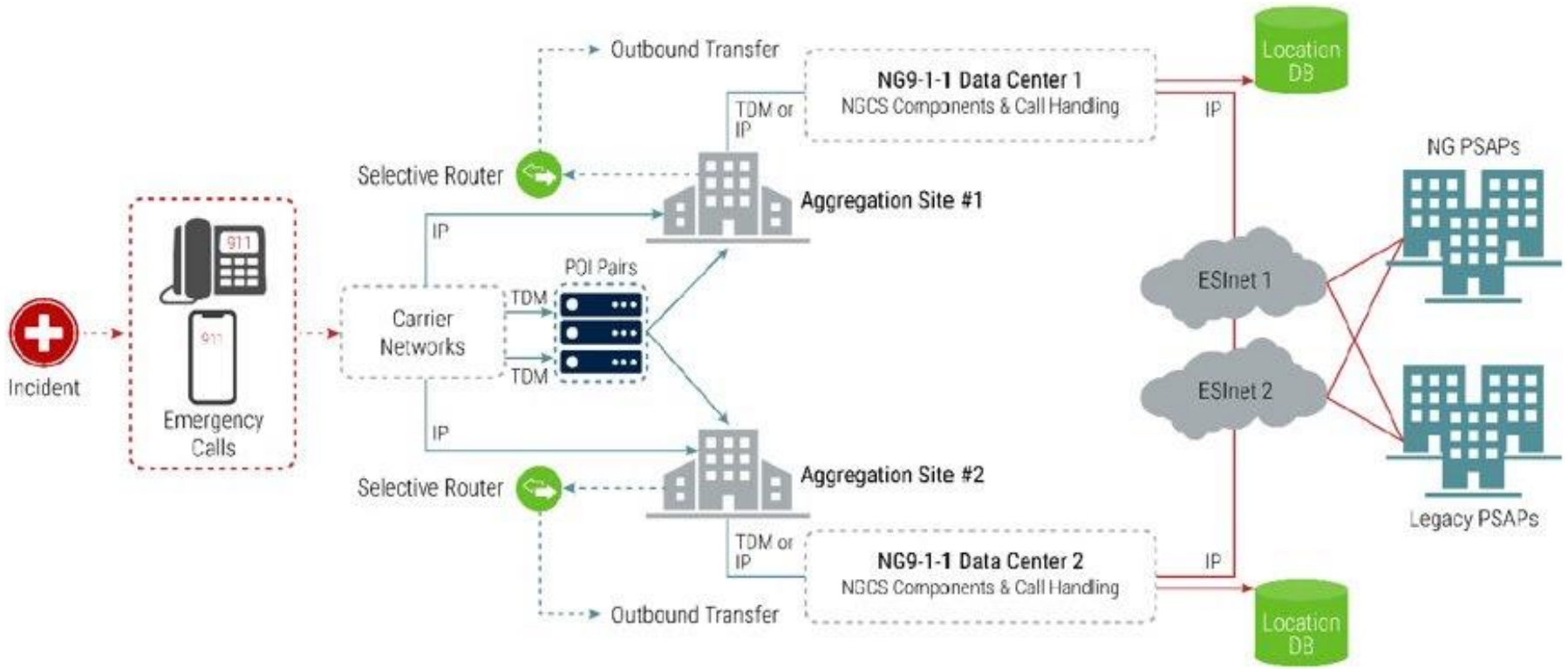
Emergency Service IP Networks (ESInets)
Statewide internet networks transfer large volumes of information to and from callers, PSAPs, and first responders

NextGen Core Services (NGCS)
A series of software elements provide call, media, location, and network-related services on the ESInet

GIS

Geospatial data is used to route 911 phone calls and dispatch emergency services

i3 Standard – Defines the protocols and components required to deploy NG911 systems



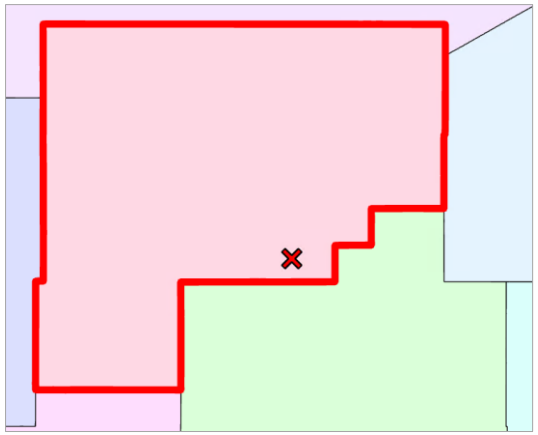
NG911 System Diagram

GIS-based Call Routing

NextGen systems use a point-in-polygon approach to routing phone calls, meaning they route 911 phone calls to the only PSAP whose boundary polygon intersects with a caller's location

Telephone #	Customer	House #	Dir	Street	Community	State	ESN
555-555-5555	John Smith	800	E	MAIN ST	RED RIVER	NM	114

E-911 systems use ESNs associated with PSAPs to route phone calls

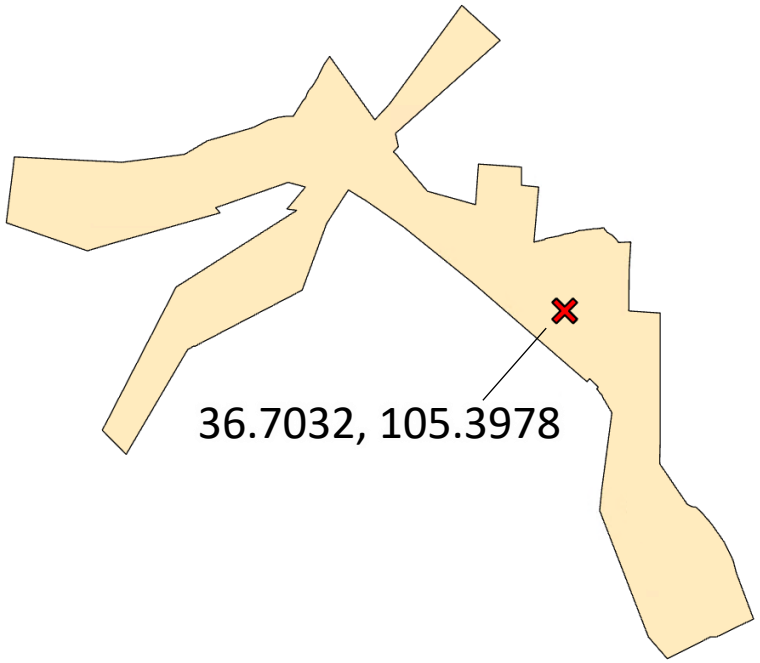


NG911 systems use a point-in-polygon GIS approach to route phone calls

NG911 Location Data

Call locations are plotted in GIS using latitude and longitude coordinates transmitted with phone calls

Cell Phones



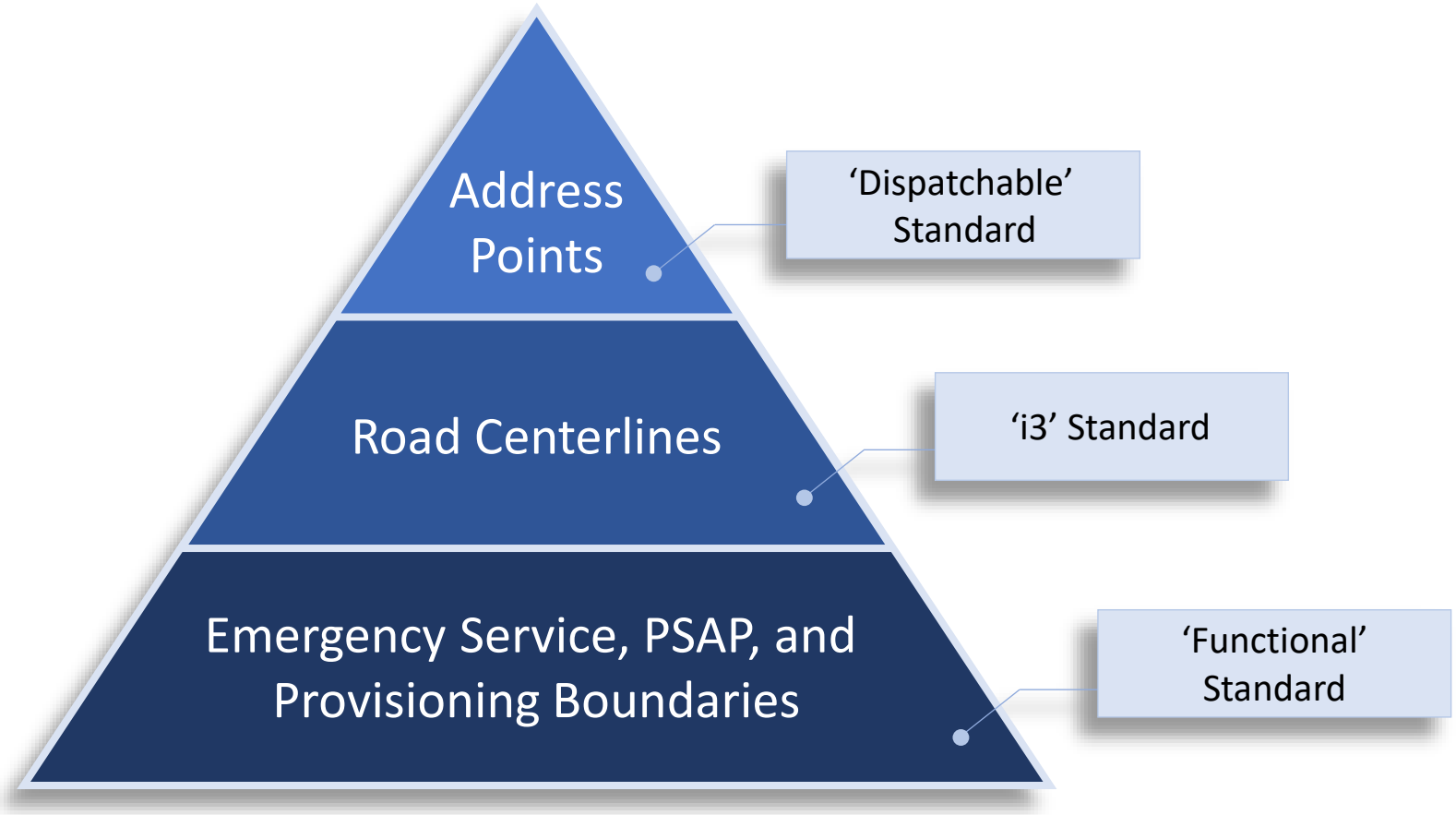
Cell phones *do not use* address point or road centerline data to transmit lat long coordinates

Landlines

Landlines *must use* address point or road centerline data to transmit lat long coordinates

