

Content Requirements for the National Address Database (NAD)

Compiled by the

Address Content Subgroup of the
Address Subcommittee

Adopted by the

Address Subcommittee of the Federal Geographic Data Committee (FGDC)

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1. EXECUTIVE SUMMARY

1.1. Purpose and Scope of This Report

This report sets forth the address data requirements for the National Address Database (NAD), as approved by the Federal Geographic Data Committee (FGDC) Address Subcommittee on August 10, 2022.

This requirements document defines and describes the address data elements and attributes to be included in the NAD, as well as the address classes and complex elements that define when and how the elements are combined to construct complete addresses.

The requirements rely in large part on the recommendations of the NAD Address Content Subgroup (ACS), presented to the Subcommittee in a report dated June 8, 2020 (ACS 2020). Their work in turn relied in part on the work of the Address Workflow Subgroup (AWS 2020). The AWS defined the requirements for the Address UUID; and it has defined the general procedures that state-level NAD data providers will use in receiving address records from local data providers, testing them for conformity to stated business rules, handling non-conforming records, incorporating accepted records into their data bases, and providing the accepted records to the NAD. This work was presented to the Address Subcommittee on May 8, 2019 (AWS 2020). The AWS recommendations were approved by the Address Subcommittee and were critical inputs to the content recommendations.

This requirements document is intended to provide the information needed to undertake the definition, creation, population and testing of the specific data items, data values, data domains and business rules, data record structures, data tables, table relationships, QC tests, and operational procedures needed to fulfill the evolving vision for the NAD.

This document covers only NAD content. This report does not make any recommendations about the content of state or local address databases. It is presumed that state and local address databases will vary according to state and local needs and resources.

1.2. Organization

The report is presented in seven sections:

- **Section 1: Executive Summary**
Section 1 states the purpose and organization of the document, and the analytical framework for formulating the requirements. Table 1 lists all of the data items included in the NAD, and shows how they compare to the data items in the NAD Pilot Project schema.
- **Section 2: Background and Approach**
Section 2 states the background and approach for the analysis and requirements.
- **Section 3: NAD Purpose and Scope**
Section 3 proposes a statement of purpose and scope for the NAD, and states what address data the scope includes and excludes.
- **Section 4: AWS Recommendations**

Section 4 summarizes the state-level workflow recommendations and states the UUID recommendations of the Address Workflow Subgroup (AWS).

- **Section 5: NAD Capability and Content Requirements**

Section 5 lists the NAD capabilities required to support the NAD purpose and scope, and the data items required to support each capability.

- **Section 6: NAD Address Class, Element, and Attribute Descriptions**

Section 6 provides detailed descriptions of:

1. The address classes and complex elements that provide the conceptual framework and the data record structures for organizing the NAD data, and
2. The address elements and attributes that comprise the NAD data.

Tables 2 and 3 provide a summary list of the address elements and attributes described in Section 6, and whether/when they are mandatory, optional, or prohibited.

1.3. Analytical Framework

The content requirements result from consideration of three interrelated questions:

1. **Purpose and scope** – What is the purpose of the NAD, and what scope delimits that purpose?
2. **Capability** – What capabilities does the NAD require in order to serve its purpose?
3. **Content** – What content is needed to support the capabilities? Each NAD capability requires a certain set of data items. Items not needed for any specific capability were excluded from the NAD.

The results of the analysis are presented in sections 3 (purpose and scope), 5 (capabilities), and 6 (content) of this report. In particular, sections 6.3, 6.4, and 6.5 provide detailed descriptions of each data item.

Table 1, on the following pages, lists the address elements and attributes included in the NAD, and shows how they compare to their corresponding items (if any) in the NAD Pilot Project Schema.

Table 1: Recommended NAD Data Items, and Corresponding NAD Pilot Schema Items

KEY: Green - Same; Blue - New; Yellow - Redefined; Red – Dropped (See notes at end of table)
M/C/O: M = Mandatory (minimum content); **C** = Conditional (depending on the address class— see Table 2); **O** = Optional.

Recommended Content Item	M/C/O	NAD Pilot Schema Item ("Field Alias")	Same?	Difference
Address Number Elements				
Address Number Prefix	C	Address number prefix	Redefined	Includes prefix portion of Milepost element
Address Number	C	Address number	Redefined	Includes integer portion of Milepost element
Address Number Suffix	C	Address number suffix	Redefined	Includes decimal portion of Milepost element
Complete Address Number	C	New	New	
Street Name Elements				
Street Name Pre Modifier	C	Street Name Pre Modifier	Same	
Street Name Pre Directional	C	Street Name Pre Directional	Same	
Street Name Pre Type	C	Street Name Pre Type	Same	
Separator	C	Street Name Pre Type Separator	Same	Identical to the Separator Element used in constructing complete street names.
Street Name	C	Street Name	Same	
Street Name Post Type	C	Street Name Post Type	Same	
Street Name Post Directional	C	Street Name Post Directional	Same	
Street Name Post Modifier	C	Street Name Post Modifier	Same	
Complete Street Name	C	New	New	
Subaddress Elements				
Building	C	Building	Same	.
Additional Location Information	C	Additional Location Information	Same	.
Floor	C	Floor	Same	
Unit	C	Unit	Same	.
Room,	C	Room,	Same	
Seat	C	New	New	
Complete Subaddress	C	New	New	
Landmark Name Elements				
Landmark Name	C	Landmark Name Part	Same	
Complete Landmark Name	C	Landmark Name	Same	

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Place and State Name Elements				
County Name	M	County	Same	
Municipality Name	M	Incorporated Municipality	Same	
Postal City Name	M	Postal Community Name	Same	
Census Designated Place Name	O	Unincorporated Community; Neighborhood Community	Redefined	Includes some Community Names and some Neighborhood Names
Unincorporated Community Name	O	Unincorporated Community; Neighborhood Community	Redefined	Excludes Census Designated Place Names
Neighborhood Name	O	Unincorporated Community; Neighborhood Community	Redefined	Restricted to areas within incorporated municipalities.
Native American Area Name	O	New	New	
Native American Tribal Subdivision Area Name	O	New	New	
Urbanization Name (PR)	O	New	New	
Other Place Name	O	New	New	
State Name	M	State	Same	
ZIP Code	O	ZIP Code	Same	
ZIP Plus 4	O	Zip Plus 4 Addition	Identical	
Address ID, Address Authority, and Address Reference System Area Name Attributes				
Address UUID	M	GUID	Redefined	Changed from URN to UUID.
Address Authority	M	Address Authority	Same	
Address Reference System Name	O	Unique Within	Redefined	All addresses in an address reference system area should be unique. Exceptions can be flagged as anomalies.
Address Coordinates, Address Placement, and Address Point Attributes				
Address Longitude	M	Address Longitude	Same	
Address Latitude	M	Address Latitude	Same	
US National Grid Coordinate	M	National Grid Coordinates	Same	
Address Elevation	O	New	New	
Address Placement	M	Address Placement	Same	
Address Point	M	New	New	
Address-to-Address Relationship Attributes				
Related Address ID	O	New	New	
Address Relation Type	O	New	New	
Address-to-parcel Relationship Attributes				

Address Parcel Identifier Source	O	New	New	
Address Parcel Identifier	O	New	New	
Additional Address Documentation Attributes				
Address Classification	O	New	New	
Address Lifecycle Status	O	New	New	
Address Start Date	O	Effective Date	Same	
Address End Date	O	Expiration Date	Same	
Address Last Revision Date	M	Date Last Updated	Same	
Address Anomaly Status	O	New	New	
Location Description	O	New	New	
Address Use Type	O	Address Type	Same	Recommended content includes no domain list
Element Sequence Number	O	New	New	
Place Name Type	O	New	New	
Delivery Address Type	O	New	New	
Address Lineage Attributes				
NAD Data Provider	M	Address Source	Same	
Data Set ID	M	New	New	

Pilot Project Elements That Were Merged or Dropped			
	Milepost		Incorporated into the address number elements
	Bulk Delivery ZIP Code	Dropped	Excluded from recommended content
	Bulk Delivery ZIP Plus 4 Addition	Dropped	Excluded from recommended content

Explanatory Notes:

1. **Same?:** “Same” = Item definitions have no substantive difference; “New” = Item was added to the NAD; “Redefined” = Item definitions are substantively different; “Dropped” = NAD Pilot Project item was excluded from the NAD.
2. **Difference:** For redefined items, this column states how the new definition differs from the NAD Pilot Project Schema item definition.
3. For more detail, see Tables 2 and 3, and see “M/C/O” and “Relation to NAD Pilot Schema” in the element and attribute descriptions in sections 6.3, 6.4 and 6.5.
4. For NAD Pilot Project Schema, see USDOT 2016 (complete source references are in section 2.4).

2. BACKGROUND AND APPROACH

2.1. Background

The NAD has been under discussion as a federal agency program at least since 2011, when the Federal Geographic Data Committee (FGDC) gave final endorsement to its *United States Thoroughfare, Landmark, and Postal Address Data Standard* (FGDC 2011). Discussion was further stimulated when the National Emergency Number Association (NENA) approved the Civic Location Data Exchange Format in 2014 (NENA 2014).

In April 2012, the FGDC requested that its National Geospatial Advisory Committee (NGAC) draft a white paper describing the need, benefits, issues, and possible strategies for developing a NAD (FGDC 2012).

The NGAC white paper (NGAC 2012) tabulated several key federal, state, tribal, and local government functions and private sector services that rely on high quality, current address data. The report included the vision statement that still guides the NAD program:

“The National Address Database is an authoritative and publicly available resource that provides accurate address location information to save lives, reduce costs, and improve service provision for public and private interests.”

In 2014, the NGAC compiled extended descriptions of the government use cases listed in its 2012 report (NGAC 2014), including in some of the examples estimates of the potential savings the NAD would yield.

In February 2015, the Government Accountability Office (GAO), at the request of the Senate Committee on Homeland Security and Governmental Affairs, issued a report on geospatial data use by selected federal agencies and states. The report focused in particular on address and orthoimagery data, and analyzed federal and state geospatial datasets for duplicative expenditures. The report identified potential uses and cost savings that could result from a NAD, and recommended that the FGDC be directed to “create an address data theme with associated subcommittees and working groups to assist in furthering a national address database.” (GAO 2015, p. 72).

These reports led to the National Address Summit on April 8-9, 2015 (USDOT 2015).

Representatives of local, state, federal, private-sector, non-profit, and tribal stakeholders discussed whether a NAD should and could be developed, and, if so, what technical and organizational approaches should be considered and what clear and productive next steps should be undertaken. Smaller discussion groups considered as specific topics the business justification for the NAD; the appropriate leadership and organizational approach; local government outreach and assistance requirements; and data and technology issues. Two key conclusions were:

1. NAD success will require federal, state, and local government cooperation with each playing a complementary role. Federal leadership and support is needed for a sustainable national approach. State authorities (and state-equivalent authorities in DC and the territories)

should be statewide aggregators of county and local data sets. Local authorities are the authoritative source for address assignment and are data set originators.

2. Pilot projects should be pursued as quickly as possible to both tackle unresolved issues and demonstrate feasibility.

The pilot project was led by USDOT and supported by an advisory group from the National States Geographic Information Council (NSGIC) and Census (USDOT 2016). The project team created the NAD Pilot Project schema (v1) and used it to aggregate address data from five states, DC, and counties in three more states. The project report was completed in June 2016. The project was continued and expanded into the current version of the NAD (USDOT 2019).

In 2016 the FGDC, with concurrence of the Office of Management and Budget (OMB), added addresses as a National Geospatial Data Asset theme, (OMB 2017; see also FGDC 2019b). The theme definition was approved in 2017:

The Address Theme consists of the data elements, attributes, and metadata that specify a fixed geographic location by reference to a thoroughfare or landmark, or specify a point of postal delivery, or both. The address theme does not include information about occupants or addressees, nor does it include the attribute information about any features that may be specified by an address point. The address theme may include linkages to these feature attributes and other location reference methods.

With the addition of the address theme, FGDC created the Address Subcommittee, co-chaired by Census and USDOT (FGDC 2019a). In February 2017 the subcommittee convened a day-long NAD federal users requirements workshop to “identify federal agencies’ requirements for NAD content, metadata, and database function... that were in addition to those already captured as minimum content from the DOT NAD Pilot and functional requirements for the NAD.” (Census USDOT 2018 pp. 6, 7).

A key outcome of the workshop was the creation of two subgroups of the Address Subcommittee to “provide recommendations on: 1) address data aggregation workflow and 2) address data content (including metadata)” (Census USDOT 2018 p. 9).

2.2. Sources and Process for Content Selection and Definition.

Sources. The Address Content Subgroup took up the task of recommending which address data elements and attributes should be included in the NAD, and how they should be defined. The Subgroup began by referring to three sources:

1. The FGDC standard (FGDC 2011),
2. The NENA NG9-1-1 CLDXFv1 standard (NENA 2014), whose data elements have all been incorporated into the Site/Structure Addresses layer of the NENA Standard for NG9-1-1 GIS Data Model (NENA 2020), and
3. The NAD Pilot Project schema (USDOT 2016; USDOT 2018).

These three sources are closely related, and they are identical or nearly so on many points. However, they were written for different purposes and they differ in certain respects.

The FGDC standard was created to support database design, QC testing, and data exchange for address data records. It is intended to provide the address elements, attributes, classes, and address reference system descriptors needed for address data management, including address ID, address coordinates, address documentation (metadata), and links to related transportation network and cadastral data systems. The standard does not specify any particular database design, but the address classes are defined by the record structures needed to hold them. Because the record structures differ for each class, it is presumed that addresses will not be stored in one single master table, and the standard is well-adapted for spatial database designs.

