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Information Technology – Geographic Information Framework Data Content Standard

Part 7a: Air

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Foreword

Geographic information, also known as geospatial information, both underlies and is the subject of much of the political, economic, environmental, and security activities of the United States. In recognition of this, the United States Office of Management and Budget issued Circular A-16 (revised 2002), which established the Federal Geographic Data Committee (FGDC) as a coordinating organization.

Work on this standard started under the Geospatial One-Stop e-Government initiative. The standard was developed with the support of the member agencies and organizations of the FGDC and aids in fulfilling a primary objective of the National Spatial Data Infrastructure (NSDI), that is, creation of common geographic base data for seven critical data themes. The seven core data themes are considered framework data of critical importance to the spatial data infrastructure.

The increasing need to coordinate collection of new data, identify applicability of existing data, and exchange data at the national level led to the submission of this standard to the ANSI process to become an American National Standard. The national standard contained in this document and its parts was sponsored by Technical Committee L1, Geographic Information Systems, of the InterNational Committee for Information Technology Standards (INCITS), an ANSI-accredited standards development organization.

As the Geographic Information Framework Data Content Standard was developed using public funds, the U.S. Government will be free to publish and distribute its contents to the public, as provided through the Freedom of Information Act (FOIA), Part 5 United States Code, Section 552, as amended by Public Law No. 104-231, “Electronic Freedom of Information Act Amendments of 1996”.

Introduction

The primary purpose of the Geographic Information Framework Data Content Standard, Part 7a: Air is to support the exchange of data related to air transportation. This part of the Framework Data Content Standard also seeks to establish a common baseline for the content of air transportation databases for public agencies and private enterprises. It seeks to decrease the costs of acquiring and exchanging aviation data for Federal, State Tribal, and local users and creators of air transportation data. Benefits of adopting this part also include the long-term improvement of the geospatial data that can be used to support capacity, safety, security, operations, and maintenance procedures at airports.

This is the first edition of this part of the Framework Data Content Standard. However, this part was preceded by other work that has contributed to its development. These include:

- The U.S. CADD/GIS Technology Center's Spatial Data Standards for Facilities, Infrastructure and the Environment (Version 2.5)
- Airport Layout Plan Standards developed by the Atlanta Hartsfield International Airport Department of Aviation (May 29, 2002)
- User Requirements for Aerodrome Mapping Information (DO-272) developed by a multinational committee of aviation experts under the auspices of RTCA and EUROCAE
- The Federal Aviation Administration's adaptation of RTCA/EUROCAE's User Requirements for Aerodrome Mapping Information for the Safe Flight 21 Program
- Eurocontrol's Aeronautical Information eXchange Model (AIXM) (Version 3.3)

In addition, the development of this part of the Framework Data Content Standard has benefited from the work being undertaken by the FAA Airport Surveying – GIS Program. Specifically, the development of the FAA's airport GIS standard has been carried out in close collaboration with this standard. Given the similar objectives and overlapping domains of the FAA Airport Surveying – GIS Program and this effort, the models being created have essentially been merged. The result has been a single model for aviation data exchange that encompasses a more comprehensive set of user requirements. The FAA has published its version of this model in FAA Advisory Circular 150/5300-18 General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards.

This part of the Framework Data Content Standard has been developed to fulfill one of the objectives of the National Spatial Data Infrastructure, that is to say, to create common geographic base data for seven critical data themes. These core themes are considered framework data, reflecting their critical importance as geographic infrastructure.

This part of the Framework Data Content Standard was processed and approved for submittal to ANSI by the Accredited Standards Committee – INCITS/L1. Committee approval of this part does not necessarily imply that all committee members voted for its approval.

Framework Data Content Standard – Air

1 Scope

The primary purpose of the Geographic Information Framework Data Content Standard, Part 7a: Air is to support the exchange of transportation data related to aviation, one of five modes that compose the Transportation theme of the geospatial data framework. More specifically, the Air part encompasses spatial data, as well as related attributes and metadata, which can be used to depict the most broadly used elements of the U.S. National Airspace System (NAS). The NAS is a national system of aviation infrastructure that includes several thousand commercial, military, and general aviation airports and heliports in the United States, as well as thousands of FAA facilities that support air navigation over U.S. skies. This part should not be used to support data that is required for the navigation of aircraft, nor should it be used for data that are required for operation of the NAS as further requirements must be met to support these critical uses of aeronautical information.

While the impetus for this part of the Framework Data Content Standard is from the U.S. government, it is recognized that a standard for the exchange of aviation data shall be global in perspective. For this reason, this part has been harmonized with the AIXM (version 5) standard being developed jointly by Eurocontrol and the FAA. This harmonization encompassed a detailed comparison of AIXM and the Air part and resolutions of any differences between the two. The result of this harmonization is compatibility between the two standards.

This part is made up of numerous types of manmade (for example, runways and taxiways) and natural (for example, wildlife and water bodies) features that have been determined to be relevant to air transportation. Each of these features can have geographic locations and characteristics. These features can also be interconnected in various ways to represent a complete operating environment such as an airport or subsets of an airport such as the equipment that supports air navigation to a specific runway. Airspace features such as airspace areas, routes, navigational aides and obstructions have been included in this model by incorporating the definition of such features in the AIXM model.

This part of the Framework Data Content Standard can be implemented using a variety of software packages. It is designed to be able to depict airports of all levels of service and all functional classes that may be defined by a data-providing agency. It accommodates assets associated with aviation that are typically used for navigation, safety, security, operations, and maintenance.

The Air part will initially apply to National Spatial Data Infrastructure framework transportation data produced or disseminated by or for the Federal Government. This part is not intended to supersede the airport data collection needs and requirements of the Federal Aviation Administration. It is recognized that the Federal Aviation Administration has data quality requirements (spatial, temporal, and data integrity) related to air safety that this part does not support. According to Executive Order 12906, Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure, Federal agencies collecting or producing geospatial data, either directly or indirectly (for example, through grants, partnerships, or contracts with other entities), shall ensure, prior to obligating funds for such activities, that data will be collected in a manner that meets all relevant standards adopted through the FGDC process.

The utilities that support airport infrastructure were deemed too complex to adequately address in this version of the Air part. As a placeholder, one feature class has been added to accommodate utilities features. This feature can accommodate point, line and polygon geometries and an attribute is provided to indicate the type of utility feature represented. It is recommended that SDSFIE utility entity types be used to indicate these utility types. The Air MAT recognizes that utilities are an important feature that should be expanded upon in future models.

The areas listed above and others will be critical additions to future versions of this part of the Framework Data Content Standard. The data elements currently captured in the part are not in

and of themselves sufficient for air navigation or the operation of airports or the NAS. The model can be used to exchange information to users and for uses that do not require more detailed airspace, utilities, and temporal data. Users who do require these details can build upon the current structures of the Air part to accommodate their needs until future revisions of this part address these needs. The advantage of this approach is the ability to begin the exchange of some data elements and the use of their additions to support future model enhancements. Ultimately, it is the responsibility of the user and developer of any system, whether it is based on this part or not, to ensure that the data meet their specific requirements.

1.1 Harmonization with other aviation data content standards

The Framework Data Content Standard, Air part committee members recognize that much, if not all, aviation data elements are modeled in one or more existing aviation data standards. A more valuable accomplishment is to review existing models and adapt what they collectively provide to meet the committee requirements. Care and compromise are used to ensure adherence to the requirements of the originating standard. This supports compatibility between the standards and a broader exchange of information. This process, called harmonization is carried out in this version of the Air part and will continue to be carried out in future versions.

1.2 Coordination with FAA Airport Surveying – GIS Program

The GIS portion of the FAA Airport Surveying – GIS Program was initiated about the same time that the Air MAT began meeting. The first phase of this project set out to establish a data content standard for airport GIS data relevant to the FAA. The second phase of this project focused on developing a national repository for the submittal and exchange of this data, as a means of supporting approach procedure design and other FAA requirements. Further information about the FAA Airport Surveying – GIS Program can be found at http://airports-gis.faa.gov.

Considerable effort has been expended to coordinate the Air MAT effort with the standard development portion of the FAA Airport Surveying – GIS Program. The result is a combined model that satisfies a broader set of user interests. The FAA's documentation of this model can be found in FAA AC 150/5300-18 General Guidance and Specifications for Aeronautical Surveys: Airport Survey Data Collection and Geographic Information System Standards. Some of the most critical benefits of coordinating the FAA GIS standard with the Air part of the Framework Data Content Standard are listed below.

- The individuals and agencies that create spatial data for aviation, namely, FAA, NOAA/NGS, airports, consultants, and private sector data providers will be better able to supply data to the FAA and the aviation community if the data is organized based on a common standard
- Consistency is a major component of spatial data quality. By bringing these efforts together, redundancy in airport data and airport data collection efforts will be minimized and data consistency will be maximized
- Private industry is more apt to develop solutions that make use of, and build upon the FAA standard and the Air part of the Framework Data Content Standard if they are consistent
- Should the FAA require data from airports based on a consistent standard, a broad, rich set of airport data will very quickly become available to other potential users via the Geospatial One-Stop
- The FAA Airport Surveying – GIS Program can benefit from the funding, resources, and development being dedicated to the Geospatial One-Stop. Conversely, the Geospatial One-Stop can benefit from the support and expertise of the FAA, the agency responsible for regulating and operating our national airspace system
- The Air MAT committee includes members from the FAA, airports, the National Geospatial-Intelligence Agency (NGA), the U.S. Army Corps of Engineers CADD/GIS Technology Center, AAAE GIS Standards Subcommittee, and private industry. The FAA

project team includes members from several divisions of the FAA, NOAA/NGS, and contractors with private industry and airport experience. Together, these groups of professionals offer broader expertise than any group alone

1.3 Coordination with DO-272 and DO-276

In 2000, an international committee of aviation experts was formed under RTCA, Inc. and the European Organization for Civil Aviation Equipment (EUROCAE) to assess and document "User Requirements for Aerodrome Mapping Information" and "User Requirements for Obstacle and Terrain Data." This resulted in two documents, RTCA DO-272 and DO-276, respectively. Together, these documents are a major accomplishment in the worldwide standardization of data depicting airside infrastructure of an airport, as well as obstacle and terrain data. Since being published, they have gained broad support and developed a wide international user base.

Because of these achievements, the Air MAT considered each element of DO-272 and DO-276 and determined that they adequately met the exchange objectives of the Geospatial One-Stop. Based on this determination, all features contained in DO-272 and DO-276 have been incorporated into the Air part of the Framework Data Content Standard. In a few cases, features have been grouped differently to best accommodate the specific aircraft surface movement requirements of DO-272 and the broader mapping requirements expressed by the Air MAT. These features have also been defined the same in both standards, with a few exceptions which are necessary to make the Air part definitions compatible with existing FAA definitions. Note that the initial version of the Air part does not include all attributes in DO-272 and DO-276, but future versions will review these as well. In the meantime, users that require this attribute information can incorporate them as necessary.

1.4 Coordination with ANSI INCITS 353 SDSFIE

For over a decade, the U.S. CADD/GIS Technology Center (formerly the Tri-Services CADD/GIS Technology Center) has produced the Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE). Many military and a large number of civilian airports, as well as the American Association of Airport Executives GIS Standards Sub-Committee, endorsed this standard for structuring geospatial data for airports. It was widely recognized, however, that the SDSFIE standard did not fully address the needs of a commercial airport. To remedy this, while recognizing the value and user community of the SDSFIE, members of the Air MAT committee used the SDSFIE as a base on which to develop more specific data definitions required by commercial airports and military airfields. The result, the Air MAT feels, is an improved data model that it proposes to be considered for harmonization with future versions of the SDSFIE.

Recently, the maintenance authority of the SDSFIE has been transferred to the Technical Engineering Center (TEC) of the U.S. Department of Defense. This new authority has provided the opportunity to consider the Air MAT content in a new release of the SDSIFE.

1.5 Coordination with AIXM

The Aviation Information eXchange Model (AIXM) was developed by European aviation experts. It includes airport, navigational aid and airspace features, their relationships to one another, and relevant attributes. It has been in existence for several years and has undergone five major and several minor version enhancements.

Members of the Air MAT reviewed AIXM and determined that it covers most if not all of the data elements contained in the Air part of the Framework Data Content Standard and much more. Because of its broader coverage and therefore, complexity, and due to differences between European and U.S. terminology, it was determined that AIXM could not be accepted wholesale. Instead, a feature-by-feature comparison and harmonization effort was recommended. Such an effort has begun, and as soon as Air part features and attributes can be incorporated into AIXM in a manner that is acceptable to the Air MAT, it is recommended that the Air MAT consider replacing the Air part with AIXM.

2 Conformance

This thematic part includes a data dictionary/model based on the conceptual schema presented below. To conform to this part, the user shall satisfy the requirements of the data dictionary/model. The user's conforming dataset shall include a value for each mandatory element, and a value for each conditional element for which the condition is true. It may contain values for any optional element. The data type of each value shall be that specified for the element in the data dictionary/model and the value shall lie within the specified domain. This part only specifies the special requirements of conformance for a dataset containing information on the airports. Conformance to the Air part requires additional actions specified in the Base Document (Part 0) and the Transportation Base (Part 7) of the Framework Data Content Standard.

3 Normative references

Annex A lists normative references applicable only to the Air part. No additional normative references are specified in the Transportation Base (Part 7). Annex A of the Base Document (Part 0) lists normative references applicable to two or more parts of the standard, including those other than the transportation parts. Informative references applicable to the Air part only are listed in Annex B. Informative references applicable to two or more transportation parts only are listed in Annex C of the Transportation Base. Annex D of the Base Document lists informative references applicable to two or more of the parts.

4 Maintenance authority

4.1 Level of responsibility

The FGDC is the responsible organization for coordinating work on all parts of the Geographic Information Framework Data Content Standard. The United States Department of Transportation (USDOT), working with the FGDC, is the responsible organization for coordinating work on the Geographic Information Framework Data Content Standard, Part 7: Transportation Base and subparts (Parts 7b, 7c, and 7d, excluding 7a and 7e) and is directly responsible for development and maintenance of the transportation parts (excluding 7e) of the Framework Data Content Standard. The development and maintenance authority for Part 7a: Air is the Federal Aviation Administration.

The FGDC shall be the sole organization responsible for direct coordination with the InterNational Committee for Information Technology Standards (INCITS) concerning any maintenance or any other requirements mandated by INCITS or ANSI.

4.2 Contact information

Address questions concerning this part of the standard to:

Federal Geographic Data Committee Secretariat
c/o U.S. Geological Survey
590 National Center
Reston, Virginia 20192 USA

Telephone: (703) 648-5514
Facsimile: (703) 648-5755
Internet (electronic mail): gdc@fgdc.gov
WWW Home Page: http://fgdc.gov

5 Terms and definitions

Terms and definitions applicable to multiple transportation parts are listed in the Transportation Base (Part 7). More general terms and definitions can be found in the Base Document (Part 0) of the standard. Users are advised to consult these documents for a complete set of definitions.

6 Symbols, abbreviated terms, and definitions

The following symbols, abbreviations, and notations are applicable to the Air part. Those common to two or more transportation parts are listed in the Transportation Base (Part 7). Symbols, abbreviations, and notations applicable to multiple parts, including the transportation parts, are listed in the Base Document (Part (0).

AAAE – American Association of Airport Executives

AC – Advisory Circular

A/E/C – Architecture Engineering and Construction

AIA – American Institute of Architects

AICM – Aeronautical Information Conceptual Model

AIS – Aeronautical Information Services

AIXM – Aeronautical Information Exchange Model

ALP – Airport Layout Plan

AOA – Air Operations Area

ATC – Air Traffic Control

ATCT – Air Traffic Control Tower

BASH – Bird Aircraft Strike Hazard

CADD – Computer Automated Drafting & Design

CRC – Cyclic Redundancy Check

DOD – U.S. Department of Defense

eALP – electronic Airport Layout Plan

EMAS – Engineered Material Arresting System

EUROCAE – European Organization for Civil Aviation Equipment

FAA – Federal Aviation Administration

FAR – Federal Aviation Regulation

FATO – Final Approach and Take-Off Area

ICAO – International Civil Aviation Organization

LAHSO – Land and Hold Short Operation

MOA – Military Operating Area

MPa – Mega Pascal

NAD – North American Datum

NAS – National Airspace System

NAVAID – Navigational Aid

NGA – National Geospatial-Intelligence Agency

NGVD – National Geodetic Vertical Datum

OIS – Obstruction Identification Surface

RTCA – Radio Technical Commission for Aeronautics

SDSFIE – Spatial Data Standards for Facilities Infrastructure and Environment

SF21 – Safe Flight 21

SIDA – Secure Identification Area

SSI – Sensitive Security Information

TERPS – Terminal Instrument Procedures

TLOF – Touchdown and Lift-Off Area

U.S. CADD – U.S. CADD/GIS Technology Center

7 Requirements

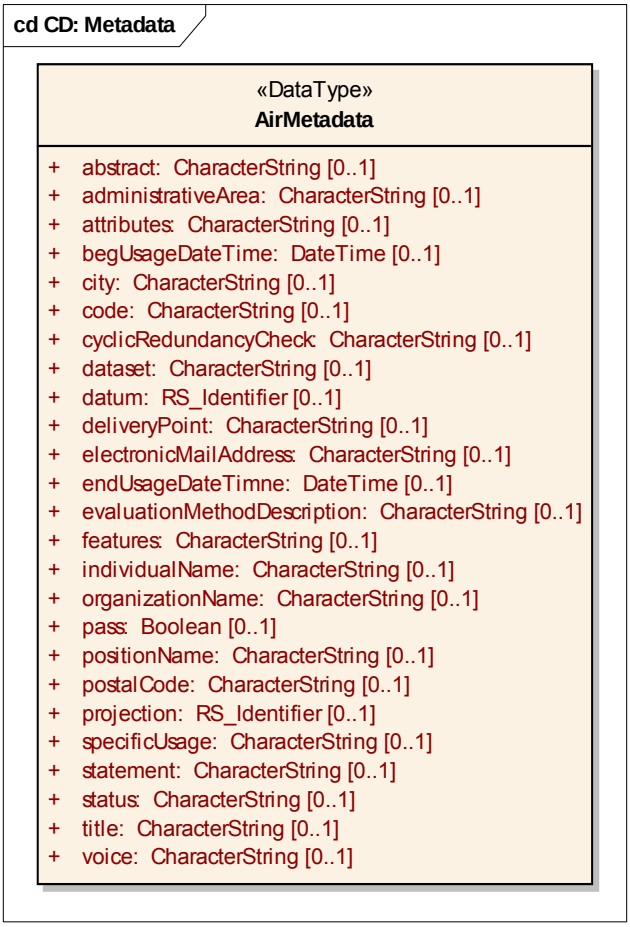
An airport is a specialized type of transportation feature. An airport is an area of the Earth's surface that is designed for the movement of people, goods, and services primarily by aircraft. Depicting an airport using geospatial information requires many feature definitions; the Air MAT has identified 111 which are detailed in this section. These 111 feature classes are grouped into categories for modeling and ease of reading. The first categories include airfield, runway, taxiway, and other feature classes that are directly related to an airport. The next categories include features that may extend beyond and above an airport, such as navigational aids and airspace features. Finally, a variety of features that are not unique to but are required by airports are provided. These include cadastral, environmental, and structural features. In future versions of the Air part, harmonization of these features with similar features defined in other parts of the Framework Data Content Standard is anticipated.

Attribute definitions for each feature class have been provided. A crosswalk of attribute names between the SDSFIE, the FAA, the AIXM, and an older version of the Air MAT standards was created. It was determined in a meeting of experts from teams that developed these standards that attribute names for the Air MAT would be modified from the multiple existing standards. Attribute names are often spelled out in full to promote an easier means of relating attributes between multiple existing standards, to be more consistent with the suggested standard Unified Model Language (UML) naming convention, and to be more consistent with other Framework Data Content Standard parts. This is a first major step towards harmonization of this part and other closely related standards.

The following are a few notes about some of the attributes that appear in the tables within this section:

- The metadata::AirMetadata attribute in the AirFeature Class shall be inherited by all classes in the Transportation Air part. The type expression for this attribute is the DataType AirMetadata. The metadata:AirMetadata attribute in the AirFeature Class shall override the metadata attribute from the Framework::Feature class. This offers a great deal of flexibility allowing metadata to be captured at the traditional feature collection level or at a more refined feature class level, which was determined by the Air MAT to be relevant to airport GIS implementations. Metadata elements were adopted from FAA AC 150/5300-18 and are a subset of the ISO 19115 metadata standard. While the Framework Data Content Standard parts were allowed to establish their own metadata structures, the FAA and the Air MAT felt that compliance with ISO 19115 was consistent with an overall trend towards the use of this part in the aviation and geospatial industries. For clarity, the Metadata class and its association with other classes are not diagrammed. The attributes of this class are a harmonization between the FAA standard and the AIXM requirements. The Metadata class is shown in Figure 1.
- The attribute userFlag is equivalent to SDSFIE's attribute known as user_flag
- The attribute description is equivalent to SDSFIE's attribute known as narrative
- All measures (that is to say, length, width) should be real values with units expressed as U.S. Survey Feet

The overall Air model is given in Figure 2.



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705 **Figure 1 – AirMetadata**

706 **Table 1 – Data dictionary for AirMetadata**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
1	AirMetadata				<<DataType>>	Lines 2-26
2	abstract	Brief narrative summary of the dataset [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
3	administrativeArea	State [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
4	attributes	List of attribute names to which the metadata pertains (separated by commas) [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
5	begUsageDateTime	First date/time for which the data described by the scope is valid [FAA AC 150/5300-18]	O	1	DateTime	Defined in ISO 19115
6	city	City [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
7	code	Four-digit code for the State Plane Coordinate System used. A list of codes can be found in NOAA Manual NOS NGS 5 [Stem] [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
8	cyclicRedundancyCheck	Hexadecimal value of a 32-bit polynominal cyclic redundancy check (CRC) over the values of a selected set of attributes that model critical, essential, and routine data, according to ICAO [AIXM]	O	1	Integer	Defined in ISO 19115
9	dataset	List of feature classes to which the metadata pertains (separated by commas) [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
10	datum	Horizontal datum of submitted data (NAD27, NAD83, or WGS84) [FAA AC 150/5300-18]	O	1	RS_Identifier	Defined in ISO 19115
11	deliveryPoint	Street address of the person delivering the data [FAA AC	O	1	CharacterString	Defined in ISO 19115

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		150/5300-18]				
12	electronicMailAddress	Address of the electronic mailbox of the organization or individual submitting the data [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
13	endUsageDateTime	Last date/time for which the data described by the scope is valid [FAA AC 150/5300-18]	O	1	DateTime	Defined in ISO 19115
14	evaluationMethodDescription	Description of the evaluation method used [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
15	features	List of feature names to which the metadata pertains (separated by commas) [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
16	individualName	Name of the person submitting the data [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
17	organizationName	Organization of the person submitting the data [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
18	pass	Indicatation of whether data described by the scope passed or failed in evaluation [FAA AC 150/5300-18]	O	1	Boolean	Defined in ISO 19115
19	positionName	Title of person submitting the data [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
20	postalCode	ZIP code [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
21	projection	Name of the projection used [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
22	specificUsage	Description of how the data should be used [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
23	statement	Description of the source of the data [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
24	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
25	title	Name of the evaluation method used [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115
26	voice	Telephone number by which individuals can speak to the responsible organization or individual submitting the data [FAA AC 150/5300-18]	O	1	CharacterString	Defined in ISO 19115

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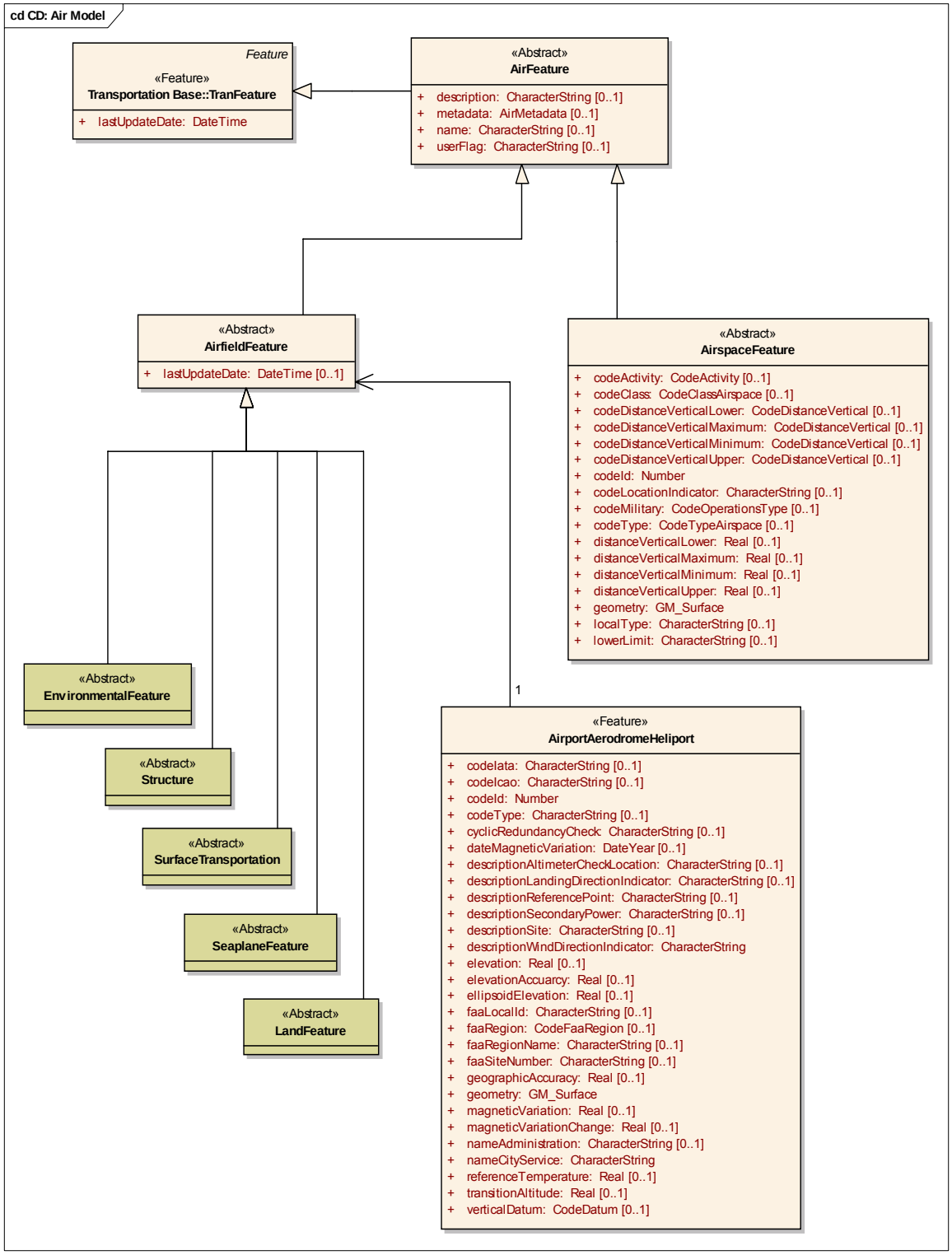

Figure 2 – Air model

7.1 AirfieldFeature

Figure 3 illustrates the subclasses of the AirfieldFeature class.

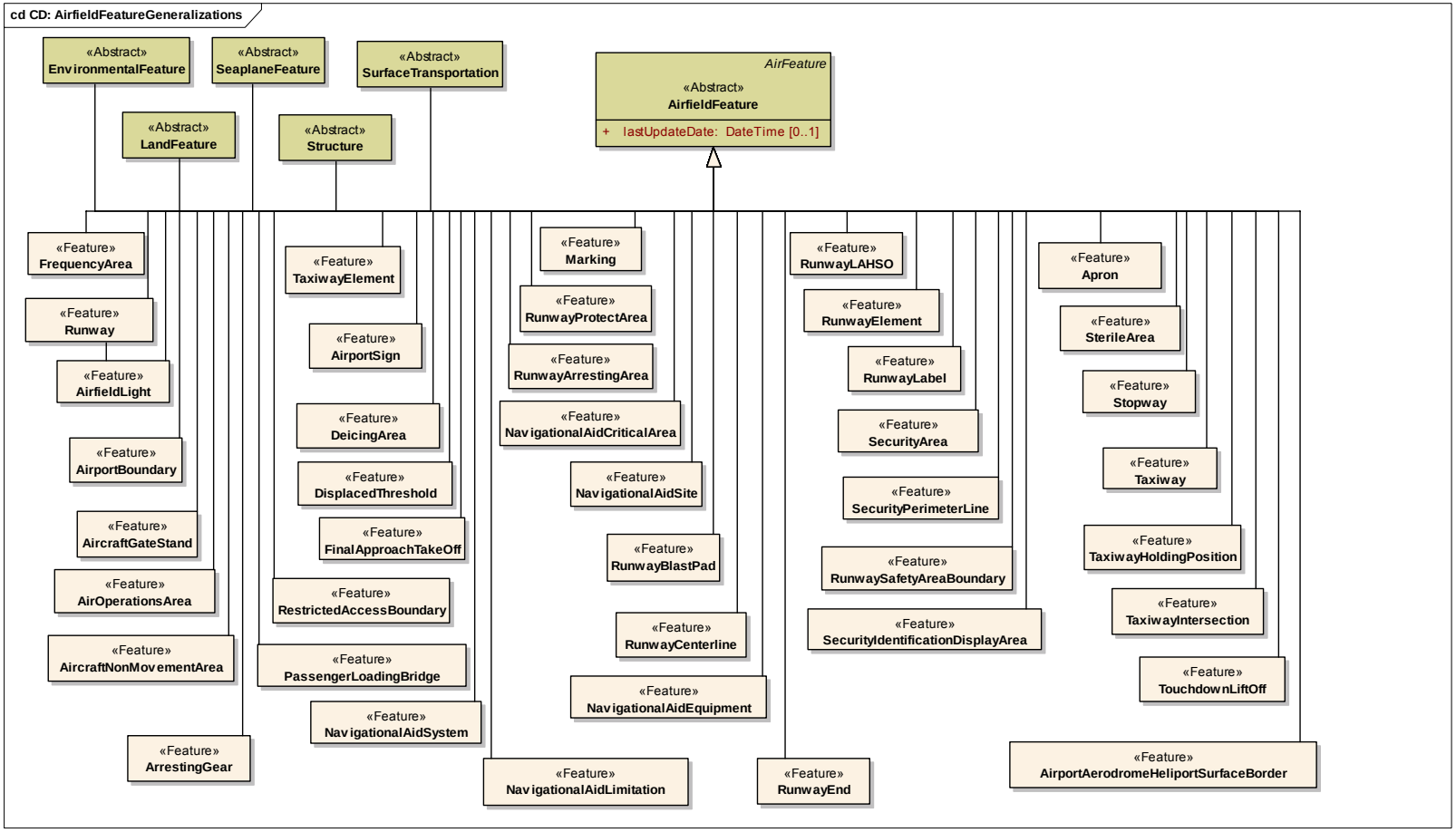

Figure 3 – AirfieldFeature generalizations

716 Figure 4 illustrates the AirportAerodromeHeliport class associations.

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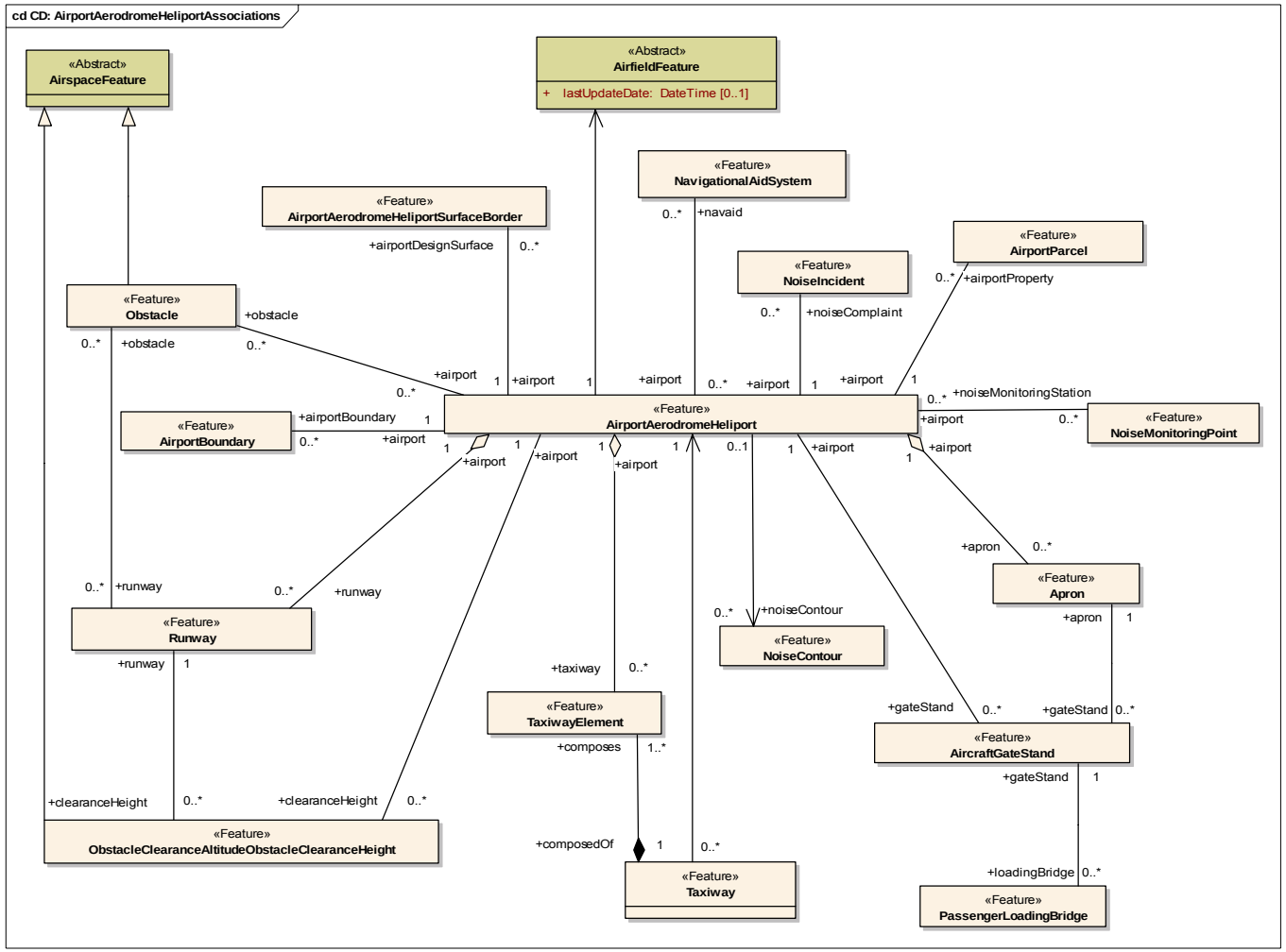

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719 **Figure 4 – AirportAerodromeHeliport associations**

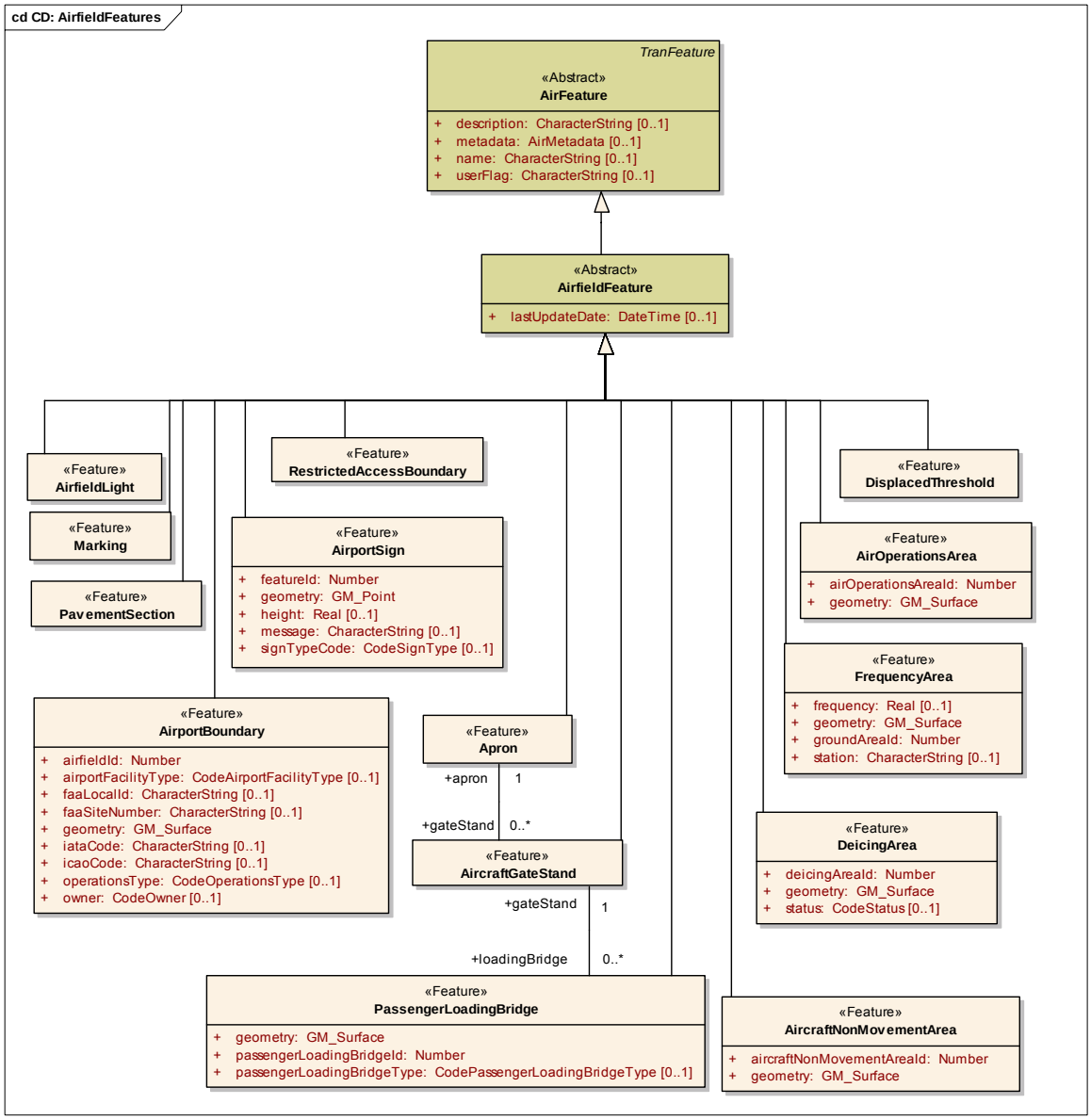

Figure 5 – AirfieldFeature

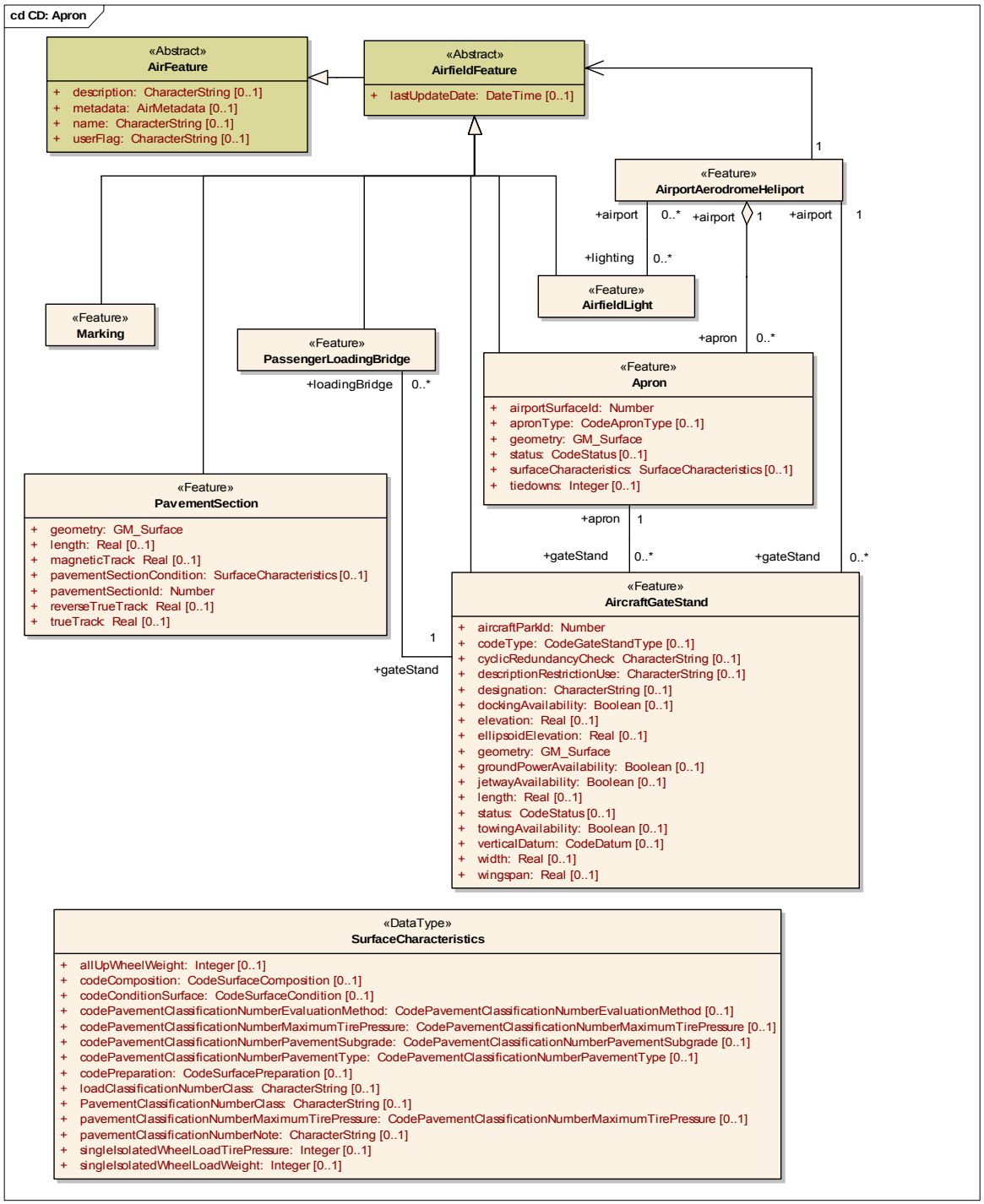

Figure 6 – Apron

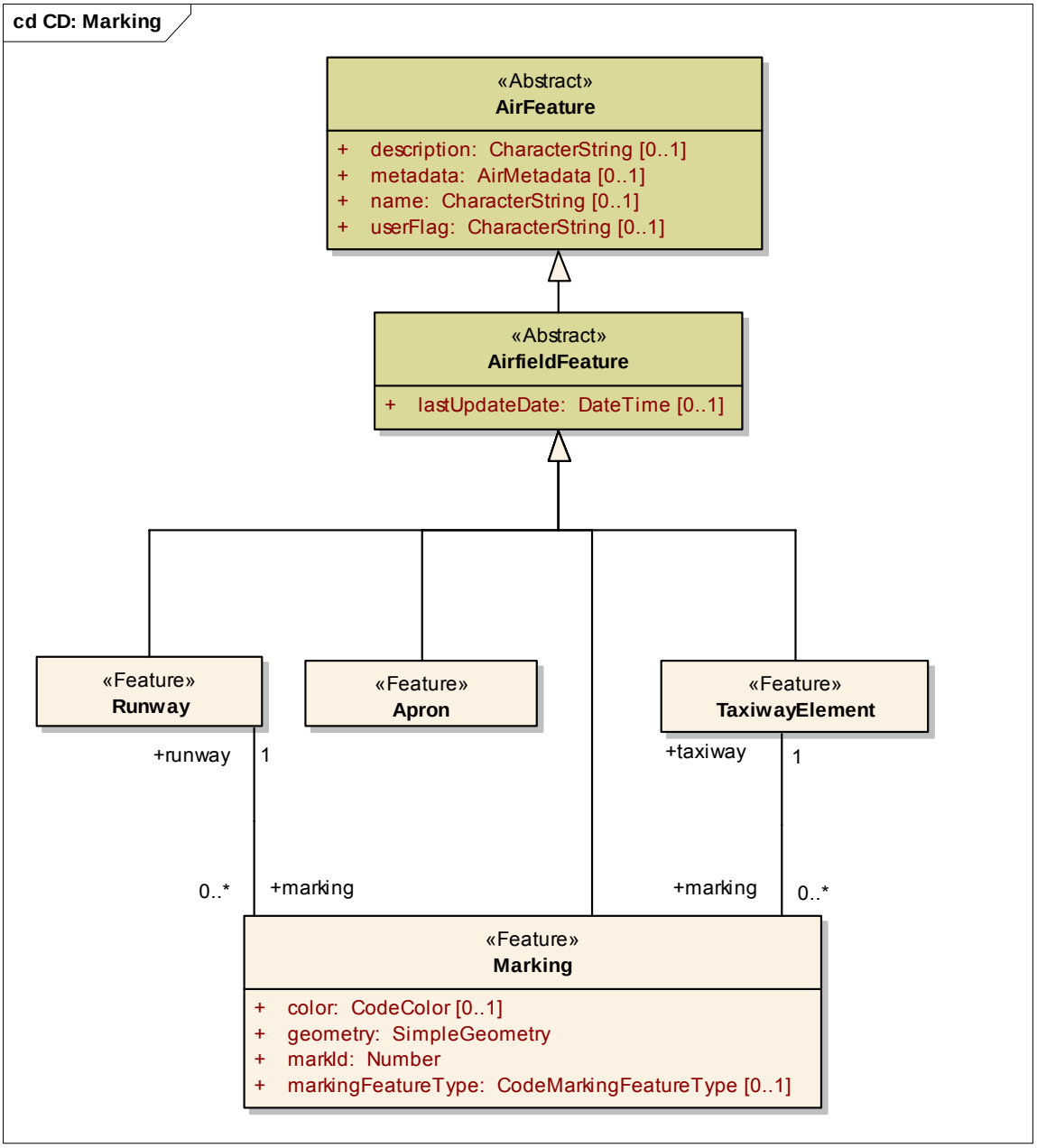

Figure 7 – Marking

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Table 2 – Data dictionary for Air model