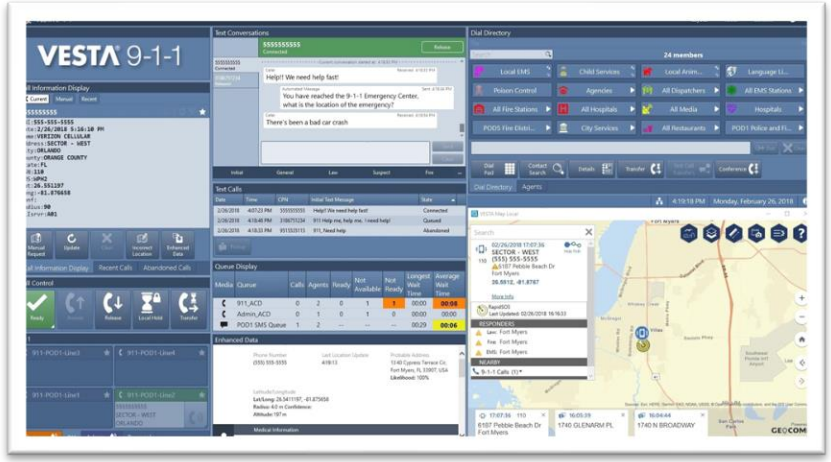
Geospatial Routing Hierarchy

NextGen systems attempt to match telecom addresses to the most precise GIS data layer first, then use progressively less precise data layers to find a match if that fails



Call Handling & Dispatch Systems

- Most public safety operations use two different systems to deliver emergency response:
  - **Call Handling Equipment (CHE)** – PSAPs use call handling equipment to answer 911 phone calls and locate callers
  - **Computer-Aided Dispatch (CAD)** – PSAPs or emergency service providers use CAD systems to dispatch first responders
- CAD and CHE systems both use GIS but have traditionally used different datasets due to different operational needs or schema rules



NM911 Program: CAD Support

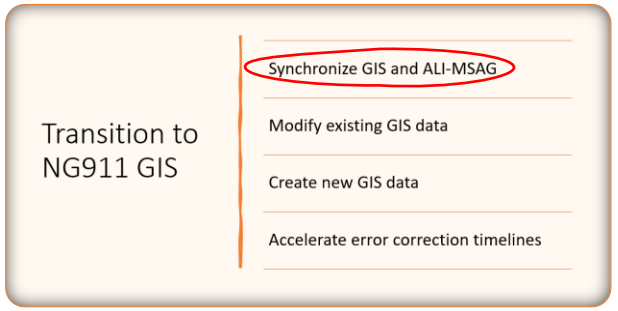
The NM911 program will begin providing CAD-related GIS support for the following reasons:

- The NextGen 911 GIS schema calls for data commonly used in CAD systems
- NextGen core service providers are required to ensure the NG911 GIS dataset is available to both the CHE and CAD systems through the ESInet
- PSAPs may need a statewide CAD GIS dataset to carry out certain dispatch practices NextGen systems require to function as intended
- Vendors are beginning to offer systems that combine both CHE and CAD

Transition to NG911 GIS

- Synchronize GIS and ALI-MSAG
- Modify existing GIS data
- Create new GIS data
- Accelerate error correction timelines

Synchronize GIS & ALI-MSAG

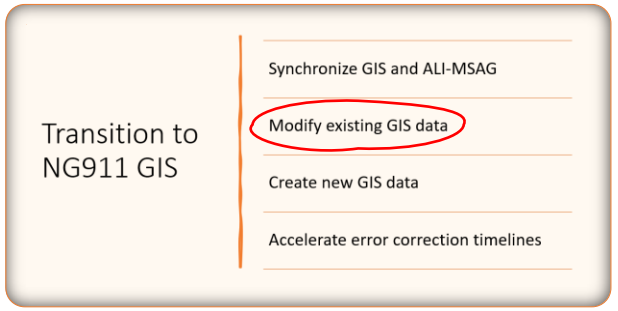


GIS will replace ALI-MSAG in NextGen environments, but a 98% match rate must be achieved before this transition can occur

ALI-MSAG*	GIS
Used in E-911 systems to route calls	Used in NG911 systems to route calls
Contains road and address information	Contains road, address, emergency service, and other information
Omits addresses that do not have landlines	Includes all roads and addresses, as well as more granular address information
Lacks a spatial component	Includes a spatial component

*Automatic Location Information (ALI) and Master Street Address Guide (MSAG)

Modify Existing GIS Data



Adopt NextGen 911 GIS schema

- Convert road centerline and address point data to CLDXF format
- Use a domain system and data type designation to ensure agency and feature IDs are globally unique

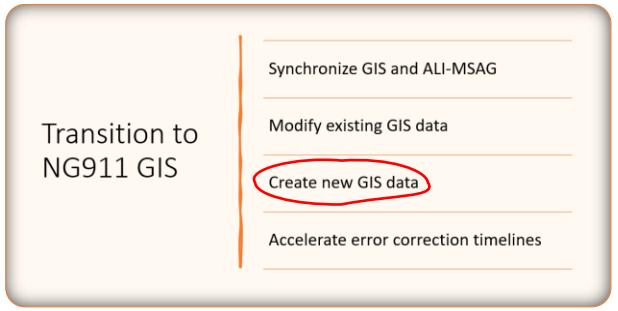
Consider neighboring datasets

- Resolve topology and duplicate-related errors with neighbors
- Clarify data authority boundaries and aggregate data if needed
- Utilize alias road names to avoid data loss

Consider CAD needs

- Modify existing CAD-related data to fit NG911 schema

Create New GIS Data



Adopt NextGen 911 GIS schema

- Create new road centerline and address point attributes
- Create new PSAP, emergency service, and provisioning boundary layers
- Create optional layers and attributes as needed

Consider neighboring datasets

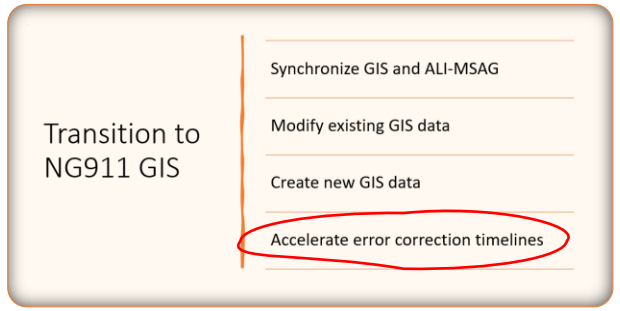
- Create statewide data authority boundaries

Consider CAD needs

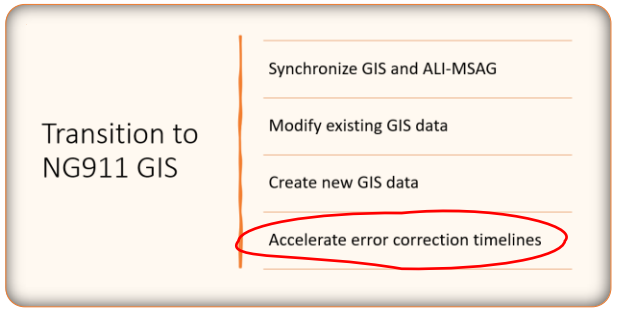
- CAD systems may require more granular emergency service boundaries
- Populate road centerline and address point attributes that are otherwise optional
- Develop a routable network for dispatching needs if requested by local 911 authority

Accelerate Error Correction Timelines

- Most error identification and reporting occurs in near real time
- Manual error identification and reporting should occur within 1 business day
- Discrepancy reports are automatically sent to geodata providers for quick resolution
- QA/QC should be performed prior to provisioning data to the ESInet to minimize error reporting and resolution timelines



Accelerate Error Correction



Error Type	Error Detail	ID Method	Report Timeline	Responsible Party	Resolution Timeline
Call Routing	Call not routing	NGCS	Real Time	911 Authority	Real Time
Call Routing	Routing policy issue	NGCS	Real Time	911 Authority	1 day
Call Transfer	Failed call transfer	NGCS	Real Time	911 Authority	1 day
Call Routing	Misrouted call	Manual	1 day	GIS or 911	1 day
GIS Data	Invalid geometry	NGCS	Real Time	GIS Provider	3 days
GIS Data	Gap or overlap	NGCS	Real Time	GIS Provider	3 days
GIS Data	Duplicate	NGCS	Real Time	GIS Provider	3 days
GIS Data	Missing field	NGCS	Real Time	GIS Provider	3 days
GIS Data	Address range issue	NGCS	Real Time	GIS Provider	3 days
GIS Data	Map display error	Manual	1 day	GIS Provider	As needed

NG911 GIS Data Model

Existing NM911 GIS Schema
Road Centerlines
Address Points

NextGen 911 GIS Schema		
Required	*Strongly Recommended*	*Recommended*
Road Centerlines	Street Name Aliases	Railroad Centerlines
Address Points	Landmark Name Parts	Hydrology
PSAP Boundaries	Complete Landmark Name Aliases	Cell Site Locations
Emergency Service Boundaries	State Boundary	Mile Marker Locations
Provisioning Boundaries	County Boundaries	
	Incorporated Municipality Boundaries	
	Unincorporated Municipality Boundaries	
	Neighborhood Community Boundaries	
	Other Emergency Service Boundaries	

Potential Changes

- Proposed changes to the NG911 GIS Data Model are currently being reviewed and may be adopted in 2022
- Most changes would impact the data structure and format but not the data itself
- The changes that *would* impact data would mostly introduce new optional attributes, rather than modify existing data

Road Centerlines & Address Points

- Road and address data must be converted from the US Postal Standard used in E-911 systems to the CLDXF format used in NG911 systems
- The CLDXF addressing format was developed to interface with the PIDF-LO data structure
- Many fields in the NG911 schema require values from registries maintained by NENA
- The NG911 schema utilizes street alias and landmark name tables to accommodate multiple aliases and names per feature

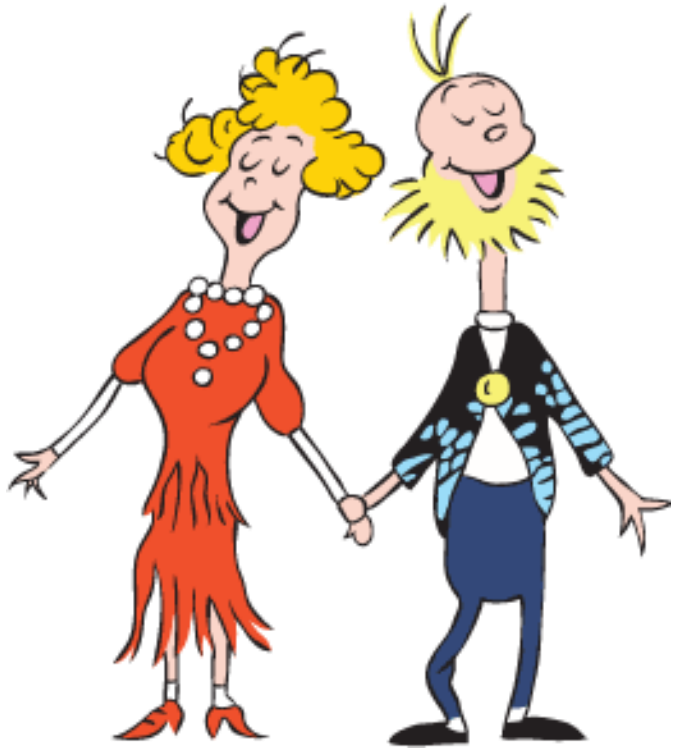
NextGen 911 GIS Schema		
Required	*Strongly Recommended*	*Recommended*
Road Centerlines	Street Name Aliases	Railroad Centerlines
Address Points	Landmark Name Parts	Hydrology
PSAP Boundaries	Complete Landmark Name Aliases	Cell Site Locations
Emergency Service Boundaries	State Boundary	Mile Marker Locations
Provisioning Boundaries	County Boundaries	
	Incorporated Municipality Boundaries	
	Unincorporated Municipality Boundaries	
	Neighborhood Community Boundaries	
	Other Emergency Service Boundaries	

