GIS Standard Concepts

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GIS and Oklahoma, are you ready?

- https://www.youtube.com/watch?v=e1NfpBQPYpw

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Intros

- Public Safety
- GIS
- Addressing Authority
- Other

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GIS and NG9-1-1

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What is GIS?

- A framework for gathering, managing, analyzing and displaying data that has a geographical or spatial component
- An integration of hardware, software, data and people

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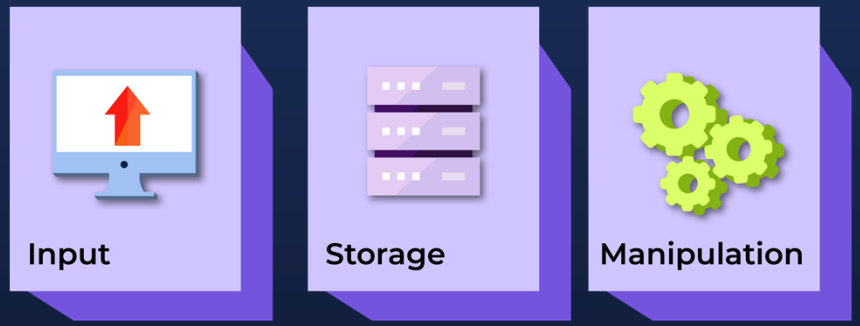
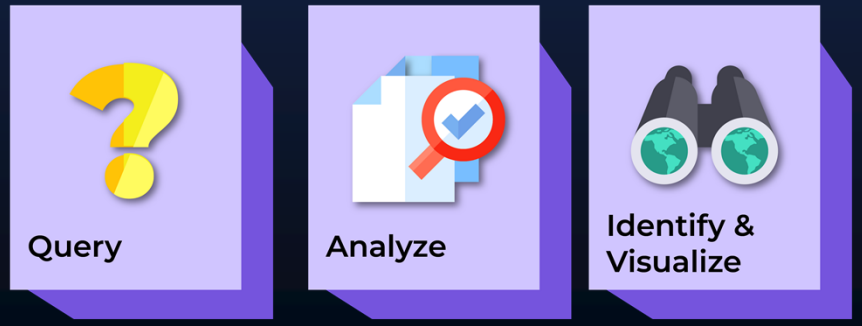
GIS uses geospatial data





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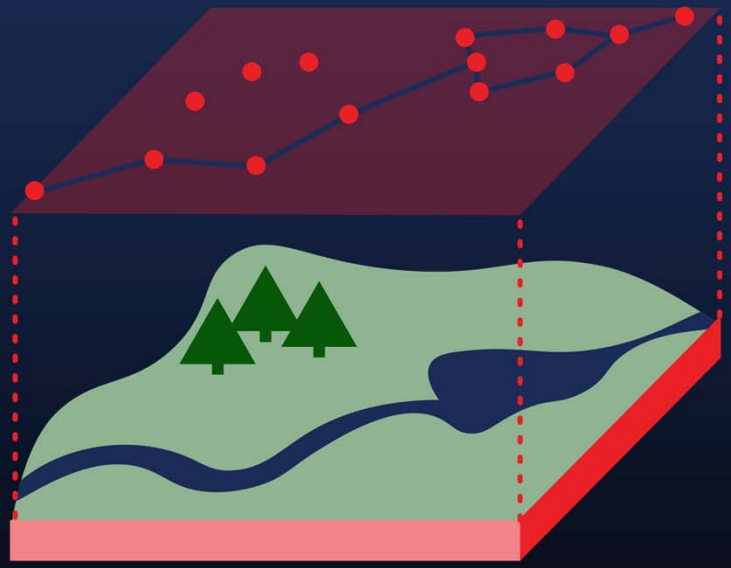
GIS models reality