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
27	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
28	description	Brief description of the area and any special characteristics [U.S. CADD Attribute Table]	O	1	CharacterString	Unrestricted
29	metadata	Information about the data	O	1	<<DataType>> AirMetadata	Unrestricted
30	name	Name of the feature	O	1	CharacterString	Unrestricted
31	userFlag	Operator defined work area. This attribute can be used by the operator for user defined system processes. It does not affect the subject item's data integrity and should not be used to store the subject item's data	O	1	CharacterString	Unrestricted
32	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
33	lastUpdateDate	Last date the feature was updated	O	1	DateTime	Unrestricted
34	AirspaceFeature	Abstract class for data about the space through which aircraft fly			<<Abstract>>	Lines 35-51, 692-708
35	codeActivity	Code for the type of activity taking place in the Airspace or the reason for its establishment [AIXM]	O	1	<<Enumeration>> CodeActivity	Restricted to the values in the enumeration CodeActivity
36	codeClass	Code for the Airspace classification according to Annex 11, Appendix 4 [AIXM]	O	1	<<Enumeration>> CodeClassAirspace	Restricted to the values in the enumeration CodeClassAirspace
37	codeDistanceVerticalLower	Code indicating the convention used to calculate the lower limit, for	O	1	<<Enumeration>>	Restricted to the values in the enumeration

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		example: flight level (in both feet and meters - compare UOM_DIST_VERT), altitude above MSL (QNH), altitude above GND (QFE), elevation, height, and so forth [AIXM]			CodeDistanceVertical	CodeDistanceVertical
38	codeDistanceVerticalMaximum	Code indicating the reference used for maximum limit [AIXM]	O	1	<<Enumeration>> CodeDistanceVertical	Restricted to the values in the enumeration CodeDistanceVertical
39	codeDistanceVerticalMinimum	Code indicating the reference used for minimum limit [AIXM]	O	1	<<Enumeration>> CodeDistanceVertical	Restricted to the values in the enumeration CodeDistanceVertical
40	codeDistanceVerticalUpper	Code indicating the convention used to calculate the upper limit, for example: flight level (in both feet and meters - compare UOM_DIST_VERT), altitude above MSL (QNH), altitude above GND (QFE), elevation, height, and so forth [AIXM]	O	1	<<Enumeration>> CodeDistanceVertical	Restricted to the values in the enumeration CodeDistanceVertical
41	codeId	Primary Key. A globally unique identifier assigned to the instance of a feature type [-XX]	M	1	Number	Unrestricted
42	codeLocationIndicator	Code indicating the Location Indicator according to ICAO Doc. 7910. If at all, it certainly is not available for all airspaces. Most airspaces will not have a value for this attribute [AIXM]	O	1	CharacterString	Unrestricted
43	codeMilitary	Code indicating whether the airspace is under the responsibility of a military organization [AIXM]	O	1	<<Enumeration>> CodeOperationsType	Restricted to the values in the enumeration CodeOperationsType
44	codeType	Code indicating the type of Airspace. For example: UTA, CTA, TMA, CTR, OCA, advisory area,	O	1	<<Enumeration>> CodeTypeAirspace	Restricted to the values in the enumeration

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		limited area, uncontrolled airspace, and so forth [AIXM]				CodeTypeAirspace
45	distanceVerticalLower	Numerical value of the lower limit [AIXM]	O	1	Real	Unrestricted
46	distanceVerticalMaximum	Numerical value of the maximum limit [AIXM]	O	1	Real	Unrestricted
47	distanceVerticalMinimum	Numerical value of the minimum limit [AIXM]	O	1	Real	Unrestricted
48	distanceVerticalUpper	Numerical value of the upper limit [AIXM]	O	1	Real	Unrestricted
49	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
50	localType	Type designator used locally for a particular airspace category [AIXM]	O	1	CharacterString	Unrestricted
51	lowerLimit	Limit between the upper and the lower airspace [AIXM]	O	1	CharacterString	Unrestricted
52	AirportAerodromeHeliport	Defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft/helicopters [ICAO]			<<Feature>>	Lines 53-80, 137-139, 215-216, 461-464, 535, 619
53	codeIata	3-letter IATA code of the AirportAerodromeHeliport [AIXM]	O	1	CharacterString	Unrestricted
54	codeIcao	4-letter ICAO code of the AirportAerodromeHeliport [AIXM]	O	1	CharacterString	Unrestricted
55	codeId	Primary Key. A globally unique identifier assigned to the instance of a feature type. The rules according to which this identifier should be	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		formed are as follows: 1. If the AirportAerodromeHeliport has an ICAO 4-letter location indicator, then this one will become the CODE_ID for the AirportAerodromeHeliport; 2. If the AirportAerodromeHeliport does not have an ICAO 4-letter location indicator, but it has an IATA 3-letter code, then this one will become the CODE_ID for the AirportAerodromeHeliport; 3. If the AirportAerodromeHeliport has neither an ICAO 4-letter location indicator nor an IATA 3-letter code, then an artificial generated code will be used. This will contain a group of letters and a number. The group of letters could be the 2-letter code of the State being responsible for the AirportAerodromeHeliport and the number could be an integer between 0001 and 9999 [AIXM]				
56	codeType	Code specifying whether it is an airport or a heliport [AIXM]	O	1	CharacterString	Unrestricted
57	cyclicRedundancyCheck	Hexadecimal value of a 32-bit polynominal cyclic redundancy check (CRC) over the values of a selected set of attributes that model critical, essential and routine data, according to ICAO Annex 15, item 3.2.10 [AIXM]	O	1	CharacterString	Unrestricted
58	dateMagfneticVariation	Date on which the magnetic variation had this value [AIXM]	O	1	DateTime	≤ Date of data entry
59	descriptionAltimeterCheck Location	Textual description of the altimeter check locations [AIXM]	O	1	CharacterString	Unrestricted
60	descriptionLandingDirection Indicator	Textual description of the landing direction indicator (LDI) and its	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		position at the AirportAerodromeHeliport [AIXM]				
61	descriptionReferencePoint	Textual description of the AirportAerodromeHeliport reference point. For example, 258/985M from THR 01, geometric center of TLOF, and so forth [AIXM]	O	1	CharacterString	Unrestricted
62	descriptionSecondaryPower	Textual description of the secondary power supply available at the AirportAerodromeHeliport [AIXM]	O	1	CharacterString	Unrestricted
63	descriptionSite	Free text description of the site direction and distance from the city it serves or from another point easily distinguishable from the air [AIXM]	O	1	CharacterString	Unrestricted
64	descriptionWindDirectionIndicator	Textual description of the wind direction indicator (WDI) and its position at the AirportAerodromeHeliport [AIXM]	O	1	CharacterString	Unrestricted
65	elevation	Value of the aerodrome elevation. The vertical distance between the highest point of the landing area of an AirportAerodromeHeliport and mean sea level [AIXM]	O	1	Real	Unrestricted
66	elevationAccuracy	Vertical distance from the stated elevation within which there is a defined confidence of the true position falling [AIXM]	O	1	Real	Unrestricted
67	elliposidElevation	Distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid. The difference between the ellipsoidal height as defined by the World Geodetic System 1984 (WGS84) and the orthometric height represents the WGS84 geoid	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		undulation [AIXM]				
68	faaLocalId	Location identifier assigned to the feature by FAA [FAA AC 150/5300-18]	O	1	CharacterString	Unrestricted
69	faaRegion	FAA region in which the airport/heliport is located	O	1	<<Enumeration>> CodeFaaRegion	Restricted to the values in the enumeration CodeFaaRegion
70	faaRegionName	Name of the FAA region in which the airport/heliport is located	O	1	CharacterString	Unrestricted
71	faaSiteNumber	Number that contains a one-letter suffix. The number is assigned to the airport in ascending order, depending on the State and the associated city. The number is stored in a computer for the purpose of producing computer reports of airports in alphabetical order by State and associated city. The suffix indicates the primary use of the facility [FAA AC 150/5300-18]	O	1	CharacterString	Unrestricted
72	geographicAccuracy	Horizontal distance from the stated geographical position within which there is a defined confidence of the true position of the AirportAerodromeHeliport reference point falling [AIXM]	O	1	Real	Unrestricted
73	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
74	magneticVariation	Measured angle between magnetic north and true north at a given point and at the time reported in dateMagneticVariation. By convention, the measure is expressed as a positive number if magnetic north is to the east of true north and negative if magnetic north	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		is to the west of true north. Therefore, magnetic bearing + magnetic variation = true bearing. The following rule of thumb applies: "variation east-magnetic least, variation west-magnetic best" [AIXM]				
75	magneticVariationChange	Annual rate of change of the magnetic variation [AIXM]	O	1	Real	Unrestricted
76	nameAdministration	Name of the organization in charge of AirportAerodromeHeliport administration [AIXM]	O	1	CharacterString	Unrestricted
77	nameCityService	Full free text name of the city or town the AirportAerodromeHeliport is serving [AIXM]	O	1	CharacterString	Unrestricted
78	referenceTemperature	Value of the reference temperature at an AirportAerodromeHeliport [AIXM]	O	1	Real	Unrestricted
79	transitionAltitude	Value of the transition altitude [AIXM]	O	1	Real	Unrestricted
80	verticalDatum	Attribute to take the vertical datum (namely, the tide gauge to determine MSL)	O	1	<<Enumeration>> CodeDatum	Restricted to the values in the enumeration CodeDatum
81	EnvironmentalFeature	Abstract class that encompasses environmental data. Environmental data describe the geographic extent of the complex of physical, social, and cultural conditions affecting the nature and operations of the AirportAerodromeHeliport			<<Abstract>>	
82	LandFeature	Cadastral data describing the geographic extent of past, current, and future right, title, and interest in real property, including above,			<<Abstract>>	

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		surface, and below ground and water, and the foundation to support the description of that geographic extent				
83	SeaplaneFeature	Abstract class for all data concerned with the operations of seaplane facilities			<<Abstract>>	
84	Structure	Manmade non-moveable (that is to say, a fixed object)			<<Abstract>>	
85	SurfaceTransportation	Abstract class for any data concerning the modes of transporting vehicles, exclusive of aircraft, and people on the surface of the ground exclusive (for instance, railroads, highways, and walkways)			<<Abstract>>	

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728 **Table 3 – Data dictionary for AirfieldFeature**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
86	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
87	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
88	DeicingArea	Aircraft deicing facility is a facility where: (1) frost, ice, or snow is removed (deicing) from the aircraft in order to provide clean surfaces, and/or (2) clean surfaces of the aircraft receive protection (anti-icing) against the formation of frost [FAA			<<Feature>>	Lines 89-91

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		AC 150/5070-6B]				
89	deicingAreaId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
90	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
91	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
92	AircraftGateStand	Operational area of gate (parking) stand. If no gate stand area painting is available, a virtual parking stand area should be provided [RTCA DO-272]			<<Feature>>	Lines 93-94, 152-171
93	Role name: apron	Apron to which the feature is referenced	M	1	<<Feature>> Apron	
94	Role name: loadingBridge	PassengerLoadingBridge to which the feature is referenced	O	*	<<Feature>> PassengerLoading Bridge	
95	AircraftNonMovementArea	Area where aircraft cannot be seen by a control tower and therefore are restricted to move			<<Feature>>	Lines 96-97
96	aircraftNonMovementAreaId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
97	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
98	AirfieldLight	Lighting located within or near an airport boundary the provides			<<Feature>>	Lines 174, 249-250, 442-443, 470-473, 589, 1151-

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		guidance for airborne and ground maneuvering of aircraft [FAR/AIM, FAA AC 150/5340-30B]				1157
99	AirOperationsArea	Portion of an airport, specified in the airport security program, in which security measures are carried out. This area includes aircraft movement areas, aircraft parking areas, loading ramps, and safety areas and any adjacent areas (such as a general aviation areas) that are not separated by adequate security systems, measures, or procedures [49 CFR Part 1542, Airport Security]			<<Feature>>	Lines 100-101
100	airOperationsAreaId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
101	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
102	AirportBoundary	Polygon, or a set of polygons, that encompasses all property owned or controlled by the airport for aviation purposes [FAA AC 150/5070-6B, Appendix 7, Order 5190.6A, Section 5]			<<Feature>>	Lines 103-111
103	airflieldId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
104	airportFacilityType	Type of airfield	O	1	<<Enumeration>> CodeAirportFacitlity Type	Restricted to the values in the enumeration CodeAirportFacilityType
105	faaLocalID	Location identifier assigned to the	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		feature by the FAA				
106	faaSiteNumber	Unique identifying number assigned to all airports	O	1	CharacterString	Unrestricted
107	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
108	iataCode	Location identifier assigned to the feature by IATA	O	1	CharacterString	Unrestricted
109	icaoCode	Location identifier assigned to the feature by the International Civil Aviation Organization	O	1	CharacterString	Unrestricted
110	operationsType	Type of operations permitted on the airfield	O	1	<<Enumeration>> CodeOperationsType	Restricted to the values in the enumeration CodeOperationsType
111	owner	Type of owner of the airfield	O	1	<<Enumeration>> CodeOwner	Restricted to the values in the enumeration CodeOwner
112	AirportSign	Signs at an airport other than surface painted signs [FAA AC 150/5340-18D]			<<Feature>>	Lines 113-117
113	featureId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
114	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
115	height	Overall height of the feature [U.S. CADD Feature Table]	O	1	Real	> 0.0
116	message	Text message which appears on the sign	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
117	signTypeCode	Type of sign	O	1	<<Enumeration>> CodeSignType	Restricted to the values in the enumeration CodeSignType
118	Apron	Defined area on an airport or heliport, paved or unpaved, intended to accommodate aircraft for purposes of loading or unloading passengers, cargo, refueling, parking, or maintenance [FAA AC 150/5300-18]			<<Feature>>	Lines 119, 141-148
119	Role name: gateStand	AircraftGateStand to which the feature is referenced	O	*	<<Feature>> AircraftGateStand	
120	DisplacedThreshold	Beginning of that portion of the runway available for landing when it is located at a point other than the physical end of the runway [FAA AC 150/5070-6B]			<<Feature>>	Lines 445-451, 496
121	FrequencyArea	Area specifying the designated part of the surface movement area where a specific frequency is required by ATC or ground control [RTCA DO-272]			<<Feature>>	Lines 122-125
122	frequency	Primary frequency used on frequency area (in MHZ) [RTCA DO-272]	O	1	Real	≥ 0.0
123	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
124	groundAreaId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
125	station	Service or station assigned to primary frequency (for example, ATC tower, ground control) [RTCA	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		DO-272]				
126	Marking	Element of Marking			<<Feature>>	Lines 186-191, 247, 492-494, 585
127	PassengerLoadingBridge	Bridge for loading/unloading access to airplanes for passengers and crew [FAA AC 150/5300-18]			<<Feature>>	Lines 128-131, 150, 1033
128	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
129	passengerlLoadingBridgeId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
130	passengerLoadingBridgeType	Type of bridge used passengers to board and deplane	O	1	<<Enumeration>> CodePassenger LoadingBridgeType	Restricted to the values in the enumeration CodePassengerLoadingBridgeType
131	Role name: gateStand	AircraftGateStand to which the feature is referenced	M	1	<<Feature>> AircraftGateStand	
132	PavementSection	Section of paved surface used for pavement condition assessment [FAA AC 150/5300-18]			<<Feature>>	Lines 176-182, 484, 587
133	RestrictedAccessBoundary	Restricted area boundary defines aircraft movement area that is strictly reserved for use by authorized personnel only. These boundaries, typically found on joint civilian/military use airports, are often painted red lines on taxiway or apron surfaces [NGS]			<<Feature>>	Lines 813-814

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730 **Table 4 – Data dictionary for Apron**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
134	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
135	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
136	AirportAerodromeHeliport	Defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft/helicopters [ICAO]		i	<<Feature>>	Lines 53-80, 137-139, 215-216, 461-464, 535, 619
137	Role name: apron	Apron to which the feature is referenced	O	*	<<Feature>> Apron	
138	Role name: lighting	AirfieldLight to which the feature is reverenced	O	*	<<Feature>> AirfieldLight	
139	Role name : gateStand	AircraftGateStand to which the feature is referenced	O	*	<<Feature>> AircraftGateStand	
140	Apron	Defined area on an airport or heliport, paved or unpaved, intended to accommodate aircraft for purposes of loading or unloading passengers, cargo, refueling, parking or maintenance [FAA AC 150/5300-18]			<<Feature>>	Lines 119, 141-148
141	airportSurfaceId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
142	apronType	Classification of the typical use for the apron	O	1	<<Enumeration>> CodeApronType	Restricted to the values in the enumeration

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
						CodeApronType
143	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
144	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
145	surfaceCharacteristics	Description of the characteristics of the pavement	O	1	<<DataType>> SurfaceCharacteristics	Unrestricted
146	tiedowns	Approximate number of tiedowns in the surface [U.S. CADD Feature Table]	O	1	Integer	> 0
147	Role name: airport	AirportAerodromeHeliport to which the feature is referenced	M	1	<<Feature>> AirportAerodrome Heliport	Unrestricted
148	Role name: gateStand	AircraftGateStand to which the feature is referenced	O	*	<<Feature>> AircraftGateStand	
149	PassengerLoadingBridge	Bridge for loading/unloading access to airplanes for passengers and crew [FAA AC 150/5300-18]			<<Feature>>	Lines 128-131, 150, 1033
150	Role name: gateStand	AircraftGateStand to which the feature is referenced	M	1	<<Feature>> AircraftGateStand	
151	AircraftGateStand	Operational area of gate (parking) stand. If no gate stand area painting is available, a virtual parking stand area should be provided [RTCA DO-272]			<<Feature>>	Lines 93-94, 152-171
152	aircraftParkId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
153	codeType	Type of aircraft gate/stand	O	1	<<Enumeration>> CodeGateStandType	Restricted to the values in the enumeration CodeGateStandType
154	cyclicRedundancyCheck	Hexadecimal value of a 32-bit polynominal cyclic redundancy check (CRC) over the values of a selected set of attributes that model critical, essential and routine data, according to ICAO Annex 15, item 3.2.10 [AIXM]	O	1	CharacterString	Unrestricted
155	descriptionRestrictionUse	Full textual description of the restrictive use of a gate/stand. For example, 1) The stand is for Boeing 737, Airbus 320, and similar; For example, 2) The stand is not for Airbus 340, Boeing 747 or similar [AIXM]	O	1	CharacterString	Unrestricted
156	designation	Textual designator of the gate/stand. For example, 13, 84 A, and so forth [AIXM]	O	1	CharacterString	Unrestricted
157	dockingAvailability	Availability of the docking station system [AIXM]	O	1	Boolean	True or False
158	elevation	Vertical distance of the position from mean sea level. The geoidal height of the position [AIXM]	O	1	Real	Unrestricted
159	ellipsoidElevation	Distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid. The difference between the ellipsoidal height as defined by the World Geodetic System 1984 (WGS84) and the orthometric height represents the WGS84 geoid undulation	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
160	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
161	groundPowerAvailability	Availability of ground power [AIXM]	O	1	Boolean	True or False
162	jetwayAvailability	Availability of jetway [AIXM}	O	1	Boolean	True or False
163	length	Overall length of the airfield surface [U.S. CADD Attribute Table]	O	1	Real	> 0.0
164	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
165	towingAvailability	Availability of towing service	O	1	Boolean	True or False
166	verticalDatum	Attribute to take the "Vertical Datum" (that is to say, the tide gauge to determine MSL [AIXM] - for example, "NAVD1929", and so forth)	O	1	<<Enumeration>> CodeDatum	Restricted to the values in the enumeration CodeDatum
167	width	Overall width of the airfield surface [U.S. CADD Feature Table]	O	1	Real	> 0.0
168	wingspan	Quantity representing the maximum wingspan which can be accommodated by the airfield surface [U.S. CADD Feature Table]	O	1	Real	> 0.0
169	Role name: airport	AirportAerodromeHeliport to which the feature is referenced	M	1	<<Feature>> AirportAerodrome Heliport	
170	Role name: apron	Apron to which the feature is referenced	M	1	<<Feature>> Apron	
171	Role name: loadingBridge	PassengerLoadingBridge to which the feature is referenced	O	*	<<Feature>> PassengerLoading Bridge	

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
172	Marking	Element of Marking			<<Feature>>	Lines 186-191, 247, 492-494, 585
173	AirfieldLight	Lighting located within or near an airport boundary the provides guidance for airborne and ground maneuvering of aircraft [FAR/AIM, AC 150/5340-30B]			<<Feature>>	Lines 174, 249-250, 442-443, 470-473, 589
174	Role name: airport	AirportAeodromeHeliport to which the feature is referenced	O	*	<<Feature>> AirportAerodrome Heliport	
175	PavementSection	Section of paved surface used for pavement condition assessment [FAA AC 150/5300-18]			<<Feature>>	Lines 176-182, 484, 587
176	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
177	length	Length of the segment	O	1	Real	> 0.0
178	magneticTrack	Initial magnetic track [AIXM]	O	1	Real	Unrestricted
179	pavementSectionCondition	Condition of the pavement segment surface	O	1	<<DataType>> SurfaceCharacteristics	Unrestricted
180	pavementSectionId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
181	reverseTrueTrack	Reverse of the initial true track [AIXM]	O	1	Real	Unrestricted
182	trueTrack	Initial true track [AIXM}	O	1	Real	Unrestricted

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Table 5 – Data dictionary for Marking

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
183	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
184	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
185	Marking	Element of Marking			<<Feature>>	Lines 186-191, 247, 492-494, 585
186	color	Color of the marking	O	1	<<Enumeration>> CodeColor	Restricted to the values of the enumeration CodeColor
187	geometry	Geometry of the feature	M	1	<<Union>> SimpleGeometry	Defined in ISO 19107
188	markId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
189	markingFeatureType	Type of the marking	O	1	<<Enumeration>> CodeMarkingFeature Type	Restricted to the values in the enumeration CodeMarkingFeature Type
190	Role name: runway	Runway to which the feature is referenced	M	1	<<Feature>> Runway	Unrestricted
191	Role name: taxiway	Taxiway to which the feature is referenced	M	1	<<Feature>> TaxiwayElement	
192	Apron	Defined area on an airport or heliport, paved or unpaved, intended to accommodate aircraft for purposes of loading or unloading passengers, cargo, refueling,			<<Feature>>	Lines 119, 141-148

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		parking or maintenance [FAA AC 150/5300-18]				
193	Runway	Defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees: for example, runway 10/28 , runway 07/25 [FAA AC 150/5070-6B]			<<Feature>>	Lines 194, 254-273, 432-434, 506-529
194	Role name: marking	Marking to which the feature is referenced	O	*	<<Feature>> Marking	
195	TaxiwayElement	Defined paths on an airport established for the taxiing of aircraft (excluding apron taxilanes) and intended to provide a link between one part of the airport and another. The taxiway segment feature is used for taxiways, apron taxiways, rapid exit taxiway, taxiway intersections, and aircraft stand taxilane surface [FAA AC/5300-18]			<<Feature>>	Lines 196, 552-563
196	Role name: marking	Marking to which the feature is referenced	O	*	<<Feature>> Marking	

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734 **Table 6 – Data dictionary for SurfaceCharacteristics**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
197	SurfaceCharacteristics	Entity grouping together the attributes that model characteristics of an airport surface, such as strenght, material, and so forth [AIXM]			<<DataType>>	Lines 198-211

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
198	allUpWheelWeight	Value of the all up wheel weight [AIXM]	O	1	Integer	> 0
199	codeComposition	Code indicating the composition of an AirportAerodromeHeliport related surface. For example: asphalt, concrete, and so forth [AIXM]	O	1	CodeSurface Composition	Unrestricted
200	codeConditionSurface	Qualitative code indicating the condition of a surface [AIXM]	O	1	CodeSurfaceCondition	Unrestricted
201	codePavementClassification NumberEvaluationMethod	Code indicating the evaluation method for the pavement classification number [AIXM]	O	1	CodePavement ClassificationNumber EvaluationMethod	Unrestricted
202	codePavementClassification NumberMaximumTirePressure	Coded indication of the maximum allowable tire pressure category related to the pavement classification number [AIXM]	O	1	CodePavement ClassificationNumber MaximumTirePressure	Unrestricted
203	codePavementClassification NumberPavementSubgrade	Coded indication of the subgrade strength category related to the pavement classification number [AIXM]	O	1	CodePavement ClassificationNumber PavementSubgrade	Unrestricted
204	codePavementClassification NumberPavementType	Coded indication of the pavement behavior (rigid or flexible) used for the pavement classification number determination [AIXM]	O	1	CodePavement ClassificationNumber PavementType	Unrestricted
205	codePreparation	Coded indication of the preparation technique for the surface area [AIXM]	O	1	codeSurface Preparation	Unrestricted
206	loadClassificationNumberClass	Load classification number of the surface [AIXM]	O	1	CharacterString	Unrestricted
207	pavementClassificationNumber Class	Pavement classification number for the surface [AIXM]	O	1	CharacterString	Unrestricted
208	pavementClassificationNumber	Value of the maximum allowable tire pressure related to the pavement	O	1	CodePavement ClassificationNumber	Mega Pascal

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
	ClassMaximumTirePressure	classification number, expressed in MPa (Mega Pascal) [AIXM]			ClassMaximumTire Pressure	
209	pavementClassificationNumber ClassNote	Notes with regard to the pavement classification number [AIXM]	O	1	CharacterString	Unrestricted
210	singleIsolatedWheelLoadTire Pressure	Value of the single isolated wheel load tire pressure [AIXM]	O	1	Integer	> 0
211	singleIsolatedWheelLoadWeight	Value of the single isolated wheel load weight [AIXM]	O	1	Integer	> 0

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7.2 TouchdownLiftOff

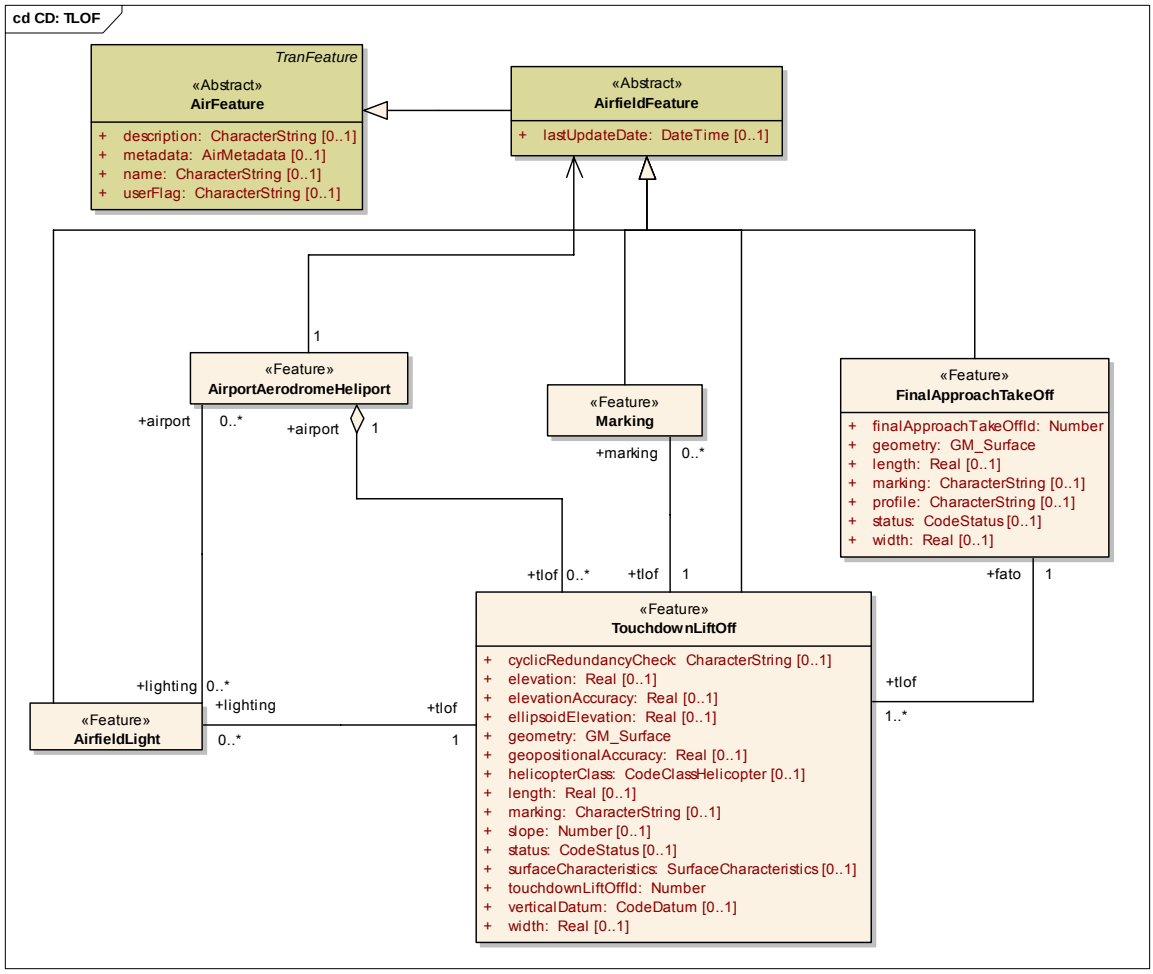

Figure 8 – TouchdownLiftOff

740 **Table 7 – Data dictionary for TouchdownLiftOff**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
212	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
213	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
214	AirportAerodromeHeliport	Defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft/helicopters [ICAO]			<<Feature>>	Lines 53-80, 137-139, 215-216, 461-464, 535, 619
215	Role name: tlof	TouchdownLiftOff to which the feature is referenced	O	*	<<Feature>> TouchdownLiftOff	
216	Role name: lighting	AirfieldLight to which the feature is referenced	O	*	<<Feature>> AirfieldLight	
217	FinalApproachTakeOff	Defined area over which the final phase of the approach to a hover, or a landing, is completed and from which the takeoff is initiated. This area was called “takeoff and landing area” in previous publications [FAA AC 150/5390-2B]			<<Feature>>	Lines 218-225
218	finalApproachTakeOffId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
219	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
220	length	Value of the physical length of the FATO area [AIXM]	O	1	Real	> 0.0

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
221	marking	Textual description of the FATO marking [AIXM]	O	1	CharacterString	Unrestricted
222	profile	Textual description of the FATO profile [AIXM]	O	1	CharacterString	Unrestricted
223	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
224	width	Value of the physical width of the FATO area [AIXM]	O	1	Real	> 0.0
225	Role name: tlof	TouchdownLiftOff class to which the feature is referenced	O	*	<<Feature>> TouchdownLiftOff	
226	TouchdownLiftOff	Load bearing, generally paved area, normally centered in the FATO, on which the helicopter lands or takes off. The TLOF is frequently called helipad or helideck [FAA AC 150/5390-2B]			<<Feature>>	Lines 227-245
227	cyclicRedundancyCheck	Hexadecimal value of a 32-bit polynominal cyclic redundancy check (CRC) over the values of a selected set of attributes that model critical, essential and routine data, according to ICAO Annex 15, item 3.2.10 [AIXM]	O	1	CharacterString	Unrestricted
228	elevation	Value of the vertical distance of the aiming point from mean sea level. The geoidal height of the position [AIXM]	O	1	Real	Unrestricted
229	elevationAccuracy	Value of the vertical distance from the stated elevation within which there is a defined confidence of the true position falling [AIXM]	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
230	ellipsoidElevation	Distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid. The difference between the ellipsoidal height as defined by the World Geodetic System 1984 (WGS84) and the orthometric height represents the WGS84 geoid undulation [AIXM]	O	1	Real	Unrestricted
231	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
232	geopositionalAccuracy	Value of the horizontal distance from the stated geographical position within which there is a defined confidence of the true position falling [AIXM]	O	1	Real	≥ 0.0
233	helicopterClass	Code indicating the performance class of helicopters that the TouchdownLiftOff area is intended to serve [AIXM]	O	1	<<Enumeration>> CodeClassHelicopter	Restricted to the values in the enumeration CodeClassHelicopter
234	length	Value of the physical length of the FATO area [AIXM]	O	1	Real	> 0.0
235	marking	Textual description of the FATO marking [AIXM]	O	1	CharacterString	Unrestricted
236	slope	Value of the maximum profile slope of the touchdown and lift-off area. This value is always expressed as a percent [AIXM]	O	1	Number	Unrestricted
237	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
238	surfaceCharacteristics	Description of the serviceability of	O	1	<<DataType>>	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		the pavement [NFDC]			SurfaceCharacteristics	
239	touchdownLiftOffId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
240	verticalDatum	Attribute to take the "Vertical Datum" (that is to say, the tide gauge to determine MSL [AIXM] - for example, "NAVD1929", and so forth)	O	1	<<Enumeration>> CodeDatum	Restricted to the values in the enumeration CodeDatum
241	width	Value of the physical width of the touchdown and lift-off area [AIXM]	O	1	Real	> 0.0
242	Role name: fato	FinalApproachTakeOff to which the feature is referenced	M	1	<<Feature>> FinalApproachTakeOff	
243	Role name: marking	Marking class to which the feature is referenced	O	*	<<Feature>> Marking	
244	Role name: airport	AirportAerodromeHeliport to which the feature is referenced	M	1	<<Feature>> AirportAerodrome Heliport	
245	Role name: lighting	AirfieldLight to which the feature is referenced	O	*	<<Feature>> AirfieldLight	
246	Marking	Element of Marking whose geometry is a polygon [FAA AC 150/5340-1J]			<<Feature>>	Lines 186-191, 247, 492-494, 585
247	Role name: tlof	TouchdownLiftOff to which the feature is referenced	M	1	<<Feature>> TouchdownLiftOff	
248	AirfieldLight	Lighting located within or near an airport boundary the provides guidance for airborne and ground maneuvering of aircraft [FAR/AIM, FAA AC 150/5340-30B]			<<Feature>>	Lines 174, 249-250, 442-443, 470-473, 589
249	Role name: tlof	TouchdownLiftOff class to which the	M	1	<<Feature>>	

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		feature is referenced			tlof	
250	Role name: airport	AirportAerodromeHelipad to which the feature is referenced	O	*	<<Feature>> AirportAerodrome Heliport	

