

# Addressing Best Practices

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# Agenda

- History and legacy
- Addressing for public safety
- Best practices
- The role of the addressing authority
- The path forward

# Quiz Time

- Addressing is a function of the US Postal Service. **× False**
- An address can be assigned without a “structure” present. **✓ True**
- Addressing is mission critical to all government functions. **✓ True**
- Subaddressing isn’t that important to maintain. **× False**

# History & Legacy

# Origins

- “I’ll meet you at the Fox and Hound”
- Giving directions: “Turn left at the Windy Mermaid and then right at the Broken Wagon.”
- Census
- Conscription
- Tax collection



# Point of Service Delivery

- USPS
- Pizza
- Utilities
- School bus
- Uber/Lyft
- Census
- Public Safety

# Evolution of Legacy Systems

- Boundaries between jurisdictions
  - Change in grids
  - Change in street names, types, directional
- Addressing authorities didn't have all necessary information
  - Driveway/access
  - Number of lots
- Lack of ordinances or SOPs

# Current State

- Addressing is determined locally...for better or worse
- Patchwork of addressing systems
- Public perception: addressing is a function of USPS
- No standard systems of record for addressing
- Disparity in resources for managing addressing information



# Addressing for Public Safety

# NENA Definitions

## Dispatchable Location

“Statue of  
Liberty”

“A location determined by a telecommunicator that is derived from an ALI Response (in E9-1-1) or derived from a PIDF-LO (in NG9-1-1) represented as a civic location or geodetic location and sometimes modified after communication with a caller that contains enough detail for accurately dispatching emergency ”

-- *NENA Master Glossary of 9-1-1 Terminology [NENA-ADM-000.21-2017]*

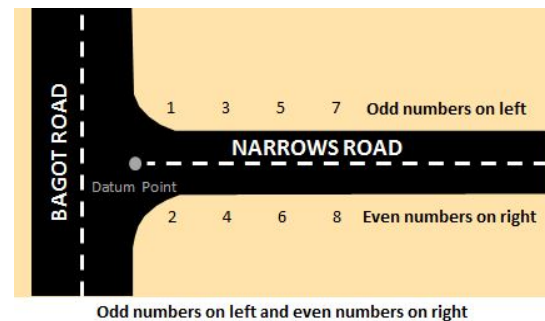
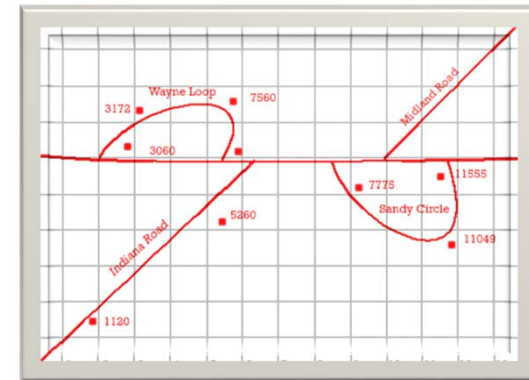
PIDF-LO stands for Presence Information Data Format Location Object, and is an IETF standard that is used to represent an address/location in XML format.

# Addressing for Public Safety

- Create set of rules and guidelines to support public safety usability
- Addressing system should be:
  - Easy to understand and comprehend
  - Logical
  - Easy to update and maintain
- Different addressing systems may be applied

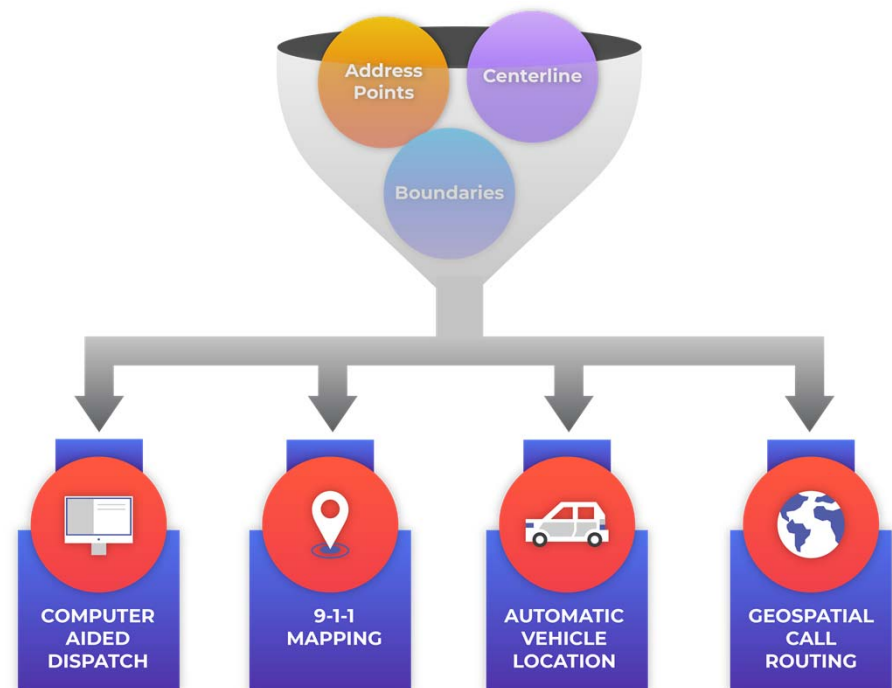
# Addressing Systems

- Grid
  - Increment by block
  - Large numbers
- Distance-based
  - Increment by distance along road
  - Parity based on side of road
- Combination of grid and distance-based
- Wingin' it



