



Structures and Landmarks Data Exchange Standard Part of the Public Safety Theme

Version 0.11
ITRMC Presentation Draft

Workgroup of the Idaho Public Safety TWG

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1. INTRODUCTION

This document describes the specifications for the dataset referred to as “Structures Framework.” This standard is intended to facilitate integration and sharing of structures data across Idaho and to enhance dissemination and use of accurate, seamless, and up-to-date structure information. This standard is vital since many government and private entities have business needs for Structures Framework. Uses of Structures Framework include 911 support, disaster planning, building inspections/appraisals, economic analysis, and facilities management.

The Structures Framework includes all structures and addresses, as well as landmarks; this includes *all* the parts of the Venn diagram shown in Figure 1.

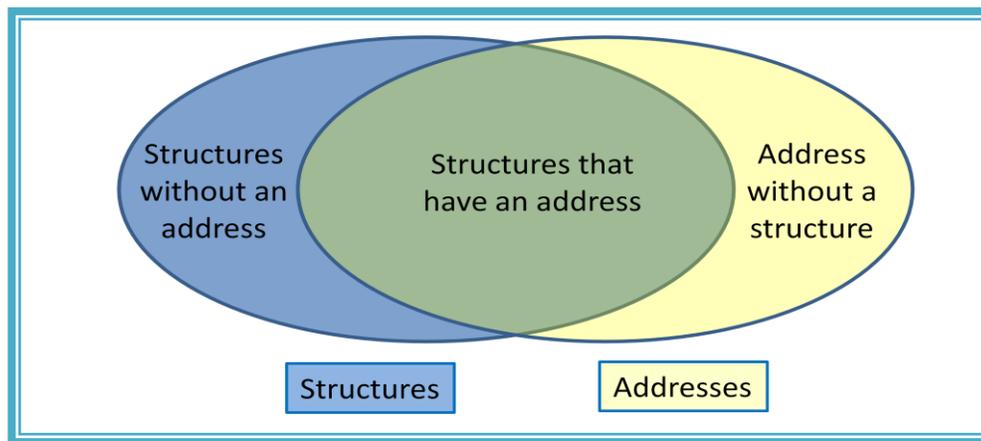


Figure 1: Venn diagram showing the intersection between Addresses and Structures. The scope of this standard indicated by the outline.

Examples of features included under this Standard are:

Structures with address: Residence on a street, business in a business park, courthouse

Address without a structure: unimproved lot, pasture, brownfield

Structures usually without an address: outbuildings (sheds, garages), seasonal roadside stands

Landmarks: Cave opening, scenic overlook, folk sculpture, signage.

The development of this standard was supported by Cooperative Agreement Number G09AC00411 from the United States Geological Survey.

1.1. Mission and Goals

The Idaho Structures and Landmarks Data Exchange Standard (ISLDES) supports a statewide dataset that is consistent with applicable state and national standards, regularly updated, seamless, appropriately accessible, and mutually beneficial to both data producers and data consumers (referred to as Structures Framework). Structures Framework is designed to be broad enough to support a wide range of functions within government and the private sector but is sufficiently focused to facilitate emergency response and planning, and thereby enhance public safety.

1.2. Description and Context of the Structures Element

Structures data is an element of the Public Safety Theme which also includes Emergency Service Zones and Critical Features (see <http://gis.idaho.gov/portal/framework/Misc.htm> for more information).

1.3. Relationship to Existing Standards

This standard relates to existing standards as follows:

- Federal Geographic Data Committee (FGDC), the *United States Thoroughfare, Landmark, and Postal Address Standard* (Draft, March 2010). This standard is an all-encompassing standard for all types of addresses including international. This standard will be used as a touchstone to evaluate the efficiency and effectiveness of the ISLDES. Review of Thoroughfare and Landmarks will be included in the next version of this standard.
- Oregon Geographic Information Council (OGIC), *Geospatial Data Addressing Standard (v 1.0 Nov 5, 2004)*. This standard formed the starting point for the standards set out in this document and will ensure that standards are consistent across Oregon-Idaho state boundary.
- National Emergency Number Association (NENA) standards, including the *NENA Standard Data Formats for ALI Data Exchange & GIS Mapping (v 8.2, June 10, 2009)*. These publications explain the standards used by 911 service providers in providing address information to public safety answering points (PSAP's)
- United States Postal Service *Postal Addressing Standards Publication 28* (Nov 2000). The USPS publication 28 is the mailing standard that most communities in Idaho have followed or have based their addressing updates, changes and projects on. This standard also has a list of abbreviations and when how and where to use them.
- American Planning Association (APA) *Land Based Classification Standards* for structure type and function type codes. This standard provides the APA Codes that are used in the ISLDES.
- National Structures Database (NSD). This standard provides the Feature Codes (FCODES) used for the ISLDES.

1.4. Description of Standard

This standard provides the foundation for the development, maintenance, and dissemination of structures data throughout the state of Idaho. This standard is devised to be:

- Simple, easy to understand, and logical
- Uniformly applicable, whenever possible
- Flexible and capable of accommodating future expansions
- Dynamic in terms of continuous review.

1.5. Applicability and Intended Use

This standard applies to the Structures element of the Public Safety theme of Idaho Framework. When followed, it will increase interoperability among automated geographic information systems, enable sharing and efficient transfer of data between producers and users, and build information partnerships among government institutions and the public and private sectors. This standard is intended to enable integration of structures data statewide, with special emphasis on supporting Next Generation 911 (NG911) and related public safety purposes.

1.6. Standard Development Procedures

Kootenai County, Teton County, the Coeur d'Alene Tribe and INSIDE Idaho drafted a basic data model and began collecting structure data prior to the formalization of the Public Safety Technical Working Group. The Structures workgroup has been meeting and discussing standards since March 2009. Efforts were made to identify existing Structure standards at the national level and a sampling of nearby states that would meet established objectives. Such standards were found to be either non-existent or rudimentary and not parallel to the scope of Structures Framework. However, many sources were used to develop aspects of this standard, including four different organizations' methods of structure coding, namely: The United States Forest Service's *Cartographic Feature File* (CFF); The International Building Codes structure type coding system; *The Standard Land-Use Coding Manual* (SLUCM); and the American Planning Association *Land Based Classification Standards* (LBCS).

