



Tennessee Information for Public Safety

Product Specifications

Version 5.0

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This product specification provides detailed information about the layers available as part of the Tennessee Information for Public Safety project as well as an overview of how those layers will be maintained.

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Executive Summary

A statewide street centerline Geographic Information System (GIS) digital database is being developed by the State of Tennessee. In 2007, the Office for Information Resources, GIS Services section (OIR-GIS Services) completed the initial statewide GIS data production through the Tennessee Base Mapping Program (TNBMP). The TNBMP data products included not only street centerlines, but digital ortho imagery, a digital surface model, hydrography and drainage data, along with a comprehensive property (cadastral) ownership layer.

To sustain the long term use of these GIS data layers in a variety of State and local GIS applications, appropriate data maintenance roles and responsibilities must be established. Working with the Tennessee Emergency Communications Board (TECB), OIR-GIS Services is under contract to help facilitate the maintenance of the statewide centerline database. Working with local E9-1-1 districts, OIR-GIS Services will be consuming locally updated geometry and tabular information (street addresses, names, etc.) and integrating these local updates into a single consolidated and standardized centerline database. In turn, OIR-GIS Services will provide local E9-1-1 districts with the updated statewide centerline database at no cost to the districts. The ability for local E9-1-1 districts to share and exchange data with OIR-GIS Services will allow the districts to effectively manage their operations and improve public safety.

The ability for OIR-GIS Services to effectively maintain this street centerline database and provide quality information to the E9-1-1 districts is dependent upon the willingness of each local E9-1-1 district to share their data with OIR-GIS Services. Moreover, data quality is based on the ability of OIR-GIS Services to develop and adhere to specific data maintenance standards. The following document provides specific street centerline and addressing standards that OIR-GIS Services will use to maintain this statewide database.

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1.1 Introduction

The statewide geographic information systems (GIS) database, referred to hereafter as the Tennessee information for public safety (TIPS) product has been compiled for use in each Emergency Communications District (ECD) within the state of Tennessee. This document has been put together to assist individual ECD's understand the TIPS product and how each layer can be used to assist in their emergency response management. A minimum level of GIS and ESRI experience is required in order to best understand the key concepts as outlined in the following pages.

This document will be broken out into three sections each with their own respective sub-sections:

- Software and data requirements
- Technical Specifications
- Appendices providing tabular support

1.2 Background

In 1992, the Tennessee State Information Systems Council adopted Environmental Systems Research Institute (ESRI) as the State of Tennessee standard GIS software platform. The statewide street centerline database will be maintained by Office for Information Resources, GIS (hereinafter OIR-GIS) Services and distributed to local ECD in an ESRI data format. In addition to distributing the statewide data, OIR-GIS Services can provide county level centerline data to an ECD. If a local ECD decides to implement the county level street centerline data provided by OIR-GIS Services as the primary or production data set, the district will be required to apply any updates and/or edits to the data in the ESRI data format. This may not be an issue as most districts already have an existing county centerline database. However, for districts wanting to migrate or switch to the OIR-GIS Services centerline database, they will be required to maintain the centerline data in the ESRI format. If a local ECD is unsure if their current software platform supports and/or natively uses the ESRI file format, please contact OIR-GIS Services (see below under *Feedback* for contact information) or the software vendor directly.

The State of Tennessee, OIR-GIS Services has been under contract with the State of Tennessee Emergency Communications Board (ECB) to develop and maintain a comprehensive Street Centerline database and provide related services to local districts since January 2003. The vision for this effort is to develop a system that allows OIR-GIS to provide an up-to-date, statewide Street Centerline database to any ECD for use in dispatching and emergency services. In particular, this statewide Street Centerline database will be essential for implementation of Next Generation 911 (NG-911) and the need to locate misrouted cell phone calls and Voice over Internet Protocol (VoIP) calls in adjacent counties or any part of the State. This will require the implementation of data standards, communication networks, hardware, software, and other related infrastructure. Through the development of this maintenance program, local districts will enhance their ability to effectively respond to emergencies and improve public safety.

1.3 Present Product Status

OIR-GIS Services is currently working with the Tennessee Emergency Communications Board to formulate a comprehensive maintenance schedule for the distributed layers of the TIPS. Utilizing the latest street address data standard document from the Federal Geographic Data Committee as a foundation, these guidelines and restrictions will govern the updating methodologies used by OIR-GIS

Services and the various end-user agencies implementing these standards. These maintenance standards will apply until the next versioned release of this documentation.

OIR-GIS and the ECB have funded the initial development of a statewide Street Centerline database through the efforts of the Tennessee Base Mapping Program. It is now in the best interest of the ECD and the public welfare to maintain this statewide database through data sharing, education, and technical support services. This will require OIR-GIS to implement data standards, communication networks, hardware, software, and other related infrastructure.

Each participating ECD will maintain its own jurisdictional street centerline database. The role of OIR-GIS will be to collect street centerline updates generated by the district (or third party), integrate these into a statewide database and provide a portal through which spatial data can be conveniently accessed by authorized local consumers, including the ECD. In order for OIR-GIS Services to most efficiently and accurately fulfill this objective the TIPS data format was developed to simplify and expedite data sharing amongst ECD's in support of E-911 as well as work in conjunction and in support of statewide NG-911.

2.1 Metadata

The term *metadata* is defined as “information that describes the content, quality, condition, origin, and other characteristics of data or other pieces of information. Metadata for spatial data may describe and document its subject matter; how, when, where, and by whom the data was collected; availability and distribution information; its projection, scale, resolution, and accuracy; and its reliability with regard to some standard. Metadata consists of properties and documentation. Properties are derived from the data source (for example, the coordinate system and projection of the data), while documentation is entered by a person (for example, keywords used to describe the data).”¹

Metadata is key to the lifecycle of any dataset. It effectively protects the investment of data compilation, re-use and updating. It provides the user with consistent terminology, key elements and describes the fitness for use. Moreover, it enables discovery when combined with other data in a clearinghouse or data catalog.²

Metadata maintained with the addressing layers will be FGDC-compliant. For more information on this topic, visit www.fgdc.gov/metadata . For the Content Standard for Digital Geospatial Metadata (CSDGM) open www.fgdc.gov/standards/projects/FGDC-standards-projects/metadata/base-metadata/v2_0698.pdf . For the Metadata Quick Guide open www.fgdc.gov/metadata/documents/MetadataQuickGuide.pdf .

