

Overview of Draft U.S. Address Data Standard

Address Standards Working Group

Martha McCart Wells, GISP

Ed Wells, GISP

Carl Anderson, GISP

Sara Yurman, GISP

Hilary Perkins, GISP

Spatial Focus, Inc.

WMATA

Fulton County, GA

Spatial Focus, Inc.

East West Gateway COG

August 2009

URISA-NENA Addressing Conference

Sponsoring Organizations

- **URISA** – Submitting organization
- **NENA** – Supporting organization
- **U.S. Census Bureau** – Sponsoring organization, on-going maintenance



Purpose and Scope

- *"United States Street, Landmark, and Postal Address Data Standard"*
- Draft standard to be submitted to the Federal Geographic Data Committee (FGDC)
- One standard in four parts:
 - Data Content
 - Data Classification
 - Data Quality
 - Data Exchange

Goals

- Provide a statement of best practices for street address data content and classification
- Define tests of street address data quality
- Facilitate exchange of address information
- Offer a migration path from legacy formats to standards-compliant ones
- Provide for different levels of standardization
- Build on previous FGDC address standard efforts
- Make this standard compatible with, and supportive of the FGDC framework standard for geospatial data, and with the NENA and USPS address standards.

Standard Development Process

- Sought broad awareness and participation
 - Wiki collaborative website
 - Teleconferences
- Posted drafts for public comment via web form
- Focused on practical needs and usefulness
 - Local emphasis: Where addresses are created and used the most
 - Quality is integral to address use, must be built in to process
- Included both tabular and geospatial data

Organizing Principles

- Definition of an address:
 - "An address specifies a location by reference to a thoroughfare, or a landmark; or it specifies a point of postal delivery."
- Elements and Classes: A syntactical approach to address classification.
 - The standard classifies addresses according to their address elements and the order in which the elements are arranged.
- Address Reference Systems:
 - Addresses are created locally based on local rules for naming and numbering.
- Data Quality
 - The quality of address data must be measured against Address Reference System rules and recorded.
- Data Exchange
 - Address data must be able to be seamlessly exchanged between different users.
- All of these must be incorporated into a comprehensive address data standard.

Address Elements

- **Address numbers** and their components
- **Street names** and their components
- **Subaddresses** (suites, rooms, etc.) and their components
- **Landmark names**
- **Larger areas** (place names, states, postal codes, and country names)
- **USPS postal address** elements (PO Box, RR, etc.) and their components
- **USPS address lines** (per USPS Pub 28)

Address Attributes

Purpose: documentation, mapping and quality control

Key attributes include:

- **Address identifier (required)**
- **The address authority, dataset, and start and end dates**
- **Geographic coordinates**
- **Lifecycle and official status**
- **Class**
- **Feature type**
- Relationship to cadastral and transportation features
- **Attributes for quality control** (parity, sequence, relationships, etc.)

Element Definitions

- Name, definition, and data type
- Existing standards (if any),
- Domain of values (if any),
- Extensive examples and explanatory notes
- XML tag, XML model, and XML example
- Data quality measures and notes.
- Elements may be simple or complex.
 - Complex elements are simple or other complex elements grouped together

Address Classes

Thoroughfare Address Classes

- Numbered Thoroughfare Address: 123 Main Street
- Intersection Address: Fifth Avenue and Main Street
- Two-Number Address Range: 405-411 West Green Street
- Four-Number Address Range: 900-962, 901-963 Milton Street
- Unnumbered Thoroughfare Address: Forest Service Road 698

Landmark Address Classes

- Landmark Address: Statue of Liberty
- Community Address: 123 Urbanizacion Los Olmos

Postal Delivery Address Classes

- USPS Postal Delivery Box: PO Box 16953
- USPS Postal Delivery Route: RR 1, Box 100
- USPS General Delivery Office: General Delivery

General Class

- Mixed or unknown class

Address Reference Systems

- The local geographic framework and business rules for address assignment.
 - Basis for testing the quality and validity of an address
 - Defines the elements needed to compose and describe it.
 - Defines boundary and internal geographic structure of the area governed by the business rules, and the authority for those rules
 - May include rules for naming streets and for assigning address numbers along them.

Data Quality

- A complete suite of data quality tests.
 - Covers all address elements, attributes, and classes.
 - Tests of address location relative to Address Reference System and known features
 - Tests address data relative to local business rules
 - Measure how well a given set of address records conforms to the standard.
 - Each test specification includes the scope, measure, and procedure of the test, and a script in SQL pseudocode.

Data Exchange

- Requires open, standardized format:
 - XML Schema Document (XSD) and XML.
 - Protects data producers and consumers
 - Allows localizations, but provides standard form for exchange.
- XSD provides a data model, but not a database model.
 - Organizational database requirements and relationships vary considerably.

Implementing The Standard

- The standard does not require incorporation of every element and attribute.
 - For example, if none of the addresses in a given area have any Address Number Prefixes, that element may be omitted from the address records for that area.
- The standard does not require parsing every address into its simplest elements, nor does it require creation of a complex address data base.
 - The standard recognizes and supports different levels of complexity, from the two-line format prescribed in USPS Publication 28 to a fully-parsed, normalized database.
- The standard does not require use of the address attributes, although some attributes are essential for most purposes.

Why A Standard is Needed

- Addresses are primarily created and maintained locally.
- Address data is often poorly understood, badly recorded, and not well documented.
- The lack of a standard impedes the ability of local jurisdictions to share data internally, with each other, and with regional, state and federal agencies.

Benefits of Implementing the Address Standard

- The standard supports the full range of address data needs, at all levels of government and in the private sector.
 - Address management
 - Government administration
 - Emergency response
 - Postal delivery
 - Data exchange and aggregation

Why Should You Implement the Standard?

- It supports a comprehensive view of addresses that responds to needs for organization, quality, documentation, and exchange of address information.
 - Broad participation provided information about differing address practices throughout the U.S.
 - Testing of the standard in real situations insured its usefulness and viability.
- It provides a path for moving from legacy systems that contain addresses to enterprise management that use addresses as the key to data throughout government organizations.

Questions?

For access to the Address Standard current draft, please send your name and email address to: mwells@spatialfocus.com

- You will receive an email with your user name and password, and the URL for the site