The CLDXFv1 standard was created as a data exchange standard, to support “the exchange of United States civic location addresses about 9-1-1 calls... CLDXFv1 is not intended to support civic location address data management. It is assumed that “... any local address data repository would be external to the call information.” (NENA 2014, sec 1.1, p11). In 2018, NENA approved the NENA GIS Data Model Standard, defining “the GIS data information, formats, requirements and related information used in NENA Next Generation 9-1-1 (NG9-1-1) Core Services” (NENA 2020). This standard incorporates all CLDXFv1 data items into its Site/Structure Address Point layer, and adds attributes including address coordinates and address GUID. The NENA GIS Data Model is used by the majority of NAD data providers and was a point of reference during the Address Theme Subcommittee’s review of the initial NAD content recommendations.

The NAD Pilot Project schema was created to specify the minimum content needed to aggregate address records within the prototype NAD and to provide a “low barrier” to participation for NAD data providers. It was developed from consideration of the FGDC and CLDXFv1 standards, and incorporates features of both:

1. It includes address ID, address coordinates, and metadata items.
2. It provides one table for all address records.
3. It uses the CLDXFv1 subtype elements for place names and subaddress elements.

The schema was created with the assumption that the NAD administrators would be receiving authoritative data aggregated from local address authorities. If the data providers chose not to submit their data in the NAD schema format, the NAD administrator would handle the data transformation. The schema was expected to evolve over time.

Process. In considering content recommendations, the Subgroup first reviewed the elements and attributes in all three sources and determined which items should be included in the NAD. Elements and attributes were included only if they supported a capability important to the purpose of the NAD.

For each element and attribute, the Subgroup then compared the definitions found in each of the three sources. At the outset, the Subgroup decided that where the definitions were the same or nearly so, the definition in the FGDC standard would be used for the NAD element or attribute.

Where definitions differed significantly among the three sources, the Subgroup evaluated the different definitions and selected the one most useful in the context of NAD implementation. The base standard definition was restricted or extended as necessary to fit the particularities of NAD implementation, but modifications were minimal and never such as to bring the NAD definition into contradiction with the definition in the base standard. This allowed the incorporation of the strengths of all three sources into a single, internally-consistent integrative framework.

In addition, the Address Content Subgroup reviewed the Address Workflow Subgroup recommendations presented to date (AWS 2020), to determine what content would be required to support the recommended workflow. Finally, the Address Content Subgroup reviewed the use case and requirements analyses in the NAD Pilot Project report (USDOT 2016) and the federal requirements workshop report (Census USDOT 2018), to confirm that their conclusions are covered fully in this report.

Address Subcommittee Review and Approval. The Address Content Subgroup transmitted its recommendations to the Address Subcommittee in a report dated June 8, 2020 (ACS 2020). The Address Subcommittee, after review and discussion, accepted the recommendations with two substantive changes:

1. A set of three elements (Subaddress Element, Subaddress Type, and Subaddress ID) were dropped and replaced with a set of six elements (Building, Additional Location Information, Floor, Unit, Room, and Seat), per the NENA CLDXFv1/NGDM standard and current NAD schema. As a result, three attributes were also dropped: Subaddress Component Order, CLDXFv1 Subaddress Type, and CLDXFv2 Named Location Type.
2. The Address Class attribute was changed from mandatory to optional.

This report also omits mention of some deferred tasks that are described elsewhere:

1. Several specific questions that require input from subject-matter experts or the Workflow Subgroup (ACS 2020, sec 3.4 and sec 7)
2. A recommendation to allow urbanization names to be parsed into four component elements (Rios-Diaz 2021, pp. 3-6).

2.3. Summary of Analysis

Purpose and Scope. Section 3 states the purpose and scope of the NAD. The key section reads:

“The National Address Database shall provide, in a single, authoritative, publicly-available spatial database, all United States addresses, along with their coordinate locations, metadata, and other attributes, for [six] address classes...” (section 3.2)

The statement originates from the original NAD vision statement (NGAC 2012); the address theme definition adopted by the Address Subcommittee; various uses case and requirement studies conducted in 2012-2017 (see section 2.3); and the content included in the FGDC

standard (FGDC 2011), the CLDXF v1 standard (NENA 2014, whose data elements and definitions are included in NENA 2020), and the NAD Pilot Project schema (USDOT 2018).

The NAD should exclude road centerline data, the details of local address reference system rules, and certain data elements from the FGDC standard and the NAD Pilot Project schema (section 3.3).

AWS Recommendations. Section 4 gives two AWS recommendations that were crucial inputs to the Address Content Subgroup: 1. A recommended workflow for the state-level agencies that would supply data directly to the NAD after aggregating it from local address authorities; and 2. Address UUID requirements.

NAD Capabilities. Section 5 lists the NAD capabilities required to support the NAD scope and workflows, organized by functional area, along with the address data elements and attributes required to support each capability.

Detailed Descriptions. Section 6 provides detailed descriptions of the address classes, complex elements, simple elements, and attributes included in the NAD. The descriptions include:

1. Name, definition, definition source, examples.
2. Syntax (for classes and complex elements), rules for use (for complex elements).
3. (For each simple element and attribute) The capability it supports; whether it is mandatory, conditional, optional, or prohibited; input source; and implementation notes.

2.4. References

Note: URLs are current as of September 28, 2021.

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<https://www.transportation.gov/gis/national-address-database/national-address-database-0>

2.5. Acronyms

ACS – Address Content Subgroup (of the FGDC Address Subcommittee)
AWS – Address Workflow Subgroup (of the FGDC Address Subcommittee)
CLDXFv1 - Civic Location Data Exchange Format version 1 (NENA NG9-1-1 CLDXF). Note: CLDXF followed by numbers (e.g., CLDXF 3.2.4) denotes a section in the NENA CLDXFv1 standard (see section 2.4 for the full citation).
CLDXFv2 – Civic Location Data Exchange Format version 2 (currently in preparation)
ETL – Extract, transform, and load
FGDC - Federal Geographic Data Committee. Note: FGDC followed by numbers (e.g., FGDC 2.2.1.1) denotes a section in the FGDC standard (see section 2.4 for the full citation).
GAO – Government Accountability Office
GZD - Grid Zone Designation (USNG)
ID or Id - Identifier
IETF – Internet Engineering Task Force
ITU – International Telecommunications Union
LAA – Local Address Authority
MSAG – Master Street Address Guide
NAD – National Address Database
NENA - National Emergency Number Association
NGAC – National Geospatial Advisory Committee (of the FGDC)
NGDA – National Geospatial Data Asset
NGDM – NENA GIS Data Model (NENA 2020) (see section 2.4 for the full citation).
NSDI – National Spatial Data Infrastructure
NSGIC – National States Geographic Information Council
OMB – Office of Management and Budget
TIGER - Topologically Integrated Geographic Encoding and Referencing System (Census Bureau)
URISA - Urban and Regional Information Systems Association
U.S., US – United States
USDOT – United States Department of Transportation
USNG - United States National Grid
USPS - United States Postal Service

UTM - Universal Transverse Mercator

UUID - Universally Unique Identifier

v – version

WKT – Well Known Text

ZIP Code - Zoning Improvement Plan Code (USPS)

2.6. Trademark Acknowledgements

The following trademarks are owned by the United States Postal Service: U.S. Postal Service[®], United States Postal Service[®], USPS[®], ZIP + 4[®], ZIP Code[™].

2.7. Address Content Subgroup Members

Address Content Subgroup: Dave Cackowski (chair); Florinda Balfour, Rodger Coryell, Christian Jacqz (former), Ed Wells, Matt Zimolzak.

3. NAD PURPOSE AND SCOPE

This report gives both minimum and maximum content for the NAD, that is, it states which content items are mandatory (minimum) or permitted (optional) in the NAD. If an item is neither mandatory nor permitted, it is excluded from the NAD.

3.1. Basis for the NAD Scope Statement

As a starting point, this section of the report provides a statement of NAD purpose and scope that delimits the address classes, elements, and attributes to be included in or excluded from the NAD.

The NAD scope statement originates from the vision statement included in NGAC report that first recommended creation of the NAD (NGAC 2012):

“The National Address Database is an authoritative and publicly available resource that provides accurate address location information to save lives, reduce costs, and improve service provision for public and private interests.”

In addition, the NAD scope statement is informed and constrained by the address theme definition adopted by the Address Subcommittee:

The Address Theme consists of the data elements, attributes, and metadata that specify a fixed geographic location by reference to a thoroughfare or landmark, or specify a point of postal delivery, or both. The address theme does not include information about occupants or addressees, nor does it include the attribute information about any features that may be specified by an address point. The address theme may include linkages to these feature attributes and other location reference methods.

Finally, the scope statement takes into consideration four other points of reference:

1. The use case and requirements analyses referenced in section 2.1,
2. The workflows defined by the Address Workflow Subgroup (see section 4 of this report), and
3. Content included in the FGDC standard (FGDC 2011), the CLDXF v1 standard (NENA 2014, later included in NENA 2020), and the NAD Pilot Project schema (USDOT 2018).
4. Recommendations from the *National Address Database Federal User Requirements Workshop* held in 2017 (Census DOT 2018).

3.2. NAD Scope Statement: Purpose and Inclusions

The National Address Database shall provide, in a single, authoritative, publicly-available spatial database, all United States addresses, along with their coordinate locations, metadata, and other attributes, for the following address classes (as those classes are defined in the FGDC address data standard):

Thoroughfare Classes

- a. Numbered thoroughfare addresses (e.g., "123 Main Street")(FGDC 3.1.1.1)
- b. Intersection addresses (e.g., "Boardwalk and Park Place") (FGDC 3.1.1.2)
- c. Two-number address ranges (e.g., "4641-4651 Tanglewood Drive") (FGDC 3.1.1.3)
- d. Unnumbered thoroughfare addresses (e.g., "Ili-Ili Airport Road") (FGDC 3.1.1.5)

Landmark Classes

- e. Landmark addresses (e.g. "United States Capitol Building") (FGDC 3.2.2.1)
- f. Community addresses (e.g. "23B Edgewater Park") (FGDC 3.2.2.1)

3.3. NAD Scope Statement: Exclusions

Road Centerlines and TIGER-style address ranges. The NAD design and operations will exclude road centerlines and their address attributes, including the following class and its attributes, for the foreseeable future:

- Four-number Address Range class (e.g., TIGER ranges) (FGDC 3.1.1.4);
- Attributes: Address Transportation System Name, Authority, Feature Type, Feature ID, and Related Transportation Feature ID (2.3.4.1 thru .5)

Reason: No suitable nationwide road centerline dataset is available at this time. Local/state files cannot be used because they are not edge-matched to files of adjoining jurisdictions, and because Federal-level resources are insufficient to collect, integrate, store, and maintain the local/state datasets.

Address reference system attributes. The NAD will not include the descriptors, boundary, and rules that comprise the local address reference systems governing how addresses are assigned (FGDC 2.5), except for the Address Reference System Name itself.

Reason: Not needed for NAD processes, and not well-documented by many address authorities. If desired, the NAD can include contact information for Address Authority, if provided by the data providers. Interested users can contact the Address Authority directly.

Exception: The Address Reference System Name is included as an optional attribute, to allow indication of the area within which an address can be expected to be unique.

Certain FGDC, CLDXFV1/NGDM, and NAD pilot schema elements. The following elements and attributes from the FGDC standard, CLDXFV1/NGDM standard, and the NAD Pilot schema will be excluded:

Reason: They are not needed within the scope and purpose of the NAD.

- **FGDC Elements:**
 - Corner Of (FGDC 2.2.3.1) (potentially useful, but not known to be in use at this time).

- Subaddress Type, Subaddress Identifier, and Subaddress Element (FGDC 2.2.4.1, 2.2.4.2, and 2.2.4.3) – (replaced by CLDXFv1/NGDM Building, Additional Location Information, Floor, Unit, Room, and Seat).
- Place Name, Complete Place Name (FGDC 2.2.6.1 and 2.2.6.2) – (replaced by the place name elements)
- Country Name (FGDC 2.2.6.5) (not needed because all NAD addresses are by definition in the United States).
- **FGDC Attributes:** Address X Coordinate (FGDC 2.3.2.1), Address Y Coordinate (FGDC 2.3.2.2); Address Range Type, Parity, Side, Directionality, Span (FGDC 2.3. 5.1 thru .5); Official Status (FGDC 2.3.7.4), Address Side of Street (FGDC 2.3.7.6) Address Z Level (FGDC 2.3.7.7); Address Number Parity (FGDC 2.3.8.1); Attached Element (FGDC 2.3.8.2) Subaddress Component Order (FGDC 2.3.8.3).
- **CLDXFv1/NGDM Elements**
 - **Country Name (CLDXFv1 3.2.2/NGDM 4.30)** - Not needed because all NAD addresses are by definition in the United States.
 - **Unincorporated Community and Unincorporated Neighborhood (CLDXFv1 3.2.6 and 3.2.7/NGDM 4.83)** – Redefined into the Census Designated Place, Unincorporated Community Name, Neighborhood Name, and Urbanization Name elements.
 - **Milepost (CLDXFv1 3.4.5/NGDM 4.134 and 4.73)** - Incorporated into the Address Number Prefix, Address Number, and Address Number Suffix elements.
- **NAD Pilot Schema:**
 - **Bulk Delivery ZIP Code, Bulk Delivery ZIP Plus 4 Addition**– not needed.