2.2 Standards

Standards for addressing that govern this document include the FGDC Street Address Data Standard (www.fgdc.gov/standards/projects/FGDC-standards-projects/street-address/), the United States Postal Service Publication 28 (www.nena9-1-1.org/9-1-1TechStandards/Standards_PDF/USPSPub28.pdf), and standards developed by OIR-GIS Services for inclusion in the State of Tennessee enterprise GIS solution. The USPS Publication 28 is recognized as an authoritative data standard by NENA³

2.3 Software

In 1992, the Tennessee State Information Systems Council adopted Environmental Systems Research Institute (ESRI) as the State of Tennessee standard GIS software platform. The statewide street centerline database will be maintained by OIR-GIS Services and distributed to local E9-1-1 districts in an ESRI data format. Data is available in shapefile format (usable in all ESRI versions), personal geodatabase (usable in ESRI ArcGIS 8.0 and higher versions) or file geodatabase (usable in ESRI ArcGIS 9.2 and higher). For further information about software requirements see ESRI.com.

¹ ESRI. GIS Dictionary. October 31, 2006. Retrieved December 18, 2006 from <http://support.esri.com/index.cfm?fa=knowledgebase.gisDictionary.search&searchTerm=metadata>

² Wyoming Geographic Information Science Center. Metadata Education Project. Retrieved December 18, 2006 from <http://www.wygisc.uwyo.edu/metadata/why.html#benefit>

³ NENA. November 9, 2004. NENA Data Standards for Local Exchange Carriers, ALI Service Providers & 9-1-1 Jurisdictions. pgs. 14, 19, 66.

NENA. February 25, 2006. NENA Standard Formats & Protocols for ALI Data Exchange, ALI Response & GIS Mapping. pgs. 18, 25, 33, 38, 55, 60.

3.1 General Conditions

This section provides technical specifications for the street centerline and address point data products, as well as guidelines for compilation of said data to support a variety of CAD or Map-ALI applications. Field values are archived in upper case unless otherwise specified and contain no punctuation. A complete list of non-uniform punctuation can be found in Appendix F. Subsequent updates to this product will not retain user-defined fields, so it is imperative that the local editor or end-user archive this information. OIR-GIS Services suggests that additional fields needed for individual applications be added to a join or linking table using [OIRID], however it will be left up to each editing authority to determine the best archive mechanism relative to their own situation.

3.2 Coordinate System and Projection

The following outlines the State of Tennessee standard for GIS data:

Coordinate System: State Plane
Zone: 4100 (Tennessee)
Projection: Lambert Conformal Conic
False Easting: 1968500.000000
False Northing: 0.000000
Central Meridian: -86.000000
First Standard Parallel 1: 35.250000
Second Standard Parallel: 36.416667
Latitude of Origin: 34.333333
Linear Unit: U.S. Foot (0.304801)
Geographic Coordinate System:
Name: Geographic Coordinate System (GCS)
Angular Unit: Degree (0.017453292519943295)
Prime Meridian: Greenwich (0.000000000000000000)
Datum: North American Datum of 1983
Spheroid: GRS 1980
Semi-major Axis: 6378137.000000000000000000
Semi-minor Axis: 6356752.314140356100000000
Inverse Flattening: 298.257222101000020000

3.3 Horizontal Accuracy

Horizontal accuracy will apply to address points and street centerline nodes and vertices. The requirement for acceptance shall be +/- 3 meters⁴

⁴ meets National Map Accuracy Standards of 1947 ("NMAPS") (<http://rockyweb.cr.usgs.gov/nmpstds/nmas.html>) and complies with the National Standard for Spatial Data Accuracy ("NSSDA") (<http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part3/chapter3>).

Section 4 Technical Field Definitions

4.1 Street Centerlines

The street centerlines are meant to provide the foundation of all emergency response dispatching. The TIPS street centerlines contain all necessary attributes to allow for accurate geocoding and spatial representation. Utilizing the alternate names table provide will allow for more enhanced geocoding abilities due to the inherent nature of roads carrying various names. Features to be utilized in use of the street centerlines and alternate name table would be (table structure for Street Centerline and the Alternate names table [Appendix A](#)):

4.1.1 Relational Fields

[OIRID], [SEGID]

These identifiers have separate uses, the OIRID is the identifier used as a unique identifier for segment tracking purposes while the SEGID is a non-unique identifier used to link other features and attributes to. There could be instances where multiple segments exist with duplicate SEGID's, this will indicate that in products where there are stacked segmentation alternate names are available for this segment, in the non-stacked product the SEGID will link to the alternate names table when there are alternate names available for this segment.

4.1.2 Address Ranges

[L_F_ADD], [L_T_ADD], [R_F_ADD], [R_T_ADD]

4.1.2.1 Address Type

[ADDR_TYPE] = P

These ranges are maintained in accordance with the USPS Address Information System ("AIS"). Generally, hundred-breaks are applied to the address ranges between intersections. For example, a street segment with an actual address range of 100-105 would have a potential address range of 100-199. Potential addresses would be the last tier to be utilized in geocoding (address points first, and actual address ranges second).

[ADDR_TYPE] = A

Maintenance of these ranges is based solely on the Master Street Address Guide ("MSAG") provided by each local ECD. The values reflect the known, minimum and maximum for each side of the street regardless of vacant land, potential build-out or structural disbursement. The potential benefit to this is a closer geocoded point to the actual structure based on interpolation. Actual addresses would be the middle tier to be utilized in geocoding (address points first, and potential address ranges third).