Road Centerlines & Address Points

- Many required changes may be achieved with scripts
- Various attributes may be generated by developing other recommended layers
- NENA registries frequently omit the Spanish equivalents of terms
- It may be difficult to parse street names into the CLDXF format using scripts because local knowledge is often required

Road & Address Data Stakeholders

- 911 authorities rely on GIS and addressing personnel who may not otherwise be affiliated with 911 to develop road and address data
- GIS providers and addressing authorities must work together
- GIS staff possess the skills to create GIS data but may lack the authority or knowledge to change an address or name a road



Road Centerline & Address Point Notes

Locating addresses…

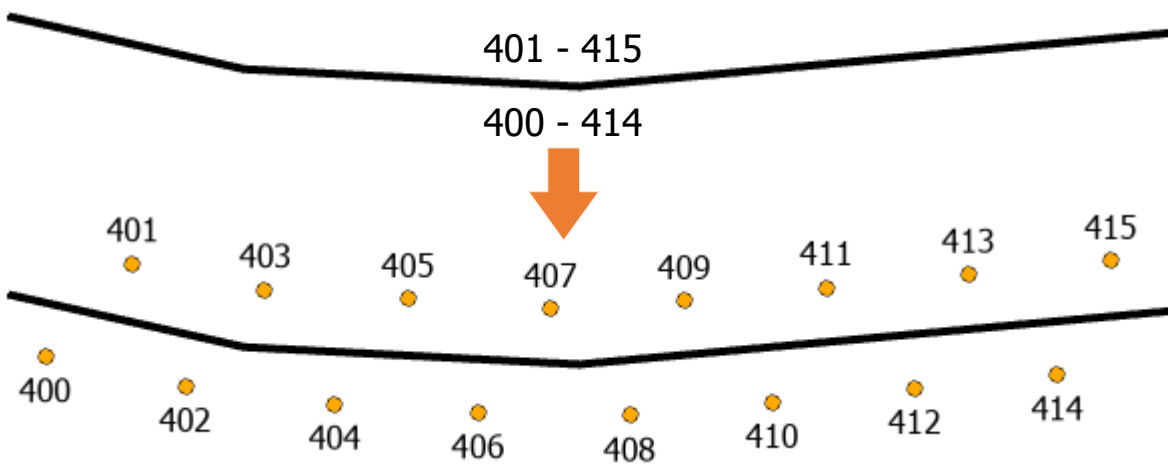
- Both address point and road centerline datasets can be used to locate addresses, but address point datasets are preferred because they are more precise
- Using road centerlines to locate addresses becomes less feasible in rural and poorly addressed areas because conditions make geocoding based on address ranges less reliable

Requirements…

- *NextGen standards *do not* require address point datasets to be complete due to the time and resources they require to develop
- Recently passed legislation named the RAY BAUM's Act will require more granular address data for buildings with Multi-Line Telephone Systems (MLTS)

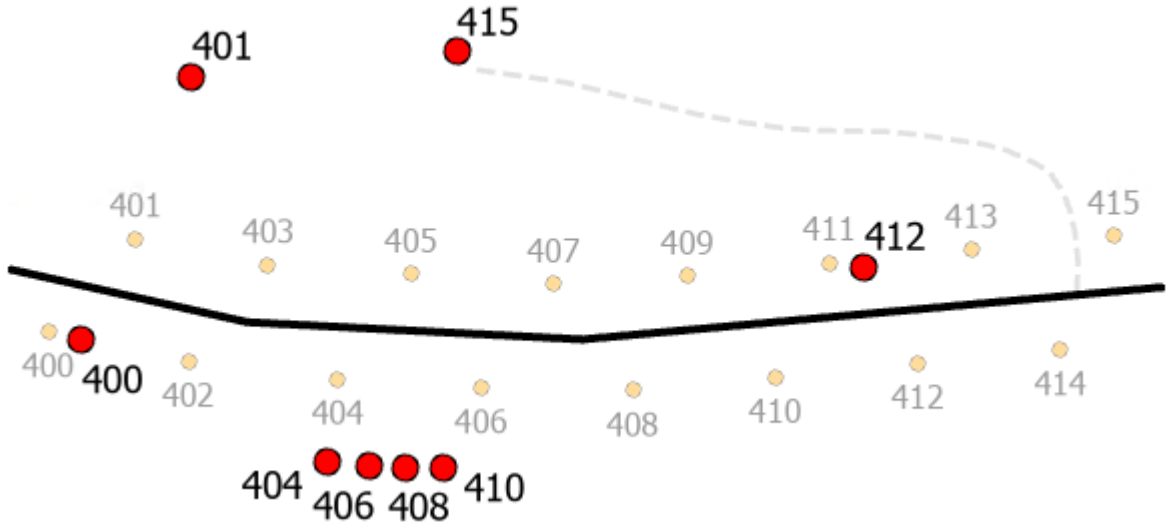
**This is the only required layer in the NextGen GIS data model that is not required to be complete*

Using *road centerlines* to locate addresses



Road centerlines may be used to approximate address locations by geocoding based on address ranges

Using *address points* to locate addresses



Address points may be used to locate addresses, including those that do not geocode correctly based on address ranges

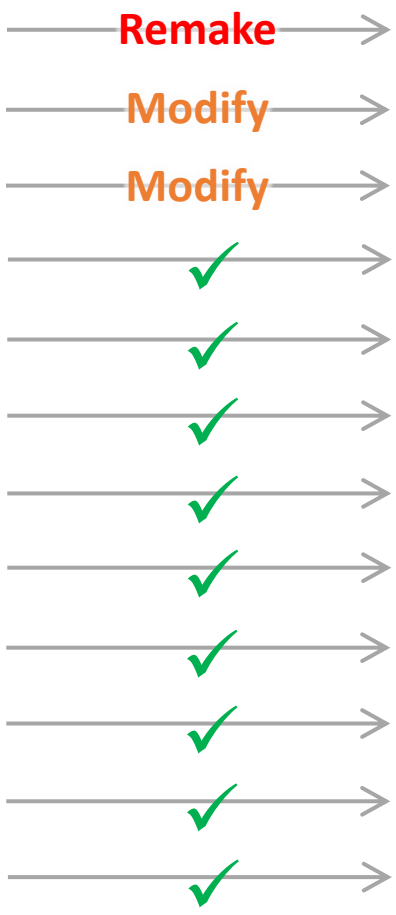
Address locations may…

- 400 Align with geocoded addresses
- 401 Sit farther away from roads and out of view
- 404-410 Lie closer to each other and vary in density along roads
- 412 Possess address numbers with incorrect parities
- 415 Contain structures and access points at different points along roads

Road & Address Data

Existing NM911 GIS Schema	
Field	*Example*
Data Source	RAESP
Segment ID	123
Date Updated	1/1/2022
Low Address Left	2
High Address Left	10
Street Direction	N
Street Name	Main
Street Suffix	St
Post Directional	SW
ESN	789
MSAG Community	Albuquerque
County	Bernalillo

How to transition:



NextGen 911 GIS Schema	
Field	*Example*
Discrepancy Agency ID	ci.espanola.nm.us
Globally Unique ID	RCL123@ci.espanola.nm.us
Date Updated	1/1/2022, 12:00:00 AM
Left From Address	2
Left To Address	10
*Legacy Pre-Directional	N
*Legacy Street Name	Main
*Legacy Street Type	St
*Legacy Post-Directional	SW
*ESN	789
*MSAG Community	Albuquerque
County (D)	Bernalillo

(D) = *Values limited to a fixed domain*

**Not used in fully implemented NG911 systems*

Road & Address Data

Existing NM911 GIS Schema	
Field	*Example*
Zip Code	87101
Postal Community	Bernalillo County
Road Class	A11
One Way	Y
Speed	35

How to transition:

✓	
✓	
Create	
Create	
Create	
Create	
Create	
Create	
Create	
Unsure	
Modify	
✓	

NextGen 911 GIS Schema		
Field		*Example*
Zip Code		87101
Postal Community		Bernalillo County
Parity Left	(D)	E (Even)
Parity Right	(D)	B (Both)
Country	(D)	US
State	(D)	NM
Incorp. Municipality		Albuquerque
Unincorp. Municipality		South Valley
Neighborhood Comm.		Downtown
Road Class	(D)	Primary
One Way	(D)	FT (From-To)
Speed Limit		35

(D) = *Values limited to a fixed domain*

Blue text = *optional fields*

Address Data

Existing NM911 GIS Schema		How to transition:	NextGen 911 GIS Schema	
Field	*Example*		*Field*	*Example*
		Create	Building	Building A
		Create	Floor	3rd Floor
		Create	Unit	Apartment C1
		Create	Room	Room 201
		Create	Seat	Cubicle 5
		Create	Additional Info	Pediatric Wing
		Create	Landmark Name	ABQ Botanic Garden
		Create	Mile Post	Milepost 13
		Create	Place Type (R)	Bank
		Create	Placement Method (R)	Site
		Create	Longitude	106.6504
		Create	Latitude	35.0844
		Create	Elevation	5000

(R) = *Values limited to a modifiable NENA registry domain*

CLDXF Format

Existing NM911 GIS Schema	
Field	*Example*
Address Number	
Address Number	100
Address Suffix	A
Street Name	
Street Direction	N
Street Pre Type	Ave
Street Name	Main
Street Suffix	St
Post Direction	SW

How to transition:

NextGen 911 GIS Schema		
Field		*Example*
Address Number		
Address Number Prefix		10-
Address Number		100
Address Number Suffix		A
Street Name		
Pre Modifier		Old
Pre Directional	(D)	North
Pre Type	(R)	Avenue
Pre Type Separator	(R)	of the
Street Name		Main
Post Type	(R)	Street
Post Directional	(D)	Southwest
Post Modifier		Extended

CLDXF Format – Examples

"La Vereda del Sol"

Existing NM911 GIS Schema	
Street Name	
Street Direction	
Street Pre Type	
Street Name	La Vereda del Sol
Street Suffix	
Post Direction	

How to transition:

Create

Modify →

Create

Modify →

NextGen 911 GIS Schema		
Field		*Example*
Street Name		
Pre Modifier		La
Pre Directional	(D)	
Pre Type	(R)	Vereda
Pre Type Separator	(R)	del
Street Name		Sol
Post Type	(R)	
Post Directional	(D)	
Post Modifier		

CLDXF Format – Examples

"El Paso Dr"

Existing NM911 GIS Schema	
Street Name	
Street Direction	
Street Pre Type	
Street Name	El Paso
Street Suffix	Dr
Post Direction	

How to transition:

NextGen 911 GIS Schema		
Field		*Example*
Street Name		
Pre Modifier		
Pre Directional	D	
Pre Type	R	
Pre Type Separator	R	
Street Name		El Paso
Post Type	R	Drive
Post Directional	D	
Post Modifier		

