NSGIC

National States Geographic Information Council

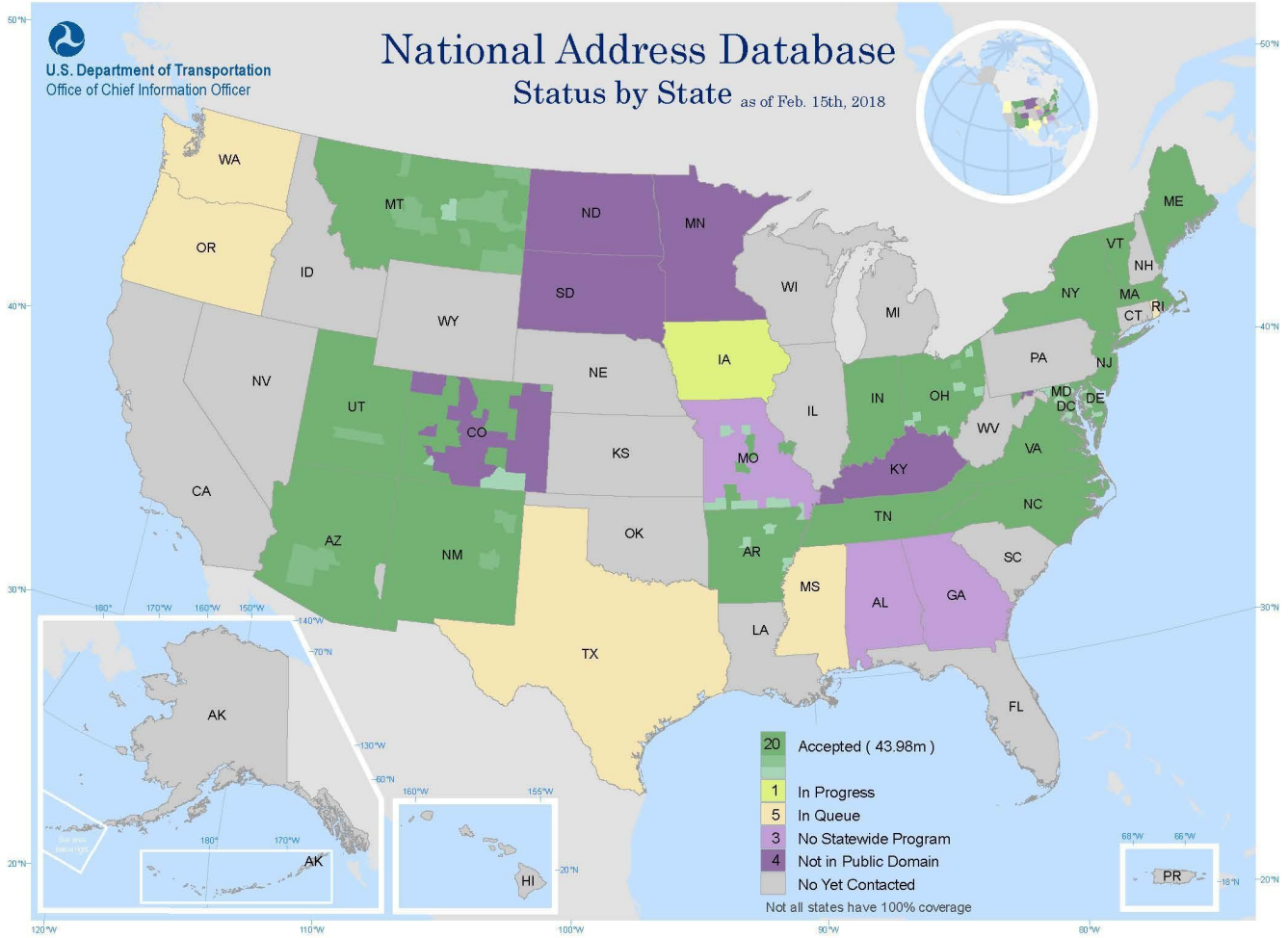
State Address Data Ideas, Philosophies, Applications, Tasks and Best Practices