Hydrants

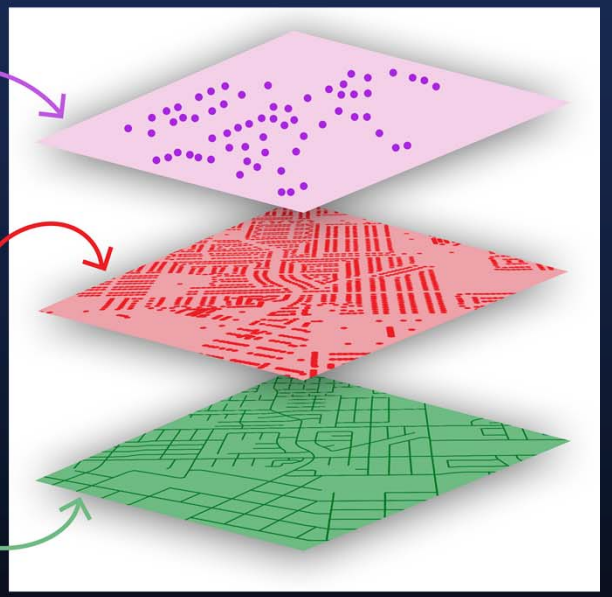
Hydrant #	Pressure	Test Date
22456	441000 PSI	09/01/2020
22457	360000 PSI	09/08/2020
22458	426000 PSI	09/01/2020
22459	439000 PSI	09/01/2020
22460	238000 PSI	09/02/2020
22461	3310100 PSI	09/02/2020
22462	3510100 PSI	09/07/2020

Address Points

USPS Data Element	Address Field	E911 Ex. Value
Street Number	Address	101
Predirectional	PreDir	N
Street Name	Street	Main
Street Suffix	StreetType	ST
Postdirectional	SufDir	NE
Secondary Unit Indicator	Bldg Unit	APT
Secondary Number	BldgName	3
City	City	Guthrie
State	State	OK
Zip	Zip	73044

Road Centerlines

Predir.	Street Name	Street Type	Postdir.
N	Main	St	NE
N	Main	St	NE
N	Main	St	NE
N	Main	St	NE
W	Franklin	Blvd	NW
W	Franklin	Blvd	NW
W	Franklin	Blvd	NW
W	Franklin	Blvd	NW



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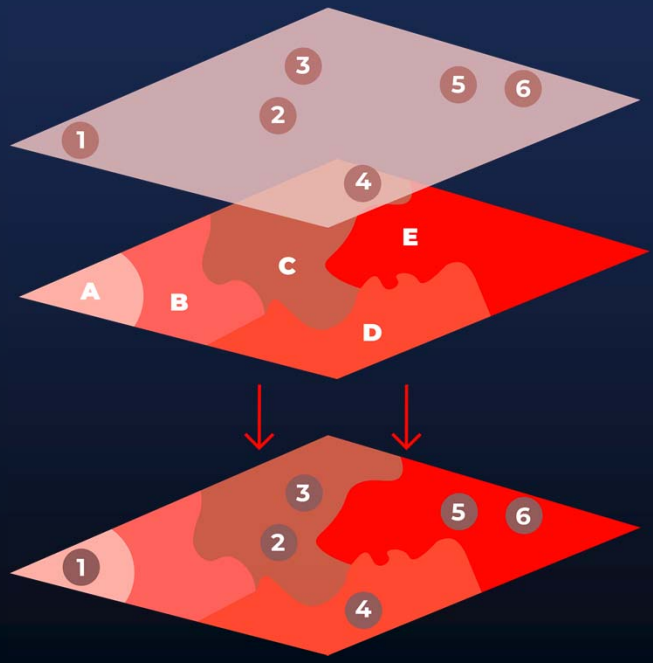
NG9-1-1: mission critical data

- Road Centerlines
- Address Points
- PSAP Boundary
- Discrepancy Agency Boundary
- ESB Fire
- ESB Law
- ESB EMS



1	A
2	C
3	C
4	D
5	E
6	E

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What is a GIS data model?

