Addresses & Buildings Framework Implementation Team

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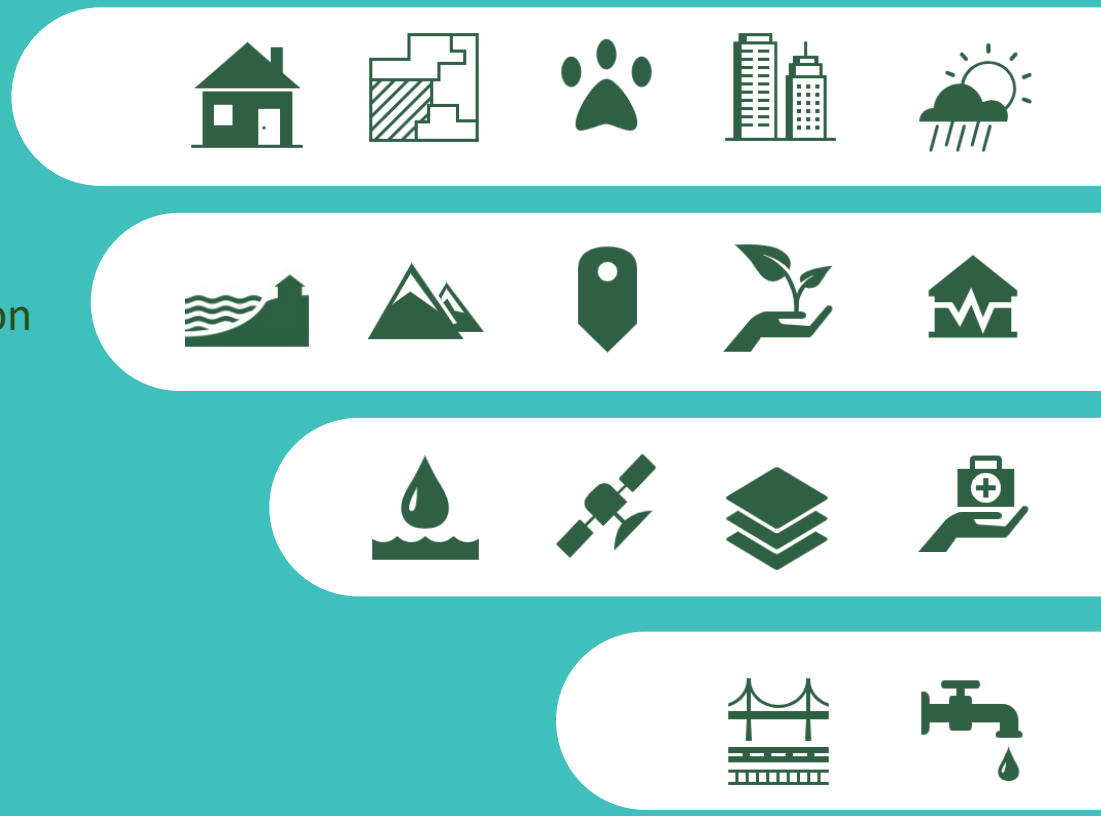
Oregon Framework

16 themes that form the foundation for an authoritative seamless statewide GIS



Tasks

- Deliverable – Address Point Framework Standard document
- Compare the four major national address standards
  (FGDC, NENA, NAD, USPS)
- Look at other state's standards
- Look at other Oregon city or county standards
- Look at other Framework Theme standards
- Pick the most useful attributes for Oregon addresses
- Design a flexible structure for storing and using the data

Goals for the Address Data Standard

- Make it for Oregon addresses, not national/international
- Make it complete so it works for most people
- Make it clear, simple and easy to follow the standard so it is accepted
- Make it flexible for multiple purposes and products
- Make it sustainable to keep it current and relevant
- Make it scalable from the local to national level
- Make it public

Goals for the Address Data Standard

Many Uses

Public Safety & Emergency Management
Elections & Voting
Census
Housing
Broadband
Marketing & Mailing
Public Health
Many others

Many Products

Basic
Enhanced
Other Formats
Specialized Subsets
Geocoder

Address Standard - Approach

- Compare Major Standards
- Identify the priorities for the address elements in each standard