Key Topics

- National Address Database
  - Updates & Participation
  - Validation
  - Zip Codes as a required element?
- National 9-1-1 survey questions
  - Are they asking the right questions?
- U.S. Road Network (ARNOLD) Minimum Content

Objectives

- Present key issues
- High level feedback on issues from NSGIC Midyear attendees
  - Finer points sorted out in Address & Transportation and NG 9-1-1 Committees
- Suggestions, recommendations, ideas for NSGIC action


U.S. Department of Transportation
Office of Chief Information Officer
National Address Database
Status by State as of Feb. 15th, 2018
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MS
MI
IN
KY
TN
AL
OH
WV
GA
FL
SC
NC
VA
PA
NY
MD
DC
DE
NJ
CT
RI
MA
VT
NH
ME
AK
HI
PR
20 Accepted (43.98m)
1 In Progress
5 In Queue
3 No Statewide Program
4 Not in Public Domain
No Yet Contacted
Not all states have 100% coverage

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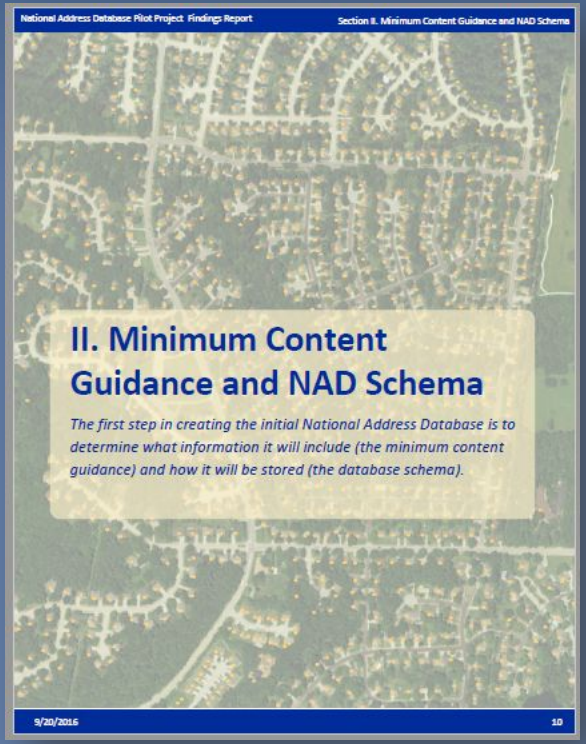
FGDC Address Theme Workflow Process Workgroup

A Draft of Potential Validations

Proposed Address Point Data Validations

- **Data schema must match the National Address Data Schema and contain the mandatory data elements defined within the minimum content guidelines**
    - Elements should match with the list of acceptable values (domain values)



Proposed Address Point Data Validations

- A unique ID is included for each address record (alphanumeric), and each unique ID is not duplicated elsewhere in the same dataset. – Required
- The unique ID is persistent (permanent) – Best Practice/Recommended
- Each address record has address authority (data creator) populated (not null). - Required

Proposed Address Point Data Validations

- Each address record has address date (last edited or verified) populated (not null), in a year/month – Required, date format down to the day – optimum).

- Each address record has a created date (not null), in a date with year minimally and moth/day preferable, and the date is equal to or before today. Best practice, optimum.