- Describes thematic data layers
  - i.e. road centerlines, address points
- Describes spatial representation/formats of layers
  - i.e. points, lines, polygons
- Attributes of the layers (data schema)
- Defines topology-relationships among features within layers or between other layers
  - i.e. node to node topology for road centerlines
  - i.e. county boundaries must be totally contained by their state boundary

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OK Geographic Information NG9-1-1 and Addressing Standard

- Supports the NENA Standard for NG9-1-1 GIS Data Model (NENA-STA-006.1.1-2020)
- Defines layers required for NG9-1-1
- Describes spatial representation of layers
  - i.e. street centerlines are a line dataset
- Defines attributes for each dataset
  - i.e. mandatory, conditional, optional, transportation
  - Domain values for standardization

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Accuracy and completeness

- Accuracy
  - Do the geography and attributes correctly reflect what is in the real world?
- Completeness
  - Do I have all the required layers?
  - Am I missing data from a layer? i.e missing address points?
  - Are all required fields present in the data?
  - Are the fields populated?

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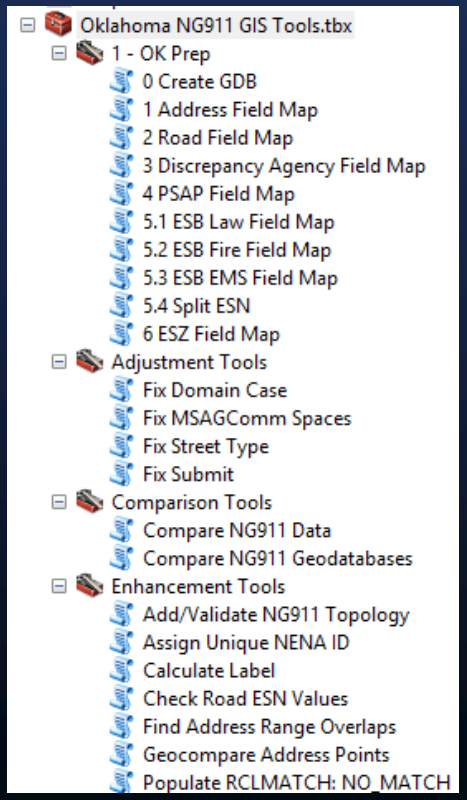
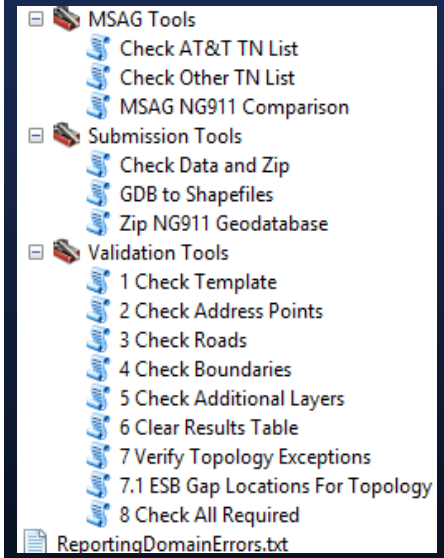
The OK NG9-1-1 GIS Toolkit

- The State of OK has developed a toolkit to assist in preparing data for NG9-1-1
- Class 2: week of November 14th





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Creating an NG9-1-1 Workflow

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What is preventing you from achieving NG9-1-1 readiness?

- Resources
  - Staffing
    - Time!
  - Technology
  - Funding
- Silos
  - Roles and responsibilities
  - Communication/stakeholder engagement
  - Cooperation and education
- Existing workflows

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NG9-1-1 workflow

- Clearly defined roles and responsibilities
  - Addressing authority
  - RCL authority
  - Public safety
  - GIS
- Communication and education
  - Discrepancy feedback loop
- Data editing and management
- Updating public safety systems
- Risk mitigation

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Addressing authority responsibilities

- Assign addresses for public safety (logical and consistent!)
- Follow best practices for addressing and road naming
- Data added to GIS within 3 business days (NENA)
- Engage public safety!
  - Plans/road name review
  - Unique addressing scenarios
- Resolve addressing discrepancies
  - Real world
  - GIS data