# How are address points used in public safety?

- Public Safety Systems supported by GIS:
  - Computer-Aided Dispatch (CAD) Systems
  - 9-1-1 Mapping
  - Other operational apps
    - ✓ AVL
    - ✓ Crime Analysis
    - ✓ Warrant Support
    - ✓ Predictive Analysis



# Common Addressing Challenges

- Long driveways may upset addressing system intents
- Range management: actual vs theoretical
- Compact address ranges
- Infill addressing gets complicated
- Annexations
- Multi-structure addressing and sub-addressing
- Lack of public safety engagement
- Lack of GIS resources

# Best Practices

# Naming Roads

## Do:

- Maintain a master road name list
- Include public safety in naming/approval process
- When 2 or more structures share a ROW, name the ROW
- Naming roads prevents addressing shortage later

## Avoid:

- Duplicate names or ones that sound phonetically similar
- Abbreviated names
- Names with punctuation
- Directionals



# Addressing

## Do:

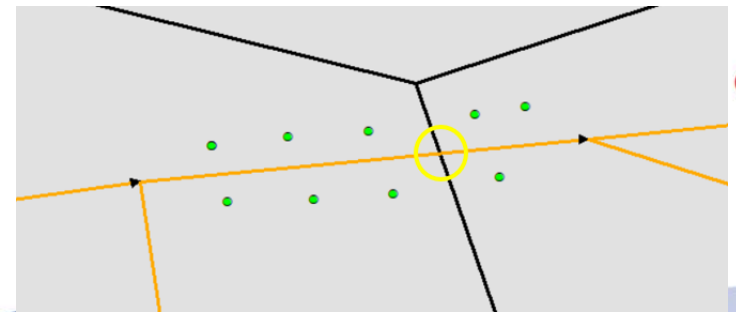
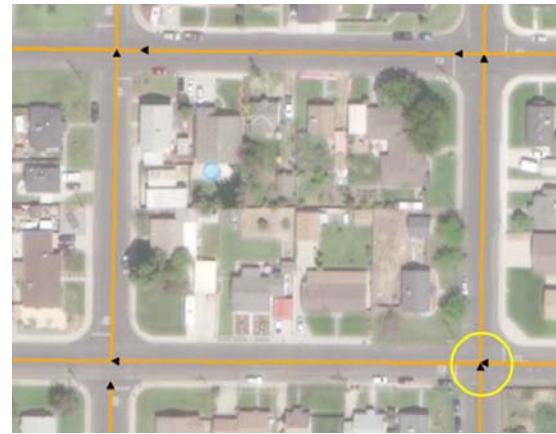
- Assign numbers to all inhabited structures
- Corner lots-assign address based on front door
- Consider future development
  - 5.28'-1000 addresses/mile
- Manage subaddresses

## Avoid:

- Street numbers longer than 6 characters
- Fractionals
- Alphanumerics
- Hyphenated addresses

# Managing Road Centerlines in GIS

- Geometry and attributes should reflect real-world
- Parse street elements into separate fields
- Split and snap centerlines at intersections and boundaries
- Digitize in the direction of travel
- Avoid “paper streets” in the master RCL