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7.3 Runway

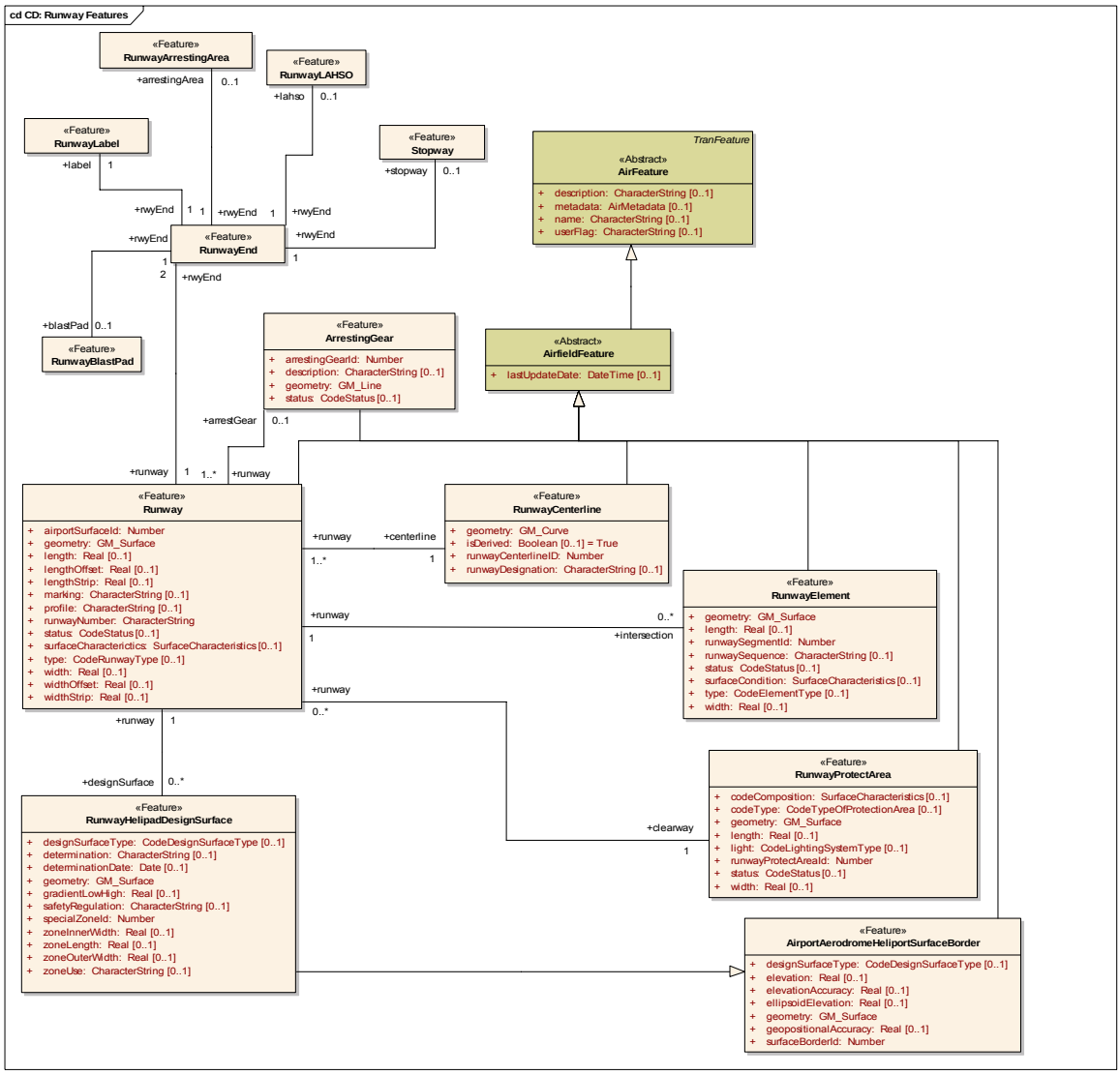

Figure 9 – Runway

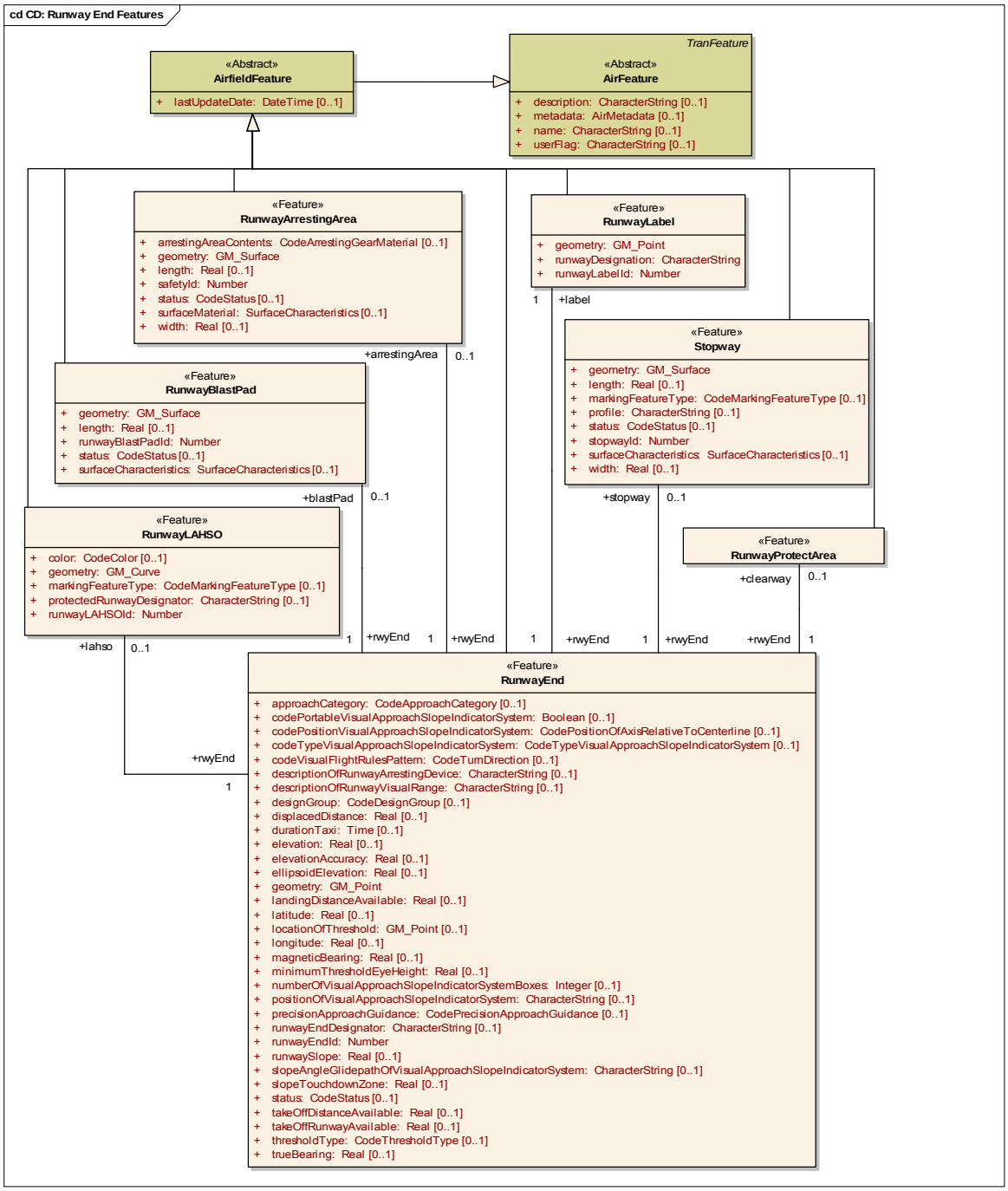

Figure 10 – RunwayEnd

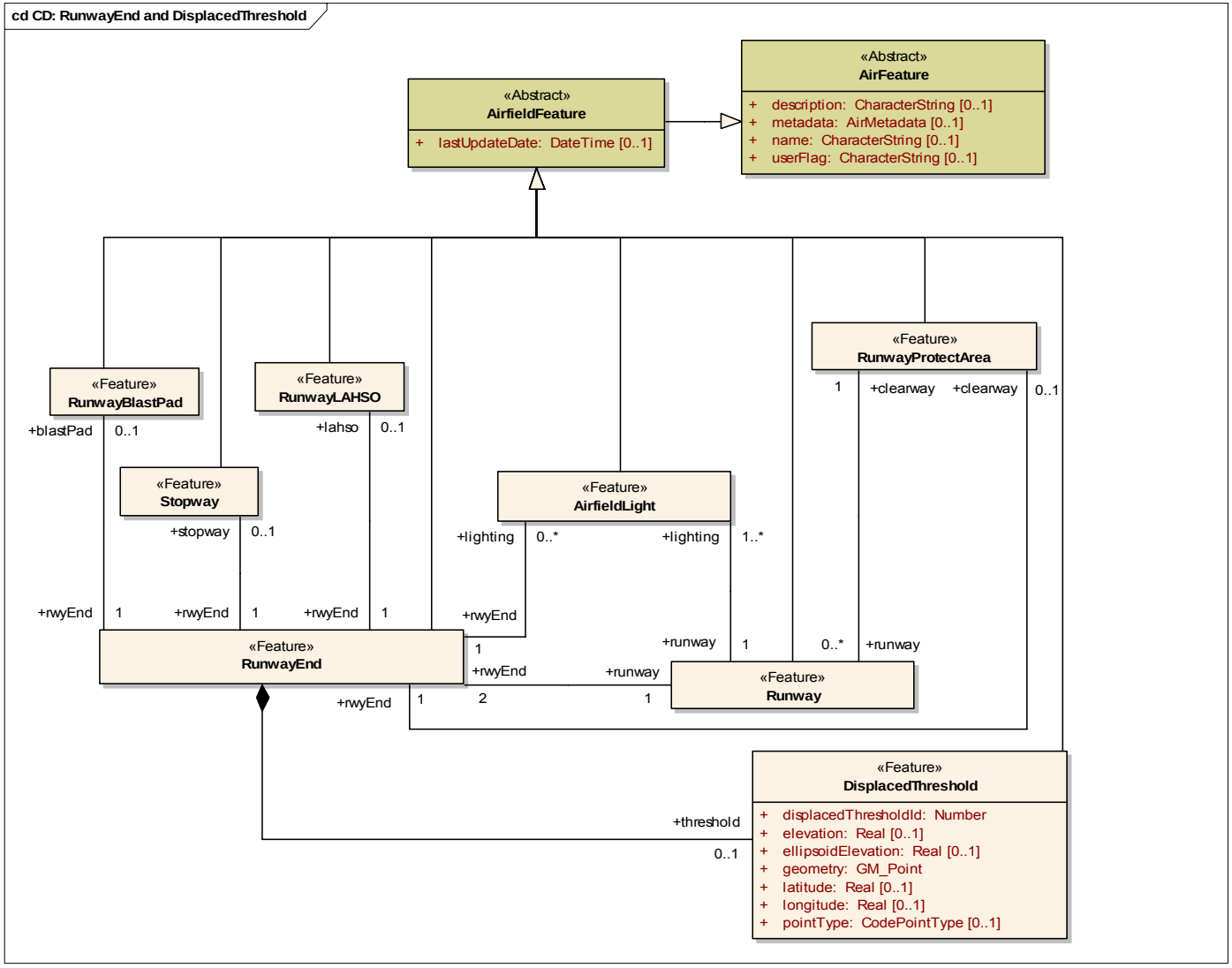

Figure 11 – RunwayEnd and DisplacedThreshold

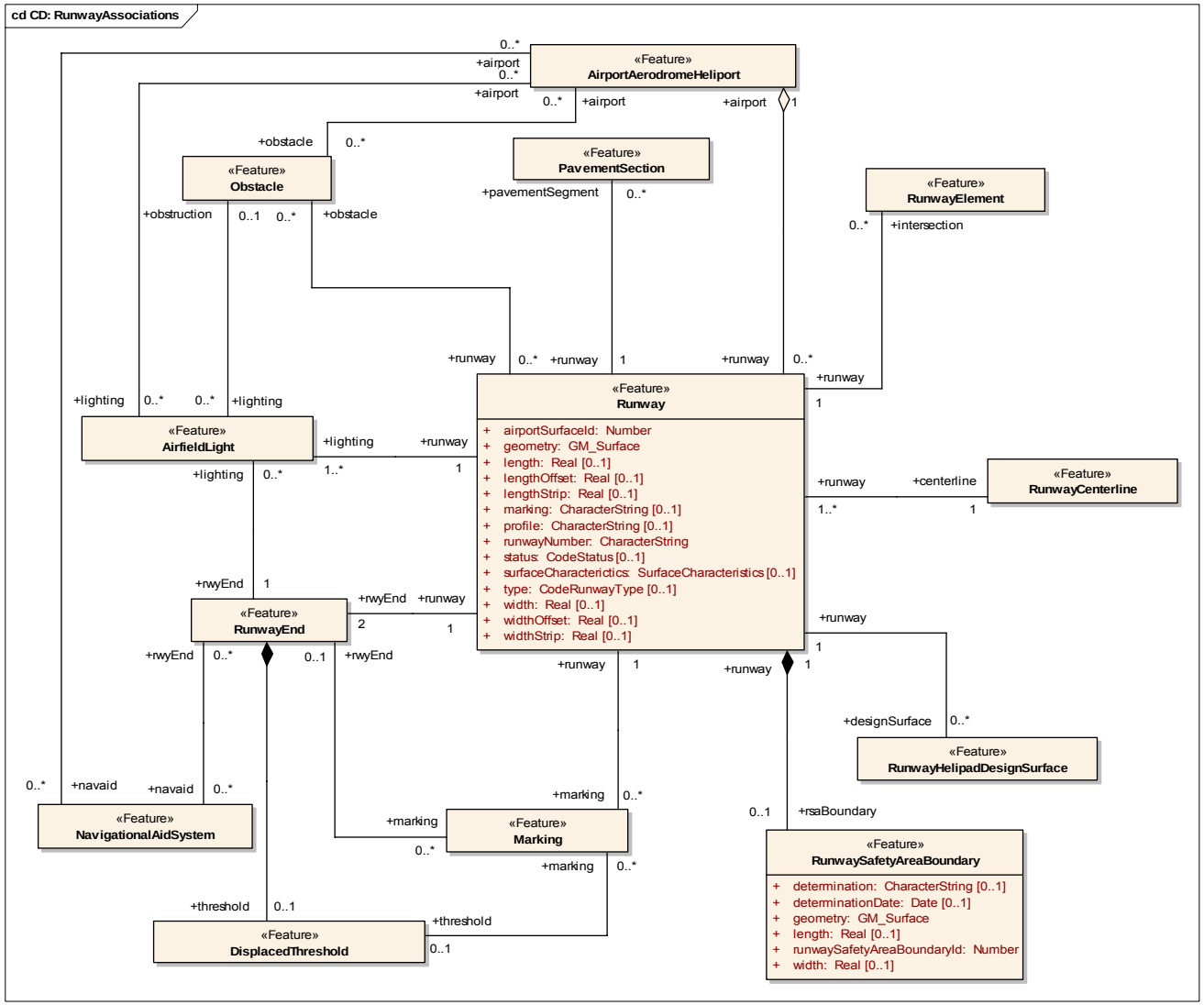

Figure 12 – Runway associations

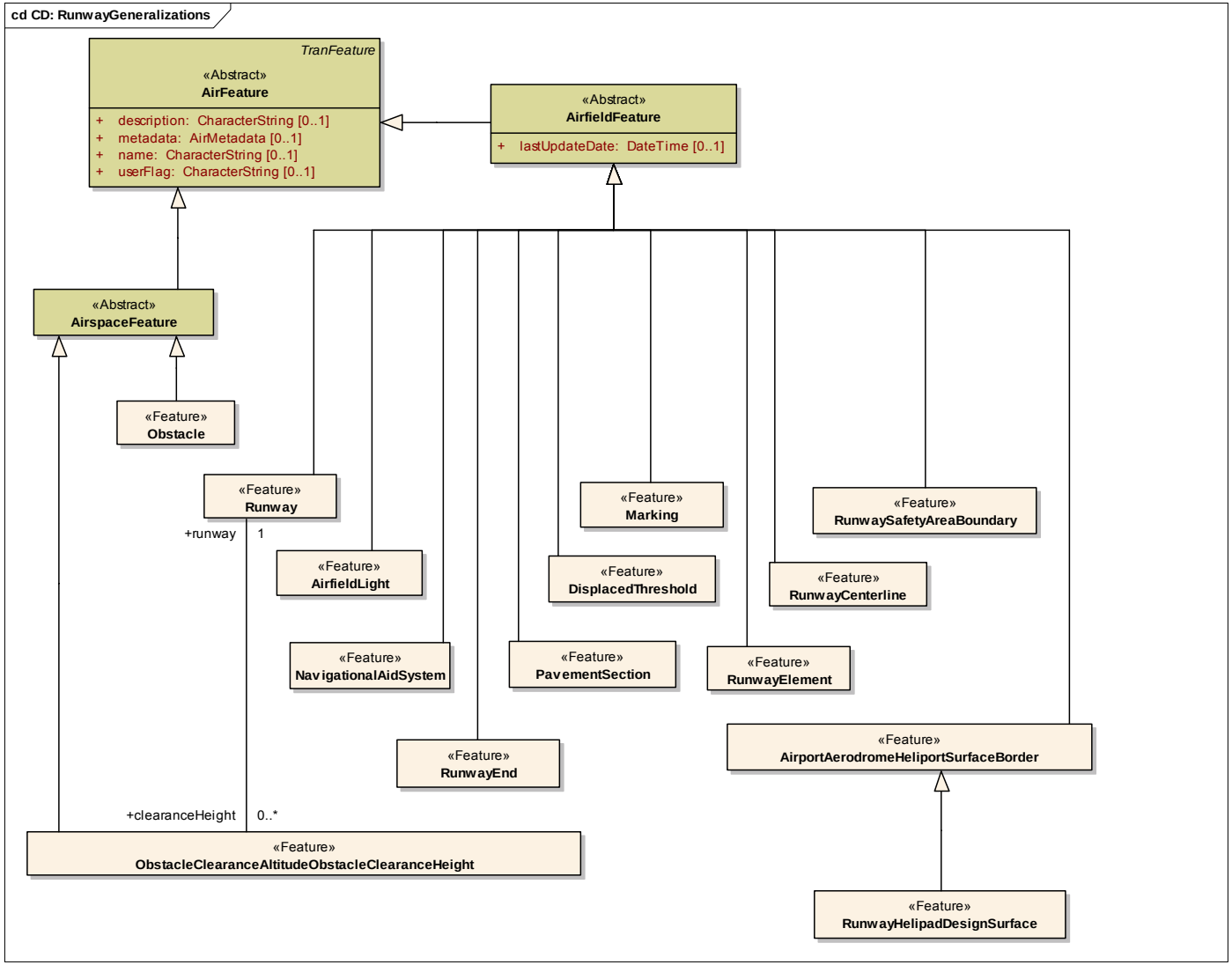

Figure 13 – Runway generalizations

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756 **Table 8 – Data dictionary for Runway**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
251	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
252	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
253	Runway	Defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees: for example, runway 10/28 , runway 07/25 [FAA AC 150/5070-6B]			<<Feature>>	Lines 194, 254-273, 432-434, 506-529
254	airportSurfaceId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
255	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
256	length	Straight line distance between runway end points. This line does not account for surface undulations between points. Official runway lengths are normally computed from runway end coordinates and elevations [FAA No. 405]	O	1	Real	> 0.0
257	lengthOffset	Value specifying the longitudinal offset of the strip, when it is not symmetrically extended beyond the two runway ends [AIXM]	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
258	lengthStrip	Value of the physical length of the strip. The runway strip is a defined area including the runway and, if applicable, the stopway. It is intended (a) to reduce the risk of damage to aircraft running off the runway and (b) to protect aircraft flying over the runway during take-off or landing operations [AIXM]	O	1	Real	> 0.0
259	marking	Textual description of the runway marking [AIXM]	O	1	CharacterString	Unrestricted
260	profile	Textual description of the runway profile [AIXM]	O	1	CharacterString	Unrestricted
261	runwayNumber	Designator of the runway based on the magnetic bearing and position in relation to parallel runways (for example, 33R/15L) [FAA AC 150/5340-1J]	M	1	CharacterString	Unrestricted
262	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
263	surfaceCharacteristics	Description of the serviceability of the pavement [NFDC]	O	1	<<DataType>> SurfaceCharacteristics	Unrestricted
264	type	Either RWY for runway for airplanes or FATO for final approach and take-off area for helicopters [AIXM]	O	1	<<Enumeration>> CodeRunwayType	Restricted to the values in the enumeration CodeRunwayType
265	width	Perpendicular line to the surface centerline, extending to the edge of the runway pavement on both sides of the runway, through a runway end point	O	1	Real	> 0.0
266	widthOffset	Value specifying the lateral offset of the strip, when it is not	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		symmetrically extended beyond the two runway edges [AIXM]				
267	widthStrip	Value of the physical width of the strip [AIXM]	O	0	Real	> 0.0
268	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	2	<<Feature>> RunwayEnd	
269	Role name: centerline	RunwayCenterline to which the feature is referenced	M	1	<<Feature>> RunwayCenterline	
270	Role name: designSurface	RunwayHelipadDesignSurface to which the feature is referenced	O	*	<<Feature>> RunwayHelipadDesign Surface	
271	Roe name: intersection	RunwayElement to which the feature is referenced	O	*	<<Feature>> RunwayElement	
272	Role name: arrestGear	ArrestingGear to which the feature is referenced	O	1	<<Feature>> ArrestingGear	
273	Role name: clearway	RunwayProtectArea to which the feature is referenced	M	1	<<Feature>> RunwayProtectArea	
274	RunwayCenterline	Continuous line along the painted centerline of a runway connecting the middle-points of the two outermost thresholds. Centerline is composed of many centerline points (see RunwayControlPoint). It is used to calculate grade and line-of-sight criteria [FAA AC 150/5070-6B]			<<Feature>>	Lines 275-279, 488
275	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
276	isDerived	Indicates whether the centerline is derived or photodetermined	O	1	Boolean	True or False
277	runwayCenterlineId	Primary Key. A globally unique	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		identifier assigned to the instance of a feature type [FAA AC 150/5300-18]				
278	runwayDesignation	Designator of the runway based on the magnetic bearing and position in relation to parallel runways (for example, 33R/15L) [FAA AC 150/5070-6B]	O	1	CharacterString	Unrestricted
279	Role name: runway	Runway to which the feature is referenced	M	*	<<Feature>> Runway	
280	AirportAerodromeHeliportSurface Border	Defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft/helicopters [ICAO]			<<Feature>>	Lines 281-287
281	designSurfaceType	Type of design surface	O	1	<<Enumeration>> CodeDesignSurface Type	Restricted to the values in the enumeration CodeDesignSurfaceType
282	elevation	Vertical distance of the position from mean sea level. The geoidal height of the position [AIXM]	O	1	Real	Unrestricted
283	elevationAccuracy	Value of the vertical distance from the stated elevation within which there is a defined confidence of the true position falling [AIXM]	O	1	Real	Unrestricted
284	ellipsoidElevation	Distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid. The difference between the ellipsoidal height as defined by the World Geodetic System 1984 (WGS84) and the orthometric height represents the WGS84 geoid	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		undulation [AIXM]				
285	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
286	geopositionalAccuracy	Value of the horizontal distance from the stated geographical position within which there is a defined confidence of the true position falling [AIXM]	O	1	Real	> 0.0
287	surfaceBorderId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
288	RunwayHelipadDesignSurface	Three-dimensional surface that is used in runway design [FAA AC 150/5070-6B]			<<Feature>>	Lines 289-300, 490, 531
289	designSurfaceType	Description of the design surface	O	1	<<Enumeration>> CodeDesignSurface Type	Restricted to the values in the enumeration CodeDesignSurfaceType
290	determination	Formal declaration of the runway safety area condition with respect to standards and any requirement improvements [FAA Order 5200.8]	O	1	CharacterString	Unrestricted
291	determinationDate	Date the RSA determination was approved [FAA Order 5200.8]	O	1	Date	Unrestricted
292	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
293	gradientLowHigh	Low to high gradient within the airspace [U.S. CADD Feature Table]	O	1	Real	Unrestricted
294	safetyRegulation	Identifier for the safety regulations in effect within the zone [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
295	specialZoneId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
296	zoneInnerWidth	Width of the narrow end of a trapezoidal shaped DesignSurface feature. This is normally the end that is closest to the landing surface [FAA AC 150/5070-6B]	O	1	Real	> 0.0
297	zoneLength	Length of a trapezoidal shaped DesignSurface feature	O	1	Real	> 0.0
298	zoneOuterWidth	Width of the wide end of a trapezoidal shaped DesignSurface feature. This is normally the end that is furthest from the landing surface	O	1	Real	> 0.0
299	zoneUse	Description of the use of the zone [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
300	Role name: runway	Runway to which the feature is referenced	M	1	<<Feature>> Runway	
301	RunwayElement	Section of the runway surface. The runway surface can be defined by a set of non-overlapping RunwaySegment polygons. RunwaySegments may overlap Runway and Runway/Intersection eatures. Use RunwaySegment to model the physical runway pavement in terms of surface, material, strength and condition [FAA AC 150/5520-12C, FAA AC 150/5335-5, FAA AC 150/5320-17, FAA AC 150/5320-6D]			<<Feature>>	Lines 302-310, 486
302	geometry	Geometry of the feature	M	1	<<Feature>> <<Type>>	Defined in ISO 19107

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
					<<Type>> GM_Surface	
303	length	Physical value for the length of the runway element	O	1	Real	> 0.0
304	runwaySegmentId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
305	runwaySequence	Sequencial number of the runway element	O	1	CharacterString	Unrestricted
306	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
307	surfaceCondition	Description of the serviceability of the pavement [NFDC]	O	1	<<DataType>> SurfaceCharacteristics	Unrestricted
308	type	Eiither RWY for runway for airplanes or FATO for final approach and take-off area for helicopters [AIXM]	O	1	<<Enumeration>> CodeElementType	Restricted to the values in the enumeration CodeElementType
309	width	Physical value for the width of the runway element	O	1	Real	> 0.0
310	Role name: runway	Runway to which the feature is referenced	M	1	<<Feature>> Runway	
311	RunwayProtectArea	Area situated in the vicinity of a runway or provided to protect aircraft during maneuvering, take-off and landing operations [AIXM]			<<Feature>>	Lines 312-320, 387, 429-430
312	codeComposition	Code indicating the composition of the protection area surface [AIXM]	O	1	<<DataType>> SurfaceCharacteristics	Unrestricted
313	codeType	Code indicating the type of	O	1	<<Enumeration>>	Restricted to the values in

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		protection area [AIXM]			CodeTypeOfProtection Area	the enumeration CodeTypeOfProtection Area
314	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
315	length	Value for the length of the feature	O	1	Real	> 0.0
316	light	Code for the type of lighting system used by the feature	O	1	<<Enumeration>> CodeLightingSystem Type	Restricted to the values in the enumeration CodeLightingSystemType
317	runwayProtectAreaId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
318	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
319	width	Value for the width of the feature	O	1	Real	> 0.0
320	Role name: runway	Rhe Runway to which the feature is referenced	O	*	<<Feature>> Runway	
321	RunwayEnd	End of the runway surface suitable for landing or takeoff runs of aircraft. RunwayEnds are related to and describe the approach and departure procedure characteristics of a runway threshold. RunwayEnd is the same as the runway threshold when the threshold is not displaced [NGS]			<<Feature>>	Lines 322-327, 347-385, 453-459, 475-479, 680
322	Role name: runway	Runway to which the feature is referenced	M	1	<<Feature>> Runway	

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
323	Role name: stopway	Stopway to which the feature is referenced	O	1	<<Feature>> Stopway	
324	Role name: lahso	RunwayLASHO to which the feature is referenced	O	1	<<Feature>> RunwayLAHSO	
325	Role name: arrestingArea	RunwayArrestingArea to which the feature is referenced	O	1	<<Feature>> RunwayArrestingArea	
326	Role name: label	RunwayLabel to which the feature is referenced	M	1	<<Feature>> RunwayLabel	
327	Role name: blastPad	RunwayBlastPad to which the feature is referenced	O	1	<<Feature>> RunwayBlastPad	
328	ArrestingGear	Location of the arresting gear cable across the runway [AIXM]			<<Feature<<	Lines 329-333
329	arrestingGearId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
330	description	Textual description of the arresting gear	O	1	CharacterString	Unrestricted
331	geometry	Geometry of the feature	M	1	<<Type>> GM_Line	Defined in ISO 19107
332	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
333	Role name: runway	Runway to which the feature is referenced	M	*	<<Feature>> Runway	
334	RunwayBlastPad	Specially prepared surface placed adjacent to the end of a runway to eliminate the erosive affect of the high wind forces produced by			<<Feature>>	Lines 335, 403-408, 436

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		airplanes at the beginning of their takeoff rolls [U.S. CADD Feature Table]				
335	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	1	<<Feature>> RunwayEnd	
336	RunwayLabel	Bottom center position of the runway designation marking [NGS]			<<Feature>>	Lines 337, 389-392
337	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	1	<<Feature>> RunwayEnd	
338	RunwayArrestingArea	FAA-approved high energy absorbing material of a specific strength that will reliably and predictably bring an aircraft to a stop without imposing loads that exceed the aircraft's design limits, cause major structural damage, or impose excessive force on its occupants. Currently, the only FAA-approved material is EMAS (Engineering Material Arresting System) [FAA AC 150/5520-22A]			<<Feature>>	Lines 339, 394-401
339	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	1	<<Feature>> RunwayEnd	
340	RunwayLAHSO	Markings installed on a runway where an aircraft is to stop when the runway is normally used as a taxiway or used for Land and Hold Short Operations (LAHSO) as identified in a letter of agreement with the air traffic control tower (ATCT). A runway should be considered as normally used for taxiing if there is no parallel taxiway and no ATCT. Otherwise, seek input from ATCT [FAA Order			<<Feature>>	Lines 341, 420-425, 438

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		7110.118]				
341	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	1	<<Feature>> RunwayEnd	
342	Stopway	Defined rectangular surface beyond the end of a runway prepared or suitable for use in lieu of runway to support an airplane, without causing structural damage to the airplane, during aborted takeoff [FAA AC 150-5070-6B]			<<Feature>>	Lines 343, 410-418, 440
343	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	1	<<Feature>> RunwayEnd	

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758 **Table 9 – Data dictionary for RunwayEnd**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
344	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
345	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
346	RunwayEnd	End of the runway surface suitable for landing or takeoff runs of aircraft. RunwayEnds are related to and describe the approach and departure procedure characteristics of a runway threshold. RunwayEnd is the same as the runway threshold when the threshold is not displaced [NGS]			<<Feature>>	Lines 322-327, 347-385, 453-459, 475-479, 680

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
347	approachCategory	Grouping of aircraft based on 1.3 times their stall speed in the landing configuration at the certificated maximum flap setting and maximum landing weights at standard atmospheric conditions [FAA AC 150/5070-6B]	O	1	<<Enumeration>> CodeApproach Category	Restricted to the values in the enumeration CodeApproachCategory
348	codePortableVisualApproach SlopeIndicatorSystem	Code indicating whether the visual approach slope indicator system is a portable one [AIXM]	O	1	Boolean	True or False
349	codePositionVisualApproach SlopeIndicatorSystem	Code describing a position, relative to the centerline, of the visual approach slope indicator for a FATO/RWY direction [AIXM]	O	1	<<Enumeration>> CodePositionOfAxis RelativeToCenterline	Restricted to the values in the enumeration CodePositionOfAxis RelativeToCenterline
350	codeTypeVisualApproachSlope IndicatorSystem	Code indicating the type of the visual approach slope indicator system. For example, VASIS, A-VASIS, PAPI, A-PAPI, and so forth [AIXM]	O	1	<<Enumeration>> CodeTypeVisual ApproachSlope IndicatorSystem	Restricted to the values in the enumeration CodeTypeVisualApproach SlopeIndicatorSystem
351	codeVisualFlightRulesPattern	Code indicating the direction of the VFR flight pattern at an AirportAerodromeHeliport, that is, left or right [AIXM]	O	1	<<Enumeration>> CodeTurnDirection	Restricted to the values in the enumeration CodeTurndirection
352	descriptionOfRunwayArresting Device	Textual description of an arresting device provided for the runway direction [AIXM]	O	1	CharacterString	Unrestricted
353	descriptionOfRunwayVisual Range	Textual description of the RVR meteorological equipment provided for the runway direction. The RVR is the range over which the pilot of an aircraft on the center line of a runway can see the runway surface markings or the lights delineating the runway or identifying its center line [AIXM]	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
354	designGroup	Grouping of airplanes based on wingspan [FAA AC 150/5070-6B]	O	1	<<Enumeration>> CodeDesignGroup	Restricted to the values in the enumeration CodeDesignGroup
355	displacedDistance	Distance from the runway end to the landing threshold. When the thresholdType is normal, displacedDist = 0	O	1	Real	≥ 0.0
356	durationTaxi	Estimation of the taxi time to the runway direction [AIXM]	M	1	Time	Unrestricted
357	elevation	Elevation of the point relative to the selected vertical datum [NGS]	O	1	Real	Unrestricted
358	elevationAccuracy	Accuracy of the elevation point	O	1	Real	Unrestricted
359	ellipsoidElevation	Height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called the geodetic height [NGS]	O	1	Real	Unrestricted
360	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
361	landingDistanceAvailable	Runway length declared available and suitable for a landing airplane [FAA AC 150/5070-6B]	O	1	Real	≥ 0
362	latitude	Latitude in decimal degrees with negative numbers used for Southern Hemisphere	O	1	Real	Unrestricted
363	locationOfThreshold	Beginning of the portion of a runway which is usable for landing [AIXM]	M	1	<<Type>> GM_Point	Defined in ISO 19107
364	longitude	Longitude in decimal degrees with negative numbers used for Western Hemisphere	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
365	magneticBearing	Magnetic runway bearing corresponding to threshold location valid at the day of data generation [RTCA DO-272]	O	1	Real	Unrestricted
366	minimumThresholdEyeHeight	Minimum eye height over threshold (MEHT) value [AIXM]	O	1	Real	> 0.0
367	numberOfVisualApproachSlope IndicatorSystemBoxes	Number of boxes that compose the visual approach slope indicator system [AIXM]	O	1	Integer	≥ 0
368	positionOfVisualApproachSlope IndicatorSystem	Textual description of the position where the visual approach slope indicator system has been installed [AIXM]	O	1	CharacterString	Unrestricted
369	precisionApproachGuidance	Degree to which navigation aids provide accurate approach guidance. Precision approaches utilize both lateral (course) and vertical (glideslope) information [Wikipedia]	O	1	<<Enumeration>> CodePrecision ApproaceGuidance	Restricted to the values in the enumeration CodePrecisionApproach Guidance
370	runwayEndDesignator	Designator for the runway end (that is to say, 32L)	O	1	CharacterString	Unrestricted
371	runwayEndId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
372	runwaySlope	Runway slope corresponding to landing direction [RTCA DO-272]	O	1	Real	Unrestricted
373	slopeAngleGlidepathOfVisual ApproachSlopeIndicatorSystem	Appropriate approach slope angle to be used by an aircraft using the approach [AIXM]	O	1	CharacterString	Unrestricted
374	slopeTouchdownZone	Longitudinal slope of the first 3000 feet of the runway beginning at the	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		threshold [FAA No. 405]				
375	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
376	takeOffDistanceAvailable	TODA: The TORA plus the length of any remaining runway clearway beyond the far end of the TORA [FAA AC 150/5070-6B]	O	1	Real	> 0.0
377	takeOffRunwayAvailable	TORA: The runway length declared available and suitable for the ground run of an airplane taking off [FAA AC 150/5070-6B]	O	1	Real	> 0.0
378	thresholdType	Description of the landing threshold: either normal or displaced	O	1	<<Enumeration>> CodeThresholdType	Restricted to the values in the enumeration CodeThresholdType
379	trueBearing	True bearing corresponding to the landing direction [ICAO Annex 14]	O	1	Real	Unrestricted
380	Role name: blastPad	RunwayBlastPad to which the feature is referenced	O	1	<<Feature>> RunwayBlastPad	
381	Role name: stopway	Stopway to which the feature is referenced	O	1	<<Feature>> Stopway	
382	Role name: lasho	RunwayLAHSO to which the feature is referenced	O	1	<<Feature>> RunwayLAHSO	
383	Role name: arrestingArea	RunwayArrestingArea to which the feature is referenced	O	1	<<Feature>> RunwayArrestingArea	
384	Role name: label	RunwayLabel to which the feature is referenced	M	1	<<Feature>> RunwayLabel	
385	Role name: clearway	RunwayProtectArea to which the feature is referenced	O	1	<<Feature>> RunwayProtectArea	

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
386	RunwayProtectArea	Area situated in the vicinity of a runway or provided to protect aircraft during maneuvering, take-off and landing operations [AIXM]			<<Feature>>	Lines 312-320, 387, 429-430
387	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	1	<<Feature>> RunwayEnd	
388	RunwayLabel	Bottom center position of the runway designation marking [NGS]			<<Feature>>	Lines 337, 389-392
389	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
390	runwayDesignation	Designator of the associated runway	M	1	CharacterString	Unrestricted
391	runwayLabelId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
392	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	1	<<Feature>> RunwayEnd	
393	RunwayArrestingArea	FAA-approved high energy absorbing material of a specific strength that will reliably and predictably bring and aircraft to a stop without imposing loads that exceed the aircraft's design limits, cause major structural damage, or impose excessive force on its occupants. Currently, the only FAA-approved material is EMAS (Engineering Material Arresting System) [FAA AC 150/5520-22A]			<<Feature>>	Lines 339, 394-401
394	arrestingAreaContents	Type of material used to arrest the plane	O	1	<<Enumeration>> CodeArrestingGearMaterial	Restricted to the values in the enumeration CodeArrestingGearMaterial

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
395	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
396	length	Overall length of the feature [U.S. CADD Feature Table]	O	1	Real	> 0.0
397	safetyId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
398	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
399	surfaceMaterial	Code indicating the composition of the related surface [NFDC]	O	1	<<DataType>> SurfaceCharacteristics	Unrestricted
400	width	Overall width of the feature	O	1	Real	> 0.0
401	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	1	<<Feature>> RunwayEnd	
402	RunwayBlastPad	Specially prepared surface placed adjacent to the end of a runway to eliminate the erosive affect of the high wind forces produced by airplanes at the beginning of their takeoff rolls [U.S. CADD Feature Table]	M		<<Feature>>	Lines 335, 403-408, 436
403	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
404	length	Overall length of the feature [U.S. CADD Feature Table]	O	1	Real	> 0.0
405	runwayBlastPadId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		18]				
406	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
407	surfaceCharacteristics	Description of the characteristics of the pavement [NFDC]	O	1	<<DataType>> SurfaceCharacteristics	Unrestricted
408	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	1	<<Feature>> RunwayEnd	
409	Stopway	Defined rectangular surface beyond the end of a runway prepared or suitable for use in lieu of runway to support an airplane, without causing structural damage to the airplane, during aborted takeoff [FAA AC 150-5070-6B]			<<Feature>>	Lines 343, 410-418, 440
410	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
411	length	Length of the designated stopway from the end of the runway	O	1	Real	> 0.0
412	markingFeatureType	Textual description of the marking system on the stopway	O	1	<<Enumeration>> CodeMarkingFeature Type	Restricted to the values in the enumeration CodeMarkingFeatureType
413	profile	Textual description of the stopway profile [AIXM]	O	1	CharacterString	Unrestricted
414	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
415	stopwayId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		18]				
416	surfaceCharacteristics	Description of the characteristics of the pavement [NFDC]	O	1	<<DataType>> SurfaceCharacteristics	Unrestricted
417	width	Overall width of the feature	O	1	Real	> 0.0
418	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	1	<<Feature>> RunwayEnd	
419	RunwayLAHSO	Markings installed on a runway where an aircraft is to stop when the runway is normally used as a taxiway or used for Land and Hold Short Operations (LAHSO) as identified in a letter of agreement with the air traffic control tower (ATCT). A runway should be considered as normally used for taxiing if there is no parallel taxiway and no ATCT. Otherwise, seek input from ATCT [FAA Order 7110.118]				Lines 341, 420-425, 438
420	color	Color of the marking	O	1	<<Enumeration>> CodeColor	Restricted to the values in the enumeration CodeColor
421	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
422	markingFeatureType	Type of marking	O	1	<<Enumeration>> CodeMarkingFeature Type	Restricted to the values in the enumeration CodeMarkingFeatureType
423	protectedRunwayDesignator	Unique runway identifier for the airport of the runway, if any, being protected by the LAHSO (when the LAHSO precedes a runway intersection)	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
424	runwayLAHSOId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
425	Role name:rwyEnd	RunwayEnd class to which this feature is referenced	M	1	<<Feature>> RunwayEnd	

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760 **Table 10 – Data dictionary for RunwayEnd and DisplacedThreshold**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
426	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
427	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
428	RunwayProtectArea	Area situated in the vicinity of a runway or provided to protect aircraft during maneuvering, take-off and landing operations [AIXM]			<<Feature>>	Lines 312-320, 387, 429-430
429	Role name: runway	Runway to which the feature is referenced	O	*	<<Feature>> Runway	
430	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	1	<<Feature>> RunwayEnd	
431	Runway	Defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees: for example, runway 10/28 , runway 07/25 [FAA			<<Feature>>	Lines 194, 254-273, 432-434, 506-529

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		AC 150/5070-6B]				
432	Role name: rwyEnd	RunwayEnd class to which this feature is referenced	M	2	<<Feature>> RunwayEnd	
433	Role name: clearway	RunwayProtectArea to which the feature is referenced	M	1	<<Feature>> RunwayProtectArea	
434	Role name: lighting	AirfieldLight to which the feature is referencing	M	*	<<Feature>> AirfieldLight	
435	RunwayBlastPad	Specially prepared surface placed adjacent to the end of a runway to eliminate the erosive affect of the high wind forces produced by airplanes at the beginning of their takeoff rolls [U.S. CADD Feature Table]	M		<<Feature>>	Lines 335, 403-408, 436
436	Role name: rwyEnd	RunwayEnd class to which this feature is referenced	M	1	<<Feature>> RunwayEnd	
437	RunwayLAHSO	Markings installed on a runway where an aircraft is to stop when the runway is normally used as a taxiway or used for land and hold short operations (LAHSO) as identified in a letter of agreement with the air traffic control tower (ATCT). A runway should be considered as normally used for taxiing if there is no parallel taxiway and no ATCT. Otherwise, seek input from ATCT [FAA Order 7110.118]			<<Feature>>	Lines 341, 420-425, 438
438	Role name: rwyEnd	RunwayEnd class class to which this feature is referenced	M	1	<<Feature>> RunwayEnd	
439	Stopway	Defined rectangular surface beyond the end of a runway prepared or suitable for use in lieu of runway to			<<Feature>>	Lines 343, 410-418, 440

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		support an airplane, without causing structural damage to the airplane, during aborted takeoff [FAA AC 150-5070-6B]				
440	Role name: rwyEnd	RunwayEnd class to which this feature is referenced	M	1	<<Feature>> RunwayEnd	
441	AirfieldLight	Lighting located within or near an airport boundary the provides guidance for airborne and ground maneuvering of aircraft [FAR/AIM, FAA AC 150/5340-30B]			<<Feature>>	Lines 174, 249-250, 442-443, 470-473, 589
442	Role name: rwyEnd	RunwayEnd class to which the feature is referenced	M	1	<<Feature>> RunwayEnd	
443	Role name: runway	Runway class to which the feature is referenced	M	1	<<Feature>> Runway	
444	DisplacedThreshold	Beginning of that portion of the runway available for landing when it is located at a point other than the physical end of the runway [FAA AC 150/5070-6B]			<<Feature>>	Lines 445-451, 496
445	displacedThresholdId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
446	elevation	Elevation of the point relative to the selected vertical datum [NGS]	O	1	Real	Unrestricted
447	ellipsoidElevation	Height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called the geodetic height [NGS]	O	1	Real	Unrestricted
448	geometry	Geometry of the feature	M	1	<<Type>>	Defined in ISO 19107

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
					GM_Point	
449	latitude	Latitude in decimal degrees with negative numbers used for Southern Hemisphere	O	1	Real	Unrestricted
450	longitude	Longitude in decimal degrees with negative numbers used for Western Hemisphere	O	1	Real	Unrestricted
451	pointType	Contains the allowable values of a point type used by the ControlPoint feature. The point types may be provided as subtypes of ControlPoint for ease of use and clarification	O	1	<<Enumeration>> CodePointType	Restricted to the values of the enumeration CodePointType
452	RunwayEnd	End of the runway surface suitable for landing or takeoff runs of aircraft. RunwayEnds are related to and describe the approach and departure procedure characteristics of a runway threshold. RunwayEnd is the same as the runway threshold when the threshold is not displaced [NGS]			<<Feature>>	Lines 322-327, 347-385, 453-459, 475-479, 680
453	Role name: blastPad	RunwayBlastPad to which the feature is referenced	O	1	<<Feature>> RunwayBlastPad	
454	Role name: stopway	Stopway to which the feature is referenced	O	1	<<Feature>> Stopway	
455	Role name: lahso	RunwayLAHSO to which the feature is referenced	O	1	<<Feature>> RunwayLAHSO	
456	Role name: lighting	AirfieldLight to which the feature is referenced	O	*	<<Feature>> AirfieldLight	
457	Role name: threshold	DisplacedThreshold to which the feature is referenced	O	1	<<Feature>> DisplacedThreshold	

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
458	Role name: clearway	RunwayProtectArea to which the feature is referenced	O	1	<<Feature>> RunwayProtectArea	
459	Role name: runway	Runway to which the feature is referenced	M	1	<<Feature>> Runway	

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762 **Table 11 – Data dictionary for Runway asssociations**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
460	AirportAerodromeHeliport	Defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft/helicopters [ICAO]			<<Feature>>	Lines 53-80, 137-139, 215-216, 461-464, 535, 619
461	Role name: runway	Runway to which the feature is referenced	O	*	<<Feature>> Runway	
462	Role name: navaid	NavigationalAidSystem to which the feature is referenced	O	*	<<Feature>> NavigationalAidSystem	
463	Role name: lighting	AirfieldLight to which the feature is referenced	O	*	<<Feature>> AirfieldLight	
464	Role name: obstacle	Obstacle to which the feature is referenced	O	*	<<Feature>> Obstacle	
465	Obstacle	Fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft or that represent a defined obstruction identification surface [NGS]			<<Feature>>	Lines 466-468, 727-749
466	Role name: airport	AirportAerodromeHeliport to which	O	*	<<Feature>> AirportAerodrome	

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		the feature is referenced			Heliport	
467	Role name: runway	Runway to which the feature is referenced	O	*	<<Feature>> Runway	
468	Role name: lighting	AirfieldLight to which the feature is referenced	O	*	<<Feature>> AirfieldLight	
469	AirfieldLight	Lighting located within or near an airport boundary the provides guidance for airborne and ground maneuvering of aircraft [FAR/AIM, FAA AC 150/5340-30B]			<<Feature>>	Lines 174, 249-250, 442-443, 470-473, 589
470	Role name: airport	AirportAerodromeHeliport to which the feature is referenced	O	*	<<Feature>> AirportAerodrome Heliport	
471	Role name: obstruction	Obstacle class to which this feature is referenced	O	1	<<Feature>> Obstacle	
472	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	1	<<Feature>> RunwayEnd	
473	Role name: runway	Runway to which the feature is referenced	M	1	<<Feature>> Runway	
474	RunwayEnd	End of the runway surface suitable for landing or takeoff runs of aircraft. RunwayEnds are related to and describe the approach and departure procedure characteristics of a runway threshold. RunwayEnd is the same as the runway threshold when the threshold is not displaced [NGS]			<<Feature>>	Lines 322-327, 347-385, 453-459, 475-479, 680
475	Role name: threshold	DisplacedThreshold to which the feature is referenced	O	1	<<Feature>> DisplacedThreshold	
476	Role name: lighting	AirfieldLight to which the feature is	O	*	<<Feature>>	