4. AWS RECOMMENDATIONS: STATE-LEVEL WORKFLOW, AND ADDRESS UUID

The Address Workflow Subgroup (AWS) recommended a workflow for the state-level agencies that supply data directly to the NAD after aggregating it from local address authorities. This workflow is documented in the NAD State Address Point Data Workflow Chart v. 1.6 diagram and NAD State Address Point Data Workflow Process Companion Textual Description Document v. 1.4 document (AWS 2020), and summarized in section 4.1 below. In addition, the AWS provided Address UUID requirements to the to the Address Content Subgroup in September 2018 (copied in section 4.2 below). Both recommendations were critical inputs to the Address Content Subgroup.

4.1. State-level Workflow

The recommended state-level workflow identifies four actors and areas where specific workflow activities occur:

- Local or Regional Address Authority - Provider of address data to its secondary state-level aggregator.
- State - Aggregator of Local or Regional Address Authority address data (also called the “NAD data provider” elsewhere in this report).
- System - Automated processing environment.
- Federal - National Address Database, terminal public address database resource.

The workflow assumes that the local address authority (or perhaps a regional aggregator) would send address datasets to the state. Upon receipt, the state would pass the dataset through a suggested four-step import process: load, normalize, validate, aggregate. At each step, a set of QC tests would be run, each with three possible outcomes: pass, fail (fix by state), or reject (return to local or regional authority for correction).

Periodically the state would deliver updates to the NAD, which would run its own (as yet not formally defined) load-normalize-validate-aggregate process, requiring its own pass-fix-reject tests. Upon aggregation into the NAD, the address records would be ready for viewing by or export to external users.

4.2. Address Universally Unique Identifier (UUID)

Requirements:

- UUID shall be unique for each record in the address database and shall not be duplicated for a different address record in said database.
- UUID shall persist for its address record in each iteration of the address database, immutable.
- If an address record in the address database is retired, its UUID is retired with it and cannot be used again for another address record.
- If the provider does not have the capability to maintain a persistent UUID for individual address records across iterations of the address database, the responsibility for

assigning a persistent UUID to address records in the database evolves to the state level aggregator and as necessary, the federal level aggregator.

Considerations:

- Prefer decentralized UUID assignment and management, facilitates wider adoption.
- Most database software packages used by governments offer the capability to create and assign UUID with extreme low probability of duplication by another decentralized entity.
- Additional information on UUIDs can be found in the UUID standards (ITU 2012, and IETF 2005).

5. NAD CAPABILITY AND CONTENT REQUIREMENTS

To fulfill the scope and purpose of the NAD, and support the workflows described in the previous section, the NAD must be designed to have certain capabilities. Those capabilities require a set of data items. Data items not needed for any specific capability have been excluded from the NAD.

This section sets out the capabilities required of the NAD, organized by functional area, and the data items required to support each capability. The capabilities were defined based on review and consideration of:

1. The objectives and content items given in the reference documents.
2. The use case and requirements analyses referenced in section 2.1, and in particular the recommendations from the *National Address Database Federal User Requirements Workshop* held in 2017 (Census DOT 2018).
3. The purpose and scope of the NAD (see section 3 of this report).
4. The workflows defined by the Address Workflow Subgroup (see section 4 of this report).

5.1. Address Data Elements and Data Record Structures

1. Include the record structures and data elements required or permitted for constructing six classes of US address that are included in the NAD scope (see section 3).

Address Data Content Requirements:

- **Address Number Elements:** Address Number Prefix, Address Number, Address Number Suffix, Complete Address Number.
- **Street Name Elements:** Street Name Premodifier, Street Name Predirectional, Street Name Pretype, Separator Element, Street Name, Street Name Posttype, Street Name Postdirectional, Street Name Post Modifier, Complete Street Name.
- **Subaddress Elements:** Building, Additional Location Element, Floor, Unit, Room, Seat, Complete Subaddress.
- **Landmark Name Elements:** Landmark Name.
- **Place and State Name Elements:** County Name, Municipality Name, Postal City Name, Census Designated Place Name, Unincorporated Community Name, Neighborhood Name, Native American Area Name, Native American Tribal Subdivision Area Name, Urbanization Name (PR), Other Place Name (types defined by the provider), State Name, ZIP Code, ZIP Plus 4.

5.2. Address Maps

2. Provide map displays of address locations.

Content requirement: Address Point.

5.3. Unique, Permanent Address IDs

3. For each address, require or assign an address ID that remains unique through time, across multiple independent address authorities, and across multiple levels of data aggregation from local to national.

Content Requirement: Address UUID.

5.4. Address Authority

4. Associate each address with its local address authority.

Content requirement: Address Authority.

5.5. Address XYZ Coordinates, Address Placement, and Address Points

5. Relate the latitude and longitude coordinates using the WGS84 datum to each address. Also provide the equivalent US National Grid coordinate for each coordinate pair. Exclude coordinates referenced to any other XY (horizontal) coordinate reference system.
6. Record the elevation for each address XY point, if desired. (Value: Flood emergency response (one example)).
7. State where the XY point is placed within the addressed location (e.g., on road access point, main building entrance, roof centroid, parcel centroid, geocoded point along a road segment, etc.)
8. Allow multiple XY points to be related to an address, if desired.

Content Requirements:

- Address Longitude, Address Latitude, US National Grid Coordinate.
- Address Elevation.
- Address Placement, Address Point

5.6. Address-to-Address Relationships

9. Relate addresses to each other where useful (e.g., landmark addresses to corresponding thoroughfare addresses; predecessor addresses to successor addresses; etc.)

Content Requirements: Related Address ID; Address Relation Type.

5.7. Address-to-Parcel Relationships

10. Relate addresses to their corresponding land parcels (if any), if such data is provided by NAD data providers.

Reason: It would be helpful to FEMA and other agencies to be able to relate addresses to the parcels, when the provision of agency services involves locating specific parcels.

Note: Address-parcel relationships are complex and not necessarily tracked by local authorities.

Content Requirements: Address Parcel Identifier Source; Address Parcel Identifier.

5.8. Additional Address Documentation and Data Quality Control

11. Show the address classification (per the FGDC standard), so that the correct record structure can be assigned, and class-dependent QC rules and tests can be applied.

Content Requirement: Address Classification.

- 12 Record whether an address is currently in use, and when it was created and/or retired.
Content Requirements: Address Lifecycle Status; Address Start Date, Address End Date
- 13 Note whether and how an address does not conform to local address assignment rules
Content Requirement: Address Anomaly Status
- 14 Provide for additional free-text description of the address location, if desired.
Content Requirement: Location Description
- 15 Show the type of use or feature at the address (e.g. residence, business, government offices, etc.), if and as it may be provided by the data provider.
Note: No domain of Address Feature Type values can be established within the NAD. NAD will accept any value provided by a data provider, as free text, with no expectation that types will be consistent from jurisdiction to jurisdiction.
Content Requirement: Address Use Type.
- 16 Place repeated elements, such as subaddress elements, in the correct order when constructing the complete address from its elements.
Content Requirement: Element Sequence Number.
- 17 Guide the data provider to populate the most suitable place names for a given purpose where multiple place names apply to given address (county, postal, municipal, etc.) where required, and optionally at their discretion.
Content Requirement: Place Name Type.
- 18 Provide a flag to separate address records with no subaddress information from address records that include subaddress information, when desired.
Content Requirement: Delivery Address Type.

5.9. Address Data Source

- 19 For each dataset, the NAD data provider (that is, the organization or person who provides the dataset directly to the NAD) shall provide, and the NAD shall record, metadata about the dataset and data provider sufficient to enable backwards communication with the data provider when records fail QC tests and must be returned for correction.
Content Requirements: Data Set ID, NAD Data Provider.

5.10. Import and Display/Export of Address Records

- 20 Extract, transform, and load into the NAD address records in specified record formats, including FGDC, USPS Publication 28, and the NENA GIS Data Model. Additional formats may be specified as use cases are identified.
Content Requirements: Address elements and attributes.

21 Create map and tabular views of the NAD to meet specific user needs, including address records that conform to specified record formats, including FGDC, USPS Publication 28, and the NENA GIS Data Model. Additional formats may be specified as use cases are identified.
Content Requirements: Address elements and attributes, Address Point.

22 Provide incremental updates for display or export to NAD data users (e.g., “show (or download) all the records that have changed since 20191231”).
Content Requirement: Address Last Revision Date.

23 Represent non-English words as they are written in non-English alphabets.
Content Requirement: NAD implementation using a character set that includes letters and accents of non-English alphabets used in United States addresses.

5.11. Support for NAD Workflows

24 Maintain QC test results for every QC test run during the import process, for every record received.
Content Requirements: TBD, as the workflow processes are defined in more detail.

25 Create/Receive and maintain metadata for every dataset received from each NAD data provider (e.g., Dataset ID, Dataset Direct Source, data set date, submitter contact info)
Content Requirements: TBD.

26 Maintain information about NAD Data Providers (e.g., name, point of contact information, area of coverage, and schedule/frequency for providing updates)
Content Requirements: TBD.

27 Provide metadata for the NAD itself (e.g., NAD point of contact, NAD item names/definitions/domains, NAD business rules, projection (Web Mercator), datum (WGS84 coordinate reference system and spheroid), and other items).
Content Requirements: TBD.

6. NAD ADDRESS CLASS, ELEMENT, AND ATTRIBUTE DESCRIPTIONS

6.1. Introduction

Purpose. This section provides detailed descriptions of the address classes, complex elements, simple elements, and attributes that structure and comprise the NAD data. The address classes and complex elements provide the conceptual structure and data record structures for organizing the NAD data. The simple address elements and attributes, along with four of the complex elements, comprise the NAD data.

Organization. Within this section, the address classes are presented first, followed by the complex address elements, simple address elements, and address attributes.

6.2. Address Classes

6.2.1. Introduction

The NAD data requirements follow the FGDC standard in classifying addresses according to their syntax, that is, the data elements that compose an address, and the order in which the elements are arranged. Syntax determines the record structure needed to hold and exchange an address, and thus provides a basis for defining the address database design. Table 2, in section 6.3.1, shows the classes and the NAD elements that are required, permitted, and prohibited in each class.

The NAD scope and purpose includes six classes of address records, which are described below. Each address class is described by giving its:

1. **Section No./Name:** The section number of the class description, and the name of the class.
2. **Definition:** The elements required for an address in the class.
3. **Syntax:** The component elements that are required or permitted in constructing the class, and the order in which the elements must appear. (For syntax notation, see below, "Notation for Constructing Complex Elements.")
4. **Examples:** Illustrative examples of the class.

Notation for Showing the Syntax of Address Classes

The following notation is used to show how address classes are constructed from address elements:

- { }** enclose the name of an element.
- *** indicates that the element is **required** to create the complex element. Otherwise the element may be omitted when desired.
- +** indicates "and" (concatenation), with a space implied between each component unless stated otherwise.

Address Class Descriptions

Section No./Name	6.2.2. Numbered Thoroughfare Class
Definition	Addresses of this class must include one Complete Address Number and one Complete Street Name. In addition, all addresses must include a Complete Place Name and a State Name. A Zip Code is recommended but not mandatory.
Syntax	{ Complete Landmark Name or Complete Place Name } + { Complete Address Number * } + { Complete Street Name * } + { Complete Subaddress } + { Complete Place Name * } + { State Name * } + { Zip Code } + { Zip Plus 4 }
Example	123 Main Street, Lewis, KS

Section No./Name	6.2.3. Intersection Address Class
Definition	1. An address of this class must include two or more Complete Street Names, each separated by a Separator Element. 2. In addition, all addresses must include a Complete Place Name and a State Name. A Zip Code is recommended but not mandatory.
Syntax	{ Complete Landmark Name or Complete Place Name } + { Complete Street Name * { Separator Element * } } (2..n) + { Complete Place Name * } + { State Name * } + { Zip Code } + { Zip Plus 4 }
Examples	Boardwalk and Park Place, Atlantic City, NJ

Section No./Name	6.2.4. Two Number Address Range Class
Definition	1. Addresses of this class must include two Complete Address Numbers separated by a hyphen. The first Complete Address Number must be less than or equal to the second. 2. The two Complete Address Numbers must be followed by a Complete Street Name. 3. In addition, all addresses must include a Complete Place Name and a State Name. A Zip Code is recommended but not mandatory.
Syntax	{ Complete Landmark Name or Complete Place Name } + { Complete Address Number (low) * } + { Separator Element * } + { Complete Address Number (high)* } + { Complete Street Name * } + { Complete Place Name * } + { State Name * } + { Zip Code } + { Zip Plus 4 }
Examples	401-418 Green Street, Flint MI 48503

Section No./Name	6.2.5. Unnumbered Thoroughfare Address Class
Definition	1. Addresses of this class must contain a Complete Street Name with no Complete Address Number preceding it. 2. In addition, all addresses must include a Complete Place Name and a State Name. A Zip Code is recommended but not mandatory.