A straw man standard was drafted and submitted to the Public Safety TWG for review in June 2009. A second review was submitted to the Structures Workgroup in October 2009. Feedback was incorporated. The draft standard was then presented at the Forum in June 2010. There were no objections to advancing it to the Idaho Geospatial Council Executive Committee (IGC-EC). On June 17, IGC-EC approved the draft for consideration by ITRMC. Since then, the standard was presented to the Idaho Emergency Communications Commission. Following a comment period, significant input was provided which triggered further revisions to this standard. After a second comment period and further revisions, the standard is ready to be established.

1.7. Maintenance

This standard will be revised as needed and in accordance with Policy P5030.

2. BODY OF THE STANDARD

2.1. Scope and Content

The purpose of this standard is to establish the minimum requirements for the collection and integration of structures and landmark data and to facilitate the maintenance and use of that information. The content of this standard is focused on the essential data, data quality, and metadata elements required for structures data to be maintained and used locally as well as integrated for regional and statewide use. Supporting public safety uses is the principal focus when exploring new ideas and making determinations on future development.

2.2. Need

Structures and Landmarks are part of the foundation needed to support emergency services. In particular, these features support current and future 911 implementation, known as enhanced 911 (e911) and NG911. As Idaho works to collect key datasets, this standard will provide the minimum specification by which the locally managed data can be integrated into regional and statewide datasets. In addition to supporting emergency services, this standard supports other uses in economic development, planning, and routine business processes.

2.3. Participation in Standard Development

The development of the ISLDES adheres to the Framework Standards Development Policy (P5030). A USGS CAP Award has expedited efforts in Idaho to plan stewardship of Structures and develop this standard. Although key participants are few, they represent diverse stakeholder groups. Outreach efforts provide opportunity for broad input in the development of this standard. For example, drafts have been made available for review and comment by stakeholders identified in a series of regional meetings. In addition, it is posted on <http://gis.idaho.gov/portal/>. The process will be equally broad for updates and enhancements to the standard. As with all Idaho Framework standards, public review of and comments on the ISLDES is actively sought.

2.4. Integration with Other Standards

This standard follows the same format as other Idaho Framework data standards. The specifics of this standard must integrate with the addressing, cadastral, road centerline standards. This standard includes type codes established by the American Planning Association and feature codes defined by the USGS in the National Structures Dataset.

2.5. Technical and Operation Context

2.5.1. Data Environment

The data environment for Structures is a vector model, comprised of points with associated attribute information. The exchange format for structures data is the shapefile, which is an open published format (see <http://www.esri.com/library/whitepapers/pdfs/shapefile.pdf>). In designating the shapefile as the exchange format, this standard accommodates limitations imposed by the shapefile model, such as keeping attribute (field) names to ten characters or less. Alternatively, tabular data with latitude and longitude is acceptable in .dbf, .csv, or Access database (ver. 2007 and higher) formats.

2.5.2. Reference Systems

Framework datasets are distributed in Idaho Transverse Mercator (IDTM83), Idaho's single-zone coordinate system. Data contributions may be in any coordinate system; however, converting existing data to the most current realization of horizontal and vertical datums is encouraged where such conversion is feasible. As of this writing, the most current realization for horizontal coordinates is the North American Datum of 1983 (NSRS 2007); for vertical coordinates it is the North American Vertical Datum of 1988. No matter what reference system is used, it must be

clearly documented in the metadata accompanying the dataset and a projection must be explicitly defined and included.

2.5.3. Global Positioning Systems

Structure Data can be collected using GPS, as long as the accuracy of the data falls within accuracy specified in 2.5.7.

2.5.4. Interdependence of Themes

The primary interdependent Framework themes are Cadastral (parcels), Transportation (road centerlines) and the Geographic Names Information Systems (GNIS) in the Reference category. Several sources may be used for determining or quality checking locations and attributes, including Cadastral (parcels and land-owner information), road centerlines and address ranges, aerial imagery, zip code boundaries, and telephone records.

2.5.5. Encoding

All GIS software used in Idaho has the capability of encoding its format to the shapefile format.

2.5.6. Resolution

Not applicable.

2.5.7. Accuracy

Accuracy will vary across Structures Framework, primarily due to the variety of sources. For this reason documentation of accuracy is crucial and must be documented in the metadata. The target positional accuracy is 40 feet. As the effort matures and better data becomes available, a tighter accuracy will be specified.

2.5.8. Edge Matching

Not applicable.

2.5.9. Unique Identifier

A unique identifier enhances stability and maximizes use for those organizations that opt to maintain a local ID. This permits Structures Framework to be connected to current and future databases without further conditioning. To support this potential, a unique identifier will be maintained across the compiled database, consisting of the concatenation of GISSTEW and LOCALID.

2.5.10. Attributes

The attributes included in this standard describe each structure or are required to manage the data. See Section 3 for minimal and optional characteristics for Structure attributes.

2.5.11. Stewardship

Perpetual maintenance and other aspects of lifecycle management are essential to Structures Framework. Details of stewardship partners, their roles and responsibilities, and stewardship design and processes will be set forth in a charter, a plan, and related documents.

2.5.12. Records Management and Archiving

Records management and archiving will be provided for with specificity in the stewardship documents established for Structures Framework.

2.5.13. Metadata

Metadata will conform to the geospatial metadata standard(s) established by the State of Idaho (S4420 Metadata Standard).

3. DATA CONTENT AND FORMAT

3.1. Minimum Graphic Data Elements

The graphic data for structures is modeled as a point feature class containing only an X and Y value.

3.2. Optional Graphic Elements

Not applicable.

3.3. Minimum Attribute or Non-Graphic Elements

The attributes required for source contributions are:

FIELD NAME	DATA TYPE	LENGTH	REQUIRED	SHORT DESCRIPTION	EXAMPLE
GISSTEW	TEXT/STRING	20	yes	The steward of the data	IDAHOGIS
APACODE	INTEGER	5	Yes	This code comes from the modified APA code – Idaho Structures Type Codes – Appendix C	1000; 2000; 3000; 4000; 4110; 4510; 4520; 4530; 4600; 5000; 6000; 6900; 7000; 8000 Required: 4110 (hospital); 4200 (School); 4510 (Fire Station); 4520 (Police Station); 4530 (Emergency Operation Center); 4600 (Jail, penitentiary, correctional facility)

This standard adapts the American Planning Association’s Land Based Classification Standards (LBCS) structure type codes (Appendix C). The structure type code is used to populate APACODE. This helps to fulfill mapping requirements at state and local agencies. A code is required when the point feature represents one of these structure types: Hospital, School, Fire Station, Police Station, Emergency Operations Center, or Jail, Penitentiary or Correctional Facility. It is optional but strongly encouraged on all other types. During aggregation, the corresponding USGS National Structures Dataset code will be assigned.