4.1.3 Full Street Name

[PREDIR], [PRETYPE], [NAME], [TYPE], [SUFDIR],[POSTMOD]

These values should reflect the USPS [Publication 28](#) values for each field type respectively. For a treatise on usage, please reference the compendium [Geocoding Standards](#). Most of the valid field abbreviations can be found in the appendices of this document. Where the USPS values differ or hinder the functionality of the centerline in dispatch operations, the local ALI database or MSAG value should be used.

4.1.4 Display and Map Labeling

[LABEL]

This value is a concatenation of the values found in the preceding fields ([PREDIR], [PRETYPE], [NAME], [TYPE], [SUFDIR]) with appropriate spacing interposed. For aesthetics, proper case

can be employed (whereas all other field values are upper case). This field can be used to label the full street name with the GIS application or for map production.

[VANITY]

A value that reflects the public or generally accepted name of the street. Not typically associated as an address component. As with the [LABEL] field, proper case can be employed for these values as well. Examples of valid values would be "Capitol Square", "Rivergate Mall", "Bicentennial Park".

[SUBNAME]

A value that reflects the subdivision name for the associated address point. Not typically associated as an address component. As with [LABEL] and [VANITY] fields, proper case can be employed for these values as well. Examples of valid values would be "Stone wood Village"

4.1.6 Street Name Type

[NAMETYPE]

This field will be populated when there are multiple names associated with each segment. Examples of this would be when a street contains both a locally known and used name as well as a County, State or US highway designation. This will assist in determining the appropriate name for any given application.

4.1.7 Census Feature Class Code

[CFCC]

These are standard alphanumeric, 3-character feature class codes maintained by the U.S. Bureau of the Census. For an extended list of these codes, refer to Appendix G.

4.1.8 ZIP Code

[ZIP_L], [ZIP_R]

These field values designate the 5-digit ZIP code(s) on the Left and Right sides (respectively) of the centerline. ZIP+4 values (or 9-digit ZIP codes) should not be entered.

4.1.9 Emergency Service Number

[ESN_L], [ESN_R]

These field values designate the Emergency Service Number on the Left and Right sides (respectively) of the centerline. The value should always reflect a 3-digit format (e.g., "002"). If present, pseudo-ESN values should be entered in these fields.

4.1.10 City or Community

[CITY_L], [CITY_R]

These field values designate the administrative areas on the Left and Right sides (respectively) of the centerline. The value should always reflect the designation found in the ALI database (or MSAG). Subdivisions and unincorporated areas should not be entered.

4.1.11 County

[COUNTY_L], [COUNTY_R]

These field values designate the county areas on the Left and Right sides (respectively) of the centerline.

4.1.12 State

[STATE_L], [STATE_R]

These field values designate the state areas on the Left and Right sides (respectively) of the centerline. Predominantly "TN", although perimeter counties should be aware of centerlines that are in the extremities of their jurisdiction.

4.1.13 Routing Attributes

[SPDLIMIT], [TFCOST], [FTCOST], [T_ELEV], [F_ELEV], [ONEWAY], [LANES]

Attributes that enable routing applications. ONEWAY should be referenced as TF or FT depending if the one way is in the direction of the segment or reverse, SPDLIMIT can be derived based on Road Classification, T_ELEV and F_ELEV should be populated with ground level = 0

4.1.14 Editing Authority

[EDITOR]

Name of the authorized entity for this edit. Multiple authorities may exist within a single ECD.

4.1.15 Geometry Modifications

[GEOMOD]

Brief description of the most recent spatial modification for this edit. The field is 75 characters for expositions, but this value could be a single, descriptive word.

4.1.16 Spatial Edit Source

[GEOSRCE]

Authoritative source for the most recent spatial modification for this edit. Examples of this might be “new plats from the Assessor’s Office” or “field verification with GPS”.

4.1.17 Spatial Edit Date Stamp

[GEODATE]

Date the most recent spatial edit was made. This value is generic and does not include a time stamp. Several edits can be made and then a global calc on the selected set can be performed.

4.1.18 Attribute Modification

[ATTMOD]

Brief description of the most recent attribute modification for this edit. The field is 75 characters for expositions, but this value could be a single, descriptive word.

4.1.19 Attribute Edit Source

[ATTSRCE]

Authoritative source for the most recent attribute modification for this edit.

4.1.20 Attribute Edit Date Stamp

[ATTDATE]

Date the most recent attribute edit was made. This value is generic and does not include a time stamp.

4.1.21 Lifecycle Status

[STATUS]

Current status of the geometry (centerline or point dataset). The values are as follows:

730 = ACTIVE. The geometry is in use and has valid attributes.

734 = PROPOSED. The geometry is pending. Attributes may or may not have been assigned.

736 = POTENTIAL. The geometry is being considered, but not approved.

799 = RETIRED. The geometry is obsolete. Attribution is discarded or transferred.

This field represents the default subtype in the geodatabase schema and helps maintain a temporal view of the dataset between archival operations.

4.2 Address Point Features

To assist in geocoding more accurately the address points are meant to provide an enhanced layer for emergency response dispatching. The TIPS Address Points contain all necessary attributes to allow for accurate geocoding and spatial representation (table structure Address Points can be found at table Appendix B):

4.2.1 Relational Fields

[OIRID]

Unique identifier for each address point

4.2.2 Relational Fields for Street segments

[R_SEGID], [A_SEGID]

The ID represented in these fields ties the information in the address point layer to the appropriate segment. The R_SEGID is intended for use as the routing segment identifier (the segment the particular address would route off of). The A_SEGID is intended to indicate which street the address point is addressed off of. While for the majority of time these values will be identical there are circumstances (corner lots for example) where these values will differ.