1.	Core	*Most* important or mandatory minimum fields, must be *supplied* *Street Number, Street Name, Unit Number, City, X, Y*
2.	Important	Recommended, cannot be derived from core
3.	Useful	Optional or nice to have, can be derived from core or location
4.	Minor	Optional only in limited cases

- Add any other necessary fields

Four Major National Address Standards

1. **FGDC** Federal Geographic Data Committee
2. **NENA** National Emergency Number Association
3. **NAD** National Address Database
4. **USPS** US Postal Service

FGDC, NENA, NAD are related and have a similar format

Links for each standard are on the GEOHub Addresses and Buildings Framework page.

FGDC Standard

- National
- Oldest (2011)
  - OGIC Endorsed in 2014
- Covers *Several* Address Classes
  - **Numbered Thoroughfare Class** (123 E Main St Unit 4)
  - Landmark, Point-of-Interest
  - Intersection
  - Address Ranges
  - Unnumbered Thoroughfare
  - Postal Delivery, PO Boxes, Rural Route Boxes
- Any spatial standard – Specify the Spatial Reference
  - Also latitude and longitude
- Formats the Street Number, Street Name, City into separate elements

FGDC Standard Parsed Elements

- Format the Street Number into separate elements
  - Address Number Prefix
  - Address Number
  - Address Number Suffix
- Format The Street Name into separate elements
  - Street Name Pre Modifier
  - Street Name Pre Direction
  - Street Name Pre Type
  - Street Name Pre Separator
  - Street Name
  - Street Name Post Type
  - Street Name Post Direction
  - Street Name Post Modifier
- City/Jurisdictions stored in separate elements
  - Incorporated Municipality
  - Unincorporated Community
  - Neighborhood Community
  - Postal Community
  - MSAG Community (e911 **M**aster **S**treet **A**ddress **G**uide)

FGDC Standard

- Pros
  - Oldest (2011) and well established
  - Most comprehensive (multiple address classes)
  - Already OGIC endorsed (2014)
- Cons
  - Most abstract, most complicated, most difficult to implement relationally
  - Not many states use it

NENA Standard

- National and international (Canada)
- Based on FGDC
  - Formats the street numbers, street name and cities the same way as FGDC
- Covers Two Address Classes
  - **Site Structure Address Points**
  - Landmark
  - Section 4.2 specifically for addresses. Not the entire standard.
- WGS84 (4326) latitude and longitude spatial standard

NENA Standard

- Pros
  - Already used for most NG911 input address datasets for Oregon
  - Used by at least 13 other states
  - Less abstract, less complicated, much easier to implement than FGDC
- Cons
  - Specialized for 911 public safety answering points
  - Some important elements (unit) are not required nor conditionally required so they may be omitted

NAD Standard

- National
- Based on NENA
  - Formats the street numbers, street names and cities the same way as FGDC, NENA
- Two Address Point Classes
  - **Numbered Thoroughfare**
  - Landmark
- WGS84 (4326) spatial standard

NAD Standard

- Pros
  - Format needed to contribute Oregon addresses to the NAD
  - Broader applicability, less specialized than NENA
  - Even less abstract, less complicated, easier to implement than FGDC/NENA
- Cons
  - Only used by one other state and the NAD

USPS Standard

- National
- *Not* Based on FGDC, NENA, or NAD
- Single Address Class
- Full Street Name (not parsed)
  - Full Street Number (not parsed)
  - Abbreviations for pre/post direction, street type
  - Separate Unit Type, Unit Number
  - Single City Field - Based on preferred city name assigned to the ZIP Code

USPS Standard

- Pros
  - Most Familiar, Simple to Implement
    - 123 E MAIN ST APT 45, YOURTOWN, OR 97001
  - Well established, Most widespread use
  - Only authoritative source for ZIP Code, ZIP+4 add-on
  - Validate with known authoritative source data
    - Coding Accuracy Support System (CASS) tool
- Cons
  - Attributes only, not a spatial standard
  - Single city field does not always correspond to jurisdiction boundaries
  - Not every street address receives mail