Use of abbreviations in the FGDC standard is discouraged to avoid misinterpretation. However, the ISLDES does allow specific abbreviations. When and where abbreviations are permitted is explained in section 3.5. Abbreviations are acceptable until such time as this standard adopts the FGDC business rule.

The following attributes are automatically calculated during horizontal integration:

FIELD NAME	DATA TYPE	LENGTH	REQUIRED	SHORT DESCRIPTION	EXAMPLE
FULLADDRESS	TEXT/STRING	75	no	Calculated during aggregation	89 N Main St; 455 N 5000 W;
CARTOTYPE	TEXT/STRING	15	no	Calculated during aggregation	Residential; Commercial; Public Assembly; Institutional or community facility; Transportation; Utility; Military; Agricultural
STRUCTTYPE	TEXT/STRING	15	no	Calculated during aggregation	Hospital; School; Fire Station; Police Station; Emergency Operation Center; Jail, detention, correctional facility; etc.
LAT	TEXT/STRING	11	no	Calculated during aggregation	47.123456
LONG	TEXT/STRING	11	no	Calculated during aggregation	-116.123456
FEATCODE	INTEGER	5	yes	NSD code generated from Idaho-APA codes using a cross-walk table.	USGS NSD codes
DATESUBMTD	INTEGER	8	yes	Calculated during aggregation	10302010

3.4. Optional Attribute and non-Graphic Elements

A complete list of attributes is shown below. The attributes in shaded boxes are optional.

FIELD NAME	DATA TYPE	LENGTH	REQUIRED	SHORT DESCRIPTION	EXAMPLE
GISSTEW	TEXT/STRING	20	yes	The steward of the data	IDAHOGIS
APACODE	INTEGER	5	yes	^{a)} This field requires the following values when applicable: 4110 (hospital); 4200 (School); 4510 (Fire Station); 4520 (Police Station); 4530 (Emergency Operation Center); 4600 (Jail, penitentiary, correctional facility); 9999 (To be determined)	1000; 2000; 3000; 4000; 4110; 4510; 4520; 4530; 4600; 5000; 6000; 6900; 7000; 8000
FEATCODE	INTEGER	5	yes	A complete list of FEATCODES can be found on the Framework Web pages. Note that there are no FEATCODES for residential structures. FEATCODEs are specified in the National Structures Database.	
ADDPFX	TEXT/STRING	3	NO	Address Prefix – rare	N,S,E,W,NE,NW,SE,SW, ½, ¼ A, B, C, . . .
ADDNUM	LONG INTEGER		no	Address number	1; 26; 125; 1501; 10545
ADDSFX	TEXT/STRING	3	no	Address Suffix	N,S,E,W,NE,NW,SE,SW, ½, ¼ A, B, C, . . .

STPREMOD	TEXT/STRING	6	No	Street pre-modifier	Old, New
STPREDIR	TEXT/STRING	2	no	Street Pre direction	^{b)} N,S,E,W, NE, NW, SE, SW
STPREFIX	TEXT/STRING			Street PreType	^{b)} ST, RD, CIR, DR
STNAME	TEXT/STRING	40	no	Street name	MAIN
STSUFFIX	TEXT/STRING	4	no	Street name suffix type	^{b)} ST, RD, CIR, DR
STPOSTDIR	TEXT/STRING	2	NO	Street post directional	^{b)} N,S,E,W, NE, NW, SE, SW
STPOSTMOD	TEXT/STRING	6	NO	Street post modifier	Old, New, A, B, C, etc
PRUNITTYPE	TEXT/STRING	10	No	Pre Unit Type Building/Floor ^{c)}	b) BLDG,FLR, UNIT
PRUNITID	TEXT/STRING	10	No	Pre Unit Identifier BLDG or FLOOR number or letter. This can represent an individual or range of addresses	1, 2, A, B, 101, 201, 1 – 12, etc.
SBUNITTYPE	TEXT/STRING	10	no	Sub Unit Type	**APT; STE; BLDG
SBUNITID	TEXT/STRING	10	no	Sub Unit. This could be used to represent fractional addresses if an entity doesn't have a cleaned postal addressing scheme. This can also be used to denote ranges of addresses in the case of multiple apartments (e.g. APT 1-35).	# 10; 10, ½, A, B, C, 1 – 10, A – H, 100 – 220, etc
FLOORS	TEXT/STRING	10	NO	Number of Floors in building	
COMMNAME	TEXT/STRING	20	no	Community, City, Postal Community	Rexburg; Boise; Moscow
STATE	TEXT/STRING	2	no	State	ID
ZIP	INTEGER/TEXT		NO	Zip Code (5 digit code)	83440
ZIP4	INTEGER/TEXT		no	Zip Code (+ 4 if needed)	1526
LANDMARK	TEXT/STRING	50	NO	Name of landmark/location	Dworshak Dam, Memorial Bridge
LAANM	TEXT/STRING	25	No	Local Addressing Authority Name	City of Meridian, NPC, Ada County, CDA Tribe, etc
PRIMSTRUCT	TEXT/STRING	5	No	^{d)}	Prim/Sec OR 1/0 OR Yes/No
PRIMADD	TEXT/STRING	5	No	^{e)}	Prim/Sec OR 1/0 OR Yes/No

LOCALID	TEXT/STRING	12	no	Local ID if used by contributor	1; ADA-1
PHOTO	RASTER		no	Photo(s) of the structure for local use.	server/structurepics/1234.jpg
COMMENTS	TEXT/STRING	250	no	Comments relevant to the structure	Jo's Auto Body; Pizza Hut
GNISID	TEXT/STRING		no	Obtained from USGS	22540
CRTEDATE	INTEGER	8	NO	Date structure point created: GPS'ed, hand digitized, etc	20101212
CHNGDATE	INTEGER	8	NO	Date of last change to structure status; address, APACode, etc.	20101212
DATEBUILT	INTEGER	8	NO	Date structure was built	20101212
FULLADDRSS	TEXT/STRING	75	no	Calculated during aggregation	89 N Main St; 455 N 5000 W;
CARTOTYPE	TEXT/STRING	15	no	Calculated during aggregation	Residential; Commercial; Public Assembly; Institutional or community facility; Transportation; Utility; Military; Agricultural
STRUCTTYPE	TEXT/STRING	15	no	Calculated during aggregation	Hospital; School; Fire Station; Police Station; Emergency Operation Center; Jail, detention, correctional facility; etc.
LAT	TEXT/STRING	11	no	Calculated during aggregation	47.123456
LONG	TEXT/STRING	11	no	Calculated during aggregation	-116.123456