4.2.3 Segment side designation

[SEG_SIDE]

Optional use – If utilized the values R or L should be used to designate with side of the street that address point falls on. Be cautious using this field as the right side of the segment is only the right side for which the segment direction is and not always the traversable direction

4.2.4 Parcel Association

[GISLINK]

This value will reflect the [GISLINK] value derived either from the centroid of the parcel it was generated from, or assigned by a spatial relationship to the parcel base that the address point is 'completely within'. The latter will apply to consumed local data only. Structures that are between parcel lines will be given the [GISLINK] of the ownership parcel first (if such designation can be determined), otherwise the building footprint or structure reference on the ortho will determine which parcel assumes ownership (e.g., $\frac{3}{4}$ of the building footprint is in Parcel A \therefore Ownership = Parcel A).

4.2.5 Address information

[STRUCDESC], [STRUCTYPE], [BUILDING], [FLOOR], [UNIT_TYPE], [UNIT_NUM],
[SECUNTNUM]

These fields contain additional location information, when necessary about the address point

4.2.6 Secondary Address Information

[STNUMSUF]

This complex element is the full concatenation of the secondary address information and should reflect the USPS [Publication 28](#) values for the secondary unit abbreviations (cf. Appendix E). Examples of valid values would be "APT 27", "BLDG 5-A", "COMPLEX 1, UNIT 10", "PIER 4". This standard differs here from the FGDC and USPS in that the number sign (#) may not be used in the secondary address information fields (cf. Appendix C).

4.2.7 Street Number

[STNUM], [STNUM_H], [STNUM_L]

The street or house number for this particular address. This is a numeric value only, and does not include the secondary address information (i.e., apartment or building designations). The field is a string type in the schema to accommodate various dispatch software.

4.2.8 Full Street Name

[PREDIR], [PRETYPE], [NAME], [TYPE], [SUFDIR],[POSTMOD]

These values should reflect the USPS Publication 28 values for each field type respectively. For a treatise on usage, please reference the compendium Geocoding Standards. Most of the valid field abbreviations can be found in the appendices of this document. Where the USPS values differ or hinder the functionality of the address points in dispatch operations, the local ALI database or MSAG value should be used.

4.2.9 Lookup

[ADDRESS]

This value is a concatenation of the values found in the preceding fields ([STPREDIR], [STPRETYPE], [STNAME], [STTYPE], [STSUFDIR]) with appropriate spacing interposed.

[ADDR_ESN]

The field value for this field is the same for [ADDRESS] with the addition, at the end of the string, of a space and the value from the [ESN] field.

4.2.10 Display and Map Labeling

[LABEL]

This value is a concatenation of the values found in the preceding fields ([STPREDIR], [STPRETYPE], [STNAME], [STTYPE], [STSUFDIR]) with appropriate spacing interposed. For aesthetics, proper case is employed (whereas all other field values are upper case). This field can be used to label the full street address with the GIS application or for map production.

[VANITY]

A value that reflects the public or generally accepted name of the location or structure. Not typically associated as an address component. As with the [LABEL] field, proper case is employed for these values as well. Examples of valid values would be "Capitol", "Public Library", "Park Ranger Station".

[SUBNAME]

A value that reflects the subdivision name for the associated address point. Not typically associated as an address component. As with [LABEL] and [VANITY] fields, proper case is employed for these values as well. Examples of valid values would be "Stone wood Village"

4.2.11 USPS Information

[ZIP]

This value should reflect the five-digit zone improvement plan number.

[ZIP4]

This value should reflect the last four digits of the ZIP+4 code.

4.2.12 Emergency Service Number

[ESN]

Emergency Service Number zone values. If present, pseudo-ESN values should be entered in this field also.

4.1.10 City or Community

[CITY]

This field value designates the administrative area of the address point. The value should always reflect the designation found in the ALI database (or MSAG). Subdivisions and unincorporated areas should not be entered.

4.1.11 County

[COUNTY]

This field value designates the county area of the address point. Since each County maintains their own boundaries, and there is no seamless boundary file maintained by the State, these values will be governed for this release by the Tele Atlas boundary file (*cyb*).

4.1.12 State

[STATE]

This field value designates the state area of the address point. Predominantly "TN", although perimeter counties should be aware of centerlines that are in the extremities of their jurisdiction.

4.1.13 Point location description

[SOURCE]

A description of what the address point is representing, be it a parcel centroid or a driveway entrance point or a main entrance point to the address represented by the attribution

4.2.14 Coordinate Information

[LAT], [LONG]

Coordinate information catalogued in Geographic coordinates in Degrees, Decimal Minutes (DDM). Formatting variations can include (DDD MM.mmm'[W|E]), ([W|E]DDD MM.mmm'), (+|-DDD MM.mmm'). DDM is accommodative of incident location from an aircraft (e.g., Med-Evac).

[X_SP], [Y_SP]

Coordinate information catalogued in State Plane coordinates that meet the specifications under subsection 3.2 of this document.

[Z_VAL]

Coordinate information designating the elevation of the address point

4.2.15 Date of GPS Collection

[GPSDATE]

If the address point was field collected or field verified, the date of collection or verification should be entered here. Address points that have been established by other means (e.g., centroid generation, centerline geocode or digitized from orthophotography) should not have a GPS date.

4.2.16 Addressing Authority

[ADDRAUTH]

The authority for this particular address. This value can be an acronym or a full spelling of the authority name, as long as the data entry is standardized. As a general rule, this value should be the same for most, if not all address points.

4.2.17 Editing Authority

[EDITOR]

Name of the authorized entity for this edit. Multiple authorities may exist within a single ECD. This value should be a unique acronym.

4.2.18 Geometry Modifications

[GEOMOD]

Brief description of the most recent spatial modification for this edit. The field is 75 characters for expositions, but this value could be a single, descriptive word.

4.2.19 Spatial Edit Source

[GEOSRCE]

Authoritative source for the most recent spatial modification for this edit. Examples of this might be “new plats from the Assessor’s Office” or “field verification with GPS”. This value is crucial for the retention of the edit in the TIPS production dataset.

4.2.20 Spatial Edit Date Stamp

[GEODATE]

Date the most recent spatial edit was made. This value is generic and does not include a time stamp. Several edits can be made and then a global calc on the selected set can be performed.