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		referenced			AirfieldLight	
477	Role name: marking	Marking class to which this feature is referenced	O	*	<<Feature>> Marking	
478	Role name: runway	Runway class to which this feature is referenced	M	1	<<Feature>> Runway	
479	Role name: navaid	NavigationalAidSystem to which the feature is referenced	O	*	<<Feature>> NavigationalAidSystem	
480	NavigationalAidSystem	Reference point to a grouping of NAVAIDs that together perform a common function			<<Feature>>	Lines 481-482, 668-678
481	Role name: rwyEnd	RunwayEnd to which the feature is referenced	O	*	<<Feature>> RunwayEnd	
482	Role name: airport	AirportAerodromeHeliport to which the feature is referenced	O	*	<<Feature>> AirportAerodrome Heliport	
483	PavementSection	Section of paved surface used for pavement condition assessment [FAA AC 150/5300-18]			<<Feature>>	Lines 176-182, 484, 587
484	Role name: runway	Runway to which the feature is referenced	M	1	<<Feature>> Runway	
485	RunwayElement	Section of the runway surface. The runway surface can be defined by a set of non-overlapping RunwaySegment polygons. RunwaySegments may overlap Runway and Runway/Intersection eatures. Use RunwaySegment to model the physical runway pavement in terms of surface, material, strength and condition [FAA AC 150/5520-12C, FAA AC 150/5335-5, FAA AC 150/5320-17,			<<Feature>>	Lines 302-310, 486

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		FAA AC 150/5320-6D]				
486	Role name: runway	Runway to which the feature is referenced	M	1	<<Feature>> Runway	
487	RunwayCenterline	Continuous line along the painted centerline of a runway connecting the middle-points of the two outermost thresholds. Centerline is composed of many centerline points (see RunwayControlPoint). It is used to calculate grade and line-of-sight criteria [FAA AC 150/5070-6B]			<<Feature>>	Lines 275-279, 488
488	Role name: runway	Runway to which the feature is referenced	M	*	<<Feature>> Runway	
489	RunwayHelipadDesignSurface	Three-dimensional surface that is used in runway design [FAA AC 150/5070-6B]			<<Feature>>	Lines 289-300, 490, 531
490	Role name: runway	Runway to which the feature is referenced	M	1	<<Feature>> Runway	
491	Marking	Element of Marking whose geometry is a polygon [FAA AC 150/5340-1J]			<<Feature>>	Lines 186-191, 247, 492-494, 585
492	Role name: rwyEnd	RunwayEnd class to which this feature is referenced	O	1	<<Feature>> RunwayEnd	
493	Role name: threshold	DisplacedThreshold class to which this feature is referenced	O	1	<<Feature>> DisplacedThreshold	
494	Role name: runway	Runway to which the feature is referenced	M	1	<<Feature>> Runway	
495	DisplacedThreshold	Beginning of that portion of the runway available for landing when it is located at a point other than the physical end of the runway [FAA AC 150/5070-6B]			<<Feature>>	Lines 445-451, 496

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
496	Role name: marking	Marking class to which this feature is referenced	O	*	<<Feature>> Marking	
497	RunwaySafetyAreaBoundary	Boundary of the runway safety area (RSA) for which the airport authority has maintenance responsibility [FAA AC/5300/18]			<<Feature>>	Lines 498-503
498	determination	Formal declaration of the RSA condition with respect to standards and any requirement improvements [FAA AC 150/5300-18]	O	1	CharacterString	Unrestricted
499	determinationDate	Date the RSA determination was approved [FAA AC 150/5300-18]	O	1	Date	≤ Date of data entry
500	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
501	length	Value for the length of the safety area	O	1	Real	> 0.0
502	runwaySafetyAreaBoundaryId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
503	width	Value for the width of the safety area	O	1	Real	> 0.0
504	Role name: runway	Runway to which the feature is referenced	M	1	<<Feature>> Runway	
505	Runway	Defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees: for example, runway 10/28 , runway 07/25 [FAA AC 150/5070-6B]			<<Feature>>	Lines 194, 254-273, 432-434, 506-529

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
506	airportSurfaceId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
507	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
508	length	Straight line distance between runway end points. This line does not account for surface undulations between points. Official runway lengths are normally computed from runway end coordinates and elevations [FAA No. 405]	M	1	Real	> 0.0
509	lengthOffset	Value specifying the longitudinal offset of the strip, when it is not symmetrically extended beyond the two runway ends [AIXM]	O	1	Real	Unrestricted
510	lengthStrip	Value of the physical length of the strip. The runway strip is a defined area including the runway and, if applicable, the stopway. It is intended (a) to reduce the risk of damage to aircraft running off the runway and (b) to protect aircraft flying over the runway during take-off or landing operations [AIXM]	O	1	Real	> 0.0
511	marking	Textual description of the runway marking [AIXM]	O	1	CharacterString	Unrestricted
512	profile	Textual description of the runway profile	O	1	CharacterString	Unrestricted
513	runwayNumber	Designator of the runway based on the magnetic bearing and position in relation to parallel runways (for example, 33R/15L) [FAA AC	M	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		150/5340-1J]				
514	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
515	surfaceCharacteristics	Description of the serviceability of the pavement [NFDC]	O	1	<<DataType>> SurfaceCharacteristics	Unrestricted
516	type	Either RWY for runway for airplanes or FATO for final approach and take-off area for helicopters [AIXM]	O	1	<<Enumeration>> CodeRunwayType	Restricted to the values in the enumeration CodeRunwayType
517	width	Perpendicular line to the surface centerline, extending to the edge of the runway pavement on both sides of the runway, through a runway end-point	O	1	Real	> 0.0
518	widthOffset	Value specifying the lateral offset of the strip, when it is not symmetrically extended beyond the two runway edges [AIXM]	M	1	Real	Unrestricted
519	widthStrip	Value of the physical width of the strip [AIXM]	O	1	Real	> 0.0
520	Role name: rwyEnd	RunwayEnd to which the feature is referenced	M	2	<<Feature>> RunwayEnd	
521	Role name: centerline	RunwayCenterline to which the feature is referenced	M	1	<<Feature>> RunwayCenterline	
522	Role name: intersection	RunwayElement to which the feature is referenced	O	*	<<Feature>> RunwayElement	
523	Role name: designSurface	RunwayHelipadDesignSurface to which the feature is referenced	O	*	<<Feature>> RunwayHelipadDesign Surface	

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
524	Role name: marking	Marking to which the feature is referenced	O	*	<<Feature>> Marking	
525	Role name: rsaBoundary	RunwaySafetyAreaBoundary to which the feature is referenced	O	1	<<Feature>> RunwaySafetyArea Boundary	
526	Role name: lighting	AirfieldLight to which the feature is referenced	M	1	<<Feature>> AirfieldLight	
527	Role name: obstacle	Obstacle to which the feature is referenced	O	*	<<Feature>> Obstacle	
528	Role name: pavementSegment	PavementSection to which the feature is referenced	O	*	<<Feature>> PavementSection	
529	Role name: airport	AirportAerodromeHeliport to which the feature is referenced	M	1	<<Feature>> AirportAerodrome Heliport	
530	RunwayHelipadDesignSurface	Three-dimensional surface that is used in runway design [FAA AC 150/5070-6B]			<<Feature>>	Lines 289-300, 490, 531
531	Role name: runway	Runway class to which this feature is referenced	M	1	<<Feature>> Runway	

7.4 Taxiway

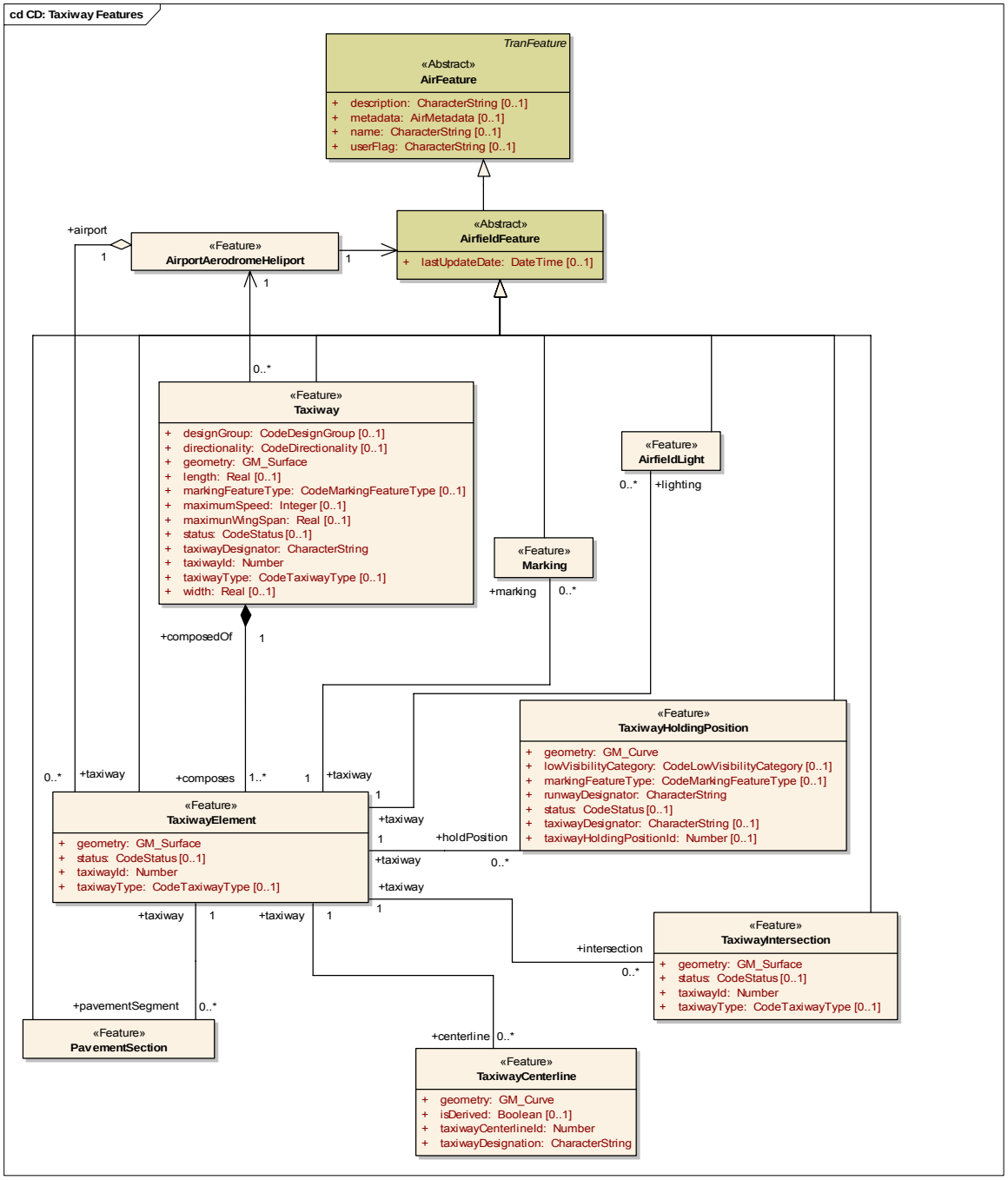

Figure 14 – Taxiway

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Table 12 – Data dictionary for Taxiway

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
532	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
533	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
534	AirportAerodromeHeliport	Defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft/helicopters [ICAO]				Lines 53-80, 137-139, 215-216, 461-464, 535, 619
535	Role name: taxiway	TaxiwayElement class to which this feature is referenced	O	*	<<Feature>> TaxiwayElement	
536	TaxiwayHoldingPosition	Designated position at which taxiing aircraft and vehicles shall stop and hold position, unless otherwise authorized by the aerodrome control tower [RTCA DO-272]			<<Feature>>	Lines 537-544
537	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
538	lowVisibilityCategory	Low visibility category	O	1	<<Enumeration>> CodeLowVisibility Category	Restricted to the values in the enumeration CodeLowVisibility Category
539	markingFeatureType	Type of the marking	O	1	<<Enumeration>> CodeMarkingFeature Type	Restricted to the values in the enumeration CodeMarkingFeatureType
540	runwayDesignator	Designator for the approaching runway [U.S. CADD Attribute Table]	M	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
541	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
542	taxiDesignator	Designator for the taxiway [U.S. CADD Attribute Table]	O	1	CharacterString	Unrestricted
543	taxiwayHoldingPositionId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
544	Role name: taxiway	TaxiwayElement to which the feature is referenced	M	1	<<Feature>> TaxiwayElement	
545	TaxiwayIntersection	Junction of two or more taxiways [ICAO Annex 14 (Aerodromes), Chapter 1, page 5]			<<Feature>>	Lines 546-550
546	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
547	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
548	taxiwayId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
549	taxiwayType	Code indicating a type of taxiway (for example, air taxiway, ground exit/turnoff, rapid exit/turnoff, stub, turn around, parallel, bypass holding bay, apron, gate/stand taxilane, lead-in taxilane, lead-out taxilane) [AIXM]	O	1	<<Enumeration>> CodeTaxiwayType	Restricted to the values in the enumeration CodeTaxiwayType

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
550	Role name: taxiway	TaxiwayElement to which the feature is referenced	M	1	<<Feature>> TaxiwayElement	
551	TaxiwayElement	Taxiway segment features are used to represents taxiway, apron taxiway, rapid exit taxiway, taxiway intersection, and aircraft stands taxilane surface [FAA AC 150/5070-6B]			<<Feature>>	Lines 196, 552-563
552	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
553	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
554	taxiwayId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
555	taxiwayType	Type of taxiway	O	1	<<Enumeration>> CodeTaxiwayType	Restricted to the values in the enumeration CodeTaxiwayType
556	Role name: intersection	TaxiwayIntersection to which the feature is referenced	O	*	<<Feature>> TaxiwayIntersection	
557	Role name: holdposition	TaxiwayHoldingPosition to which the feature is referenced	O	*	<<Feature>> TaxiwayHolding Position	
558	Role name: pavementSegment	PavementSection to which the feature is referenced	O	*	<<Feature>> PavementSection	
559	Role name: marking	Marking to which the feature is referenced	O	*	<<Feature>> Marking	
560	Role name: airport	AirportAerodromeHeliport to which	M	1	<<Feature>> AirportAerodrome	

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		the feature is referenced			Heliport	
561	Role name: composedOf	Taxiway which is composed of this feature	M	1	<<Feature>> Taxiway	
562	Role name: lighting	AirfieldLight to which the feature is referenced	O	*	<<Feature>> AirfiieldLight	
563	Role name: centerline	TaxiwayCenterline to which the feature is referenced	O	*	<<Feature>> TaxiwayCenterline	
564	Taxiway	Movement areas that provide access to runways from aircraft parking, maintenance, and other areas on the airport [FAA AC 150/5300-18]				Lines 565-577
565	designGroup	Type of aircraft that the taxiway can handle	O	1	<<Enumeration>> CodeDesignGroup	Restricted to the values in the enumeration CodeDesignGroup
566	directionality	Direction in which the aircraft may travel on the taxiway	O	1	<<Enumeration>> CodeDirectionality	Restricted to the values in the enumeration CodeDirectionality
567	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
568	length	Value for the length of the taxiway	O	1	Real	> 0.0
569	markingFeatureType	Textual description of the marking on the taxiway [AIXM]	O	1	<<Enumeration>> CodeMarkingFeature Type	Restricted to the values in the enumeration CodeMarkingFeatureType
570	maximumSpeed	Maximum speed on the taxiway [AIXM]	O	1	Integer	> 0
571	maximumWingSpan	Maximum wingspan on the taxiway [AIXM]	O	1	Real	> 0.0
572	status	Temporal description of the operational state of the feature.	O	1	<<Enumeration>>	Restricted to the values in the enumeration

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		This attribute is used to describe real-time status			CodeStatus	CodeStatus
573	taxiwayDesignator	Textual designator of the taxiway	M	1	CharacterString	Unrestricted
574	taxiwayId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
575	taxiwayType	Code indicating a type of taxiway (for eample, air taxiway, ground exit/turnoff, rapid exit/turnoff, stub, turn around, parallel, bypass holding bay, apron, gate/stand taxilane, lead-in taxilane, lead-out taxilane) to which the feature is referenced	O	1	<<Enumeration>> CodeTaxiwayType	Restricted to the values in the enumeration CodeTaxitayType
576	width	Value of the width of the taxiway	O	1	Real	> 0.0
577	Role name: composes	TaxiwayElement to which the feature is referenced	M	*	<<Feature>> TaxiwayElement	
578	TaxiwayCenterline					Lines 579-583
579	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
580	isDerived	Indicates whether the centerline is derived or photodetermined	O	1	Boolean	True or False
581	taxiwayCenterlineId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
582	taxiwayDesignation	Designator of the taxiway based on the magnetic bearing and position in relation to parallel runways (for example, 33R/15L) [FAA AC 150/5070-6B]	M	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
583	Role name: taxiway	Taxiway to which the feature is referenced	M	1	<<Feature>> TaxiwayElement	
584	Marking	Element of Marking whose geometry is a polygon [FAA AC 150/5340-1J]			<<Feature>>	Lines 186-191, 247, 492-494, 585
585	Role name: taxiway	TaxiwayElement to which the feature is referenced	M	1	<<Feature>> TaxiwayElement	
586	PavementSection	Section of paved surface used for pavement condition assessment [FAA AC 150/5300-18]			<<Feature>>	Lines 176-182, 484, 587
587	Role name: taxiway	TaxiwayElement to which the feature is referenced	M	1	<<Feature>> TaxiwayElement	
588	AirfieldLight	Lighting located within or near an airport boundary the provides guidance for airborne and ground maneuvering of aircraft [FAR/AIM, FAA AC 150/5340-30B]			<<Feature>>	Lines 174, 249-250, 442-443, 470-473, 589
589	Role name:taxiway	TaxiwayElement to which the feature is referenced	M	1	<<Feature>> TaxiwayElement	

7.5 SeaplaneFeature

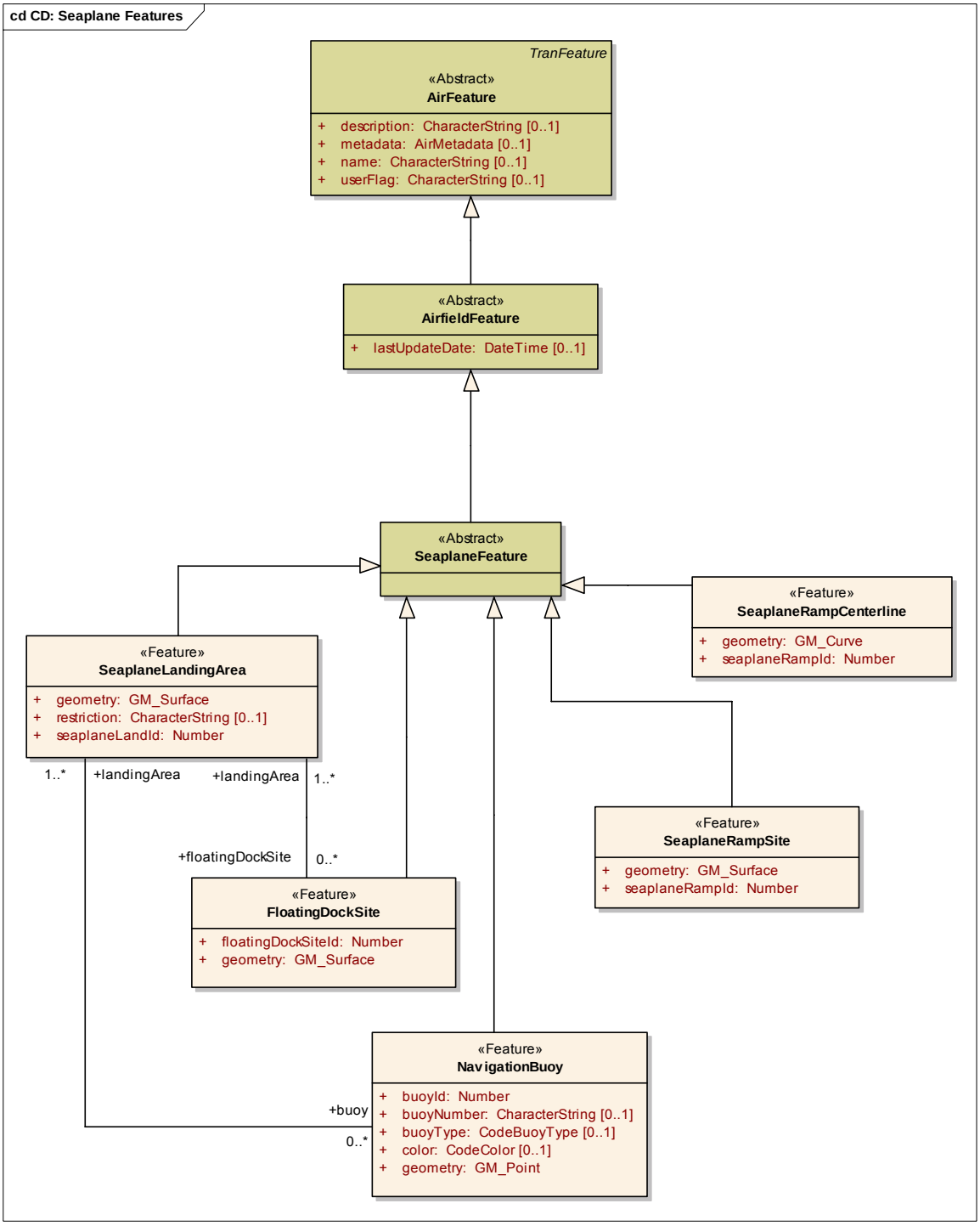

Figure 15 – SeaplaneFeature

772 **Table 13 – Data dictionary for SeaplaneFeature**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
590	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
591	AirFieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
592	SeaplaneFeature	Abstract class for all data concerned with the operations of seaplane facilities			<<Abstract>>	
593	FloatingDockSite	Floating facility which can serve as a mooring place for vessels or as a floating dry dock [U.S. CADD]			<<Feature>>	Lines 594-596
594	floatingDockSiteId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
595	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
596	Role name: landingArea	SeaplaneLandingArea to which the feature is referenced	M	*	<<Feature>> SeaplaneLandingArea	
597	NavigationBuoy	Floating marker which is moored to the bottom at a specific known location, which is used as an aid to navigation or for other special purpose [U.S. CADD]			<<Feature>>	Lines 598-603
598	buoyId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
599	buoyNumber	Official number of the buoy [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
600	buoyType	Discriminator - The type of the buoy [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeBuoyType	Restricted to the values in the enumeration CodeBuoyType
601	color	Color of the buoy [U.S. CADD Feature Table]	O	1	<<enumeration>> CodeColor	Restricted to the values in the enumeration CodeColor
602	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
603	Role name: landingArea	SeaplaneLandingArea to which the feature is referenced	M	*	<<Feature>> SeaplaneLandingArea	
604	SeaplaneLandingArea	Area specifically designated for take-offs and landings of seaplanes [U.S. CADD]			<<Feature>>	Lines 605-609
605	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
606	restriction	Restrictions or cautions associated with the seaplane landing area [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
607	seaplaneLandId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
608	Role name: buoy	NavigationBuoy to which the feature is referenced	O	*	<<Feature>> NavigationBuoy	
609	Role name: floatingDockSite	FloatingDockSite to which the feature is referenced	O	*	<<Feature>> FloatingDockSite	
610	SeaplaneRampCenterline	Centerline of ramps specifically designed to transit seaplanes from			<<Feature>>	Lines 611-612

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		land to water and vice versa [U.S. CADD]				
611	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
612	seaplaneRampId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
613	SeaplaneRampSite	Ramps specifically designed to transit seaplanes from land to water and vice versa [U.S. CADD]			<<Feature>>	Lines 614-615
614	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
615	seaplaneRampId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted

7.6 Navigational aid features

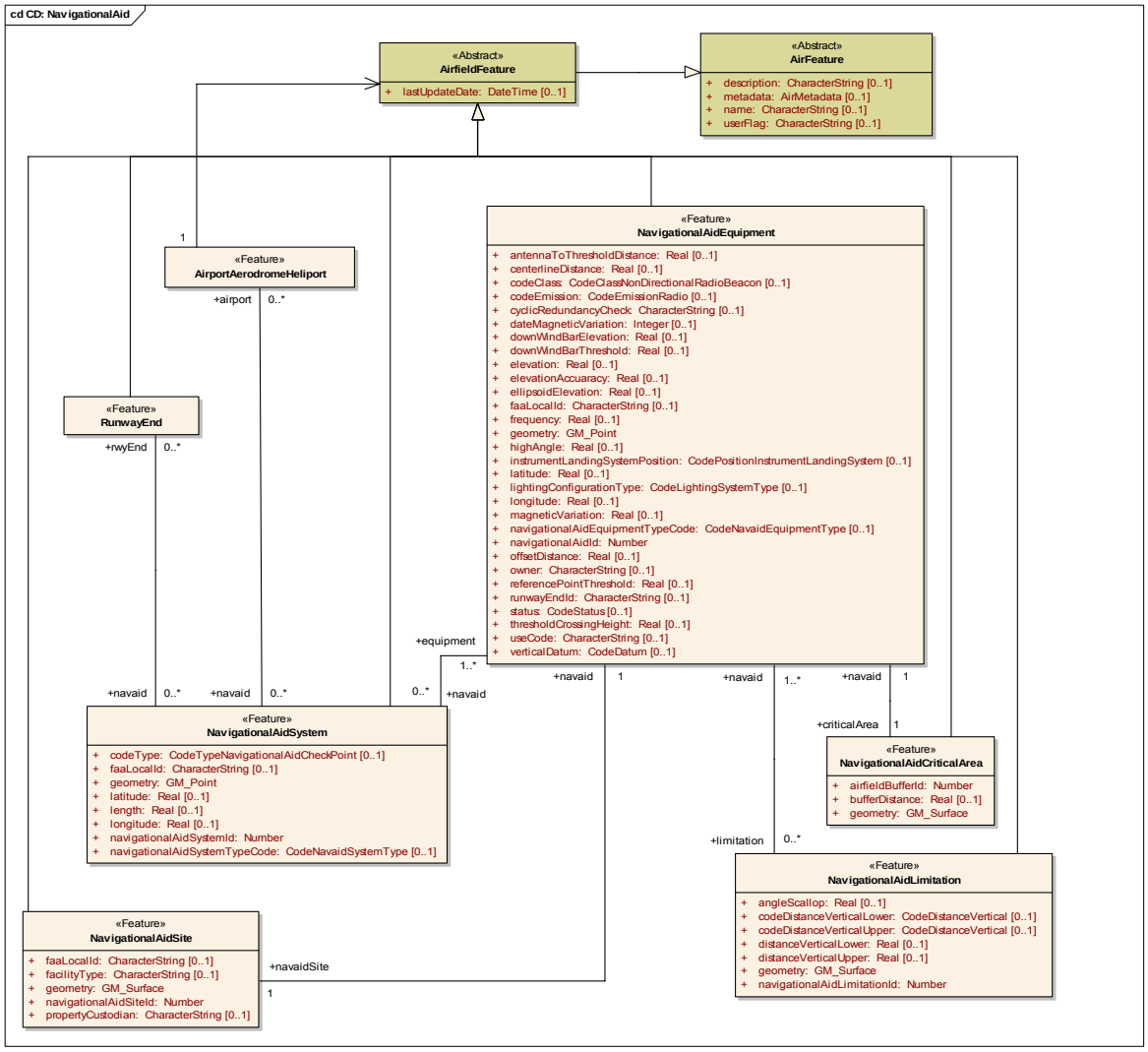

Figure 16 – Navigational aid features

777 **Table 14 – Data dictionary for navigational aid features**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
616	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
617	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
618	AirportAerodromeHeliport	Defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft/helicopters [ICAO]			<<Feature>>	Lines 53-80, 137-139, 215-216, 461-464, 535, 619
619	Role name: navaid	NavigationalAidSystem to which the feature is referenced	O	*	<<Feature>> NavigationalAidSystem	
620	NavigationalAidCriticalArea	Zone encompassing a specific ground area in the vicinity of a radiating antenna array which must be protected from parking and unlimited movement of surface air traffic [FAA Order 6750.16C]			<<Feature>>	Lines 621-624
621	airfieldBufferId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
622	bufferDistance	Linear distance of the limit of the buffer for the airfield [U.S. CADD Feature Table]	O	1	Real	> 0.0
623	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
624	Role name: navaid	NavigationalAidEquipment to which the feature is referenced	M	1	<<Feature>> NavigationalAid	

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
					Equipment	
625	NavigationalAidEquipment	Ground-based visual or electronic device that provides point to point guidance information or position to aircraft in flight. The location is specified by FAA No. 405 [FAA No. 405]			<<Feature>>	Lines 626-659
626	antennaToThresholdDistance	Distance in feet that the antenna is from the runway threshold	O	1	Real	> 0.0
627	centerlineDistance	NAVAID along centerline distances (distance between the NAVAID perpendicular point (PP) and the runway approach or stop-end, depending on the NAVAID type)	O	1	Real	> 0.0
628	codeClass	Class of the non-directional radio beacon [AIXM]	O	1	<<Enumeration>> CodeClassNon DirectionalRadio Beacon	Restricted to the values in the enumeration CodeClassNonDirectional RadioBeacon
629	codeEmission	Code indicating the type of emission, as defined at the 1979 ITU World Administrative Radio Conference [AIXM]	O	1	<<Enumeration>> CodeEmissionRadio	Restricted to the values in the enumeration CodeEmissionRadio
630	cyclicRedundancyCheck	Hexadecimal value of a 32-bit polynominal cyclic redundancy check (CRC) over the values of a selected set of attributes that model critical, essential and routine data, according to ICAO Annex 15, item 3.2.10 [AIXM]	O	1	CharacterString	Unrestricted
631	dateMagneticVariation	Year when the magnetic variation was measured [AIXM]	O	1	Integer	Unrestricted
632	downWindBarElevation	Elevation of the downwind bar indicator	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
633	downWindBarThreshold	Distance the downwind bar is from the threshold	O	1	Real	Unrestricted
634	elevation	Elevation of the feature	O	1	Real	Unrestricted
635	elevationAccuracy	Accuracy of the elevation value	O	1	Real	Unrestricted
636	ellipsoidElevation	Height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called the geodetic height [NGS]	O	1	Real	Unrestricted
637	faaLocalId	ID of the associated Facility. Note that the Facility ID for NAVAIDs associated with an ILS/MLS references the associated ILS/MLS system identifier [NGS]	O	1	CharacterString	Unrestricted
638	frequency	Frequency of the non-directional radio beacon emission [AIXM]	O	1	Real	> 0.0
639	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
640	highAngle	Maximum approach light vertical angle [FAA AC 150/5300-18]	O	1	Real	Unrestricted
641	instrumentLandingSystemPosition	Code indicating the position in a real or virtual instrument landing system for locators (low powered NDBs) situated at an aerodrome [AIXM]	O	1	<<Enumeration>> CodePosition InstrumentLanding System	Restricted to the values in the enumeration CodePositionInstrument LandingSystem
642	latitude	Latitude in decimal degrees with negative numbers used for Southern Hemisphere	O	1	Real	Unrestricted
643	lightingConfigurationType	Configuration type of visual navigational aid systems (use only when NavaidEquipTypeCode_d is set to “Visual”)	O	1	<<Enumeration>> CodeLightingSystem Type	Restricted to the values in the enumeration CodeLightingSystemType

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
644	longitude	Longitude in decimal degrees with negative numbers used for Western Hemisphere	O	1	Real	Unrestricted
645	magneticVariation	Measured angle between magnetic north and true north at the NDB and at the time reported in dateMagneticVariation. By convention, the measure is expressed as a positive number if magnetic north is to the east of true north and negative if magnetic north is to the west of true north. Therefore, magnetic bearing + magnetic variation = true bearing. The following rule of thumb applies: ""variation east-magnetic least, variation west-magnetic best"". [AIXM]	O	1	Real	Unrestricted
646	navigationalAidEquipmentTypeCode	Specifies the type of NAVAID [NGS]	O	1	<<Enumeration>> CodeNavaidEquipmentType	Restricted to the values in the enumeration CodeNavaidEquipmentType
647	navigationalAidId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
648	offsetDistance	Distance in feet that the feature is offset from the runway centerline	O	1	Real	> 0.0
649	owner	Owner of the facility	O	1	CharacterString	Unrestricted
650	referencePointThreshold	Distance from the VGSI runway reference point to the threshold [FAA AC 150/5300-18]	O	1	Real	> 0.0
651	runwayEndID	Runway end associated with the NAVAID equipment (if any). This is the same as the runway	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		identification number painted on the runway at the time of the survey				
652	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
653	thresholdCrossingHeight	Height that the effective visual glide path crosses above the runway threshold [FAA Airport Data 5010]	O	1	Real	Unrestricted
654	useCode	Code that represents the airspace structure in which the aeronautical navigational aid is utilized [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
655	verticalDatum	Attribute to take the "Vertical Datum" (that is to say, the tide gauge to determine MSL [AIXM] - for example, "NAVD1929", and so forth	O	1	<<Enumeration>> CodeDatum	Restricted to the values in the enumeration CodeDatum
656	Role name: navaid	NavigationalAidSystem to which the feature is referenced	O	*	<<Feature>> NavigationalAidSystem	
657	Role name: navaidSite	NavigationalAidSite to which the feature is referenced	M	1	<<Feature>> NavigationalAidSite	
658	Role name: criticalArea	NavigationalAidCriticalArea to which the feature is referenced	M	1	<<Feature>> NavigationalAidCritical Area	
659	Role name: limitation	NavigationalAidLimitation to which the feature is referenced	O	*	<<Feature>> NavigationalAid Limitation	
660	NavigationalAidSite	Parcel, lease, or right-of-way boundary for a NAVAID facility that is located off airport property			<<Feature>>	Lines 661-666
661	faaLocalId	Location identifier assigned to the	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		feature by the FAA				
662	facilityType	Type of facility or feature related to airfield operations [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
663	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
664	navigationalAidSiteId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
665	propertyCustodian	Regional property management office responsible for ownership of the site	O	1	CharacterString	Unrestricted
666	Role name: navaid	NavigationalAidEquipment to which the feature is referenced	M	1	<<Feature>> NavigationalAid Equipment	
667	NavigationalAidSystem	Reference point to a grouping of NAVAIDs that together perform a common function			<<Feature>>	Lines 481-482, 668-678
668	codeType	Type of navigation system for which the checkpoint has been established. For example, INS, VOR, GNSS, and so forth [AIXM}	O	1	<<Enumeration>> CodeTypeNavigational AidCheckPoint	Restricted to the values in the enumeration CodeTypeNavigationalAid CheckPoint
669	faaLocalId	Location identifier assigned to the feature by the FAA	O	1	CharacterString	Unrestricted
670	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
671	latitude	Latitude in decimal degrees with negative numbers used for Southern Hemisphere	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
672	length	Overall length of the airfield surface [U.S. CADD Attribute Table]	O	1	Real	> 0.0
673	longitude	Longitude in decimal degrees with negative numbers used for Western Hemisphere	O	1	Real	Unrestricted
674	navigationalAidSystemId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
675	navigationalAidSystemTypeCode	Type of NAVAID system	O	1	<<Enumeration>> CodeNavaidSystem Type	Restricted to the values in the enumeration CodeNavaidSystemType
676	Role name: equipment	NavigationalAidEquipment to which the feature is referenced	M	*	<<Feature>> NavigationalAid Equipment	
677	Role name: rwyEnd	RunwayEnd class to which this feature is referenced	O	*	<<Feature>> RunwayEnd	
678	Role name: airport	AirportAerodromeHeliport to which the feature is referenced	O	*	<<Feature>> AirportAerodrome Heliport	
679	RunwayEnd	End of the runway surface suitable for landing or takeoff runs of aircraft. RunwayEnds are related to and describe the approach and departure procedure characteristics of a runway threshold. RunwayEnd is the same as the runway threshold when the threshold is not displaced [NGS]			<<Feature>>	Lines 322-327, 347-385, 453-459, 475-479, 680
680	Role name: navaid	NAVAID system to which the feature is referenced	O	1	<<Feature>> NavigationalAidSystem	
681	NavigationalAidLimitation	Limitation, such as coverage, usability, and so forth, of a NAVAID			<<Feature>>	Lines 682-689

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		inside a circular sector volume [AIXM]				
682	angleScallop	Value of the scalloping angle, which may affect the radial reading of a VOR or TACAN in plus or minus [AIXM]	O	1	Real	Unrestricted
683	codeDistanceVerticalLower	Code indicating the convention used to measure the value of the lower limit [AIXM]	O	1	<<Enumeration>> CodeDistanceVertical	Restricted to the values in the enumeration CodeDistanceVertical
684	codeDistanceVerticalUpper	Code indicating the convention used to measure the value of the upper limit [AIXM]	O	1	<<Enumeration>> CodeDistanceVertical	Restricted to the values in the enumeration CodeDistanceVertical
685	distanceVerticalLower	Value of the lower limit of the circular sector volume [AIXM]	O	1	Real	> 0.0
686	distanceVerticalUpper	Value of the upper limit of the circular sector volume [AIXM]	O	1	Real	> 0.0
687	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
688	navigationalAidLimitationId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
689	Role name: navaid	NavigationalAidEquipment to which the feature is referenced	M	*	<<Feature>> NavigationalAid Equipment	

7.7 Airspace features

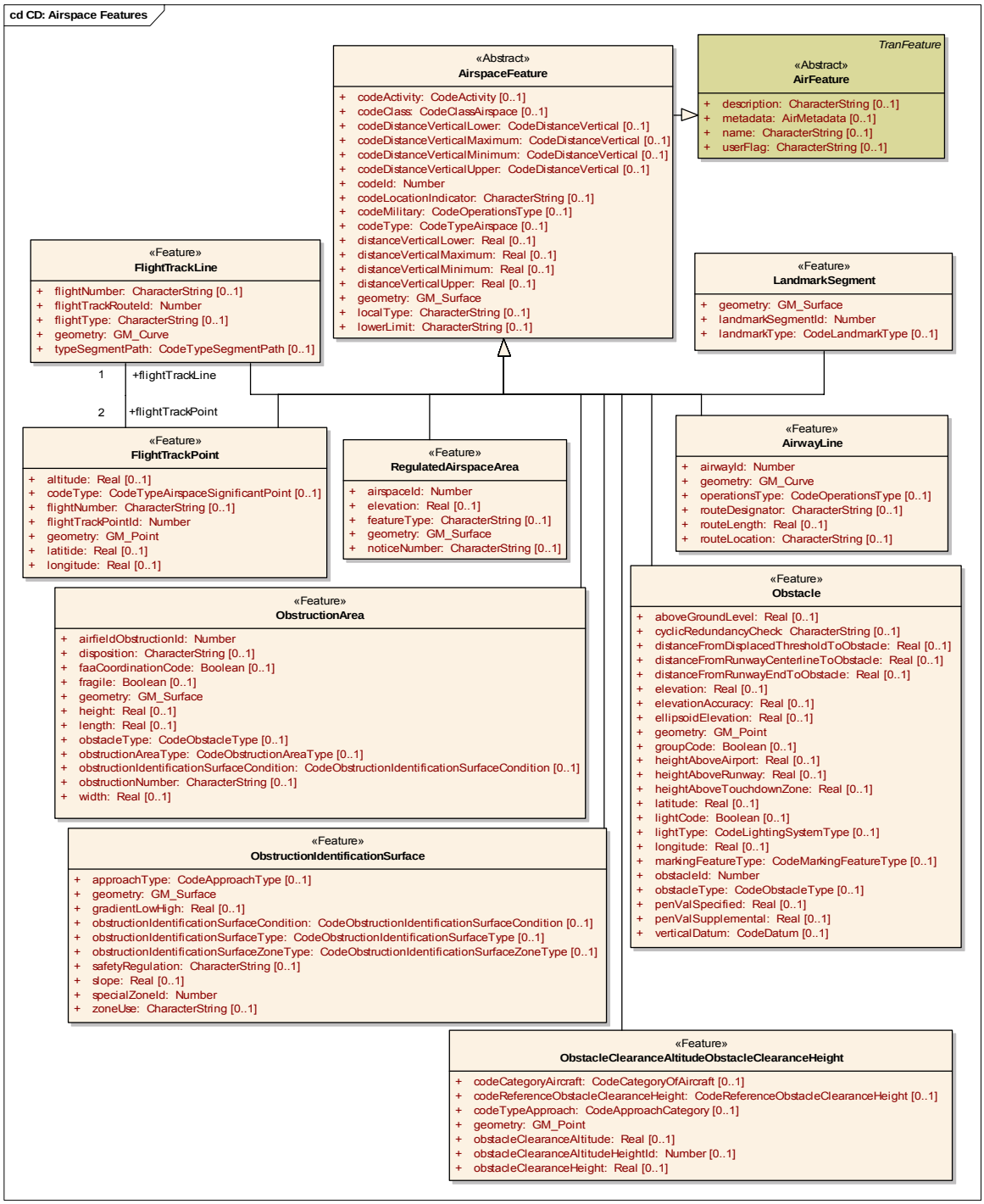

Figure 17 – Airspace features

782 The following model defines some airspace features which are relevant to an airport. This is by no means an extensive list of the features relevant
783 to airspace design, management or to the navigation of aircraft.