^{a)} APA: <http://myapa.planning.org/LBCS/GeneralInfo/>

^{b)} USPS Publication 28

^{c)} PRUNITYPE: This field is used to handle addressing structures which incorporate several buildings or floors that also have SUBUNITS (i.e. BLDG 1 UNIT 4, FLR 7, STE 16) otherwise just use the SUBUNIT (TYPE/ID) fields if there are no sub units to the building or floors. The preferred method would be to incorporate the building/floor with the address. Such as: Unit 716 could mean 7th floor 16th unit. Unit A12 – Building A Room 12. We included this field to give entities the flexibility to represent the address either way.

^{d)} PRIMSTRUCT: If multiple buildings share a common address, but are not the primary address, this field is used to denote this relationship. For instance: The home on a piece of property has a detached garage and a shed. Each structure shares the same address as the home, but it is not the primary structure for that address. Each structure would have its own unique structure ID but share a common Address ID.

^{e)} PRIMADD: If multiple structure points are placed on top or adjacent to each other to represent multiple address for a single structure this field is used to distinguish the primary address point. For instance if an apartment building has 35 units, 35 structure points would be placed on each other or in the relative location of their entrances. One would be designated as the primary address and the primary structure (the manager's apt or apt offices).

Consistent codes assure the resulting data set can be reliably queried and mapped. There are two accepted classification systems:

- 1) The American Planning Association's (APA) Land-Based Classification Standard (LBCS) for structures. A complete list of APA codes is available on the APA Web site. The modified version used by this standard is attached as Appendix C.
- 2) The USGS has assigned feature codes for use in their National Structures Dataset. A complete list of structures-related feature codes is available at <http://gis.idaho.gov/portal/framework/Misc.htm>.

The structures committee developed a modified APA code system. This system combines the two and adds additional codes as needed by the GIS community. For more detail, see Section 4.2.

3.5. Attribute Domains and Examples

- 1) ADDPFX: Can be used for fractional addresses, leading zeros, letters or other numbers when not related to a multiple unit structure.
- 2) ADDSFX: Can be used for fractional addresses, letters or other numbers when not related to a multiple unit structure.
- 3) STPREMOD: Street Name Modifier - Old, New, etc.
- 4) STPREDIR: Pre-directional based off of Geographical Directional abbreviation from USPS Publication 28 standards Appendix B page 53 (April 2010).
- 5) STPRFX: Street Prefix: example Ave A, domain is the Street Abbreviations from USPS Publication 28 standards Appendix C, page 57 (April 2010).
- 6) STSFX: Street Suffix: example Grant Blvd, domain is the Street Abbreviations from USPS Publication 28 standards Appendix C, page 57 (April 2010).
- 7) STPOSTDIR: Post Directional, based off of Geographical Directional abbreviation from USPS Publication 28 standards Appendix B page 53 (April 2010).
- 8) PRUNITTYPE: The Sub address type represents the address when there are separate buildings or floors with sub units in the building or floor. For instance: 1230 Main St **FI 6** Ste 10 or 510 Grant St Bldg A, Rm 6. If the structure does not have a breakdown of this type, use only the Sub Unit Type and Sub Unit ID to designate multiple units. The domain is the Secondary Unit Designators from USPS Publication 28 standards Appendix C2 page 70 (April 2010).
- 9) PRUNITID: The Sub Address identifier is used to attribute the multiple floors or buildings of a single address location. In the case of multiple buildings or floors, designate the range in its entirety. Example FI= 6 or FI 1 – 8.
- 10) SUBUNITTYPE: Sub Unit type represents addresses for a multiunit structure or used where a single address is used for a multiple lot/space location, such as a trailer park. The domain is the Secondary Unit Designators from USPS Publication 28 standards Appendix C2 page 70 (April 2010).
- 11) SUBUNITID: The sub unit identifier this identifies the units in a multi unit structure or multiple lot address location. In the case of the Multi-unit building the field can be used to designate the range of applicable addresses. Example: Ste 101 or Ste 101–212.
- 12) STATE: Abbreviated as designated in the USPS Publication 28 standards Appendix B page 53 (April 2010).

- 13) LOCALID: This is a unique, persistent and consistent id assigned by the source stewards. Otherwise it will be calculated at the time of aggregation.
- 14) FEATCODE: This field has been added for entities that create their data and use the NSD for their structure type domain. A crosswalk table (available at <http://gis.idaho.gov/portal/framework/Misc.htm>) defines the relationship with the APA structure type codes.

4. DATA COMPILATION PRACTICES AND MAPPING RULES

4.1. Placement of Structure Point

The preferred placement of a point is at the entrance of a structure, point of access to the location. However, different placement conventions are acceptable and must be described in the metadata.

4.2. Land Classification Codes for Single Structure

Structure classification based on structure type and function indicates the use or usage of a structure at a location. Primary Activity codes, listed below, are the most general coding for structure type.

- 1000 Residential Buildings
- 2000 Commercial Buildings
- 3000 Public Assembly Structures
- 4000 Institutional or Community Facilities
- 5000 Transportation Facilities
- 6000 Utility and other Non-building Structures
- 7000 Military Structures
- 8000 Sheds, Farm Buildings, Agricultural Facilities
- 9000 No Structure

The use of a more specific code is encouraged, such as 1121 for a duplex rather than 1000. If more than one code is indicated for a structure, additional fields may be added, such as APACODE2, APACODE3, etc. Structures Framework will reflect the primary structure code in the first position.

This standard uses a modified LBCS to handle structure/functions not incorporated into the APA standard. New codes are generated by the APA code review committee (sub-committee of the Structures TWG). These new codes are passed to APA for review and incorporation into the LBCS. Codes can incorporate multiple uses for one structure. For example, APA code 2300 indicates an office or store building with a residence above.