Syntax	{ Complete Landmark Name or Complete Place Name } + { Complete Street Name * } + { Complete Subaddress } + { Complete Place Name * } + { State Name * } + { Zip Code } + { Zip Plus 4 }
Examples	Ili'iili Airport Road, Ili'iili, AS

Section No./Name	6.2.6. Landmark Address Class
Definition	<ol style="list-style-type: none"> Addresses of this class must include a Complete Landmark Name, with no Complete Address Number preceding it and no Complete Street Name following it. In addition, all addresses must include a Complete Place Name and a State Name. A Zip Code is recommended but not mandatory.
Syntax	{ Complete Landmark Name * } (1..n) + { Complete Subaddress } + { Complete Place Name * } + { State Name * } + { Zip Code } + { Zip Plus 4 }
Examples	Statue of Liberty, New York NY 10004

Section No./Name	6.2.7. Community Address Class
Definition	<ol style="list-style-type: none"> Addresses of this class must include a Complete Address Number followed by a Complete Landmark Name or a Complete Place Name, and they must not include a Complete Street Name. In addition, all addresses must include a Complete Place Name and a State Name. A Zip Code is recommended but not mandatory.
Syntax	{ Complete Address Number * } + { Complete Landmark Name or Complete Place Name * } + { Complete Subaddress } + { Complete Place Name * } + { State Name * } + { Zip Code } + { Zip Plus 4 }
Examples	23B Edgewater Park, Bronx, NY 10465

6.3. Complex Address Elements

6.3.1. Introduction

Complex address elements are formed from two or more simple or other complex address elements. They are described separately from the simple elements, because:

1. The address class definitions and syntaxes include references to the complex elements.
2. The simple element definitions often refer to the complex element definitions.
3. The syntax and rules of use for complex elements determine when the simple elements are mandatory, optional, or prohibited.

Each complex element is described by giving its:

1. **Section No./Name:** The section number of the element description, and the name of the element.
2. **Definition:** The meaning of the element.
3. **Examples:** Illustrative examples of the element.
4. **Syntax:** What component elements are required or permitted to construct the element, and the order in which they must appear. (For syntax notation, see below, "Notation for Constructing Complex Elements.")
5. **Rules for Use:** Whether the element is mandatory, optional, or prohibited in each address class; and, if required or permitted, the minimum and maximum number of times it must/may appear.
6. **Input Source:** Whether the data item will originate from the data provider, or from a NAD operation, or some other source.
7. **Implementation Notes:** Additional matters (if any) to consider in implementing the element within the NAD.

Table 2 shows the recommended NAD elements (complex and simple), and their use within each address class.

Notation for Showing the Syntax of Complex Elements

The following notation is used to show how complex elements are constructed from simple or other complex elements:

- { }** enclose the name of an element.
- *** indicates that the element is **required** to create the complex element. Otherwise the element may be omitted when desired.
- +** indicates "and" (concatenation), with a space implied between each component unless stated otherwise.

Table 2: Summary List of NAD Address Elements, and Their Use Within Each Address Class

<u>Address Classes</u>	<u>Numbered Thoroughfare</u>	<u>Intersection</u>	<u>Two- number Address Range</u>	<u>Unnumbered Thoroughfare</u>	<u>Landmark</u>	<u>Communi</u>
<u>Address Elements</u>						
Address Number Prefix	O (0,1)	<i>P (0,0)</i>	O (0,2)	<i>P (0,0)</i>	<i>P (0,0)</i>	O (0,1)
Address Number	M (1,1)	<i>P (0,0)</i>	M (2,2)	<i>P (0,0)</i>	<i>P (0,0)</i>	M (1,1)
Address Number Suffix	O (0,1)	<i>P (0,0)</i>	O (0,2)	<i>P (0,0)</i>	<i>P (0,0)</i>	O (0,1)
<i>Complete Address Number</i>	M (1,1)	<i>P (0,0)</i>	M (2,2)	<i>P (0,0)</i>	<i>P (0,0)</i>	M (1,1)
Street Name Pre Modifier	O (0,1)	O (2,n)	O (1,1)	O (1,1)	<i>P (0,0)</i>	<i>P (0,0)</i>
Street Name Pre Directional	O (0,1)	O (2,n)	O (1,1)	O (1,1)	<i>P (0,0)</i>	<i>P (0,0)</i>
Street Name Pre Type	O (0,1)	O (2,n)	O (1,1)	O (1,1)	<i>P (0,0)</i>	<i>P (0,0)</i>
Separator Element	O (0,1)	M (1,n)* O (2,n)*	M (1,1)** O (1,1)**	O (1,1)	<i>P (0,0)</i>	<i>P (0,0)</i>
Street Name	M (1,1)	M (2,n)	M (1,1)	M (1,1)	<i>P (0,0)</i>	<i>P (0,0)</i>
Street Name Post Type	O (0,1)	O (2,n)	O (1,1)	O (1,1)	<i>P (0,0)</i>	<i>P (0,0)</i>
Street Name Post Directional	O (0,1)	O (2,n)	O (1,1)	O (1,1)	<i>P (0,0)</i>	<i>P (0,0)</i>
Street Name Post Modifier	O (0,1)	O (2,n)	O (1,1)	O (1,1)	<i>P (0,0)</i>	<i>P (0,0)</i>
<i>Complete Street Name</i>	M (1,1)	M (2,n)	M (1,1)	M (1,1)	<i>P (0,0)</i>	<i>P (0,0)</i>
Building	O (0,1)	<i>P (0,0)</i>	<i>P (0,0)</i>	O (0,1)	O (0,1)	O (0,1)
Additional Location Information	O (0,1)	<i>P (0,0)</i>	<i>P (0,0)</i>	O (0,1)	O (0,1)	O (0,1)
Floor	O (0,1)	<i>P (0,0)</i>	<i>P (0,0)</i>	O (0,1)	O (0,1)	O (0,1)
Unit	O (0,1)	<i>P (0,0)</i>	<i>P (0,0)</i>	O (0,1)	O (0,1)	O (0,1)
Room	O (0,1)	<i>P (0,0)</i>	<i>P (0,0)</i>	O (0,1)	O (0,1)	O (0,1)
Seat	O (0,1)	<i>P (0,0)</i>	<i>P (0,0)</i>	O (0,1)	O (0,1)	O (0,1)
<i>Complete Subaddress</i>	O (0,1)	<i>P (0,0)</i>	<i>P (0,0)</i>	O (0,1)	O (0,1)	O (0,1)

Landmark Name	O (0,n)	O (0,n)	O (0,n)	O (0,n)	M (1, n)	[M (1,1)]***
County Name	M (1,1)	M (1,1)	M (1,1)	M (1,1)	M (1,1)	M (1,1)
Municipality Name	M (1,1)	M (1,1)	M (1,1)	M (1,1)	M (1,1)	M (1,1)
Postal City Name	M (1,1)	M (1,1)	M (1,1)	M (1,1)	M (1,1)	M (1,1)
Census Designated Place	O (0,1)	O (0,1)	O (0,1)	O (0,1)	O (0,1)	[M (1,1)]***
Unincorporated Community Name	O (0,1)	O (0,1)	O (0,1)	O (0,1)	O (0,1)	[M (1,1)]***
Neighborhood Name	O (0,1)	O (0,1)	O (0,1)	O (0,1)	O (0,1)	[M (1,1)]***
Native American Area Name	O (0,1)	O (0,1)	O (0,1)	O (0,1)	O (0,1)	[M (1,1)]***
Native American Tribal Subdivision Area Name	O (0,1)	O (0,1)	O (0,1)	O (0,1)	O (0,1)	[M (1,1)]***
Urbanization Name (PR)	O (0,1)	O (0,1)	O (0,1)	O (0,1)	O (0,1)	[M (1,1)]***
Other Place Name	O (0,1)	O (0,1)	O (0,1)	O (0,1)	O (0,1)	[M (1,1)]***
State Name	M (1,1)	M (1,1)	M (1,1)	M (1,1)	M (1,1)	M (1,1)
ZIP Code	O (0,1)	O (0,1)	O (0,1)	O (0,1)	O (0,1)	O (0,1)
Zip Plus 4	O (0,1)	O (0,1)	O (0,1)	O (0,1)	O (0,1)	O (0,1)

Key: M = mandatory; O = Optional; P = Prohibited.

Numbers show the minimum and maximum times the element may occur in the class (n = no limit).

***Italicized names* indicate complex elements (see section 6.3).**

Non-italicized names indicate simple elements (see section 6.4).

Notes:

- * The Separator can occur in two forms in the Intersection Class. A Separator (" and ") must appear between the Street Names. A Separator ("of the", "de la", etc.) may appear within a Complete Street Name.
- ** The Separator can occur in two forms in the Two-number Address Range Class. A Separator (a hyphen) must appear between the Complete Address Numbers. A Separator ("of the", "de la", etc.) may appear within a Complete Street Name.
- *** Within the Community Address Class, the community name can be a Landmark Name or a place name, but not both. If it is a place name, the name should be one of the following types: Census Designated Place, Community Name, Neighborhood Name, Native American Tribal Area, Native American Tribal Subdivision Area, Urbanization, or Other.

Complex Element Descriptions

Section No./Name	6.3.2. Complete Address Number
Definition	An Address Number, alone or with an Address Number Prefix and/or Address Number Suffix, which identifies a location along a thoroughfare or within a community.
Examples	123 Main Street 123½ Main Street N6W2 3001 Bluemound Road A19 Calle 11 194-03 Fiftieth Avenue Milepost 1303 Alaska Highway
Syntax	{ Address Number Prefix } + { Address Number * } + { Address Number Suffix }
Rules for Use	<ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Must include one Complete Address Number. 2. Intersection Address: Complete Address Number is prohibited. 3. Two-number Address Range: Must include two Complete Address Numbers. 4. Unnumbered Thoroughfare Address: Complete Address Number is prohibited. 5. Landmark Address: Complete Address Number is prohibited. 6. Community Address: Must include one Complete Address Number.
Input Source	NAD data provider, or constructed within the NAD from the simple elements that comprise it.

Section No./Name	6.3.3. Complete Street Name
Definition	Official name of a thoroughfare as assigned by a governing authority, or an alternate (alias) name that is used and recognized.
Examples	All of the following are complete street names: Main Street North Main Street Avenue B Broadway Kentucky State Highway 67
Syntax	{ Street Name Pre Modifier } + { Street Name Pre Directional } + { Street Name Pre Type } + { Separator Element } + { Street Name * } + { Street Name Post Type } + { Street Name Post Directional } + { Street Name Post Modifier }
Rules for Use	<ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Must include one Complete Street Name. 2. Intersection Address: Must include two or more Complete Street Names.

	<ol style="list-style-type: none"> 3. Two-number Address Range: Must include one Complete Street Name. 4. Unnumbered Thoroughfare Address: Must include one Complete Street Name. 5. Landmark Address: Complete Street Name is prohibited. 6. Community Address: Complete Street Name is prohibited.
Input Source	NAD data provider, or constructed within the NAD from the simple elements that comprise it.

Section No./Name	6.3.4 Complete Subaddress
Definition	<p>One or more elements that identify a subaddress within an addressed feature. A subaddress is a separate, identifiable portion of a feature, the whole of which is identified by a:</p> <ul style="list-style-type: none"> • Complete Address Number and Complete Street Name (in the case of a Numbered Thoroughfare Address) • Two Complete Address Numbers, separated by a hyphen, and followed by a Complete Street Name (in the case of a Two Number Address Range) • Complete Street Name (in the case of an Unnumbered Thoroughfare Address) • Complete Landmark Name (in the case of a Landmark Address) • Complete Address Number and Complete Landmark Name or Complete Place Name (in the case of a Community Address) <p>By definition, the Complete Subaddress can be parsed into one or more of the following elements: Building, Additional Location Information, Floor, Unit, Room, and Seat.</p>
Examples	<ol style="list-style-type: none"> 1. 123 Main Street, Apartment 101 2. 1000 Aviation Road, Building 4, Wing 7, Floor 6, Corridor Zero, Office 2B 3. Metro Airport, Terminal A, Gate B10
Syntax	A series of one or more elements that identify a subaddress. If more than one is listed, the Element Sequence Number can be used to show the order in which they should be listed.
M/C/O	Conditional
Rules for Use	<ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Complete Subaddress is permitted. 2. Intersection Address: Complete Subaddress is prohibited. 3. Two-number Address Range: Complete Subaddress is prohibited. 4. Unnumbered Thoroughfare Address: Complete Subaddress is permitted. 5. Landmark Address: Complete Subaddress is permitted. 6. Community Address: Complete Subaddress is permitted.

Input Source	NAD data provider, or constructed within the NAD from the simple elements that comprise it.
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Section No./Name	6.3.5 Complete Landmark Name
Definition	One or more Landmark Names which identify a relatively permanent feature of the manmade landscape that has recognizable identity within a particular cultural context.
Examples	Suzzallo Library, University of Washington
Syntax	A series of one or more Landmark Names.
Rules for Use	<ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Complete Landmark Name is permitted. 2. Intersection Address: Complete Landmark Name is permitted. 3. Two-number Address Range: Complete Landmark Name is permitted. 4. Unnumbered Thoroughfare Address: Complete Landmark Name is permitted. 5. Landmark Address: Complete Landmark Name is required. 6. Community Address: Either a Complete Landmark Name or a Community Name is required.
Input Source	NAD data provider, or constructed within the NAD from the simple elements that comprise it.
Implementation Notes	As implemented in the NAD, the Complete Landmark Name includes only one Landmark Name. It is included to provide for conformity to the address class syntaxes in section 6.2.