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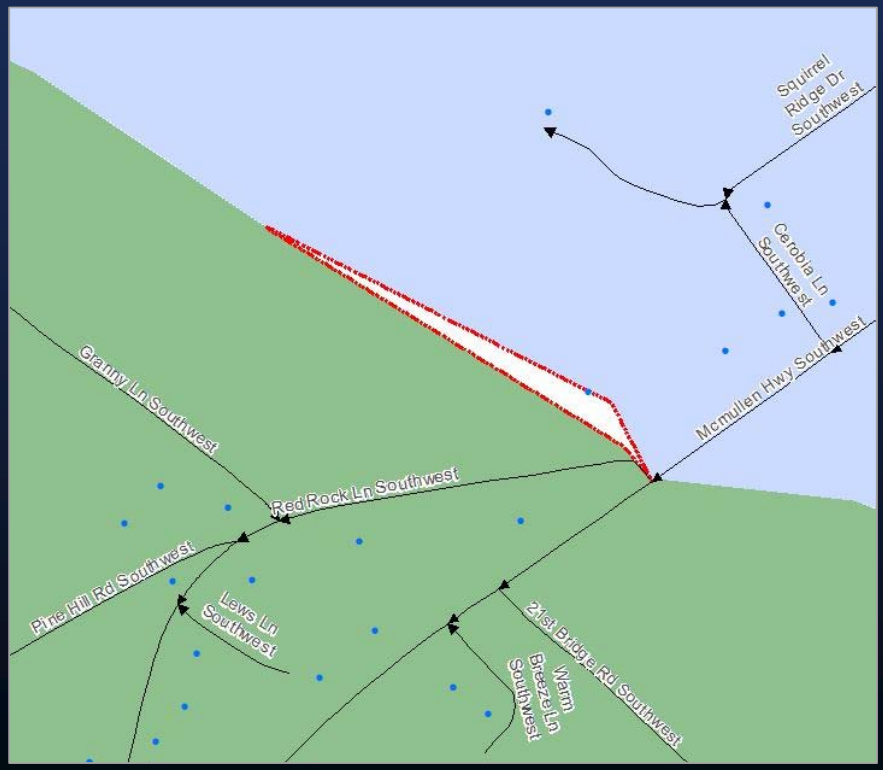
Public safety responsibilities

- Engage in addressing/RCL process
  - Identify discrepancies/problem areas
- Assist with data creation
  - ESBs
  - ESZs
- Boundary facilitation
- MSAG/ALI
- System vendors: NG9-1-1 compliance



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GIS responsibilities

- Skilled staff
- Work with public safety/addressing authority to create and manage required GIS layers
- Understand the data model and Toolkit!
- Data validation is an iterative process, not one and done
- Upload to the OK Repository