The codes for the structure types required to be attributed are as follows:

- 4110 Hospital
- 4200 School
- 4510 Fire Station
- 4520 Police Station
- 4530 Emergency Operation Center
- 4600 Jail, Penitentiary Correctional Facility

Any features left blank will be populated with the null value 9999 to indicate "Unknown."

4.3. Multiple Address Points for a Single Structure

Multiple points on a single structure are permitted as long as each of those points has a different address. For instance 101 N Front St (Primary Address), 101 N Front St Apt 1 (Secondary Address) 101 N Front St Apt 2 (Secondary Address) and so on. Use the PRIMADD attribute to indicate which one of those multiple point records should be considered the primary address point (PRIMADD = PRIM, yes or 1); other structure points are secondary addresses (PRIMADD = SEC, no or 0).

If a structure has multiple addresses, the addresses can be represented in a related table, while the structure dataset represent a range of addresses in that structure. Likewise if a structure has more than one distinct (unique) address, the same approach can be used, however Structures Framework would only show the 'primary' structure point and address.

The PRUNITYPE and PRUNITID can be used to handle addresses which incorporate multiple floors and units (as frequently found in apartment complexes). See paragraph 3.4 listing the Optional Attribute and non-Graphic Elements for details about each of the attributes. APA codes will be created as needed and documented in Appendix C.

4.4. Multiple Structures Associated with a Single Address

Each structure should be a separate point feature, each with an identical address. For instance, a residential property may have multiple structures on a parcel, such as the home, detached garage and a shed. Likewise, a business may have several structures associated with it, the office and perhaps out buildings for storage or workshops. Use the PRIMSTRUCT attribute to indicate the primary structure point associated with the address (PRIMSTRUCT = PRIM, yes or 1); all other points are secondary structures (PRIMSTRUCT = SEC, no or 0).

4.5. Data Quality

Data quality considerations for structures:

- Structures should have addresses where applicable.
- Structures should be up-to-date and reviewed regularly.
- All applicable attribute values should be populated.

APPENDIX A: References

1. American Planning Association (APA). *Standard Land Use Coding Manual (SLUCM)*. Online, <http://myapa.planning.org/LBCS/OtherStandards/Downloads/slucm.pdf>
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15. United States Forest Service: Salt Lake City; Pacific Southwest Region. *Table 121 - Cartographic Feature File (CFF) Code. Updated March 6, 2002.* Online, <http://www.fs.fed.us/r5/rsl/projects/frdb/tables/table121.html>

APPENDIX B: Glossary

Address

An address specifies a location by reference to a thoroughfare or a landmark; or it specifies a point of postal delivery. U.S. Thoroughfare, Landmark, and Postal Address Data Standard (Feb. 2010).

Address Point

An address point may be used synonymously with *structure* but is broader as it may encompass both an addressable structure and structures that usually are not assigned thoroughfare addresses.

Encoding

The recording or reformatting of data into a digital format. Data may be encoded to reduce storage, increase security, or to transfer it between systems using different file formats. In GIS, analog graphic data, such as paper maps and images are encoded into computer formats by scanning or digitizing. (ESRI)

Landmark

A prominent or conspicuous object on land that serves as a guide, especially to ships at sea or to travelers on a road; a distinguishing landscape feature marking a site or location. *Dictionary.com*.

Structure

A structure is defined as “*that which is built or constructed.*” International Building Code (IBC), 2006.

APPENDIX C: IDAHO STRUCTURES TYPE CODES

Modified from APA's Land-Based Classification Standard

ID	STRUCTURE_TYPE
1000	Residential buildings
1100	Single-family buildings
1110	Detached units
1120	Attached units
1121	Duplex structures
1122	Zero lot line, row houses, etc.
1130	Accessory units
1131	Domestic Shelter / Gazebo, picnic shelter
1132	Domestic Shelter / Playhouse, Playground, Treehouse
1133	Domestic Shelter / detached carport
1134	Domestic Shelter / detached garage / pole building residential in nature
1140	Townhouses
1150	Manufactured housing
1151	Manufacture Housed (declared real property)
1152	Manufactured house (not declared real property)
1160	Recreational Vehicle / Travel Trailer
1161	Recreational Vehicle
1162	Travel Trailer
1200	Multifamily structures
1202	Two units
1203	Three units
1204	Four units
1205	Five units
1206	Six units
1207	Seven units
1208	Eight units
1209	Nine units
1210	Ten units
1211	Eleven units
1212	Twelve units
1213	Thirteen units
1214	Fourteen units
1215	Fifteen units
1216	Sixteen units
1217	Seventeen units
1218	Eighteen units
1219	Nineteen units
1220	Twenty units

1221 Twenty-one units
1222 Twenty-two units
1223 Twenty-three units
1224 Twenty-four units
1225 Twenty-five units
1226 Twenty-six units
1227 Twenty-seven units
1228 Twenty-eight units
1229 Twenty-nine units
1230 Thirty units
1231 Thirty-one units
1232 Thirty-two units
1233 Thirty-three units
1234 Thirty-four units
1235 Thirty-five units
1236 Thirty-six units
1237 Thirty-seven units
1238 Thirty-eight units
1239 Thirty-nine units
1240 Forty units
1241 Forty-one units
1242 Forty-two units
1243 Forty-three units
1244 Forty-four units
1245 Forty-five units
1246 Forty-six units
1247 Forty-seven units
1248 Forty-eight units
1249 Forty-nine units
1250 Fifty units
1251 Fifty-one units
1252 Fifty-two units
1253 Fifty-three units
1254 Fifty-four units
1255 Fifty-five units
1256 Fifty-six units
1257 Fifty-seven units
1258 Fifty-eight units
1259 Fifty-nine units
1260 Sixty units
1261 Sixty-one units
1262 Sixty-two units
1263 Sixty-three units