Keep in Mind, Oregon Addresses Are…

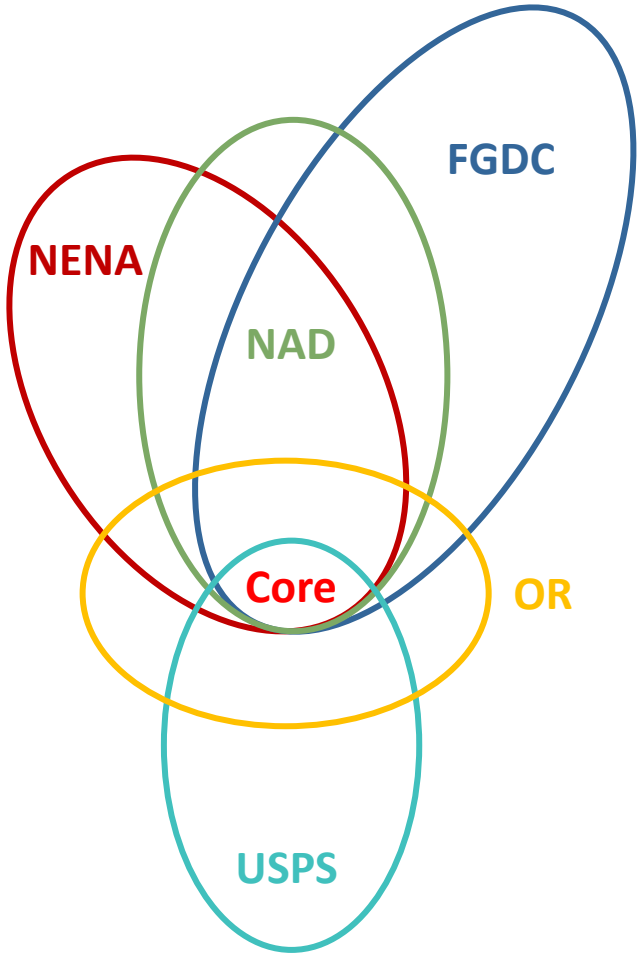
- Vast majority are not complicated and are very typical
- Do not need a complicated standard
- Very few variant street naming exceptions
  - Very few foreign names – Only 54 have Spanish, Italian, French spellings
  - Very few use the parsed street name elements (FGDC, NENA, NAD)
    - Only 0.8% of all street names (0.4% are “Highway ##”)
- Do not need to accommodate every national regional variation

Address Standards – All Options

- Keep current OGIC-Endorsed FGDC standard
- Select another standard
  - Many states use NENA or custom, a few use others
  - Possibly with additional fields
- Select elements from multiple standards
- Combine elements from all standards
- Create a completely new and unique Oregon standard
- Other options??

Custom Oregon Standard

- Combination of all four major standards
  - 70% match
    - 10% match of all fields
    - 40% match on three fields
    - 20% match on two fields
- Most states still use custom formats
- Most flexible to accommodate many
  - Input formats
  - Output formats
- Large, complex schema



Start with Core

- Full street address including all elements with unit
- City
- State
- ZIP Code
- Longitude
- Latitude
- Source ID

Basic Street Address Point Elements

123 E MAIN ST UNIT 45, ANYTOWN, OR, 97001
-123.456789, 45.678901

Street Number	Always mandatory
Pre/Post Direction	Usually present
Street Name	Always mandatory
Street Type	Usually present
Unit Number	Mandatory if present
City, State, ZIP	Distinguishes between duplicate addresses
Location Coordinates	Always mandatory

ZIP Codes and Unique Street Addresses

Full Street Address *including* unit + ZIP Code = Unique address

Intrinsic/Inherent Primary Key when standardized

- Duplicate street addresses will not be in the *same* ZIP Code
- Duplicate street addresses may be in different ZIP Codes

123 E MAIN ST UNIT 45 + 97001
123 E MAIN ST UNIT 46 + 97001
123 E MAIN ST UNIT 47 + 97001

123 E MAIN ST UNIT 45 + 97234

Thank You!

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Framework data is available at:

geohub.oregon.gov