CLDXF Format – Examples

"North Shore Dr"

Existing NM911 GIS Schema	
Street Name	
Street Direction	
Street Pre Type	
Street Name	North Shore
Street Suffix	Dr
Post Direction	

How to transition:

NextGen 911 GIS Schema		
Field		*Example*
Street Name		
Pre Modifier		
Pre Directional	D	
Pre Type	R	
Pre Type Separator	R	
Street Name		North Shore
Post Type	R	Drive
Post Directional	D	
Post Modifier		

PSAP Boundaries

- NextGen systems use PSAP boundaries to route 911 phone calls
- Each PSAP must define the area for which they want to receive 911 phone calls
- PSAPs must coordinate with neighboring agencies to ensure boundaries do not overlap or omit areas
- NextGen standards intend for PSAPs to provide emergency services to the areas for which they receive calls

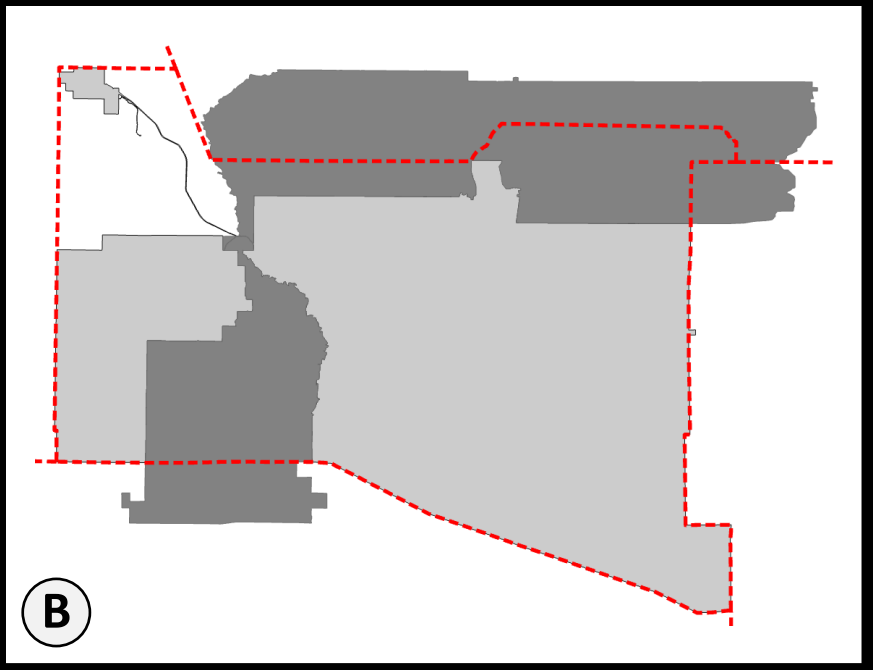
NextGen 911 GIS Schema		
Required	*Strongly Recommended*	*Recommended*
Road Centerlines	Street Name Aliases	Railroad Centerlines
Address Points	Landmark Name Parts	Hydrology
PSAP Boundaries	Complete Landmark Name Aliases	Cell Site Locations
Emergency Service Boundaries	State Boundary	Mile Marker Locations
Provisioning Boundaries	County Boundaries	
	Incorporated Municipality Boundaries	
	Unincorporated Municipality Boundaries	
	Neighborhood Community Boundaries	
	Other Emergency Service Boundaries	

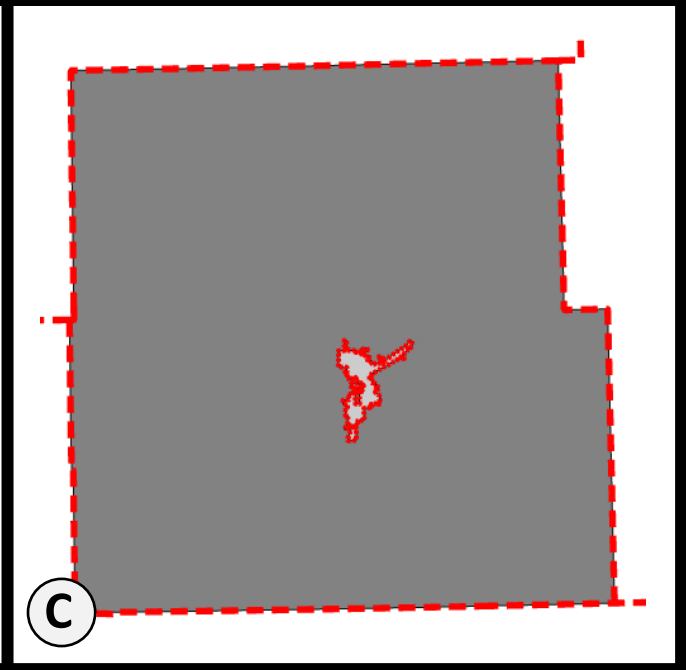
PSAP Boundaries

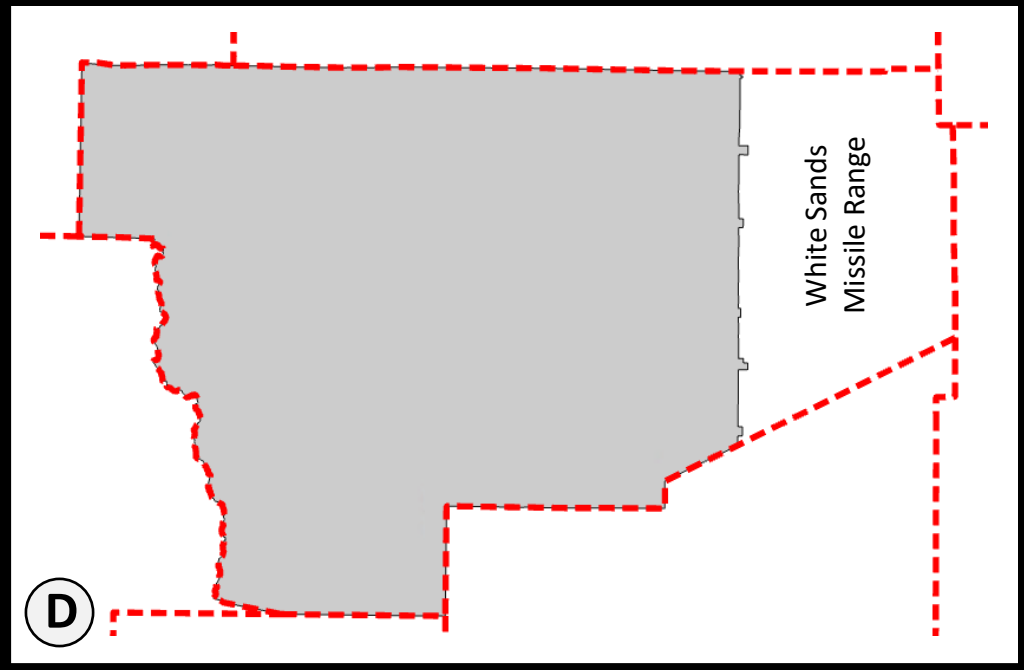
- PSAP boundaries may be approximated by using existing E-911 data, CAD data, and civic boundaries
- PSAP boundaries will be defined by developing other required emergency service boundary layers
- GIS providers and 911 stakeholders must collaborate
- It may be difficult to create PSAP boundaries that function as intended with existing PSAP practices

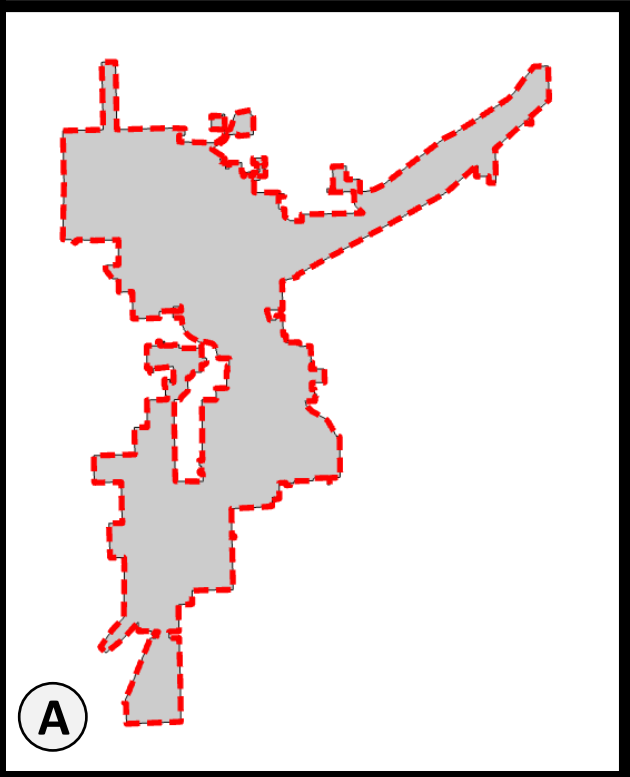
PSAP Boundary Stakeholders

- 911 authorities rely on GIS personnel who may not otherwise be affiliated with 911 to develop PSAP boundaries
- Not all GIS providers play a role in areas with multiple GIS providers
- GIS personnel must collaborate with 911 stakeholders
- CAD administrators should participate if PSAPs already use boundary data in CAD or intend to use NG911 boundary data in CAD







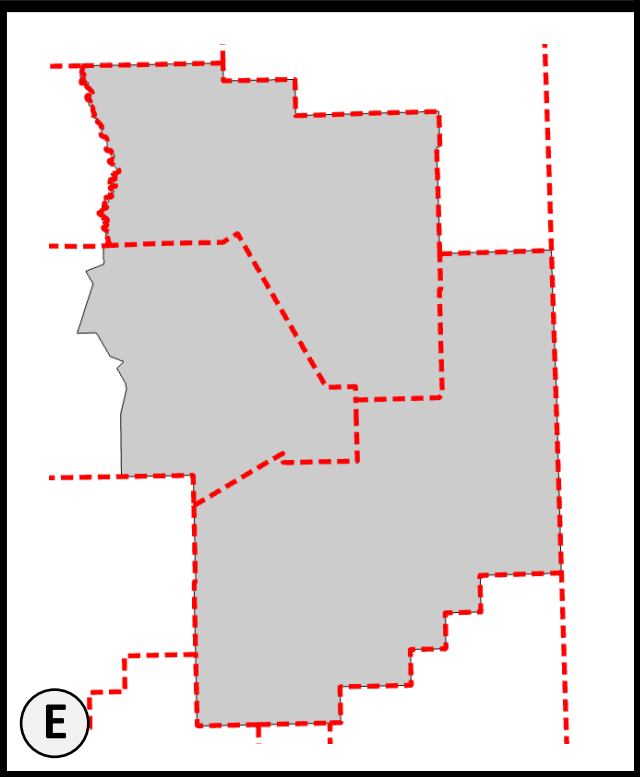


PSAP boundaries may…

- **A** Align with county, municipal, or tribal boundaries
- **B** Intertwine with neighboring PSAP boundaries
- **C** Encompass other PSAP boundaries
- **D** Omit areas covered by other agencies
- **E** Span multiple counties