4.2.21 Attribute Modification

[ATTMOD]

Brief description of the most recent attribute modification for this edit. The field is 75 characters for expositions, but this value could be a single, descriptive word.

4.2.22 Attribute Edit Source

[ATTSRCE]

Authoritative source for the most recent attribute modification for this edit. This value is crucial for the retention of the edit in the TIPS production dataset.

4.2.23 Attribute Edit Date Stamp

[ATTDATE]

Date the most recent attribute edit was made. This value is generic and does not include a time stamp.

4.2.24 Lifecycle Status

[STATUS]

Current status of the geometry (centerline or point dataset). The values are as follows:

730 = ACTIVE. The geometry is in use and has valid attributes.

734 = PROPOSED. The geometry is pending. Attributes may or may not have been assigned.

736 = POTENTIAL. The geometry is being considered, but not approved.

799 = RETIRED. The geometry is obsolete. Attribution is discarded or transferred.

This field represents the default subtype in the geodatabase schema and helps maintain a temporal view of the dataset between archival operations.

4.2.25 Delete Notation

[DELNOTES]

This field is strictly a memo field for entering a brief rationale for the retirement of specific geometry or any special instructions that were considered at the time of the edit. It is not mandatory.

4.3 Polygon Features

Table descriptions for Polygon features can be found in Appendix C.

4.3.1 Emergency Service Number (ESN) boundaries

Built from input resources from the ECD this layer will be maintained in order to assist in the population of ESN values on both street centerlines and address points.

4.3.1.1 Relational Fields

[OIRID]

Unique identifier for each ESN polygon

4.3.1.2 Emergency Service Identifiers

[ESN]

Emergency Service Number

[WESN]

Wireless Emergency Service Number

[VESN]

Voice Over Internet Protocol Emergency Service Number

[ESZ]

Emergency Service Zone

[ESQK]

Emergency Service Query Code

[SRTE]

Selective Router

[PSAPID]

Primary Public Safety Answering Point (PSAP) identifier

4.3.1.3 Updates

[GEODATE]

Date of latest spatial edit

4.3.1.4 Designations

[LE]

Law Enforcement designation

[FD]

Fire Department designation

[EMS]

Emergency Medical Service designation

Section 4 Feedback

OIR-GIS Services welcomes any observations or constructive criticisms regarding the maintenance standards. Please remit any comments you have to:

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Section 5 Version Changes

Type	Version	Description	Tables
Working Draft	1.0	Revising text, tables, definitions	3.4, 3.5
	2.02	Addition of Address Point attribution	3.6
	3.05	Addition of ESN polygonal layer	3.7
Public Release	1.0	Addition of Version Changes	
	1.2	Upper-case formatting for [DESCRIPTION] field in street centerline attribution	3.5
	1.3	Addition of Driveways centerline layer	3.6, 3.7, 3.8
	1.5	Addition of Trail centerline layer	3.7, 3.8, 3.9
	2.0	Addition of product name "TIPS"	
	2.1	Removed underscore (_) as non-uniform punctuation	Appendix C
	2.5	Changed [LAT], [LONG], [X_SP], [Y_SP] fields from Long Integer to Double to allow for decimal	3.8
	3.0	Removed [DELETE_] field from <i>Common Attribution</i> (merged requirements into [STATUS] field)	3.4
		Added [STATUS] field to common attribution	3.4
		Removed [STATUS] field treatment under <i>Address Point Attribution</i>	3.8
		Changed [STRUCTYPE] requirements	3.8
		Revised [STPRETYPE], [STTYPE] field requirements referencing Appendix A	3.8
		3.1 Changed [TLENGTH] to Double.	3.7
	3.2 Removed pseudo-ESN fields. Whether the zones are pseudo-ESNs or not, the values need to appear in the [ESN] fields.	3.5, 3.8, 3.9	
	3.3 Changed [LAT], [LONG] fields to String type with a width of 10. Field values will be in Degrees, Decimal Minutes in the form "XX XX.XX". This is to accommodate incident location from an aircraft (e.g., Med-Evac).	3.8	
	3.5 Added pavement type [PTYPE] to the driveway centerline.	3.6	
	Changed [PARKTYPE] to Short Integer type with coded values.	3.7	
	3.6 Changed [LAT], [LONG] fields to a width of 15 and waved the aforementioned format restriction to allow a more flexible field value (see documentation for examples). Coordinate values remain Degrees, Decimal Minutes and the field type remains String. The Calculate Geometry... option in ArcGIS allows for populating values containing the degree (°) and minute (′) symbols with cardinal direction or negative Longitude options.	3.8	

	3.7	Added [LE], [FD] and [EMS] fields to the ESN attribute table to accommodate Law Enforcement, Fire Department and Emergency Medical Services values respectively.	
	4.0	<p>Modified tables to support more attribution and functionality:</p> <ul style="list-style-type: none"> a. Eliminated the Common Attributes section to make layer definitions more accessible b. Modified Street centerline description to include reference to an alternate names table c. Modified table to be reflective of how the product looks d. Added the following fields to the Street Centerline table <ul style="list-style-type: none"> a. NAMETYPE b. LANES e. Lengthened SEGID field f. Added Alternate Names table and field descriptions g. Added SEGID to the Driveway centerlines table h. Added OIR field to Trail centerlines table i. Added the following fields to the Address point table <ul style="list-style-type: none"> a. R_SEGID b. L_SEGID c. STRUCDESC d. UNIT_NUM e. SECUNTNUM f. SUBNAME j. Modified the following field definitions for the Address point table <ul style="list-style-type: none"> a. STRUCTYPE b. FLOOR 	