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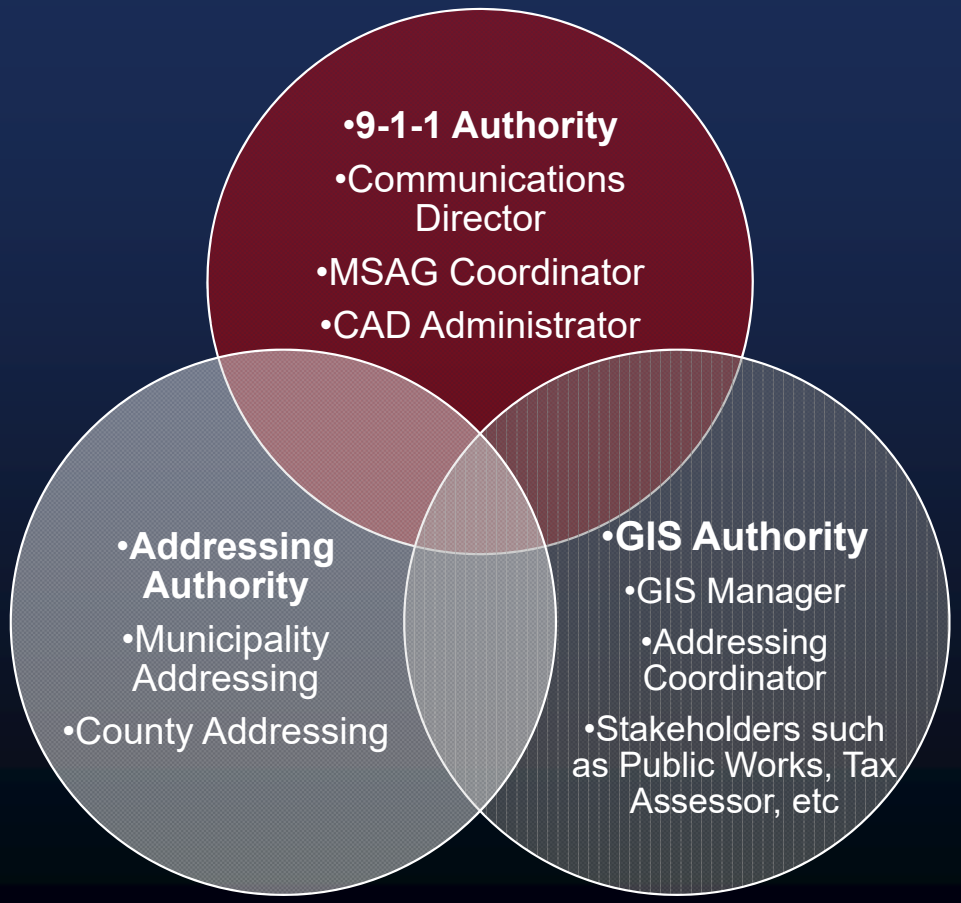
Communication and education

- Addressing/RCL plan review process
- Discrepancy feedback loop
  - Dispatchers/first responders
  - Citizens
  - Ticketing system
- Education for data managers (OK training)
- Education for non-public safety staff involved in the workflow
  - Planning, Inspections, etc.



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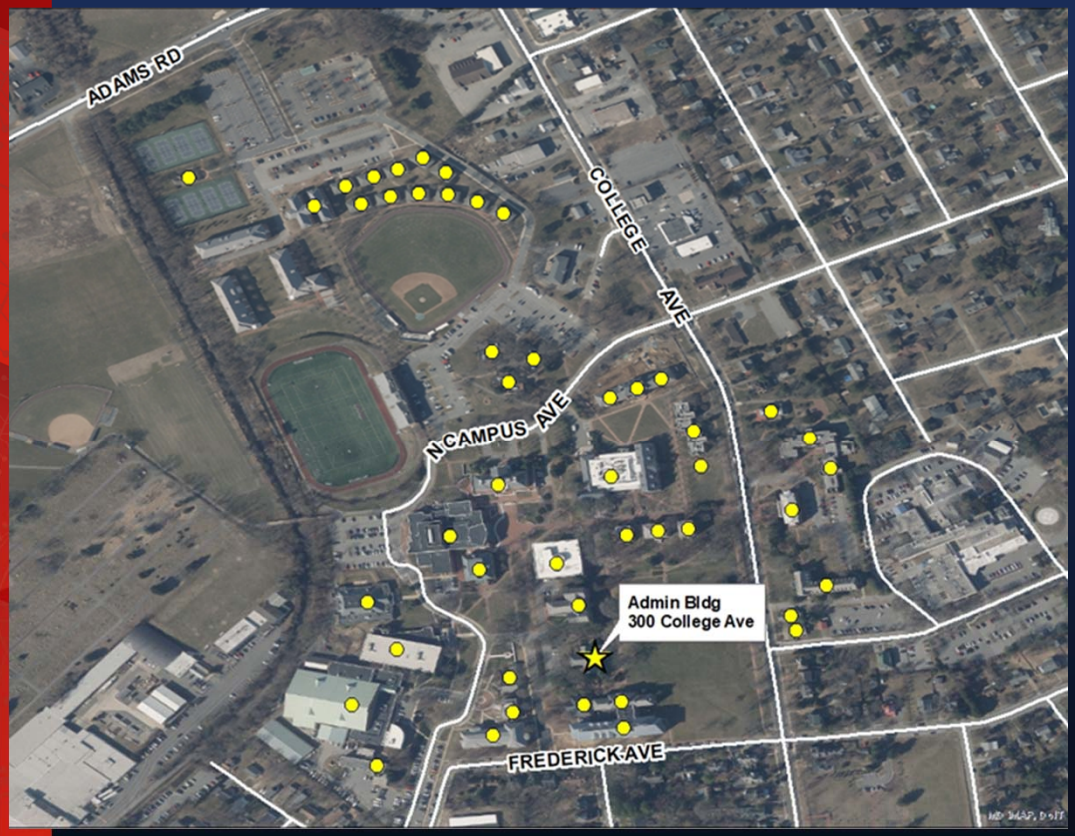
ADAMS RD
COLLEGE AVE
N CAMPUS AVE
Admin Bldg
300 College Ave
FREDERICK AVE