- 1264 Sixty-four units
- 1265 Sixty-five units
- 1266 Sixty-six units
- 1267 Sixty-seven units
- 1268 Sixty-eight units
- 1269 Sixty-nine units
- 1270 Seventy units
- 1271 Seventy-one units
- 1272 Seventy-two units
- 1273 Seventy-three units
- 1274 Seventy-four units
- 1275 Seventy-five units
- 1276 Seventy-six units
- 1277 Seventy-seven units
- 1278 Seventy-eight units
- 1279 Seventy-nine units
- 1280 Eighty units
- 1281 Eighty-one units
- 1282 Eighty-two units
- 1283 Eighty-three units
- 1284 Eighty-four units
- 1285 Eighty-five units
- 1286 Eighty-six units
- 1287 Eighty-seven units
- 1288 Eighty-eight units
- 1289 Eighty-nine units
- 1290 Ninety units
- 1291 Ninety-one units
- 1292 Ninety-two units
- 1293 Ninety-three units
- 1294 Ninety-four units
- 1295 Ninety-five units
- 1296 Ninety-six units
- 1297 Ninety-seven units
- 1298 Ninety-eight units
- 1299 Ninety-nine units and more
- 1300 Other specialized residential structures
- 1155 Mobile Home Park
- 1156 RV Park
- 1310 Barracks
- 1320 Dormitories
- 1330 Hotels, motels, and tourist courts
- 1340 Single room occupancy units

- 1350 Temporary structures, tents, etc. for shelter
- 1360 Other structurally converted buildings
- 1370 Emergency Shelter
- 1380 Homeless Shelter
- 1400 Group Home (assisted living, retirement, long-term medical, 1/2 way house, or shelter)
- 2000 Commercial buildings and other specialized structures
- 2100 Office or bank building
- 2101 Office or bank building (zero lot line)
- 2110 Office building with drive-through facility
- 2200 Store or shop building
- 2201 Store or shop building (zero lot line)
- 2202 Store or shop building our door service / maintenance / work area
- 2210 Shop or store building with drive-through facility
- 2211 Drive-up store/building/hut: such as coffee/snack or other service (shaved ice, food)
- 2220 Restaurant building
- 2221 Restaurant w/ no drive thru (primarily sit down restaurant / café)
- 2222 Restaurant w/ drive thru (primarily fast food restaurant)
- 2223 Liquor store / (an establishment sells alcohol
- 2224 Alcohol serving establishment, which also served food (Tavern, Bar, Lounge)
- 2225 Alcohol serving establishment, which does not serve food
- 2230 Standalone store or shop building
- 2240 Department store building
- 2250 Warehouse discount store building
- 2260 Market shops including open markets
- 2270 Gasoline station
- 2280 Automobile repair and service structures
- 2300 Office or store building with residence on top
- 2400 Office building over storefronts
- 2500 Malls, shopping centers, or collection of shops
- 2510 Neighborhood center (convenience with one or more anchors)
- 2520 Community center (general merchandise with two or more anchors)
- 2530 Regional center (enclosed mall with two or more anchors)
- 2540 Superregional center (similar to regional, but has three or more anchors)
- 2550 Fashion/specialty center (higher end, fashion-oriented stores)
- 2560 Power center (category-dominated anchors with few small tenants)
- 2570 Theme or festival center (leisure, tourist-oriented, restaurants)
- 2580 Outlet or discount center (manufacturer outlet stores)
- 2590 Other kinds of shopping centers
- 2591 Convenience stores or centers
- 2592 Home improvement center
- 2593 Car care center
- 2594 Car wash (self, mechanical, or hand-wash)
- 2600 Industrial buildings and structures

- 2610 Light industrial structures and facilities
- 2611 Loft building
- 2612 Mill-type factory structures
- 2613 One-story modern manufacturing plants
- 2614 Industrial parks
- 2615 Laboratory or specialized industrial facility
- 2616 Nuclear Research Facility
- 2620 Heavy industrial structures and facilities
- 2621 Assembly and construction-type plants
- 2622 Process plants (metals, chemicals, etc.)
- 2630 Oil refinery facility
- 2631 Refinery with anchored equipment < 100,000 barrels/day
- 2632 Refinery with unanchored equipment < 100,000 barrels/day
- 2633 Refinery with anchored equipment > 100,000 barrels/day
- 2634 Refinery with unanchored equipment > 100,000 barrels/day
- 2635 Refinery pumping plant with anchored equipment
- 2636 Refinery pumping plant with unanchored equipment
- 2700 Warehouse or storage facility
- 2710 Mini-warehouse
- 2720 High-rise mini-warehouse
- 2730 Warehouse structure
- 2740 Produce warehouse
- 2750 Refrigerated warehouse or cold storage
- 2760 Large area distribution or transit warehouse
- 2761 Food Distribution Center
- 2770 Wharf and dock shed
- 2771 Conex Box / RR shipping container
- 2772 Semi-truck trailer (anchored)
- 2773 Semi-truck trailer (not - anchored)
- 2780 Tank farms
- 2781 Tank farms with anchored tanks
- 2782 Tank farms with unanchored tanks
- 2790 Maintenance Yard
- 2800 Food Industry Production / Processing facilities
- 2810 Consumer food processing
- 2811 Bakery, Baked goods
- 2812 Cannery
- 2813 Grain Mill
- 2814 Meat Processing / Packaging Facility
- 2820 Beverage Production and Bottling
- 2821 Water, soft drinks
- 2822 Brewery / Distillery / Winery
- 3000 Public assembly structures

3100 Theater
3110 Performance theater
3120 Movie theater
3130 Amphitheater
3140 Drive-in theaters
3200 Indoor/Outdoor games facility / Amusement Parks / Water Parks
3210 Amusement / Water Park
3220 Casino / Bingo
3230 Ski Resort / Winter Park
3250 Racetrack - animal
3260 Racetrack / Drag strip - Auto
3270 Golf Facility
3280 Fair / Exhibition Grounds
3290 Rodeo Grounds
3300 Sports stadium or arena
3310 Ice Arena
3400 Exhibition, convention, or conference structure
3500 Churches, synagogues, temples, mosques, etc.
3600 Capitol buildings
3601 US Capitol
3602 State Capitol
3610 County / Parish Courthouse
3620 City Hall
3630 Public Administration (Executive / Legislative)
3640 Judicial Administration
3641 US Supreme Court
3642 Federal Court
3643 State Supreme Court
3644 State Court
3645 Local Court / Courthouse
3650 Public Administration Federal
3660 Public Administration State
3670 Public Administration (Local)
3680 Tribal Administration
3690 Governmental Residences
3691 White House
3692 Federal Residence
3693 Governor's Residence
3694 Local Residence
3700 Covered or partially covered atriums and public enclosures
3800 Other community structures
3810 Mail or Shipping Facility
3811 Post Office