	4.1	<p>Full re-write/re-format of document</p> <p>Added Layers:</p> <ul style="list-style-type: none"> Linear Water Railroads Landmark/Points of Interest State Boundaries County Boundaries Zip Code Boundaries Municipal Boundaries Landmark Boundaries Major Water Features Airports <p>These layers are in the initial part of implementation and some have yet to have their fields defined.</p> <p>Expanded field length of PRETYPE and TYPE to be a string of 5 instead of 4</p> <p>Changed layer name from "DRIVEWAYS" to "PRIVATE SEGMENTS"</p>	
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	5.0	<p>Update of document to reflect updates to centerlines, address points and ESN boundaries. As these are the only layers that TIPS is defining a standard for and maintaining at the state level utilizing feeds from the locals these are the only layers defined here.</p> <p>Removed Layers:</p> <ul style="list-style-type: none"> Linear Water Railroads Landmark/Points of Interest State Boundaries County Boundaries Zip Code Boundaries Municipal Boundaries Landmark Boundaries Major Water Features Airports <p>Expanded field length of PRETYPE and TYPE to be a string of 5 instead of 4</p> <p>Changed layer name from "DRIVEWAYS" to "PRIVATE SEGMENTS"</p> <p>Reconfigured Street Centerlines file:</p> <ul style="list-style-type: none"> Renamed the L-R-T-F Add fields Added ADDR_TYPE field Added POSTMOD field Changed DESACRIPTION TO VANITY Added SUBNAME field <p>Reconfigured Address Points</p> <ul style="list-style-type: none"> Added SEG_SIDE field Added UNIT_TYPE field Renamed PREDIR, PRETYPE, NAME, TYPE, SUFDIR Added POSTMOD field Changed LONG to LON Changed field widths on ADDRESS, ADDR_ESN, LABEL 	
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Street Centerlines

Field Name	Type	Width	Description	Standard
OIRID	String	20	Unique ID for each street segment	OIR
SEGID	String	25	Unique ID tying vertical alignments between segments together	OIR
L_F_ADD	String	11	Potential Left From Address	USPS
L_T_ADD	String	11	Potential Left To Address	USPS
R_F_ADD	String	11	Potential Right From Address	USPS
R_T_ADD	String	11	Potential Right To Address	USPS
ADDR_TYPE	String	1	"P" for addressing potential "A" for addressing actual	
PREDIR	String	2	Prefix Directional	USPS PUB 28
PRETYPE	String	5	Prefix Street Type (For appropriate abbreviations, please refer to Appendix A)	USPS PUB 28
NAME	String	40	Street Name	USPS PUB 28
TYPE	String	5	Suffix Street Type (For appropriate abbreviations, please refer to Appendix A)	USPS PUB 28
SUFDIR	String	2	Suffix Directional	USPS PUB 28
POSTMOD	String	20	Post modifier, example "EXTENSION"	
LABEL	String	100	Full Street Name ([PREDIR] + [PRETYPE] + [NAME] + [TYPE] + [SUFDIR]) for labeling/display purposes	OIR
VANITY	String	75	Descriptive term or phrase (e.g., "AIRPORT CARGO" or "UTILITY ACCESS")	OIR
SUBNAME	String	50	Subdivision name	
NAMETYPE	Short Integer	8	Type of name 1 = Signed name 2 = Long Haul name - State Wide 3 = Long Haul name - County Wide 4 = Long Haul name - City Wide 5 = Postal name 6 = MSAG name 7 = Inventory name	OIR
CFCC	String	3	Census Feature Class Code	Census
ESN_L	String	3	Emergency Service Number Left	E9-1-1
ESN_R	String	3	Emergency Service Number Right	E9-1-1
ZIP_L	String	5	USPS 5-digit ZIP code Left	USPS PUB 28
ZIP_R	String	5	USPS 5-digit ZIP code Right	USPS PUB 28
CITY_L	String	30	Administrative Area Left	FIPS
CITY_R	String	30	Administrative Area Right	FIPS
COUNTY_L	String	30	County Area Left	FIPS
COUNTY_R	String	30	County Area Right	FIPS
STATE_L	String	2	State Abbreviation Left	FIPS
STATE_R	String	2	State Abbreviation Right	FIPS
SPDLIMIT	Double	8	Speed Limit	OIR

Street Centerlines

Field Name	Type	Width	Description	Standard
ONEWAY	String	2	Directional Travel Indicator	OIR
LANES	Short Integer	8	Number of lanes per road segment	
T_ELEV	Short Integer	2	Valid Turn Indicator	OIR
F_ELEV	Short Integer	2	Valid Turn Indicator	OIR
TFCOST	Double	8	Travel Cost (To-From)	OIR
FTCOST	Double	8	Travel Cost (From-To)	OIR
EDITOR	String	10	Acronym for editing authority	OIR
GEOMOD	String	75	Description of geometry modification	OIR
GEOSRCE	String	45	Source for spatial edit	OIR
GEODATE	Date		Date Stamp of spatial edit	OIR
ATTMOD	String	75	Description of attribute modification	OIR
ATTSRCE	String	45	Source for attribute edit	OIR
ATTDATE	Date		Date Stamp of attribute edit	OIR
			Lifecycle status Subtype field in geodatabase architecture 730 = ACTIVE 734 = PROPOSED 736 = POTENTIAL 799 = RETIRED	
STATUS	Short Integer	3	"799" code replaces the [DELETE_] value	OIR