Existing
Proposed
Wayne Gilchrest Rail Trail
Path
Main Entrance

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Data editing and management

- Follow best practices for GIS data management
- Maintain required fields within data
- Be mindful of how other features impact data attributes
  - Address point within road range - ranges may require adjusting when address points are added or removed
  - Breaking road centerlines at boundaries and updating attributes appropriately
- Parse address elements
- Standardizing Attributes
  - Leverage domains to reduce inconsistencies and errors
  - Avoid blank values in data and replace with NULL
- USE THE TOOLKIT

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Updating public safety systems

- Data should be updated frequently
- CAD and 9-1-1 system data should be the same as SI
- Document the updating workflow for these systems
- Understand the schema requirements of the data

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Mitigating risks

- Engage stakeholders
- Proactive, not reactive
- Implement best practices for addressing and road centerline workflows
- Best practices for data management
- Create a QA culture
- Strategic planning!

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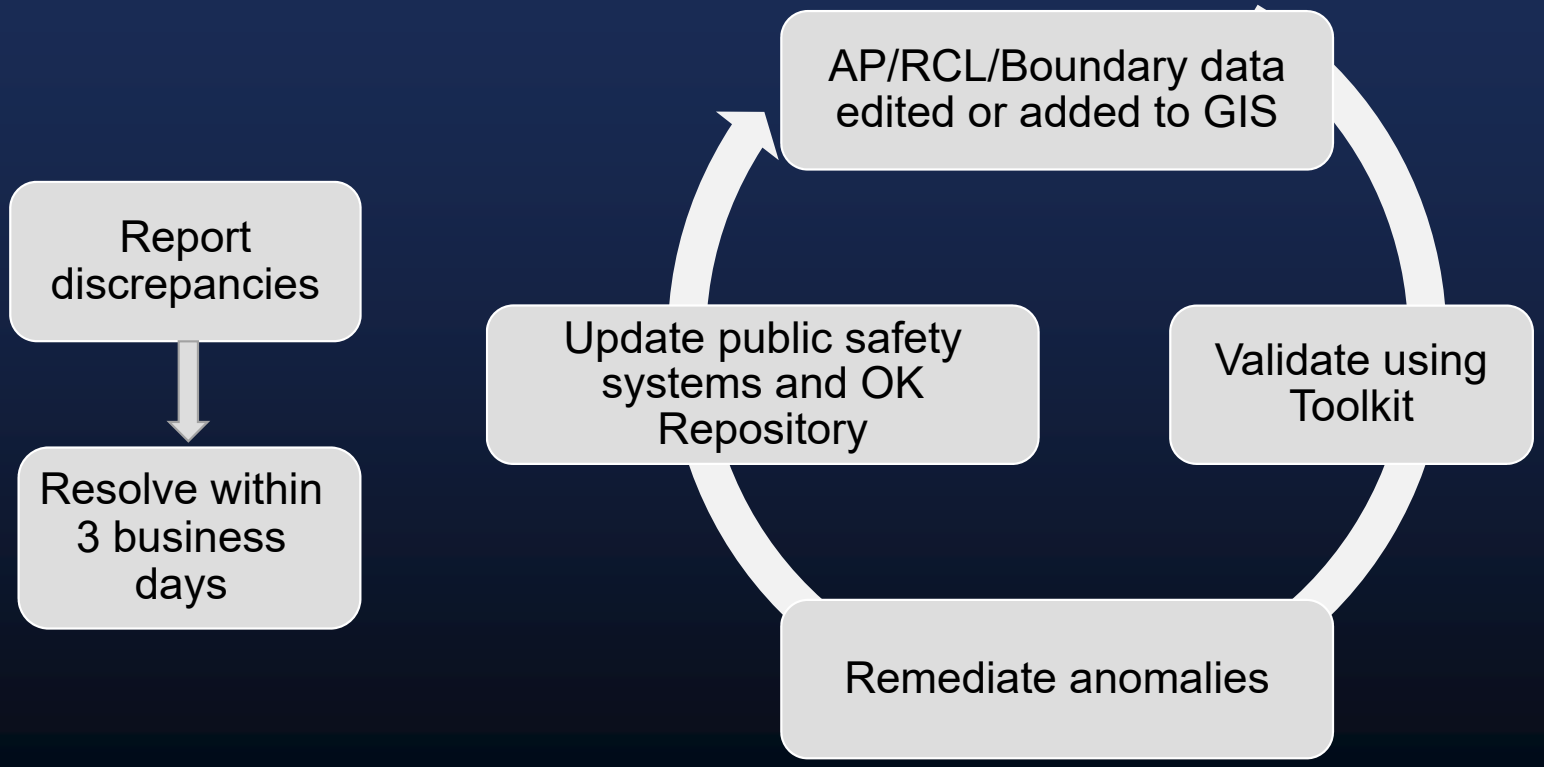
Ideal NG9-1-1 workflow



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When to ask for help

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Do I need assistance?

- Staff
  - GIS personnel
  - Can staff manage the demands of NG9-1-1?
- Knowledge
  - OK standards
  - NENA requirements
  - NG9-1-1 stakeholder engagement
- Time
  - Funding timelines
  - Balancing workload