Section No./Name	6.3.6 Complete Place Name
Definition	The set of Place Names which identify an area, sector, or development (such as a neighborhood or subdivision in a city, or a rural settlement in unincorporated area); incorporated municipality or other general-purpose local governmental unit; county; or region within which the address is physically located; or the name given by the U.S. Postal Service to the post office from which mail is delivered to the address.
Status Note	Exclude, except in formal logical terms. Within the NAD, multiple place names will not be combined into a Complete Place Name. Instead, each place name element in an address record will be handled separately. In formal syntactical terms, the Complete Place Name will be restricted to only one value.
Examples	Wailuku, Maui, HI
Syntax	A series of one or more Place Names. If order matters, Place Names are typically listed from smallest to largest. If more than one is listed, the Element Sequence Number attribute can be used to show the order in which they should be listed.

Rules for Use	A Complete Place Name is required in all classes, and in all classes it may include one or more Place Names. In the NAD, every address record must include the County Name, Municipality Name (if any, or else "Unincorporated" if none) and the Postal City Name(s) (or "None", if none has been assigned by the USPS).
Input Source	NAD data provider, or constructed within the NAD from the simple elements that comprise it.
Implementation Notes	If a Complete Place Name includes more than one Place Name, the Element Sequence Number attribute can be used to show the order in which the Place Names should appear.

6.4 Simple Address Elements

6.4.1 Introduction

Simple address elements are address components that are defined independently of all other elements.

Each simple address element is defined and described by giving its:

1. **Section No./Name:** The section number of the element description, and the name of the element.
2. **Definition:** The meaning of the element.
3. **Examples:** Illustrative examples of the element.
4. **Capability Supported:** The address classes in which this element is required or permitted.
5. **M/C/O:** Whether the element is mandatory, conditional, or optional within an address record.
6. **Min/Max Occurs:** The minimum and maximum number to times the element can occur within an address record.
7. **Input Source:** Whether the data item will originate from the data provider, or from a NAD operation, or some other source.
8. **Implementation Notes:** Additional matters (if any) to consider in implementing the element within the NAD.

Table 2, in section 6.3.1, lists the address elements described in this section; whether they are mandatory, optional, or prohibited within each class; and the minimum and maximum number of times they may occur within each address class.

6.4.2 Address Number Elements

Section No./Name	6.4.2.1 Address Number Prefix
Definition	The portion of the Complete Address Number which precedes the Address Number itself.
Examples	N6W2 3001 Bluemound Road A 19 Calle 11 194-0 3 Fiftieth Avenue Milepost 1303 Alaska Highway
Capability Supported	Create, document, and display records for numbered thoroughfare, two-number address range, and community addresses.
M/C/O	Conditional. See Table 2 and sec. 6.3.2 (Complete Address Number)
Min/Max Occurs	Conditional. See Table 2 and sec. 6.3.2 (Complete Address Number)
Input Source	NAD data provider
Implementation Note	A milepost number is a special case of a Complete Address Number. Milepost numbers may be assigned outside the authority of the local address authority and without reference to local address number assignment rules. Consider recognizing certain words and abbreviations as reserved for use with milepost numbers (such as "Milepost", "Mile Marker", "Kilometer", "KmHm").

Section No./Name	6.4.2.2 Address Number
Definition	The numeric identifier for a land parcel, house, building, or other location along a thoroughfare or within a community.
Examples	123 Main Street N4W6 123 Oak Road 123 B Highway 88 Milepost 1303 Alaska Highway
Capability Supported	Create, document, and display records for numbered thoroughfare, two-number address range, and community addresses.
M/C/O	Conditional. See Table 2 and sec. 6.3.2 (Complete Address Number)
Min/Max Occurs	Conditional. See Table 2 and sec. 6.3.2 (Complete Address Number)
Input Source	NAD data provider

Section No./Name	6.4.2.3 Address Number Suffix
Definition	The portion of the Complete Address Number which follows the Address Number itself.
Examples	123 1/2 Main Street 121 E E Street B317 A Calle 117 Milepost 34.4 (Address Number Suffix = decimal portion only)
Capability Supported	Create, document, and display records for numbered thoroughfare, two-number address range, and community addresses.
M/C/O	Conditional. See Table 2 and sec. 6.3.2 (Complete Address Number)

Min/Max Occurs	Conditional. See Table 2 and sec. 6.3.2 (Complete Address Number)
Input Source	NAD data provider

6.4.3 Street Name Elements

Section No./Name	6.4.3.1 Street Name Pre Modifier
Definition	A word or phrase in a Complete Street Name that <ol style="list-style-type: none"> 1. Precedes and modifies the Street Name, but is separated from it by a Street Name Pre Type or a Street Name Pre Directional or both, or 2. Is placed outside the Street Name so that the Street Name can be used in creating a sorted (alphabetical or alphanumeric) list of street names.
Examples	Old North First Street Alternate North Avenue B The Oaks Drive Northwest East 14th Street
Capability Supported	Create, document, and display records for numbered thoroughfare, intersection, two-number address range, and unnumbered thoroughfare addresses.
M/C/O	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Min/Max Occurs	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Input Source	NAD data provider

Section No./Name	6.4.3.2 Street Name Pre Directional
Definition	A word preceding the Street Name that indicates the direction or position of the thoroughfare relative to an arbitrary starting point or line, or the sector where it is located.
Examples	North Main Street
Capability Supported	Create, document, and display records for numbered thoroughfare, intersection, two-number address range, and unnumbered thoroughfare addresses.
M/C/O	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Min/Max Occurs	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Input Source	NAD data provider

Section No./Name	6.4.3.3 Street Name Pre Type
Definition	A word or phrase that precedes the Street Name and identifies a type of thoroughfare in a Complete Street Name.
Examples	Avenue A Calle Aurora Rhode Island Route 4 Polk County Road 14A

Capability Supported	Create, document, and display records for numbered thoroughfare, intersection, two-number address range, and unnumbered thoroughfare addresses.
M/C/O	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Min/Max Occurs	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Input Source	NAD data provider

Section No./Name	6.4.3.4 Separator Element
Definition	A word, phrase, or symbol used as a separator between components of a complex element or class. The Separator Element is required for Intersection Addresses and for Two Number Address Ranges, and it may be used in constructing a Complete Street Name.
Examples	Two Number Address Range (hyphen): 206 - 210 Fourth Street Intersection Address ("and"): Eighth Street and Pine Street. Complete Street Name ("of the", "de las" and "des"): Avenue of the Americas, Alameda de las Pulgas; Rue des Etoiles.
Capability Supported	Create, document, and display records for numbered thoroughfare, intersection, two-number address range, and unnumbered thoroughfare addresses.
M/C/O	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Min/Max Occurs	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Input Source	NAD data provider

Section No./Name	6.4.3.5 Street Name
Definition	The portion of the Complete Street Name that identifies the particular thoroughfare (as opposed to the Street Name Pre Modifier, Street Name Post Modifier, Street Name Pre Directional, Street Name Post Directional, Street Name Pre Type, Street Name Post Type, and Separator Element (if any) in the Complete Street Name.)
Examples	Main Street Boston-Providence Turnpike Avenue of the Americas
Capability Supported	Create, document, and display records for numbered thoroughfare, intersection, two-number address range, and unnumbered thoroughfare addresses.
M/C/O	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Min/Max Occurs	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Input Source	NAD data provider

Section No./Name	6.4.3.6 Street Name Post Type
Definition	A word or phrase that follows the Street Name and identifies a type of thoroughfare in a Complete Street Name.

Examples	Main Street Boston-Providence Turnpike
Capability Supported	Create, document, and display records for numbered thoroughfare, intersection, two-number address range, and unnumbered thoroughfare addresses.
M/C/O	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Min/Max Occurs	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Input Source	NAD data provider

Section No./Name	6.4.3.7 Street Name Post Directional
Definition	A word following the Street Name that indicates the direction or position of the thoroughfare relative to an arbitrary starting point or line, or the sector where it is located.
Examples	Cherry Street North Calle Aguadilla Norte
Capability Supported	Create, document, and display records for numbered thoroughfare, intersection, two-number address range, and unnumbered thoroughfare addresses.
M/C/O	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Min/Max Occurs	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Input Source	NAD data provider

Section No./Name	6.4.3.8 Street Name Post Modifier
Definition	A word or phrase in a Complete Street Name that follows and modifies the Street Name, but is separated from it by a Street Name Post Type or a Street Name Post Directional or both.
Examples	East End Avenue Extended Banner Fork Road Number 1
Capability Supported	Create, document, and display records for numbered thoroughfare, intersection, two-number address range, and unnumbered thoroughfare addresses.
M/C/O	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Min/Max Occurs	Conditional. See Table 2 and sec. 6.3.3 (Complete Street Name)
Input Source	NAD data provider

6.4.4 Subaddress Elements

Section No./Name	6.4.4.1 Building
Definition	One among a group of buildings that have the same address number and complete street name.
Examples	" Terminal 3 " in John F. Kennedy International Airport, Terminal 3; " Building A " in 456 Oak Street, Building A, Apartment 206
Capability Supported	Create, document, and display records for addresses that include subaddresses.

M/C/O	Conditional, depending on the address class (see also Table 2): <ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Permitted. 2. Intersection Address: Prohibited. 3. Two-number Address Range: Prohibited. 4. Unnumbered Thoroughfare Address: Permitted. 5. Landmark Address: Permitted. 6. Community Address: Permitted.
Min/Max Occurs	Conditional, depending on the address class (see also Table 2): <ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Min. occ. = 0; Max = 1. 2. Intersection Address: Min. occ. = 0; Max = 0. 3. Two-number Address Range: Min. occ. = 0; Max = 0. 4. Unnumbered Thoroughfare Address: Min. occ. = 0; Max = 1. 5. Landmark Address: Min. occ. = 0; Max = 1. 6. Community Address: Min. occ. = 0; Max = 1.
Input Source	NAD data provider.

Section No./Name	6.4.4.2 Additional Location Information
Definition	A part of a subaddress that is not a building, floor, unit, room, or seat.
Examples	<p>“West Wing” in 1600 Pennsylvania Avenue NW, West Wing</p> <p>“Wing 7” in U.S. Department of Agriculture South Building, 1400 Independence Avenue, Wing 7</p> <p>“Concourse B” in Seattle-Tacoma Airport Main Terminal, Concourse B</p> <p>“Corridor 5” in U.S. Department of Commerce Building, 1401 Constitution Avenue NW, Corridor 5</p> <p>“Loading Dock” in 1601 Terminal Street, Loading Dock</p>
Capability Supported	Create, document, and display records for addresses that include subaddresses.
M/C/O	Conditional, depending on the address class (see also Table 2): <ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Permitted. 2. Intersection Address: Prohibited. 3. Two-number Address Range: Prohibited. 4. Unnumbered Thoroughfare Address: Permitted. 5. Landmark Address: Permitted. 6. Community Address: Permitted.
Min/Max Occurs	Conditional, depending on the address class (see also Table 2): <ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Min. occ. = 0; Max = 1. 2. Intersection Address: Min. occ. = 0; Max = 0. 3. Two-number Address Range: Min. occ. = 0; Max = 0. 4. Unnumbered Thoroughfare Address: Min. occ. = 0; Max = 1. 5. Landmark Address: Min. occ. = 0; Max = 1. 6. Community Address: Min. occ. = 0; Max = 1.
Input Source	NAD data provider.

Section No./Name	6.4.4.3 Floor
Definition	A floor, story, or level within a building.
Examples	<p>“Floor 5” in 800 Jefferson Street, Floor 5</p> <p>“5th Floor” in 800 Jefferson Street, 5th Floor</p> <p>“Mezzanine” in 800 Jefferson Street, Mezzanine</p>
Capability Supported	Create, document, and display records for addresses that include subaddresses.
M/C/O	<p>Conditional, depending on the address class (see also Table 2):</p> <ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Permitted. 2. Intersection Address: Prohibited. 3. Two-number Address Range: Prohibited. 4. Unnumbered Thoroughfare Address: Permitted. 5. Landmark Address: Permitted. 6. Community Address: Permitted.
Min/Max Occurs	<p>Conditional, depending on the address class (see also Table 2):</p> <ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Min. occ. = 0; Max = 1. 2. Intersection Address: Min. occ. = 0; Max = 0. 3. Two-number Address Range: Min. occ. = 0; Max = 0. 4. Unnumbered Thoroughfare Address: Min. occ. = 0; Max = 1. 5. Landmark Address: Min. occ. = 0; Max = 1. 6. Community Address: Min. occ. = 0; Max = 1.
Input Source	NAD data provider.

Section No./Name	6.4.4.4 Unit
Definition	A group or suite of rooms within a building that are under common ownership or tenancy, typically having a common primary entrance.
Examples	<p>“Apartment 12” in 422 Via Casitas, Apartment 12</p> <p>“Suite 3103” in 4300 Flamingo Avenue, Suite 3103</p> <p>“Presidential Suite” in 3100 Tropicana Boulevard, Presidential Suite</p> <p>“Penthouse” in 5850 Fifth Avenue, Penthouse</p>
Capability Supported	Create, document, and display records for addresses that include subaddresses.
M/C/O	<p>Conditional, depending on the address class (see also Table 2):</p> <ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Permitted. 2. Intersection Address: Prohibited. 3. Two-number Address Range: Prohibited. 4. Unnumbered Thoroughfare Address: Permitted. 5. Landmark Address: Permitted. 6. Community Address: Permitted.
Min/Max Occurs	<p>Conditional, depending on the address class (see also Table 2):</p> <ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Min. occ. = 0; Max = 1. 2. Intersection Address: Min. occ. = 0; Max = 0. 3. Two-number Address Range: Min. occ. = 0; Max = 0.