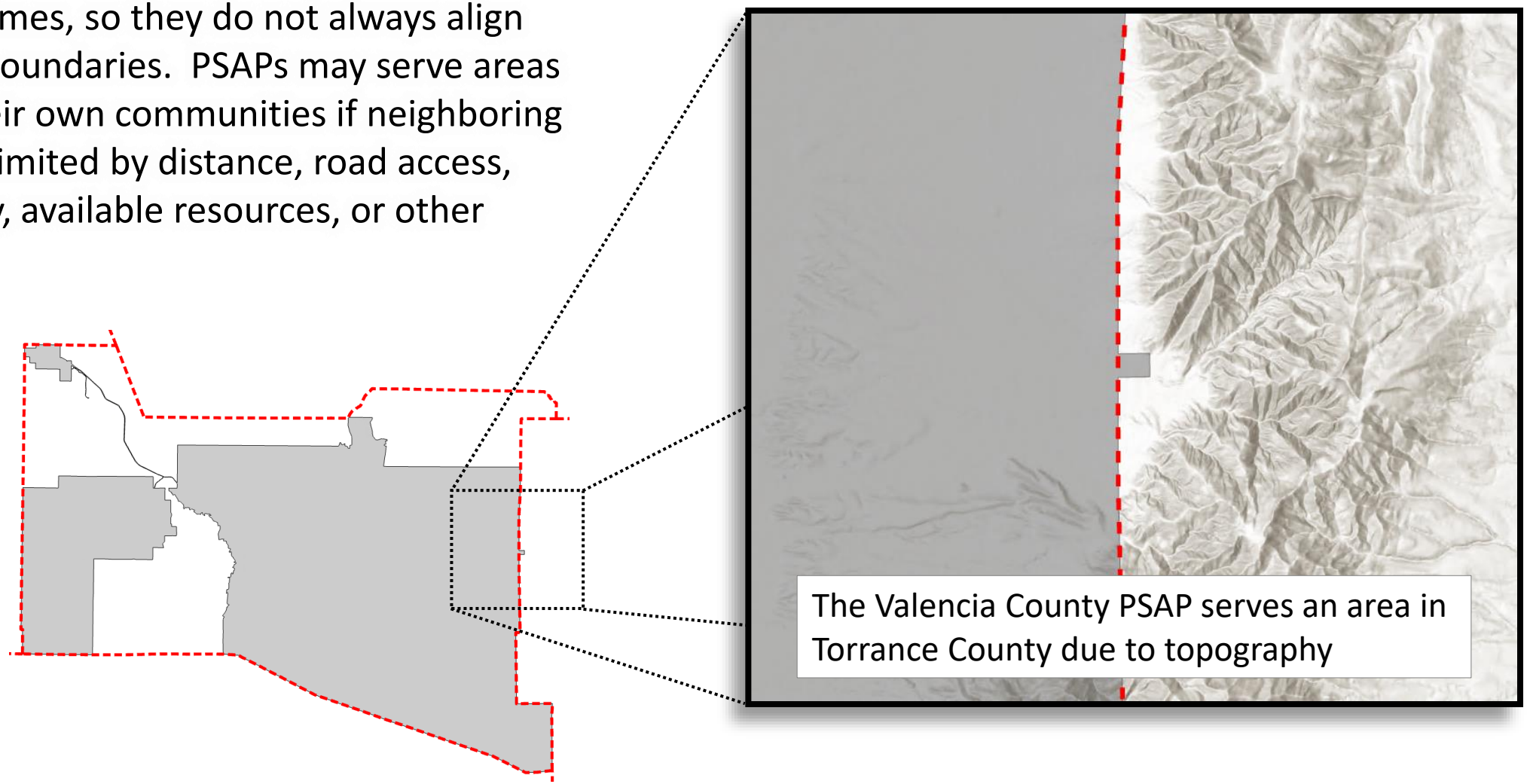
PSAP Boundary

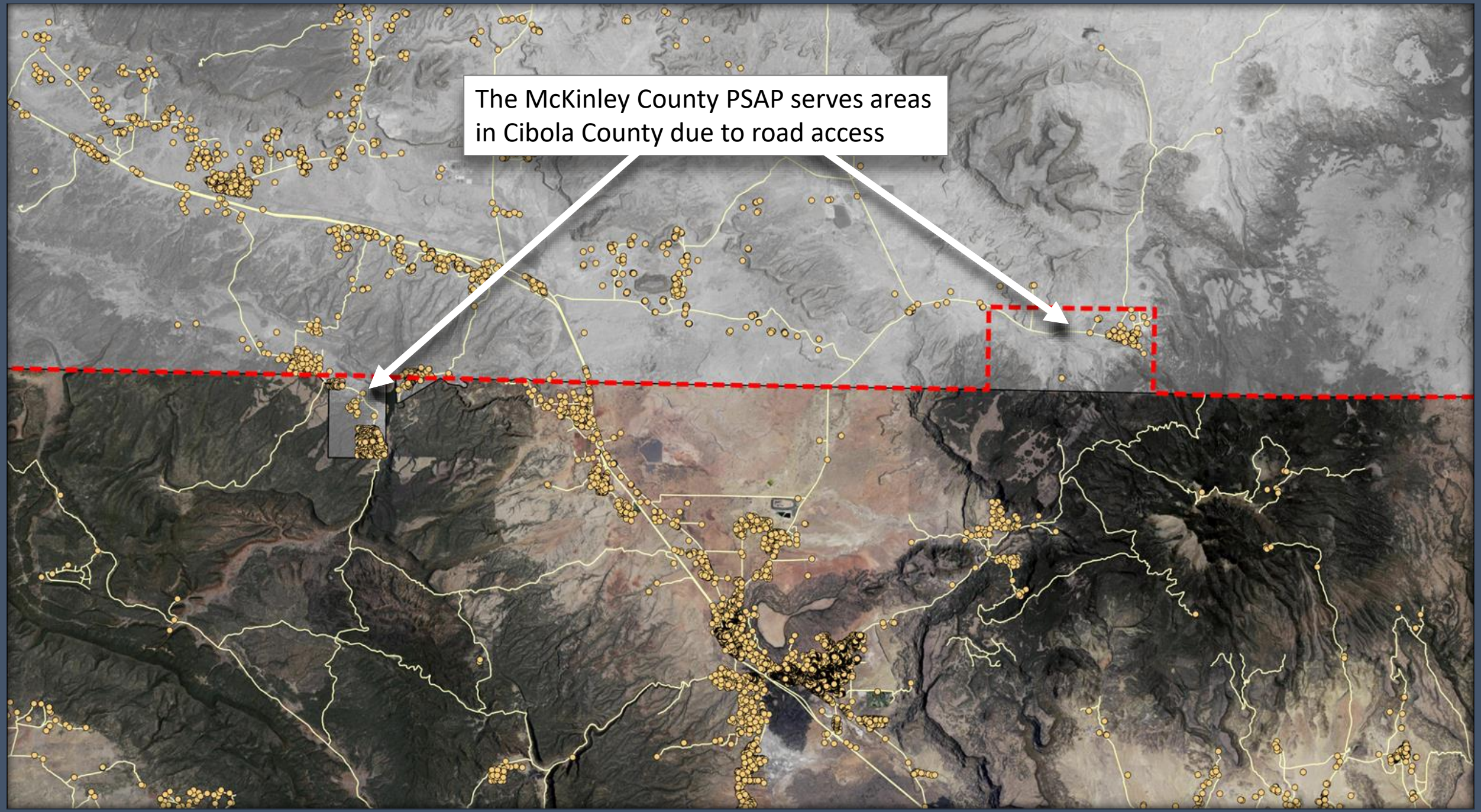
County or Municipality



PSAP vs Civic Boundaries

PSAP boundaries are based on emergency response times, so they do not always align with civic boundaries. PSAPs may serve areas beyond their own communities if neighboring PSAPs are limited by distance, road access, topography, available resources, or other factors.




The McKinley County PSAP serves areas in Cibola County due to road access

Emergency Service Boundaries

- PSAPs use emergency service boundaries (ESBs) to identify appropriate responders, selectively transfer calls, and transmit incident data
- Each PSAP must define separate boundaries for fire, law, and medical services
- PSAPs must coordinate with neighboring agencies to ensure boundaries do not overlap or omit areas
- NextGen standards intend for PSAPs to provide emergency services to the areas for which they receive calls

NextGen 911 GIS Schema		
Required	*Strongly Recommended*	*Recommended*
Road Centerlines	Street Name Aliases	Railroad Centerlines
Address Points	Landmark Name Parts	Hydrology
PSAP Boundaries	Complete Landmark Name Aliases	Cell Site Locations
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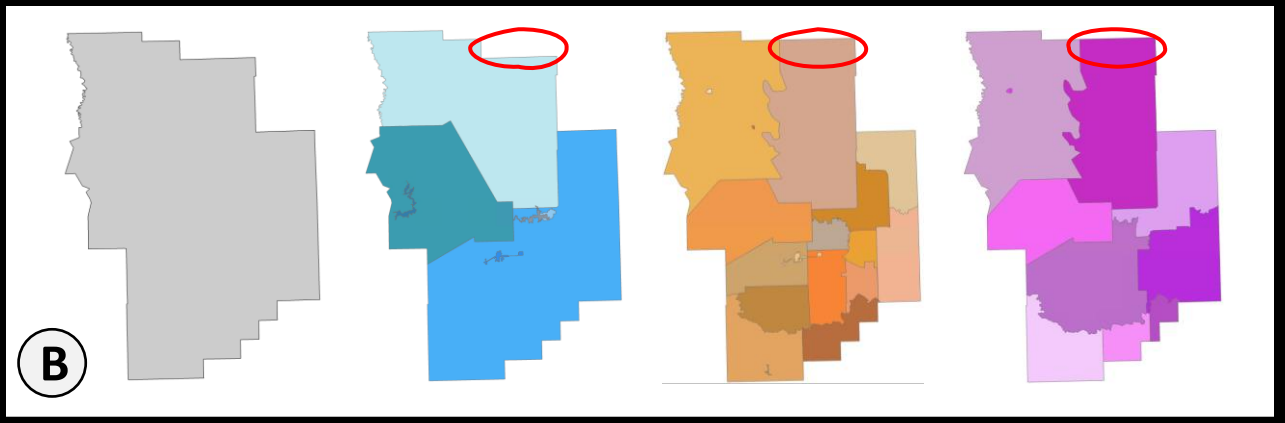
	Incorporated Municipality Boundaries	
	Unincorporated Municipality Boundaries	
	Neighborhood Community Boundaries	
	Other Emergency Service Boundaries	