784

785 **Table 15 – Data dictionary for Airspace features**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
690	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
691	AirspaceFeature	Abstract class for data about the space through which aircraft fly			<<Abstract>>	Lines 35-51, 692-708
692	codeActivity	Code for the type of activity taking place in the Airspace or the reason for its establishment [AIXM]	O	1	<<Enumeration>> CodeActivity	Restricted to the values in the enumeration CodeActivity
693	codeClass	Code for the Airspace classification according to Annex 11, Appendix 4 [AIXM]	O	1	<<Enumeration>> CodeClassAirspace	Restricted to the values in the enumeration CodeClassAirspace
694	codeDistanceVerticalLower	Code indicating the convention used to calculate the lower limit, for example: flight level (in both feet and meters - compare UOM_DIST_VERT), altitude above MSL (QNH), altitude above GND (QFE), elevation, height, and so forth [AIXM]	O	1	<<Enumeration>> CodeDistanceVertical	Restricted to the values in the enumeration CodeDistanceVertical
695	codeDistanceVerticalMaximum	Code indicating the reference used for maximum limit [AIXM]	O	1	<<Enumeration>> CodeDistanceVertical	Restricted to the values in the enumeration CodeDistanceVertical
696	codeDistanceVerticalMinimum	Code indicating the reference used for minimum limit [AIXM]	O	1	<<Enumeration>> CodeDistanceVertical	Restricted to the values in the enumeration CodeDistanceVertical
697	codeDistanceVerticalUpper	Code indicating the convention used to calculate the upper limit, for	O	1	<<Enumeration>>	Restricted to the values in the enumeration

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		example: flight level (in both feet and meters - compare UOM_DIST_VERT), altitude above MSL (QNH), altitude above GND (QFE), elevation, height, and so forth [AIXM]			CodeDistanceVertical	CodeDistanceVertical
698	codeId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
699	codeLocationIndicator	Code indicating the Location Indicator according to ICAO Doc. 7910. If at all, it certainly is not available for all airspaces. Most airspaces will not have a value for this attribute [AIXM]	O	1	CharacterString	Unrestricted
700	codeMilitary	Code indicating whether the airspace is under the responsibility of a military organization [AIXM]	O	1	<<Enumeration>> CodeOperationsType	Restricted to the values in the enumeration CodeOperationsType
701	codeType	Code indicating the type of Airspace. For example: UTA, CTA, TMA, CTR, OCA, advisory area, limited area, uncontrolled airspace, and so forth [AIXM]	O	1	<<Enumeration>> CodeTypeAirspace	Restricted to the values in the enumeration CodeTypeAirspace
702	distanceVerticalLower	Numerical value of the lower limit [AIXM]	O	1	Real	Unrestricted
703	distanceVerticalMaximum	Numerical value of the maximum limit [AIXM]	O	1	Real	Unrestricted
704	distanceVerticalMinimum	Numerical value of the minimum limit [AIXM]	O	1	Real	Unrestricted
705	distanceVerticalUpper	Numerical value of the upper limit [AIXM]	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
706	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
707	localType	Type designator used locally for a particular airspace category [AIXM]	O	1	CharacterString	Unrestricted
708	lowerLimit	Limit between the upper and the lower airspace [AIXM]	O	1	CharacterString	Unrestricted
709	ObstructionArea	Areas penetrating the plane of a specified or supplemental obstruction identification surface (OIS). The type of obstructing area is determined by the predominantly obstructing element in the grouped area. Penetrating groups of trees, ground, buildings, urban areas, mobile cranes, and agricultural area are the most common types of area limits found within the surfaces of a FAR-77 survey [NGS]			<<Feature>>	Lines 710-721
710	airfieldObstructionId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
711	disposition	Disposition of the airspace obstruction [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
712	faaCoordinationCode	Boolean indicating whether the obstruction has received FAA coordination or review [U.S. CADD Feature Table]	O	1	Boolean	True of False
713	fragile	Boolean indicating whether the obstruction is easily broken [U.S. CADD Feature Table]	O	1	Boolean	True or False
714	geometry	Geometry of the feature	M	1	<<Type>>	Defined in ISO 19107

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
					GM_Surface	
715	height	Overall height of the obstruction from the surface of the Earth [U.S. CADD Feature Table]	O	1	Real	> 0.0
716	length	Overall length of the obstruction [U.S. CADD Feature Table]	O	1	Real	> 0.0
717	obstacleType	Type of obstacle	O	1	<<Enumeration>> CodeObstacleType	Restricted to the values in the enumeration CodeObstacleType
718	obstructionAreaType	Description of the obstruction area type	O	1	<<Enumeration>> CodeObstructionArea Type	Restricted to the values in the enumeration CodeObstructionArea Type
719	obstructionIdentificationSurface Condition	Obstruction identification surface that obstructing area represents	O	1	<<Enumeration>> CodeObstruction IdentificationSurface Condition	Restricted to the values in the enumeration CodeObstruction IdentificationSurface Condition
720	obstructionNumber	Obstruction number, as shown on a map, which is assigned to the wavier, deviation, and so on [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
721	width	Overall width of the obstruction [U.S. CADD Feature Table]	O	1	Real	> 0.0
722	LandmarkSegment	Geographic features located in the vicinity of an airport that aid geographic orientation. The features may or may not have obstruction value. These may include objects such as roads, railroads, fences, utility lines, shorelines, levees, quarries, nearby airport and so on [NGS]			<<Feature>>	Lines 723-725

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
723	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
724	landmarkSegmentId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
725	landmarkType	Type of landmark feature	O	1	<<Enumeration>> CodeLandmarkType	Restricted to the values in the enumeration CodeLandmarkType
726	Obstacle	Fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft or that represent a defined obstruction identification surface [NGS]			<<Feature>>	Lines 466-468, 727-749
727	aboveGroundLevel	Vertical distance from the ground to the top of the obstacle [NGS]	O	1	Real	Unrestricted
728	cyclicRedundancyCheck	Hexadecimal value of a 32-bit polynominal cyclic redundancy check (CRC) over the values of a selected set of attributes that model critical, essential and routine data, according to ICAO Annex 15, item 3.2.10 [AIXM]	O	1	CharacterString	Unrestricted
729	distanceFromDisplacedThresholdToObstacle	Distance measured along runway centerline or centerline extended from a displaced threshold to point abeam the obstacle. A negative distance indicated that the obstacle is on the touchdown side of the runway approach end. This data is not provided for HCT surveys	O	1	Real	Unrestricted
730	distanceFromRunwayCenterline	Shortest distance from the runway centerline or centerline extended to	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
	ToObstacle	the obstacle. "L" (left) or "R" (right) is relative to an observer facing forward in a landing aircraft. This data is not provided for HCT surveys				
731	distanceFromRunwayEndTo Obstacle	Distance measured along runway centerline or centerline extended from the physical end to point abeam the obstacle. A negative indicated that the obstacle is on the touchdown side of the runway approach end. This data is not provided for the HCT surveys	O	1	Real	Unrestricted
732	elevation	Elevation of the point relative to the selected vertical datum	O	1	Real	Unrestricted
733	elevationAccuracy	Accuracy of the obstacle elevation value [AIXM]	O	1	Real	Unrestricted
734	ellipsoidElevation	Height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called the geodetic height	O	1	Real	Unrestricted
735	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
736	groupCode	Text code indicating that the obstacle consists of a group of obstacles of the same type. For example, a group of trees, a group of buildings, a group of antennas, and so on [AIXM]	O	1	Boolean	True or False
737	heightAboveAirport	Height above the official airport elevation point [NGS]	O	1	Real	> 0.0
738	heightAboveRunway	Height above runway physical end for obstructions located underneath the approach surface [NGS]	O	1	Real	> 0.0

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
739	heightAboveTouchdownZone	Height above touchdown zone elevation for obstructions located underneath the approach surface [NGS]	O	1	Integer	> 0.0
740	latitude	Latitude in decimal degrees with negative numbers used for Southern Hemisphere	O	1	Real	Unrestricted
741	lightCode	Code indicating that the obstacle is lighted [AIXM]	O	1	Boolean	True or False
742	lightType	Type of lighting system	O	1	<<Enumeration>> CodeLightingSystem Type	Restricted to the values in the enumeration CodeLightingSystemType
743	longitude	Longitude in decimal degrees with negative numbers used for Western Hemisphere	O	1	Real	Unrestricted
744	markingFeatureType	Type of the marking	O	1	<<Enumeration>> CodeMarkingFeature Type	Restricted to the values in the enumeration CodeMarkingFeatureType
745	obstacleId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
746	obstacleType	Type of obstacle	O	1	<<Enumeration>> CodeObstacleType	Restricted to the values in the enumeration CodeObstacleType
747	penValSpecified	Elevation difference between the height of the obstacle and the specified approach surface [NGS]	O	1	Real	Unrestricted
748	penValSupplemental	Elevation difference between the height of the obstacle and the supplemental approach surface [NGS]	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
749	verticalDatum	Attribute to take the "Vertical Datum" (that is to say, the tide gauge to determine MSL [AIXM] - for example, "NAVD1929", and so forth	O	1	<<Enumeration>> CodeDatum	Restricted to the values in the enumeration CodeDatum
750	ObstructionIdentificationSurface	Derived imaginary obstruction identification surface defined by the FAA [NGS]			<<Feature>>	Lines 751-760
751	approachType	Specific approach type used to analyze features. The approach types must be an approach of the general surface type specified in the airport surface type attribute	O	1	<<Enumeration>> CodeApproachType	Restricted to the values in the enumeration CodeApproachType
752	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
753	gradientLowHigh	Low to high gradient within the airspace [U.S. CADD Feature Table]	O	1	Real	Unrestricted
754	obstructionIdentificationSurface Condition	Obstruction identification surface that obstructing area represents	O	1	<<Enumeration>> CodeObstruction IdentificationSurface Condition	Restricted to the values in the enumeration CodeObstruction IdentificationSurface Condition
755	obstructionIdentificationSurface Type	Surface type refers to the general type of surface used to analyze features. Surfaces of the same type usually are similar in nature with respect to certain aspects of the surface definition or may merely be representative of different programs within the airport charting community	O	1	<<Enumeration>> CodeObstruction IdentificationSurface Type	Restricted to the values in the enumeration CodeObstruction IdentificationSurfaceType
756	obstructionIdentificationSurface ZoneType	Specifies zones within obstruction identification surfaces (OIS)	O	1	<<Eenumeration>> CodeObstruction IdentificationSurface ZoneType	Restricted to the values in the enumeration CodeObstruction IdentificationSurfaceZone

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
						Type
757	safetyRegulation	Identifier for the safety regulations in effect within the zone [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
758	slope	Value of the maximum profile slope of the obstruction identification surface. This value is always expressed as a percent [AIXM]	O	1	Real	Unrestricted
759	specialZoneId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
760	zoneUse	Description of the use of the zone [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
761	AirwayLine	Location of airways between origins and destinations [U.S. CADD]			<<Feature>>	Lines 762-767
762	airwayId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
763	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
764	operationsType	Air operations permitted within the airway [Source U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeOperationsType	Unrestricted
765	routeDesignator	Designator of the ATS route [AIXM]	O	1	CharacterString	Unrestricted
766	routeLength	Length of the air route [Source U.S. CADD Feature Table]	O	1	Real	> 0.0
767	routeLocation	Textual description of the area in which a designated route is situated	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		[AIXM]				
768	FlightTrackLine	Line indicating the general flight track used in the vicinity of airfields [U.S. CADD]			<<Feature>>	Lines 769-774
769	flightNumber	Flight number assigned to the flight plan	O	1	CharacterString	Unrestricted
770	flightTrackRouteId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unreatricted
771	flightType	Code indicating a specified type of a flight, such as OAT/GAT [AIXM]	O	1	CharacterString	Unrestricted
772	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
773	typeSegmentPath	Type of the flight track segment path	O	1	<<Enumeration>> CodeTypeSegment Path	Restricted to the values in the enumeration CodeTypeSegmentPath
774	Role name: flightTrackPoint	FlightTrackPoint to which the feature is referenced	M	2	<<Feature>> FlightTracktPoint	
775	FlightTrackPoint	Point in space that designates aircraft arrival and departure routes [FAA AC 150/5300-18]			<<Feature>>	Lines 776-783
776	altitude	Altitude of the significant point in the airspace	O	1	Real	Unrestricted
777	codeType	Code indicating the type of association between a significant point and an airspace. Examples: entry point, exit point, and so forth [AIXM]	O	1	<<Enumeration>> CodeTypeAirspace SignificantPoint	Restricted to the values in the enumeration CodeTypeAirspace SignificantPoint
778	flightNumber	Flight number assigned to the flight	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		plan				
779	flightTrackPointId	Primary Key. A globally unique identifier assigned to the instance of a feature type	M	1	Number	Unrestricted
780	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
781	latitude	Latitude in decimal degrees with negative numbers used for Southern Hemisphere	O	1	Real	Unrestricted
782	longitude	Longitude in decimal degrees with negative numbers used for Western Hemisphere	O	1	Real	Unrestricted
783	Role name: flightTrackLine	FlightTrackLine to which the feature is referenced	M	1	<<Feature>> FlightTrackLine	
784	RegulatedAirspaceArea	Three dimensional region of airspace for activities which must be confined because of their nature [U.S. CADD]			<<Feature>>	Lines 785-789
785	airspaceId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
786	elevation	Height of the restriction airspace measured from a reference point or from sea level [U.S. CADD Feature Table]	O	1	Real	Unrestricted
787	featureType	Type of restriction [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
788	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
789	noticeNumber	Notice to airman number (that is to say, 3/4223) [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
790	ObstacleClearanceAltitude ObstacleClearanceHeight	Lowest altitude or height above the elevation of the relevant runway threshold or airport elevation as applicable used in establishing compliance with appropriate obstacle clearance criteria [AIXM]			<<Feature>>	Lines 791-797
791	codeCategoryAircraft	Classification of an aircraft based on 1.3 times its stall speed in landing configuration at maximum certified landing mass (that is, aircraft category "A" corresponds to less than 169 km/h (91 kt) IAS, "B" to 169 km/h or more but less than 224 km/h (121 kt) IAS). Note: The default aircraft within these categories are considered to have a climbing gradient capability of 2.5% [AIXM]	O	1	<<Enumeration>> CodeCategoryOf Aircraft	Restricted to the values in the enumeration CodeCategoryOfAircraft
792	codeReferenceObstacle ClearanceHeight	Reference position for the obstacle clearance height (altitude). [AIXM]	O	1	<<Enumeration>> CodeReference ObstacleClearance Height	Restricted to the values in the enumeration CodeReferenceObstacle ClearanceHeight
793	codeTypeApproach	Code indicating the type of the approach procedure. For example, straight-in, circling, straight-in CAT I, and so forth [AIXM]	O	1	<<Enumeration>> CodeApproach Category	Restricted to the values in the enumeration CodeApproachCategory
794	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
795	obstacleClearanceAltitude	Value of the obstacle clearance altitude [AIXM]	O	1	Real	Unrestricted
796	obstacleClearanceAltitudeHeight	Primary Key. A globally unique identifier assigned to the instance of	O	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
	Id	a feature type [FAA AC 150/5300-18]				
797	obstacleClearanceHeight	Value of the obstacle clearance height [AIXM]	O	1	Real	> 0.0

7.8 Security features

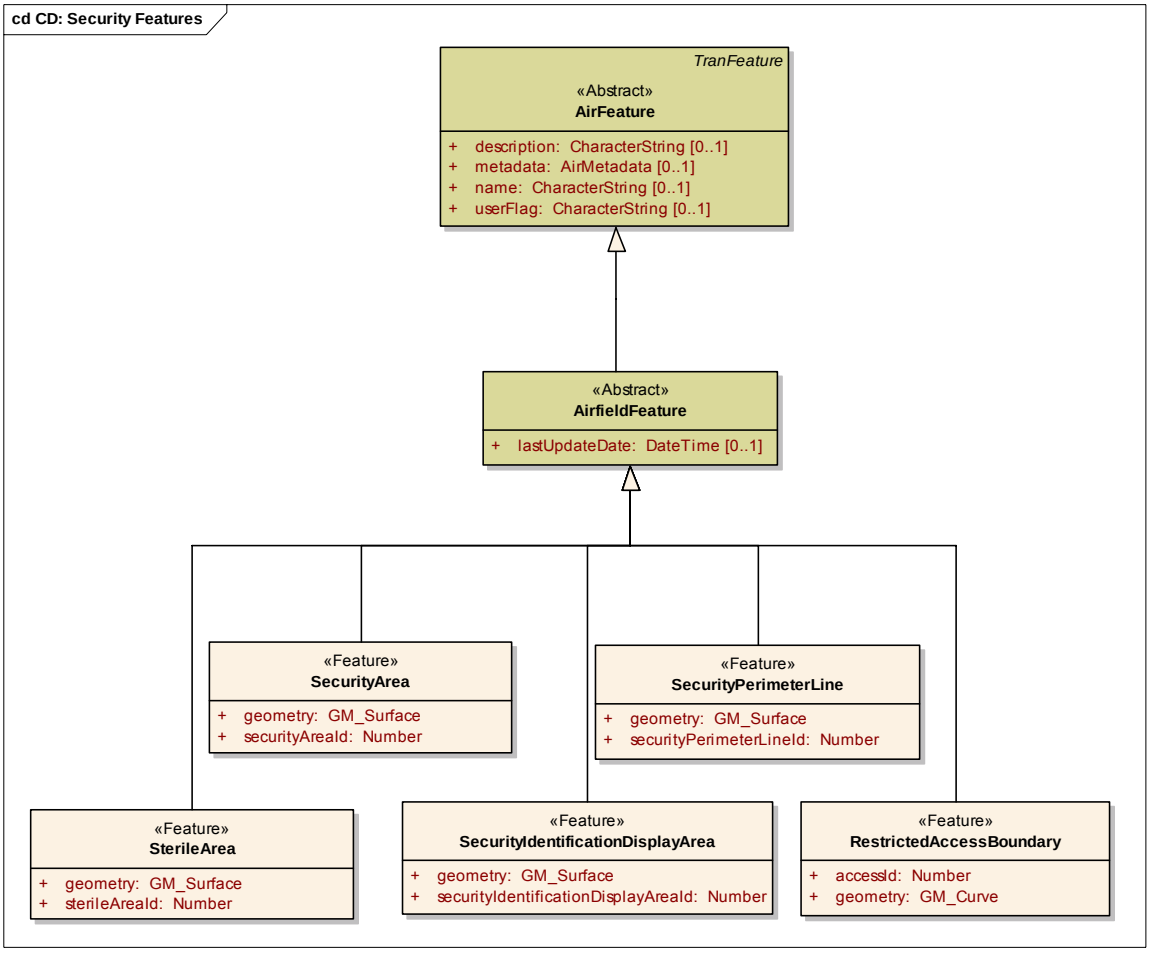

Figure 18 – Security features

790 **Table 16 – Data dictionary for Security features**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
798	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
799	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
800	SecurityArea	Area of the airport in which security measures required by 49 CFR 1542.201 must be carried out [49 CFR 1542]			<<Feature>>	Lines 801-802
801	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
802	securityAreaId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
803	SecurityIdentificationDisplayArea	Portions of an airport, specified in the airport security program, in which security measures required by regulation must be carried out. This area included the security area and may include other areas of the airport [DHS]			<<Feature>>	Lines 804-805
804	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
805	securityIdentificationDisplay AreaId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
806	SecurityPerimeterLine	Type of perimeter, such as barbed wire, high fences, motion detectors,			<<Feature>>	Lines 807-808

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		and armed guards at gates that ensure no unauthorized visitors can gain entry [U.S. CADD]				
807	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
808	securityPerimeterLineId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
809	SterileArea	Portions of an airport defined in the airport security program that provide passengers access to boarding aircraft and to which the access is generally controlled by TSA, an aircraft operator, or foreign air carrier [DHS]			<<Feature>>	Lines 810-811
810	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
811	sterileAreaId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
812	RestrictedAccessBoundary	Restricted area boundary defines aircraft movement area that is strictly reserved for use by authorized personnel only. These boundaries, typically found on joint civil/military use airports, are often painted redlines on taxiway or apron surfaces [NGS]			<<Feature>>	Lines 813-814
813	accessId	Primary Key. A globally unique identifier assigned to the instance of a feature type	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
814	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107

7.9 Cadastral features

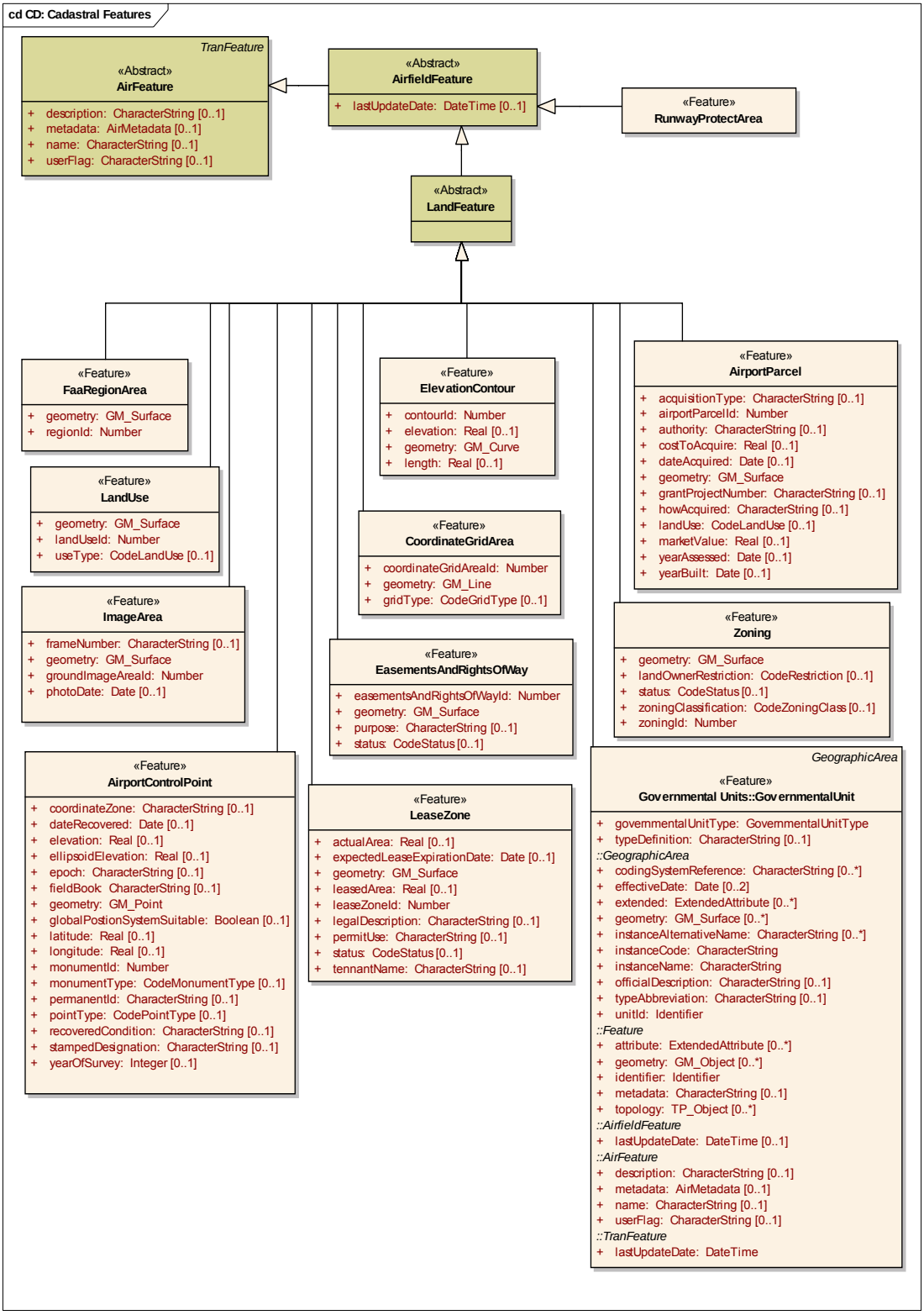

Figure 19 – Cadastral features

795 **Table 17 – Data dictionary for Cadastral features**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
815	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
816	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Lines 33
817	LandFeature	Cadastral data describe the geographic extent of past, current, and future right, title, and interest in real property, including above, surface, and below ground and water, and the foundation to support the description of that geographic extent			<<Abstract>>	
818	RunwayProtectArea	Area situated in the vicinity of a runway or provided to protect aircraft during maneuvering, take-off and landing operations [AIXM]			<<Feature>>	Lines 312-320, 387, 429-430
819	AirportParcel	Tract of land within the airport boundary that was acquired from surplus property, Federal funds, local funds, and so on. Easement interests in areas outside the fee property line should also be included as an AirportParcel [FAA AC 150/5070-6B, Appendix 7, Order 5190.6A, Section 5]			<<Feature>>	Lines 820-831
820	acquisitionType	Type of acquisition used to acquire the parcel	O	1	CharacterString	Unrestricted
821	airportParcelId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
822	authority	Owner of the AirportParcel	O	1	CharacterString	Unrestricted
823	costToAcquire	Amount paid to the owner in U.S. dollars for the parcel	O	1	Real	> 0.0
824	dateAcquired	Date the parcel was acquired. Format for date is YYYYMMDD (that is to say, September 15, 1994 = 19940915)	O	1	Date	≤ Date of data entry
825	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
826	grantProjectNumber	Grant number if Federal funds were used to acquire the parcel	O	1	CharacterString	Unrestricted
827	howAcquired	Manner in which the parcel was acquired	O	1	CharacterString	Unrestricted
828	landUse	Land use of the parcel when it was acquired	O	1	<<Enumeration>> CodeLandUse	Restricted to the values in the enumeration CodeLandUse
829	marketValue	Assessed market value of the parcel in U.S. dollars when it was acquired	O	1	Real	> 0.0
830	yearAssessed	Year in which the market value assessment was made	O	1	Date	≤ Date of data entry
831	yearBuilt	The year in which the most recent structure(s) were built on the parcel	O	1	Date	≤ Date of data entry
832	EasementsAndRightsOfWay	Parcel of land for which formal or informal deed easement rights exist [U.S. CADD (modified)]			<<Feature>>	Lines 833-836
833	easementsAndRightsOfWayId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
834	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
835	purpose	Project purpose for which the easement was acquired [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
836	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
837	FaaRegionArea	FAA regions [U.S. CADD]			<<Feature>>	Lines 838-843
838	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
839	regionId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
840	LandUse	Description of the human use of land and water [U.S. CADD]			<<Feature>>	Lines 841-843
841	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
842	landUseId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
843	useType	Way in which the land is being used. High level (that is to say, n000) or detailed (that is to say, nnnn) can be used [U.S. CADD]	O	1	<<Enumeration>> CodeLandUse	Restricted to the values in the enumeration CodeLandUse
844	LeaseZone	Parcel of land leased by an individual, agency, or organization for their use [U.S. CADD]			<<Feature>>	Lines 845-853

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
845	actualArea	Actual measured area of the leased parcel [U.S. CADD Attribute Table]	O	1	Real	> 0.0
846	expectedLeaseExpirationDate	Date the lease is expected to expire. Format for date is YYYYMMDD (that is to say, September 15, 1994 = 19940915) [U.S. CADD Feature Table]	O	1	Date	≥ Date of data entry
847	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
848	leasedArea	Area accounted for in the lease for a parcel [U.S. CADD Attribute Table]	O	1	Real	> 0.0
849	leaseZoneId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
850	legalDescription	Complete legal description of the property as it appears in the deed [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
851	permitUse	Permitted use of the leased parcel [U.S. CADD Attribute Table]	O	1	CharacterString	Unrestricted
852	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
853	tennantName	Current name of the tenant occupying the leased parcel [U.S. CADD Attribute Table]	O	1	CharacterString	Unrestricted
854	ImageArea	Image footprint or coverage area			<<Feature>>	Lines 855-858
855	frameNumber	Image identification number for the covered area	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
856	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	
857	groundImageAreaId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
858	photoDate	Date the image was taken	O	1	Date	≤ Date of data entry
859	Zoning	Parcel of land zoned specifically for real estate and land management purposes; more specifically for commercial, residential, or industrial use [U.S. CADD]			<<Feature>>	Lines 860-864
860	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
861	landOwnerRestriction	Codes determining the land owner restriction for the parcel [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeRestriction	Restricted to the values in the enumeration CodeRestriction
862	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
863	zoningClassification	Zoning classification of the parcel [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeZoningClass	Restricted to the values in the enumeration CodeZoningClass
864	zoningId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
865	AirportControlPoint	Control station established in the vicinity of, and usually on, an airport and tied to the National Spatial Reference System (NSRS) [NGS]			<<Feature>>	Lines 866-882

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
866	coordinateZone	State Plane Coordinate System Code [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
867	dateRecovered	Date the monument was last field recovered. Format for date is YYYYMMDD (that is to say, September 15, 1994 = 19940915) [U.S. CADD Feature Table]	O	1	Date	≤ Date of data entry
868	elevation	Elevation of the point relative to the selected vertical datum [NGS]	O	1	Real	Unrestricted
869	ellipsoidElevation	Height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called geodetic height [Source NGS]	O	1	Real	Unrestricted
870	epoch	Survey epoch used to establish the control point [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
871	fieldBook	Field book [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
872	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
873	globalPositionSystemSuitable	Boolean indicating GPS suitability [U.S. CADD Feature Table]	O	1	Boolean	True or False
874	latitude	Latitude in decimal degrees with negative numbers used for Southern Hemisphere	O	1	Real	Unrestricted
875	longitude	Longitude in decimal degrees with negative numbers used for Western Hemisphere	O	1	Real	Unrestricted
876	monumentId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		18]				
877	monumentType	Type of monument as defined by the Corps of Engineers EM 1110-1-1002 [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeMonumentType	Restricted to the values in the enumeration CodeMonumentType
878	permanentId	Permanent point identifier assigned by NGS to PACS and SACS [NGS]	O	1	CharacterString	Unrestricted
879	pointType	Contains the allowable values of a point type used by the ControlPoint feature. The point types may be provided as subtypes of ControlPoint for ease of use and clarification	O	1	<<Enumeration>> CodePointType	Restricted to the values in the enumeration CodePointType
880	recoveredCondition	Condition and type of the marker (witness post) used to identify the location of the monument [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
881	stampedDesignation	Designation stamped into the bottom of the monument [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
882	yearOfSurvey	Year of the most recent runway end survey used to compute the ARP	O	1	Integer	≤ Date of data entry
883	ElevationContour	Connecting points on the surface of the Earth of equal vertical elevation representing some fixed elevation interval [U.S. CADD]			<<Feature>>	Lines 884-887
884	contourId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
885	elevation	Elevation of the contour line [U.S. CADD Feature Table]	O	1	Real	Unrestricted
886	geometry	Geometry of the feature	M	1	<<Type>>	Defined in ISO 19107

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
					GM_Curve	
887	length	Overall length of the feature [U.S. CADD Feature Table]	O	1	Real	> 0.0
888	CoordinateGridArea	Regular pattern of horizontal and vertical lines used to represent regular coordinate intervals along the x and y axis. This grid line can be used to generate an arbitrary grid system which is common on locator maps [U.S. CADD]			<<Feature>>	Lines 889-891
889	coordinateGridAreaId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
890	geometry	Geometry of the feature	M	1	<<Type>> GM_Line	Defined in ISO 19107
891	gridType	Code for the type of grid area	O	1	<<Enumeration>> CodegridType	Restricted to the values in the enumeration CodeGridType
892	Governmental Units:: GovernmentalUnit	Type of geographic area with legally defined boundaries established under Federal, Tribal, State, or local law, and with the authority to elect or appoint officials and raise revenues through taxes			<<Feature>>	Lines 893-894
893	governmentalUnitType	Name of the type of geographic area with geographic entity with legally defined boundaries established under Federal, State, Tribal, or local law, and with the authority to elect or appoint officials and raise revenues through taxes	M	1	<<CodeList>> Governmental Units:: GovernmentalUnitType	Unrestricted
894	typeDefinition	Definition of the unit type	C/if Governmental	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
			UnitTypeCode is not enumerated			
895	Governmental Units:: GeographicArea	Class that captures information about the type of geographic area being described			<<Feature>>	Lines 896-905
896	codingSystemReference	Citation, reference, or documentation identifying the instance code type, for example USPS ZIP+4 code	C/if code exists	*	CharacterString	Unrestricted
897	effectiveDate	Date on which a geographic area change took effect	O	2	Date	Any valid geometry type from ISO 19107
898	extended	Group of properties that permit the identification and transport of unofficial feature attributes	O	*	<<DataType>> Framework::Extended Attribute	Unrestricted
899	geometry	Geometry of the feature	O	*	<<Type>> GM_Surface	Defined in ISO 19107
900	instanceAlternativeName	"Unofficial", or variant, feature name	O	*	CharacterString	Unrestricted
901	instanceCode	Specific code that identifies the geographic area	M	1	CharacterString	Unrestricted
902	instanceName	"Official" feature name. If available, the instanceName is the name of the geographic area feature from the Geographic Names Information System (GNIS)	M	1	CharacterString	Unrestricted
903	officialDescription	Phrases, coordinates, meets and bounds, name of the organization responsible for administering the unit, or other authoritative information describing the geographic area	O	1	CharacterString	Unrestricted
904	typeAbbreviation	Type code or abbreviation for the	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		feature unit type				
905	unitId	Identifier assigned to the governmental unit, administrative unit, statistical unit, or other unit	M	1	<<DataType>> Framework::Identifier	Unrestricted

7.10 EnvironmentalFeature

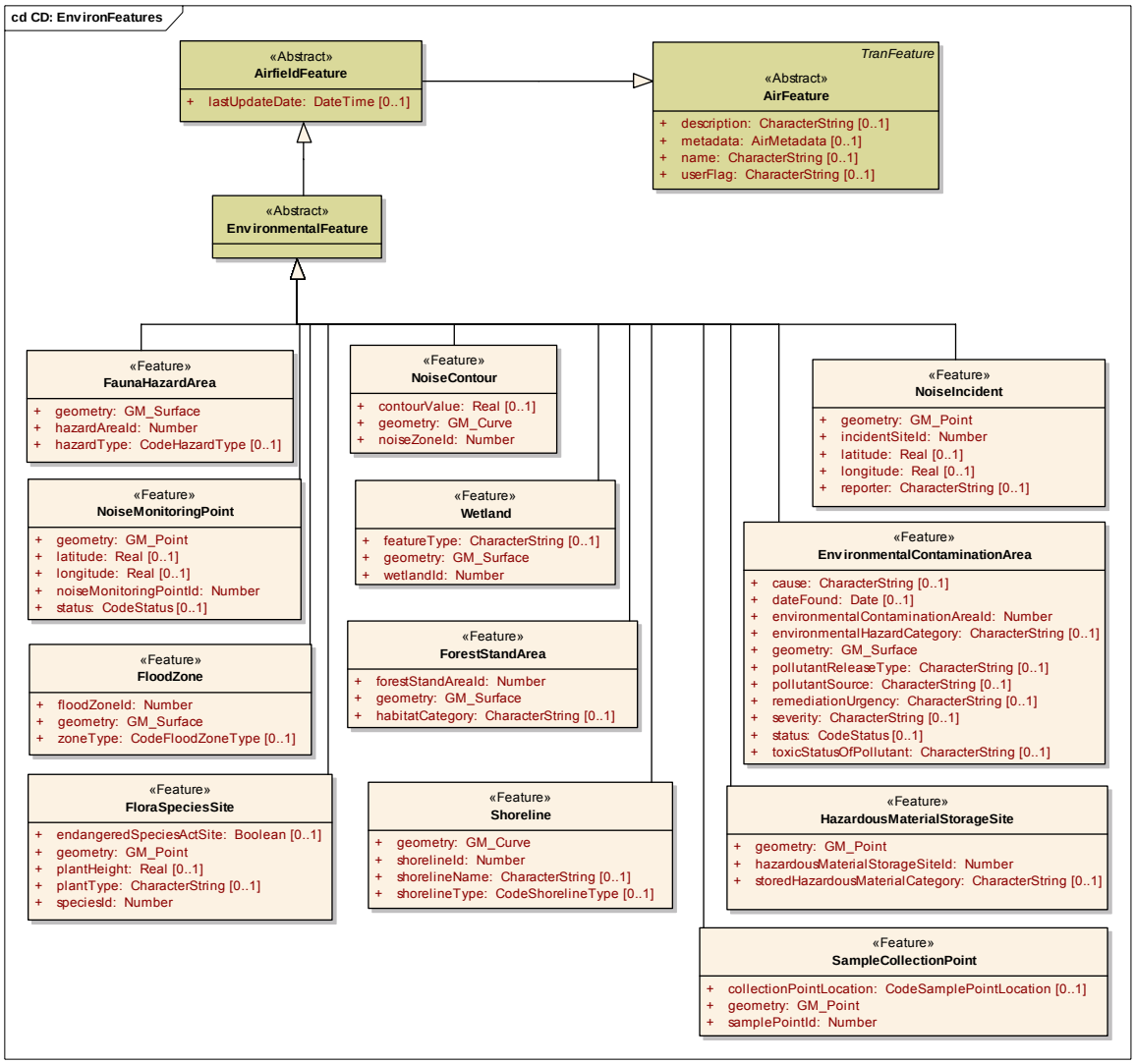

Figure 20 – EnvironmentalFeature

800 **Table 18 – Data dictionary for EnvironmentalFeature**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
906	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
907	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
908	EnvironmentalFeature	Abstract class that encompasses environmental data. Environmental data describe the geographic extent of the complex of physical, social, and cultural conditions affecting the nature and operations of the AirportAerodromeHheliport			<<Abstract>>	
909	EnvironmentalContaminationArea	Facility or other locational entity (as designated by the Environmental Protection Agency) that is regulated or monitored because of environmental concerns [U.S. CADD]			<<Feature>>	Lines 910-920
910	cause	Code indicating the cause of the pollution [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
911	dateFound	Date the pollution was discovered. Format for date is YYYYMMDD (that is to say, September 15, 1994 = 19940915) [U.S. CADD Feature Table]	O	1	Date	≤ Date of data entry
912	environmentalContamination AreaId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
913	environmentalHazardCategory	Indicates the broad category or type of the most prevalent or serious environmental hazard present at the	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		site [U.S. CADD Feature Table]				
914	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
915	pollutantReleaseType	Descriptor for the type of pollutant release experienced [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
916	pollutantSource	Actual or suspected source of the pollutant [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
917	remediationUrgency	Code indicating the urgency for accomplishing a site remediation project [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
918	severity	Descriptor for the severity of the pollution [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
919	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
920	toxicStatusOfPollutant	Descriptor for the toxic status of the pollution [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
921	FaunaHazardArea	Area where there are hazards due to wildlife activities. This includes bird aircraft strike hazard (BASH) areas, and deer strike areas [U.S. CADD]			<<Feature>>	Lines 922-924
922	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
923	hazardAreaId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
924	hazardType	Descriptor of the type of the hazard [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeHazardType	Restricted to the values in the enumeration CodeHazardType
925	FloodZone	Areas subject to 100-year, 500-year, and minimal flooding [U.S. CADD]			<<Feature>>	Lines 926-928
926	floodZoneId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
927	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
928	zoneType	Zoning classification of the area	O	1	<<Enumeration>> CodeFloodZoneType	Restricted to the values in the enumeration CodeFloodZoneType
929	FloraSpeciesSite	Specific location where an individual flora species or an aggregate of flora species has been identified [U.S. CADD]			<<Feature>>	Lines 930-934
930	endangeredSpeciesActSite	Defines if the habitat has been designated as a critical habitat under (C) the Endangered Species Act or has not been so designated (N) [U.S. CADD Feature Table]	O	1	Boolean	True = C or False = N
931	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
932	plantHeight	Average height of the flora species [U.S. CADD Feature Table]	O	1	Real	> 0.0
933	plantType	Descriptor of the type of flora [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
934	speciesId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		18]				
935	ForestStandArea	Forest flora community with similar characteristics [U.S. CADD]			<<Feature>>	Lines 936-938
936	forestStandAreaId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
937	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
938	habitatCategory	Discriminator - The designation or type of the special wildlife habitat [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
939	HazardousMaterialStorageSite	Defined or bounded geographical area designated and used for the storage of contained hazardous materials [U.S. CADD]			<<Feature>>	Lines 940-942
940	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
941	hazardousMaterialStorageSiteId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
942	storedHazardousMaterial Category	General type or category of contained hazardous material stored [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
943	NoiseContour	Area that describes the noise attributed to operations. For aircraft operations, the day/night average sound level (Ldn) descriptor is typically used to categorize noise levels [14 CFR Part 150]			<<Feature>>	Lines 944-946

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
944	contourValue	Decibel level of the contour line	O	1	Real	Unrestricted
945	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
946	noiseZoneId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
947	NoiseIncident	Formal complaint by an individual or group regarding excessive noise resulting from airport operations			<<Feature>>	Lines 948-952
948	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
949	incidentSiteId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
950	latitude	Latitude in decimal degrees with negative numbers used for Southern Hemisphere	O	1	Real	Unrestricted
951	longitude	Longitude in decimal degrees with negative numbers used for Western Hemisphere	O	1	Real	Unrestricted
952	reporter	Name of the individual or organization reporting the incident [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
953	NoiseMonitoringPoint	Location of noise sensing equipment or where a noise sample is taken [U.S. CADD]			<<Feature>>	Lines 954-958
954	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
955	latitude	Latitude in decimal degrees with negative numbers used for Southern Hemisphere	O	1	Real	Unrestricted
956	longitude	Longitude in decimal degrees with negative numbers used for Western Hemisphere	O	1	Real	Unrestricted
957	noiseMonitoringPointId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
958	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
959	SampleCollectionPoint	Physical location at which one or more environmental hazard field samples are collected [U.S. CADD]			<<Feature>>	Lines 960-962
960	collectionPointLocation	Code describing the type of location which is undergoing sampling (for example, bh= borehole, wl=well). IRPIMS [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeSamplePoint Location	Restricted to the values in the enumeration CodeSamplePoint Location
961	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
962	samplePointId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
963	Shoreline	Boundary where land meets the edge of a large body of fresh or salt water. The shoreline is the mean high water line between high and low tide [U.S. CADD]			<<Feature>>	Lines 964-967

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
964	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
965	shorelineId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
966	shorelineName	Name of the shoreline or coastline	O	1	CharacterString	Unrestricted
967	shorelineType	Discriminator - A value indicating the type or kind of shoreline [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeShorelineType	Restricted to the values in the enumeration CodeShorelineType
968	Wetland	Transitional lands between terrestrial and aquatic systems where the water table is usually at or near the surface or the land			<<Feature>>	Lines 969-971
969	featureType	Descriptor of how the wetland is depicted graphically [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
970	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
971	wetlandId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted

7.11 Geotechnical features

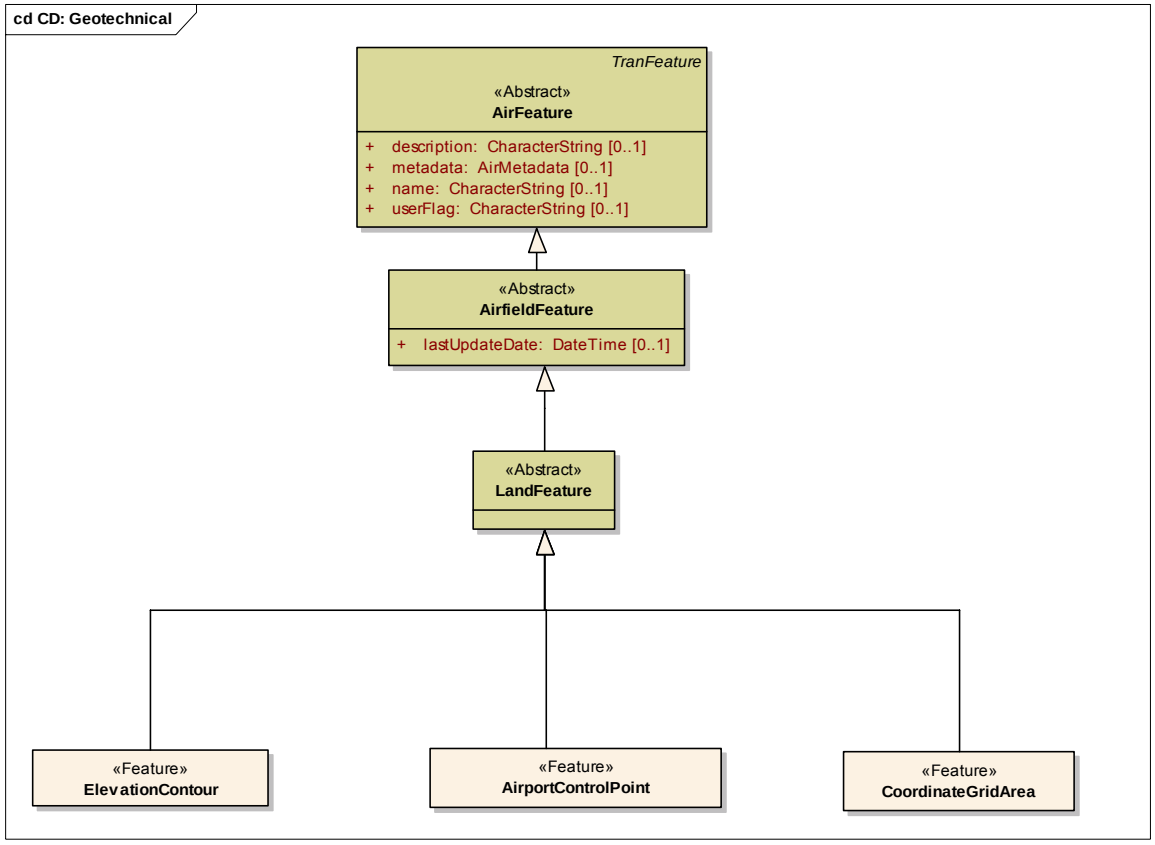

Figure 21 – Geotechnical features

805 **Table 19 – Data dictionary for geotechnical features**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
972	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
973	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
974	LandFeature	Cadastral data describe the geographic extent of past, current, and future right, title, and interest in real property, including above, surface, and below ground and water, and the foundation to support the description of that geographic extent			<<Abstract>>	
975	AirportControlPoint	Control station established in the vicinity of, and usually on, an airport and tied to the National Spatial Reference System (NSRS) [NGS]			<<Feature>>	Lines 866-882
976	CoordinateGridArea	Regular pattern of horizontal and vertical lines used to represent regular coordinate intervals along the x and y axis. This grid line can be used to generate an arbitrary grid system which is common on locator maps [U.S. CADD]			<<Feature>>	Lines 889-891
977	ElevationContour	Connecting points on the surface of the Earth of equal vertical elevation representing some fixed elevation interval [U.S. CADD]			<<Feature>>	Lines 884-887