	<ol style="list-style-type: none"> 4. Unnumbered Thoroughfare Address: Min. occ. = 0; Max = 1. 5. Landmark Address: Min. occ. = 0; Max = 1. 6. Community Address: Min. occ. = 0; Max = 1.
Input Source	NAD data provider.

Section No./Name	6.4.4.5 Room
Definition	A single room within a building.
Examples	<p>"Room 450F" in 1440 Market St., Room 450F</p> <p>"Room 137" in 123 Main Street, Room 137</p> <p>"Cayuga Room" in 125 High Street, Cayuga Room</p> <p>"Rear" in 3850 Maple Street, Rear</p> <p>"Lobby" in 1200 Main Street, Lobby</p>
Capability Supported	Create, document, and display records for addresses that include subaddresses.
M/C/O	<p>Conditional, depending on the address class (see also Table 2):</p> <ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Permitted. 2. Intersection Address: Prohibited. 3. Two-number Address Range: Prohibited. 4. Unnumbered Thoroughfare Address: Permitted. 5. Landmark Address: Permitted. 6. Community Address: Permitted.
Min/Max Occurs	<p>Conditional, depending on the address class (see also Table 2):</p> <ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Min. occ. = 0; Max = 1. 2. Intersection Address: Min. occ. = 0; Max = 0. 3. Two-number Address Range: Min. occ. = 0; Max = 0. 4. Unnumbered Thoroughfare Address: Min. occ. = 0; Max = 1. 5. Landmark Address: Min. occ. = 0; Max = 1. 6. Community Address: Min. occ. = 0; Max = 1.
Input Source	NAD data provider.

Section No./Name	6.4.4.6 Seat
Definition	A place where a person might sit within a building.
Examples	<p>"Cubicle 23" in 2500 Seventh Street, Room 105, Cubicle 23</p> <p>"Registration Desk" in Grand Hotel, 1101 Madison Street, Registration Desk</p> <p>"Seat T19" Studio Theater, Seat T19</p>
Capability Supported	Create, document, and display records for addresses that include subaddresses.
M/C/O	<p>Conditional, depending on the address class (see also Table 2):</p> <ol style="list-style-type: none"> 1. Numbered Thoroughfare Address: Permitted. 2. Intersection Address: Prohibited. 3. Two-number Address Range: Prohibited. 4. Unnumbered Thoroughfare Address: Permitted.

	5. Landmark Address: Permitted. 6. Community Address: Permitted.
Min/Max Occurs	Conditional, depending on the address class (see also Table 2): 1. Numbered Thoroughfare Address: Min. occ. = 0; Max = 1. 2. Intersection Address: Min. occ. = 0; Max = 0. 3. Two-number Address Range: Min. occ. = 0; Max = 0. 4. Unnumbered Thoroughfare Address: Min. occ. = 0; Max = 1. 5. Landmark Address: Min. occ. = 0; Max = 1. 6. Community Address: Min. occ. = 0; Max = 1.
Input Source	NAD data provider.

6.4.5 Landmark Name Elements

Section No./Name	6.4.5.1 Landmark Name
Definition	The name of a relatively permanent feature of the manmade landscape that has recognizable identity within a particular cultural context.
Examples	United States Capitol Building Empire State Building Winnona Park Elementary School
Capability Supported	Create, document, and display records for landmark, community, numbered thoroughfare, intersection, two-number address range, and unnumbered thoroughfare addresses.
M/C/O	Conditional. See Table 2 and sec. 6.3.6 (Complete Landmark Name)
Min/Max Occurs	Conditional. See Table 2 and sec. 6.3.6 (Complete Landmark Name)
Input Source	NAD data provider

6.4.6 Place and State Name Elements

Section No./Name	6.4.6.1 County Name
Definition	The name of county or county-equivalent where the address point is located. A county (or its equivalent) is a primary geographic division of a state, federal district, territory, or possession.
Examples	Winston County Orleans Parish Fairbanks North Star Borough Staunton City (an independent city in Virginia, treated as the equivalent of a county)
Capability Supported	Create, document, and display records for addresses in counites and county equivalents.
M/C/O	Mandatory.
Min/Max Occurs	Minimum occurrences = 1; Maximum = 1
Input Source	NAD data provider
Implementation Notes	1. For address points in counties (including Louisiana parishes and Alaska boroughs), enter the county name.

	<p>2. For address points in areas outside of any formally-constituted county, use county-equivalents as defined by the Census Bureau. For address points in:</p> <ul style="list-style-type: none"> a. Independent cities (Carson City, NV; Saint Louis City, MO; Baltimore City, MD; and the independent cities of VA), enter the city name. b. Alaska’s Unorganized Borough, enter “Unorganized Borough”. c. District of Columbia, enter “District of Columbia”. d. Puerto Rico, enter the name of the municipio where the address point is located. e. Guam, enter “Guam”. f. United States Virgin Islands, enter either “Saint Croix”, “Saint John”, or “Saint Thomas”. g. American Samoa, enter either “Eastern District”, “Western District”, “Manu’a District”, “Swains Island”, or “Rose Atoll”. h. Northern Marianas, enter either “Saipan”, “Tinian”, “Rota”, or “Northern Islands Municipality”. i. United States Minor Outlying Islands (in the event that any addresses are recorded there), enter the island name: “Baker Island,” “Howland Island”, “Jarvis Island”, “Johnston Atoll”, “Kingman Reef”, “Midway Atoll”, “Palmyra Atoll”, “Wake Island”, or “Navassa Island”. <p>3. NAD data providers should ensure that their records contain a single, consistent representation of each county name. The NAD does not prescribe how the representations should be composed, as long as they are consistent and unique within each state. Short names may be used, and may be preferable when the short form is in common use for addressing purposes. As an example, the Census Bureau maintains a standardized list of all county names for the fifty states, DC, and Puerto Rico, posted here: https://www.census.gov/geographies/reference-files/2018/demo/popest/2018-fips.html</p>
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Section No./Name	6.4.6.2 Municipality Name
Definition	The name of the legally-defined municipality or other general-purpose local governmental unit with functioning government status, other than a county or county-equivalent, in which the address point is located.
Examples	Haleyville, Chicago, Athens, Olympia, Plum Borough, Winslow Township, Amherst Town

Capability Supported	Create, document, and display records for addresses in municipalities.
M/C/O	Mandatory. Enter the municipality name (if the address point is within an incorporated local government), or "Unincorporated" (if the address is not within an incorporated local government).
Min/Max Occurs	Minimum occurrences = 1; Maximum = 1
Input Source	NAD data provider
Implementation Note	<ol style="list-style-type: none"> 1. Only one municipality name is permitted per address record. In most instances, an address can be in only one municipality, or none at all. In certain states, municipal jurisdictions can overlap under certain circumstances, in which two or (rarely) three municipality names may apply. In these circumstances, providers are to use the municipality name representing the municipality with the highest level of incorporation, or top level of incorporation for affected addresses, where more than one municipality is associated with given addresses. 2. A municipality must have a mapped boundary before its name can be included in the NAD. The NAD content will not include municipal boundaries. 3. This element includes the names of Minor Civil Divisions (MCDs) if they are classified by the Census Bureau as 1. legally-defined, and 2. functioning governments (that is, those having active general government powers, as opposed to inactive governments, administrative areas, or statistical areas). Further information on Census Bureau definitions can be found in the Census Bureau's <i>Geographic Terms and Concepts</i> (p. 19), available here: https://www2.census.gov/geo/pdfs/reference/GTC_10.pdf 4. NAD data providers should ensure that their records contain a single, consistent representation of each municipality name. The NAD does not prescribe how the representations should be composed, as long as they are consistent and unique within each state. Short names may be used, and may be preferable when the short form is in common use for addressing purposes. As an example, the Census Bureau maintains a standardized list of all municipality names for the fifty states, DC, and Puerto Rico, posted here: https://www.census.gov/geographies/reference-files/2018/demo/popest/2018-fips.html

Section No./Name	6.4.6.3 Postal City Name — <i>Provisional pending USPS review</i>
Definition	The preferred postal city name for the ZIP Code of an address, as given in the USPS City State file (or “None”, if none has been assigned by the USPS, or “Not stated”, if the USPS Postal City name cannot be determined).

Examples	Stanton (a post office name in KY)
Capability Supported	Create, document, and display records for addresses in postal communities.
M/C/O	Mandatory. Enter the preferred postal city name, or “None”, if none has been assigned by the USPS, or “Not stated”, if the USPS Postal City name is not known.
Min/Max Occurs	Minimum occurrences = 1; Maximum = 1
Input Source	NAD data provider
Implementation Notes	<ol style="list-style-type: none"> 1. Confer with USPS on whether and how this element should be implemented. 2. Postal cities, unlike other place name types, do not have mapped boundaries. USPS is authoritative as to whether an address falls within a named Postal City. 3. Only one postal city name is permitted per address record.

Section No./Name	6.4.6.4 Census Designated Place Name
Definition	A settled concentration of population that is identifiable by name in the landscape (e.g., referenced on highway signs, business names, etc.), but not legally incorporated under the laws of the state in which it is located, and whose boundaries usually are defined by the Census Bureau in cooperation with state, local, or tribal officials.
Examples	<p>East Los Angeles CDP, CA Brandon CDP, FL Highlands Ranch CDP, CO The Woodlands CDP, TX Toms River CDP, NJ Cheektowaga CDP, New York Columbia CDP, MD</p>
Capability Supported	Create, document, and display records for addresses in census-designated places.
M/C/O	Optional. See Table 2 and section 6.3.7 (Complete Place Name)
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Note	<ol style="list-style-type: none"> 1. Only one census designated place name is permitted per address record, when the address point is located within the boundary of a CDP. Many addresses are not located within a CDP. 2. The NAD content will not include census designated place boundaries. 3. Census designated place boundaries have no legal status. They usually coincide with visible features or the boundary of an adjacent incorporated place or another legal entity boundary. 4. The authoritative list of census designated place names is found in the <i>Census Gazetteer Files for Places</i>, available here:

	<p>https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2019_Gazetteer/2019_Gaz_place_national.zip</p> <p>Note that the gazetteer includes other Incorporated Place names as well as CDP names.</p> <ul style="list-style-type: none"> • To select only CDP names, filter by LSAD = "57", or do a text string search for names that include " CDP" in capital letters. This will select all the names of all CDPs outside of Puerto Rico. • To find Puerto Rican CDP names, filter by LSAD = "55" or "62", or do a text string search for " comunidad" or " zona urbana". <p>Documentation of the LSAD codes is available here: https://www.census.gov/library/reference/code-lists/legal-status-codes.html)</p> <p>5. Census CDP boundaries do not always coincide with local boundaries for an unincorporated area. If an Address Point falls within the local boundary for an unincorporated area, but outside the Census CDP boundary, the unincorporated area name should be entered as an Unincorporated Community Name, not as a Census Designated Place Name. Census Designated Place boundaries can be found here, using the LSAD or text search terms as given above: https://www2.census.gov/geo/tiger/TIGER2019/PLACE/</p>
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Section No./Name	6.4.6.5 Unincorporated Community Name
Definition	The name of an unincorporated community or area, either within an incorporated municipality or in an unincorporated portion of a county or both, whose name and boundary are not identical to a Census-designated Place, where the address point is located.
Examples	<ul style="list-style-type: none"> • Poquito Valley (residential area in unincorporated Yavapai County, AZ) • Climax (community in unincorporated Guilford County, NC) • Clarksboro, NJ (in East Greenwich Twp., Gloucester Co., NJ) • Blue Anchor, NJ (in Winslow Twp., Camden Co., NJ).
Capability Supported	Inclusion of administrative and informal place names when useful in conveying the location of an address.
M/C/O	Optional. See Table 2 and section 6.3.7 (Complete Place Name)
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Notes	1. An unincorporated community is commonly understood as and referred to by its name.

	<ol style="list-style-type: none"> 2. An unincorporated community boundary cannot be coextensive with or subsume as part the entirety of an incorporated municipality. 3. Only one Unincorporated Community Name is permitted per address record. 4. An address record CANNOT have both an Unincorporated Community name AND a Neighborhood name, one or the other. 5. Unincorporated Communities must have a mapped boundary before the names can be included in the NAD. The NAD content will not include the community boundaries.
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Section No./Name	6.4.6.6 Neighborhood Name
Name	Neighborhood Name
Definition	The name of a portion, sub-place, or subarea of an incorporated municipality where the address point is located.
Examples	<ul style="list-style-type: none"> • Lincoln Park (a neighborhood in Chicago, IL) • Harlem (a neighborhood in New York City, NY) • Regent Square (a neighborhood including portions of Pittsburgh, Swissvale, Edgewood, and Wilkinsburg, Pennsylvania) • Brentwood (a neighborhood in Los Angeles, CA)
Capability Supported	Inclusion of administrative and informal place names when useful in conveying the location of an address.
M/C/O	Optional. See Table 2 and section 6.3.7 (Complete Place Name)
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Notes	<ol style="list-style-type: none"> 1. A neighborhood is commonly understood as and referred to by its name. 2. A neighborhood can only exist within and as a part of an incorporated municipality. It cannot exist in unincorporated areas of counties/equivalents. 3. A neighborhood cannot extend beyond the corporate limits of its associated municipality. If a neighborhood spans a municipal boundary (as in the Regent Square example above), the same name can be used within each different municipality, but the boundary of each should cover only the area within its municipality. 4. A neighborhood boundary cannot be coextensive with the entirety of its incorporated municipality. 5. Only one Neighborhood Name is permitted per address record. 6. An address record CANNOT have both a Neighborhood AND an Unincorporated Community name, one or the other.