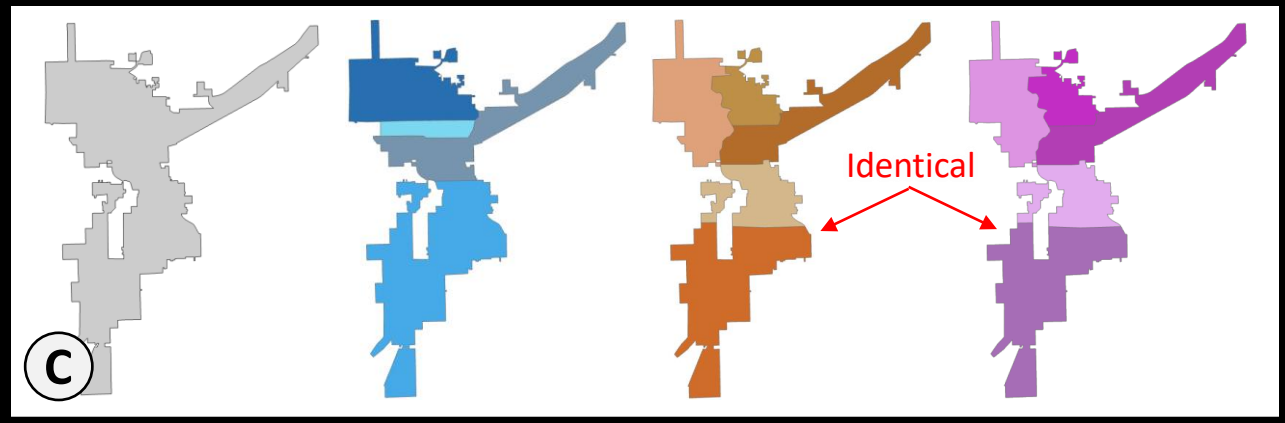
Emergency Service Boundaries

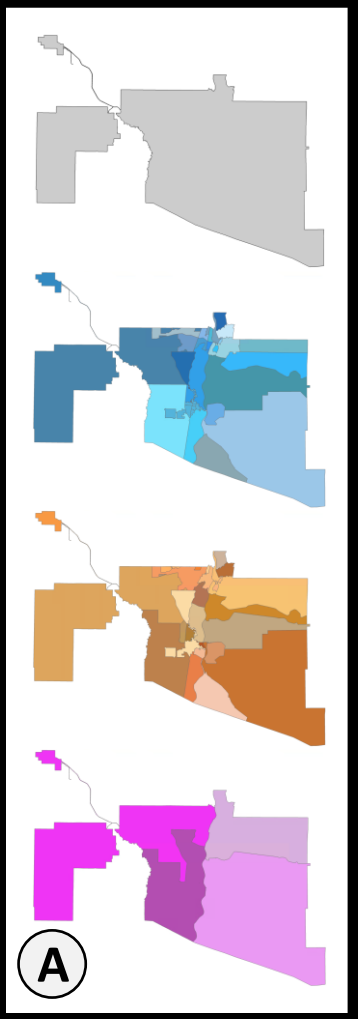
- Many PSAPs already maintain emergency service boundaries for use in their CAD system
- Developing emergency service boundaries will define the PSAP boundary as well
- GIS providers and 911 stakeholders must collaborate and potentially adjust existing emergency service boundaries
- It may be difficult to create emergency service boundaries that function as intended while using existing PSAP practices

ESB Stakeholders

- 911 authorities rely on GIS personnel who may not otherwise be affiliated with 911 to develop emergency service boundaries (ESBs)
- Not all GIS providers play a role in areas with multiple GIS providers
- GIS personnel must collaborate with 911 stakeholders
- CAD administrators should participate if PSAPs already use boundary data in CAD or intend to use NG911 boundary data in CAD



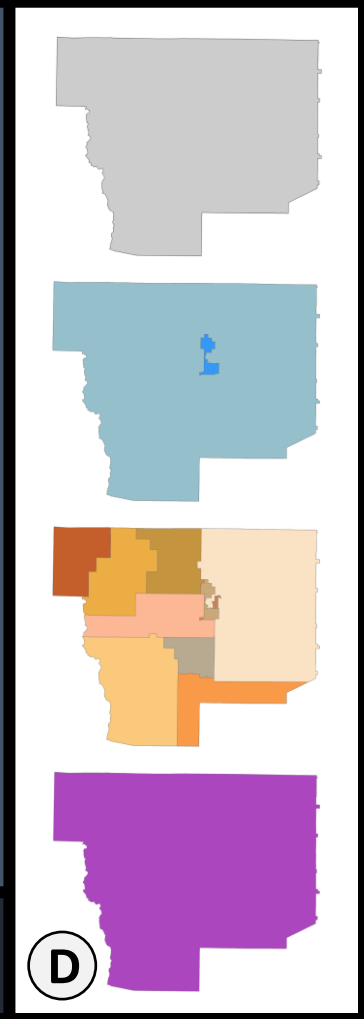




Emergency service boundaries (ESBs) may…

- **A** Share an outer boundary
- **B** Form different outer boundaries
- **C** Use identical polygons for multiple service types
- **D** Contain layers with only one polygon

PSAP Law Fire Medical

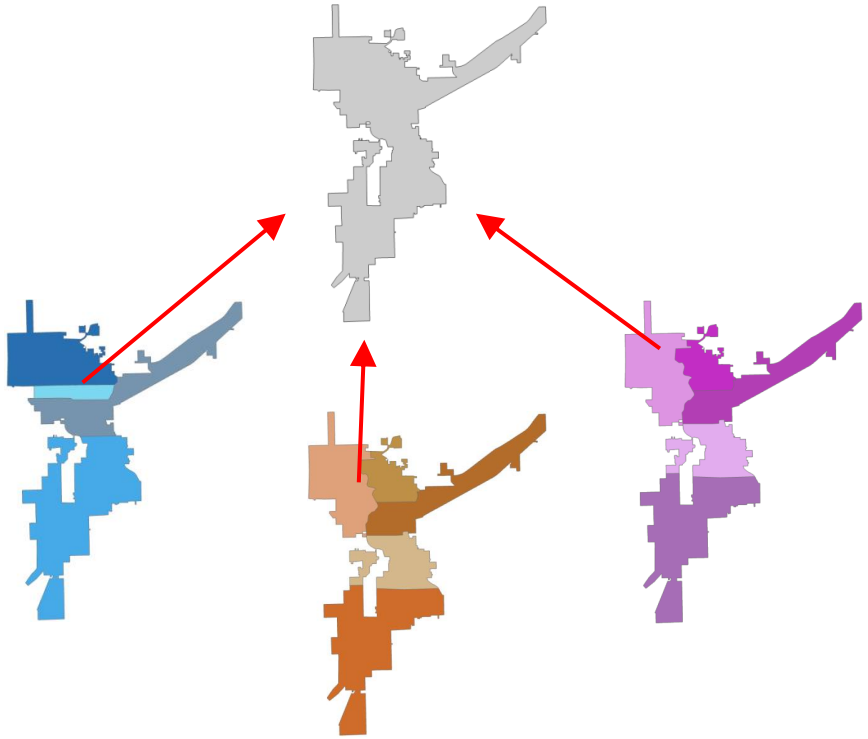


ESBs and PSAP Boundaries

Emergency service boundaries should be used to establish PSAP boundaries

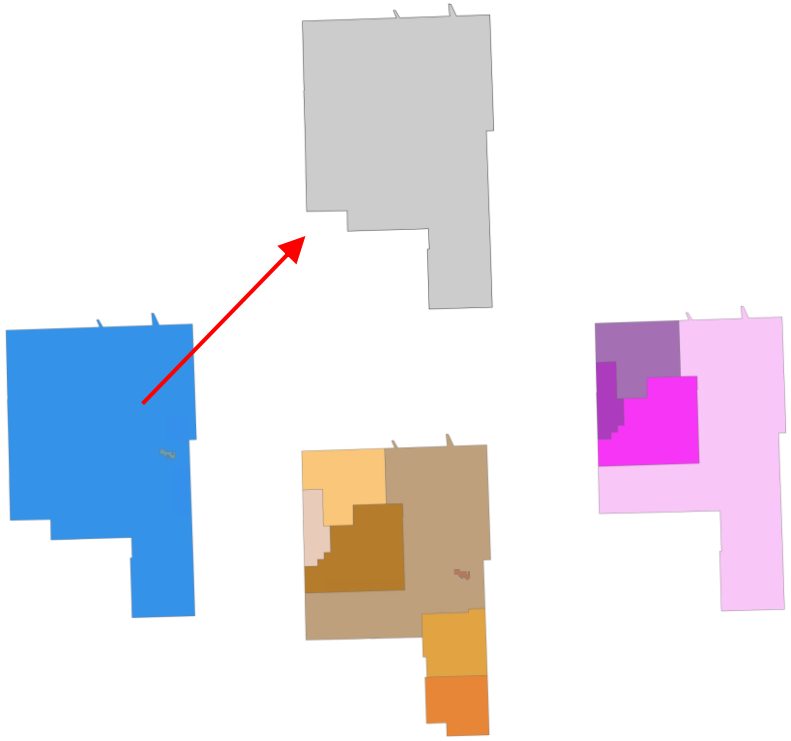
If ESB layers share the same outer boundary...

Align the PSAP boundary with the same outer boundary as the ESB layers



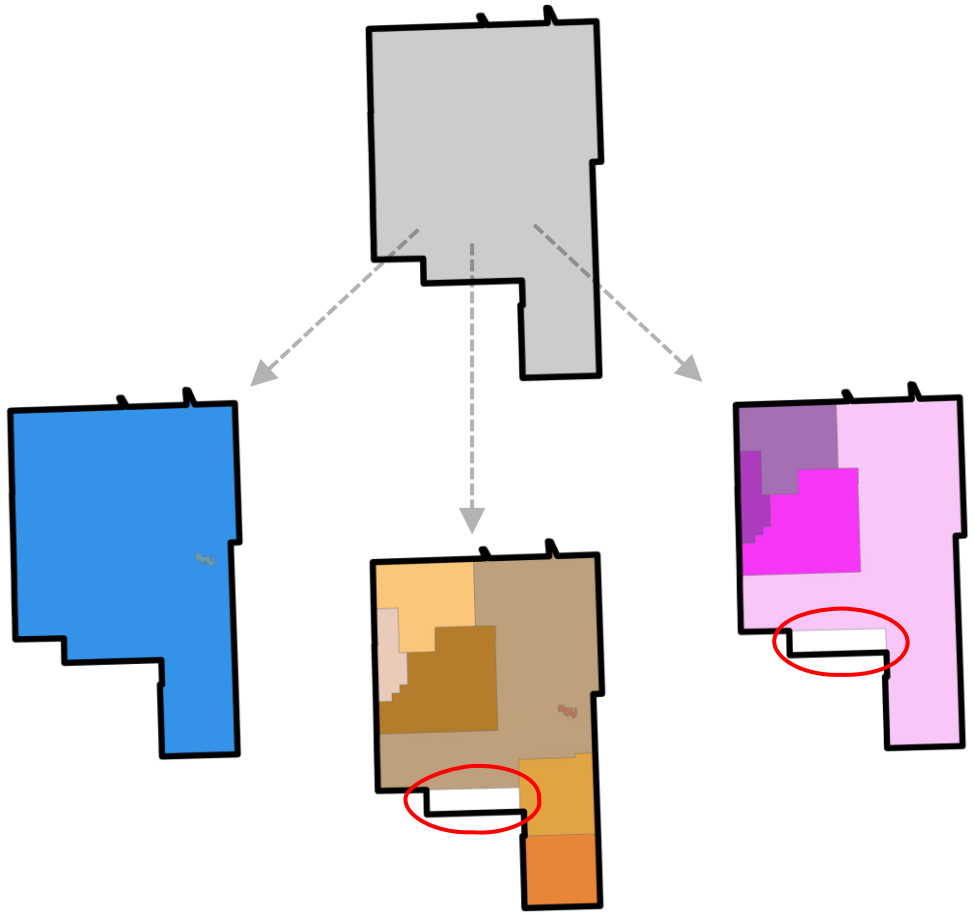
If ESB layers form different outer boundaries...