Proposed Address Point Data Validations

- Each address record has an address street name (not null), and is alphanumeric. – Required

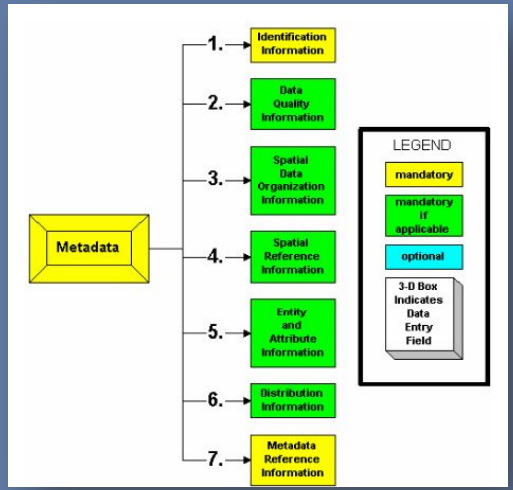
- County is populated by the city, county, or state where possible. Null values are acceptable in some situations (e.g. county equivalent, independent cities) – Content Group question

Proposed Address Point Data Validations

- **Each address record has an address number (not null, - Required**
  - Special characters other than hyphens are illegal for address number.

- **Each address record describes the address placement (rooftop, driveway, etc.) - Best Practice.**

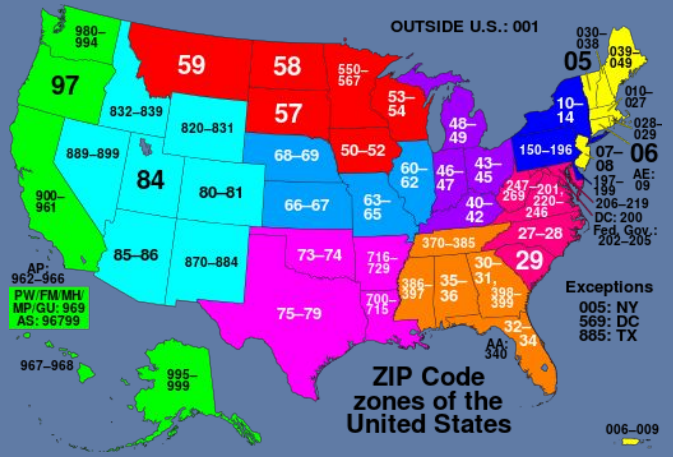
Proposed Address Point Data Validations



- Each address record describes the address use type (residential, commercial, etc.)
- Still under some discussion, leaning Best Practice/Recommended

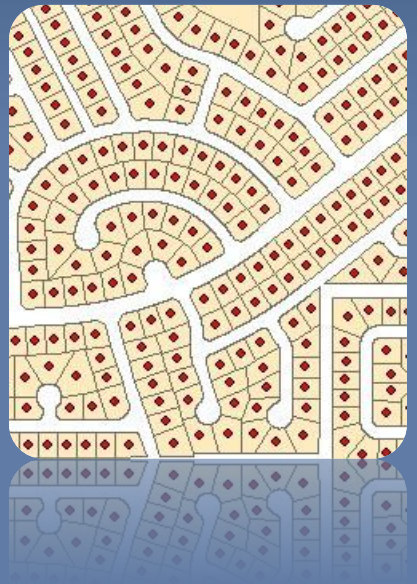
Proposed Address Point Data Validations

- Each address record has a 5-digit postal ZIP code and is within the valid USPS 5-digit ZIP Code range, or is unknown (with justification statement). Best Practice.