	7. A Neighborhood must have a mapped boundary before its name can be included in the NAD.
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Section No./Name	6.4.6.7 Native American Area Name
Definition	The name of the federally-recognized American Indian reservation (including associated off-reservation trust lands), the state-recognized American Indian reservation, the Hawaiian home land, or the Alaskan Native Village Statistical Area in which the address point is located.
Examples	Navajo Nation Reservation Red Lake Reservation Waimanalo Hawaiian Home Land Inalik Alaskan Native Village Statistical Area
Capability Supported	Inclusion of Native American area names among place names applicable within an address.
M/C/O	Optional. See Table 2 and section 6.3.7 (Complete Place Name)
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Notes	1. Only one Native American Area Name is permitted per address record. 2. Tribal areas/reservations must have a mapped boundary before their names can be included in the NAD. The NAD content will not include tribal area/reservation boundaries.

Section No./Name	6.4.6.8 Native American Tribal Subdivision Area Name
Definition	The name of a federally-recognized American Indian tribal subdivision of a federally-recognized American Indian reservation (if any) in which the address point is located.
Examples	To'Nanees'Dizi Chapter
Capability Supported	Inclusion of Native American tribal subdivision names among place names applicable within an address.
M/C/O	Optional. See Table 2 and section 6.3.7 (Complete Place Name)
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Notes	1. Only one Native American Tribal Subdivision Area Name is permitted per address record. 2. Tribal subdivision areas must have a mapped boundary before their names can be included in the NAD. The NAD content will not include tribal subdivision area boundaries.

Section No./Name	6.4.6.9 Urbanization Name (PR)
Other common names for this element	Spanish word "Urbanización": ALTURA(S), BARRIADA, BARRIO(S), COLINAS, COMUNIDAD, ESTANCIAS, EXTENSION, JARDIN(ES),

	MANSIONES, PARCELA(S), PARQUE, QUINTA(S), REPARTO, SECTOR, TERRAZA, URBANIZACION, VILLA(S), VISTA.
Definition	The name of an area, sector, or development of a Puerto Rican municipio in which the address is physically located, that is recognized by municipio authorities, or used by the U.S. Postal Service for delivery of mail to the address.
Examples	<p>URBANIZACIÓN RIO HONDO 4 DJ99 CALLE PRADOS BAYAMON PR 00961</p> <p>VILLA ANDALUCIA N99 CALLE FRONTERA SAN JUAN PR 00926</p> <p>The urbanization name gives the general vicinity of the address, and often differentiates otherwise identical addresses within a municipio:</p> <p>URBANIZACIÓN SAN SOUCI A1 CALLE 1 BAYAMON PR 00961</p> <p>ALTURAS DE SAN SOUCI A1 CALLE 1 BAYAMON PR 00961</p> <p>Some urbanizations may share the same name but include a number to show that they were independently built, usually by the same developer. These areas may share repeated streets and house numbers. The use of the number is important to disambiguate otherwise duplicate addresses.</p> <p>URBANIZACIÓN SANTA JUANITA 1 1 CALLE 1 BAYAMON PR 00956</p> <p>URBANIZACIÓN SANTA JUANITA 4 1 CALLE 1 BAYAMON PR 00956</p> <p>NOTE: A few urbanizations lack street names or use repeated numeric street names. In those cases, urbanization names can be used in lieu of the street name. This practice is mostly used by the US Postal Service.</p>

	10 URBANIZACIÓN LOS MAESTROS PONCE PR 00951-1234
Capability Supported	Inclusion of urbanization names when needed in Puerto Rican addresses to show the vicinity within the municipio where the address is located, and, often, to disambiguate otherwise duplicate addresses within the municipio.
M/C/O	Optional. See Table 2 and section 6.3.7 (Complete Place Name)
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Notes	<ol style="list-style-type: none"> 1. In most of the United States, states are divided into counties, which in turn include incorporated municipalities. Generally, within municipalities, and within the unincorporated areas of counties, the address number and street name are sufficient to specify a location unambiguously within the incorporated and unincorporated places within a county. 2. In Puerto Rico, municipios (the equivalent of counties) contain no incorporated municipalities. The municipio name is used as the primary place name. In addition, it is common to assign the same name and address numbers to multiple streets within a municipio. As a result, a second place name is often needed to convey more precisely the location of an address within a municipio, and to disambiguate duplicate addresses. 3. The reference community is most often called with the Spanish term “<i>urbanización</i>”, the term given to suburban residential developments that proliferated in Puerto Rico beginning in the 1950’s. However, in practice many other terms are also used. USPS Publication 28 includes a list of the most common terms: <i>altura(s), barriada, barrio(s), colinas, comunidad, estancias, extension, jardin(es), mansiones, parcela(s), parque, quinta(s), reparto, sector, terraza, urbanizacion, villa(s), vista</i>. For convenience of reference, and following USPS addressing terminology, within this element definition, the term “<i>urbanization</i>” is used to signify any local community name within a “municipio”. 4. In practice, when residents are asked where they live, they often respond by providing the name of their urbanization even before providing their street name and address number. 5. Because duplicate addresses occur frequently within ZIP Code delivery areas, urbanization names are often required in postal addresses. USPS Publication 28 Appendix I specifies a three-line format for Puerto Rican addresses. The additional line is

	<p>reserved for the urbanization name. For addresses that use urbanization names, a 2-line address is an incomplete address.</p> <p>6. Urbanization names arise from various sources and have not always been recorded systematically. Municipios maintain administrative and cadastral records, including subdivisions such as urbanizations. The USPS has listed and standardized all urbanization names used in postal addresses.</p> <p>7. Most urbanizations do not have a strict mapped boundary and in certain cases municipio and USPS sources differ. For NAD purposes, the NAD data provider(s) determines which urbanization names are recognized and which addresses require them.</p>
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Section No./Name	6.4.6.10 Other Place Name
Definition	<p>An additional place name that is either:</p> <ol style="list-style-type: none"> 1. A different type of place name that does not fit in any of the categories defined above; or, 2. An additional community, tribal, or urbanization place name, when one more of one of those types of place names is deemed useful in the address record.
Examples	<ul style="list-style-type: none"> • Berkley Mews (residential) Subdivision, of Dixeyland neighborhood / section / district in Calhounish County, Southstate, USA; • BigEast City, Downtown Special Tax District; • WestCoastville Urban Growth Area; • Colonial Town Historic District, Oldstate, USA; • Rustburgh Brownfields District; • College Heights Estates, Prince George’s County, Maryland.
Capability Supported	<ol style="list-style-type: none"> 1. Inclusion of one additional place name in the address record, when useful. 2. Provision for place names that do not fit in any of the categories previously defined.
M/C/O	Optional. See Table 2 and section 6.3.7 (Complete Place Name)
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Notes	<ol style="list-style-type: none"> 1. If the Other Place Name does not fit in any of the categories defined above, the data provider must name and define a category for the new type. 2. Only one Other Place Name is permitted per address record. 3. Other Place Names must have a mapped boundary before they can be included in the NAD. The NAD content will not include area boundaries, and NAD workflows will likely not include verification that an address point is within the boundary of its named area.

Section No./Name	6.4.6.11 State Name
Definition	The names of the US states and state equivalents: the fifty US states, the District of Columbia, and all U.S. territories and outlying possessions. A state (or equivalent) is "a primary governmental division of the United States." The names may be spelled out in full or represented by their two-letter USPS or ANSI abbreviation.
Examples	Chicago, Illinois Chicago IL Frederiksted, United States Virgin Islands Frederiksted, VI
Capability Supported	Create, document, and display records for addresses in all address classes.
M/C/O	Mandatory.
Min/Max Occurs	Minimum occurrences = 1; Maximum = 1
Input Source	NAD data provider

Section No./Name	6.4.6.12 ZIP Code
Definition	A system of 5-digit codes that identifies the individual Post Office or metropolitan area delivery station associated with an address.
Examples	Birmingham, AL 35305
Capability Supported	Create, document, and display records for addresses in all address classes.
M/C/O	Optional.
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Note	May be checked by USPS.

Section No./Name	6.4.6.13 Zip Plus 4
Definition	A 4-digit extension of the 5-digit Zip Code (preceded by a hyphen) that, in conjunction with the Zip Code, identifies a specific range of USPS delivery addresses.
Examples	Birmingham, Alabama 35242- 3426
Capability Supported	Create, document, and display records for addresses in all address classes.
M/C/O	Optional.
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Note	May be checked by USPS.

6.5 Address Attributes

6.5.1 Introduction

Attributes provide descriptive information, including geospatial information, about an address or an address element.

Each address attribute is described by giving its:

1. **Section No./Name:** The section number of the attribute description, and the name of the attribute.
2. **Definition:** The meaning of the attribute.
3. **Examples:** Illustrative examples of the attribute.
4. **Capability Supported:** The NAD capability (as given in section 5) supported by this attribute.
5. **M/C/O:** Whether the attribute is mandatory, conditional, or optional within an address record.
6. **Min/Max Occurs:** The minimum and maximum number to times the element can occur within an address record.
7. **Input Source:** Whether the data item will originate from the data provider, or from a NAD operation, or some other source.
8. **Implementation Notes:** Additional matters (if any) to consider in implementing the attribute within the NAD.

Table 3 lists the address attributes described in this section, whether they are mandatory or optional, and the minimum and maximum number of times they may occur in an address record.

Table 3: Summary List of NAD Address Attributes

Attribute	Mandatory/ Optional	Min-Max Occurrences
Address UUID	M	1, 1
Address Authority	M	1, 1
Address Reference System Name	O	0,1
Address Longitude	M	1, n
Address Latitude	M	1, n
US National Grid Coordinate	M	1, n
Address Elevation	O	1, n
Address Position	M	1, n
Map Position	M	1, n
Related Address ID	O	0, n
Address Relation Type	O	0, n
Address Parcel Identifier Source	O	0, n
Address Parcel Identifier	O	0, n
Address Classification	M	1, 1
Address Lifecycle Status	O	0, 1
Address Start Date	O	0, 1
Address End Date	O	0, 1
Address Last Revision Date	M	1,1
Address Anomaly Status	O	0, n
Location Description	O	0, 1
Address Use Type	O	0, n
CLDXF Subaddress Type	O	0, n
Subaddress Component Order	O	0, n
Element Sequence Number	O	0, n
Place Name Type	O	0, 1
FIPS State County Code	O	0, 1
Delivery Address Type	O	0, 1
Address Direct Source	M	1, 1
Data Set ID	M	1, 1
Key: M = mandatory; O = Optional; P = Prohibited.		
Numbers show the minimum and maximum times the element may occur in the class (n = no limit).		

6.5.2 Address ID, Address Authority, and Address Reference System Name

Section No./Name	6.5.2.1 Address UUID
Definition	The Universally Unique Identifier (UUID) assigned to an address.
Examples	550e8400-e29b-11d4-a716-446655440000
Capability Supported	For each address, require or assign an address ID that remains unique through time, across multiple independent address authorities, and across multiple levels of data aggregation from local to national.
M/C/O	Mandatory
Min/Max Occurs	Minimum occurrences = 1; Maximum = 1
Input Source	Assigned by the address authority, or the NAD data provider, or by the NAD.
Implementation Notes	None

Section No./Name	6.5.2.2 Address Authority
Definition	The name of the authority (e.g., municipality, county) that created or has jurisdiction over the creation, alteration, or retirement of an address
Examples	Florence County, SC City of Boulder, CO University of Georgia, Athens, GA (for addresses within the campus) Hartsfield-Jackson International Airport, Clayton County, GA (for addresses within the airport)
Capability Supported	Associate each address with its local address authority.
M/C/O	Mandatory
Min/Max Occurs	Minimum occurrences = 1; Maximum = 1
Input Source	NAD data provider
Implementation Notes	None

Section No./Name	6.5.2.3 Address Reference System Name
Definition	The name of the address reference system within whose extent the address is located.
Examples	Boulder County Mountain Addressing System Boulder County Flatland Addressing System
Capability Supported	Names the area within which the address can be expected to be unique.
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Notes	1. The Address Reference System Name, along with the Address Authority, identifies the address reference system whose rules

	<p>govern the construction and assignment of addresses for the area within which the address is located.</p> <ol style="list-style-type: none"> 2. The area itself is defined by the Address Reference System Extent, a boundary polygon that is a required attribute for every address reference system. NAD content will not include the Address Reference System Extents. 3. Addresses, street names and ranges, landmark names, and place names should be unique within an address reference system area. 4. Exceptions sometimes occur. For example, occasionally two different streets in an area will have the same name and the same address ranges. Exceptions can be flagged using the Address Anomaly Status.
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6.5.3 Address Coordinates, Address Placement, and Address Point

Section No./Name	6.5.3.1 Address Longitude
Definition	The longitude of the address location, in decimal degrees.
Examples	-84.29049105
Capability Supported	Relate the longitude coordinate value using the WGS84 Datum to each address.
M/C/O	Mandatory
Min/Max Occurs	Minimum occurrences = 1; Maximum = n (no limit)
Input Source	NAD data provider
Implementation Notes	The Web Mercator projection, WGS84 Datum, authority, and system parameters will be included in the NAD metadata.

Section No./Name	6.5.3.2 Address Latitude
Definition	The latitude of the address location, in decimal degrees.
Examples	33.77603207
Capability Supported	Relate the latitude coordinate value using the WGS84 Datum to each address.
M/C/O	Mandatory
Min/Max Occurs	Minimum occurrences = 1; Maximum = n (no limit)
Input Source	NAD data provider
Implementation Notes	The Web Mercator projection, WGS84 Datum, authority, and system parameters will be included in the NAD metadata.