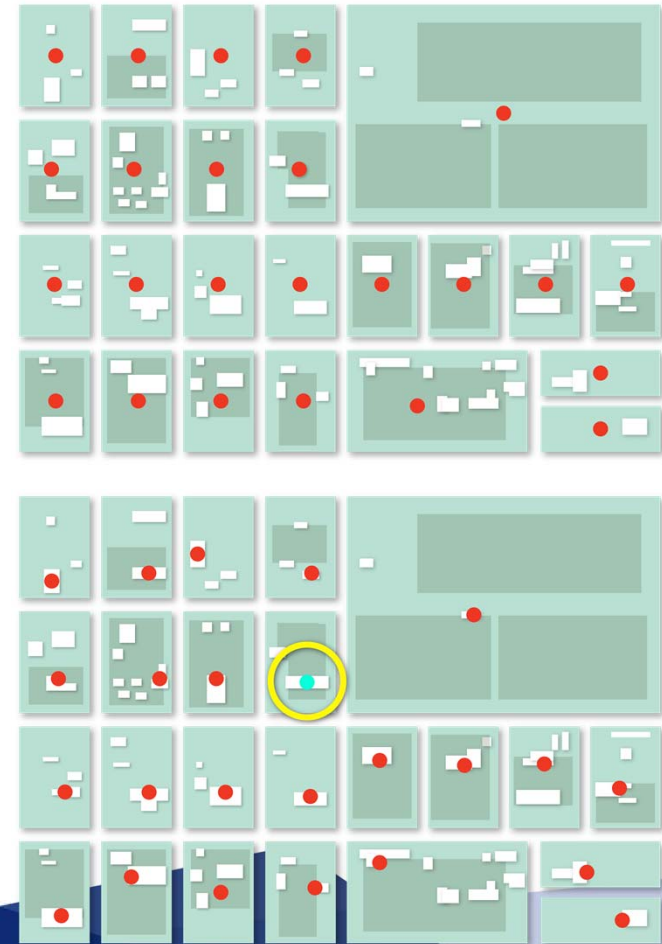
# Managing Address Points in GIS

- Geometry and attributes should reflect real-world
  - Accuracy vs precision
- Parse address elements into separate fields
- Use consistent placement methodology
  - NENA-INF-014.1-2015  
Development of Site/Structure  
Address Point GIS Data
- Manage subaddresses



# Address Point Placement Methodologies

- Geocoding - range of road segment to approximate address
- Parcel - centroid
- Site - location with no defined boundary/structure
  - Campsite, ball field, picnic area
- Structure(s) - within the building footprint
- Property access – at the access to the property



# Placement Methodologies for Public Safety Applications

Method	NG9-1-1 Location Validation/Call Routing	9-1-1 Map Display	Computer Aided Dispatch	Vehicle Routing	Emergency Notification
Geocoding	*	*	*	**	*
Parcel	**	**	**	*	**
Property Access	*	**	**	***	**
Site	**	**	**	*	**
Structure	***	***	***	*	***



# Subaddressing

- Schools (elementary, middle, high, community college, university, vocational/technical, sensitive populations)
- Hospitals and health complexes
- Nursing homes/group residential
- Apartments/condos
- Mobile home parks
- Parks/sports fields/recreational areas
- Industrial/business complexes
- Shopping center complexes
- Farms
- Rehabilitation facilities
- Daycare centers
- Storage units



# Subaddressing Challenges

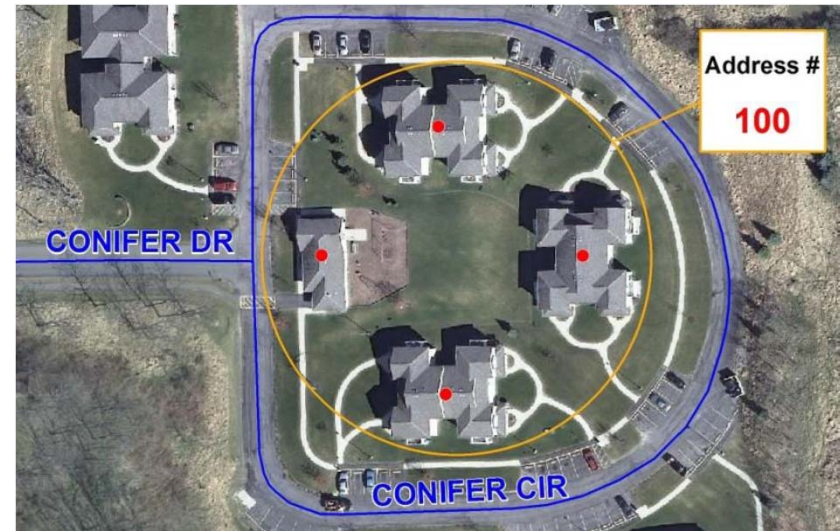
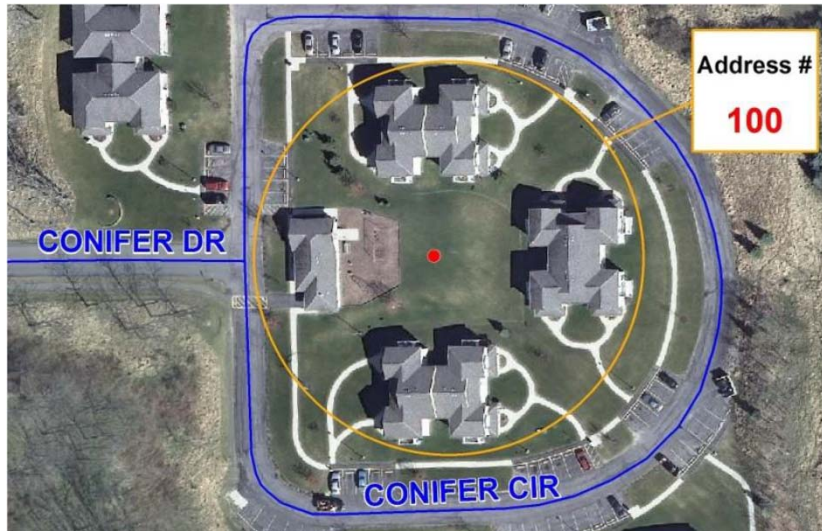
- Addressing authority:
  - Inconsistent addressing
  - Addressing availability
  - Record maintenance
  - Ordinance support
  - Individual vs sub-addressing
  - Workflow/communication
- GIS
  - Placement method
  - Managing level of detail
  - Data quality issues