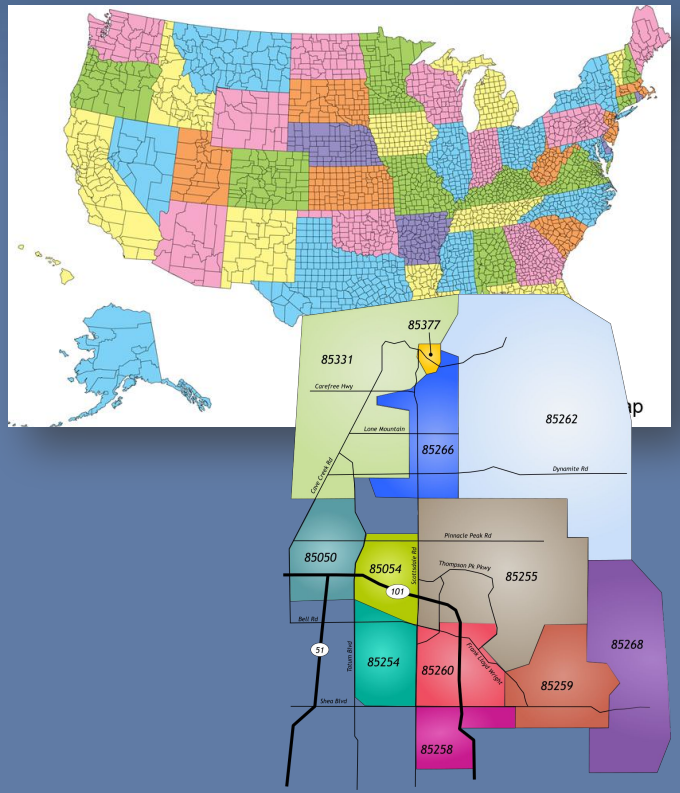


Proposed Address Point Spatial Validations

- Each address record has coordinates (both X,Y), not null, and the coordinate falls into the Northern/Western hemispheres of the Earth (appropriate bounding range) - Required



Proposed Address Point Spatial Validations



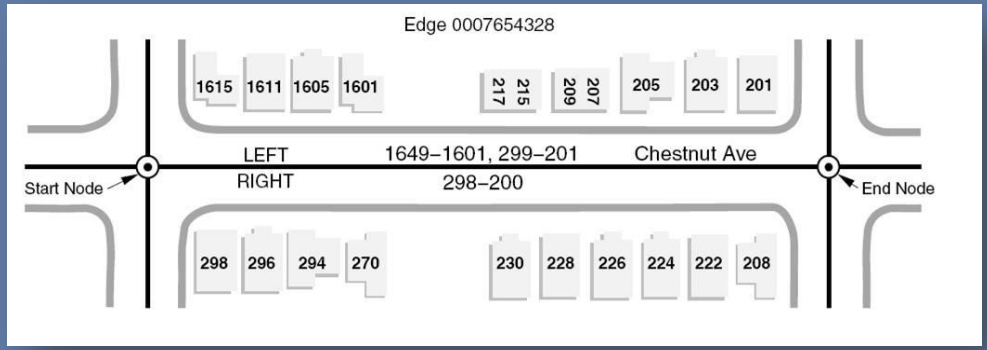
- Does the address fall within the proper jurisdiction
  - a. **State**
  - **b. County**
  - **c. Municipality, parish, etc.**
  - **d. Zipcode?**

Best Practice

Proposed Address Point Spatial Validations

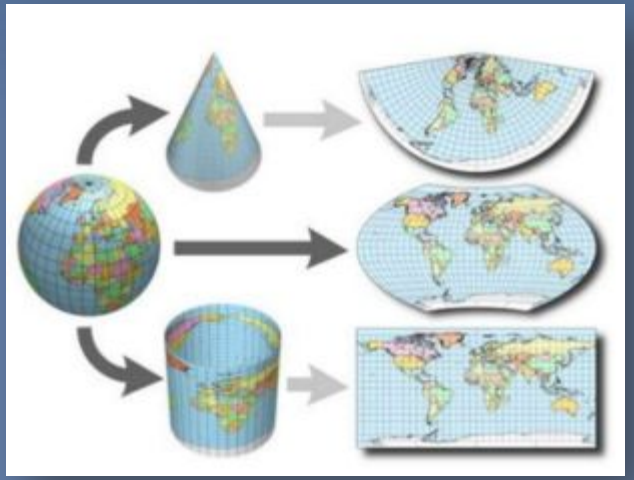
Does the address fall within the address range on the road centerline – Required but there will be exceptions

Only required where a road centerline resource with address ranges exists and is accessible to the state level aggregator



Proposed Address Point Spatial Validations

Data must be delivered in a known projection and coordinate system which is documented in the metadata – Required (move to content for further definition)



Require ZIP Codes as a NAD Element?