7.12 Structure

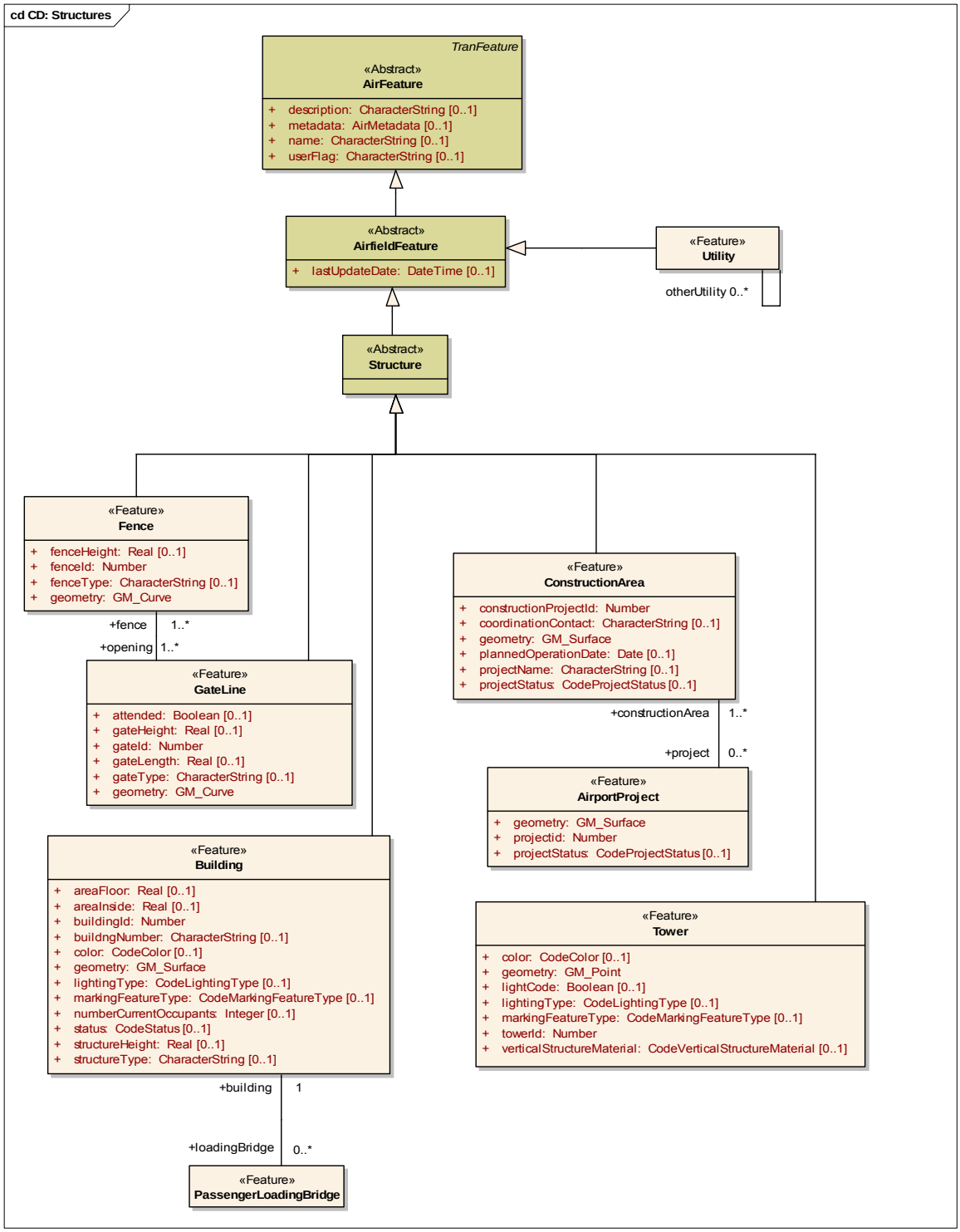

Figure 22 – Structure

Table 20 – Data dictionary for Structure

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
978	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
979	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
980	Structure	Manmade non-moveable (that is, fixed object)			<<Abstract>>	
981	Building	Three dimensional permanent structure modeled with a bounding polygon. This feature includes all on-airport buildings within an AirportParcel and any buildings in the vicinity of the airport that affects air navigation or airport design requirement [FAA AC 150/5300-18]			<<Feature>>	Lines 982-994
982	areaFloor	Total inside floor area [U.S. CADD Feature Table]	O	1	Real	> 0.0
983	areaInside	Total inside area of structure [U.S. CADD Feature Table]	O	1	Real	> 0.0
984	buildngId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
985	buildngNumber	Code indicating the number of the building [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
986	color	Color of the marking	O	1	<<Enumeration>> CodeColor	Restricted to the values in the enumeration CodeColor
987	geometry	Geometry of the feature	M	1	<<Type>>	Defined in ISO 19107

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
					GM_Surface	
988	lightingType	Description of the lighting system. Lighting system classifications are Approach, Airport, Runway, Taxiway, and Obstruction	O	1	<<Enumeration>> CodeLightingType	Restricted to the values in the enumeration CodeLightingType
989	markingFeatureType	Type of the marking	O	1	<<Enumeration>> CodeMarkingFeature Type	Restricted to the values in the enumeration CodeMarkingFeatureType
990	numberOfCurrentOccupants	Number of persons currently occupying the structure [U.S. CADD Feature Table]	O	1	Integer	≥ 0
991	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
992	structureHeight	Maximum height of structure [U.S. CADD Feature Table]	O	1	Real	> 0.0
993	structureType	Type of structure [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
994	Role name: loadingBridge	PassengerLoadingBridge to which the Building is referenced	O	1	<<Feature>> PassengerLoading Bridge	
995	ConstructionArea	Defined area that is under construction, not intended for active use until authorized by the concerned authority. The area defines a boundary for personnel, material, and equipment engaged in the construction activity [FAA AC 150/5300-18]			<<Feature>>	Lines 996-1002
996	constructionProjectId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		18]				
997	coordinationContact	Airport, emergency, airline, tenant, and contractor personnel who are responsible for coordinating on-airport construction work	O	1	CharacterString	Unrestricted
998	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
999	plannedOperationDate	Date the construction project is planned to go into operation	O	1	Date	≥ Date of data entry
1000	projectName	Name of the construction area [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
1001	projectStatus	Status of the construction project	O	1	<<Enumeration>> CodeProjectStatus	Restricted to the values in the enumeration CodeProjectStatus
1002	Role name: project	AirportProject to which the feature is referenced	O	*	<<Feature>> AirportProject	
1003	Fence	Fencing (chain-link, razor wire, PVC, and so on) [FAA AC 150/5300-18]			<<Feature>>	Lines 1004-1008
1004	fenceHeight	Overall distance from the surface of the ground to the top of the fence [U.S. CADD Feature Table]	O	1	Real	> 0.0
1005	fenceId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1006	fenceType	Code indicating the fencing material used [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
1007	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
1008	Role name: opening	GateLine to which the feature is referenced	M	*	<<Feature>> GateLine	
1009	GateLine	Area of a fence which may be opened for passage through the fence or closed to prevent passage through the fence			<<Feature>>	Lines 1010-1016
1010	attended	Boolean indicating whether the gate is tended by a guard or other individual [U.S. CADD Feature Table]	O	1	Boolean	True or False
1011	gateHeight	Overall distance from the surface of the ground to the top of the gate [U.S. CADD Feature Table]	O	1	Real	> 0.0
1012	gateId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1013	gateLength	Overall distance from one end of the gate to the other [U.S. CADD Feature Table]	O	1	Real	> 0.0
1014	gateType		O	1	CharacterString	
1015	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
1016	Role name: fence	The Fence to which the feature is referenced	M	1	<<Feature>> Fence	
1017	Tower	Existing structure that was created, by man, to facilitate an activity at an elevated level above the ground [U.S. CADD]			<<Feature>>	Lines 1018-1024
1018	color	Color of the marking	O	1	<<Enumeration>> CodeColor	Restricted to the values in the enumeration

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
						CodeColor
1019	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
1020	lightCode	Code indicating that the obstacle is lighted [AIXM]	O	1	Boolean	True or False
1021	lightingType	Description of the lighting system. Lighting system classifications are Approach, Airport, Runway, Taxiway, and Obstruction	O	1	<<Enumeration>> CodeLightingType	Restricted to the values in the enumeration CodeLightingType
1022	markingFeatureType	Type of the marking	O	1	<<Enumeration>> CodeMarkingFeature Type	Restricted to the values in the enumeration CodeMarkingFeatureType
1023	towerId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1024	verticalStructureMaterial	Classifies the predominant material of the vertical object	O	1	<<Enumeration>> CodeVerticalStructure Material	Restricted to the values in the enumeration CodeVerticalStructure Material
1025	AirportProject	Project associated with the airport: for instance, a construction project			<<Feature>>	Lines 1026-1029
1026	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
1027	projectId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1028	projectStatus	Status of the project	O	1	<<Enumeration>> CodeProjectStatus	Restricted to the values in the enumeration CodeProjectStatus

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
1029	Role name: constructionArea	ConstructionArea to which the feature is referenced	M	*	<<Feature>> ConstructionArea	
1030	Utility	Type of utility that can be represented as a line, point, or polygon			<<Feature>>	Lines 1031, 1143-1147
1031	Role name: otherUtility	Other UtilityLine to which the feature is referenced	O	*	<<Feature>> Utility	
1032	PassengerLoadingBridge	Bridge for loading/unloading access to airplanes for passengers and crew [FAA AC 150/5300-18]			<<Feature>>	Lines 128-131, 150, 1033
1033	Role name: building	Building to which the feature is referenced	M	1	<<Feature>> Building	

7.13 SurfaceTransportation

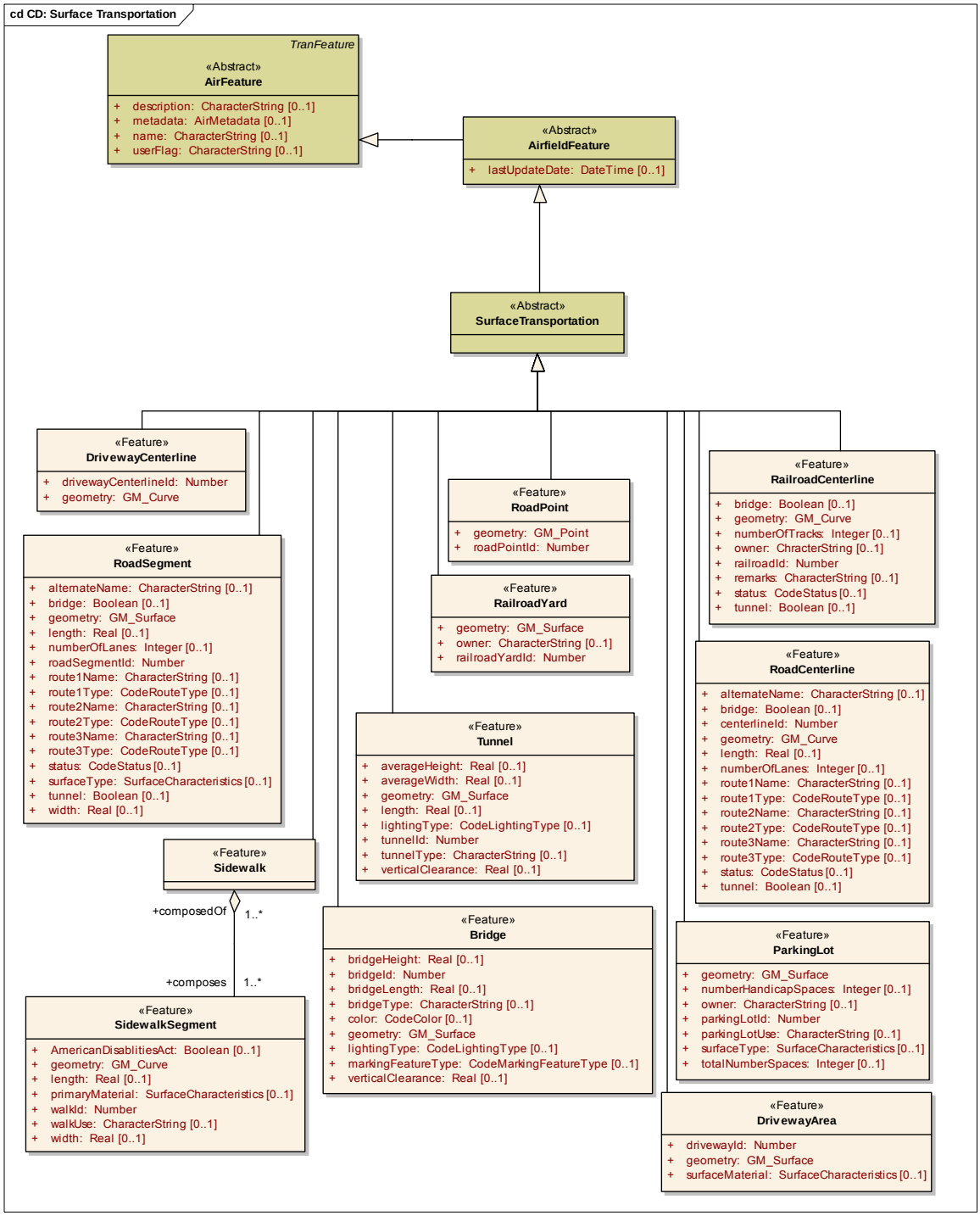

Figure 23 – SurfaceTransportation

815 **Table 21 – Data dictionary for SurfaceTransportation**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
1034	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
1035	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
1036	SurfaceTransportation	Abstract class for any data concerning the modes of transporting vehicles, exclusive of aircraft, and people on the surface of the ground exclusive (for instance, railroads, highways, and walkways)			<<Abstract>>	
1037	Bridge	Structure used by vehicles that allows passage over or under an obstacle such as a river, chasm, mountain, road, or railroad [U.S. CADD]			<<Feature>>	Lines 1033-1046
1038	bridgeHeight	Clearance of the bridge structure; that is to say, the height beneath the structure of the bridge [U.S. CADD Feature Table]	O	1	Real	> 0.0
1039	bridgeId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1040	bridgeLength	Total length of the span of the bridge [U.S. CADD Feature Table]	O	1	Real	> 0.0
1041	bridgeType	Fundamental structure type of the bridge [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
1042	color	Color of the marking	O	1	<<Enumeration>>	Restricted to the values in the enumeration

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
					CodeColor	CodeColor
1043	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
1044	lightingType	Description of the lighting system. Lighting system classifications are Approach, Airport, Runway, Taxiway, and Obstruction	O	1	<<Enumeration>> CodeLightingType	Restricted to the values in the enumeration CodeLightingType
1045	markingFeatureType	Type of the marking	O	1	<<Enumeration>> CodeMarkingFeature Type	Restricted to the values in the enumeration CodeMarkingFeatureType
1046	verticalClearance	Clearance in feet between the lowest point under the bridge opening and the water's surface at mean high water (MHW) [U.S. CADD Feature Table]	O	1	Real	> 0.0
1047	DrivewayArea	Access to a residence or other vehicle parking lot or storage area [U.S. CADD]			<<Feature>>	Lines 1048-1050
1048	drivewayId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1049	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
1050	surfaceMaterial	Material used as a surface for the driveway [U.S. CADD Feature Table]	O	1	<<DataType>> SurfaceCharacteristics	Unrestricted
1051	DrivewayCenterline	Center of the driveway as measured from the edge of the paved surface. The segments of a driveway centerline will coincide with the road segments in order to provide			<<Feature>>	Lines 1052-1053

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		network connectivity [U.S. CADD]				
1052	drivewayCenterlineId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1053	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
1054	ParkingLot	Area of an airport used for parking of automobiles, buses, and so on [U.S. CADD]			<<Feature>>	Lines 1055-1061
1055	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
1056	numberHandicapSpaces	Total number of spaces marked as being handicapped parking [U.S. CADD Feature Table]	O	1	Integer	≥ 0
1057	owner	Owner of the parking lot	O	1	CharacterString	Unrestricted
1058	parkingLotId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1059	parkingLotUse	Primary use of the parking area [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
1060	surfaceType	Type of different materials used to construct the surface [U.S. CADD Feature Table]	O	1	<<DataType>> SurfaceCharacteristics	Unrestricted
1061	totalNumberSpaces	Total parking spaces available in the area including handicapped or reserved spaces [U.S. CADD Feature Table]	O	1	Integer	≥ 0
1062	RailroadCenterline	Represents the centerline of each			<<Feature>>	Lines 1063-1070

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		pair of rails				
1063	bridge	Indicates given road segment is bridge (Y- a is bridge, N-is not a bridge) [U.S. CADD Feature Table]	O	1	Boolean	True = Y or False = N
1064	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
1065	numberOfTracks	Number of tracks present	O	1	Integer	> 0
1066	owner	Owner of the rail track	O	1	CharacterString	Unrestricted
1067	railroadId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1068	remarks	Narrative remarks concerning the railroad [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
1069	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
1070	tunnel	Indicates given road segment is tunnel (Y- is a tunnel, N-is not a tunnel) [U.S. CADD Feature Table]	O	1	Boolean	True = Y or False = N
1071	RailroadYard	Represents a railroad yard			<<Feature>>	Lines 1072-1074
1072	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
1073	owner	Owner of the rail yard	O	1	CharacterString	Unrestricted
1074	railroadYardId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
1075	RoadCenterline	Center of the roadway as measured from the edge of the paved surface. The segments of a road centerline will coincide with the road segments in order to have similar characteristics [U.S. CADD]			<<Feature>>	Lines 1076-1089
1076	alternateName	Alternate name or second name for the road [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
1077	bridge	Indicates given road segment is bridge (“Y”- a is bridge, “N”-is not a bridge) [U.S. CADD Feature Table]	O	1	Boolean	True = Y or False = N
1078	centerlineId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1079	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
1080	length	Overall length of the road centerline [U.S. CADD Feature Table]	O	1	Real	> 0.0
1081	numberOfLanes	Number of normal traffic lanes throughout the length of the centerline [U.S. CADD Feature Table]	O	1	Integer	> 0
1082	route1Name	Route number or other identifier that is affiliated with the first route type [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
1083	route1Type	First route type for the road (Interstate, U.S., State, and so on) [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeRouteType	Restricted to the values in the enumeration CodeRouteType
1084	route2Name	Route number or other identifier that is affiliated with the second route type [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
1085	route2Type	Second route type for the road (Interstate, U.S., State, and so on) [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeRouteType	Restricted to the values in the enumeration CodeRouteType
1086	route3Name	Number or other identifier that is affiliated with the third route type [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
1087	route3Type	Third route type for the road (Interstate, U.S., State, and so on) [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeRouteType	Restricted to the values in the enumeration CodeRouteType
1088	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
1089	tunnel	Indicates given road segment is tunnel (“Y”- is a tunnel, “N”-is not a tunnel) [U.S. CADD Feature Table]	O	1	Boolean	True = Y or False = N
1090	RoadPoint	Point along the roadway system which has some special significance either for starting or ending a road segment or for representing a significant position along the roadway system such as the start or center of a bridge or the center of an intersection [ANSI, Part 7c: Roads]			<<Feature>>	Lines 1091-1092
1091	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
1092	roadPointId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1093	RoadSegment	Represents a linear section of the physical road system designed for, or the result of, human or vehicular movement; must be continuous (no			<<Feature>>	Lines 1094-1109

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		gaps) and cannot branch; no mandates are provided on how to segment the road system except that data providers adopt a consistent method [ANSI, Part 7c: Roads]				
1094	alternateName	Alternate name or second name for the road [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
1095	bridge	Indicates given road segment is bridge (Y- a is bridge, N-is not a bridge) [U.S. CADD Feature Table]	O	1	Boolean	True = Y or False = N
1096	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
1097	length	Length of the road segment measured at the centerline [U.S. CADD Feature Table]	O	1	Real	> 0.0
1098	numberOfLanes	Total number of lanes of traffic, counting both directions, not including turning lanes [U.S. CADD Feature Table]	O	1	Integer	> 0
1099	roadSegmentId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1100	route1Name	Route number or other identifier that is affiliated with the first route type [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
1101	route1Type	First route type for the road (Interstate, U.S., State, and so on) [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeRouteType	Restricted to the values in the enumeration CodeRouteType
1102	route2Name	Route number or other identifier that is affiliated with the second route	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		type [U.S. CADD Feature Table]				
1103	route2Type	Second route type for the road (Interstate, U.S., State, and so on) [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeRouteType	Restricted to the values in the enumeration CodeRouteType
1104	route3Name	Number or other identifier that is affiliated with the third route type [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
1105	route3Type	Third route type for the road (Interstate, U.S., State, and so on) [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeRouteType	Restricted to the values in the enumeration CodeRouteType
1106	status	Temporal description of the operational state of the feature. This attribute is used to describe real-time status	O	1	<<Enumeration>> CodeStatus	Restricted to the values in the enumeration CodeStatus
1107	surfaceType	Type of material used to construct the surface [U.S. CADD Feature Table]	O	1	<<DataType>> SurfaceCharacteristics	Unrestricted
1108	tunnel	Indicates given road segment is tunnel (Y- is a tunnel, N-is not a tunnel) [U.S. CADD Feature Table]	O	1	Boolean	True = Y or False = N
1109	width	Average width of the road segment [U.S. CADD Feature Table]	O	1	Real	> 0.0
1110	Sidewalk	Paved or concrete pad used as a pedestrian walkway. Usually is composed of one or more SidewalkSegments [U.S. CADD]			<<Feature>>	Line 1111
1111	Role name: composes	SidewalkSegment to which the feature is referenced	M	*	<<Feature>> SidewalkSegment	
1112	SidewalkSegment	Segment of a sidewalk			<<Feature>>	Lines 1113-1120
1113	AmericanDisabilitiesAct	Boolean indicating whether or not	O	1	Boolean	True or False

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
		the walkway is in compliance with the American Disabilities Act [U.S. CADD Feature Tab				
1114	geometry	Geometry of the feature	M	1	<<Type>> GM_Curve	Defined in ISO 19107
1115	length	Overall length of the sidewalk section [U.S. CADD Feature Table]	O	1	Real	> 0.0
1116	primaryMaterial	Primary material used in the sidewalk and/or trail [U.S. CADD Feature Table]	O	1	<<DataType>> SurfaceCharacteristics	Unrestricted
1117	walkId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1118	walkUse	Short description of the primary use of the sidewalk [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
1119	width	Mean width of the sidewalk section [U.S. CADD Feature Table]	O	1	Real	> 0.0
1120	Role name: composedOf	Sidewalk to which the feature is referenced	M	*	<<Feature>> Sidewalk	
1121	Tunnel	Area of a transportation passage, open at both ends, used to provide access through or under a natural obstacle [U.S. CADD]			<<Feature>>	Lines 1122-1129
1122	averageHeight	Average height of the tunnel [U.S. CADD Feature Table]	O	1	Real	> 0.0
1123	averageWidth	Average width of the tunnel [U.S. CADD Feature Table]	O	1	Real	> 0.0
1124	geometry	Geometry of the feature	M	1	<<Type>>	Defined in ISO 19107

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
					GM_Surface	
1125	length	Length of the tunnel [U.S. CADD Feature Table]	O	1	Real	≥ 0.0
1126	lightingType	Description of the lighting system. Lighting system classifications are Approach, Airport, Runway, Taxiway, and Obstruction	O	1	<<Enumeration>> CodeLightingType	Restricted to the values in the enumeration CodeLightingType
1127	tunnelId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1128	tunnelType	Code that represents the type of tunnel [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted
1129	verticalClearance	Indicates the actual vertical clearance to the top of the tunnel imposed by any restrictions (measured in meters) [U.S. CADD Feature Table]	O	1	Real	≥ 0.0

7.14 Utility

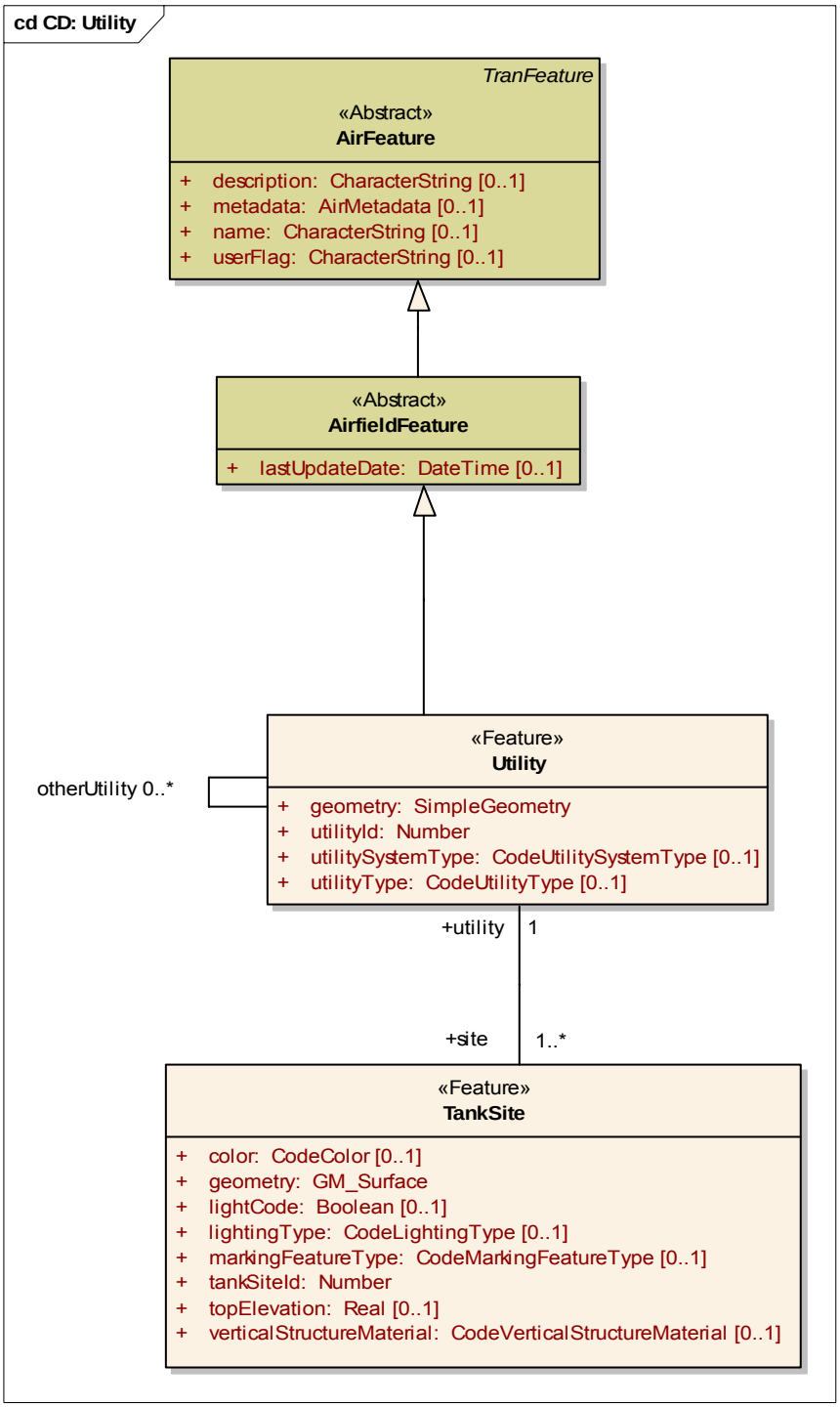

Figure 24 – Utility

820 **Table 22 – Data dictionary for Utility**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
1130	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
1131	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
1132	TankSite	Above or below grade receptacle or chamber for holding anything (for example, fuels, water, waste, and so on) on a temporary basis prior to transfer, use, or disposal. Tanks are located on TankSites [U.S. CADD]			<<Feature>>	Lines 1133-1141
1133	color	Color of the marking	O	1	<<Enumeration>> CodeColor	Restricted to the values in the enumeration CodeColor
1134	geometry	Geometry of the feature	M	1	<<Type>> GM_Surface	Defined in ISO 19107
1135	lightCode	Code indicating that the obstacle is lighted [AIXM]	O	1	Boolean	True or False
1136	lightingType	Description of the lighting system. Lighting system classifications are Approach, Airport, Runway, Taxiway, and Obstruction	O	1	<<Enumeration>> CodeLightingType	Restricted to the values in the enumeration CodeLightingType
1137	markingFeatureType	Type of the marking	O	1	<<Enumeration>> CodeMarkingFeature Type	Restricted to the values in the enumeration CodeMarkingFeatureType
1138	tankSiteId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
1139	topElevation	Dimension indicating the elevation of exterior top surface of the tank's lid, hatch, rim, or roof in feet (English units) or meters (SI units) above some datum, if it is known [U.S. CADD Feature Table]	O	1	Real	Unrestricted
1140	verticalStructureMaterial	Classifies the predominant material of the vertical object	O	1	<<Enumeration>> CodeVerticalStructure Material	Restricted to the values in the enumeration CodeVerticalStructure Material
1141	Role name: utility	Utility to which the feature is referenced	M	1	<<Feature>> Utility	
1142	Utility	Type of utility that can be represented as a line, point, or polygon			<<Feature>>	Lines 1031, 1143-1147
1143	geometry	Geometry of the feature	M	1	<<Union>> SimpleGeometry	Defined in ISO 19107
1144	utilityId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1145	utilitySystemType	Class of utility based on U.S. CADD Entity Class definitions	O	1	<<Enumeration>> CodeUtilitySystem Type	Restricted to yhe values in the enumeration CodeUtilitySystemType
1146	utilityType	Type of utility that is represented, for instance a line, point, or polygon	O	1	<<Enumeration>> CodeUtilityType	Restricted to the values in the enumeration CodeUtilityType
1147	Role name: otherUtility	UtilityLine to which the feature is referenced	O	*	<<Feature>> Utility	

7.15 AirfieldLight and LightingSystem

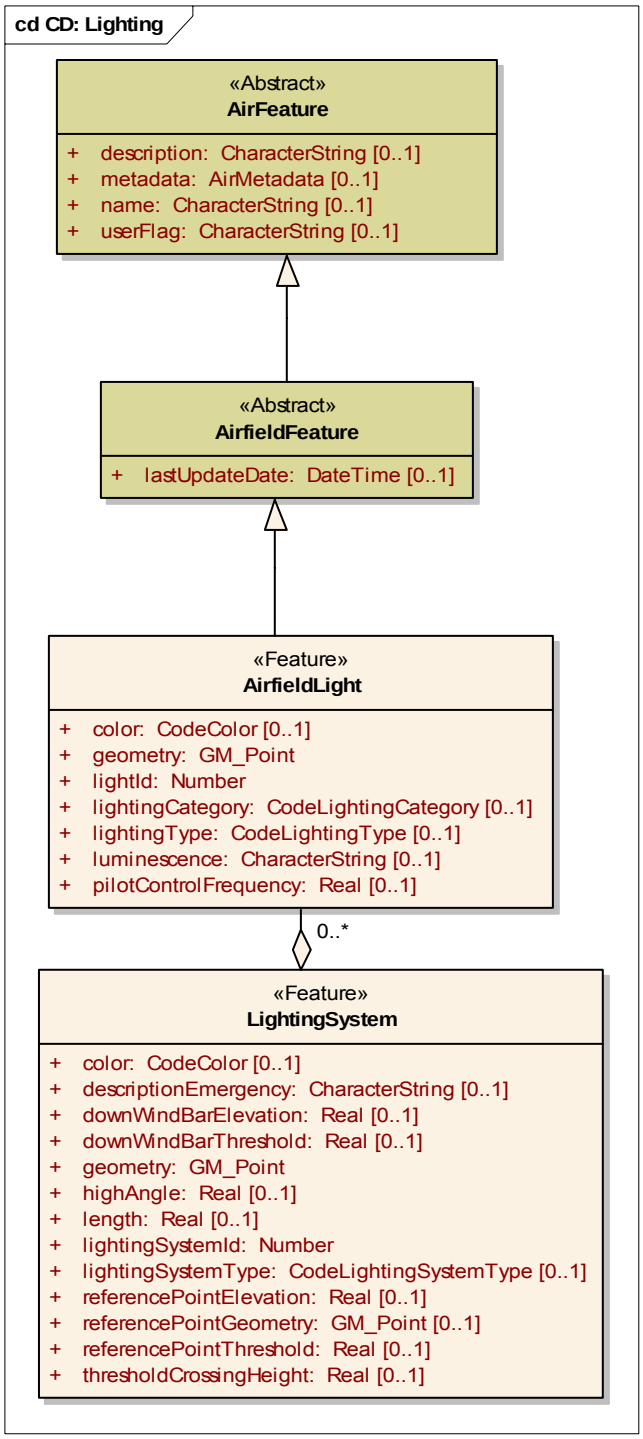

Figure 25 – AirfieldLight and LightingSystem

825 **Table 23 – Data dictionary for AirfieldLight and LightingSystem**

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
1148	AirFeature	Abstract class for all features associated with air transportation. This includes Airspace and Airfield features			<<Abstract>>	Lines 28-31
1149	AirfieldFeature	Abstract base class for all air transportation features			<<Abstract>>	Line 33
1150	AirfieldLight	Lighting located within or near an airport boundary the provides guidance for airborne and ground maneuvering of aircraft [FAR/AIM, AC 150/5340-30B]			<<Feature>>	Lines 174, 249-250, 442-443, 470-473, 589, 1151-1157
1151	color	Color of the airfield light [U.S. CADD Feature Table]	O	1	<<Eumeration>> CodeColor	Restricted to the values in the enumeration CodeColor
1152	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
1153	lightId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1154	lightingCategory	Description of the lighting system. Lighting system classifications are Approach, Airport, Runway, Taxiway; and Obstruction	O	1	<<Enumeration>> CodeLightingCategory	Restricted to the values in the enumeration CodeLightingCategory
1155	lightingType	Description of the lighting system. Lighting system classifications are Approach, Airport, Runway, Taxiway, and Obstruction	O	1	<<Enumeration>> CodeLightingCategory	Restricted to the values in the enumeration CodeLightingCatecory
1156	luminescence	Luminescence of the airfield light [U.S. CADD Feature Table]	O	1	CharacterString	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
1157	pilotControlFrequency	Radio frequency used by pilots to control various airport lighting systems	O	1	Real	Unrestricted
1158	LightingSystem	Type of lighting system			<<Feature>>	Lines 1159-1171
1159	color	Color of the airfield light [U.S. CADD Feature Table]	O	1	<<Enumeration>> CodeColor	Restricted to the values in the enumeration CodeColor
1160	descriptionEmergency	Textual description of the emergency lighting system availability and its characteristics [AIXM]	O	1	CharacterString	Unrestricted
1161	downWindBarElevation	Elevation of the downwind bar indicator	O	1	Real	Unrestricted
1162	downWindBarThreshold	Distance the downwind bar is from the threshold	O	1	Real	Unrestricted
1163	geometry	Geometry of the feature	M	1	<<Type>> GM_Point	Defined in ISO 19107
1164	highAngle	Maximum approach light vertical angle [FAA AC 150/5300-18]	O	1	Real	Unrestricted
1165	length	Length of the lighting system	O	1	Real	> 0.0
1166	lightingSystemId	Primary Key. A globally unique identifier assigned to the instance of a feature type [FAA AC 150/5300-18]	M	1	Number	Unrestricted
1167	lightingSystemType	Type of lighting system	O	1	<<Enumeration>> CodeLightingSystem Type	Restricted to the values in the enumeration CodeLightingSystemType
1168	referencePointElevation	Elevation of the reference point for the lighting system	O	1	Real	Unrestricted

Line	Name/Role Name	Definition	Obligation/ Condition	Maximum Occurrence	Data Type	Domain
1169	referencePointGeometry	Geometry of the lighting system reference point	O	1	<<Type>> GM_Point	Defined in ISO 19107
1170	referencePointThreshold	Distance from the reference point to the threshold	O	1	Real	> 0.0
1171	thresholdCrossingHeight	Height that the effective visual glide path crosses above the runway threshold [FAA Airport Data 5010]	O	1	Integer	> 0

7.16 Code lists, unions, and enumerations

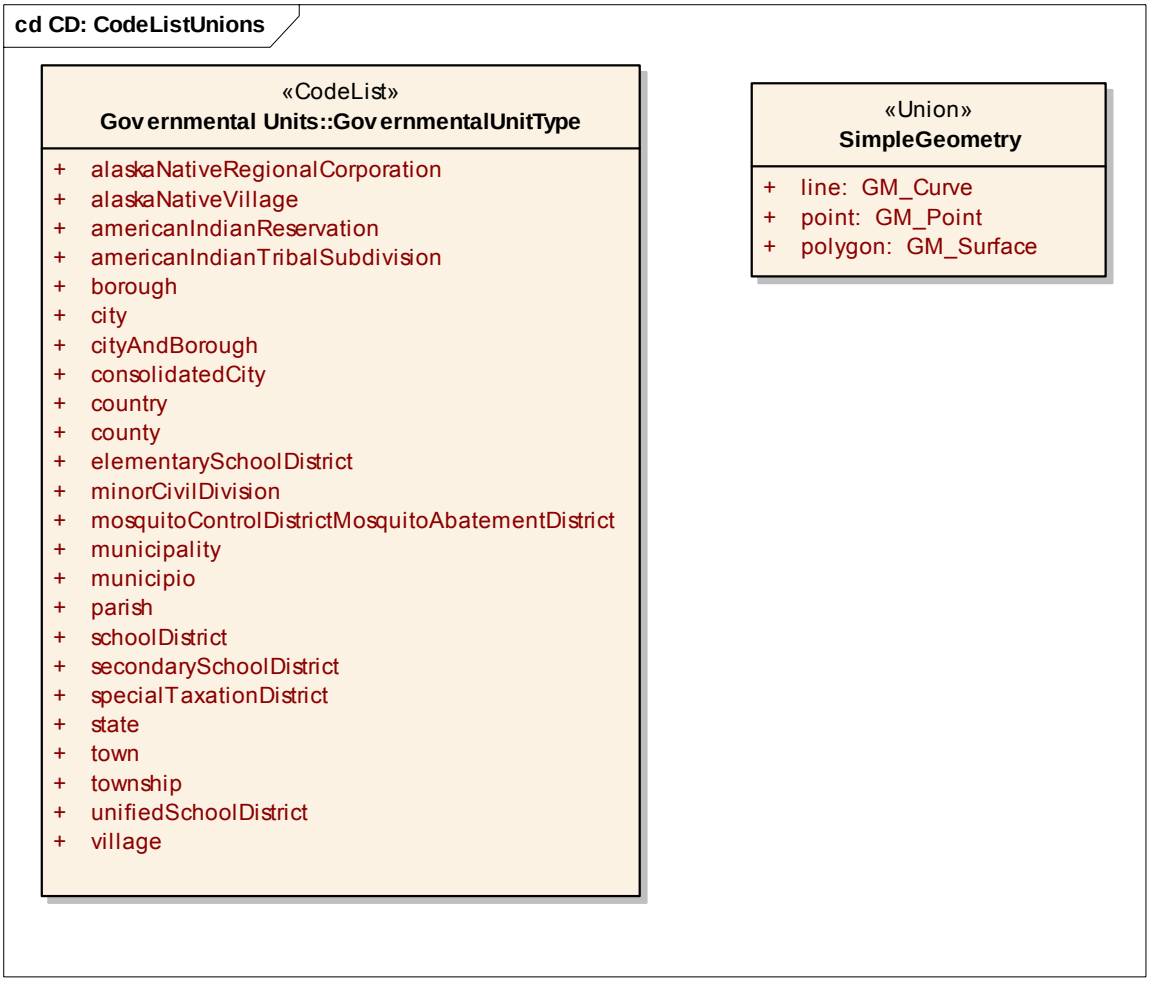

Figure 26 – Code lists and unions

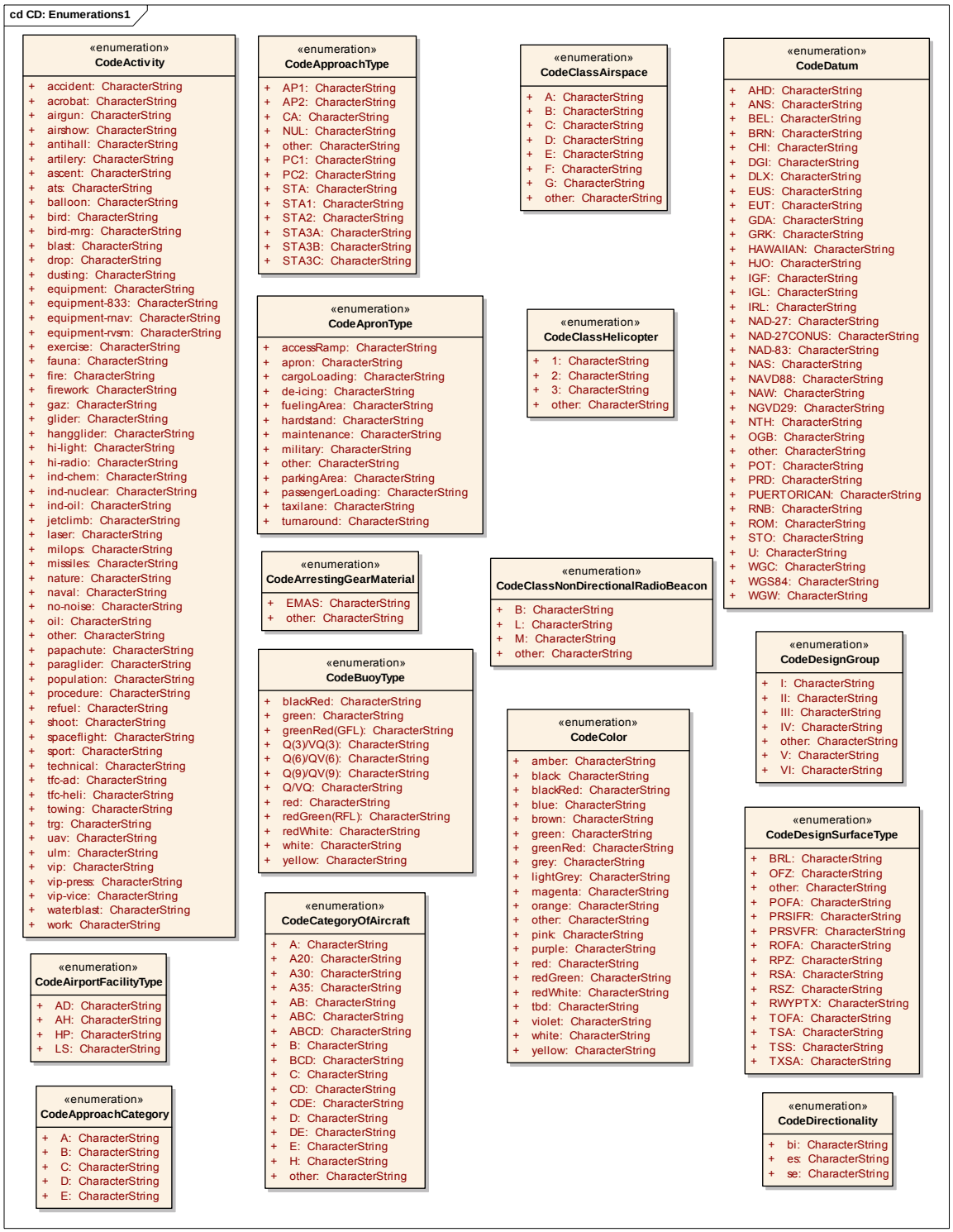

Figure 27 – Enumerations (1)