# Subaddressing Challenges, cotd.

- Public Safety
  - Proper resource routing
  - Responder safety
  - Delayed response time
  - Signage issues
  - Forcing addresses in CAD



# Group of structures with one address and no subaddress info is known



# Business





# Mobile home park



# Apartment complex

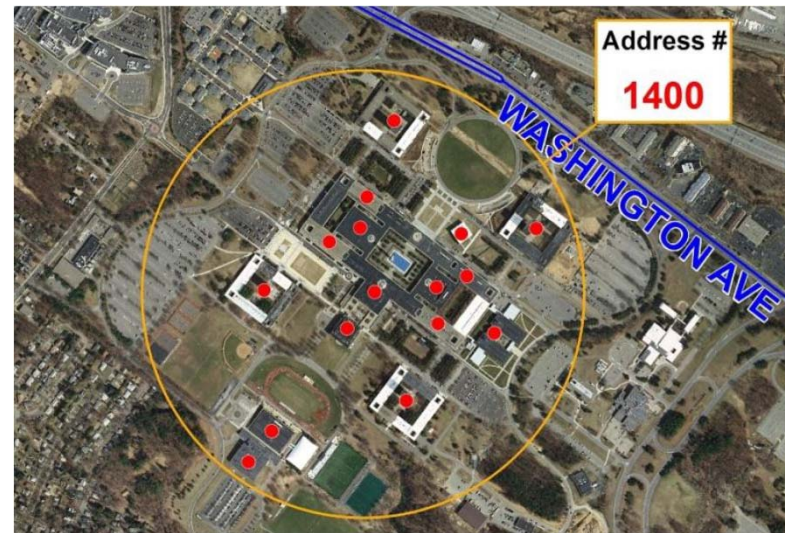




# Business park



# University/college campus



# Addressing Authority



# Addressing Authority

- Local standards are a customization of the nationally recommended methods
- Regionalization of approach and addressing standards should be sought where possible
- Establish an address review committee with stakeholders such as Public Safety/9-1-1, Planning, Public Works, Utility Providers, etc.
- Public safety addressing education
- Establish ordinances and SOPs



# Ordinances and SOPs

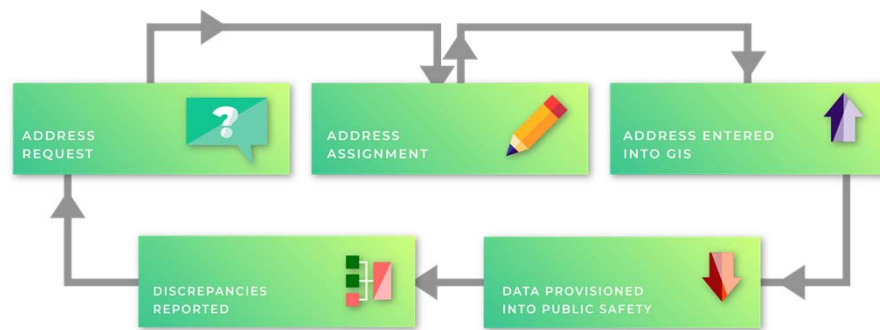
- Ordinances
  - Review and revise
  - Establish:
    - Authority and responsibility
    - Addressing and road naming requirements
    - Signage standards and requirements
    - Enforcement process
- SOPs
  - Document full process
    - Define roles and responsibilities
    - Assignment process
    - Communication process
      - Requester
      - Other departments
      - Agencies

# The Path Forward

# Mitigating Risks

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

# Creating a Quality Assurance Culture



- QA enforces best practices
- Stakeholder engagement
  - Business needs for data-who manages
  - NG9-1-1 education
- Improve existing workflows
- Iterative validations on NG9-1-1 data
  - Not 1 and done
  - Schedule validations

# Strategic Planning

- Clearly defined goals
- Collaboration
- Communication
- Education



# Strategic Planning Process

- Identify stakeholders
- Gather information
- Needs assessment
- Gap analysis
- Identify deficiencies and needs
- Next steps



Questions?