Address Points

Field Name	Type	Width	Description	Standard
SHAPE	S	9	Spatial information storage	
OIRID	String	20	Unique ID for each address point	OIR
R_SEGID	String	25	ID linking address point to segment routing off	OIR
A_SEGID	String	25	ID linking address point to segment addressed off	OIR
SEG_SIDE	String	1	"L" = Left side of segment "R" = Right side of segment	FGDC
GISLINK	String	15	Parcel association	
STRUCTYPE	Short Integer	8	Codes for Structure Type (Additional codes allowed) 1=House, 2=Duplex, 3=Trailer, 4=Apartment 5=Secondary structure, 6=Utility, 7=Commercial 8=Hospital, 9=Cell Tower, 10=Airport, 11=Church 12=School, 13=Water tank, 14= Hotel/Motel, 15=Cemetery 16=MileMarker, 17=University, 99=Vacant Lot	OIR
STRUCDESC	String	30	Description of structure (e.g., "OFC", "RED BRICK")	E9-1-1
STNUM_H	String	10	High-side street number of an address range	FGDC
STNUM_L	String	10	Low-side street number of an address range	FGDC
STNUM	String	10	SITUS street number	USPS PUB 28
STNUMSUF	String	10	SITUS street number suffix	FGDC
BUILDING	String	35	Building designator (e.g. 5 would designate building 5)	
FLOOR	String	10	Floor number or level	FGDC
UNIT_TYPE	String	4	Designator for Unit Type	USPS PUB 28
UNIT_NUM	String	10	SITUS unit number of address	OIR
SECUNTNUM	String	4	Secondary unit number	USPS PUB 28
PREDIR	String	2	SITUS prefix directional	USPS PUB 28
PRETYPE	String	5	SITUS prefix street type (For appropriate abbreviations, please refer to Appendix A)	USPS PUB 28
NAME	String	40	SITUS street name	USPS PUB 28
TYPE	String	5	SITUS suffix street type (For appropriate abbreviations, please refer to Appendix A)	USPS PUB 28
SUFDIR	String	2	SITUS suffix directional	USPS PUB 28
POSTMOD	String	20	Post Modifier example "EXTENSION"	NENA
ADDRESS	String	100	Full SITUS address ([STNUM] + [PREDIR] + [PRETYPE] + [NAME] + [TYPE] + [SUFDIR] + [UNIT_TYPE] + [UNIT_NUM])	USPS PUB 28
ADDR_ESN	String	100	Full SITUS address with ESN ([STNUM] + [PREDIR] + [PRETYPE] + [NAME] + [TYPE] + [SUFDIR] + [UNIT_TYPE] + [UNIT_NUM] + [ESN])	OIR
LABEL	String	100	Use depending on how district/vendor wants maps labeled	OIR
SUBNAME	String	50	Subdivision name	

Address Points

Field Name	Type	Width	Description	Standard
VANITY	String	50	Vanity name for address location (e.g., "Capitol" or "Public Library")	E9-1-1
ZIP	String	5	USPS 5-digit ZIP code	USPS PUB 28
ZIP4	String	4	USPS 4-digit ZIP+4 code	USPS PUB 28
ESN	String	3	Emergency Service Number	E9-1-1
CITY	String	30	Administrative area	FIPS
COUNTY	String	30	County area	FIPS
STATE	String	2	State abbreviation	FIPS
LON	String	15	Degrees, Decimal Minutes of Longitude Format - Degrees Minutes (+/- DDD MM.mmm')	FGDC
LAT	String	15	Degrees, Decimal Minutes of Latitude Format - Degrees Minutes (+/- DDD MM.mmm')	FGDC
X_SP	Double		State Plane Coordinate ¹ for X value Format - Feet US [ft]	USGS
Y_SP	Double		State Plane Coordinate ⁵ for Y value Format - Feet US [ft]	USGS
Z_VAL	Long Integer		Height of structure (US Foot)	FGDC
GPSDATE	Date		Date the GPS point was collected	FGDC
ADDRAUTH	String	50	Addressing authority	FGDC
SOURCE	Short Integer	8	Code for Source of point 1=Parcel centroid, 2=driveway entrance point, 3=structure centroid, 4=main entrance, 5=frontage centroid, 0=undefined	OIR
EDITOR	String	10	Acronym for editing authority or editors name	OIR
GEOMOD	String	75	Description of geometry modification	OIR
GEOSRCE	String	45	Source for spatial edit	OIR
GEODATE	Date		Date Stamp of spatial edit	OIR
ATTMOD	String	75	Description of attribute modification	OIR
ATTSRCE	String	45	Source for attribute edit	OIR
ATTDATE	Date		Date Stamp of attribute edit	OIR
STATUS	Short Integer	3	Lifecycle status 730 = ACTIVE 734 = PROPOSED 736 = POTENTIAL 799 = RETIRED "799" code replaces the [DELETE_] value	OIR
DELNOTES	String	75	Brief rationale for any geometry retirement ([STATUS] = 799) not mandatory	OIR

ESN Boundaries

Field Name	Type	Width	Description	Standard
OIRID	String	20	Unique ID for each geometry	OIR
ESN	String	3	Emergency Service Number	AT&T
WESN	String	3	Wireless Emergency Service Number	AT&T
VESN	String	3	VoIP Emergency Service Number	AT&T
ESZ	String	5	Emergency Service Zone	AT&T
ESQK	String	10	Emergency Service Query Code	AT&T
SRTE	String	25	Selective Router	AT&T
PSAPID	String	4	Primary PSAP number within the ESN	FCC
GEODATE	Date		Date Stamp of latest spatial edit	OIR
LE	String	75	Law Enforcement designation	OIR
FD	String	75	Fire Department designation	OIR
EMS	String	75	Emergency Medical Services designation	OIR

APPENDIX D USPS Standard Street Suffix Abbreviations

Please reference the official USPS abbreviations:
<http://www.usps.com/ncsc/lookups/abbrev.html>

cf. USPS Publication 28

APPENDIX E USPS Standard Secondary Unit Abbreviations

APARTMENT	APT
BASEMENT	BSMT **
BUILDING	BLDG
DEPARTMENT	DEPT
FLOOR	FL
FRONT	FRNT **
HANGAR	HNGR
LOBBY	LBBY **
LOT	LOT
LOWER	LOWR **
OFFICE	OFC **
PENTHOUSE	PH **
PIER	PIER
REAR	REAR **
ROOM	RM
SIDE	SIDE **
SLIP	SLIP
SPACE	SPC
STOP	STOP
SUITE	STE
TRAILER	TRLR
UNIT	UNIT
UPPER	UPPR **
GARAGE	GAR
OTHER	OTH

** Does not require Secondary Range Number to follow

This list and other abbreviation standards can be found at:

<http://www.usps.com/ncsc/lookups/abbrev.html>

cf. USPS Publication 28

APPENDIX F Non-Uniform Punctuation in Address Field Values

These punctuation marks should not be used when editing address field values.