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Do I need assistance?

- Do you have all the required GIS data layers?
  - Correct schema
- Are the layers accurate and complete?
- Do your address points and road centerlines reflect the same information?
- Have you performed a GIS to ALI and MSAG comparison?

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Do I need assistance?

- Do you have software and tools for validating, correcting, and maintaining your data?
  - On-premise vs cloud-native
  - Staff skill levels
- Are you able to easily access data from relevant sources?
- Are you able to easily load your data into other relevant systems?

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Grant opportunities

- Application deadlines
  - The period of performance for the 2021 Grant Program is July 1, 2021 – June 30, 2023. Projects must be completed and closed out no later than June 30, 2023.
- Match funds requirement
  - GIS grants can be considered for 100% funding if the grant is being used to bring GIS data up to the Oklahoma Geographic Information NG9-1-1 and Addressing Standard for uploading into the State repository
- **https://www.ok.gov/911/documents/2021%20Grant%20Guidelines_Final%20w%20Vendors.pdf**

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Important info

- OK 9-1-1 Management Authority
  https://www.ok.gov/911/
- Lance Terry, State of OK 9-1-1 Coordinator
  911@oem.ok.gov
- **Class 2 Training**
  - **November 15, OKC**
  - **November 16, Lawton**
  - **November 17, OKC**
  - **January 24, Tulsa**
  - **January 25, Tulsa**
  - **January 26, OKC**

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Questions

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