- **Question: Should Zip codes be a required NAD data element?**
- **There are 3 options in moving forward:**
  1. **Continue to reject address points with no ZIP codes.**
  2. **Remove ZIP code from the “Always Used”, mandatory category and accept records with no ZIP codes as long as they meet all of the other mandatory requirements.**
  3. **Allow USDOT to populate null ZIP codes via spatial overlay and accept the records.**

National 9-1-1 Progress Report

- National 9-1-1 survey questions
  - Are they asking the right questions?
  - Important to remember that this is a state level question about NG911 GIS data being answered by someone in 911 who may not be familiar with GIS data
- How can we be more involved in the future?

U.S. Road Network (ARNOLD)

- OBJECTIVE (High Level): Establish a U.S. Road Network specification that supports various use cases, yet maintains agility by not becoming overburdened with application specific needs, that

1. **Provides ample capabilities to support its core objectives**
2. **Eliminates or drastically reduces barriers to adoption and participation**
3. **Meets the needs of the stakeholders of geospatial transportation data across the nation**

U.S. Road Network (ARNOLD)

SUMMARY OF ONGOING WORK

- **Goal: A routable, interstate GIS transportation network with potential international connectivity**
  - **Data centric development vs. application specific development**
  - **Flexible base model that accomplishes multiple use cases**
  - **Reduction in duplication of effort by aggregation of authoritative local (state) data**
  - **Model ready by GIS-T 2019**

U.S. Road Network (ARNOLD)

SUMMARY OF ONGOING WORK

- **Primary focus with current working group/discussions is not reinventing the wheel**
  - **FGDC Transportation subcommittee**
  - **Developing/adopting a data model (aka, schema, minimum content guideline, etc.)**
  - **Adapt Canadian National Road Network (NRN)**
    - **Advances the ball significantly**
    - **Working group generally OK with base schema and geometry**
    - **Heavy lift will be getting into the finer details**

U.S. Road Network (ARNOLD)

SUMMARY OF ONGOING WORK

- **Challenges**
  - **Achieving consensus among a similar, yet diverse group**
    - **Schema, model, positional accuracy**
    - **Content (attributes)**
    - **User buy-in post FGDC adoption**

NSGIC

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ETL QC Process

Flagged items should be reviewed by the data stewards and repaired appropriately.

The following fields were used to flag potential **duplicates**. If *all* of these fields match, then the first instance is kept and the additional instances are flagged and removed.

	StN_PreMod	LandmkPart
Longitude	StN_PreDir	LandmkName
Latitude	StN_PreTyp	Building
	StN_PreSep	Floor
AddNum_Pre	StreetName	Unit
Add_Number	StN_PosTyp	Room
AddNum_Suf	StN_PosDir	Addtl_Loc
	StN_PosMod	Milepost