Description	Punctuation
Ampersand	&
Apostrophe	'
Asterisk	*
At	@
Back Slash	\
Braces Open	{
Braces Close	}
Bracket Open	[
Bracket Close]
Caret	^
Colon	:
Comma	,
Dollar Sign	\$
Double Quotes	“
Ellipsis	...
Equal Sign	=
Exclamation Mark	!
Greater Than	>
Less Than	<
Number Sign	#
Parenthesis Open	(
Parenthesis Close)
Percent Sign	%
Period	.
Pipe	
Plus	+
Prime	`
Question Mark	?
Semi-Colon	;
Virgule	/
Tilde	~

APPENDIX G Census Feature Class Codes (CFCC)

The U.S. Bureau of the Census feature class codes (CFCC) provide information on the classification of a feature. The census feature class codes (also called "FCC") are used in many geodatasets. The codes are made up of an uppercase letter and a two-digit number followed by their one or two-line definition.

ROAD FEATURE (A)

- A10 Road, major and minor categories unknown
- A11 Primary road with limited access or interstate highway, unseparated
- A12 Primary road with limited access or interstate highway, unseparated, in tunnel
- A13 Primary road with limited access or interstate highway, unseparated, underpassing
- A14 Primary road with limited access or interstate highway, unseparated, with rail line in center
- A15 Primary road with limited access or interstate highway, separated
- A16 Primary road with limited access or interstate highway, separated, in tunnel
- A17 Primary road with limited access or interstate highway, separated, underpassing
- A18 Primary road with limited access or interstate highway, separated, with rail line in center
- A19 Primary road with limited access or interstate highway, bridge
- A21 Primary road without limited access, U.S. and State highways, unseparated
- A22 Primary road without limited access, U.S. and State highways, unseparated, in tunnel
- A23 Primary road without limited access, U.S. and State highways, unseparated, underpassing
- A24 Primary road without limited access, U.S. and State highways, unseparated, with rail line in center
- A25 Primary road without limited access, U.S. and State highways, separated
- A26 Primary road without limited access, U.S. and State highways, separated, in tunnel
- A27 Primary road without limited access, U.S. and State highways, separated, underpassing
- A28 Primary road without limited access, U.S. and State highways, separated, with rail line in center
- A29 Primary road without limited access, US highways, bridge
- A31 Secondary and connecting road, State and county highways, unseparated
- A32 Secondary and connecting road, State and county highways, unseparated, in tunnel
- A33 Secondary and connecting road, State and county highways, unseparated, underpassing
- A34 Secondary and connecting road, State and county highways, unseparated, with rail line in center
- A35 Secondary and connecting road, State and county highways, separated
- A36 Secondary and connecting road, State and county highways, separated, in tunnel
- A37 Secondary and connecting road, State and county highways, separated, underpassing
- A38 Secondary and connecting road, State and county highway, separated, with rail line in center
- A39 Secondary and connecting road, state and county highways, bridge
- A41 Local, neighborhood, and rural road, city street, unseparated
- A42 Local, neighborhood, and rural road, city street, unseparated, in tunnel
- A43 Local, neighborhood, and rural road, city street, unseparated, underpassing
- A44 Local, neighborhood, and rural road, city street, unseparated, with rail line in center
- A45 Local, neighborhood, and rural road, city street, separated
- A46 Local, neighborhood, and rural road, city street, separated, in tunnel
- A47 Local, neighborhood, and rural road, city street, separated, underpassing
- A48 Local, neighborhood, and rural road, city street, separated, with rail line in center
- A49 Local, neighborhood, and rural road, city street, bridge
- A50 Vehicular trail, road passable only by four-wheel drive (4WD) vehicle, major category
- A51 Vehicular trail, road passable only by 4WD vehicle, unseparated
- A52 Vehicular trail, road passable only by 4WD vehicle, unseparated, in tunnel

APPENDIX G Census Feature Class Codes (CFCC)

- A53 Vehicular trail, road passable only by 4WD vehicle, unseparated, underpassing
- A60 Special road feature, major category used when the minor category could not be determined
- A61 Cul-de-sac, the closed end of a road that forms a loop or turn around
- A62 Traffic circle, the portion of a road or intersection of roads that form a roundabout
- A63 Access ramp, the portion of a road that forms a cloverleaf or limited access interchange
- A64 Service drive, road that provides access to businesses, facilities, and rest areas along limited-access highway
- A65 Ferry crossing, the representation of a route over water that connects roads on opposite shores
- A66 Gated barrier to travel
- A67 Toll booth barrier to travel
- A70 Other thoroughfare, major category used when the minor category could not be determined
- A71 Walkway, nearly level road for pedestrians, usually unnamed
- A72 Stairway, stepped road for pedestrians, usually unnamed
- A73 Alley, road for service vehicles, usually unnamed, located at the rear of buildings and property
- A74 Driveway or service road, usually privately owned and unnamed, used as access to residences, etc., or as access to logging areas, etc.

RAILROAD FEATURE (B)

- B00 Railroad, major and minor categories unknown
- B11 Railroad main track, not in tunnel or underpassing
- B12 Railroad main track, in tunnel
- B13 Railroad main track, underpassing
- B21 Railroad spur track, not in tunnel or underpassing
- B22 Railroad spur track, in tunnel
- B23 Railroad spur track, underpassing
- B31 Railroad yard track, not in tunnel or underpassing
- B32 Railroad yard track, in tunnel
- B33 Railroad yard track, underpassing
- B40 Railroad ferry crossing, route over water used by ships carrying train cars to connecting railroads on opposite shores, major category
- B50 Other rail line; major category used alone when the minor category could not be determined
- B51 Carline, a track for street cars, trolleys, and other mass transit rail systems
- B52 Cog railroad, incline railway, or logging tram