3811 Bulk Mail Center
3811 Private and Express Shipping
3820 Community / Recreation Center
3900 Passenger assembly
3910 Mixed mode terminal
3920 Airport terminal
3921 Air Passenger Hub
3922 Air Shipping Hub
3930 Bus terminal
3940 Train station
3950 Harbor or port terminal
4000 Institutional or community facilities
4001 Public Health Office
4100 Medical facility
4101 Nursing Home / Long Term Care
4102 Hospice
4110 Hospital building
4120 Medical clinic building
4121 Outpatient Clinic
4122 Psychiatric Facility
4123 Rehabilitation Center
4124 Substance Abuse Facility
4130 Medical Building (Doctors Office)
4150 Dental Office
4160 Medical Facilities
4161 Diagnostic Laboratory
4162 Medical Research Laboratory
4163 Medical Stockpile Facility
4164 Morgue
4170 Other Facilities Medical in Nature
4171 Blood Bank
4172 Pharmacy
4180 Day (Child) Care Facility
4190 Veterinary Hospital, Clinic, Facility or buildings
4200 School or university buildings
4210 Grade school
4211 Pre-School
4212 Elementary School
4213 Junior High / Middle School
4214 High School
4220 College or university facility
4230 Trade or specialty school facility
4300 Library building

4400 Museum, exhibition, or similar facility
4410 Exhibitions and art galleries
4420 Planetarium
4430 Aquarium
4440 Outdoor facility, no major structure
4441 Marina
4450 Zoological parks
4460 Arboretum / Botanical Garden
4470 Historic Site / Point of Interest / Landmark
4471 Lighthouse / Light
4472 Lookout Tower
4473 National Symbol / Monument
4474 National Park Facility
4475 Visitor Center / Information Center
4476 State Park / Monument / Symbol
4477 Private Park / Monument / Symbol
4480 Campground Facility
4490 Park
4491 Picnic Area
4500 Public safety-related facility
4510 Fire and rescue station
4511 Fire training facility/academy
4520 Police station / Law Enforcement
4521 Federal Law Enforcement
4522 State Law Enforcement
4523 Local Law Enforcement
4530 Emergency operation center
4531 Civil Defense
4532 Federal Emergency Management
4540 Emergency Medical Services
4550 Emergency Assistance or Red Cross related facility
4600 Jails, penitentiaries, detention centers, and other correctional facilities
4610 Law Enforcement and jail, Penitentiary Correctional Facility with Law Enforcement Admin
4700 Cemetery, monument, tombstone, or mausoleum
4800 Funeral homes and cremation facilities
5000 Transportation-related facilities
5002 Weigh Station / Inspection Station
5003 Toll Booth / Plaza
5004 Truck Stop (non-commercial)
5005 Snow shed
5100 Linear or network feature
5110 Pedestrian trail, sidewalks, etc.
5111 Trailhead

5120 Bicycle and other nonmotorized paths
5130 Highways and roads
5131 Principal arterial--interstate
5132 Principal arterial--freeway and expressway
5133 Other principal arterial
5134 Minor arterial
5135 Major collector
5136 Minor collector
5137 Local road
5138 Alley
5139 Other nonclassified road
5140 Highway bridges and tunnels
5141 Bridge: Road
5142 Tunnel: Road
5150 Railroads, including monorails, etc.
5151 Bridge: Railroad
5152 Tunnel: Railroad
5153 Bridge: Light Rail / Subway
5154 Tunnel: Light Rail / Subway
5160 Waterways
5200 Automobile parking facilities
5210 Surface parking, open
5211 Park and Ride / Commuter Parking, open
5220 Surface parking, covered
5221 Park and Ride / Commuter Parking, covered
5230 Multistoried parking structure with ramps
5240 Underground parking structure with ramps
5250 Rooftop parking facility
5300 Bus stop shelter
5400 Bus or truck maintenance facility
5500 Water transportation or marine related
5501 Boat Ramp / Dock
5502 Harbor / Marina
5510 Port fuel facility
5511 Port fuel facility with anchored tanks, with back-up power
5512 Port fuel facility with anchored tanks, without back-up power
5513 Port fuel facility with unanchored tanks, with back-up power
5514 Port fuel facility with unanchored tanks, without back-up power
5515 Port fuel facility with buried tanks
5520 Pier, dock, wharf, or jetty
5530 Lighthouse
5540 Riverboats and other anchored facilities
5550 Port storage or warehouse

5551 Stationary port handling equipment
5552 Rail mounted port handling equipment
5553 Port warehouses
5560 Port Facility
5561 Port Facility: Commercial Port
5562 Port Facility: Crane
5563 Port Facility: Maintenance and Fuel Facility
5564 Port Facility: Modal Transfer Facility
5565 Port Facility: Passenger Terminal
5566 Port Facility: Warehouse Storage / Container Yard
5600 Air and space transportation facility
5601 Airport Terminal
5610 Runway
5620 Airport maintenance and hangar facility
5630 Airport control tower
5640 Heliport facility
5650 Glideport, seaport, stolport, ultralight or balloonport facility
5700 Railroad facility
5701 Command / Control Facility
5702 Freight Loading Facility
5703 Roundhouse Turntable
5704 Station
5705 Light Rail Power Substation
5706 Light Rail Station
5707 Subway Station
5710 Railroad switching facility
5720 Railroad sheds and other support structures
5790 Space Transportation Facilities
5791 Launch Facility
5792 Launch Pad
6000 Utility and other nonbuilding structures
6100 Utility structures on right-of-way
6110 Electric lines, phone and cable lines, etc.
6111 Distribution circuits with seismically designed components
6112 Distribution circuits with standard components
6120 Gas and fuel lines
6130 Water supply lines
6131 Brittle pipelines
6132 Ductile pipelines
6140 Steam and air conditioning lines
6150 Irrigation channels
6160 Sewer and waste water lines
6161 Brittle pipelines