Section No./Name	6.5.3.3 US National Grid Coordinate
Definition	<ol style="list-style-type: none"> 1. The USNG is an alphanumeric point reference system that overlays the Universal Transverse Mercator (UTM) numerical coordinate system. 2. A USNG coordinate consists of three parts, the: 3. Grid Zone Designation (GZD) for worldwide unique geoinformation (two digits plus one letter, developed from the UTM system).

	<p>4. 100,000-meter Square Identification for regional areas (two letters).</p> <p>5. Grid Coordinates for local areas (always an even number of digits between 2 and 10 depending upon precision).</p>
Examples	18SUJ2348306479 (= 18S UJ 23483 06479)
Capability Supported	Provide the equivalent US National Grid coordinate for each longitude-latitude coordinate pair.
M/C/O	Mandatory
Min/Max Occurs	Minimum occurrences = 1; Maximum = n (no limit)
Input Source	NAD data provider, or else computed from the Address Longitude and Address Latitude.
Implementation Notes	None

Section No./Name	6.5.3.4 Address Elevation
Definition	Distance of the address in specified units above or below a vertical datum, as defined by a specified vertical coordinate reference system.
Examples	1023.0 (elevation in specified units above a specified vertical datum)
Capability Supported	Record the elevation for each Address Point, if desired. (Value: Flood emergency response (one example)).
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = n (no limit)
Input Source	NAD data provider
Implementation Notes	The NAD elevation reference system and datum is not yet specified. Until it is specified, NAD data providers who provide elevation data should identify the vertical coordinate reference system in the metadata accompanying the address records.

Section No./Name	6.5.3.5 Address Placement
Definition	The method used to place an Address Point within an addressed location.
Examples	Structure—Rooftop; Structure—Front Door; Property Access Point
Capability Supported	State where the Address Point is placed within the addressed location.
M/C/O	Mandatory
Min/Max Occurs	Minimum occurrences = 1; Maximum = n (no limit)
Input Source	NAD data provider
Implementation Notes	<ol style="list-style-type: none"> 1. An Address Placement value must be associated with and Address Point. 2. The NAD Pilot Project Schema (USDOT 2016, p.47) provides an initial working domain of values: Structure – Rooftop; Structure – Entrance; Structure - Interior Unit Location; Parcel – Centroid; Parcel - Other/Manual Placement; Linear Geocode; Property

	<p>Access Point; Site Placement; Other (some other method not listed); Unknown (unknown address placement method).</p> <p>3. Default value = "Unknown".</p>
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Section No./Name	6.5.3.6 Address Point
Definition	<p>A mappable point, constructed as a Well Known Text (WKT) Point or Point Z, using the following address attributes:</p> <p>Point ([Address Longitude] [Address Latitude])</p> <p>Point Z ([Address Longitude] [Address Latitude] [Address Elevation])</p>
Examples	<p>Point (-76.931253 38.847555)</p> <p>Point Z (-76.931253 38.847555 300)</p>
Capability Supported	Create map displays of address locations.
M/C/O	Mandatory
Min/Max Occurs	Minimum occurrences = 1; Maximum = n (no limit)
Input Source	NAD data provider, or else computed from the Address Longitude and Address Latitude.
Implementation Notes	<ol style="list-style-type: none"> 1. The Address Placement attribute must accompany each XY or XYZ coordinate set. 2. To be implemented such that multiple Address Points, each with a different Address Placement value, can be associated with a given address. 3. WKT format is specified in: Herring, John, ed. <i>OpenGIS Implementation Standard for Geographic information - Simple feature access - Part 1: Common architecture</i>. Version 1.2.1, OGC 06-103r4. 2011-05-28. 93pp. Posted at: https://www.ogc.org/standards/sfa

6.5.4 Address-to-address Relationships

Section No./Name	6.5.4.1 Related Address ID
Definition	The identifier of an address that is related to the identifier of another address.
Examples	See examples under Address Relation Type
Capability Supported	Relate addresses to each other where useful (e.g., landmark addresses to corresponding thoroughfare addresses; predecessor addresses to successor addresses; official address to alias address; etc.)
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = n (no limit)
Input Source	NAD data provider
Implementation Notes	None

Section No./Name	6.5.4.2 Address Relation Type
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Definition	The manner in which an address identified by a Related Address ID is related to an address identified by an Address ID.
Examples	<p>123 Main St (Address ID = 1000) is also known as the "Grand Old Office Building" (a landmark name, Address ID = 5000). Then for: Related Address ID = 5000, Address ID = 1000, Address Relation Type = Landmark Name Alias</p> <p>Related Address ID = 1000, Address ID = 5000, Address Relation Type = Official Street Address</p> <p>123 Main Street was created years ago when 101 Main Street (Address ID = 250) was subdivided into several properties. Then for: Related Address ID = 250, Address ID = 1000, Address Relation Type = Historical Predecessor</p> <p>This particular part of Main Street is part of State Route 88. 123 Main Street (Address ID = 1000) is the official address, but 123 State Route 88 (Address ID = 8943) is also recognized. Then for: Related Address ID = 8943, Address ID = 1000, Address Relation Type = Alias Address</p> <p>Related Address ID = 1000, Address ID = 8943, Address Relation Type = Official Address</p>
Capability Supported	Relate addresses to each other where useful (e.g., landmark addresses to corresponding thoroughfare addresses; predecessor addresses to successor addresses; etc.)
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = n (no limit)
Input Source	NAD data provider
Implementation Notes	None

6.5.5 Address-to-parcel Relationships

Section No./Name	6.5.5.1 Address Parcel Identifier Source
Definition	The permanent identifier for the agency, organization, or jurisdiction that assigns and maintains the Address Parcel Identifier.
Examples	Wake County (NC) Revenue Department
Capability Supported	Relate addresses to their corresponding land parcels (if any), if such data is provided by NAD data providers.
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = n (no limit)
Input Source	NAD data provider
Implementation Notes	The NAD scope will not extend to verifying or validating the names of source agencies provided by the data providers.

Section No./Name	6.5.5.2 Address Parcel Identifier
Definition	The primary permanent identifier, as defined by the Address Parcel Identifier Source, for a parcel that includes the land or feature identified by an address. A parcel is "a single cadastral unit, which is the spatial extent of the past, present, and future rights and interests in real property."
Examples	5142301020000 (= the address is associated with the land or a feature within parcel 5142301020000)
Capability Supported	Relate addresses to their corresponding land parcels (if any), if such data is provided by NAD data providers.
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = n (no limit)
Input Source	NAD data provider
Implementation Notes	Address-parcel relationships are complex and not necessarily tracked by local authorities. The NAD scope will not extend to verifying or validating any parcel IDs provided by the data providers.

6.5.6 Additional Address Documentation

Section No./Name	6.5.6.1 Address Classification
Definition	The class of the address as defined in the Classification Part of the FGDC address data standard.
Examples	Numbered Thoroughfare Address Intersection Address Two Number Address Range Unnumbered Thoroughfare Address Landmark Address Community Address
Capability Supported	Show the address classification (per the FGDC standard), so that the correct record structure can be assigned, and class-dependent QC rules and tests can be applied.
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Notes	Address Classification provides the basis for a number of logical QC tests.

Section No./Name	6.5.6.2 Address Lifecycle Status
Definition	The lifecycle status of the address.
Examples	Potential, Proposed, Active, Retired
Capability Supported	Record whether an address is currently in use, and when it was created and/or retired.
M/C/O	Optional. Default value = "Not stated".
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1

Input Source	NAD data provider
Implementation Notes	Use of “Not Stated” will be strongly discouraged but not prohibited.

Section No./Name	6.5.6.3 Address Start Date
Definition	The earliest date on which the address is known to exist.
Examples	20050413
Capability Supported	Record whether an address is currently in use, and when it was created and/or retired.
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Relation to the FGDC Standard	Identical to FGDC 2.3.9.1 (Address Start Date).
Input Source	NAD data provider
Implementation Notes	None

Section No./Name	6.5.6.4 Address End Date
Definition	The date on which the address is known to no longer be valid.
Examples	20110209
Capability Supported	Record whether an address is currently in use, and when it was created and/or retired.
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Notes	None

Section No./Name	6.5.6.5 Address Last Revision Date
Definition	The date that the address record was last updated within the NAD.
Examples	20191231 (=December 31, 2019).
Capability Supported	Allows incremental views and exports to NAD data users (e.g., “show (or download) all the records that have changed since 20191231”).
M/C/O	Mandatory
Min/Max Occurs	Minimum occurrences = 1; Maximum = 1
Input Source	NAD data provider.
Implementation Notes	The FGDC standard follows ISO 8601:2004 in representing dates as: YYYYMMDD

Section No./Name	6.5.6.6 Address Anomaly Status
Definition	A status flag, or an explanatory note, for an address that is not correct according to the Address Reference System that governs it, but is nonetheless a valid address.

Examples	An address that has an even Address Number Parity but is located on the odd-numbered side of the street.
Capability Supported	Note whether and how address does not conform to local address assignment rules
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = n (no limit)
Input Source	NAD operations
Implementation Notes	Domain of values TBD. (What types of anomalies should be noted?)

Section No./Name	6.5.6.7 Location Description
Definition	A text description providing more detail on how to identify or find the addressed feature.
Examples	"White house at intersection.", "400 yards west of water tank."
Capability Supported	Provide for additional free-text description of the address location, if desired.
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Notes	None

Section No./Name	6.5.6.8 Address Use Type
Definition	A category of real world phenomena with common properties whose location is specified by an address.
Examples	Residential, Commercial, Government, Public, Industrial, Agricultural, Educational
Capability Supported	Show the type of land use or feature at the address (e.g. residence, business, government offices, etc.), if and as it may be provided by the data provider
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = n (no limit)
Input Source	NAD data provider
Implementation Notes	No domain of values can be established within the NAD. The NAD will accept any value (or none at all), as free text, with no expectation that types will be consistent from jurisdiction to jurisdiction.

Section No./Name	6.5.6.9 Element Sequence Number
Definition	The order in which the Subaddress Elements should be written within a Complete Subaddress; the order in which the Landmark Names should be written within a Complete Landmark Name; or the order in which the Place Names should be written within a Complete Place Name.

Examples	For the Complete Subaddress "Wing 7, Floor 3, Room 326," the Place Name elements would have the following Element Sequence Numbers: Wing 7: Element Sequence Number= 1 Floor 3: Element Sequence Number= 2 Room 326: Element Sequence Number= 3
Capability Supported	Place repeated elements, such as subaddress elements or landmark names, in the correct order when constructing the complete address from its simple elements.
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = n (no limit)
Input Source	NAD data provider
Implementation Notes	None

Section No./Name	6.5.6.10 Place Name Type
Definition	The type of Place Name used in an Address
Examples	County, Municipal, Postal City, Unincorporated Community
Capability Supported	Guide the data provider to select the most suitable place name for a given purpose when multiple place names apply to given address (county, postal, municipal, etc).
M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = n (no limit)
Input Source	NAD data provider, or NAD operation
Implementation Notes	<ol style="list-style-type: none"> 1. Domain of values = County Name, Municipality Name, Postal City Name, Census Designated Place Name, Unincorporated Community Name, Neighborhood Name, Native American Area Name, Native American Tribal Subdivision Area Name, Urbanization Name (PR), Other Place Name, "NULL". 2. Additional categories will be added as they are defined under "Other". 3. Default value = "NULL".

Section No./Name	6.5.6.11 Delivery Address Type
Definition	Whether the Delivery Address includes or excludes the Complete Subaddress. (See section 6.3.8 for definition of "delivery address".)
Examples	Delivery Address = 123 Main Street, Apt. 1 (Delivery Address Type = Subaddress Included) Delivery Address = 123 Main Street (Delivery Address Type = Subaddress Excluded)
Capability Supported	Provide a flag to separate address records with no subaddress information from address records that include subaddress information, when desired.

M/C/O	Optional
Min/Max Occurs	Minimum occurrences = 0; Maximum = 1
Input Source	NAD data provider
Implementation Notes	None

6.5.7 Address Lineage Attributes

Section No./Name	6.5.7.1 NAD Data Provider
Definition	Organization or person providing data directly to the NAD .
Examples	NAD data provider (e.g., state address repository)
Capability Supported	For each dataset, the NAD data provider (that is, the organization or person who provides the dataset directly to the NAD) shall provide, and the NAD shall record, metadata about the dataset and data provider sufficient to enable backwards communication with the data provider when records fail QC tests and must be returned for correction.
M/C/O	Mandatory
Min/Max Occurs	Minimum occurrences = 1; Maximum = 1
Input Source	NAD data provider
Implementation Notes	None

Section No./Name	6.5.7.2 Data Set ID
Definition	An identifier in each record of a transmitted dataset, assigned by the sender or the receiver of the dataset, to associate each record of the dataset to the file-level metadata that accompanies the dataset.
Examples	Dataset ID 1475
Capability Supported	For each dataset, the NAD data provider (that is, the organization or person who provides the dataset directly to the NAD) shall provide, and the NAD shall record, metadata about the dataset and data provider sufficient to enable backwards communication with the data provider when records fail QC tests and must be returned for correction.
M/C/O	Mandatory
Min/Max Occurs	Minimum occurrences = 1; Maximum = 1
Input Source	NAD data provider, or NAD
Implementation Notes	The combination of Dataset ID and NAD Data Provider must be unique throughout the NAD.