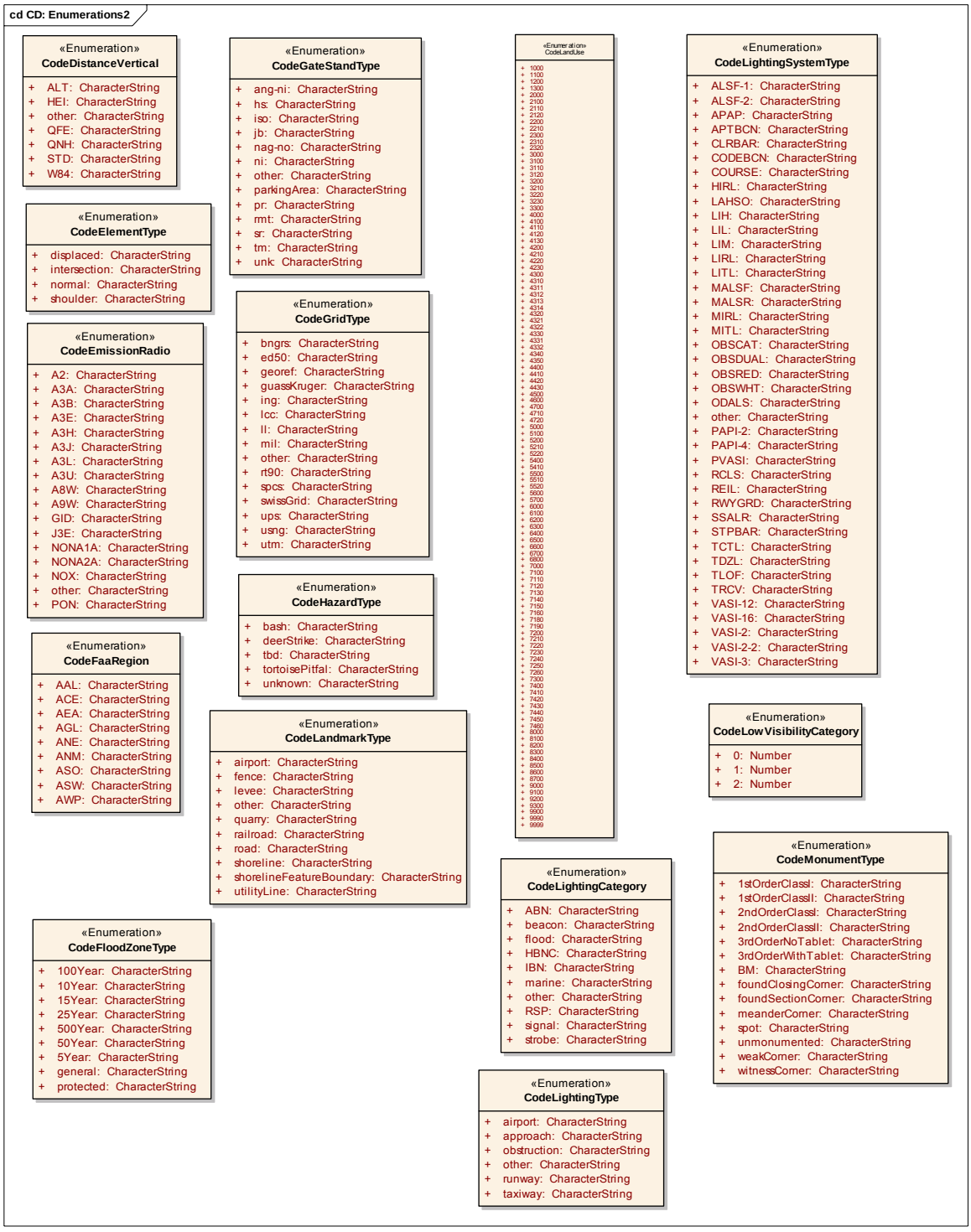

Figure 28 – Enumerations (2)

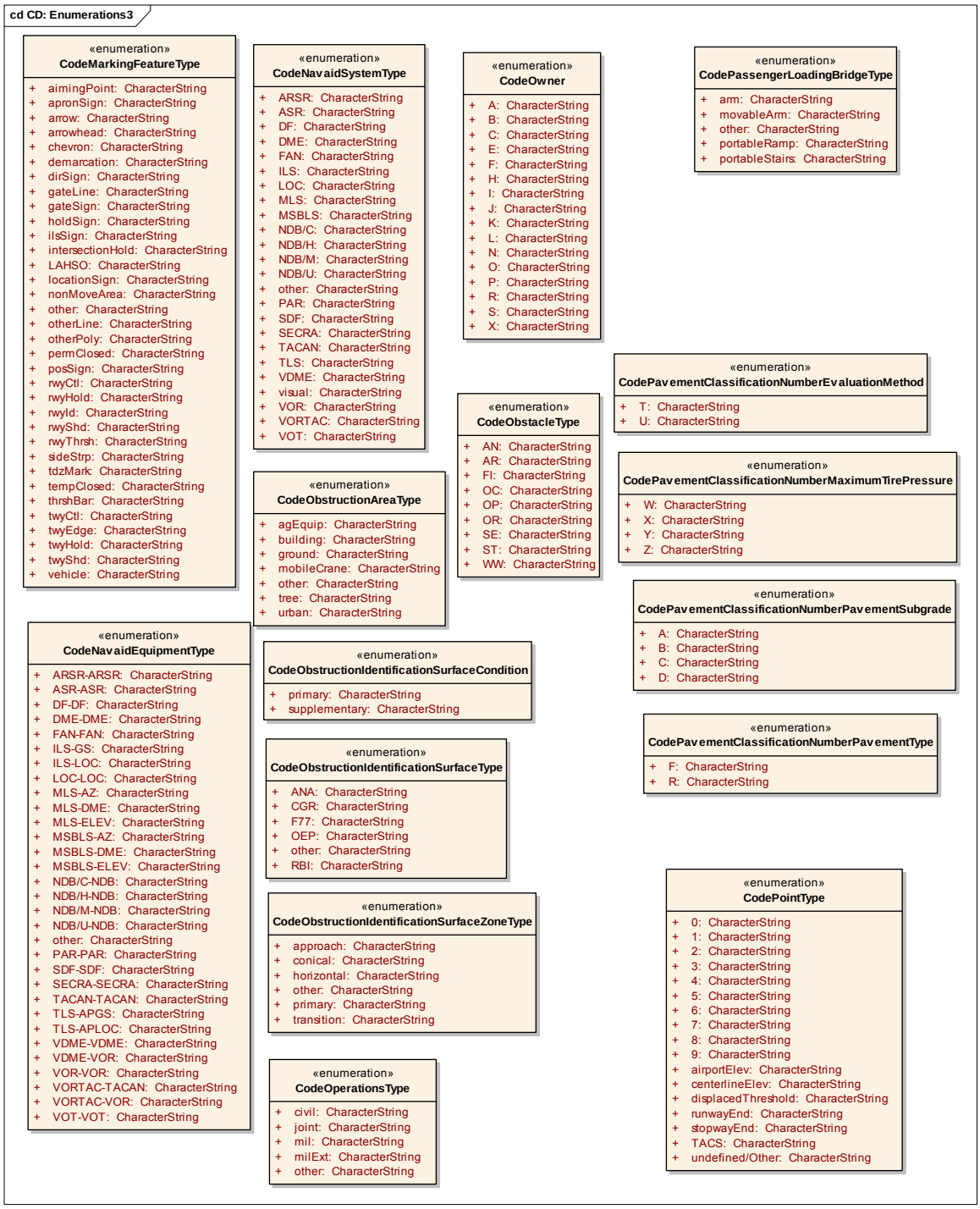

Figure 29 – Enumerations (3)

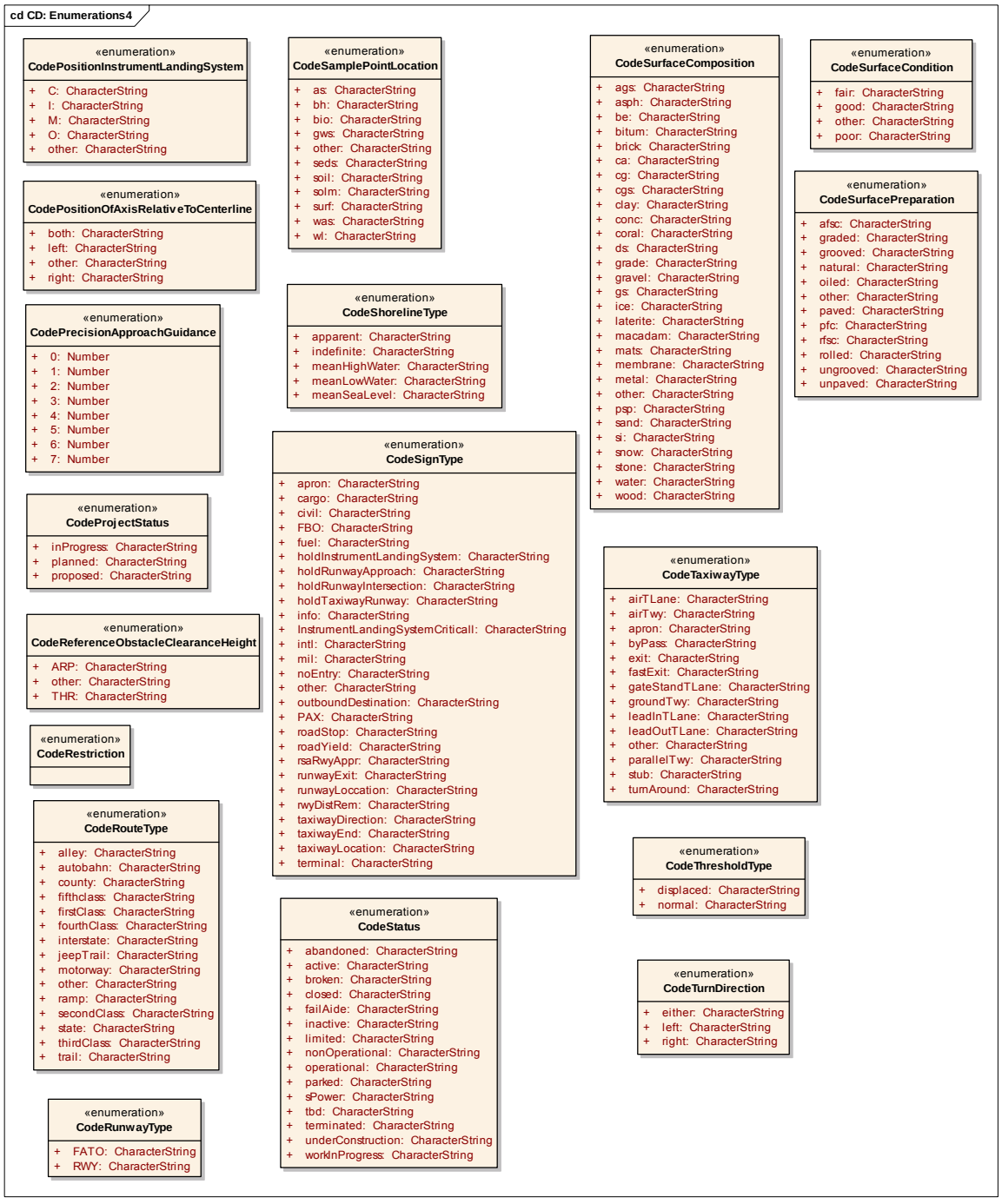

Figure 30 – Enumerations (4)

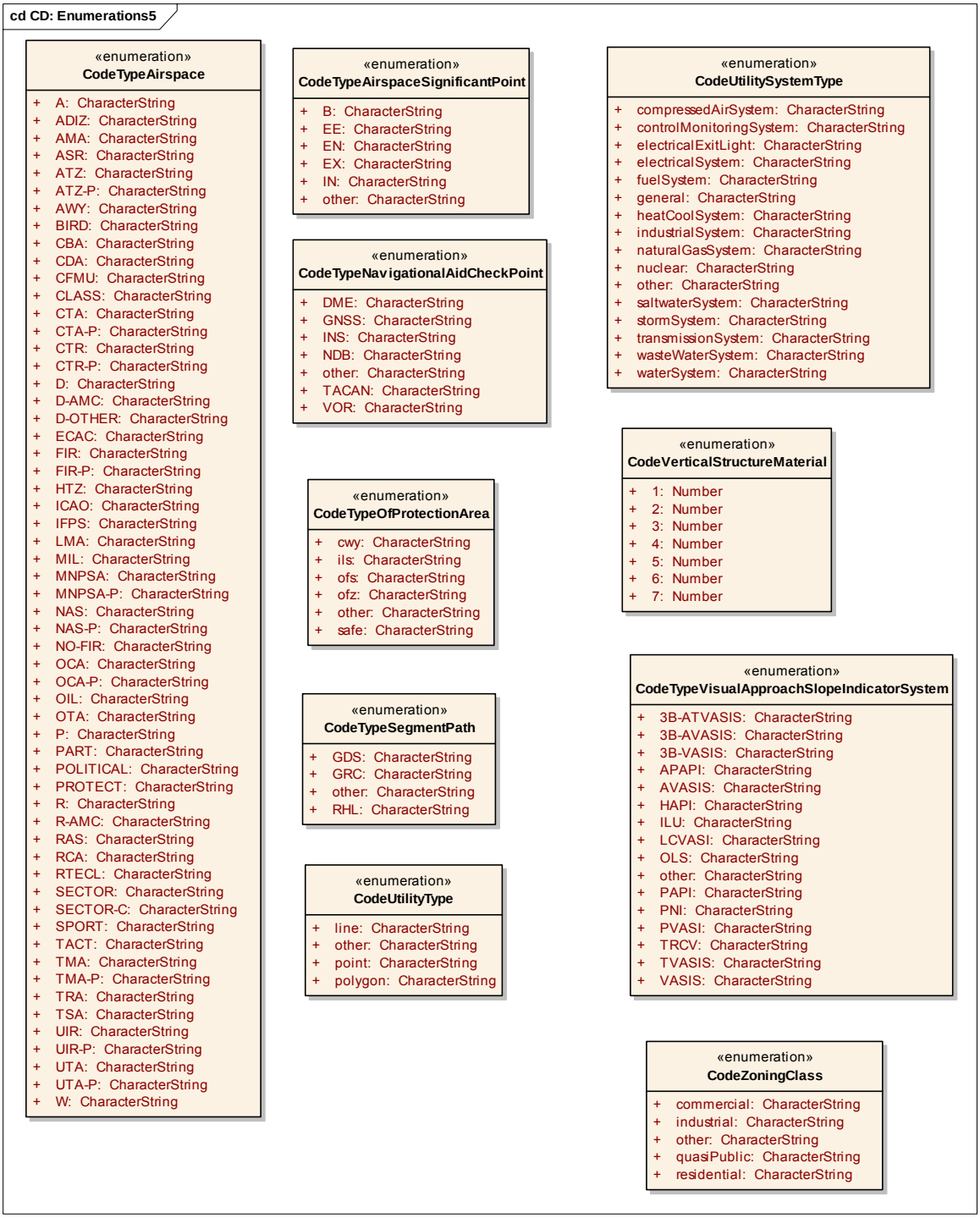

Figure 31 – Enumerations (5)

840 **7.16.1 Governmental Units::GovernmentalUnitType code list**

841 Governmental Units::GovernmentalUnitType is a CodeList of values for the attribute
842 governmentalUnit Type.

843

844 **Table 24 – CodeList for Governmental Units::GovernmentalUnitType**

Name	Definition
alaskaNativeRegionalCorporation (ANRC)	A corporate entity established to conduct both business and nonprofit affairs of Alaska Natives, pursuant to the Alaska Native Claims Settlement Act of 1972 (Public Law 92-203, as amended by Public Law 94-204). Twelve ANRCs are legally bounded geographic entities that cover Alaska, except for the Annette Islands Reserve (an American Indian reservation). A thirteenth ANRC represents Alaska Natives who do not live in Alaska and do not identify with any of the 12 corporations
alaskaNativeVillage (ANV)	A local governmental unit in Alaska that constitutes an association, band, clan, community, group, tribe, or village, recognized pursuant to the Alaska Native Claims Settlement Act of 1972 (Public Law 92-203, as amended Public Law 94-204). ANVs do not have clearly defined boundaries that are easily locatable, and they often include many square miles of land used by Alaska Natives for hunting and fishing, so the U.S. Census Bureau works with officials of the Alaska Native villages and Alaska Native Regional Corporations to delineate Alaska Native village statistical areas for data presentation purposes
americanIndianReservation	A Federal American Indian reservation is an area that has been set aside by the United States for the use of one or more federally recognized American Indian tribes. Together with off-reservation trust land, a reservation covers territory over which one or more tribes have primary governmental authority. The boundary of a Federal reservation is defined by Tribal treaty, agreement, executive or secretarial order, Federal statute, or judicial determination. A State American Indian reservation is an area that a State government has allocated to a tribe recognized by that State, but not by the Federal government. American Indian reservations are known as colonies, communities, Indian communities, Indian villages, pueblos, rancherias, ranches, reservations, reserves, and villages
americanIndianTribalSubdivision	A legal subdivision of a federally recognized American Indian reservation, off-reservation trust land, or Oklahoma Tribal statistical area. These entities are internal units of self-government or administration that serve social, cultural, and/or economic purposes for American Indians. Tribal subdivisions are known as areas, chapters, communities, districts, and segments
borough	A legally established geographic entity in Alaska, which the Census Bureau treats as statistically equivalent to a county in other States; a minor civil division in each of the five counties that comprise New York city; a type of incorporated place in Connecticut, New Jersey, and Pennsylvania
city	A type of incorporated place in all States and the District of Columbia. In agreement with Hawaii, the U.S. Census Bureau does not recognize the city of Honolulu for presentation of census data. In Virginia, all cities are not part of any county, and so the Census Bureau treats them as equivalent to a county for data presentation purposes, as well as treating them as incorporated places; there also is one such independent city in each of three States: Maryland, Missouri, and Nevada. In 23 States and the District of Columbia, some or all cities are not part of any minor civil division, in which case the U.S. Census Bureau treats them as county divisions as well as incorporated places for data presentation purposes
cityAndBorough	A legally established geographic entity in Alaska, which the U.S. Census Bureau treats as the statistical equivalent of a county in other States; also, a type of incorporated place in Alaska

Name	Definition
consolidatedCity	The U.S. Census Bureau refers to a governmental unit for which the functions of an incorporated place and its county or minor civil division have merged as a consolidated government. If one or more other incorporated places continue to function as separate governmental units even though they are part of a consolidated government, the U.S. Census Bureau refers to the primary incorporated place as a consolidated city
country	An independent, self-governing, political entity
county	The primary legal division of every State except Alaska and Louisiana
elementarySchoolDistrict	A school district inclusive of kindergarten through either the eighth or ninth grade or the first through either the eighth or ninth grade
minorCivilDivision (MCD)	A type of governmental unit that is the primary governmental or administrative division of a county or statistically equivalent entity in many States. MCDs are identified by a variety of terms, such as township, town (in eight States), or district. The U.S. Census Bureau recognizes MCDs in 28 States, the District of Columbia, Puerto Rico, and the Island Areas. In 20 States and American Samoa, all or many MCDs are active general-purpose governmental units. Many MCDs are not general-purpose governmental units, and therefore do not have elected officials to carry out legal functions; instead, they serve as nonfunctioning administrative entities
mosquitoControlDistrictMosquitoAbatement District	A geographic area defined for purposes of administering mosquito abatement or mosquito surveillance programs
municipio	A governmental unit that is the primary legal division of Puerto Rico
municipality	A governmental unit that is a primary legal division in Alaska and the Northern Mariana Islands
parish	A governmental unit that is the primary legal division of Louisiana
schoolDistrict	A geographic entity within which State, county, or local officials or the U.S. Department of Defense provides public educational services for an area's residents
secondarySchoolDistrict	A school district inclusive of only high school (either the ninth through the twelfth grades or the tenth through the twelfth grades)
specialTaxationDistrict	An area defined for purposes of raising revenue to fund specific projects or programs, or to meet specific ongoing needs, such as security, trash collection, or infrastructure maintenance. Also known as business improvement districts (BID), downtown improvement districts (DID), special improvement districts (SID), or assessment districts
state	A primary governmental division of the United States
town	A governmental unit that is a functioning minor civil division found in the New England States, New York, and Wisconsin; and a type of incorporated place in 30 States and the U.S. Virgin Islands
township	A governmental unit that is a functioning minor civil division in 12 States (townships are administrative units in Arkansas, New Hampshire, and North Carolina). Townships in Missouri can be either functioning governmental units or nonfunctioning administrative units
unifiedSchoolDistrict	A school district inclusive of kindergarten through twelfth grade
village	A type of incorporated place in 20 States and American Samoa

845

7.16.2 SimpleGeometry union

SimpleGeometry is a union of values for the attribute geometry.

Table 25 – SimpleGeometry union

Name	Definition
line	GM_Curve
point	GM_Point
polygon	GM_Surface

7.16.3 CodeActivity enumeration

CodeActivity is an enumeration of values for the attribute codeActivity.

Table 26 – CodeActivity enumeration

Name	Definition
accident	Accident investigation area
acrobat	Acrobatic flights, aerobatics
airgun	Aerial gunnery
airshow	Air show
antihail	Anti-hail rocket firing
artillery	Artilery firing
ascent	Ascent of radio probe, radiosonde, meteorological balloons
ats	Air traffic services
balloon	Hot air balloonis
bird	Bird hazard
bird-mgr	Bird migration
blast	Blasting operations
drop	Droppings
dusting	Seasonal crop dusting
equipment	Special equipment
equipment-833	8.33 channel equipment required
equipment-rnav	Air navigation device equipment required
equipment-rvsm	Reduced vertical separation minimum equipment required
exercise	Air combat and exercises
fauna	Sensitive fauna

Name	Definition
fire	Heavy fire suppression work
firework	Fireworks
gaz	Gas field or gasoline vaporization
glider	Glider
hangglider	Hang gliding
hi-light	High intensity lights
hi-radio	High intensity radio transmission (HIRTA)
ind-chem	Chemical plant
ind-nuclear	Nuclear energy plant/activity
ind-oil	Oil refinery
jetclimb	Climb-out sector for jet aircraft
laser	Laser light activity
milops	Military operations
missiles	Flight of guided missiles
nature	Natural reserve
naval	Ship exercises
no-noise	Noise abatement
oil	Oil field
other	other activites/reasons
parachute	Parachute jumping
paraglider	Paragliding
population	Highly populated area
procedure	Special procedure
refuel	Refueling
shoot	Shooting from ground
spaceflight	Space flight operations
sport	Aerial sporting
technical	Technical activity
tfc-ad	Airport/aerodrome traffic
tfc-heli	Helicopter/gyrocopter traffic
towing	Target towing
trg	Training

Name	Definition
uav	Unmanned (or uninhabitied) aeronautical (or aerial) vehicle
ulm	Ultra light flights
vip	Very important person
vip-pres	Very important person – president
vip-vice	Very important person – vice president
waterblast	Underwater expolsions
work	Aerial work

855

856 **7.16.4 CodeAirportFacilityType enumeration**

857 CodeAirportFacilityType is an enumeration of values for the attribute airportFacilityType.

858

859 **Table 27 – CodeAirportFacilityType enumeration**

Name	Definition
AD	Airport/aerodrome only
AH	Airport with helicopter landing area
HP	Heliport only
LS	Landing site

860

861 **7.16.5 CodeApproachCategory enumeration**

862 CodeApproachCategory is an enumeration of values for the attributes approachCategory and
863 codeTypeApproach.

864

865 **Table 28 – CodeApproachCategory enumeration**

Name	Definition
A	Speed less than 91 knots
B	Speed 91 knots or more but less than 121 knots
C	Speed 121 knots or more but less than 141 knots
D	Speed 141 knots or more but less than 166 knots
E	Speed 166 knots or more

866

867 **7.16.6 CodeApproachType enumeration**

868 CodeApproachType is an enumeration of values for the attribute approachType.

869 **Table 29 – CodeApproachType enumeration**

Name	Definition
AP1	ANA PC CAT 1 REVISION DATE: 1/28/2004
AP2	ANA PC CAT 2/3 REVISION DATE: 1/28/2004
CA	
NUL	NUL
other	
PC1	ANA PC CAT 1
PC2	ANA PC CAT 2/3
STA	
STA1	
STA2	
STA3A	
STA3B	
STA3C	

870

871 ### 7.16.7 CodeApronType enumeration

872 CodeApronType is an enumeration of values for the attribute apronType.

873

874 **Table 30 – CodeApronType enumeration**

Name	Definition
accessRamp	Access pavement between maintenance hangars opening to the apron and the apron edge
apron	Apron
cargoLoading	Cargo loading area used for the loading/unloading of cargo
de-icing	Area used for the de-icing of aircraft
fuelingArea	Area used for aircraft fueling
hardstand	Area for parking a single aircraft; more temporary than a PARKING_AREA [U.S. CADD]
maintenance	Area used for aircraft maintenance
military	Area used by the military
other	Other
parkingArea	Area used to park aircraft
passengerLoading	Passenger loading area used for the loading/unloading of passengers
taxilane	Taxi lane area

Name	Definition
turnaround	Area for aircraft to turn around [U.S. CADD]

875

876 **7.16.8 CodeArrestingGearMaterial enumeration**

877 CodeArrestingGearMaterial is an enumeration of values for the attribute arrestingAreaContents.

878

879 **Table 31 – CoderArrestingGearMaterial enumeration**

Name	Definition
EMAS	Engineering material arresting system
other	

880

881 **7.16.9 CodeBuoyType enumeration**

882 CodeBuoyType is an enumeration of values for the attribute buoyType.

883

884 **Table 32 – CodeBuoyType enumeration**

Name	Definition
blackRed(FL2)	Danger – Black and red alternating horizontal stripes indicates position of isolated danger [SailingIssues]
green	Lateral buoy – Marks port side of the channel when sailing toward the sea [SailingIssues]
greenRed(GFL)	Lateral buoy - Preferred channel is to port when a red horizontal stripe is sandwiched between two green horizontal stripes [SailingIssues]
Q(3)/VQ(3)	Cardinal buoy - Yellow stripe sandwiched between two black stripes and/or two triangles, apex on one pointing up and apex of other pointing down indicates safe water is to the east [SailingIssues]
Q(6)/VQ(6)	Cardinal buoy - Yellow stripe is atop a black stripe and/or twp triangles, apex of both pointing down indicates safe water is to the south [SailingIssues]
Q(9)/QV(9)	Cardinal buoy - Black stripe sandwiched between two yellow stripes and/or two triangles apex of both point toward each other indicates safe water is to the west [SailingIssues]
Q/VQ	Cardinal buoy - Black stripe atop a yellow stripe and/or two triangles apex of both point up indicates safe water is to the north [SailingIssues]
red	Lateral buoy – Marks port side of the channel when returning from the sea [SailingIssues]
redGreen(RFL)	Lateral buoy - Preferred channel to starboard when a green horizontal strips is sandwiched between two red horizontal stripes [SailingIssues]
redWhite	Safe water buoy - Alternating red and white vertical stripes indicates safe water [SailingIssues]
white	No color is stated on the chart [SailingIssues]

Name	Definition
yellow	Special buoy – Area used by navies, pipelines, surfing [SailingIssues]

885

886 **7.16.10 CodeCategoryOfAircraft enumeration**

887 CodeCategoryOfAircraft is an enumeration of values for the attribute codeCategoryAircraft.

888

889 **Table 33 – CodeCategoryOfAircraft enumeration**

Name	Definition
A	Category A
A20	Category A with 2% climb gradient ability
A30	Category A with 3 climb gradient ability
A35	Category A with 3.5 climb gradient ability
AB	Categories A and B
ABC	Categories A, B, and C
ABCD	Categories A, B, C, and D
B	Category B
BCD	Categories B, D, and D
C	Category C
CD	Category C and D
CDE	Category C, D, and E
D	Category D
DE	Categories D and E
E	Category E
H	Category H – helicopter
other	Other

890

891 **7.16.11 CodeClassAirspace enumeration**

892 CodeClassAirspace is an enumeration of values for the attribute codeClass.

893

894 **Table 34 – CodeClassAirspace enumeration**

Name	Definition
A	Class of Airspace per ICAO Annex 11, Appendix 4
B	Class of Airspace per ICAO Annex 11, Appendix 4
C	Class of Airspace per ICAO Annex 11, Appendix 4

Name	Definition
D	Class of Airspace per ICAO Annex 11, Appendix 4
E	Class of Airspace per ICAO Annex 11, Appendix 4
F	Class of Airspace per ICAO Annex 11, Appendix 4
G	Class of Airspace per ICAO Annex 11, Appendix 4
other	Other

7.16.12 CodeClassHelicopter enumeration

CodeClassHelicopter is an enumeration of values for the attribute helicopterClass.

Table 35 – CodeClassHelicopter enumeration

Name	Definition
1	Helicopter class 1
2	Helicopter class 2
3	Helicopter class 3
other	Other

7.16.13 CodeClassNonDirectionalRadioBeacon enumeration

CodeClassNonDirectionalRadioBeacon is an enumeration of values for the attribute codeClass.

Table 36 – CodeClassNonDirectionalRadioBeacon enumeration

Name	Definition
B	
L	Radio beacon power of less than 50 watts
M	Radio becan power of 50 watts up to 2,000 watts
other	Other

7.16.14 CodeColor enumeration

CodeColor is an enumeration of values for the attribute color.

Table 37 – CodeColor enumeration

Name	Definition
amber	Amber [U.S. CADD]
black	Black [U.S. CADD]

Name	Definition
blue	Blue [U.S. CADD]
brown	Brown [U.S. CADD]
green	Green [U.S. CADD]
grey	Grey [U.S. CADD]
lightGrey	LightGrey [U.S. CADD]
magenta	Magenta [U.S. CADD]
orange	Orange [U.S. CADD]
other	Other [U.S. CADD]
pink	Pink [U.S. CADD]
purple	Purple [AIXM]
red	Red [U.S. CADD]
tbd	To be determined
violet	Violet [U.S. CADD]
white	White [U.S. CADD]
yellow	Yellow [U.S. CADD]

910

911 **7.16.15 CodeDatum enumeration**

912 CodeDatum is an enumeration of values for the attribute verticalDatum.

913

914 **Table 38 – CodeDatum enumeration**

Name	Definition
AHD	Australian Height Datum
ANS	Austria NS
BEL	Belgium 50
BRN	Bern 1873
CHI	CHI-1903
DGI	Danish GI 1934
DLX	Portugul DLX
EUS	European 1950 (ED 50)
EUT	European 1979 (ED 79)
GDA	Geodetic Datum of Australia
GRK	GGRS 87 (Greece)

Name	Definition
HAWAIIAN	Old Hawaiian Datum is an independent horizontal datum that was derived from the North American Datum of 1927
HJO	Hjorsey 55 (Iceland)
IGF	Nouvelle Triangulation de France (Greenwich Zero Meridian)
IGL	Nouvelle Triangulation de Luxembourg
IRL	Ireland 65
NAD-27	Horizontal North American Datum of 1927
NAD-27CONUS	Horizontal North American Datum of 1927 for contiguous United States
NAD-83	Horizontal North American Datum of 1983
NAS	Horizontal North American 1927
NAVD88	North American Vertical Datum of 1988
NAW	North American 1983
NGVD29	North American Geodetic Vertical Datum of 1929
NTH	
OGB	Ordnance Survey of Great Britain 36
other	Other
POT	Potsdam
PRD	Portugal 1973
PUERTORICAN	Horizontal Puerto Rican Datum, 1940 adjusted
RNB	RNB 72 (Belguim)
ROM	Rome (Italy) 1940
STO	RT90 (Sweden)
U	Other datum or unknown
WGC	World Geodetic System 1972
WGS84	World Geodetic System of 1984
WGW	World Geodtic System 1984 (GRS-80)

7.16.16 CodeDesignGroup enumeration

CodeDesignGroup is an enumeration of values for the attribute designGroup.

Table 39 – CodeDesignGroup enumeration

Name	Definition
I	Up to but not including 49 ft (15 m)

Name	Definition
II	49 ft (15 m) up to but not including 79 ft (24 m)
III	79 ft (24 m) up to but not including 118 ft (36 m)
IV	118 ft (36 m) up to but not including 171 ft (52 m)
other	Other
V	171 ft (52 m) up to but not including 214 ft (65 m)
VI	214 ft (65 m) up to but not including 262 ft (80 m)

920

921 ### 7.16.17 CodeDesignSurfaceType enumeration

922 CodeDesignSurfaceType is an enumeration of values for the attribute designSurfaceType.

923

924 **Table 40 – CodeDesignSurfaceType enumeration**

Name	Definition
BRL	Building restriction line (not a standard)
OFZ	Obstacle free zone (See FAA AC 150/5070-6B, paragraph 306)
other	Other
POFA	Precision object free area (See FAA AC 150/5070-6B, paragraph 307)
PRSIFR	Parallel runway separation simultaneous IFR operations
PRSVFR	Parallel runway separation simultaneous VFR operations
ROFA	Runway object free area (See FAA AC 150/5070-6B, paragraph 307)
RPZ	Runway protection zone (See FAA AC 150/5070-6B, paragraph 212)
RSA	Runway safety area
RSZ	Runway safety zone
RWYPTX	Runway to parallel taxiway and taxiline separation
TOFA	Taxiway and taxilane object free area (See FAA AC 150/5070-6B, paragraph 404)
TSA	Threshold sighting area
TSS	Threshold siting surface (See FAA AC 150/5070-6B, Appendix 2)
TXSA	Taxiway safety area (See FAA AC 150/5070-6B, paragraph 403)

925

926 ### 7.16.18 CodeDirectionality enumeration

927 CodeDirectionality is an enumeration of values for the attribute directionality.

928

929 **Table 41 – CodeDirectionality enumeration**

Name	Definition
bi	Bidirectional
es	One way from end-to-startpoint
se	One way from start-to-endpoint

930

931 ### 7.16.19 CodeDistanceVertical enumeration

932 CodeDistanceVertical is an enumeration of values for the attributes codeDistanceVerticalLower,
933 codeDistanceVerticalMaximum, codeDistanceVerticalMinimum, and codeDistanceVerticalUpper.

934

935 **Table 42 – CodeDistanceVertical enumeration**

Name	Definition
ALT	Altitude - The distance measured from mean sea level
HEI	Height - The distance measured from ground
other	Other
QFE	A reading of 0 on the altimeter setting which occurs on the ground
QNH	Altimeter setting gives field elevation on ground (approximately equal to 0 at mean sea level)
STD	The altimeter setting is set to standard atmosphere
W84	The distance measured from WGS84 ellipsoid

936

937 ### 7.16.20 CodeElementType enumeration

938 CodeElementType is an enumeration of values for the attribute type.

939

940 **Table 43 – CodeElementType enumeration**

Name	Definition
displaced	
intersection	
normal	
shoulder	

941

942 ### 7.16.21 CodeEmissionRadio enumeration

943 CodeEmissionRadio is an enumeration of values for the attribute codeEmission.

944

945 **Table 44 – CodeEmissionRadio enumeration**

Name	Definition
A2	Telegraphy, no voice
A3A	Single side-band, reduced carrier
A3B	Two independent side bands
A3E	AM double side-band telephony
A3H	Single side-band, full carrier
A3J	Single side-band telephony
A3L	Lower single side-band, carrier unknown
A3U	Upper single side-band, carrier unknown
A8W	AM unkeyed plys ON/OFF keying of ident tone
A9W	Composite AM/FM unkeyed plus ON/OFF keying of ident tone
GID	DPSK data transmission
J3E	AM double side-band suppressed carrier telephony
NONA1A	Unmodulated transmission, morse ident., carrier emission interrupted
NONA2A	Unmodulated transmission, morse ident., carrier emission continuous
NOX	Unmodulated carrier
other	Other
PON	

946

947 ### 7.16.22 CodeFaaRegion enumeration

948 CodeFaaRegion is an enumeration of values for the attribute faaRegion.

949

950 **Table 45 – CodeFaaRegion enumeration**

Name	Definition
AAL	Alaska
ACE	Central
AEA	Eastern
AGL	Great Lakes
ANE	New England
ANM	Northwest Mountain
ASO	Southern
ASW	Southwest
AWP	Western Pacific

951

952 ### 7.16.23 CodeFloodZoneType enumeration

953 CodeFloodZoneType is an enumeration of values for the attribute zoneType.

954

955 **Table 46 – CodeFloodZoneType enumeration**

Name	Definition
100Year	Area subject to flooding approximately once every 100 years
10Year	Area subject to flooding approximately once every 10 years
15Year	Area subject to flooding approximately once every 15 years
25Year	Area subject to flooding approximately once every 25 years
500Year	Area subject to flooding approximately once every 500 years
50Year	Area subject to flooding approximately once every 50 years
5Year	Area subject to flooding approximately once every 5 years
general	Area subject to general flooding
projected	Area subject to projected flooding

956

957 ### 7.16.24 CodeGateStandType enumeration

958 CodeGateStandType is an enumeration of values for the attribute codeType.

959

960 **Table 47 – CodeGateStandType enumeration**

Name	Definition
ang-ni	
hs	Hard stand
iso	
jb	Jet bridge
nag-no	
ni	
other	
parkingArea	
pr	Portable ramp
rmt	
sr	Stairs
tm	Temporary
unk	unknown

961

962 ### 7.16.25 CodeGridType enumeration

963 CodeGridType is an enumeration of values for the attribute gridType.

964

965 **Table 48 – CodeGridType enumeration**

Name	Definition
ed50	European Datum 1950
gaussKruger	Gauss Kruger
georef	World Geographic Reference System
ing	Irish National Grid Reference Survey
lcc	Lambert Conformal Conic
ll	Latitude, longitude
mil	Military
other	Other
rt90	Swedish Coordinate System
spcs	State Plane Coordinate System
ups	Universal Polar Stereographic
usng	United States National Grid for Spatial Addressing
utm	Universal Transverse Mercator

966

967 ### 7.16.26 CodeHazardType enumeration

968 CodeHazardType is an enumeration of values for the attribute hazardType.

969

970 **Table 49 – CodeHazardType enumeration**

Name	Definition
bash	[U.S. CADD]
deerStrike	Deer strike area [U.S. CADD]
tbd	To be determined [U.S. CADD]
tortoisePitfall	[U.S. CADD]
unknown	Unknown hazard [U.S. CADD]

971

972 ### 7.16.27 CodeLandmarkType enumeration

973 CodeLandmarkType is an enumeration of values for the attribute landmarkType.

974

975 **Table 50 – CodeLandmarkType enumeration**

Name	Definition
airport	Noticeable landmark is an airport
fence	Noticeable landmark is a fence
levee	Noticeable landmark is a levee
other	Other noticeable landmark
quarry	Noticeable landmark is a quarry
railroad	Noticeable landmark is a railroad
road	Noticeable landmark is a road
shoreline	Noticeable landmark is a shoreline
shorelineFeatureBoundary	Noticeable landmark is a shoreline feature boundary
utilityLine	Noticeable landmark is an utility line

976

977 ### 7.16.28 CodeLandUse enumeration

978 CodeLandUse is an enumeration of values for the attributes landUse and useType.

979

980 **Table 51 – CodeLandUse enumeration**

Name	Definition
1000	Residential activities [APA LBCS]
1100	Household activities [APA LBCS]
1200	Transient living [APA LBCS]
1300	Institutional living [APA LBCS]
2000	Shopping, business, or trade activities [APA LBCS]
2100	Shopping [APA LBCS]
2110	Goods-oriented shopping [APA LBCS]
2120	Service-oriented shopping [APA LBCS]
2200	Restaurant-type activity [APA LBCS]
2210	Restaurant-type activity with drive-through [APA LBCS]
2300	Office activities [APA LBCS]
2310	Office activities with high turnover of people [APA LBCS]
2320	Office activities with high turnover of automobiles [APA LBCS]
3000	Industrial, manufacturing, and waste-related activities [APA LBCS]
3100	Plant, factory, or heavy goods storage or handling activities [APA LBCS]
3110	Primarily plant or factory-type activities [APA LBCS]

Name	Definition
3120	Primarily goods storage or handling activities [APA LBCS]
3200	Solid waste management activities [APA LBCS]
3210	Solid waste collection and storage [APA LBCS]
3220	Landfilling or dumping [APA LBCS]
3230	Waste processing or recycling [APA LBCS]
3300	Construction activities (grading, digging, and so on) [APA LBCS]
4000	Social, institutional, or infrastructure-related activities [APA LBCS]
4100	School or library activities [APA LBCS]
4110	Classroom-type activities [APA LBCS]
4120	Training or instructional activities outside classrooms [APA LBCS]
4130	Other instructional activities including those that occur in libraries [APA LBCS]
4200	Emergency response or public-safety-related activities [APA LBCS]
4210	Fire and rescue-related activities [APA LBCS]
4220	Police, security, and protection-related activities [APA LBCS]
4230	Emergency or disaster-response-related activities [APA LBCS]
4300	Activities associated with utilities (water, sewer, power, and so on) [APA LBCS]
4310	Water-supply-related activities [APA LBCS]
4311	Water storing, pumping, or piping [APA LBCS]
4312	Water purification and filtration activities [APA LBCS]
4313	Irrigation water storage and distribution activities [APA LBCS]
4314	Flood control, dams, and other large irrigation activities [APA LBCS]
4320	Sewer-related control, monitor, or distribution activities [APA LBCS]
4321	Sewage storing, pumping, or piping [APA LBCS]
4322	Sewer treatment and processing [APA LBCS]
4330	Power generation, control, monitor, or distribution activities [APA LBCS]
4331	Power transmission lines or control activities [APA LBCS]
4332	Power generation, storage, or processing activities [APA LBCS]
4340	Telecommunications-related control, monitor, or distribution activities [APA LBCS]
4350	Natural gas or fuels-related control, monitor, or distribution activities [APA LBCS]
4400	Mass storage, inactive [APA LBCS]

Name	Definition
4410	Water storage [APA LBCS]
4420	Storage of natural gas, fuels, and so on [APA LBCS]
4430	Storage of chemical, nuclear, or other materials [APA LBCS]
4500	Health care, medical, or treatment activities [APA LBCS]
4600	Interment, cremation, or grave digging activities [APA LBCS]
4700	Military base activities [APA LBCS]
4710	Ordnance storage [APA LBCS]
4720	Range and test activities [APA LBCS]
5000	Travel or movement activities [APA LBCS]
5100	Pedestrian movement [APA LBCS]
5200	Vehicular movement [APA LBCS]
5210	Vehicular parking, storage, and so on [APA LBCS]
5220	Drive-in, drive through, stop-n-go, and so on [APA LBCS]
5400	Trains or other rail movement [APA LBCS]
5410	Rail maintenance, storage, or related activities [APA LBCS]
5500	Sailing, boating, and other port, marine and water-based activities [APA LBCS]
5510	Boat mooring, docking, or servicing [APA LBCS]
5520	Port, ship-building, and related activities [APA LBCS]
5600	Aircraft takeoff, landing, taxiing, and parking [APA LBCS]
5700	Spacecraft launching and related activities [APA LBCS]
6000	Mass assembly of people [APA LBCS]
6100	Passenger assembly [APA LBCS]
6200	Spectator sports assembly [APA LBCS]
6300	Movies, concerts, or entertainment shows [APA LBCS]
6400	Gatherings at fairs and exhibitions [APA LBCS]
6500	Mass training, drills, and so on [APA LBCS]
6600	Social, cultural, or religious assembly [APA LBCS]
6700	Gatherings at galleries, museums, aquariums, zoological parks, and so on [APA LBCS]
6800	Historical or cultural celebrations, parades, reenactments, and so on [APA LBCS]
7000	Leisure activities [APA LBCS]
7100	Active leisure sports and related activities [APA LBCS]

Name	Definition
7110	Running, jogging, bicycling, aerobics, exercising, and so on [APA LBCS]
7120	Equestrian sporting activities [APA LBCS]
7130	Hockey, ice skating, and so on [APA LBCS]
7140	Skiing, snowboarding, and so on [APA LBCS]
7150	Automobile and motorbike racing [APA LBCS]
7160	Golf [APA LBCS]
7180	Tennis [APA LBCS]
7190	Track and field, team sports (baseball, basketball, and so on), or other sports [APA LBCS]
7200	Passive leisure activity [APA LBCS]
7210	Camping [APA LBCS]
7220	Gambling [APA LBCS]
7230	Hunting [APA LBCS]
7240	Promenading and other activities in parks [APA LBCS]
7250	Shooting [APA LBCS]
7260	Trapping [APA LBCS]
7300	Flying or air-related sports [APA LBCS]
7400	Water sports and related leisure activities [APA LBCS]
7410	Boating, sailing, and so on [APA LBCS]
7420	Canoeing, kayaking, and so on [APA LBCS]
7430	Swimming, diving, and so on [APA LBCS]
7440	Fishing, angling, and so on [APA LBCS]
7450	Scuba diving, snorkeling, and so on [APA LBCS]
7460	Water-skiing [APA LBCS]
8000	Natural resources-related activities [APA LBCS]
8100	Farming, tilling, plowing, harvesting, or related activities [APA LBCS]
8200	Livestock related activities [APA LBCS]
8300	Pasturing, grazing, and so on [APA LBCS]
8400	Logging [APA LBCS]
8500	Quarrying or stone cutting [APA LBCS]
8600	Mining including surface and subsurface strip mining [APA LBCS]
8700	Drilling, dredging, and so on [APA LBCS]
9000	No human activity or unclassifiable activity [APA LBCS]

Name	Definition
9100	Not applicable to this dimension [APA LBCS]
9200	Unclassifiable activity [APA LBCS]
9300	Subsurface activity [APA LBCS]
9900	To be determined [APA LBCS]
9990	To be determined [APA LBCS]
9999	To be determined [APA LBCS]

7.16.29 CodeLightingCategory enumeration

CodeLightingCategory is an enumeration of values for the attribute lightingCategory.