ETL QC Process

Verify Req. Fields

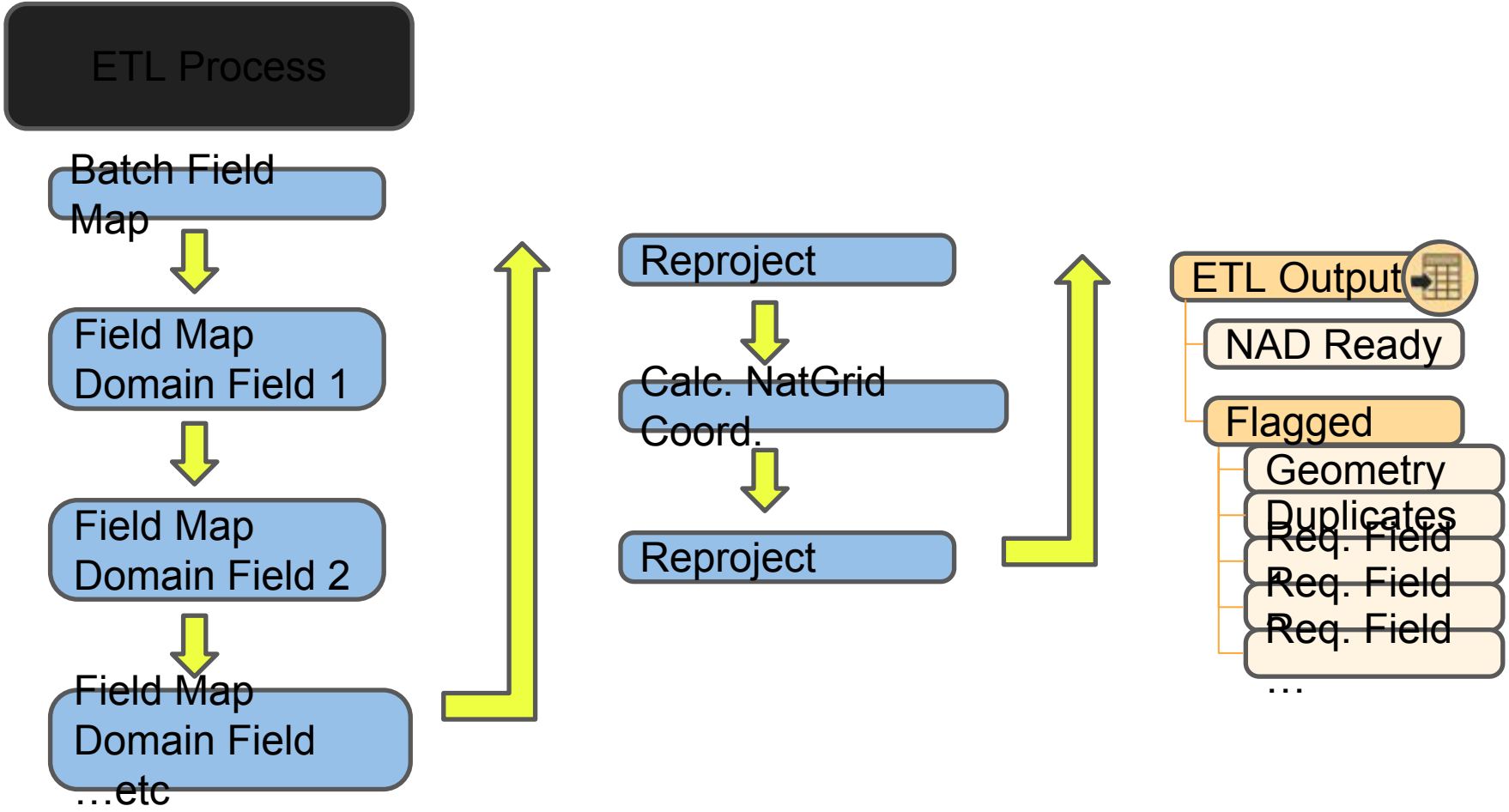
Flagged items should be reviewed by the data stewards and repaired appropriately.

- State
- County
- Zip Code
- Street Name*
- Address Number*

Except for: Landmark/Milepost

- Latitude
- Longitude
- National Grid Coordinate
- GUID
- Source
- Last Update

If the Last Updated field is not populated by the data provider, it can be populated with the date the record was last updated in the statewide database. If the field is still empty when we receive it, we will populate it with the date the data was received.


ETL Process
Batch Field Map
Field Map Domain Field 1
Field Map Domain Field 2
Field Map Domain Field
…etc
Reproject
Calc. NatGrid Coord.
Reproject
ETL Output
NAD Ready
Flagged
Geometry
Duplicates
Req. Field
Req. Field
Req. Field
…