Align the PSAP boundary with the outer boundary of the **law** ESB layer

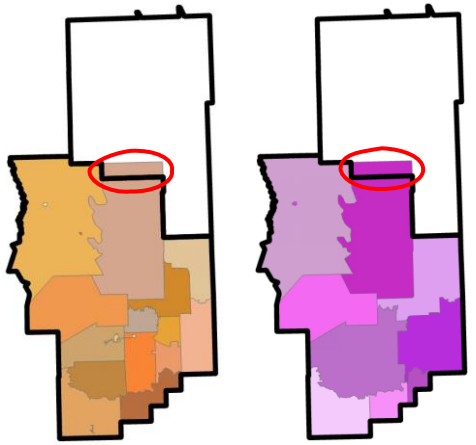


Outer Boundaries

If ESBs form different outer boundaries, PSAPs may receive calls for areas they do not serve



- NextGen guidelines do not intend for PSAPs to receive calls for areas they do not serve
- PSAP and emergency service boundaries do not necessarily have to align to ensure PSAPs can serve the areas for which they receive calls
- PSAPs in many states dispatch neighboring emergency services, rather than transferring calls
- New Mexico PSAPs may need a statewide CAD GIS dataset (and potentially other changes) to dispatch neighboring services



Call Transfers

Call transfers…

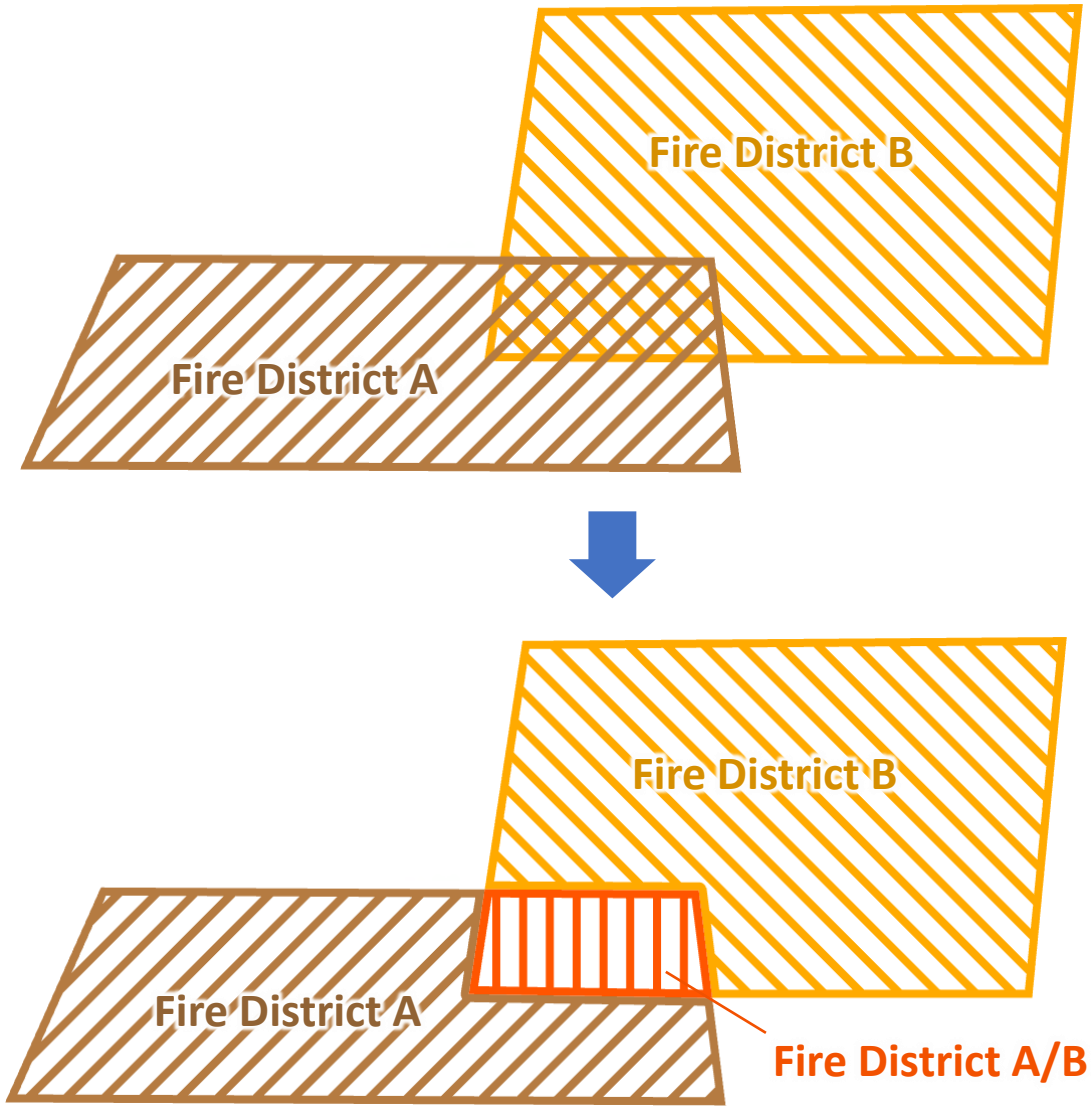
- Delay emergency response and should generally be avoided
- Occur when PSAPs are unable to provide emergency services to 911 callers and consequently transfer them to other PSAPs
- Typically result from misrouted calls

NextGen systems…

- Reduce call transfers because they route calls more accurately, thus reducing misrouted calls and subsequent call transfers
- Do not intend for call transfers to occur intentionally, so the NG911 GIS schema is not well-suited for capturing such situations

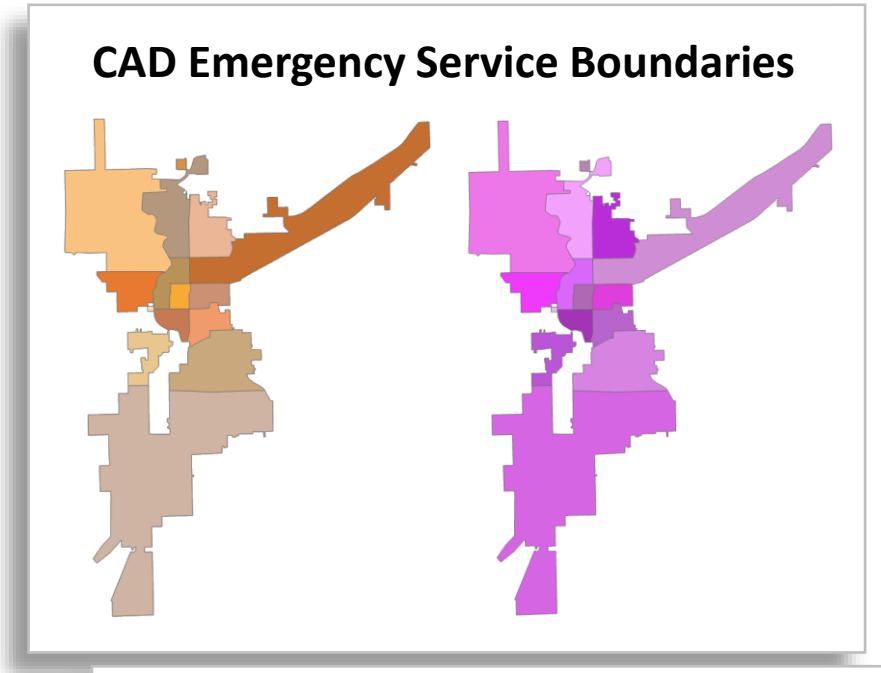
Mutual Aid

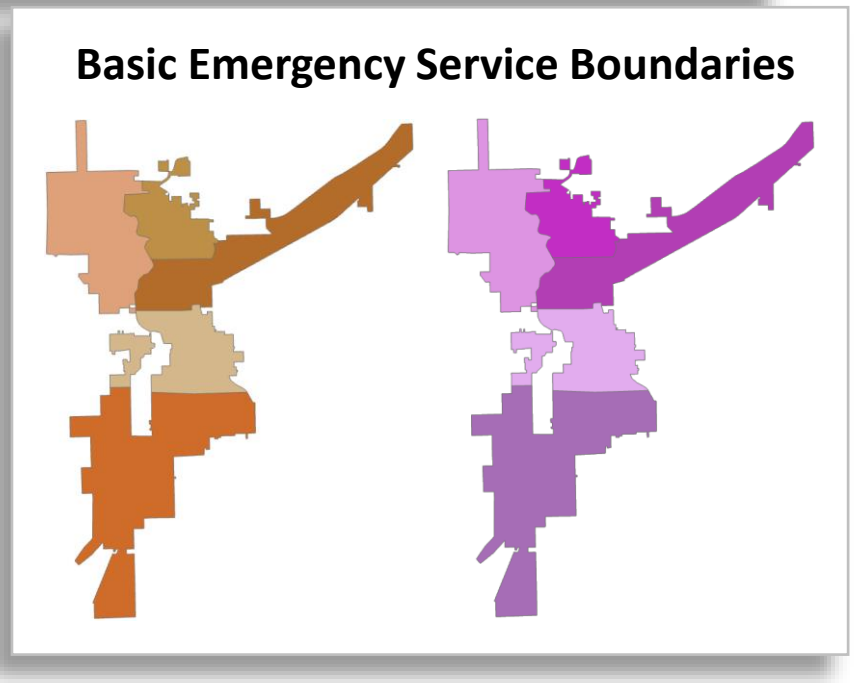
- New Mexico contains many mutual aid agreements, or situations in which multiple emergency responders serve the same area
- New polygons must be created to replace overlapping boundaries in areas with mutual aid
- NextGen guidelines discourage mutual aid, so the NG911 GIS schema is not well-suited for capturing such agreements



CAD Boundaries

- Emergency service boundaries (ESBs) used in CAD systems may be more granular than those required by the NG911 GIS data model
- GIS and 911 authorities may benefit from using the CAD-based ESBs for both systems, rather than maintaining multiple ESB datasets





Provisioning Boundaries

- NextGen systems use provisioning boundaries to ensure only one geodata provider uploads data for a given area
- Designated data provisioners upload GIS data to the ESInet through a Spatial Interface (SI)
- Data provisioners are responsible for uploading all GIS layers
- A NextGen core service called an ECRF uses provisioning boundaries to exclude any features that lie beyond an associated data provisioner's boundary

NextGen 911 GIS Schema		
Required	*Strongly Recommended*	*Recommended*
Road Centerlines	Street Name Aliases	Railroad Centerlines
Address Points	Landmark Name Parts	Hydrology
PSAP Boundaries	Complete Landmark Name Aliases	Cell Site Locations
Emergency Service Boundaries	State Boundary	Mile Marker Locations
Provisioning Boundaries	County Boundaries	
	Incorporated Municipality Boundaries	
	Unincorporated Municipality Boundaries	
	Neighborhood Community Boundaries	
	Other Emergency Service Boundaries	