6162 Ductile pipelines
6200 Water-supply-related facility
6205 Fire hydrant
6210 Water supply pump station
6211 Pumping plant with anchored equipment < 10 MGD
6212 Pumping plant with unanchored equipment < 10 MGD
6213 Pumping plant with anchored equipment > 10 MGD
6214 Pumping plant with unanchored equipment >10 MGD
6220 Dam
6221 Earth dam, arch
6222 Earth dam, multi-arch
6223 Buttress dam
6224 Gravity dam, rock fill
6225 Gravity dam, concrete
6226 Gravity dam, masonry
6227 Gravity dam, stone
6228 Gravity dam, timber crib
6230 Levee
6240 Culvert
6250 Water tank (elevated, at grade, underground)
6251 On-ground anchored concrete tank
6252 On-ground unanchored concrete tank
6253 On-ground anchored steel tank
6254 On-ground unanchored steel tank
6255 Above ground steel tank
6256 On-ground wood tank
6257 Buried concrete tank
6260 Water Intake / Wells
6261 Well
6262 Public Water Supply Intake
6263 Public Water Supply Well
6264 Private Water Supply Intake
6265 Private Water Supply Well
6270 Water treatment and purification (WTP) facility
6271 WTP with anchored components < 50 MGD
6272 WTP with unanchored components < 50 MGD
6273 WTP with anchored components 50-200 MGD
6274 WTP with unanchored components 50-200 MGD
6275 WTP with anchored components > 200 MGD
6276 WTP with unanchored components > 200 MGD
6277 Pumping station
6278 Water System Control facility
6280 Water reservoir

6290 Other irrigation facilities
6300 Sewer and waste-related facility
6310 Storage or pumping station facility
6311 Lift stations with anchored components < 10 MGD
6312 Lift stations with unanchored components < 10 MGD
6313 Lift stations with anchored components > 10 MGD
6314 Lift stations with unanchored components > 10 MGD
6320 Landfill facility
6321 Waste transfer facility
6330 Incinerator, composting, or similar facility
6340 Hazardous waste storage facility
6341 High-level waste facility
6342 Transuranic waste facility
6343 Spent fuel facility
6344 Low-level waste facility
6345 Hazardous materials facility
6346 Superfund Site
6350 Sewer treatment plant
6351 Wastewater Treatment Plant (WWTP) with anchored components < 50 MGD
6352 WWTP with unanchored components < 50 MGD
6353 WWTP with anchored components 50-200 MGD
6354 WWTP with unanchored components 50-200 MGD
6355 WWTP with anchored components > 200 MGD
6356 WWTP with unanchored components > 200 MGD
6400 Gas or electric power generation facility
6410 Gas storage and distribution facility
6411 Natural Gas Facility
6412 Oil/Gas Facility
6413 Oil/Gas Well or Field
6414 Oil/ Gas Extraction or Injection Well
6415 Oil / Gas Pumping Station
6416 Oil / Gas Refinery
6417 Oil / Gas Processing Plant
6418 Oil / Gas Storage Facility / Tank Farm
6419 POL Storage Tank
6420 Gas compressor stations
6421 Gas compressor stations with anchored components
6422 Gas compressor stations with unanchored components
6430 Power generation plants
6431 Power plants with anchored components < 100 MW
6432 Power plants with unanchored components < 100 MW
6433 Power plants with anchored components > 100 MW
6434 Power plants with unanchored components >100 MW

6440 Electric substation and distribution facility
6441 Low-voltage (115 KV) substation with anchored components
6442 Low-voltage (115 KV) substation with unanchored components
6443 Medium-voltage (230 KV) substation with anchored components
6444 Medium-voltage (230 KV) substation with unanchored components
6445 High-voltage (500 KV) substation with anchored components
6446 High-voltage (500 KV) substation with unanchored components
6450 Geothermal facility
6460 Solar and other forms of energy facility
6461 Hydroelectric Facility
6462 Waste / Biomass Facility
6463 Tidal Facility
6470 Nuclear Power Facility
6480 Wind Facility
6490 Coal Facility
6500 Communication Facility
6501 Radio / TV Broadcast facility
6502 Data Center
6503 Satellite Ground Station
6504 Telephone Facility
6505 Internet Service Provider
6510 Radio, TV, or wireless transmitter
6520 Weather stations or transmitters Facilities
6521 Warning Center
6522 Weather Data Center
6523 Weather Forecast Office
6524 Weather Radar Site
6525 Weather station or transmitter
6530 Communications Services
6531 Internet DNS Location / Other Node
6532 Internet Metro Area Exchange / Hub
6540 Other Communications Tower
6600 Environmental monitoring station (air, soil, etc.)
6700 Sign or billboard
6800 Mining and related activities
6810 Mine Waste Disposal Site
6820 Mine Uranium Facility
6830 Ore Processing Facility
6900 Other miscellaneous structures
6910 Kiosks
6920 Roadside stand, pushcarts, etc.
6930 Highway rest stops and welcome centers
6940 Playground equipment

6950 Fountain, sculpture, etc.
6970 Outdoor stage, bandstand, or similar structure
7000 Specialized military structures
7040 Military weapons station
7041 Nuclear Weapons Facility
7042 Nuclear Weapons Plant
7100 Joint services facility
7200 Air Force facility
7300 Army and marine corps facility
7400 Naval facility
7410 Naval installation
7420 Weapons station
7430 Submarine base
7450 Training center
7460 Communications station
7470 Supply center
7480 Reserve station
7500 Armory building
7600 Coast Guard Facility
7700 Homeland Security Facility
7800 National Guard Facility
7900 Strategic Petroleum Reserve
8000 Sheds, farm buildings, or agricultural facilities
8000 Sheds, farm buildings, or agricultural facilities
8000 Sheds, farm buildings, or agricultural facilities
8010 Agricultural Maintenance Facility
8020 Agricultural storage facility
8021 Agricultural storage / shed, not enclosed
8022 Agricultural storage / shed, enclosed
8100 Grain silos and other storage structure for grains and agricultural products
8200 Livestock facility
8200 Livestock facility
8210 Dairy facility
8220 Poultry facility
8230 Cattle facility
8240 Stables and other equine-related facilities
8241 Portable stable
8242 Indoor riding arena (facility which allows indoor equine riding, not necessarily events)
8300 Animal feed operations facility
8310 Confined feedlot facility
8400 Animal waste-handling facility
8410 In ground silos
8420 Waste lagoons

8430 Concrete storage units, covered
8440 Concrete storage units, uncovered
8450 Composting facility
8500 Greenhouses
8600 Hatcheries
8610 Fish Hatchery / Farm Buildings
8620 Fish Hatchery / Farm ponds
8630 Fish ladder
8700 Kennels and other canine-related facilities
8800 Apiary and other related structures
8900 Other farm and farming-related structures
9000 No structure
9100 Not applicable to this dimension
9200 Unclassifiable structure
9300 Subsurface structures
9900 To be determined
9990 To be determined
9999 To be determined