Table 52 – CodeLightingCategory enumeration

Name	Definition
ABN	
beacon	
flood	
HBNC	
IBN	
marine	
other	Other
RSP	
signal	
strobe	

7.16.30 CodeLightingSystemType enumeration

CodeLightingSystemType is an enumeration of values for the attributes light, lightingConfigurationType, lightingSystemType, lightType.

Table 53 – CodeLightingSystemType enumeration

Name	Definition
airport	
approach	
obstruction	
other	Other

Name	Definition
runway	
taxiway	

992

993 **7.16.31 CodeLightingType enumeration**

994 CodeLightingType is an enumeration of values for the attribute lightingType.

995

996 **Table 54 – CodeLightingType enumeration**

Name	Definition
ALSF-1	High intensity approach lighting system - configuration 1
ALSF-2	High intensity approach lighting system - configuration 2
APAP	Alignment of elements systems
APTBCN	Airport or heliport beacon
CLRBAR	Taxiway clearance bar lights
CODEBCN	Code beacon
COURSE	Course lights
HIRL	High intensity runway edge light system
LAHSO	Land and hold short lights
LIH	High intensity light
LIL	Low intensity light
LIM	Medium intensity light
LIRL	Low intensity runway edge light system
LITL	Low intensity taxiway edge lights
MALSF	Medium intensity approach lighting systems with with sequenced flashing lights
MALSR	Medium intensity approach lighting systems with runway alignment indicator lights (RAIL)
MIRL	Medium intensity runway edge light system
MITL	Medium intensity taxiway edge lights
OBSCAT	Catenary lighting
OBSDUAL	A combination of OBSRED and OBSDUAL
OBSRED	Aviation red obstruction lights
OBSWHT	Flashing white obstruction lights
ODALS	Omni directional approach lighting system
other	Other type of light

Name	Definition
PAPI-2	Precision approach path indicator with 2 lights
PAPI-4	Precision approach path indicator with 4 lights
PVASI	Pulsating visual approach slope indicators
RCLS	Runway centerline lighting system
REIL	Runway end identifier lights
RWYGRD	Runway guard lights
SSALR	Simplified short approach lighting system
STPBAR	Stop bar lights
TCTL	Taxiway centerline lights
TDZL	Touchdown zone lighting
TLOF	Taxiway lead-off lights
TRCV	Tri-color visual approach slope indicator
VASI-12	Visual approach slope indicator with 2 bars and 12 boxes
VASI-16	Visual approach slope indicator with 3 bars and 16 boxes
VASI-2	Visual approach slope indicator with 2 bars
VASI-2-2	Visual approach slope indicator with 2 bars and 2 boxes
VASI-3	Visual approach slope indicator with 3 bars

7.16.32 CodeLowVisibilityCategory enumeration

CodeLowVisibilityCategory is an enumeration of values for the attribute lowVisibilityCategory.

Table 55 – CodeLowVisibilityCategory enumeration

Name	Definition
0	No low visibility operation supported
1	Supports ILS CAT I low visibility operations
2	Supports ILS CAT II III low visibility operations

7.16.33 CodeMarkingFeatureType enumeration

CodeMarkingFeatureType is an enumeration of values for the attribute markingFeatureType.

Table 56 – CodeMarkingFeatureType enumeration

Name	Definition
aimingPoint	Runway aiming point [FAA AC 150/5340-1J]

Name	Definition
apronSign	Surface painted apron position/entrance sign [FAA AC 150/5340-1J]
arrow	Arrows identify the dsiplaced threshold area to provide centerline guidance for takeoffs and rollouts
arrowhead	Arrow heads are used in conjunction with a threshold bar to further highlight the beginning of a runway
chevron	A marking used to designate blast pads and other areas that are not suitable for aircraft [FAA AC 150
demarcation	Demarcation bar [FAA AC 150/5340-1J]
dirSign	Surface painted taxiway direction signs [FAA AC 150/5340-1J]
gateLine	All painted taxilines covering a parking stand area are regarded as stand guidance lines and will be individual objects in the database. There may be several stand guidance taxilines leading to an aircraft stand to accommodate different aircraft types [FAA AC 150/5300-18]
gateSign	Surface painted gate position signs [FAA AC 150/5340-1J]
holdSign	Surface painted holding position signs [FAA AC 150/5340-1J]
islSign	Holding position markings for instrument landing systems [FAA AC 150/5340-1J]
intersectionHold	Holding position marking for taxiway/taxiway intersections [FAA AC 150/5340-1J]
LAHSO	Marking associated with a land and hold short operations (LAHSO)
locationSign	Surface painted taxway location signs [FAA AC 150/5340-1J]
nonMoveArea	Non-movement area marking [FAA AC 150/5340-1J]
other	Other type of sign
otherLine	Other markings suitable for representation as a line
otherPoly	Other markings suitable for representation as a polygon
permClosed	Markings for permanently closed runways and taxiways [FAA AC 150/5340-1J]
posSign	Geographic position markings [FAA AC 150/5340-1J]
rwyCtl	Runway centerline [FAA AC 150/5340-1J]
rwyHold	Runway holding position markings on runways [FAA AC 150/5340-1J]
rwyId	Runway designation marking [FAA AC 150/5340-1J]
rwyShd	Runway shoulder markings [FAA AC 150/5340-1J]
rwyThrsh	Runway threshold marking [FAA AC 150/5340-1J]
sideStrp	Runway side stripe marking [FAA AC 150/5340-1J]
tdzMark	Runway touchdown zone marking [FAA AC 150/5340-1J]
tempClosed	Markings for temporarily closed runways and taxiways [FAA AC 150/5340-1J]

Name	Definition
thrshBar	Runway threshold bar [FAA AC 150/5340-1J]
twyCtl	Taxiway centerline [FAA AC 150/5340-1J]
twyEdge	Taxiway edge marking [FAA AC 150/5340-1J]
twyHold	Runway hold position markings on taxiways [FAA AC 150/5340-1J]
twyShd	Taxway shoulder marking [FAA AC 150/5340-1J]
vehicle	Vehicle roadway markings [FAA AC 150/5340-1J]

7.16.34 CodeMonumentType enumeration

CodeMonumentType is an enumeration of values for the attribute monumentType.

Table 57 – CodeMonumentType enumeration

Name	Definition
1stOrderClassI	Othometric elevation of the point is certified to have an elevation difference accuracy of 0.5 mm/?(Km) [NGS]
1stOrderClassII	Othometric elevation of the point is certified to have an elevation difference accuracy of 0.7mm/?(Km) [NGS]
2ndOrderClassI	Othometric elevation of the point is certified to have an elevation difference accuracy of 1.0/?(Km) [NGS]
2nOrderClassII	Othometric elevation of the point is certified to have an elevation difference accuracy of 1.3/?(Km) [NGS]
3rdOrderNoTablet	Othometric elevation of the point is certified to have an elevation difference accuracy of 2.0/?(Km). [NGS] No tablet is necessary to mark the point
3rdOrderWithTablet	Othometric elevation of the point is certified to have an elevation difference accuracy of 2.0/?(Km). [NGS] A tablet is similar to a benchmark in that it is placed to permanently mark an elevation and horizontal position that has been surveyed as accurately as possible. Unlike a benchmark, which is marked by a brass plate, the control point shown here is marked by a tablet: a concrete marker with numbers etched onto the top (like a gravestone)
BM	Benchmark is a location whose elevation and horizontal position has been surveyed as accurately as possible. Benchmarks are designed for use as reference points, and are usually marked by small brass plates
foundClosingCorner	A found corner is a corner whose original or restored monument or mark is recovered, or whose position is definitely established by one or more witness corners or monuments
foundSectionCorner	A found corner is a corner whose original or restored monument or mark is recovered, or whose position is definitely established by one or more witness corners or monuments
meanderCorner	A corner established where a township line, section line, or other survey intersects the bank of a navigable stream or other meanderable body of water [USGS, 1996, Part 5: Public Land Survey System]
spot	A point with a measured vertical position of less than third order accuracy, measured relative to a reference datum [USGS, 2001, Part 7:

Name	Definition
	Hypsography]
unmonumented	Indicates that no permanent marker has been placed
weakCorner	Corners established by the USDA Forest Service that have been found but their location has not been tied to their true ground position [USGS, 2003]
witnessCorner	A monumented station on a line of the survey that is used to perpetuate an important location more or less remote from and without special relation to any regular corner [USGS, 1996, Part 5: Public Land Survey System]

1012

1013 **7.16.35 CodeNavaidEquipmentType enumeration**

1014 CodeNavaidEquipmentType is an enumeration of values for the attribute
1015 navigationalAidEquipmentTypeCode.

1016

1017 **Table 58 – CodeNavaidEquipmentType enumeration**

Name	Definition
ARSR - ARSR	Required. Air route surveillance radar. Air Route Traffic Control Center (ARTCC) radar used primarily to detect and display an aircraft´s position while en route between terminal areas. The ARSR enables controllers to provide radar air traffic control service when aircraft are within the ARSR coverage. In some instances, ARSR may enable an ARTCC to provide terminal radar services similar to but usually more limited than those provided by a radar approach control
ASR - ASR	Required. Airport surveillance radar
DF - DF	Required. Direction finder
DME - DME	Required. Distance measuring equipment
FAN - FAN	Required. FAN marker beacon
ILS - GS	Required. Instrument landing system – ground stop
ILS - LOC	Required. Instrument landing system – localizer
LOC - LOC	Required. Localizer system
MLS - AZ	Required. Microwave landing system – azimuth
MLS - DME	Required. Microwave landing system – distance measuring equipment
MLS - ELEV	Required. Microwave landing system – elevation
MSBLS - AZ	Required. Microwave scan beam landing system - azimuth
MSBLS - DME	Required. Microwave scan beam landing system – distance measuring equipment
MSBLS - ELEV	Required. Microwave scan beam landing system – elevation
NDB/C - NDB	Required. Nondirectional radio beacon -- compass locator
NDB/H - NDB	Required. Nondirectional radio beacon -- high frequency
NDB/M - NDB	Required. Nondirectional radio beacons/medium HF

Name	Definition
NDB/U - NDB	Required. Nondirectional radio beacons/ultra HF
other	Other type of navigational equipment
PAR - PAR	Required. Precision approach radar – PAR
SDF - SDF	Required. Simplified direction facility
SECRA - SECRA	Required. Secondary radar
TACAN - TACAN	Required. Tactical air navigation aid. An ultra-high frequency electronic rho-theta air navigation aid which provides suitably equipped aircraft with a continuous indication of bearing and distance to the TACAN station
TLS - APGS	Required. Transponder landing system – APGS
TLS - APLOC	Required. Transponder landing system – APLOC
VDME - DME	Required. Vertical distance measuring equipment – distance measuring equipment
VDME - VOR	Required. Vertical distance measuring equipment – VOR
VOR - VOR	Required. Very high frequency omni range - VOR
VORTAC - TACAN	Required. A navigation aid providing VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site
VORTAC - VOR	Required. A navigation aid providing VOR azimuth, TACAN azimuth, and VOR at one site
VOT - VOT	Required. VOR test

7.16.36 CodeNavaidSystemType enumeration

CodeNavaidSystemType is an enumeration of values for the attribute navigationalAidSystemTypeCode.

Table 59 – CodeNavaidSystemType enumeration

Name	Definition
ARSR	Air route surveillance radar
ASR	Airport surveillance radar
DF	Direction finder
DME	Distance measuring equipment
FAN	FAN marker beacon
ILS	Instrument landing system
LOC	Localizer system
MLS	Microwave landing system
MSBLS	Microwave scan beam landing system
NDB/C	Nondirectional radio beacon -- compass locator

Name	Definition
NDB/H	Nondirectional radio beacon -- high frequency
NDB/M	Nondirectional radio beacons/medium HF
NDB/U	Nondirectional radio beacons/ultra HF
other	Other type of navigational aid system
PAR	Precision approach radar
SDF	Simplified direction facility
SECRA	Secondary radar
TACAN	Tactical air navigation
TLS	Transponder landing system
VDME	VHF omnirange w/distance measuring equipment
visual	Visual navigational aid system
VOR	VHF omnirange
VORTAC	VHF omnirange w/tactical air navigation
VOT	VOR test

7.16.37 CodeObstacleType enumeration

CodeObstacleType is an enumeration of values for the attribute obstacleType.

Table 60 – CodeObstacleType enumeration

Name	Definition
AN	ANA area navigation approach [FAA AC 150/5300-18]
AR	Army [FAA AC 150/5300-18]
FI	FIFO [FAA AC 150/5300-18]
OC	Obstacle chart [FAA AC 150/5300-18]
OP	OEP [FAA AC 150/5300-18]
OR	Other [FAA AC 150/5300-18]
SE	Spot elevations [FAA AC 150/5300-18]
ST	State-coded [FAA AC 150/5300-18]
WW	Worldwide DOD [FAA AC 150/5300-18]

7.16.38 CodeObstructionAreaType enumeration

CodeObstructionAreaType is an enumeration of values for the attribute obstructionAreaType.

Table 61 – CodeObstructionAreaType enumeration

Name	Definition
agEquip	Agricultural equipment
building	Buildings
ground	Ground
mobileCrane	Mobile crane
other	Other type of obstruction area
tree	Trees
urban	Urban area

7.16.39 CodeObstuctionIdentificationSurfaceCondition enumeration

CodeObstuctionIdentificationSurfaceCondition is an enumeration of values for the attribute obstructionIdentificationSurfaceCondition.

Table 62 – CodeObstructionIdentificationSurfaceCondition enumeration

Name	Definition
primary	
supplementary	

7.16.40 CodeObstructionIdentificationSurfaceType enumeration

CodeObstructionIdentificationSurfaceCondition is an enumeration of values for the attribute obstructionIdentificationSurfaceType.

Table 63 – CodeObstructionIdentificationSurfaceType enumeration

Name	Definition
ANA	Area navigational approach
CGR	Congressional
F77	FAR part 77
OEP	Operational evolution plan
other	Other
RBI	Ron Brown airport initiative

7.16.41 CodeObstructionIdentificationSurfaceZoneType enumeration

CodeObstructionIdentificationSurfaceZoneType is an enumeration of values for the attribute obstructionIdentificationSurfaceZoneType.

1051 **Table 64 – CodeObstructionIdentificationSurfaceZoneType enumeration**

Name	Definition
approach	
conical	
horizontal	
other	
primary	
transition	

1052

1053 ### 7.16.42 CodeOperationsType enumeration

1054 CodeOperationsType is an enumeration of values for the attributes codeMilitary and
1055 operationsType.

1056

1057 **Table 65 – CodeOperationsType enumeration**

Name	Definition
civil	Civil operations only
joint	Joint military and civil operations
mil	Military operations only
milEst	Military operations + civil operations allowed
other	Other

1058

1059 ### 7.16.43 CodeOwner enumeration

1060 CodeOwner is an enumeration of values for the attribute owner.

1061

1062 **Table 66 – CodeOwner enumeration**

Name	Definition
A	Air Force
B	Public
C	Coast Guard
E	FAA F&E projects
F	FAA (Other than F&E)
H	International public
I	International
J	International private

Name	Definition
K	International military
L	International (U.S. aid funds)
N	Navy
O	Other (Specify in metadata)
P	Private
R	Army
S	State
X	Special

7.16.44 CodePassengerLoadingBridgeType enumeration

CodePassengerLoadingBridgeType is an enumeration of values for the attribute passengerLoadingBridgeType.

Table 67 – CodePassengerLoadingBridgeType enumeration

Name	Definition
arm	
movableArm	
other	
portableRamp	
portableStairs	

7.16.45 CodePavementClassificationNumberEvaluationMethod enumeration

CodePavementClassificationNumberEvaluationMethod is an enumeration of values for the data type SurfaceCharacteristics.

Table 68 – CodePavementClassificationNumberEvaluationMethod enumeration

Name	Definition
T	Technical evaluation
U	

7.16.46 CodePavementClassificationNumberMaximumTirePressure enumeration

CodePavementClassificationNumberMaximumTirePressure is an enumeration of values for the data type SurfaceCharacteristics.

1079 **Table 69 – CodePavementClassificationNumberMaximumTirePressure enumeration**

Name	Definition
W	High: no pressure limit
X	Medium: pressure limited to 1.50 MPa (217 psi)
Y	Low: pressure limited to 1.00 MPa (145 psi)
Z	Very low: pressure limited to 0.50 MPa (73 psi)

1080

1081 ### 7.16.47 CodePavementClassificationPavementSubgrade enumeration

1082 CodePavementClassificationPavementSubgrade is an enumeration of values for the data type
1083 SurfaceCharacteristics.

1084

1085 **Table 70 – CodePavementClassificationPavementSubgrade enumeration**

Name	Definition
A	High strength subgrade
B	Medium strength subgrade
C	Low strength subgrade
D	Ultra-low strength subgrade

1086

1087 ### 7.16.48 CodePavementClassificationNumberPavementType enumeration

1088 CodePavementClassificationNumberPavementType is an enumeration of values for the data type
1089 SurfaceCharacteristics.

1090

1091 **Table 71 – CodePavementClassificationNumberPavementType enumeration**

Name	Definition
F	Flexible pavement
R	Rigid pavement

1092

1093 ### 7.16.49 CodePointType enumeration

1094 CodePointType is an enumeration of values for the attribute pointType.

1095

1096 **Table 72 – CodePointType enumeration**

Name	Definition
0	Airport reference point (ARP)
1	Primary airport control station (PAC)
2	Secondary airport control station (SAC)

Name	Definition
3	RunwayControlPoint
4	CenterlinePoint
5	ElevationPoint
6	NavaidControlPoint
7	HelipadReferencePoint
8	VerticalPointObject
9	Spot elevation point
airportElev	Airport elevation
centerlineElev	This may be the same as CenterlinePoint
displacedThreshold	Displaced threshold
runwayEnd	This item should be deleted, see RunwayEnd feature
stopwayEnd	Stopway end
TACS	Traffic and alert collision avoidance system
undefined/Other	

7.16.50 CodePositionInstrumentLandingSystem enumeration

CodePositionInstrumentLandingSystem is an enumeration of values for the attribute instrumentLandingSystemPosition.

Table 73 – CodePositionInstrumentLandingSystem enumeration

Name	Definition
C	Backcourse
I	Inner
M	Middle
O	Outer
other	Other

7.16.51 CodePositionOfAxisRelativeToCenterline enumeration

CodePositionOfAxisRelativeToCenterline is an enumeration of values for the attribute codePositionVisualApproachSlopeIndicatorSystem.

Table 74 – CodePositionOfAxisRelativeToCenterline enumeration

Name	Definition
both	Either side of the centerline

Name	Definition
left	To the left of the centerline
other	Other or unknown position
right	To the right of the centerline

7.16.52 CodePrecisionApproachGuidance enumeration

CodePrecisionApproachGuidance is an enumeration of values for the attribute precisionApproachGuidance.

Table 75 – CodePrecisionApproachGuidance enumeration

Name	Definition
0	Non-precision approach runway
1	ILS precision approach runway, category I
2	ILS precision approach runway, category II
3	ILS precision approach runway category III A
4	ILS precision approach runway category III B
5	ILS precision approach runway category III C
6	ILS precision approach runway category III D
7	Microwave landing system precision approach

7.16.53 CodeProjectStatus enumeration

CodeProjectStatus is an enumeration of values for the attribute projectStatus.

Table 76 – CodeProjectStatus enumeration

Name	Definition
inProgress	In progress
planned	Approved and planned
proposed	Not yet approved

7.16.54 CodeReferenceObstacleClearanceHeight enumeration

CodeReferenceObstacleClearanceHeight is an enumeration of values for the attribute codeReferenceObstacleClearanceHeight.

1125 **Table 77 – CodeReferenceObstacleClearanceHeight enumeration**

Name	Definition
ARP	Airport
other	Other
THR	Threshold

1126

1127 ### 7.16.55 CodeRestriction enumeration

1128 CodeRestriction is an enumeration of values for the attribute landOwnerRestriction.

1129

1130 **Table 78 – CodeRestriction enumeration**

Name	Definition

1131

1132 ### 7.16.56 CodeRouteType enumeration

1133 CodeRouteType is an enumeration of values for the attribute route1Type, route2Type, and
1134 route3Type.

1135

1136 **Table 79 – CodeRouteType enumeration**

Name	Definition
alley	Hard-surface or loose-surface narrow street or passageway primarily found between or behind buildings
autobahn	Controlled access hard-surface superhighways
county	Hard-surface roads not included in a higher class and improved, loose-surface roads passable in all kinds of weather. These roads are adjuncts to the primary and secondary highway systems. These roads are under the jurisdiction and maintained by county authorities
fifthClass	Unimproved roads passable only with 4-wheel-drive vehicles [USGS, 2001, Part 3: Transportation]
firstClass	Hard-surface highways including Interstate and U.S. numbered highways (including alternates), primary State routes, and all controlled access highways [USGS, 2001, Part 3: Transportation]
fourthClass	Unimproved roads which are generally passable only in fair weather and used mostly for local traffic. Also included are driveways, regardless of construction [USGS, 2001, Part 3: Transportation]
interstate	Hard-surface controlled access highways

Name	Definition
jeepTrail	Unimproved roads passable only with 4-wheel-drive vehicles
motorway	Hard-surface controlled access highways
other	Other class of road
secondClass	Hard-surface highways including secondary State routes, primary county routes, and other highways that connect principal cities and towns, and link these places with primary highway system [USGS, 2001, Part 3: Transportation]
state	Hard-surface State routes under the control and jurisdiction of State authorities
thirdClass	Hard-surface roads not included in a higher class and improved, loose-surface roads passable in all kinds of weather. These roads are adjuncts to the primary and secondary highway systems. Also included are important private roads such as main logging or industrial roads which serve as connecting links to the regular road network [USGS, 2001, Part 3: Transportation]
trail	Unimproved roads passable only with 4-wheel-drive vehicles, snowmobiles, motocross bikes, and so forth

7.16.57 CodeRunwayType enumeration

CodeRunwayType is an enumeration of values for the attribute type.

Table 80 – CodeRunwayType enumeration

Name	Definition
FATO	Final approach and take off
RWY	Runway

7.16.58 CodeSamplePointLocation enumeration

CodeSamplePointLocation is an enumeration of values for the attribute collectionPointLocation.

Table 81 – CodeSamplePointLocation enumeration

Name	Definition
as	Air sample
bh	Borehole
bio	Biological sample
gws	Ground water sample
other	Other
seds	Sediment sample
soil	Soil sample

Name	Definition
solm	Solid material sample
surf	Surface water sample
was	Waste water sample
wl	Well

7.16.59 CodeShorelineType enumeration

CodeShorelineType is an enumeration of values for the attribute shorelineType.

Table 82 – CodeShorelineType enumeration

Name	Definition
apparent	Apparent edge of vegetation. Representation of the vegetative border is considered approximate because this line cannot be accurately identified on the ground, due to intricate growth patterns and change over time
indefinite	Conditions prevent the feature from being confidently positioned. Horizontal data are confidently positioned within 0.02", at map scale, of the true ground position. Vertical data are confidently positioned within one-half contour interval of true ground position [USGS, 2001, Part 2: Hydrography]
meanHighWater	The average limit of dry land during periods of highest water level (for example, high tide)
meanLowWater	The average limit of dry land during periods of lowest water level (for example, low tide)
meanSeaLevel	The arithmetic mean of hourly heights observed over some specified time [American Geological Institute]

7.16.60 CodeSignType enumeration

CodeSignType is an enumeration of values for the attribute signTypeCode.

Table 83 – CodeSignType enumeration

Name	Definition
apron	Inbound destination sign – general parking, servicing, and loading areas
cargo	Inbound destination sign – areas set aside for cargo handling
civil	Inbound destination sign – areas set aside for civil aircraft
FBO	Inbound destination sign – fixed base operator
fuel	Inbound destination sign – areas where aircraft are fueled or serviced
holdInstrumentLandingSystem	Holding position sign for ILS critical areas
holdRunwayApproach	Holding position sign for runway approach areas
holdRunwayIntersection	Holding position sign for runway/runway intersections

Name	Definition
holdTaxiwayRunway	Holding position sign for taxiway/runway
info	Signs installed on the airside of an airport, other than taxiway guidance signs or runway distance remaining signs
instrumentLandingSystemCritical	Instrument landing system critical area boundary sign
intl	Inbound destination sign – areas set aside for handling international flights
mil	Inbound destination sign – areas set aside for military aircraft
noEntry	No entry sign
other	Other types of sign
outboundDestination	Outbound destination sign
PAX	Inbound destination sign – areas set aside for passenger handling
roadStop	Stop sign in areas where vehicle roadways intersect runways or taxiways
roadYield	Yield sign in areas where vehicle roadways intersect runways or taxiways
rsaRwyAppr	Runway safety area/OFZ and runway approach boundary dign
runwayExit	Runway exit sign
runwayLocation	Runway location sign
rwyDistRem	Sign that designates the remaining runway distance to pilots during takeoff and landing operations
taxiwayDirection	Taxiway direction sign
taxiwayEnd	Taxiway ending marker
taxiwayLocation	Taxiway location sign
terminal	Inbound destination sign – gate positions at which aircraft are loaded and unloaded

7.16.61 CodeStatus enumeration

CodeStatus is an enumeration of values for the attribute status.

Table 84 – CodeStatus enumeration

Name	Definition
abandoned	Abandoned [U.S. CADD]
active	Active surface [U.S. CADD]
broken	Broken or rough surface
closed	Closed surface [U.S. CADD]
failAide	Failure or irregular operation of visual aides
inactive	Inactive

Name	Definition
limited	Limited operations [U.S. CADD]
nonOperational	Non operational [U.S. CADD]
operational	Operational (fully) [U.S. CADD]
parked	Parked or disabled aircraft
sPower	Secondary power supply in operation
tbd	To be determined [U.S. CADD]
terminated	Project terminated
underConstruction	Planned or under construction [U.S. CADD]
workInProgress	Construction or work in progress

7.16.62 CoseSurfaceCondition enumeration

CodeSurfaceCondition is an enumeration of values for the data type SurfaceCharacteristics.

Table 85 – CodeSurfaceCondition enumeration

Name	Definition
fair	Fair condition
good	Good condition
other	Other condition
poor	Poor condition

7.16.63 CodeSurfaceComposition enumeration

CodeSurfaceComposition is an enumeration of values for the data type SurfaceCharacteristics.

Table 86 – CodeSurfaceComposition enumeration

Name	Definition
ags	Asphalt and turf
asph	Asphalt
be	Bare earth
bitum	Bitumen
brick	Brick
ca	Concrete and asphalt
cg	Concrete grooved
cgs	Concrete and turf

Name	Definition
clay	Clay
conc	Concrete
coral	Coral
ds	Desert/Sand
grade	Graded surface
gravel	Gravel
gs	Turf
ice	ice
laterite	Laterite
macadam	Macadam
mats	
membrane	
metal	
other	Other type of surface composition
psp	
sand	
si	Snow/Ice
snow	Snow
stone	Stone
water	Water
wood	Wood

7.16.64 CodeSurfacePreparation enumeration

CodeSurfacePreparation is an enumeration of values for the data type SurfaceCharacteristics.

Table 87 – CodeSurfacePreparation enumeration

Name	Definition
afsc	
graded	Graded surface
grooved	Grooved surface
natural	
oiled	

Name	Definition
other	Other type of surface preparation
paved	Paved (specially prepared hard surface)
pfc	
rfsc	
rolled	
ungrooved	Ungrooved surface
unpaved	Unpaved (specially prepared hard surface)

7.16.65 CodeTaxiwayType enumeration

CodeTaxiwayType is an enumeration of values for the attribute taxiwayType.

Table 88 – CodeTaxiwayType enumeration

Name	Definition
airTLane	Air taxilane
airTwy	Air taxiway
apron	Apron taxiway
bypass	Bypass holding bay
exit	Exit/turnoff taxiway
fastExit	Rapid exit/turnoff taxiway
gateStandTLane	Gate/stand taxilane
groundStandTLane	Ground taxiway
leadInTLane	Lead-in taxilane
leadOutTLane	Lead-out taxilane
other	Other
paralledTwy	Parallel taxiway
stub	Stub taxiway
turnAround	Turn around taxiway

7.16.66 CodeThresholdType enumeration

CodeThresholdType is an enumeration of values for the attribute thresholdType.

1186 **Table 89 – CodeThresholdType enumeration**

Name	Definition
displaced	An indication that the landing threshold is located at a point other than the runway end
normal	An indication that the landing threshold cooresponds to the end of the runway

1187

1188 ### 7.16.67 CodeTurnDirection enumeration

1189 CodeTurnDirection is an enumeration of values for the attribute codeVisualFlightRulesPattern.

1190

1191 **Table 90 – CodeTurnDirection enumeration**

Name	Definition
either	Turn may be either direction
left	Turn is to the left
right	Turn is to the right

1192

1193 ### 7.16.68 CodeTypeAirspace enumeration

1194 CodeTypeAirspace is an enumeration of values for the attribute codeType.

1195

1196 **Table 91 – CodeTypeAirspace enumeration**

Name	Definition
A	Alert area
ADIZ	Air defense identification zone
AMA	Minimum altitude area
ASR	Altimeter setting region
ATZ	Aerodrome traffic zone
ATZ-P	Part of an aerodrome traffic zone
AWY	Airway (corridor)
BIRD	Bird migration area
CBA	Cross border area (FUA)
CDA	Client defined airspace
CFMU	CFMU area
CLASS	Airspace having a specified class
CTA	Control area
CTA-P	Part of a control area

Name	Definition
CTR	Control zone
CTR-P	Part of a control zone
D	Danger area
D-AMC	AMC manageable danger area
D-OTHER	Activities of dangerous nature (other than a danger area)
ECAC	ECAC region
FIR	Flight information region
FIR-P	Part of a flight information region
HTZ	Helicopter traffic zone
ICAO	International civil aviation organization region (for example, EUR, NAT, and so forth)
IFPS	IFPS area
LMA	Limited airspace
MIL	Military training/exercise area
MNPSA	Minimum navigation performance specifications area
MINPSA-P	Part of minimum navigation performance specifications area
NAS	National airspace system
NAS-P	A part of a national airspace system
NO-FIR	Airspace for which not even and FIR is defined
OCA	Oceanic control area
OCA-P	Part of an oceanic control area
OIL	Oil field
OTA	Oceanic transition area
P	Prohibited area
PART	Part of an airspace (used in airspace aggregations)
POLITICAL	Political/administrative area
PROTECT	Protected
R	Restricted area
R-AMC	AMC manageable restricted area
RAS	Regulated airspace (not otherwise covered)
RCA	Reduced coordination area
RTECL	Route centerline
SECTOR	Control sector

Name	Definition
SECTOR-C	Temporarily consolidated (collapsed) sector
SPORT	Aerial sporting/recreational area
TACT	Tactical area
TMA	Terminal control area
TMA-P	Part of a terminal control area
TRA	Temporary reserved area
TSA	Temporary segregated area (FUA)
UIR	Upper flight information region
UIR-P	Part of an upper flight information region
UTA	Upper control area
UTA-P	Part of upper control area
W	Warning area

7.16.69 CodeTypeAirspaceSignificantPoint enumeration

CodeTypeAirspaceSignificantPoint is an enumeration of values for the attribute codeType.

Table 92 – CodeTypeAirspaceSignificantPoint enumeration

Name	Definition
B	Situated on the border of the airspace
EE	Entry/exit point
EN	Entry point
EX	Exit point
IN	Situated within the airspace
other	Other

7.16.70 CodeTypeNavigationalAidCheckPoint enumeration

CodeTypeNavigationalAidCheckPoint is an enumeration of values for the attribute codeType.

Table 93 – CodeTypeNavigationalAidCheckPoint enumeration

Name	Definition
DME	Distance measuring equipment
GNSS	Global navigation satellite system
INS	Inertial navigation system

Name	Definition
NDB	Non-directional radio beacon
other	Other
TACAN	Tactical air navigation
VOR	VHF omnidirectional radio range

7.16.71 CodeTypeOfProtectionArea enumeration

CodeTypeOfProtectionArea is an enumeration of values for the attribute codeType.

Table 94 – CodeTypeOfProtectionArea enumeration

Name	Definition
cwy	Clearway
ils	Instrument landing system
ofs	
ofz	Obstacle free zone
other	Other protect area
safe	Safe area

7.16.72 CodeTypeSegmentPath enumeration

CodeTypeSegmentPath is an enumeration of values for the attribute typeSegmentPath.

Table 95 – CodeTypeSegmentPath enumeration

Name	Definition
GDS	
GRC	Great circle
other	Other
RHL	Rhumb line

7.16.73 CodeTypeVisualApproachSlopeIndicatorSystem enumeration

CodeTypeVisualApproachSlopeIndicatorSystem is an enumeration of values for the attribute codeTypeVisualApproachSlopeIndicatorSystem.

Table 96 – CodeTypeVisualApproachSlopeIndicatorSystem enumeration

Name	Definition
3B-ATVASIS	3-bar abbreviated “T-shaped” visual approach slope indicator system

Name	Definition
3B-AVASIS	3-bar abbreviated visual approach slope indicator system
3B-VASIS	3-bar visual approach slope indicator system
APAPI	Abbreviated precision approach path indicator
AVASIS	Abbreviated visual approach slope indicator system
HAPI	Heliport precision approach path indicator
ILU	Number of identical light units
LCVASI	Low cost visual approach slope indicator “r”; 3 sets of “r” white lights on 3 mounts usually on only one side of the runway
OLS	Optical landing system for ship decks and aircraft carriers (sometimes available on ground air bases for training purposes)
other	Other type of visual approach slope indicator
PAPI	Precision approach path indicator
PNI	Precision navigation instrument
PVASI	Pulsating visual approach slope indicator
TRCV	Tri-colored visual approach slope indicator, normally a single light unit projecting three colors
TVASIS	“T-shaped” visual approach slope indicator
VASIS	Visual approach slope indicator system

7.16.74 CodeUtilitySystemType enumeration

CodeUtilitySystemType is an enumeration of values for the attribute utilityType.

Table 97 – CodeUtilitySystemType enumeration

Name	Definition
compressedAirSystem	The components of a compressed air system
controlMonitoringSystem	The components of an electronic monitoring and control system (EMCS) including cables, devices, and so on
electricalExitLight	The components of an electrical exterior lighting system including cables, switches, devices, transformers, and so on. Does not include field, navaid, or approach lighting
electricalSystem	The components of an electrical distribution system including cables, switches, devices, motors, transformers, and so on
fuelSystem	The components of a fuel distribution system consisting of pipes, fittings, fixtures, pumps, tanks, and so on
general	The components of utility system which are universal in use and purpose and do not belong to a specific utility
heatCoolSystem	The components of a heating and cooling distribution system consisting of pipes, fittings, fixtures, and so on

Name	Definition
industrialSystem	The components of an industrial waste collection system including pipes, fittings, fixtures, tanks, lagoons, and so on
naturalGasSystem	The components of a natural gas distribution system consisting of pipes, fittings, fixtures, and so on
nuclear	The components of a nuclear system such as nuclear fuel, nuclear research, nuclear waste, and nuclear weapons
other	The components of another utility system. Specify what the component is
saltwaterSystem	The components of a salt water collection system
stormSystem	The components of a storm drainage collection system including pipes, fittings, fixtures, and so on
transmissionSystem	Objects related to the long distance transmission of gas, oil, or hazardous liquid
wastewaterSystem	The components of a wastewater collection system including pipes, fittings, fixtures, treatment plants, collection locations, and so forth
waterSystem	The components of a water system including pipes, fittings, fixtures, treatment plants, and so on

7.16.75 CodeUtilityType enumeration

CodeUtilityType is an enumeration of values for the attribute utilityType.

Table 98 – CodeUtilityType enumeration

Name	Definition
line	A utility line such as an electrical transmission or pipeline
other	Other type of utility
point	A utility point such as a tower
polygon	A utility polygon such as a tank site

7.16.76 CodeVerticalStructureMaterial enumeration

CodeVerticalStructureMaterial is an enumeration of values for the attribute verticalStructureMaterial.

Table 99 – CodeVerticalStructureMaterial enumeration

Name	Definition
1	Concrete
2	Metal
3	Stone/brick
4	Composition
5	Rock
6	Wood
7	Other

7.16.77 CodeZoningClass enumeration

CodeZoningClass is an enumeration of values for the attribute zoningClassification.

Table 100 – CodeZoningClass enumeration

Name	Definition
commercial	Areas which are zoned for merchandising, shopping, or other commercial development [U.S. CADD]
industrial	Areas which are zoned for factory, manufacturing, or other industrial development [U.S. CADD]
other	Other zoning class
quasiPublic	Areas which are zoned public although under private ownership or control [U.S. CADD]
residential	Areas which are zoned for housing or residential development [U.S. CADD]

Annex A
(normative)
Normative references

This annex lists normative standards that support this part of the Framework Data Content Standard. Annex A of the Base Document (Part 0) lists normative references applicable to two or more parts of the standard, including those other than the transportation parts.

ANSI and ISO standards may be purchased through the ANSI eStandards Store at http://webstore.ansi.org/ansidocstore/default.asp, accessed October 2006.

AIXM, Aeronautical information exchange model, version 5.0, (forthcoming, being developed jointly by Eurocontrol and the FAA)

Annex B
(informative)
Bibliography

The following documents contain provisions that are relevant to this part of the Framework Data Content Standard. Informative references applicable to two or more transportation parts only are listed in Annex C of the Transportation Base (Part 7). Annex D of the Base Document (Part 0) lists informative references applicable to two or more of the parts of the standard, including the transportation parts. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document applies.

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