Provisioning Boundaries

The State of New Mexico will provision GIS data for most (if not all) PSAPs and geodata providers

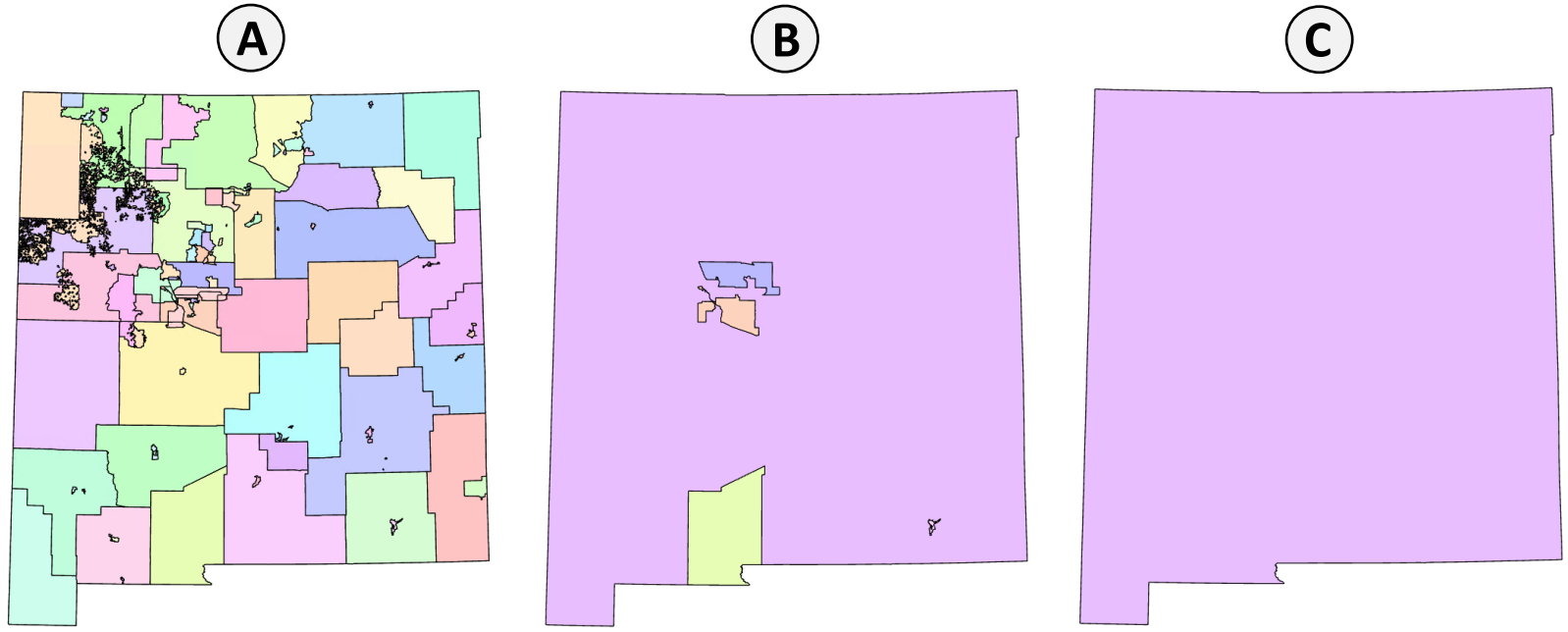
Qualified GIS providers may be able to provision their own data if needed

An additional layer will be needed to identify data authorities

It may be difficult to coordinate between many geodata providers in areas that do not aggregate data

Provisioning vs Data Authority Boundaries

Data Authority Boundaries	Provisioning Boundaries
Indicate who maintains GIS data	Indicate who uploads GIS data to the SI
Not used in NextGen systems	Required for NextGen systems to function
Not included in the NG911 GIS data model	Required in the NG911 GIS data model
May be used for manual error notification	Used to auto-send NextGen error reports
Must be A (below)	May be A, B, or C (below)



Do we need two separate datasets?

The NG911 GIS schema does not include a separate layer for data authority boundaries because provisioning boundaries serve that purpose when PSAPs aggregate and upload data.

If PSAPs do not aggregate and upload data, and each data authority is still designated a data provisioner, polygons that would otherwise end at PSAP boundaries (such as PSAP boundaries) would need to be arbitrarily split and uploaded separately if they spanned multiple data authorities.

Most areas in New Mexico do not aggregate data at the PSAP level, so New Mexico 911 GIS data should therefore be aggregated and provisioned at the state level to avoid the issue described above.

However, provisioning data at the state level results in a boundary dataset that does not indicate who maintains the data, so a separate dataset should also be maintained to identify data authority boundaries.

Data Authority Boundaries

- Help ensure geodata providers do not maintain or submit GIS data that overlaps or conflicts with neighboring data
- Beneficial at the state level for collecting data, performing QA/QC, providing technical support, and facilitating collaboration
- Needed by the data provisioner to relay auto-generated NextGen error reports to GIS providers for error resolution

NextGen 911 GIS Schema		
Required	*Strongly Recommended*	*Recommended*
Road Centerlines	Street Name Aliases	Railroad Centerlines
Address Points	Landmark Name Parts	Hydrology
PSAP Boundaries	Complete Landmark Name Aliases	Cell Site Locations
Emergency Service Boundaries	State Boundary	Mile Marker Locations
Provisioning Boundaries	County Boundaries	
Data Authority Boundaries	Incorporated Municipality Boundaries	
	Unincorporated Municipality Boundaries	
	Neighborhood Community Boundaries	
	Other Emergency Service Boundaries	

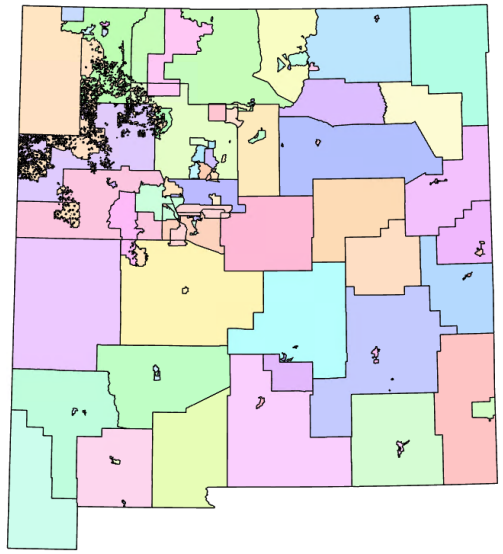
Provisioning & Data Authority Boundary Stakeholders

- 911 authorities, GIS providers, addressors, and the NM911 team will all play a role in developing provisioning and data authority boundaries
- The areas for which 911 stakeholders may want to oversee data will not always align with civic boundaries
- The NM911 program will establish most (if not all) provisioning boundaries and help others develop data authority boundaries

Provisioning & Data Authority Boundaries

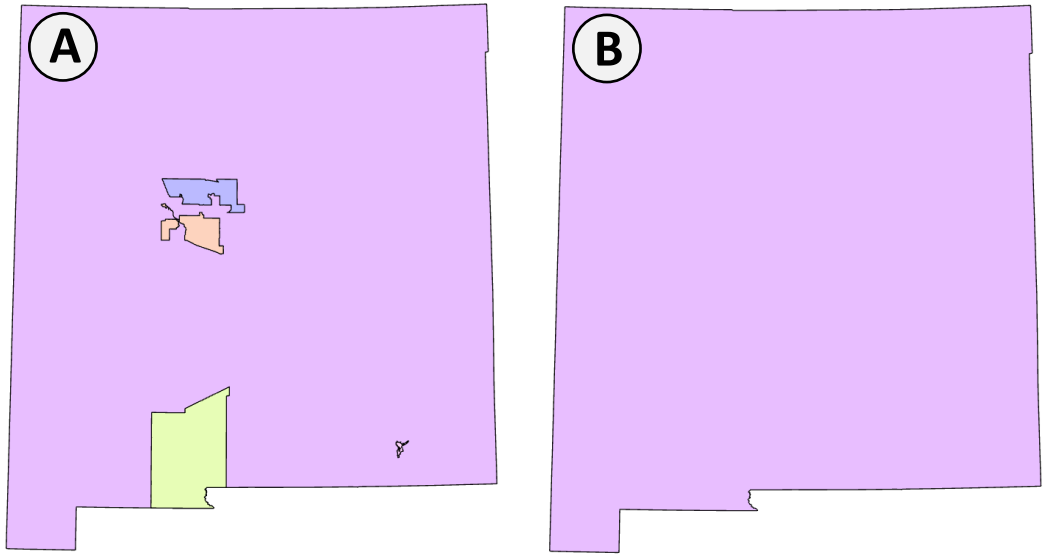
The NM911 GIS schema will contain separate layers for data authority and provisioning boundaries

Data Authority Boundaries



The data authority boundaries displayed above were approximated based on previous E-911 GIS data and will likely change

Provisioning Boundaries



Option ‘A’ may be viable if some PSAPs are capable of aggregating and provisioning data (and it is compatible with service providers). Otherwise, all data should be aggregated and provisioned at the state level (see ‘B’).

Recommended Layers

- All optional layers listed in the NG911 data model will be included in the new NM911 GIS schema, though they will not be required at the local level
- The new NM911 GIS schema may include optional layers specific to New Mexico 911 needs that are not listed in the NG911 data model
- Portions of the existing NM911 GIS schema must migrate from address point and road centerline datasets to optional tables (e.g., aliases)

NextGen 911 GIS Schema		
Required	*Strongly Recommended*	*Recommended*
Road Centerlines	Street Name Aliases	Railroad Centerlines
Address Points	Landmark Name Parts	Hydrology
PSAP Boundaries	Complete Landmark Name Aliases	Cell Site Locations
Emergency Service Boundaries	State Boundary	Mile Marker Locations
Provisioning Boundaries	County Boundaries	
	Incorporated Municipality Boundaries	
	Unincorporated Municipality Boundaries	
	Neighborhood Community Boundaries	
	Other Emergency Service Boundaries	

Recommended Layers

The State of New Mexico will maintain data for many recommended layers

Recommended layers may be used to populate required values in other layers

Geodata providers may need to migrate existing data to different data structure types

Tables will introduce more complexity, and they will not function properly until unique IDs are created in other layers

Key Takeaways

Initial efforts should go towards developing PSAP and Emergency Service Boundaries, because all geospatial call routing requires PSAP boundaries

GIS providers must maintain data that fits into the new NM911 GIS schema, but they do not need to adopt the schema locally

The NM911 program will provide various resources and may convert and create certain data for local GIS providers

The NM911 program must finalize the new NM911 GIS schema and guidance documents before initiating this effort

Collaboration

The NM911 program will help facilitate collaboration between stakeholders, connect neighboring communities, and host meetings and work groups

Resources

Guidance Documents

- NM911 GIS standards
- Addressing standards
- Instruction guides
- 1-pagers
- Templates

Hands-on Support

- Guidance and counsel
- Technical support
- Financial support

Potential Tools

- Workshops
- GIS tools
- GIS alternatives
- MSAG tools

Questions?

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NMDFA E-911 Bureau Website: *nmdfa.state.nm.us/local-government/enhanced-911-program/*
NM911 GIS Website: *nm911.org*